Note: All references to the TRIM version in this manual are indicated by vrs or v.r.s.
The current release of TRIM is version 8.1.3.

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

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Worldwide marketing of TRIM and other Treehouse products is handled through the Sewickley office.

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Last Updated: January 26, 2010
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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.

Note: All references to the TRIM version in this manual are indicated by vrs or v.r.s. The current release of TRIM is version 8.1.3.
ADABAS/NATURAL Levels

This version of TRIM contains support for ADABAS Version 8.1.2 and NATURAL Version 4.1.2 and above.

ADABAS Version 8.1.3 was the latest release available at the time the TRIM software and documentation were prepared. TRIM may support releases of ADABAS later than 8.1.3, but since those releases were not available at the time of this release, Treehouse Software, Inc. cannot be certain that this release of TRIM will support these later releases.

The TRIM RTM requires NATURAL Version 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-PLETE Version 4.5 and later, TSO, CMS, or any other teleprocessing environment capable of running NATURAL.

The ADABAS 8.1.3 / 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

Figure 2
ADABAS TRIM Environment

Figure 2 (continued)
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=TRMvrs. z/OS, VSE, and VM operating systems code are contained on a single tape. Siemens BS2000 is a separate distribution.

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

Additional data sets may be contained on the tape

<table>
<thead>
<tr>
<th>Data Set Name</th>
<th>BLKSIZE</th>
<th>LRECL</th>
<th>RECFM</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 TRM.Vvrs.MVS.ZAPS</td>
<td>6180</td>
<td>6176</td>
<td>VS</td>
<td>IEBCOPY</td>
</tr>
<tr>
<td>15 TRM.Vvrs.VM.ZAPS</td>
<td>81</td>
<td>81</td>
<td>FB</td>
<td>TAPPDS</td>
</tr>
<tr>
<td>16 TRM.Vvrs.VSE.ZAPS</td>
<td>6180</td>
<td>80</td>
<td>FB</td>
<td>IEBGENER</td>
</tr>
<tr>
<td>17 TRM.Vvrs.NATLOAD.FIX</td>
<td>2544</td>
<td>256</td>
<td>VB</td>
<td>NAT UNLOAD</td>
</tr>
<tr>
<td>18 TRM.Vvrs.MVS.OBJECT.FIX</td>
<td>8020</td>
<td>8016</td>
<td>VS</td>
<td>IEBCOPY</td>
</tr>
<tr>
<td>19 TRM.Vvrs.VM.OBJECT.FIX</td>
<td>81</td>
<td>81</td>
<td>FB</td>
<td>TAPPDS</td>
</tr>
<tr>
<td>20 TRM.Vvrs.VSE.OBJECT.FIX</td>
<td>8000</td>
<td>80</td>
<td>FB</td>
<td>IEBGENER</td>
</tr>
</tbody>
</table>
Electronic distribution contents

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

<table>
<thead>
<tr>
<th>File</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;RN.PDF</td>
<td>TRIM Release Notes</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;Ref.PDF</td>
<td>TRIM Reference Manual</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;Install.PDF</td>
<td>TRIM Installation and Operations Manual</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.NATLOAD.XMIT</td>
<td>NATURAL source/object code</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.SOURCE.XMIT</td>
<td>PDS containing source code</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.OBJECT.XMIT</td>
<td>PDS containing load modules</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.README.TXT</td>
<td>Details on fixes created after the initial release</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.TNMFILE.XMIT</td>
<td>ADACMP cards to create an FDT</td>
</tr>
<tr>
<td>TRMV&lt;sup&gt;vrs&lt;/sup&gt;.DDE.XMIT</td>
<td>TNM reporting DDE</td>
</tr>
<tr>
<td>TRM.XMITRECV.JCL.TXT</td>
<td>Sample JCL to receive XMIT datasets</td>
</tr>
<tr>
<td>TRM.XMITRECV.FIXJCL.TXT</td>
<td>Sample JCL to receive XMIT fix datasets</td>
</tr>
</tbody>
</table>

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.V<sup>vrs</sup>.MVS.SOURCE dataset contains several members to assist in the installation and operation of TRIM. The following members are contained in this file:

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOSLOAD</td>
<td>(JCL for Loading Datasets from Tape to Disk)</td>
</tr>
<tr>
<td>JOSLINK</td>
<td>(JCL for Linking Load Modules from Object)</td>
</tr>
<tr>
<td>JOSCLOG</td>
<td>(JCL for Command Log Analysis)</td>
</tr>
<tr>
<td>JOSPLOG</td>
<td>(JCL for Protection Log Analysis)</td>
</tr>
<tr>
<td>JOSUX11</td>
<td>(JCL for User-Exit-11 Communication Run)</td>
</tr>
<tr>
<td>JOSUX4</td>
<td>(JCL for User-Exit-4 Communication Run)</td>
</tr>
<tr>
<td>JOSNLOAD</td>
<td>(JCL for Installing the NATURAL Real-Time Monitor)</td>
</tr>
<tr>
<td>JOSDDE</td>
<td>(JCL for Loading the TNM DDE File)</td>
</tr>
</tbody>
</table>

VSE

The TRM.V<sup>vrs</sup>.VSE.JCL dataset contains several members to assist in installation and operation of TRIM. The following members are contained in this file:

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JVSLINK</td>
<td>(JCL for TRIM Link-edits)</td>
</tr>
<tr>
<td>JVSCLOG</td>
<td>(JCL for Command Log Analysis)</td>
</tr>
<tr>
<td>JVSPLOG</td>
<td>(JCL for Protection Log Analysis)</td>
</tr>
<tr>
<td>JVSUX11</td>
<td>(JCL for User-Exit-11 Communication Run)</td>
</tr>
<tr>
<td>JVSUX4</td>
<td>(JCL for User-Exit-4 Communication Run)</td>
</tr>
<tr>
<td>JVSNLOAD</td>
<td>(JCL for Installing the NATURAL Real-Time Monitor)</td>
</tr>
<tr>
<td>JVSDDE</td>
<td>(JCL for loading the TNM DDE file)</td>
</tr>
<tr>
<td>JVSMSHP</td>
<td>(JCL for Defining TRMB1x to MSHP for zaps)</td>
</tr>
<tr>
<td>JVSALNK1</td>
<td>(First step to link ADALNK)</td>
</tr>
<tr>
<td>JVSALNK2</td>
<td>(Second step to link ADALNK)</td>
</tr>
</tbody>
</table>
VM
The TRM.V{vrs}.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)
- JVMPLG EXEC (EXEC for Protection Log Analysis)
- JVMUX11 EXEC (EXEC for User-Exit-11 Communication Run)
- JVMUX4 EXEC (EXEC for User-Exit-4 Communication Run)
- JVMNLOAD EXEC (EXEC to NATLOAD the NATURAL 2 Real-Time Monitor)
- JVDDE EXEC (EXEC for loading the TNM DDE file)
- JVMGEN EXEC (EXEC to generate executable files)
- JVMMAC 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)
- PUX11 (Parameters for User-Exit-11 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)
- TSIUINFO (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)
- 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)
- TNMDC41 (NATURAL 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)
- TNMDC42 (NATURAL user-exit for TNM)
- TSIRDC42 (NATURAL 4.2 user-exit for TNM)
TRMUEX11  (User-Exit-11)
TRMUEX4S  (Small User-Exit-4)
TRMUEX4R  (Regular User-Exit-4)
TRMUEX4L  (Large User-Exit-4)
TRMUEX8   (User-Exit-8)
TSIUEX1G  (general Treehouse Link-Exit-1)
TRMUEX1G  (Link-Exit-1 TRIM specific)
TSIUEX2G  (Link-Exit-2)
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)
TRMXDSDT  (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-11 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 based on distribution method.

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

If TRIM was distributed via electronic distribution, the file TRM.V_vrs.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.V_vrs.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.

<table>
<thead>
<tr>
<th>X</th>
<th>STEP</th>
<th>FUNCTION</th>
<th>SECTION</th>
<th>REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Allocate space for, and catalog, the TRIM source, object, and load libraries/mini-disks.</td>
<td>II.2</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>Copy the datasets from the installation tape (or electronic distribution) to DASD.</td>
<td>II.2</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>Apply TRIM sold zap and maintenance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4</td>
<td>Link and Incorporate TRMTAP, TRMLOG, TRMRSP, and/or TRELOG. Link the TRIM load modules.</td>
<td>II.4.1</td>
<td>N II.4.2</td>
<td>Y</td>
</tr>
<tr>
<td>T5</td>
<td>Apply TRIM sold zap and maintenance.</td>
<td>II.3</td>
<td>OS and VM ONLY</td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>Install the TRIM Real-Time Monitor.</td>
<td>II.5</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T7</td>
<td>Create the TNM ADABAS file.</td>
<td>II.6</td>
<td>TNM ONLY</td>
<td></td>
</tr>
<tr>
<td>T8</td>
<td>Load the TNM DDE into PREDICT.</td>
<td>II.7</td>
<td>TNM ONLY</td>
<td></td>
</tr>
<tr>
<td>T9</td>
<td>Modify the NATPARMS.</td>
<td>II.8</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T10</td>
<td>Link the TRIM Link-Exits to the ADABAS Link Routine.</td>
<td>II.9</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T11</td>
<td>Create a Re-entrant ADABAS Link Routine.</td>
<td>II.10</td>
<td>TNM ONLY</td>
<td></td>
</tr>
<tr>
<td>T12</td>
<td>Incorporate Co-Existing User-supplied Link-Exits.</td>
<td>II.11</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>T13</td>
<td>Modify ADABAS Startup Parameters.</td>
<td>II.12</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T14</td>
<td>Increase Sizes for ADABAS and NATURAL.</td>
<td>II.13</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>Restart the database(s), NATURAL(s), and TP Monitor(s).</td>
<td>II.14</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>Turn TNM off in TRMCUST.</td>
<td>II.15</td>
<td>Non-TNM ONLY</td>
<td></td>
</tr>
<tr>
<td>T17</td>
<td>Define TNM data collection parameters.</td>
<td>II.16</td>
<td>TNM ONLY</td>
<td></td>
</tr>
<tr>
<td>T18</td>
<td>Verify the TNM installation.</td>
<td>II.17</td>
<td>TNM ONLY</td>
<td></td>
</tr>
</tbody>
</table>
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 Load datasets from an electronic distribution to load the datasets. If installing from a cartridge, refer to Section II.2.2 Allocate Space, Install Code from Tape to Disk 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:

<table>
<thead>
<tr>
<th>Dataset</th>
<th>DCB Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMP.TRMvrs.SOURCE</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120,SPACE=(CYL,(2,2),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMvrs.OBJECT</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120,SPACE=(CYL,(4,4),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMvrs.NATLOAD</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120,SPACE=(CYL,(3,3),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMvrs.TNMFILE</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120,SPACE=(CYL,(3,3),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMvrs.DDE</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120,SPACE=(CYL,(3,3),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TRM.vrs.README</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=8000,SPACE=(CYL,(1,1),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TRM.XMITRECV.JCL</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=8000,SPACE=(CYL,(1,1),RLSE)),DSORG=PS</td>
</tr>
<tr>
<td>TRM.vrs.MVS.LOAD</td>
<td>RECFM=U,BLKSIZE=32760,(CYL,50,10,10),RLSE)DSORG=PO</td>
</tr>
</tbody>
</table>

Transfer the following files in ASCII mode

1. README.TXT to TRM.vrs.README
2. TRM.XMITRECV.JCL.TXT to TRM.XMITRECV.JCL

Transfer the following files in BINARY mode:

1. TRMvrs.SOURCE.XMIT to TEMP.TRMvrs.SOURCE
2. TRMvrs.OBJECT.XMIT to TEMP.TRMvrs.OBJECT
3. TRM.NATLOAD.XMIT to TEMP.TRMvrs.NATLOAD
4. TRMV<sub>vrs</sub>.DDE.XMIT to TEMP.TRMV<sub>vrs</sub>.DDE
5. TRMV<sub>vrs</sub>.TNMFILE.XMIT to TEMP.TRMV<sub>vrs</sub>.TNMFILE

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.V<sub>vrs</sub>.MVS.SOURCE
TRM.V<sub>vrs</sub>.MVS.OBJECT
TRM.V<sub>vrs</sub>.NATLOAD
TRM.V<sub>vrs</sub>.DDE
TRM.V<sub>vrs</sub>.TNMFILE

**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.V<sub>rs</sub>.MVS.SOURCE,
// SPACE=(3120,(80,10,10)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120,DSORG=PO)
//*

//ALLOC2 EXEC PGM=IEFBR14
//TRIM2 DD DSN=TRM.V<sub>rs</sub>.MVS.OBJECT,
// SPACE=(3120,(810,10,10)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120,DSORG=PO)
//*

//ALLOC3 EXEC PGM=IEFBR14
//TRIM3 DD DSN=TRM.V<sub>rs</sub>.MVS.LOAD,
// SPACE=(32760,(160,10,10)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=U,BLKSIZE=32760,DSORG=PO)
//*

//ALLOC4 EXEC PGM=IEFBR14
//TRIM4 DD DSN=TRM.V<sub>rs</sub>.NATLOAD,
// SPACE=(CYL,(8,0,0)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=256,BLKSIZE=2544,DSORG=PS)
//*

//ALLOC5 EXEC PGM=IEFBR14
//TRIM5 DD DSN=TRM.V<sub>rs</sub>.TNMFILE,
// SPACE=(CYL,(1,1,0)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=27994,BLKSIZE=27998,DSORG=PS)
//*

//ALLOC6 EXEC PGM=IEFBR14
//TRIM6 DD DSN=TRM.V<sub>rs</sub>.DDE,
// SPACE=(TRK,(5,5,0)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000,DSORG=PS)
//*

//ALLOC7 EXEC PGM=IEFBR14
//TRIM7 DD DSN=TRM.V<sub>rs</sub>.README,
// SPACE=(TRK,(5,5,0)),
// UNIT=SYSDA,VOL-SER=TRM<sub>rs</sub>,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=132,BLKSIZE=132,DSORG=PS)

Load Source Dataset

Using the IEBCOPY utility, load the TRM.V<sub>rs</sub>.MVS.SOURCE dataset to disk. Sample OS JCL to load this file follows:

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=TRM.V<sub>rs</sub>.MVS.SOURCE,
// LABEL=(2,SL),UNIT=TAPE,DISP=SHR,
// VOL-SER=TRM761
//SYSUT2 DD DSN=TRM.V<sub>rs</sub>.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:

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

**Deblock the Tape**

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

```plaintext
* $$ JOB JNM=JSPDBLK,CLASS=O,DISP=H,PRI=3
   // JOB JSPDBLK   DEBLOCK LINK EDIT INPUT
   // UPSI 1
   // ASSGN  SYS010,cuu ===> TRIM RELEASE TAPE
   // ASSGN  SYS011,cuu ===> DEBLOCKED LINK EDIT INPUT
   // EXEC  DITTO,SIZE=200K
   $$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  EOJ  OUTPUT=SYS011
   /*
   */
   * $$ EOJ
```

**Note:**

NFILES= 22 is for the TRM.Vrs.VSE.JCL dataset.

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

NFILES= 28 is for the TRM.Vrs.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.

```plaintext
* $$ JOB JNM=TRIMLOAD,CLASS=O,DISP=D
* $$ LST DISP=D,CLASS=A
* + ******************************************************
* VSE JCL TO INSTALL (LOAD) TRIM JCL &TEXT
* + ******************************************************
* // JOB TRIMLOAD  RESTORE TRIM VSE SUMLIB
* // 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 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 TRIM 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.Vvrs.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:

<table>
<thead>
<tr>
<th>Dataset</th>
<th>DCB Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMP.TRMVvrs.SOURCE.FIX</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120, REGION=(CYL,(2,2)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMVvrs.OBJECT.FIX</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120, REGION=(CYL,(4,4)),DSORG=PS</td>
</tr>
<tr>
<td>TEMP.TRMVvrs.NATLOAD.FIX</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=3120, REGION=(CYL,(3,3)),DSORG=PS</td>
</tr>
<tr>
<td>TRM.XMITRECV.FIXJCL</td>
<td>RECFM=FB,LRECL=80,BLKSIZE=8000, REGION=(CYL,(1,1)),DSORG=PS</td>
</tr>
</tbody>
</table>

Transfer the following files in ASCII mode:

1. TRM.XMITRECV.FIXJCL.TXT

Transfer the following files in BINARY mode:

1. TRMVvrs.SOURCE.XMIT to TEMP.TRMVvrs.SOURCE.FIX
2. TRMVvrs.OBJECT.XMIT to TEMP.TRMVvrs.OBJECT.FIX
3. TRMVvrs.NATLOAD.XMIT to TEMP.TRMVvrs.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.Vvrs.MVS.SOURCE.FIX
TRM.Vvrs.MVS.OBJECT.FIX
TRM.Vvrs.NATLOAD.FIX

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

```jcl
//*   LOAD OFFICIAL ZAPS
//*
//LOADFIX EXEC PGM=IEBCOPY,PARM=NEW
//SYSPRINT DD SYSPRINT DD SYSOUT=*  
//INPUT DD DSN=TRM.V_vrs.MVS.ZAPS,DISP=(OLD,SHR),  
//        UNIT=TAPE,Vol=SER=TRM_vrs,LABEL=(14,SL)  
//OUTPUT DD DSN=TRM.V_vrs.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 SYSPRINT DD SYSOUT=*  
//INPUT DD DSN=TRM.V_vrs.MVS.OBJECT.FIX,DISP=(OLD,SHR),  
//        UNIT=TAPE,Vol=SER=TRM_vrs,LABEL=(18,SL)  
//OUTPUT DD DSN=TRM.V_vrs.MVS.OBJECT,FIX,DISP=SHR  
//SYSIN DD *
//      COPY INDD=INPUT,R),OUTDD=OUTPUT
/*
```

**TRM.V_vrs.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.V_vrs.NATLOAD.FIX**

This dataset contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADed into the TRMV_vrs 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.5.1 NATLOAD the Real-Time Monitor Natural Objects). 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.V_vrs.MVS.OBJECT.FIX**

This dataset contains replacement object modules as official fixes. These modules should be loaded into the TRM.V_vrs.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.
Section II - Installation

**VM**

TRM.V vrs. 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 TRMV81x (INPUT VMJCLZAP
```

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

TRM.V vrs. NATLOAD.FIX

This dataset contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADED into the TRM V vrs 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.5.1 NATLOAD the Real-Time Monitor Natural Objects). 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.V vrs. 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.
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:

```
* $$ JOB JNM=JSPDBLK,CLASS=O,DISP=W,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// 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.

```
$$ JOB JNM=TRIMLOAD,CLASS=O,DISP=D
$$ 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 $=TSILIB.TRIM'
/*
// MTC REW, SYSIPT
/*
$$ EOJ
```

TRM.Vrs.NATLOAD.FIX contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADED into the TRMV 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.5.1 NATLOAD the Real-Time Monitor Natural Objects) 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).
TRIM.V_vrs.VSE_OBJECT.FIX
This dataset contains replacement object modules as official fixes. These modules should be loaded into the TRIM V_vrs object dataset. The following jobs are an example of this process:

```plaintext
* $ JOB JNM=JSPDBLK,CLASS=O,DISP=N,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,BLRFATOR=
$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.

```plaintext
$ 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
```

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 TRMVvrs (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 Vvrs. Submit the supplied JVSMSHP member after changing the JCL to conform to local devices, libraries, and standards.

```plaintext
* $S JOB JVSMSHP,CLASS=0,DISP=H,PRI=3
  * $S LST LST=SYSLST,CLASS=Q
// JOB JVSMSHP DEFINE TRIM Vvrs TO MSHP
/*
// OPTION LOG
// EXEC MSHP
ARCHIVE TRMVvrs
COMPRlSES 9999-TRM-00
RESOLVES 'TREEHOUSE SOFTWARE - TRIM vrs
ARCHIVE 9999-TRM-00-vrs
RESIDENCE PRODUCT=TRMVvrs
    PRODUCTION=VENDOR.TRMVvrs
    GENERATION=VENDOR.TRMVvrs
/*
*/
* $S EOJ
```
II.3.3  **CICS Specific zaps (CICS Only)**

II.3.3.1  **TWASIZE Adjustment (CICS Only)**

**Note:** As of TRIM v8.1, TRIM no longer uses TWA storage.
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 TRMVrs MACLIB macro library. A TRMTAP,
TRMLOG, TRMRSP sample assembly may be done with the following commands:

GLOBAL MACLIB TRMVrs
ASSEMBLE PSTARTUP

If tRelational statistics are to be accumulated, a TRELOG module must be assembled and
linked into the appropriate TRMUEX4x. 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(USRRTAP)   (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.

TRMUEX11, TRMUEX8 and TRMUEX4x 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.
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. The TRIM v8 JOSLINK job does not include a step to create load versions of the non-reentrant modules. The non-reentrant modules are included in the NATURAL link job from the TRIM v8 object library (as noted in Section II.8 Link-edit TRIM User-exits into NATURAL).

**VSE**
If TRMTAP, TRMLOG, TRMRSP, and/or TRELOG are used, the resulting assembled object must be included in the appropriate TRMUEX4x 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
TRMLUX11       -    links TRMUEX11
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 TRMXDSDT)
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. TRMXDSDT 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 (11 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-11 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 4,1 or above. If the Software AG NATURAL SECURITY SYSTEM is installed, define the library TRMVvrs 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 TRMVvrs. 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 TRMVvrs 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.Vvrs.NATLOAD,DISP=SHR
//CMPRINT DD SYSOUT=* 
//DDCARD DD DISP=SHR,DSN=…(…) 
//CMSYNIN DD * 
LOGON TRMVvrs
NATLOAD ALL * FM LIB TRMVvrs
/*
```

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.Vvrs.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 JVSNLOAD:

* ** JOB JNM=JVSNLOAD,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 FSP,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 TRMV
/*
// MTC REW,SY001
/ &
* ** 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.Vvrs.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, dfntmodname, and dfprint lines to specify site specific information:

```plaintext
/* LOAD NATURAL MODULES FOR TNM */

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

Arg tape modname print
If tape = '' Then tape = dfttape
If modname = '' Then modname = dfntmodname
If print = '' Then print = dfprint
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 CMWKFO1' 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.VRS.NATLOAD dataset. Replace should be specified on the NATLOAD statement (i.e., NATLOAD ALL * REPLACE).
All Operating Systems
Logon to the TRIM NATURAL library (i.e., TRMVvrs) 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, USR2004N, and USR2013N.

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.Vvrs.TNMFILE dataset to the appropriate ADABAS database(s). The TRM.Vvrs.TNMFILE file is an ADABAS V8 ADACMP compressed format dataset. This dataset may be input directly into the ADABAS V8 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
(Estimated Summary Records + Estimated Detail Records) x 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.Vvrs.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.Vvrs.MVS.SOURCE library, member JOSDDE) to load the TNM DDE follows:

```plaintext
//JOSDDE EXEC NATURAL  
//CMWKF01 DD DSN=TRM.Vvrs.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.Vrsvs.VM.SOURCE library, member JVMDDE) to load the TNM DDE follows:

```java
/* 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 CMMPRINT' 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.Vvrs.VM.SOURCE library, member JVSDDE) to load TNM DDE follows:

* $$ JOB JNM=JVSNLOAD,CLASS=0,DISP=L,PRI=8
* $$ 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),PNAT=(009,206)
BWORKD=(1,1,10000,VB)
BWORKDL=(1,NL)
BWORKDR=(1,NOREWIND)
OBJIN=R
IM=0
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-
events 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:

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

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
RDSCSIZE=2     (Minimum requirement)
USERBUF=9      ------ for TNM Only
```

Specify TNMOPTS as a CSTATIC entry, if TRIM RTM and/or is used with this NATURAL
nucleus. 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 NTFI LE macro after the last line in the NTPARM macro but before the END statement:

```
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 COMPLETE. 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 TNMMODA in module TNMODxxA (where xx = Natural version (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**

The TRIMOBJ DD should point to the TRIM object library.

**TRIM RTM and /or TNM installation**

Natural 4.1

```
INCLUDE TRIMOBJ(TNMOPT41)
```

Natural 4.2

```
INCLUDE TRIMOBJ(TNMOPT42)
```

**Note:** If a site is using a shared NATURAL nucleus, TNMOPTxx must only be included in the environment-dependent nucleus.
TNM Installation

Natural 4.1

#include TRIMOBJ(TNMOD41A)
#include TRIMOBJ(TNMOD41B)
#include TRIMOBJ(TNMOD41C)
#include TRIMOBJ(TNMOD41D)
#include TRIMOBJ(TNMDRV41)
#include TRIMOBJ(TNMRDC41)
#include TRIMOBJ(TNMOPT41)
#include TRIMOBJ(TSIRDC41)
#include TRIMOBJ(TNMMDRV)

Natural 4.2

#include TRIMOBJ(TNMOD42A)
#include TRIMOBJ(TNMOD42B)
#include TRIMOBJ(TNMOD42C)
#include TRIMOBJ(TNMOD42D)
#include TRIMOBJ(TNMDRV42)
#include TRIMOBJ(TNMRDC42)
#include TRIMOBJ(TNMOPT42)
#include TRIMOBJ(TSIRDC42)
#include TRIMOBJ(TNMMDRV)

Note: If a site is using a shared NATURAL nucleus, the TNM modules, TSIRDCxx and TNMRDCxx, 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 Link-Exit-1 installation steps first, and then re-link NATURAL, being sure to use the newly link-edited ADALNK, 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 4.1

Loadlist = loadlist ‘TNMOPT41’

Natural 4.2

Loadlist = loadlist ‘TNMOPT42’

**TNM Installation**

Natural 4.1

```plaintext
loadlist = loadlist 'TNM0D41A'
loadlist = loadlist 'TNM0D41B'
loadlist = loadlist 'TNM0D41C'
loadlist = loadlist 'TNM0D41D'
loadlist = loadlist 'TNMDRV41'
loadlist = loadlist 'TNMVDRV'
loadlist = loadlist 'TNMOPT41'
loadlist = loadlist 'TRMRDC'
loadlist = loadlist 'TSIRDC41'
```
If your NATURAL generation procedure uses LKED rather than LOAD/INCLUDE, use:

```plaintext
FILEDEF TNMMDA DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D41A)
FILEDEF TNMMDDB DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D41B)
FILEDEF TNMMDDC DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D41C)
FILEDEF TNMMDDD DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D41D)
FILEDEF TNMDDR DISK TRMVvrs TXTLIB * (PERM MEMBER TNMRDV41)
FILEDEF TNMVDRV DISK TRMVvrs TXTLIB * (PERM MEMBER TNMVDRV)
FILEDEF TNMOPTTS DISK TRMVvrs TXTLIB * (PERM MEMBER TNMOPT41)
FILEDEF TSMRDC DISK TRMVvrs TXTLIB * (PERM MEMBER TNMRDC41)
FILEDEF TSIRDC DISK TRMVvrs TXTLIB * (PERM MEMBER TSIRDC41)
```

instead of the GLOBAL command.

**Natural 4.2**

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

```plaintext
loadlist = loadlist 'TNMMD42A'
loadlist = loadlist 'TNMMD42B'
loadlist = loadlist 'TNMMD42C'
loadlist = loadlist 'TNMMD42D'
loadlist = loadlist 'TNMVDRV42'
loadlist = loadlist 'TNMVDRV42'
loadlist = loadlist 'TNMVDRV42'
loadlist = loadlist 'TNMVDRV42'
loadlist = loadlist 'TNMRDC42'
loadlist = loadlist 'TSIRDC42'
```

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

```plaintext
FILEDEF TNMMDA DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D42A)
FILEDEF TNMMDDB DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D42B)
FILEDEF TNMMDDC DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D42C)
FILEDEF TNMMDDD DISK TRMVvrs TXTLIB * (PERM MEMBER TNM0D42D)
FILEDEF TNMDDR DISK TRMVvrs TXTLIB * (PERM MEMBER TNMRDV)
FILEDEF TNMVDRV DISK TRMVvrs TXTLIB * (PERM MEMBER TNMVDRV)
FILEDEF TNMOPTTS DISK TRMVvrs TXTLIB * (PERM MEMBER TNMOPT42)
FILEDEF TSMRDC DISK TRMVvrs TXTLIB * (PERM MEMBER TNMRDC42)
FILEDEF TSIRDC DISK TRMVvrs TXTLIB * (PERM MEMBER TSIRDC42)
```

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):
  ```plaintext
  if rc=0 then exit 0
  ```
- and change the statement (approximately line 116):
  ```plaintext
  do while rc>0
  ```
- to read:
  ```plaintext
  do forever
  ```
II.9  **Link-edit User-exits to ADABAS Link Routine**

ADABAS V8 introduced a new feature to defining ADALNK defaults. Please refer to the Software AG Documentation “Installing ADABAS with TP-Monitor” for details.

TRIM makes use of Link-Exit-1 to gather information about the user's environment and to pass this information to TRMUEX11 and TRMUEX4. Refer to **Section IV.5 Reporting on the NATURAL Module Name** for a description of the NATURAL information gathering process.

If the ADALNK module is called from a NATURAL environment the TRIM Link-Exit-1 module exploits the NATURAL specific information from the control block passed as the 7th parameter. For this reason, RCDCSIZE=n (n GE 2), ADAPRM=ON, and USERBUF= parameters are needed in the NATPARM module. The TRIM Link-Exit-1 module must be installed in order to view NATURAL Program, User-ID, and Application information.

If a user-supplied Link-Exit-1 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 number of bytes required by TRIM (see description of LUINFO= below). **Section III Co-existing User-exits** of this manual shows the fields passed by TRIM Link-Exit-1. This section also indicates how a user-supplied Link-Exit-1 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 TRMUEX1G. For more information, refer to **Section VI Tailoring with Zaps and Section VII TRM TAP, 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 Link-Exit-2 to gather ADABAS version and ADABAS Link Routine information.

To install the TRIM link exits into the ADABAS link routine follow these steps:

Add the following parameters to the global link definitions (LGBLSET macro)

- **USERX1=YES**
  Specifies that the Link-User-Exit 1 should be called

- **LX1NAME=TSIUUEX1G**
  Name of the TRIM Link-User-Exit 1

- **USERX2=YES**
  Specifies that the Link-User-Exit 2 should be called

- **LX2NAME=TSIUUEX2G**
  Name of the TSI Link-User-Exit 2

- **LUINFO=nnn**
  nnn must be set to a value of at least 336 bytes to allow TRIM Link-User-Exit 1 to pass the relevant information about each command to TRMUEX4.
  If any non-Treehouse Software Link-User-Exit 1 requires LUINFO, the value must be calculated by nnn+336, where nnn is the LUINFO size required by the other exit.

If Batch Selective Slowdown is being used, a TRMSLO module must be assembled and linked with TRMUEX1G (batch only) as follows:
OS
Add the following DD-statements and include cards to the definitions described in the Software AG documentation:

```plaintext
//TRIMLIB DD DISP=SHR,DSN=TRM.V1.V
INCLUDE TRMLIB(TSIUEX1G) (TSI Link-Exit-1)
INCLUDE TRMLIB(TMUEX1G) (TRIM User-Exit-1)
INCLUDE TRMLIB(TSIUEX2G) (TSI Link-Exit-2)
INCLUDE TRMLIB(TRMSLO) (Optional, only needed for batch slowdown)
```

OS
If Securitre and TRIM co-exist the following DD-statements and include cards to the definitions described in the Software AG documentation:

```plaintext
//TRIMLIB DD DISP=SHR,DSN=TRM.V1.V
//STRLIB DD DISP=SHR,DSN=STR.V1.V
INCLUDE STRLIB(TSIUEX1G) (TSI Link-Exit-1)
INCLUDE STRLIB(TSIUEX2G) (TSI Link-Exit-2)
INCLUDE TRMLIB(TRMUEX1G) (TRIM User-Exit-1)
INCLUDE STRLIB(STRUEX1G) (Only if both TRIM & Securitre are installed)
INCLUDE TRMLIB(TRMSLO) (Optional, only needed for batch slowdown)
```

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

```plaintext
* $$ JOB JVSALNK1,CLASS=0,DISP=H,PRI=3
* $$ 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),CP
   PARM='CPAT(SYSL),EXEC(LIBEXIT(EDECKEXIT(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.

```plaintext
// LIBDEF *,CATALOG=ADALIB.NATUPGD
// LIBDEF *,SEARCH=(ADALIB.NATUPGD,ADALIB.TRMv1.V)
// EXEC PROC=MSHPTECH
// OPTION CATAL...
   INCLUDE TRMLIB(TSIUEX1G) (TSI Link-Exit-1)
   INCLUDE TRMLIB(TSIUEX2G) (TSI Link-Exit-2)
   INCLUDE TRMLIB(TMUEX1G) (TRIM User-Exit-1)
   INCLUDE TRMLIB(TRMSLO) (Optional if batch slowdown is selected)
// EXEC LNKEDT
/*
/&
* $$ EOJ
```

For more information, refer to Section VII TRMTAP, TRMLOG, TRMRSP, TRELOG, and TRMSLO.
Link-Exit-1/2 for Siemens

To install User-Exit-1/2 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 by creating a duplicate ADABAS link routine for use specifically by the TNM exits to NATURAL. The Re-entrant ADALNK is created by selecting the re-entrant option in the global link definitions.

Note: For performance considerations, it is recommended that no user-exits be included with the re-entrant ADALINK.
II.11 Incorporate Co-existing User-supplied User-exits

Co-existing Link-Exit-1s
User-supplied Link-Exit-1 may also be included as part of the link-edit process. To interface the TRIM Link-Exit-1 with user-supplied Link-Exit-1s, refer to Section III Co-existing User-exits.

The TRIM Link-Exit-1 will be invoked by the appropriate ADALINK routine and will, in turn, invoke the user-supplied Link-Exit-1 before returning to ADALINK.

Co-existing Link-Exit-2s
User-supplied Link-Exit-2s may also be included as part of the link-edit process. To interface the TRIM Link-Exit-2 with user-supplied Link-Exit-2s, refer to Section III Co-existing User-exits section.

The TRIM Link-Exit-2 will be invoked by the appropriate ADALINK routine and will, in turn, invoke the user-supplied Link-Exit-2 before returning to ADALINK.

Co-existing User-Exit-11
If it is desired to have the TRIM User-Exit-11 and the user's own User-Exit-11 "co-exist", the user's User-Exit-11 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-11 in the manner described in Section III Co-existing User-exits. User-Exit-11 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 User-Exit-8
If it is desired to have the TRIM User-Exit-8 and the user's own User-Exit-8 "co-exist", the user's User-Exit-8 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-8 in the manner described in Section III Co-existing User-exits. User-Exit-8 is called whenever a command is received from or a message is send to the operator.

Co-Existing TRIM and SECURITRE User-exits
The new TSI Link-Exit-1 module TSIUEX1G allows TRIM and Securitre to co-Exist without any additional includes in the ADALNK. SECURITRE's User-Exit-11 should be invoked first, then an optional user-supplied User-Exit-11, followed by the TRIM User-Exit-11. 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, UEX11=TRMUEX11, UEX8=TRMUEX8 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 UEX11, UEX8 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:

<table>
<thead>
<tr>
<th>Module</th>
<th>Size</th>
<th>RMODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRMUEX11</td>
<td>8K</td>
<td></td>
</tr>
<tr>
<td>TRMUEX4S/R/L</td>
<td>75K</td>
<td></td>
</tr>
<tr>
<td>TRMUEX8</td>
<td>4K</td>
<td></td>
</tr>
<tr>
<td>TRMUEX4L</td>
<td>910K</td>
<td></td>
</tr>
<tr>
<td>TRMUEX4R</td>
<td>674K</td>
<td></td>
</tr>
<tr>
<td>TRMUEX4S</td>
<td>314K</td>
<td></td>
</tr>
</tbody>
</table>

The storage for the accumulators and traces is dynamically allocated (LOC=ANY) at start-upload:

TRMUEX4L 910K
TRMUEX4R 674K
TRMUEX4S 314K

**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 TRMUEX4x, refer to Section IV Real-Time Monitor Operations.

Additional storage is required for NATURAL with TNM.

For Batch/TSO, COM-PLETE/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 TRMEX11, TRMEX8 and TRMEX4x 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 TRMVrs). 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 TRMVvrs 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 TNMMODA.
THERE IS NO WORK AREA DEFINED FOR THIS USER.
This page intentionally left blank.
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 Link-Exit-1s
A user-supplied Link-Exit-1 may be included with the ADABAS Link Routines. The TRIM Link-Exit-1 will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied Link-Exit-1 before returning to the link routine. For more information about interfacing TRIM Link-Exit-1 with user-supplied Link-Exit-1, refer to Section III.2 Co-existing Link-Exit-1.

Co-existing Link-Exit-2
A user-supplied Link-Exit-2 may be included with the ADABAS Link Routines. The TRIM Link-Exit-2 will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied Link-Exit-2 before returning to the link routine. For more information about interfacing TRIM Link-Exit-2 with user-supplied Link-Exit-2, refer to Section III.3 Co-existing Link-Exit-2.

Co-existing User-Exit-11
If it is desired to have the TRIM User-Exit-11 and the user's own User-Exit-11 "co-exist", the user's own User-Exit-11 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-11 in the manner described in Section III.5 Co-existing User-Exit-11. User-Exit-11 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 User-Exit-8
If it is desired to have the TRIM User-Exit-8 and the user's own User-Exit-8 "co-exist", the user's own User-Exit-8 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-8 in the manner described in Section III.7 Co-existing User-Exit-8. User-Exit-8 is called immediately after ADABAS receives a command from the operator console.
Co-existing TRIM and SECURITRE User-exits
The details for co-existence between TRIM and SECURITY are outlined 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 Link-Exit-1

General Information

TRIM Linkr-Exit-1 is re-entrant. It is not only marked "RENT,REUS", but also coded in re-entrant fashion. The user-supplied Link-Exit-1 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. Link-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 Link-Exit-1 (and the user's user-exits), the USERINFO Area length must be set to at least the LUINFO value documented in section II.9 Link-edit User-exits to the ADABAS link routine.

It must be set to a larger value if a user-supplied Link-Exit-1 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 LUINFO value required by TRIM.

The TRIM Link-Exit-1 will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied Link-Exit-1 before returning. Upon entry to the user's Link-Exit, the entry rules, register settings, etc., are identical to the entry for the first user-exit, TRIM Link-Exit-1. That is, when TRIM Link-Exit-1 is finished, control is passed to the user's Link-exit with the registers all restored to what they were when TRIM Link-Exit-1 was entered with the obvious exception that R15 is set to the address of the user's Link-Exit. In addition, the TRIM USERINFO Area will be provided to UEXITBU.

Note: TRIM V8 no longer supplies Link-Exit-2 modules depending on the environment (Batch, TSO, CICS, COM-PLETE, etc.)

The user's user-exit will normally not be entered if the call comes through a Network environment or if TRIM Link-Exit-1 detects the USERINFO Area to be too small or improperly set. TRIM Link-Exit-1 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 Link-Exit-1 must have an entry point UEXITBU and must be linked with the ADABAS Link Routine and the TRIM Link-Exit-1.
**III.3 Co-existing Link-Exit-2**

**General Information**

TRIM Link-Exit-2 is re-entrant. It is not only marked "RENT,REUS", but they are also coded in re-entrant fashion. The user-supplied Link-Exit-1 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. Link-exits for TP-environments should always be coded re-entrant, otherwise abends or incorrect data may result.

The TRIM Link-Exit-2 will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied Link-Exit-2 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 Link-Exit-2. That is, when TRIM Link-Exit-2 is finished, control is passed to the user's Link-Exit-2 with the registers all restored to what they were when TRIM Link-Exit-2 was entered with the obvious exception that R15 is set to the address of the user's Link-Exit-2.

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 Link-Exit-2 must have an entry point UEXITAU and must be linked with the ADABAS Link Routine and the TRIM Link-Exit-2.

**Note:** TRIM V8 no longer supplies Link-Exit-2 modules being depended on the environment (Batch, TSO, CICS, COM-PLETE, etc.)
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 Link-Exit-1 (and the user's Link-Exits), the USERINFO Area length must be set to at least the LUINFO value documented in section II.9 Link-edit User-exits to the ADABAS link routine.

It must be set to a larger value if a user-supplied Link-Exit-1 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 LUINFO value required by TRIM.

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

The offsets in the USERINFO DSECT (TSIUINFO DSECT in Figure 3) are correct for this release of TRIM 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 TSIUINFO 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 Link-Exit-1 may set any 16-byte value (16'00', 16'40', and 16'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

TSIUINFO AX (Suffix for field names)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTE:</td>
<td>WITH THE EXCEPTION OF &amp;L.SPSUM ALL FIELDS IN THIS USER-INFO-BUFFER</td>
</tr>
<tr>
<td></td>
<td>SEGMENT SHOULD BE CONSIDERED READ-ONLY FOR ANY USER SPECIFIC</td>
</tr>
<tr>
<td></td>
<td>LINK-EXIT-1.</td>
</tr>
</tbody>
</table>

**TSI USER INFORMATION AREA SEGMENT**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXLEN</td>
<td>DS 0D</td>
</tr>
<tr>
<td>AXSEG</td>
<td>DC CL4'TSIG'</td>
</tr>
<tr>
<td>AXOSYS</td>
<td>DC CL4' '</td>
</tr>
<tr>
<td>AXFACIL</td>
<td>DC CL4' '</td>
</tr>
<tr>
<td>AXENVI</td>
<td>DS 0XL14</td>
</tr>
<tr>
<td>AXUEXBID</td>
<td>DC CL2' '</td>
</tr>
<tr>
<td>AXASMDT</td>
<td>DS 0CL4</td>
</tr>
<tr>
<td>AXASMM</td>
<td>DC CL2' '</td>
</tr>
<tr>
<td>AXASMD</td>
<td>DC CL2' '</td>
</tr>
<tr>
<td>AXZAPSW</td>
<td>DC 8XL1'0'</td>
</tr>
<tr>
<td>AXGENJOB</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXGENSTP</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXGENPGM</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXGENJID</td>
<td>DC CL5' '</td>
</tr>
<tr>
<td>AXUSRID</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXGRP</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXNODE</td>
<td>DC CL4' '</td>
</tr>
<tr>
<td>AXNATPGM</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXNATAPL</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXNATUID</td>
<td>DC CL8' '</td>
</tr>
<tr>
<td>AXNATDB</td>
<td>DC XL2'0000'</td>
</tr>
<tr>
<td>AXNATFUS</td>
<td>DC XL2'0000'</td>
</tr>
<tr>
<td>AXTPMTRM</td>
<td>DC CL4' '</td>
</tr>
<tr>
<td>AXTPMTRN</td>
<td>DC CL4' '</td>
</tr>
<tr>
<td>AXTPMOPI</td>
<td>DC CL3' '</td>
</tr>
<tr>
<td>AXTPMTSK</td>
<td>DC CL5' '</td>
</tr>
<tr>
<td>AXUSTRNG</td>
<td>DC CL3'STR'</td>
</tr>
<tr>
<td>AXSTRFLG</td>
<td>DC XL4'0'</td>
</tr>
<tr>
<td>AXTRMFLG</td>
<td>DC XL5'0'</td>
</tr>
<tr>
<td>AXSLOWTS</td>
<td>DS XL12</td>
</tr>
<tr>
<td>AXUXIPW</td>
<td>DS XL20</td>
</tr>
<tr>
<td>AXTIMES</td>
<td>DS XL16</td>
</tr>
<tr>
<td>AXSPSUM</td>
<td>DC CL16' '</td>
</tr>
<tr>
<td>AXCALLN</td>
<td>DC 3F'0'</td>
</tr>
</tbody>
</table>

**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 TSIUINFO) and a copy from the ADABAS source library (UB) are used.

```
UEXITBU CSECT , ADABAS LINK EXIT
USING UB,R3 provided by TRIM Link-Exit-1
*
STM R14,R12,12(R13) SAVE ADALNK REGISTERS
LR R11,R15 PROGRAM BASE
USING UEXITBU,R11 *
*
LA R15,SAVEAREA STANDARD
ST R15,8(R13) SAVE AREA
LR R13,R15 LINKAGE
*
UINFO R10,'TSIG' FIND TSI USER INFO AREA
BNZ EXIT NO TRIM AREA FOUND – QUIT
USING UI,R10 TRIM USER INFO AREA
*
* TRIM AREA IS ADDRESSABLE BEGINNING HERE via R10
*
*
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 TSIUINFO 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
* STM R14,R12,12(R13) SAVE ADALNK REGISTERS
 LR R11,R15 PROGRAM BASE
 USING UEXITBU,R11
* LA R15,SAVEAREA STANDARD
 ST R13,4(R15) SAVE
 ST R15,8(R13) AREA
 LR R13,R15 LINKAGE
* UINFO R10,'USER',USRSIZE FIND/BUILD USER AREA
 BZ NOTFIRST AREA EXISTS, CAN UPDATE
 BP FIRST INITIALIZE AREA
 B EXIT NO ROOM TO BUILD THE AREA
 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
 SLR R15,R15 R15 = 0 TO PROCESS CMD
 BR R14 RETURN TO ADALNK
* SAVEAREA DS 18F
 USRSIZE DC AL2(USEREND-USERLEN) LENGTH OF USER AREA
 COPY UB ADABAS USER BLOCK DEFINITION
 USERINFO UINFO USER,MAP='USER' USER INFO AREA SEGMENT
III.5 Co-existing User-Exit-11

If it is desired to have the TRIM User-Exit-11 and the user's User-Exit-11 "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-11 from a user's User-Exit-11, add the following code to the user's User-Exit-1.

```assembly
* INSERT AT END OF USER'S USER-EXIT-1 LOGIC
*-------------------------------------------------------------------
DONE DS 0H
L R15,=V(TRMUEX11) R15 = A(TRMUEX11)
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 TRMUEX11, as follows:

For OS

```assembly
INCLUDE USERLIB(USRUEX1) PHASE   ADAUEX1,*
INCLUDE TRIMLIB(TRMUEX11) INCLUDE USRUEX1
NAME    ADAUEX11(R)  INCLUDE TRMUEX11
```

User-Exit-11 is called immediately before ADABAS processes a command

**Note:** Prior to calling TRMUEX11, it is mandatory to set the registers (except R15) to the values they contained when ADABAS called the user's own User-Exit-11. TRMUEX11 will return control directly back via BR 14.

TRMUEX11 may set the indicator ON (if the coding in the exit indicates to ignore the command). However, if the user's UEX11 (activated before TRMUEX11), has already set the indicator ON, the indicator will never be turned off by TRMUEX11 and thus the user's UEX11 can make the decision if a command should be processed by ADABAS or not.
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

<table>
<thead>
<tr>
<th>INCLUDE USERLIB(USRUEX4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCLUDE TRIMLIB(TRMUEX4x)</td>
</tr>
<tr>
<td>INCLUDE TRIMLIB(TRMTAP) (optional)</td>
</tr>
<tr>
<td>INCLUDE TRIMLIB(TRMLOG) (optional)</td>
</tr>
<tr>
<td>INCLUDE TRIMLIB(TELOG) (optional)</td>
</tr>
<tr>
<td>NAME ADAUEX4(R)</td>
</tr>
</tbody>
</table>

For VSE

<table>
<thead>
<tr>
<th>PHASE ADAUEX4,*</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCLUDE USRUEX4</td>
</tr>
<tr>
<td>INCLUDE TRM4Max</td>
</tr>
<tr>
<td>INCLUDE TRMX45x</td>
</tr>
<tr>
<td>INCLUDE TRMX42x</td>
</tr>
<tr>
<td>INCLUDE TRMX43x</td>
</tr>
</tbody>
</table>

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.

**Note:** Prior to calling TRMUEX4, it is mandatory to set the registers (except R15) to the values they contained when ADABAS called the user's own User-Exit-4. TRMUEX4 will return control directly back via BR 14.

TRMUEX4 will **always** set the indicator that the record should be logged or not by ADABAS.
The user's User-Exit-11 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 (TSIUINFO and UINFO) are used.

```
USEREX4 CSECT
USING PARM4,R1 USER EXIT 4 PARM LIST

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

SET R3 to UIB in the ADABAS buffers

UINFO R9,'TSIG',LUINFO=R3 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=R3 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)

* TRIMINFO TSIUINFO UI TSI USER INFORMATION AREA
* USERINFO UINFO USER,MAP='USER' USER INFO AREA SEGMENT
... UINFO USER,MAP=SUFFIX
* USER'S DATA AREA MAP
* END
```
III.7 Co-existing TRIM and SECURITRE User-exits

If TRIM and SECURITRE are to co-exist, the following steps are necessary:

1. create ADALNK with STRUEX1G and TRMUEX1G included as documented in Section II.9
2. Define UEX11=TRMUEX11 in STRDEF macro for STPnnnnnn
3. Define UEX11=STRUEX11 in ADABAS parameters
4. Define UEX4=TRMUEX4 in ADABAS parameters

The SECURITRE User-Exit-4 must 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 DCNEX6(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(TNMMODD5)
INCLUDE TRIMLIB(TNMMODD)
```
SECTION IV

REAL-TIME MONITOR OPERATIONS

IV.1  TRIM RTM Requirements

This release of TRIM can only be used with ADABAS 8.1.2 and above. There can be no "mixing" of modules from various TRIM versions, or the results may be unpredictable. At the time of release ADABAS 8.1.3 was the highest version of ADABAS available.

The TRIM 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 4.1 or above. At the time of release, NATURAL 4.2.4 was the highest version of NATURAL to be tested. TRIM 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 TRMVrvs.

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:

```plaintext
LOGGING=YES
LOGCB=YES (and other buffers if desired)
UEX11=TRMUEX11 (optional)
UEX8=TRMUEX8
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 TRMV vrsx
MENU

(or whatever LIB was used for installation)

If NATURAL Security is used, the application TRMV vrs (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 Limits and Restrictions

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

<table>
<thead>
<tr>
<th></th>
<th>TRMUEX4S</th>
<th>TRMUEX4R</th>
<th>TRMUEX4L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>File Number</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Command</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Response</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>JOB</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>NATURAL Program</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>User-ID</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Security-ID</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>NATURAL Application Library</td>
<td>N/A</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>NATURAL Security User-ID</td>
<td>N/A</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>CICS Transaction-ID</td>
<td>N/A</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>User-Area of Control Block</td>
<td>N/A</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th></th>
<th>TRMUEX4S</th>
<th>TRMUEX4R</th>
<th>TRMUEX4L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>File Number</td>
<td>256</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Command</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Response</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>JOB</td>
<td>64</td>
<td>128</td>
<td>512</td>
</tr>
<tr>
<td>NATURAL Program</td>
<td>128</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>User-ID</td>
<td>64</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Security-ID</td>
<td>64</td>
<td>128</td>
<td>512</td>
</tr>
<tr>
<td>NATURAL Application Library</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>NATURAL Security User-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>CICS Transaction-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>User-Area of Control Block</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th></th>
<th>TRMUEX4S</th>
<th>TRMUEX4R</th>
<th>TRMUEX4L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>File Number</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>Command</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Command within file</td>
<td>N/A</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>16 command groups for 256 files</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>JOB</td>
<td>128</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>NATURAL Programs</td>
<td>128</td>
<td>1024</td>
<td>2048</td>
</tr>
<tr>
<td>User-ID</td>
<td>128</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Security-ID</td>
<td>128</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>NATURAL Application Library</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>NATURAL Security User-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>CICS Transaction-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>User-Area of Control Block</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
</tbody>
</table>

The PRESUM statistics are output hourly with these maximums:

<table>
<thead>
<tr>
<th></th>
<th>TRMUEX4S</th>
<th>TRMUEX4R</th>
<th>TRMUEX4L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>File Number</td>
<td>256</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Command</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Response</td>
<td>256</td>
<td>256</td>
<td>256</td>
</tr>
<tr>
<td>JOB</td>
<td>64</td>
<td>128</td>
<td>512</td>
</tr>
<tr>
<td>NATURAL Programs</td>
<td>128</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>User-ID</td>
<td>64</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Security-ID</td>
<td>64</td>
<td>128</td>
<td>512</td>
</tr>
<tr>
<td>NATURAL Application Library</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>NATURAL Security User-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>CICS Transaction-ID</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>User-Area of Control Block</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
<tr>
<td>Special</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
</tr>
</tbody>
</table>

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.4 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 Link-Exit-1, 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 8, 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 8 Link Routines have exit capabilities, Link-Exit-1 (before the call), and Link-Exit-2 (after the call).

TRIM supplies a common Link-Exit-1 for all ADABAS Link Routine environments (TSO, Batch, CICS-COM-PLZE, etc.), which accomplishes 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 Routine transfer this UIB to ADABAS.

The user may also contribute to the UIB information through the user's Link-Exit-1.

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, Link-Exit-1, 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 Link-Exit-1. TRIM no longer uses the Reserved Field, source changes to NATURAL modules, or "intuitive logic" in TRIM User-Exit-4 to obtain NATURAL information.

Regarding non-NATURAL program names (COBOL, HLASM, PL/1 etc.), TRIM Link-Exit-1 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 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 link-exit here and there. An example is linking TRIM Link-Exit-1 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.

#NOTE B01 TSIUEX1G cannot determine the NATURAL Program, Application or User-ID because this call did not originate in NATURAL.

#NOTE B02 TSIUEX1G could not determine the NATURAL Program, Application, or User-ID, probably because the information was not passed to the Link-Exit-1 as 7th parameter (ADAPRM=ON missing).

#NOTE B03 TSIUEX1G could not (yet) determine the NATURAL Program, Application, or User-ID, because no such information was passed to the Link-Exit-1. #NOTE B03 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.

#NOTE 401 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.

#NOTE 402 No UIB address was passed to User-Exit-4. This address is necessary to receive the data passed from Link-Exit-1. Either Link-Exit-1 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.

#NOTE 403 A UIB was received by TRIM User-Exit-4, but there is no indication it originated from a TRIM Link-Exit-1 or from a TRIM Link-Exit-1 of the proper version number. Without this User Information Block, NATURAL and CTI information cannot be determined.

#NOTE 405 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 Link-Exit-1s involved in calls to the database may be viewed. Refer to Section II.14 Environment Information of the TRIM Reference Manual.

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.
SECTION V

BATCH OPERATIONS

V.1  TRIM Execution Requirements
TRIM includes support for running TRIM Batch above the 16MB and exploiting the large buffer capabilities of the QSAM access method.

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 8.1.x 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 TRMUEX11

User-Exit-11 (TRMUEX11) 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.V.vrs.LOAD library should be concatenated to the ADABAS load library), and the ADARUN parameters "LOGGING=YES", "UEX1=TRMUEX11", 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-11 Communication Run" may be run (Refer to the TRIM Reference Manual) to screen out commands, lock files, do password checks, and/or set passwords.

TRMUEX11 in its "dormant" state allows all commands, locks no files, and does no security checking.

User-Exit-4 is required when using User-Exit-11.
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.Vvrs.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:

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

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:

<table>
<thead>
<tr>
<th>VSE LBL</th>
<th>VSE ASSGN</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRMACLG</td>
<td>SYS010</td>
<td>Input ADABAS Command Log(s), other logs, or previously output sequential dataset from tape.</td>
</tr>
<tr>
<td>TRMACLD</td>
<td>SYS012</td>
<td>Input ADABAS Command Log(s), other logs, or previously output sequential dataset from disk.</td>
</tr>
<tr>
<td>TRMAPLG</td>
<td>SYS010</td>
<td>Input ADABAS Protection Log(s) from tape.</td>
</tr>
<tr>
<td>TRMAPLD</td>
<td>SYS012</td>
<td>Input ADABAS Protection Log(s) from disk.</td>
</tr>
<tr>
<td>TRMFD01, TRMFD02, TRMFD03, TRMFD04, TRMFD05</td>
<td>SYS006, SYS016, SYS026, SYS036, SYS046</td>
<td>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.</td>
</tr>
<tr>
<td>SYSLST</td>
<td>SYS005, 015, 025, 035, 045</td>
<td>Dataset for printing the input parameters, error messages, and execution statistics.</td>
</tr>
<tr>
<td></td>
<td>SYS005, 015, 025, 035, 045</td>
<td>The first dataset is for printing the first detail report and all summary reports. The remaining datasets are for subsequent detail reports.</td>
</tr>
<tr>
<td>TRMOUT1, TRMOUT2, TRMOUT3, TRMOUT4, TRMOUT5</td>
<td>SYS011, SYS021, SYS031, SYS041, SYS051</td>
<td>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.</td>
</tr>
<tr>
<td>TRMOT1D, TRMOT2D, TRMOT3D, TRMOT4D, TRMOT5D</td>
<td>SYS013, SYS023, SYS033, SYS043, SYS053</td>
<td>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.</td>
</tr>
</tbody>
</table>
**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 JOSCLOG)

```
//TRIM EXEC PGM=TRIM
//STEPLIB DD DSN=TRIM.Vvrs.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 JOSPLOG)

```
//TRIM EXEC PGM=TRIM
//STEPLIB DD DSN=TRIM.Vvrs.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., V813).

(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 JOSUX11)

```
//TRIM EXEC PGM=TRIM
//STEPLIB DD DSN=TRIM.Vvrs.LOAD,DISP=SHR
// DD DSN=ADABAS.Vx.LOAD,DISP=SHR (1)
//TRMPRT00 DD SYSOUT=A
//TRMPARM DD * (TRIM UEX11 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.Vvrs.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., V813).
(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=SYSLST,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)

/*
/*
* $$ 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
// PAUSE *** MOUNT PROTECTION LOG ON 18X ***
// 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
*  CHANGE TRMFD01,'****',0,SD
*  CHANGE 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

(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.

NOTE:

(1)
Sample VSE POWER JCL for a User-Exit-1 Communication Run
(refer to source library member JVSUX11)

* 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 AND SETPW PARAMETERS) (1)
/*
(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 DATA 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-11 Communication Run
(refer to source library member JVMUX11)

&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 UEX11 statement and associated parameters to use with the User-Exit-11 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.
Section V - Batch Operations

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 Command Log Analysis, PRESUM Run, or TRELOG Run
/REMARK
/SYSFILE SYSDTA=(SYSCMD)
/EXEC (SYSIPT,TRIMVrs,LMSLIB) (1) 
                                       (TRIM UEX4 and LOG parameters) (2)
/FILE #IPT,LINK=TRMPARM
/FILE ADABASVx.CLOG,LINK=TRMACLOG,BLKSIZ= (3)
/REMARK
/FILE TTT,LINK=TRMPRT00
/FILE UUU,LINK=TRMPRT01
/FILE VVV,LINK=TRMPRT02
/FILE WWW,LINK=TRMPRT03
/REMARK continue print lines as needed
/FILE XXX,LINK=TRMOUT01
/FILE YYY,LINK=TRMOUT02
/REMARK continue output lines as needed
/EXEC (TRIM,TRIMVrs.LMSLIB)
/ENDP

NOTES:
(1) SYSIPT constructs a temporary file containing the TRIM parameters.
(2) TRIM parameters are discussed in Section VI Log Analysis Parameters 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 Protection Log Analysis Run
/REMARK
/FILE ADABASVx.PLOG,LINK=TRMAPLOG,BLKSIZ= (1)
/FILE ADABASVx.FDT001,LINK=TFD00001 (1)
/FILE ADABASVx.FDT12345,LINK=TFD12345 (1)
/REMARK continue FDT lines as needed
/FILE TTT,LINK=TRMPRT00
/FILE UUU,LINK=TRMPRT01
/FILE VVV,LINK=TRMPRT02
/FILE WWW,LINK=TRMPRT03
/REMARK continue print lines as needed
/FILE XXX,LINK=TRMOUT01
/FILE YYY,LINK=TRMOUT02
/REMARK continue output lines as needed
/SYSFILE TASKLIB=ADA.Vx.MOD (1)
/FILE ZZZ,LINK=TRMPARM TRIM parameters (2)
/EXEC (TRIM,TRIMVrs.LMSLIB)
/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 Sample BS2000 procedure for a
/ REMARK User-Exit-1 Communication Run
/ REMARK
/ FILE YYY, LINK=TRMPARM TRIM parameters
/ FILE ZZZ, LINK=TRMPRT00
/ SYSFILE TASKLIB=ADA.Vx.MOD
/ SYSFILE SYSDTA=(SYSCMD)
/ EXEC (TRIM,TRIMV,vrs,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 Sample BS2000 procedure for a
/ REMARK User-Exit-4 Communication Run
/ REMARK
/ FILE YYY, LINK=TRMPARM TRIM parameters
/ FILE ZZZ, LINK=TRMPRT00
/ SYSFILE TASKLIB=ADA.Vx.MOD
/ SYSFILE SYSDTA=(SYSCMD)
/ EXEC (TRIM,TRIMV,vrs,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=* 
//CMPPRT01 DD SYSOUT=* 
//CMSYNIN DD *
LOGON TRMVvrs 
#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

<table>
<thead>
<tr>
<th>#CONTROL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASSWORD</td>
<td>(required) Password to access TNM Administration functions.</td>
</tr>
<tr>
<td>USER-ID</td>
<td>(optional) Converts detail data for the specified User-ID.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>#CONTROL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASSWORD</td>
<td>Password to access TNM Administration functions.</td>
</tr>
<tr>
<td>MENU CODE</td>
<td>Code used to access function (A, B, or C).</td>
</tr>
<tr>
<td>DATE</td>
<td>Deletes program summary data collected on or before the specified date.</td>
</tr>
<tr>
<td>DAYS OF RETENTION</td>
<td>Deletes program summary data collected prior to number of days specified to be retained.</td>
</tr>
<tr>
<td>LIBRARY</td>
<td>Deletes program summary data belonging to the specified library.</td>
</tr>
<tr>
<td>STARTING PROGRAM</td>
<td>Deletes program summary data starting with the specified program.</td>
</tr>
<tr>
<td>ENDING PROGRAM</td>
<td>Deletes program summary data ending with the specified program.</td>
</tr>
</tbody>
</table>

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
```
V.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.

<table>
<thead>
<tr>
<th>#CONTROL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASSWORD</td>
<td>Password to access TNM Administration functions.</td>
</tr>
<tr>
<td>MENU CODE</td>
<td>Code used to access function (D, E, or F).</td>
</tr>
<tr>
<td>DATE</td>
<td>Deletes user summary data collected on or before the specified date.</td>
</tr>
<tr>
<td>DAYS OF RETENTION</td>
<td>Deletes user summary data collected prior to number of days specified to be retained.</td>
</tr>
<tr>
<td>USER-ID</td>
<td>Deletes user summary data belonging to a specified user-ID.</td>
</tr>
</tbody>
</table>

**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
V.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.

<table>
<thead>
<tr>
<th>#CONTROL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASSWORD</td>
<td>Password to access TNM Administration functions.</td>
</tr>
<tr>
<td>MENU CODE</td>
<td>Code used to access function (A or B).</td>
</tr>
<tr>
<td>HOURS OF RETENTION</td>
<td>Deletes detail summary data collected prior to number of hours specified to be retained.</td>
</tr>
<tr>
<td>LIBRARY</td>
<td>Deletes detail summary data belonging to the specified library.</td>
</tr>
<tr>
<td>STARTING PROGRAM</td>
<td>Deletes detail summary data starting with the specified program.</td>
</tr>
<tr>
<td>ENDING PROGRAM</td>
<td>Deletes detail summary data ending with the specified program.</td>
</tr>
</tbody>
</table>

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
V.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.

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

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,,

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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-11 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**

This release of TRIM can only be used with ADABAS 8.1.x 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.

**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.
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.
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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 LINK-Exit-1 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-PLETE 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'FF'

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 Link-Exit-1

There are several Zap switches available in TRIM Link-Exit-1. The modification has to be applied to CSECT TSIUEX1G in the appropriate ADALNK module for Batch / TSO, ADALCO for COM-PLETE or CICSGBL for CICS:

Syntax: 

```
NAME ADALNK TSIUEX1G
VER <location value> <default>
REP <location value> <selected option>
```

Sample Transfer to UEXITBU in any case

```
NAME ADALNK TSIUEX1G
VER 0138 00
REP 0138 FF
```
Transfer to UEXITBU
Location: 0138
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.

ACCE Variable Length Security-ID
Location: 0139 (OS only)
Default: X'00'
Options:
   - X'00': Try to get to ACCE variable length Security-ID.
   - X'FF': Get the Security-ID from ASXB.

Program Name
Location: 013A (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
Location: 013B
Default: X'00'
Options:
   - X'00': Obtain NATURAL information from the control block provided as 7th parameter (ADAPARM=ON).
   - X'FF': Do not obtain any NATURAL information.
**Slow Down Batch**

Location: 013C  
Default: X'00'

Options:  
00 Do not Slow Down Batch  
FF Slow Down Batch with parameters as shown in Zap bytes below

Locations: 013D - 013F (not currently used)

**Slow Down Batch nnnn Milliseconds**

Location: 0140

Default: 000003E8 (decimal 1000 = 1 second)

Options: Any reasonable value of milliseconds of wait time.

**Slow Down Batch Every nnnn Calls**

Location: 0144

Default: 00000064 (decimal 100)

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

**Slow Down Batch Starting Hour**

Location: 014C

Default: 0007 (decimal 7)

Options: Starting hour (0-23) for waiting to take effect.
**Slow Down Batch Ending Hour**

Location: 014E

Default: 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/TSIUEX1 is used.

The four Zap values for Slow Down take effect only when the Zap byte at location 013C indicates Batch Slow Down is to be in effect and is not overridden by TRMSLO. TSIUEX1G recognizes commands from TSO environments and does not slow these down. TSIUEX1G does not recognize IMS, FOCNET, etc. Therefore, Batch Slow Down should not be activated via Zap switches for ADALNx/TSIUEX1G in these environments.
VI.3 Tailoring the TRIM NATURAL Monitor

VI.3.1 TNMODA

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.
This page intentionally left blank.
The five macros supplied with TRIM version 8 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.

<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUR</td>
<td>0-23</td>
<td>Starting hour for these parameters to take effect.</td>
</tr>
<tr>
<td>CONTROL</td>
<td>8 characters</td>
<td>RTM Control Password.</td>
</tr>
<tr>
<td>LOG</td>
<td>YES, NO</td>
<td>Default logging of Detail Records. TRMLOG parameters and User-Exit-4 Communication Run(s) may override this setting.</td>
</tr>
<tr>
<td>PRESUM</td>
<td>THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, SPE, NONE</td>
<td>PRESUM records to be summarized and written to the Command Log. None means turn off PRESUMing.</td>
</tr>
<tr>
<td>MINUTE</td>
<td>THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, NONE</td>
<td>Minute statistics.</td>
</tr>
<tr>
<td>HOURLY</td>
<td>THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, NONE</td>
<td>Hourly statistics.</td>
</tr>
<tr>
<td>SESSION</td>
<td>THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, CWF (Command within File), SID, NONE</td>
<td>Session statistics.</td>
</tr>
<tr>
<td>FREQ</td>
<td>0, n, ADAEND</td>
<td>Frequency of print of TRIM Nucleus Session Statistics. &quot;n&quot; 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.</td>
</tr>
<tr>
<td>NSSSEQ</td>
<td>CAT, FREQ, BOTH</td>
<td>Specifies Nucleus Session Statistics to print in ascending order of category (CAT), descending order of frequency of use (FREQ), or both.</td>
</tr>
<tr>
<td>CRUNCH</td>
<td>YES, NO</td>
<td>Specifies whether or not to crunch Command Log Detail Record data.</td>
</tr>
<tr>
<td>ZEROOFNR</td>
<td>YES, NO</td>
<td>Specifies the option of zeroing the file number on certain commands (ET, BT, RC, OP, etc.).</td>
</tr>
<tr>
<td>UID</td>
<td>HEX, CHAR</td>
<td>Specifies User-ID and User-Area display format.</td>
</tr>
</tbody>
</table>

**TRMTAP Macro Parameters**

*Figure 4*

*(continued on next page)*
### Field Values Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SORT</td>
<td>CAT, FREQ</td>
<td>Specifies the sort sequence for certain hourly and minute screen displays, ascending by category (CAT), or descending by frequency of use (FREQ).</td>
</tr>
<tr>
<td>STOP</td>
<td>STOP, TERMINATE</td>
<td>Specifies whether PF12 should act to STOP (return to NATURAL &quot;NEXT&quot; screen) or TERMINATE (exit NATURAL).</td>
</tr>
<tr>
<td>PW</td>
<td>YES, NO, VIO</td>
<td>Specifies the action to be taken on the Additions-3 field in the Control Block on Command Log records:</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Retain always.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not retain.</td>
</tr>
<tr>
<td></td>
<td>VIO</td>
<td>Retain for response codes 200-203.</td>
</tr>
<tr>
<td>IDLE</td>
<td>NO, YES, UEXB</td>
<td>Specifies the mode of operation for TRIM:</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>TRIM active.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>TRIM idle.</td>
</tr>
<tr>
<td></td>
<td>UEXB</td>
<td>TRIM idle but will process user information area data.</td>
</tr>
<tr>
<td>TRACE</td>
<td>YES, NO</td>
<td>Specifies whether or not to make the Tracing Facility available.</td>
</tr>
<tr>
<td>HIDUR</td>
<td>YES, NO</td>
<td>Specifies whether or not to maintain the high duration commands (Longest Duration Screen).</td>
</tr>
<tr>
<td>ALTID</td>
<td>YES, NO</td>
<td>Specifies whether the CICS TERMID should replace the ADABAS UID as the primary display UID.</td>
</tr>
<tr>
<td>UQALL</td>
<td>YES, NO</td>
<td>Specifies whether inactive User Queue entries should be displayed.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Display inactive.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Display active only.</td>
</tr>
<tr>
<td>CLMSG</td>
<td>YES, NO</td>
<td>Specifies whether command log STCK sequence errors should be displayed.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Display errors.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not display errors.</td>
</tr>
</tbody>
</table>

**TRMTAP Macro Parameters**

**Figure 4 (continued)**

(continued on next page)
<table>
<thead>
<tr>
<th><strong>Field</strong></th>
<th><strong>Values</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>VIOLATE</td>
<td>FNR, UID, JOB, NAT, NSA, SID, NONE</td>
<td>SECURITRE Violation Statistics.</td>
</tr>
<tr>
<td>SECURE</td>
<td>YES, NO</td>
<td>Specifies whether or not SECURITRE is to control access to the TRIM RTM.</td>
</tr>
<tr>
<td>ALTJN</td>
<td>J, C, U</td>
<td>Specifies where to obtain the Job Name.</td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>Use Job Name as passed in the Command Log.</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Use Job Name from the Command Queue.</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>Use Job Name from the USERINFO Area.</td>
</tr>
<tr>
<td>SESCL</td>
<td>NO, YES</td>
<td>Controls the clearing of Session Statistics (Restart counts from zero).</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not clear session statistics.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Clear session statistics each time they are printed.</td>
</tr>
<tr>
<td>NTALT</td>
<td>NO, YES</td>
<td>Specifies the use on an alternate for NATPROG.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not use an alternate for NATPROG.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Replace null NATPROG with COBOL or other program name (when available).</td>
</tr>
</tbody>
</table>

**TRMTAP Macro Parameters**

**Figure 4 (continued)**

*(continued on next page)*
<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSLOG</td>
<td>NO, NSA, NSU</td>
<td>Controls the placement of NATURAL Application Library or NATURAL Security User-ID in the Command Log.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not use pass NATURAL Application Library or NATURAL Security User-ID or Security-ID in the Command Log.</td>
</tr>
<tr>
<td></td>
<td>NSA</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>NSU</td>
<td>Pass the NATURAL Application Library and Security-ID in the Command Log in the Additions-3 (Password) and the Additions-4 (Cipher) fields respectively.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XUAD4</th>
<th>NO, YES</th>
<th>Controls the move of the External User-ID to the Command Log.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>Do not move External User-ID to the Command Log.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Move External User-ID to Additions-4 (Cipher) field of the Command Log.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NATLG</th>
<th>NO, YES</th>
<th>Controls passing the NATURAL program name in the RESERVED field in the Command Log.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>Do not pass the NATURAL program name to the Command Log.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Pass the NATURAL program name in the RESERVED field in the Command Log.</td>
</tr>
</tbody>
</table>

**TRMTAP Macro Parameters**  
**Figure 4 (continued)**

*(continued on next page)*
<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTILG</td>
<td>NO, YES</td>
<td>Controls the move of four bytes at CTI + 4 (CICS Tran-ID portion of CTI field) to the User-Area of the Command Log.</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Do not move four bytes at CTI + 4 to the User-Area of the Command Log.</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Move four bytes at CTI + 4 to the User-Area of the Command Log.</td>
</tr>
<tr>
<td>RSPLOCK</td>
<td>1 - 65535</td>
<td>Any reasonable Response Code value that distinguishes TRIM-induced LOCKs from normal ADABAS Response Code 17 (Invalid File Number).</td>
</tr>
<tr>
<td>RSPDSAL</td>
<td>1 - 65535</td>
<td>Any reasonable Response Code value that distinguishes TRIM-induced DISALLOWs from normal ADABAS Response Code 22 (Invalid Command Code).</td>
</tr>
<tr>
<td>RSPFAIL</td>
<td>1 - 65535</td>
<td>Any reasonable Response Code value that distinguishes TRIM-induced FAILs from normal ADABAS Response Code 200 (Password Violation).</td>
</tr>
<tr>
<td>TRELOG</td>
<td>NO, YES</td>
<td>Specifies whether or not to activate tRelational logging.</td>
</tr>
</tbody>
</table>
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 STICK 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),
  Violate=(NM, UID, FNR),
  Secure=N,
  Crunch=Yes, UID=HEX, Sort=FREQ,
  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 STICK TIME SEQUENCE ERRORS.

TRMTAP HOUR=9,
  Presum=(CMD,FNR,UID), Hourly=(CMD,FNR,JOE,UID,NSA),
  Violate=(NM,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,NSA),
  Violate=(NM,CFR,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-ZZZZ,
  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)
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 TRMU EX4 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.

UXEX4 ID=BIGTEST
LOG JOB=A4910763

User-B also desires to log certain records and submits a User-Exit-4 Communication Run with ID=JOE.

UXEX4 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.

UXEX4 ID=USERA
LOG FNR=3, CMD=L1

User-A then desires to change the requirements for ID=BIGTEST.

UXEX4 ID=BIGTEST
LOG JOB=(A4917000-A4917999)

The DBA then desires to change the original TRMLOG parameters for the duration of the ADABAS session.

UXEX4 ID=TRMLOG
LOG RSP=0
LOG DDR>20000

The DBA desires to delete the requirements for ID=JOE.

UXEX4 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 \ldots \ldots \text{refers to logging the record}
- TRMLOG RB, \ldots \ldots \text{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,(AAAAAAAA-BBBBBBBB, CCCCCCCC,DDDDDDD-DDDDDDDD) *

To also log the Record Buffer for the above criteria, insert the "RB" parameter as follows:

TRMLOG RB,CMD,EQ,(L1,S2),JOB,EQ,(AAAAAAAA-BBBBBBBB, CCCCCCCC,DDDDDDD-DDDDDDDD) *
Keyword values permitted on TRMLOG macro parameters include:

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Description</th>
<th>Length</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRI</td>
<td>Priority</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>CTY</td>
<td>Command Type</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>ECB</td>
<td>ECB Count</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>THD</td>
<td>Thread Number</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>NUP</td>
<td>Number of Descriptors Updated</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>JOB</td>
<td>JOB-NAME</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>CPU</td>
<td>CPUID</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>UID</td>
<td>User-ID</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>OPS</td>
<td>OPSYSID</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>UBU</td>
<td>UBUID</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>UAC</td>
<td>UACSIN</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>DBD</td>
<td>DBID</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>AIO</td>
<td>Assoociator IOs</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>DIO</td>
<td>Data IOs</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>WIO</td>
<td>Work IOs</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>PHY</td>
<td>PHYS</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>AR1</td>
<td>ARCH5A</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>ARB</td>
<td>ARCH5B</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>RV1</td>
<td>REVIEW1</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>RV2</td>
<td>REVIEW2</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>AD2</td>
<td>Additions-2</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>OP1</td>
<td>Command Option-1</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>OP2</td>
<td>Command Option-2</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>CMD</td>
<td>Command Code</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>CID</td>
<td>Command ID</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>FNR</td>
<td>File Number</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>RSP</td>
<td>Response Code</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>ISN</td>
<td>Internal Sequence Number</td>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>ISL</td>
<td>ISN Lower Limit</td>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>ISQ</td>
<td>ISN Quantity</td>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>FBL</td>
<td>Format Buffer Length</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>RBL</td>
<td>Record Buffer Length</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>SBL</td>
<td>Search Buffer Length</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>VBL</td>
<td>Value Buffer Length</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>IBL</td>
<td>ISN Buffer Length</td>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>AD1</td>
<td>Additions-1</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>AD3</td>
<td>Additions-3</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>AD4</td>
<td>Additions-4</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>NAT/RES</td>
<td>NATURAL Program(Reserved Field)</td>
<td>8</td>
<td>C</td>
</tr>
<tr>
<td>USA</td>
<td>User-Area</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>USN</td>
<td>User-Area</td>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>DUR</td>
<td>Duration in tenths of milliseconds</td>
<td>4</td>
<td>B</td>
</tr>
<tr>
<td>HR/HOUR</td>
<td>Hour</td>
<td>1</td>
<td>B</td>
</tr>
</tbody>
</table>

**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 TRMU4.

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:

\[ \text{TRMRSP } \text{num, msg, DEFAULT}=c \]

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:

<table>
<thead>
<tr>
<th>Response</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OVERFLOW LS SETTING FOR A SORT</td>
</tr>
<tr>
<td>2</td>
<td>OVERFLOW HQ SETTING</td>
</tr>
<tr>
<td>27</td>
<td>INSUFF WORK AREA FOR SBL + VBL</td>
</tr>
<tr>
<td>70</td>
<td>OVERFLOW OF LQ SETTING</td>
</tr>
<tr>
<td>71</td>
<td>OVERFLOW OF LI SETTING</td>
</tr>
<tr>
<td>72</td>
<td>OVERFLOW OF NU SETTING</td>
</tr>
<tr>
<td>73</td>
<td>OVERFLOW WORK CONTAINING ISNS</td>
</tr>
<tr>
<td>74</td>
<td>NO WORK AREA FOR COMPLEX FINDS</td>
</tr>
<tr>
<td>75</td>
<td>REQUESTING &gt; 5 ASSO/DS EXTENTS</td>
</tr>
<tr>
<td>77</td>
<td>INSUFF SPACE FOR ASSO/DS EXTENT</td>
</tr>
<tr>
<td>145</td>
<td>HOLD QUEUE IS FULL</td>
</tr>
<tr>
<td>151</td>
<td>OVERFLOW OF CQ SETTING</td>
</tr>
<tr>
<td>152</td>
<td>INTERNAL USER BUFFER TOO SMALL</td>
</tr>
</tbody>
</table>

The DBA may view any or all of these parameters on-line by 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

<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNR</td>
<td>1-65535</td>
<td>The file number(s) to be logged (N1, N2, N3,...Nx).</td>
</tr>
<tr>
<td>ENTRIES</td>
<td>Any reasonable number</td>
<td>The number of 60 byte entries in the table. The size of the table will be 60 x (this number) bytes.</td>
</tr>
<tr>
<td>WRITES</td>
<td>Any number = or &lt; than entries</td>
<td>The number of entries to write to the log whenever the table is full.</td>
</tr>
</tbody>
</table>

VII.5  OS/VM Batch Selective Slowdown (TRMSLO)

TRIM Link-Exit-1 (TSIUEX1G) 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.

When Batch jobs execute during the time allotted for on-line activity, these jobs may impact the performance of the on-line environment. Batch jobs issue commands at a faster rate than the on-line environment, creating a bottleneck for the execution of commands for on-line programs.

TRIM Link-Exit-1 may be used to slow down the execution of Batch jobs and enable the on-line environment to issue commands with decreased impact on response time. The DBA may define what times these batch jobs are to be delayed. If the on-line environment is active from 09:00 until 18:00, this may be when the DBA wishes to delay the batch jobs. After this time, however, the DBA may not want to impede the performance of the batch jobs.

To delay a batch job, TRIM Link-Exit-1 causes the commands that the job is issuing to be queued for a specified number of seconds (set by the DBA). The commands are queued after a specified number of commands have already executed. This delay enables the on-line environment to have increased access to the database.
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 TSIUX1G to slow selective jobs based on specified criteria (if all batch/VM jobs are to be slowed, TSIUX1G 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 TSIUX1G, it will override the TSIUX1G 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

<table>
<thead>
<tr>
<th>Field</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOBNAME</td>
<td>8 characters</td>
<td>Any jobname to be slowed. An asterisk (*) can be used as a wildcard character at the end of the value.</td>
</tr>
<tr>
<td>WAIT</td>
<td>1-99999999</td>
<td>Any reasonable value of milliseconds of wait time (decimal 1000 = 1 second).</td>
</tr>
<tr>
<td>COUNT</td>
<td>1-99999999</td>
<td>Any reasonable value for number of calls to ignore before doing the wait.</td>
</tr>
<tr>
<td>START</td>
<td>0-23</td>
<td>Starting hour for waiting to take effect.</td>
</tr>
<tr>
<td>STOP</td>
<td>0-23</td>
<td>Ending hour for waiting to take effect.</td>
</tr>
</tbody>
</table>

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 SE CURITRE 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.

```naturalscript
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.

(continued on next page)
```
Section VIII - NATURAL Source Modules

(continued from previous page)

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 DECODE 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  
0940   MOVE 'Y'     TO  #TNM-ACTIVE  
0950   ANY VALUE  
0960   MOVE ' '     TO  #DEFAULT-MENU-OPTION  
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-DECODE  
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, 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 #FIT (B4)                                                    
0290 02 #DBID (B2)                                                   
0300 02 #ADARSP (B2)                                                 
0310 02 #CONDCD (B1)                                                 
0320 02 #FIN### (B4)                                                 
0330 02 #FILL1 (A17)                                                 
0340 01 #DBIDN (N5)                                                  
0350 01 #COUNTN (N10)                                                
0360 01 #CPUN (N10)                                                  
0370 01 #DURN (N10)                                                  
0380 01 #ION (N10)                                                   
0390 01 #NOPRN (N5)                                                  
0400 01 #UPDFLD (A1)                                                 
0410 01 #CPU (N8.2)                                                  
0420 01 #DUR (N8.2)                                                  
0430 01 #IO (N8.2)                                                   
0440 01 #TDC (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         

(continued on next page)
```
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 DOEND
0940 IF #ADARSP = 17
0950 DO
0960 INPUT (IP=OFF SG-OFF AD=AIL)
0970 *DATX (AD-OD) 3X 'FIN'
0980 25T 'NATURAL SESSION STATISTICS' (I)
0990 72T *TIME (AL=8 AD=OD)
1000 /// 15T 'ADABAS RESPONSE CODE: ' #ADARSP
1001 DOEND
1010 ESCAPE ROUTINE
1020 DOEND
1030 IF #CONCD = 2
1040 DO
1050 INPUT (IP=OFF SG-OFF AD=AIL)
1060 *DATX (AD-OD) 3X 'FIN'
1070 25T 'NATURAL SESSION STATISTICS' (I)
1080 72T *TIME (AL=8 AD=OD)
1090 /// 10T 'VERSION MISMATCH ATTEMPTING TO GET STATS FROM TRMUEX4'
1100 ESCAPE ROUTINE
1101 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 AVAILABLE 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
(continued on next page)
MULTIPLY #DURN BY .001 GIVING #DURCOST
MOVE #COUNT TO #COUNTN
MOVE #IO TO #ION
MULTIPLY #ION BY .003 GIVING #IOCOST
MOVE #CPU TO #CPUN
MULTIPLY #CPUN BY .0001 GIVING #CPUCOST
MOVE #NOFNR TO #NOFNRN
ADD #DURCOST #IOCOST #CPUCOST GIVING #TOTCOST
* THE FOLLOWING STATS DISPLAY MAY BE TAILORED AS DESIRED

INPUT (IP=OFF SG=OFF AD=AIL)
*DATU (AD=OD) 3X 'FIN '
2ST 'NATURAL SESSION STATISTICS' (I)
72ST *TIME (AL=8 AD=OD)
15T '*INIT-USER:' *INIT-USER (AD=IO)
40T 'INTERNAL USER-ID:' #UID (AD=IO EM=HHHH)
// 54T '--- COST ---'
15T 'ADABAS DURATION (MS)' 
36T #DURN (AD=OD EM=ZZZZ,ZZZ,ZZ9)
54T #DURCOST (AD=OD EM=ZZZZZ,ZZZ.99)
// 15T 'COMMAND COUNT'
36T #COUNTN (AD=OD EM=ZZZZ,ZZZ,ZZZ)
// 15T 'I/O COUNT'
45T #NOFNRN (AD=OD EM=ZZ9)
// 54T '============'
54T #TOTCOST (AD=IO EM=ZZZZZ,ZZZ.99)
// 20T ' LAST NATURAL SECURITY ACCESS'
20T 'APPLICATION:' #NSA (AD=IO) ' USER:' #NSU (AD=IO)
// 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.

```plaintext
0010 *-----------------------------------------------------------------------
0020 *
0030 * PROPRIETARY SOFTWARE OF TREEHOUSE SOFTWARE, INC. ALL RIGHTS RESERVED
0040 *
0050 * NAME: TRMIPSWD
0060 *
0070 * DESC: 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 *-----------------------------------------------------------------------

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.

(continued on next page)
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:

- 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: This parameter is no longer valid.

Error Message: TRM039  LOG FORMAT (5) AND LOGTYPE CONFLICT
Explanation: This parameter is no longer valid.

Error Message: TRM040  INPUT OR UEX11/4 STMT REQUIRED
Explanation: One INPUT statement is required to identify the type of log input being processed. One UEX11 statement is required to identify this TRIM run as a "UEX11 Communication Run". One UEX4 statement is required to identify this TRIM run as a "UEX4 Communication Run."

Error Message: TRM042  STATEMENT INVALID FOR INPUT TYPE
Explanation: The statements permitted for this input type are listed in the TRIM Reference Manual.

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.
<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM060</th>
<th>INVALID FIELD NAME xxxxxxxxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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 TRIM Reference Manual: 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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM061</th>
<th>FIELD INAPPROPRIATE FOR SUMMARY REPORT xxxxxxxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM062</th>
<th>STATEMENT INVALID FOR SUMMARY REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>The statement is invalid for a summary report. Possibly it is valid, but only for a detail report.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM070</th>
<th>STATEMENT INVALID FOR DETAIL REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>The statement is invalid for a detail report. Possibly it is valid, but only for a summary report.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM071</th>
<th>CONTROL STMT SUMMARY LEVELS EXCEED 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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 TRIM Reference Manual.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM074</th>
<th>INVALID CHARGE VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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 TRIM Reference Manual.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM078</th>
<th>FEATURE REQUIRES TSI AUDITING FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>An attempt has been made to use a feature available only in AUDITRE, Treehouse Software's Auditing Facility.</td>
<td></td>
</tr>
</tbody>
</table>
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 TRMUEX4x Communication Run was unsuccessful. Possible causes:
• 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=TRMUEX4x.
• 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 TRMUEX4x.

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  UEX11 COMMUNICATION UNSUCCESSFUL
Explanation: The TRIM UEX11 Communication Run was unsuccessful. Possible causes:
• 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-11 was not loaded because the ADARUN parameters did not specify UEX11=TRMUEX11.

Error Message: TRM096  UNSUCCESSFUL – UEX11 REQUIRES UEX4
Explanation: In order to use TRMUEX11 functions, TRMUEX4x must also be used and be functional (refer to TRM091).
<table>
<thead>
<tr>
<th>Error Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRM099 SEVERE PARAMETER ERROR(S)</td>
<td>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.</td>
</tr>
<tr>
<td>TRM100 OPEN OPERATION FAILURE ON LOG INPUT</td>
<td>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.</td>
</tr>
<tr>
<td>TRM110 OPEN OPERATION FAILURE ON PRINTER nn</td>
<td>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.</td>
</tr>
<tr>
<td>TRM111 OUTPUT ERROR ON PRINTER nn</td>
<td>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.</td>
</tr>
<tr>
<td>TRM120 OPEN OPERATION FAILURE ON OUTPUT nn</td>
<td>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.</td>
</tr>
<tr>
<td>TRM121 OUTPUT ERROR ON OUTPUT nn</td>
<td>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.</td>
</tr>
<tr>
<td>TRM190 CLOSE OPERATION FAILURE ON xxxxxxxxxx</td>
<td>The xxxxxxxxxx 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.</td>
</tr>
<tr>
<td>Error Message:</td>
<td>TRM200 REPORT LIMIT REACHED</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Explanation:</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM201 SUMMARY REPORT EXCEEDS LINE-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• define a larger line-size, if possible.</td>
</tr>
<tr>
<td></td>
<td>• specify less summary calculations on this report.</td>
</tr>
<tr>
<td></td>
<td>• define another report to contain additional necessary summary figures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM250 ADABAS RESPONSE CODE nnn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>An ADABAS Response Code was received on a User-Exit-11 or User-Exit-4 Communication Run.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error Message:</th>
<th>TRM255 INVALID OUTPUT FILE-TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>An invalid output file type has been encountered.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>CODE</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>4095</td>
<td>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.</td>
</tr>
<tr>
<td>4094</td>
<td>Insufficient storage to process desired reports.</td>
</tr>
<tr>
<td>4093</td>
<td>An error has been encountered in attempting to open or read the input parameter file. Check the JCL.</td>
</tr>
<tr>
<td>4092</td>
<td>An error has been encountered in attempting to open the input log file. Check the JCL.</td>
</tr>
<tr>
<td>4091</td>
<td>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.</td>
</tr>
<tr>
<td>4090</td>
<td>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.</td>
</tr>
<tr>
<td>4089</td>
<td>ADABAS Response Code encountered. Refer to associated error message.</td>
</tr>
<tr>
<td>4088</td>
<td>Failure in attempting to open or read the ADAWAN or ADACMP FDT for the SHOW FNR.</td>
</tr>
<tr>
<td>4087</td>
<td>Failure in getting the FDTs.</td>
</tr>
</tbody>
</table>

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   TNMOMODA 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:

<table>
<thead>
<tr>
<th>Return Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>TNM-FILE Open Error (ADA #1). This error occurs during open in EX2 error reference #1.</td>
</tr>
<tr>
<td>40</td>
<td>Event Detail Record Error (ADA #2). Error adding a record in Exit B error reference #3.</td>
</tr>
<tr>
<td>20</td>
<td>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.</td>
</tr>
<tr>
<td>10</td>
<td>Parameter Record Error (ADA #4). Indicates an invalid system parameter record read in Exit B error reference #6.</td>
</tr>
<tr>
<td>08</td>
<td>End Transaction Error (#5). Indicates a problem issuing an ET from exit 2 or exit B. Both have error reference #4.</td>
</tr>
<tr>
<td>04</td>
<td>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).</td>
</tr>
<tr>
<td>02</td>
<td>Invalid Installation Parameter. User Summary Record.</td>
</tr>
</tbody>
</table>

#### Installation Error Flags:

<table>
<thead>
<tr>
<th>Return Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>User-exits not installed properly.</td>
</tr>
<tr>
<td>02</td>
<td>TNM Parm Error.</td>
</tr>
</tbody>
</table>

#### Collection Error Flags:

<table>
<thead>
<tr>
<th>Return Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Collection turned off.</td>
</tr>
</tbody>
</table>
### IX.5 Frequently Encountered Problems

<table>
<thead>
<tr>
<th>Problem:</th>
<th>TRIM MODULE/LIBRARY MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>This problem can be solved through better user module/library management.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem:</th>
<th>ADABAS COMMAND LOG LAYOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation:</td>
<td>TRIM supports the log record format known as CLOG_LAYOUT=5 and CLOG_LAYOUT=8. There are differences in the format and data that ADABAS puts in some of the log fields in CLOG_LAYOUT=5 and CLOG_LAYOUT=8 as well as the number of records written, if logging is activated. For more information, refer to the ADABAS Manuals for the record layouts.</td>
</tr>
</tbody>
</table>
**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).
- TRMUEX4x executing is not the same Version/Release level as the RTM.
- UE4X 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 TRMUEX4x.
- 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.

**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.

---

**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).
<table>
<thead>
<tr>
<th>Problem</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATISTICS FROM RTM AND CLOG SUMMARY REPORT DO NOT AGREE</td>
<td>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 &quot;correction&quot; is made in TRMUEX4x 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 &quot;Zero FNR&quot; in Section VI Tailoring with Zaps and &quot;Option for Zeroing FNR&quot; 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, TRMUEX4x 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.</td>
</tr>
<tr>
<td>LINK-EDIT (VSE) PROBLEM USING PRODUCT &quot;FLEE&quot;</td>
<td>Copy the link-edit JCL from the Installation Tape and remove the SIZE= parameter from the EXEC card image.</td>
</tr>
<tr>
<td>NATURAL PROGRAM DISPLAYS AS #NOTExxx, BLANK, OR STRANGE CHARACTERS</td>
<td>Possibly non-NATURAL ADABAS commands were issued. Perhaps ADALINK Link-Exit-1 is not properly in place for all NATURAL environments: Batch, TSO, CICS, COM-PLETE, etc. Refer to the NATURAL Program sub-section in the Real-Time Monitor Operations section.</td>
</tr>
<tr>
<td>OUTPUT FILE APPEARS INCOMPLETE</td>
<td>Output was limited by INPUT LIMIT=, INCLUDE/EXCLUDE, or OUTPUT LIMIT= statements.</td>
</tr>
<tr>
<td>PRESUM DATA IS INCOMPLETE</td>
<td>TRMUEX4x start-up parameters may have PRESUM off/on, but may have been changed via Control Screens.</td>
</tr>
</tbody>
</table>
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: TRMUEX11/4 CAUSES ABEND WHEN CALLED BY ADABAS
Explanation: This is often caused by a user's UEX11/4 not correctly co-existing with TRMUEX11/4. Possibly a TRMUEX11/4 Zap is incorrectly applied.
## Problem: TRMUEX11 DOES NOT APPEAR TO BE CORRECTLY LOCKING, DISALLOWING, ETC.

**Explanation:** TRMUEX11 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 Link-Exit-1, check the Link-Exit-1 Zaps for erroneous application.

An abend can result in ADARUN when ADALNK and TSIUEX1G are linked as re-entrant, but the appropriate modifications have not been made to ADALNK source to make it re-entrant. PLEASE VIEW THE ADAGBLs 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 UEX11 and UEX4 link-edits, unexpected results will occur. Verify that TRMXVM has been linked with the TRMUEx11 and TRMUEx4x 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 TRMUEx4x. Assemble and link a TRELOG module with TRMUEx4x, 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 Vvrs can only process PLOGs from ADABAS V8.1.2 and above.
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 V8. Any user exit accessing the userinfo element or adding an own segment to the user info buffer must be re-assembled to pick up the current version of UINFO and TSIUINFO.

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

Explanation: 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

Explanation: 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 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-11? Has each been properly linked with TRMUUX4 and/or TRMUUX11? Has the user’s own user-exit been checked out by itself? With ADABAS?
  
  *If the user’s user-exit is properly linked with TRMUUX4x and/or TRMUUX11, 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.

```
+-----------------------------------------------------------------------------+
|                                                                             |
|                     TRIM Natural Monitor Data Collection Warning               |
|                                                                             |
|       The TNM Enable Detail Data Collection parameter or the TNM Enable     |
|       Summary Data Collection parameter was set to 'N' prior to or during   |
|       this users NATURAL session.                                           |
|                                                                             |
|       No new TNM data will be collected unless the Enable Detail Data       |
|       Collection parameter or the Enable Data Collection parameter          |
|       on the Define Data Collection Parameters screen is set to 'Y'.        |
|                                                                             |
|       At least one of these parameters must be set to 'Y' for TNM to begin  |
|       collecting data.                                                      |
|                                                                             |
|                             Press Enter to Continue                          |
+-----------------------------------------------------------------------------+
```

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.

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:

<table>
<thead>
<tr>
<th>ERROR FLAG</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>TNM File Open Error</td>
</tr>
<tr>
<td></td>
<td>1) Open -NUEX2#1</td>
</tr>
<tr>
<td>64</td>
<td>Event Detail Record Error</td>
</tr>
<tr>
<td></td>
<td>1) Add -TNMB #3</td>
</tr>
<tr>
<td>32</td>
<td>Program Summary Record Error</td>
</tr>
<tr>
<td></td>
<td>1) Find w/Hold -NUEX4#1</td>
</tr>
<tr>
<td></td>
<td>2) Add/Update -NUEX4#2</td>
</tr>
<tr>
<td>16</td>
<td>Parameter Record Error</td>
</tr>
<tr>
<td></td>
<td>1) Read -TNMB #6</td>
</tr>
<tr>
<td>08</td>
<td>End Transaction Error</td>
</tr>
<tr>
<td></td>
<td>1) ET -NUEX2#4</td>
</tr>
<tr>
<td></td>
<td>2) ET -TNMB #4</td>
</tr>
<tr>
<td>04</td>
<td>Release Control</td>
</tr>
<tr>
<td></td>
<td>1) RC -TNMB #5</td>
</tr>
<tr>
<td>02</td>
<td>User Summary Record Error</td>
</tr>
<tr>
<td></td>
<td>1) Find w/ Hold -NUEX2#2</td>
</tr>
<tr>
<td></td>
<td>2) Find -NUEX2#3</td>
</tr>
<tr>
<td></td>
<td>3) Find -TNMB #1</td>
</tr>
<tr>
<td></td>
<td>4) Find -TNMB #2</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>ERROR FLAG</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>User-exits not installed properly.</td>
</tr>
<tr>
<td>16</td>
<td>TNM was unable to find its User Info Segment information. Probable cause: NATRDC is installed with NATURAL 2.2.8.</td>
</tr>
<tr>
<td>12</td>
<td>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.</td>
</tr>
<tr>
<td>01, 02</td>
<td>Invalid installation parameter.</td>
</tr>
</tbody>
</table>

The Installation Error Flag number should be identified when contacting Treehouse Software regarding an Installation error.
Collection Errors
Collection errors are checked when the user first enters NATURAL, and the error detection flags are set before any data is collected.

If any number other than zero is displayed in the Collection Error Flag field, contact Treehouse Software and identify the Collection Error Flag number.
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 or 8 command log with LOGTYPE=COMMAND will 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 TRMUEX4x 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 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 (AMODE=31) and will acquire storage for its tables from above the line.

**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 TRMUEX4x.
- **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 PARMS**
- **TRIM WILL USE TRMLOG PARMS**
- **TRIM WILL USE TRMRSP PARMS**
- **TRIM WILL USE TRELOG PARMS**
- **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 PARMS**
- **ERROR(S) FOUND IN TRMRSP PARMS**

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=5 and 8

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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