Second Edition (June 2005)

This edition applies to version 5, release 5, modification 0 of IBM Tivoli End-to-End Response Time Feature (product number 5698-A58, 5698-A39, 5698-A59, 5698-A40) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GC32-9311-00.

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<table>
<thead>
<tr>
<th>Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>7</td>
</tr>
<tr>
<td>Chapter 1. Introduction</td>
<td>13</td>
</tr>
<tr>
<td>How Does ETE Calculate Response Time?</td>
<td>14</td>
</tr>
<tr>
<td>Chapter 2. Starting ETE</td>
<td>17</td>
</tr>
<tr>
<td>Chapter 3. Running Multiple Copies of ETE</td>
<td>21</td>
</tr>
<tr>
<td>Chapter 4. Multi-Session Manager Interface</td>
<td>23</td>
</tr>
<tr>
<td>Chapter 5. ETE Command</td>
<td>27</td>
</tr>
<tr>
<td>Chapter 6. Device Exclusion List</td>
<td>31</td>
</tr>
<tr>
<td>Chapter 7. CICS Definite Response</td>
<td>33</td>
</tr>
<tr>
<td>Chapter 8. Problem Reporting</td>
<td>39</td>
</tr>
<tr>
<td>Appendix A. Support Information</td>
<td>41</td>
</tr>
<tr>
<td>Appendix B. Notices</td>
<td>47</td>
</tr>
<tr>
<td>Index</td>
<td>51</td>
</tr>
</tbody>
</table>
The IBM® Tivoli® End-to-End (ETE™) Response Time Feature product captures end-to-end response time for applications that use either the definite response protocol or the response time exception response protocol, timing all SNA traffic that flows through VTAM®.

The IBM Tivoli End-To-End Response Time Reference provides:

- A description of ETE
- An explanation of how to start ETE after installation and customization have been completed
- A description of each ETE command argument

The ETE procedure is installed into your procedure library during Configuration Tool configuration. The Configing book for each OMEGAMON® that incorporates ETE describes the configuration process.

The ETE error messages, return codes, and sense codes are documented in the common message set, IBM Tivoli OMEGAMON Platform: Candle Products Messages. The error messages are found in Volume 1 (SC32-1916). The return codes and sense codes are documented in Volume 5 (SC32-9220).

For information on using ETE to monitor response time within a particular OMEGAMON, refer to the appropriate OMEGAMON documentation.

About This Guide

This guide is for the z/OS Systems Programmer/Analyst who is responsible for the following tasks:

- Installing application, such as the ETE product
- Automating tasks on the system
- Monitoring new applications
- Trouble-shooting and providing solutions for operators when they have problems

This guide is also useful for the program analyst who is responsible for fine-tuning the performance of systems (by measuring system capabilities and tweaking configuration settings).

Readers should be familiar with the following topics:
- The z/OS® operating system and its associated concepts
- UNIX® System Services
- TCP/IP
- Performance monitoring concepts

**Document set information**

This is the only document required for the ETE feature. Messages, return codes, and sense codes for this product are found in the *IBM Tivoli Candle Products Messages* set of books. The *Configuring* book for each OMEGAMON product that incorporates ETE describes the configuration process.

**Related publications**

The following documents also provide useful information:

- *Installing and Setting Up OMEGAMON Platform and CandleNet Portal on Windows and UNIX, SC32-1768*
  
  This document describes how to install and set up the OMEGAMON platform on distributed platforms.

- *Administering OMEGAMON Products: CandleNet Portal, GC32-9180*
  
  This document describes the support tasks and functions required for the OMEGAMON platform, including CandleNet Portal user administration.

- *Using OMEGAMON Products: CandleNet Portal, GC32-9182*
  
  This guide describes the features of CandleNet Portal and how best to use them with your OMEGAMON products.

- *Historical Data Collection Guide for OMEGAMON XE and CandleNet Command Center, GC32-9182*
  
  Describes the process of collecting historical data and either warehousing it or converting it to delimited flat files for reporting purposes.

- *Candle Management Server on z/OS Configuration and Customization Guide, GC32-9414*
  
  Provides instructions for configuring and customizing the Candle Management Server on z/OS.

The online glossary for the CandleNet Portal includes definitions for many of the technical terms related to OMEGAMON XE software.

**Accessing publications online**

The documentation CD contains the publications that are in the product library. The format of the publications is PDF. Refer to the readme file on the CD for instructions on how to access the documentation.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the
Tivoli software information center by first going to the Tivoli software library at the following Web address:


Scroll down and click the **Product manuals** link. In the Tivoli Technical Product Documents Alphabetical Listing window, click the OMEGAMON XE for Product_Name link to access the product library at the Tivoli software information center.

If you print PDF documents on other than letter-sized paper, set the option in the File -> Print window that allows Adobe Reader to print letter-sized pages on your local paper.

**Ordering publications**

You can order many Tivoli publications online at the following Web site:


You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications.

**Tivoli technical training**

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

http://www.ibm.com/software/tivoli/education

**Support information**

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- Searching knowledge bases: You can search across a large collection of known problems and workarounds, Technotes, and other information.
- Obtaining fixes: You can locate the latest fixes that are already available for your product.
- Contacting IBM Software Support: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

For more information about these three ways of resolving problems, see “Support Information” on page 41.

**Participating in newsgroups**

User groups provide software professionals with a forum for communicating ideas, technical expertise, and experiences related to the product. They are located on the Internet and are available using standard news reader programs. These groups are
primarily intended for user-to-user communication and are not a replacement for formal support.

To access a newsgroup, use the instructions appropriate for your browser.

**Documentation Conventions**

This guide uses several conventions for special terms and actions, and operating system-dependent commands and paths.

**Panels and figures**
The panels and figures in this document are representations. Actual product panels may differ.

**Required blanks**
The slashed-b (\( \)) character in examples represents a required blank. The following example illustrates the location of two required blanks.

```
beBA*ServiceMonitorb0990221161551000
```

**Revision bars**
Revision bars ({} ) may appear in the left margin to identify new or updated material.

**Variables and literals**
In examples of z/OS command syntax, uppercase letters are actual values (literals) that the user should type; lowercase letters are used for variables that represent data supplied by the user. Default values are underscored.

```
LOGON APPLID (cccccccc)
```

In the above example, you type LOGON APPLID followed by an application identifier (represented by cccccccc) within parentheses.

**Symbols**
The following symbols may appear in command syntax:

**Table 1. Symbols in Command Syntax**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The “or” symbol is used to denote a choice. Either the argument on the left or the argument on the right may be used. Example: YES</td>
</tr>
<tr>
<td></td>
<td>In this example, YES or NO may be specified.</td>
</tr>
<tr>
<td>[ ]</td>
<td>Denotes optional arguments. Those arguments not enclosed in square brackets are required. Example: APPLDEST DEST [ALTDEST]</td>
</tr>
<tr>
<td></td>
<td>In this example, DEST is a required argument and ALTDEST is optional.</td>
</tr>
</tbody>
</table>
Some documents use braces to denote required arguments, or to group arguments for clarity. Example:

```
COMPARE {workload} -
  REPORT={SUMMARY | HISTOGRAM}
```

The `workload` variable is required. The REPORT keyword must be specified with a value of SUMMARY or HISTOGRAM.

Default values are underscored. Example:

```
COPY infile outfile - [COMPRESS={YES | NO}]
```

In this example, the COMPRESS keyword is optional. If specified, the only valid values are YES or NO. If omitted, the default is YES.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Usage</th>
</tr>
</thead>
</table>
| `{}`   | Some documents use braces to denote required arguments, or to group arguments for clarity. Example: 
  
  ```
 COMPARE {workload} -
    REPORT={SUMMARY | HISTOGRAM}
  ```
  
  The `workload` variable is required. The REPORT keyword must be specified with a value of SUMMARY or HISTOGRAM. |
| `_`    | Default values are underscored. Example: 
  
  ```
  COPY infile outfile - [COMPRESS={YES | NO}]
  ```
  
  In this example, the COMPRESS keyword is optional. If specified, the only valid values are YES or NO. If omitted, the default is YES. |
End-to-end response time is the elapsed time between the moment that a user presses a key (Enter, F1 through F24, PA1, PA2, PA3, or Clear) and the moment that a response is received at the terminal. For example, if you start a stopwatch when a user presses Enter and stop it when the terminal receives the application’s first response to the user’s request, the stopwatch shows the end-to-end response time for that request.

To measure end-to-end response time, ETE places itself inside one of the VTAM SNA layers. In this location ETE can time all SNA traffic that flows through VTAM.

End-to-end response time measurement requires that VTAM internal trace with the PIU option is active. This is started automatically when ETE is activated.

ETE captures end-to-end response time for applications that use either the definite response protocol or the response time exception response protocol.

This chapter describes the End-to-End Response Time Feature (ETE), how it calculates response time, and what terminals are supported.

Definite Response Protocol

Under the definite response protocol, the application asks the terminal controller to respond to transmitted data by indicating whether or not the transmission was successful. The application must then wait for the controller’s response before continuing. Because the controller responds to all transmissions, end-to-end response time is relatively easy to monitor under the definite response protocol.

Exception Response Protocol

Under the exception response protocol, the application asks the controller to respond only if an error occurs during data transmission to the terminal. Because ETE can measure end-to-end response time only for transactions that require a response from the controller, ETE must turn on definite response for applications that use the exception response protocol. After it measures the response time, ETE discards the definite response before it flows to the application. As a result, the application never receives the definite response and is not even aware that a definite response was elicited.
How Does ETE Calculate Response Time?

ETE measures the time between SNA events from inside VTAM. The measured time begins when the request flows through VTAM toward the application; it ends when VTAM receives the definite response from the terminal controller. There is only one portion of end-to-end response time that ETE cannot capture directly and must estimate—the time before the user’s request reaches VTAM (T1 minus T0) in the figure below).

FIGURE 1. Calculating Response Time

![Diagram of response time calculation]

In most cases, the time it takes a request to flow from the terminal to VTAM (T1 minus T0) approximately equals the amount of time it takes the definite response to flow from the controller to VTAM (T6 minus T5). This is true because all definite responses and most inbound requests contain little data. Therefore, ETE calculates end-to-end response time as (T6 minus T1).

What Terminals Are Supported?

ETE Version 550 provides response time data for the following real LU types:

- SNA LU type 1
- SNA LU type 2
- SNA LU type 3
Which VTAM Releases Are Supported?

ETE Version 550 supports VTAM 3.4 and above.

How Does ETE Relate to OMEGAMON?

ETE is an SNA response time monitor which runs as a subsystem. It provides a service to OMEGAMON. ETE measures the host and network components of response time and furnishes them to any OMEGAMON that displays response time. Currently, the OMEGAMON products that obtain response time from ETE are:

- OMEGAMON II for CICS®
- OMEGAMON II for IMS™
- OMEGAMON II for MVS™
- OMEGAMON II for Mainframe Networks

When is Version 550 Required?

Use Version 550 as the ETE version for

- OMEGAMON II for CICS, Versions 500 and above.
- OMEGAMON II for IMS, Versions 500 and above.
- OMEGAMON II for MVS, Versions 500 and above.
- OMEGAMON II for Mainframe Networks, Versions 500 and above.

Is ETE a Single System?

For all of the IBM Tivoli Candle® products that use ETE Version 550 for response time, only one ETE Version 550 system is required, regardless of the number of IBM Tivoli Candle products you are running.

Can Version 550 Coexist with Prior Releases?

ETE Version 550 running in one address space can coexist with a previous version of ETE running in another address space.

You can run multiple ETE systems for testing, but for production we recommend using the minimum number of ETE systems required. For more information about running multiple ETE systems, see “Running Multiple Copies of ETE” on page 21.

Where Are the Installation Instructions?

For each OMEGAMON that uses ETE, the ETE proc is installed into your proclib when you configure the product using the Configuration Tool. It is recommended that your OMEGAMONs share the same ETE started task. For information about using the Configuration Tool, see the OMEGAMON product Configuring Guides.

The chapters that follow explain how to further configure ETE for your site.
How Does ETE Calculate Response Time?

What’s New in Version 550?

The enhancements to ETE provided by Version 550 are solely internal.
This chapter explains how to start ETE after it is installed and customized as described in your OMEGAMON installation documentation.

For information on using ETE within your OMEGAMON product, refer to the response time section of your OMEGAMON documentation.

To start ETE, follow the steps below in order.

**Shut Down All OMEGAMONs That Use ETE**

To shut down OMEGAMONs that use ETE:

1. Refer to the appropriate OMEGAMON manual for an explanation of its stop procedure.
2. Issue an ETE QUIESCE command to stop ETE. (See page 28 for details.)

**Customize ETE Startup JCL**

The ETE startup JCL is named CANSET. Control the monitoring of LU type 1 and 3 devices with a parameter on the EXEC statement. This is the format for the EXEC statement:

```
EXEC PGM=KETESTRN,PARM='pppppp,CIHT=nnnnn'
```

where the variables are:

- `pppppp` Control option parameter:
  - **NFDRNL2** Monitor, but do not force DR on LU type 1 and 3 devices (default). This option allows collection of byte count information but not response time data for LU type 1 and 3 devices (unless session is using DR of its own accord).
  - **FDRNL2** Monitor and force DR on LU type 1 and 3 devices. This option allows collection of byte count information and response time data for LU type 1 and 3 devices.
    Do not use this option with 3816 or 3820 printers.
Add the RKANPAR Dataset

To enable or disable other control options for the ETE address space, add the RKANPAR dataset to the ETE startup JCL. See “Device Exclusion List” on page 31.

Add the following statement directly after the EXEC PGM=KETESTRN statement:

```
//RKANPAR DD DSN=hilev.RKANPAR,DISP=SHR
```

The RKANPAR dataset is where you specify information about enabling and disabling control options.

If you do not add the RKANPAR dataset to the ETE startup JCL, no additional startup options (other than those on the EXEC statement) are processed.

Device Exclusion List

To exclude devices that cannot tolerate definite response protocol from ETE monitoring:

1. Create member KETXDLDR in the RKANPAR library.
2. In member KETXDLDR, list the devices to exclude. You can refer to member KETXDLDR in the TKANSAM dataset which contains a sample device exclusion list.
3. Make sure that ddname RKANPAR is included in the ETE JCL.
See “Device Exclusion List” on page 31 for more information about excluding LU names from ETE monitoring.

Check TIME Parameter on JOB Statement

The sample ETE started task JCL is shipped without a TIME parameter on the JOB statement. Many sites maintain a default TIME parameter value (such as 1439 or 1440) that prevents started tasks from timing out. If your site’s default TIME parameter value allows timeout, be sure to add an appropriate TIME parameter to the ETE JOB statement. The ETE started task must not timeout.

Important Prerequisites

These are important prerequisites to starting ETE:

1. Plan on running only one ETE, regardless of the number of OMEGAMONs or sessions using ETE.
2. Make sure that VTAM is active.
3. Because ETE must be active before OMEGAMON can use it, plan to start ETE as soon as possible after VTAM initializes. If any sessions were started before ETE startup, those terminals’ binding information are unavailable to ETE. This limits ETE’s effectiveness for those terminals.
4. ETE requires the VTAM internal trace to be running. ETE starts the trace automatically.
5. Make sure the STEPLIB DD statement in your OMEGAMON product JCL procedure points to the IBM Tivoli Candle product runtime load library, RKANMOD and is APF-authorized.
6. If you want to run concurrent versions of ETE, read “Running Multiple Copies of ETE” on page 21 before starting ETE.

**Start ETE**

To start ETE, issue this command at the MVS operator console:

```
S CANSET
```

where CANSET is the name of the ETE address space JCL procedure.

**Result:** The ETE Version 5.5.0 address space remains active until it is quiesced.

To verify that ETE started successfully, look for this message on the operator console:

```
ETE0091 ETE VERSION 550 SUCCESSFULLY INITIALIZED
```

**Verify ETE Start**

At an MVS console, enter the ETE USERS command to verify that ETE started. Check the command output which will appear as shown below.

**FIGURE 2. ETE USERS Command Output**

<table>
<thead>
<tr>
<th>ETE USERS</th>
<th>ETE0002: ETE V550 #00 LOAD DSN=hilev.RKANMOD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ETE0040: JOBNAME ASID TCB TYPE</td>
</tr>
<tr>
<td></td>
<td>ETE0041: USER001 00176 007BE458 RSPTIME</td>
</tr>
<tr>
<td></td>
<td>ETE0041: ETE550 00175 007EDB80 CAPTURE</td>
</tr>
<tr>
<td></td>
<td>ETE0041: ETE550 00175 007EFP1F8 CAPTURE</td>
</tr>
<tr>
<td></td>
<td>ETE0041: ETE550 00175 007EFP1F8 CAPTURE</td>
</tr>
<tr>
<td></td>
<td>ETE0003: COMPLETE</td>
</tr>
</tbody>
</table>

The first line of console output shows
- ETE version number
- Subsystem identifier (00 is the default)
- Load library from which you installed ETE

The ETE started task name appears in the display several times because ETE is a user of its own internal services.

**Make ETE Available to OMEGAMONs**

To make ETE available to OMEGAMONs, you must set up all of your OMEGAMONs to load ETE modules from the hilev.RKANMOD library. hilev was defined during OMEGAMON installation, as described in your OMEGAMON installation documentation.
1. Ensure that the IBM Tivoli product load library, RKANMOD is included in a STEPLIB DD statement for each of your OMEGAMON jobs and started tasks. This library contains OMEGAMON and ETE load modules.

2. Ensure that all libraries in the STEPLIB concatenation are APF-authorized.

Verify OMEGAMON and ETE Operation

1. Start each OMEGAMON that uses ETE.

2. Verify ETE operation by starting response time monitoring for each OMEGAMON.

Multi-Session Manager (MSM) Customization

To obtain response time for sessions controlled by an MSM, you must configure the MSM to produce the session switch message. For more information, see “Multi-Session Manager Interface” on page 23.

Stopping ETE

It is recommended that you keep ETE running continuously to collect session information history. If you decide to stop ETE for any reason, issue the ETE QUIESCE command as described on page 28.

Major Node Recycling

If a VTAM major node containing logical units that are being monitored by OMEGAMON II for CICS or OMEGAMON II for IMS is recycled, you must quiesce ETE and restart it in order to re-establish linkage.

OMEGAMON II for MVS and OMEGAMON II for VTAM are not affected by the recycle and do not need to re-establish linkage.

ETE Recycling

We recommend that you keep ETE running for the life of the IPL. However, if you take down ETE, you may notice that some storage is left in the CSA. Do not delete this data because it is reaccessed by ETE when it is restarted.
Under normal conditions, running multiple OMEGAMONs requires only one copy of ETE.

During test, product migration, or under special circumstances, you may need to start several copies of ETE Version 550, or Version 550 and prior releases. This chapter describes considerations for running multiple copies of ETE. You can run:

- Multiple copies of ETE Version 550
- Multiple copies of a prior ETE release
- ETE Version 550 and a prior ETE release

**DDNAME Identifying ETE Subsystems**

When using multiple copies, to identify and run a specific copy of ETE 520 you must:

- Include this DD statement in each ETE JCL stream:

  ```
  //RKETVTnn DD DUMMY
  ``

  where `nn` is a unique numeric suffix between 00 and 15, identifying the subsystem.

- A maximum of four ETE address spaces can run concurrently in a single domain.

**Important:** To identify the ETE subsystem to the OMEGAMON using it, be sure to also include the DD DUMMY statement, as described above, in the OMEGAMON JCL stream.

**Issuing ETE Command**

If you are running multiple copies of ETE, be sure to direct ETE commands to the proper ETE using the following syntax:

```ETE nnn: cccccc```

- `nnn` Three-digit ETE version number or two-digit subsystem identifier.
- `ccccccc` ETE command name.

To direct ETE commands to the proper ETE when more than one ETE system is running, include the version number.

For example, to QUIESCE ETE Version 550, issue this command:
Running ETE with the IBM NPM product

These are special operational considerations when running concurrent ETEs and the IBM Network Performance Monitor (NPM) product.

- ETE can coexist with NPM. When NPM starts, it disregards any existing interface participant and installs itself as the only front-end interface to VTAM. This disables ETE operation. ETE detects this condition and reinstalls itself in conjunction with NPM.
- When NPM terminates, it removes itself as an interface participant but does not ensure the integrity of other interface participants. ETE also detects this condition and recovers from it.
- If NPM starts or stops when more than one ETE system is running, only one ETE recovers. The ETE that recovers depends on various factors at the time the event occurs. The ETE that does not recover does not impact the system, but does not report response time information.

**Note:** We recommend that you do not run multiple copies of ETE with NPM in your production environment because of the limitations stated above.
This chapter describes how ETE interacts with multi-session managers (MSMs).

**MSM Overview**

In a configuration with an MSM, such as CL/SUPERSESSION®, a terminal user logs onto the MSM using a real terminal. Then, using a pool of Virtual Logical Unit (VLU) names, the MSM establishes sessions on behalf of that real terminal.

Depending on the MSM implementation, you can use the following VLU configurations to support multiple logical unit-logical unit (LU-LU) sessions:

- The MSM establishes multiple sessions on behalf of a real terminal using a single VLU.

**FIGURE 3. MSM Configuration, Real Terminal Using a Single VLU**
The MSM establishes multiple sessions on behalf of a real terminal using *multiple* VLUs.

**FIGURE 4. MSM Configuration, Real Terminal Using Multiple VLUs**

The MSM establishes multiple sessions on behalf of *multiple* real terminals using a single VLU.

**FIGURE 5. MSM Configuration, Multiple Real Terminals Using Single VLU**
In each of the preceding configurations, ETE Version 5.5.0 measures the host and network components of response time.

**Host response time**  
The time it takes for the data to flow between the application (CICSA, CICSB, TSO) and the VLU.

**Network response time**  
The time it takes for the data to flow between the MSM and the real terminal (TERMA, TERMB).

### Operating ETE with MSMs

The following conventions apply to ETE operation with MSMs:

- Both ETE and the MSM must reside in the same VTAM domain.
- When using ETE through OMEGAMON II for Mainframe Networks, the actual PLU of the virtual session (CICS, IMS, TSO,...) can be the same domain, cross domain, or even cross-network.
- You must start ETE prior to any MSM containing VLUs that ETE will monitor. ETE does not monitor MSM sessions if it is unaware of the VLU and real terminal relationship. If you cancel or stop the ETE address space, response time numbers are not accurate or subsequent attempts to monitor terminals fail until the next restart of the MSM.
This chapter describes the ETE operator command. The command syntax is defined, all command arguments are listed alphabetically with a brief description of their function, and the resulting console output is illustrated.

ETE Command Syntax

Issue the ETE operator console command using the following syntax:

`ETE nnn cccccccc`

**nnn**  Three-digit ETE version number (such as 550) or two-digit ETE subsystem identifier (a unique number between 00 and 15). This suffix is only required when running multiple copies of ETE. For more information, see “Running Multiple Copies of ETE” on page 21.

**ccccccc**  ETE command argument

ETE Command and Arguments

ETE accepts the ETE operator console command with an argument. The ETE command with each of its valid arguments is shown below.

**ETE CLRDUMP**  Resets the flag that indicates dumps have been completed. This allows additional dump collection.

```
ETE CLRDUMP
ETE0002:  ETE V550 #00   LOAD DSN=hilev.TKANMOD
ETE0003:  COMPLETE
```

**ETE DUMP**  Creates an SVC dump tailored for ETE problem analysis and troubleshooting.

```
ETE DUMP
ETE0002:  ETE V550 #00   LOADLIB=hilev.TKANMOD
ETE0010:  OMEGAMON SCHEDULED CSA DUMP IN PROGRESS
ETE0011:  OMEGAMON SCHEDULED CSA DUMP COMPLETE
ETE0003:  COMPLETE
```

**ETE DUMPDXL**  Displays the excluded devices.

```
ETE DUMPDXL
ETE0002:  ETE V550 #00   LOADLIB=hilev.TKANMOD
ETE0010:  OMEGAMON SCHEDULED CSA DUMP IN PROGRESS
ETE0011:  OMEGAMON SCHEDULED CSA DUMP COMPLETE
ETE0003:  COMPLETE
```
ETE DUMPDXL
ETE0002: ETE V550 #00 LOAD DSN=HILEV.TKANMOD
ETE0209: DXLHTE=014A70A8 SLUNAME=DUMMYA
ETE0209: DXLHTE=014A7980 SLUNAME=DUMMYB
ETE0003: COMPLETE

ETE HELP
Displays available ETE subsystem command arguments.

ETE HELP
ETE0002: ETE V550 #00 LOADLIB=HILEV.TKANMOD
ETE0070: THE FOLLOWING ETE COMMANDS ARE AVAILABLE:
ETE0071: CLRDUMP -- RESET DUMP FLAG/ALLOW NEW DUMP
ETE0071: DUMP -- PRODUCE A DIAGNOSTIC ETE SVC DUMP
ETE0071: DUMPDXL -- LIST EXCLUDED DEVICES
ETE0071: HELP -- PRODUCE THIS DISPLAY
ETE0071: QUIESCE -- TERMINATE THE ETE SUBSYSTEM
ETE0071: RESET -- RESET ETE SUBSYSTEM AND QUIESCE
ETE0071: SYSTEMS -- DISPLAY ETE SUBSYSTEM INSTALLED
ETE0071: TRACEON -- START ETE DIAGNOSTIC TRACE
ETE0071: TRACEOFF -- STOP ETE DIAGNOSTIC TRACE
ETE0071: USER= -- DISPLAY LUNAMES MONITORED BY A SPECIFIC PRODUCT
ETE0071: USERS -- DISPLAY PRODUCTS USING THE ETE SUBSYSTEM
ETE0071: VERBOSE -- PRODUCE A DIAGNOSTIC WTO FOR SELECTED EVENTS
ETE0071: NOVERBOSE -- CANCEL EFFECTS OF VERBOSE COMMAND
ETE0003: COMPLETE

ETE NOVERBOSE
Cancels the effect of the ETE VERBOSE command. VERBOSE MODE OFF is the default status.

ETE NOVERBOSE
ETE0002: ETE V550 #00 LOADLIB=HILEV.TKANMOD
ETE0016: VERBOSE MODE OFF
ETE0003: COMPL
ETE

ETE QUIESCE
Shuts down ETE. Use this command before applying maintenance and restarting ETE. After ETE shuts down, OMEGAMON receives a return code or sense code indicating that ETE is not operational. QUIESCE does not impact other network monitoring systems.

Stopping the ETE address space using the MVS STOP command automatically generates an ETE QUIESCE command.

Caution: A small amount of common storage is intentionally left behind and is re-used when ETE is restarted. Do not free this storage with the CSA Analyzer™ because this is not orphan storage.

Note: Stop ETE only when necessary. We recommend that you start ETE immediately after VTAM startup and that you keep ETE running continuously to collect session information history.
ETE Command

**ETE RESET**  
Use this command only at the direction of IBM Software Support.

Resets VTAM interfaces and quiesces ETE subsystem and address space. ETE RESET impacts OMEGAMON and other network monitoring systems.

**Caution:** Use this command *only* at the direction of IBM Software Support.

---

**ETE SYSTEMS**  
Displays ETE subsystem status.

---

**ETE TRACEOFF**  
Stops ETE problem determination diagnostic trace. Trace off is the default status.

---

**ETE TRACEON**  
Starts ETE problem determination diagnostic trace.
**ETE TRACEON**

ETE0002: ETE V550 #00 LOADLIB=hilev.TKANMOD
ETE0003: COMPLETE

**ETE USER=userid**

Displays all LU names being monitored by the specific product using ETE. *userid* is a job name as shown in the ETE USERS command display.

**ETE USERS**

ETE0002: ETE V550 #00 LOAD DSN=hilev.TKANMOD
ETE0040: USER001 : ASCB=00EE9080, TCB=007C5458
ETE0044: L0021450/TSOGR0021 L0027740/MTVMTG0 L0027990/RGSS00IN
ETE0044: L613A45/V146GTW1 L613A74/IVTAMG0 L615108/SUPGATEG
ETE0044: L615A00/V146GTW1 L635 /TSOGR0028
ETE0003: COMPLETE

**ETE USERS**

ETE0002: ETE V550 #00 LOAD DSN=hilev.TKANMOD
ETE0040: JOBNAME ASID TCB TYPE
ETE0041: USER001 00176 007BE458 RSPTIME
ETE0041: ETE550 00175 007BE1F8 CAPTURE
ETE0041: ETE550 00175 007BE1F8 CAPTURE
ETE0003: COMPLETE
Device Exclusion List

This chapter describes a feature of ETE you can use to exclude devices from ETE monitoring, even though they have been defined for monitoring by one or several OMEGAMON products. This exclusion takes effect whether OMEGAMON defined specific or generic SLU devices for monitoring.

Protecting Devices from DR

Although you use ETE to monitor response time for VTAM applications in session with SLU devices, you can exclude SLU devices that are not tolerant of the definite response (DR) requests issued by ETE.

To do this, set up a device exclusion list specifying those SLUs that you want to exclude from DR requests. The SLUs in the list are defined in the ETE component address space and are protected from DR requests.

Defining the Exclusion List

To create an exclusion list, you must create a KETXDLDR member in the RKANPAR dataset. You can refer to the sample KETXDLDR member in the TKANSAM dataset.

Use the following syntax to define the exclusion list:

Card columns 1-71 Free-form positional 1- to 8-byte LU names separated by blanks or commas. Do not mix comments with positional operands.

**Note:** An asterisk (*) in column 1 indicates a comment line, all information on that line is ignored.

See “Add the RKANPAR Dataset” on page 18 for information about RKANPAR in the ETE JCL.

Exclusion List Example

The following example shows how KETXDLDR excludes SLUs from monitoring by ETE.
Changing the Exclusion List

You can change the device exclusion list in the KETXDLDR member of the RKANPAR dataset at any time.

To implement the changes, you must recycle (stop and then restart) ETE.

Rules:

1. You can code more than one device on one line, separated by commas or blanks.
2. Wildcards, masks, and generic device names are not supported.
This chapter describes a feature of ETE Version 550 that prevents immediate response mode protocol violations during CICS sessions.

To monitor response time, ETE may change an exception response to a definite response (DR). If this response is immediately followed by another PIU with DR requested, the CICS session may experience an immediate response mode protocol violation (sense code X’200A’). By providing a CICS SEND exit, this feature ensures that the first request is answered before the second request is sent, thus preventing CICS session termination (DFH3465).

The IBM-supplied CICS SEND exit forces DR only when all of the following are true:

- There is a last-in-chain or only-in-chain PIU.
- End-of-bracket or change-direction is in effect.
- The BIND image allows for DR and specifies FM profile 3.
- The session is monitored by ETE running on the same host system as CICS.

Solution Provided

For this feature, IBM supplies the following:

1. Module KETXCOU for the standard CICS SEND exit XZCOUT
2. Enabling and disabling of the CICS SEND exit in two forms:
   a. PLTPI/PLTSD module KETXCPLN to enable the exit at CICS startup and disable the exit at CICS shutdown
   b. CICS transaction KETX to directly enable or disable the exit
3. New parameter CIHT on the ETE EXEC statement to specify the CIHT table size

Graphic Overview

The following diagram illustrates ETE’s CICS DR implementation.
CICS Releases Supported

Because this feature uses a CICS exit, ETE is now CICS release sensitive. ETE is supported for CICS Version 4.1.0 and higher with the CICS user Exit program.

MSM Considerations

If you are using a multi-session manager (MSM) to log onto CICS, the MSM and ETE must be in the same domain as CICS.

Installation Considerations

You must include the IBM Tivoli product load library, RKANMOD, in STEPLIB and DFHRPL concatenations in the CICS startup JCL. This library includes ETE as well as OMEGAMON modules.

You can find the parameter CIHT on the ETE EXEC statement. You may choose not to enable this feature by specifying `CIHT=0`. For more information on the CIHT parameter, see "ETE EXEC Parameter CIHT" on page 35 and "Customize ETE Startup JCL" on page 17.
CICS Table Updates Required

To initialize ETE support components in the CICS address space, you must modify CICS control tables as follows:

3. For automatic enabling/disabling of the CICS SEND exit, update the PLT to include the following statement in the second stage of initialization in the PLTPI list and in the first stage of shutdown in the PLTSD list:

   **DFHPLT TYPE=ENTRY,PROGRAM=KETXCPLN**

4. For manual enabling/disabling of the exit via transaction KETX, define a new transaction and two new programs in one of two ways:
   a. If you manually edit PCT and PPT tables, do the following:
      1. Update the PCT to include
         **DFHPCT TYPE=ENTRY,TRANSID=KETX,PROGRAM=KETXCPLN, X**
         **TRNPRTY=255,TWASIZE=0,DTB=NO, X**
         **TPURGE=YES,SPURGE=NO,SCRNSZE=ALTERNATE**
      2. Update the PPT to include
         **DFHPPT TYPE=ENTRY,PROGRAM=KETXCPLN,PGMLANG=ASSEMBLER**
         **DFHPPT TYPE=ENTRY,PROGRAM=KETXCOUN,PGMLANG=ASSEMBLER**
   b. If you use transaction CEDA to define resources online, do the following:
      1. Define transaction KETX with the same attributes specified by the PCT entry in item 3.a.1 above. Specify TASKDATAKEY=CICS.
         If you migrate resource definitions from a prior CICS release, make sure that TASKDATAKEY=CICS.
      2. Define programs KETXCPLN and KETXCOUN with the same attributes specified by the PPT entries in item 3.a.2 above. Specify EXECKEY=CICS.

ETE EXEC Parameter CIHT

CIHT is the parameter on the ETE EXEC statement you use to specify the number of entries in the ETE table, CIHT. ETE uses CIHT to monitor sessions. The syntax of the CIHT parameter is:

   **CIHT=nnnnn**

The following table shows the effects of the possible CIHT settings.

<table>
<thead>
<tr>
<th>If CIHT is</th>
<th>then CIHT . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omitted</td>
<td>Defaults to 1499</td>
</tr>
<tr>
<td>Between 0 and 99999</td>
<td>Is within valid range</td>
</tr>
<tr>
<td>Zero</td>
<td>Is not allocated and CICS DR control is disabled, even if the KETXCOUN exit is enabled in the CICS address space</td>
</tr>
<tr>
<td>Between 1 and 1499</td>
<td>Defaults to 1499</td>
</tr>
</tbody>
</table>
Recommended CIHT

We recommend that you specify:

\[
\text{CIHT} = 2 \times \text{sessions}
\]

where \text{sessions} is your estimate of the number of sessions monitored by ETE at any one time.

For more information about the ETE EXEC statement in the ETE startup JCL, see “Customize ETE Startup JCL” on page 17.

CICS SEND Exit

ETE uses the standard CICS SEND exit, XZCOUT to control DR at the end of a logical transaction. IBM supplies the CICS exit module KETXCOUN.

You must enable this exit \textit{before} starting response time collection for any CICS resource. Failure to do so can result in session termination. See “Enabling/Disabling Exit by PLTPI/PLTSD” on page 36.

The exit applies to all CICS applications using 3270 VTAM terminals. It is invoked every time a CICS SEND command is issued with only a negligible increase in instruction path length.

Enabling/Disabling Exit by PLTPI/PLTSD

The enabling/disabling processor is a IBM-supplied CICS command-level application module.

After proper installation of this feature (see “Installation Considerations” on page 34 and “CICS Table Updates Required” on page 35), you can use the IBM-supplied PLTPI module KETXCPLN to automatically enable the IBM-supplied CICS SEND exit at CICS startup. Likewise you can use the same IBM-supplied module KETXCPLN in the PLTSD to automatically disable the exit at CICS shutdown.

Any confirmation or error messages from enabling/disabling appear as WTO messages on the master console. See \textit{IBM Tivoli Candle Products Messages}.

Important

It is recommended that you use this method for automatically enabling and disabling the CICS SEND exit.

### Table 2. CIHT Settings

| Between 1500 and 99999 | Is converted to the nearest higher prime number |

---

36 IBM Tivoli End-to-End Response Time Feature (ETE) Reference Version 550
Enabling/Disabling Exit by Transaction KETX

You can also use the IBM-supplied CICS transaction KETX to directly enable or disable the IBM-supplied CICS SEND exit or to view the current status of the exit:

- **KETX ENABLE** Enables the CICS SEND exit.
  Abbreviation is KETX E.
- **KETX DISABLE** Disables the CICS SEND exit.
  Abbreviation is KETX D.
- **KETX STATUS** Displays the current status of the CICS SEND exit.
  Abbreviation is KETX.
- **KETX DIAGNOSE** Displays diagnostics if the CICS SEND exit is enabled. Initiate only if requested by IBM Software Support.
  Abbreviation is KETX DIAG.

Confirmation or error messages from KETX display at the initiating terminal. Refer to *IBM Tivoli Candle Products Messages*. 
This chapter contains the procedure for gathering information about certain conditions or errors requiring assistance from IBM Software Support.

Procedure for Reporting a Problem

The **User Response** section of various ETE messages request that you collect systems information and dumps before contacting IBM Software Support. This enables IBM Software Support to assist you in a timely and efficient manner.

Please have the following information and data available before contacting IBM Software Support:

1. **Describe your system and network configurations.**
   Many network problems are directly related to network configuration. Since ETE resides in a host, network configuration also imposes limitations on the capability of ETE.
   Identify the following items in the problem report:
   a. The subarea network configuration, where the VTAMs and NCPs are located, and how they are connected.
   b. The location and type of the real terminal or terminals that are involved. What is the type of the terminal or terminals, are they locally attached, remotely attached, or token ring? Is there a multi-session manager involved?
   c. The system configuration of the products that are running:
      - OMEGAMON
      - ETE
      - CL/SUPERSESSION
   Are they on the same or different MVS systems?
   d. The identity of similar products by other vendors.

2. **Determine the software release and maintenance levels of both IBM and other vendor products.**

3. **Record all messages and codes.**
   Record ETE and OMEGAMON message numbers, return codes, and sense codes. Be sure to record any related VTAM, CICS, IMS, TSO, or CL/SUPERSESSION error messages. If the MVS console log, NetView operator log, master console log, or other logs are available, include them.
4. Obtain OMEGAMON debug screens, if available.
   To obtain debug screens for OMEGAMON II for MVS or OMEGAMON II for CICS, enter this INFO-line command:

   **DEBUG**

5. Save any dumps generated.
   If ETE causes a storage dump in the MVS or VTAM subsystems or in ETE itself, save this dump for problem analysis.

6. Request a non-destructive dump of ETE.
   To request ETE to take a non-destructive dump, enter this command from the MVS system console:

   **ETE DUMP**

   **Note:** This is an ETE command, not the MVS DUMP command.

7. Issue traces.
   If you determine that the problem is related to data traffic, a terminal(s) hanging, incorrect data, or some other area of network operation, you need to create a VTAM I/O trace, a VTAM buffer trace, and ETE diagnostic traces.

   a. Start GTF trace with options RNIO and USR or use the OMEGAMON II for Mainframe Networks Internal Trace Feature. For GTF description see the IBM *Diagnostics: Using Dumps and Traces* (XA or ESA) manual or the *Diagnostics: Service Aids* (370) manual. For more information on the OMEGAMON trace feature see the *OMEGAMON II for Mainframe Networks User’s Guide*.

   b. Start VTAM I/O and buffer traces. See the IBM *ACF/VTAM Operation* manual.
      - If the problem is related to the real terminal and the user session does not involve a multi-session manager, such as CL/SUPERSESSION, request VTAM traces for the real physical terminal.
      - If the problem session does involve a virtual terminal, trace both the real physical terminal and the destination host application system (such as CICS or TSO).

   c. Recreate the problem situation while the trace is running.

   d. Stop the GTF trace.

8. Issue CICS transaction KETX DIAGNOSE.
   If you determine that the problem is related to CICS sessions or the IBM-supplied CICS SEND exit, issue the following transaction from a CICS terminal:

   **KETX DIAG**

   The output of this transaction is routed to the master console and to the initiating terminal.

9. Copy the following data to tape and send to IBM Software Support:
   a. The portion of the master console log containing the output of transaction KETX DIAG.

   b. The raw dump and trace datasets. Do not send formatted dumps or traces.
If you have a problem with your IBM software, you want to resolve it quickly. This section describes the following options for obtaining support for IBM software products:

- “Searching knowledge bases” on page 41
- “Obtaining fixes” on page 42
- “Receiving weekly support updates” on page 42
- “Contacting IBM Software Support” on page 43

Searching knowledge bases
You can search the available knowledge bases to determine whether your problem was already encountered and is already documented.

Searching the information center
IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, and reference information.

Searching the Internet
If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem.

To search multiple Internet resources for your product, use the Web search topic in your information center. In the navigation frame, click Troubleshooting and support > Searching knowledge bases and select Web search. From this topic, you can search a variety of resources, including the following:

- IBM technotes
- IBM downloads
- IBM Redbooks®
- IBM developerWorks®
- Forums and newsgroups
- Google
Obtaining fixes

A product fix might be available to resolve your problem. To determine what fixes are available for your IBM software product, follow these steps:

2. Click Downloads and drivers in the Support topics section.
3. Select the Software category.
4. Select a product in the Sub-category list.
5. In the Find downloads and drivers by product section, select one software category from the Category list.
6. Select one product from the Sub-category list.
7. Type more search terms in the Search within results if you want to refine your search.
8. Click Search.
9. From the list of downloads returned by your search, click the name of a fix to read the description of the fix and to optionally download the fix.

For more information about the types of fixes that are available, IBM Software Support Handbook at http://techsupport.services.ibm.com/guides/handbook.html.

Receiving weekly support updates

To receive weekly e-mail notifications about fixes and other software support news, follow these steps:

2. Click My Support in the upper right corner of the page.
3. If you have already registered for My Support, sign in and skip to the next step. If you have not registered, click register now. Complete the registration form using your e-mail address as your IBM ID and click Submit.
4. Click Edit Profile.
5. In the Products list, select Software. A second list is displayed.
6. In the second list, select a product segment, for example, Application servers. A third list is displayed.
7. In the third list, select a product sub-segment, for example, Distributed Application & Web Servers. A list of applicable products is displayed.
8. Select the products for which you want to receive updates, for example, IBM HTTP Server and WebSphere Application Server.
9. Click Add products.
10. After selecting all products that are of interest to you, click Subscribe to email on the Edit profile tab.
11. Select Please send these documents by weekly email.
12. Update your e-mail address as needed.

13. In the Documents list, select Software.

14. Select the types of documents that you want to receive information about.

15. Click Update.

If you experience problems with the My support feature, you can obtain help in one of the following ways:

Online: Send an e-mail message to erchelp@ca.ibm.com, describing your problem.

By phone: Call 1-800-IBM-4You (1-800-426-4968).

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2® and WebSphere® products that run on Windows or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:
  - Online: Go to the Passport Advantage Web page (http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home) and click How to Enroll
  - By phone: For the phone number to call in your country, go to the IBM Software Support Web site at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.

- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at https://techsupport.services.ibm.com/ssr/login.


- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web site at http://www.ibm.com/servers/eserver/techsupport.html.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the IBM Software Support Handbook on the Web at
To contact IBM Software Support, follow these steps:

1. “Determining the business impact” on page 44
2. “Describing problems and gathering information” on page 44
3. “Submitting problems” on page 45

Determining the business impact

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

<table>
<thead>
<tr>
<th>Severity 1</th>
<th>The problem has a critical business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity 2</td>
<td>The problem has a significant business impact. The program is usable, but it is severely limited.</td>
</tr>
<tr>
<td>Severity 3</td>
<td>The problem has some business impact. The program is usable, but less significant features (not critical to operations) are unavailable.</td>
</tr>
<tr>
<td>Severity 4</td>
<td>The problem has minimal business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.</td>
</tr>
</tbody>
</table>

Describing problems and gathering information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.
- What software versions were you running when the problem occurred?
Submitting problems

You can submit your problem to IBM Software Support in one of two ways:

- **Online:** Click *Submit and track problems* on the IBM Software Support site at http://www.ibm.com/software/support/probsub.html. Type your information into the appropriate problem submission form.

- **By phone:** For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook (http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Software Support Web site daily, so that other users who experience the same problem can benefit from the same resolution.
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Index

A
APF authorization 20

C
CA-MAZDAMON compatibility 15, 19
changing exclusion list 32
CICAT 15
CICS
diagnosis via transaction KETX 40
release supported 34
SEND exit 36
session termination, preventing 33
table updates 35
CICS definite response 34
CIHT parameter 18, 35
enabling/disabling exit 36
EXECKEY keyword 35
EXITS keyword 35
feature 33
forcing 33
graphic overview 33
MSM considerations 34
PLTP1 table 35
PLTSN table 35
releases supported 34
SEND exit 36
SIT table 35
table updates required 35
CIHT parameter 18, 34, 35
CL/SUPERSESSION 23
CLRDUMB argument of ETE command 27
coeexistence with other software 15
coeexistence with prior ETE releases 15
concurrent ETE version 21
confirmation, KETX transaction 37
copies of ETE, multiple 21
copy data to tape 40
CSA storage use 20
CT/Engine requirement Version 170 15
customer service, problem reporting 39
customer support
  see Software Support 43
customization for device exclusion 31
definite response
  forcing 13
  protection from 31
  protocol 13
  See CICS definite response
device exclusion list 31
DFH3465 message 33
DFHPCT table 35
DFHPPT table 35
DIAGNOSE argument of KETX transaction 40
direct ETE command to ETE version 21
DISABLE argument of KETX transaction 37
disable CICS SEND exit 36
documentation conventions 10
DUMP argument of ETE command 27
DUMPXL argument of ETE command 27
END
ENABLE argument of KETX transaction 37
enable CICS SEND exit 36
End-to-End
  See also ETE
End-to-End response time
  application 14
calculations 14
CT/Engine requirement 15
definite response protocol 13
definition 13
exception response protocol 13
host 14, 25
network 14
service to OMEGAMON 15
terminal supported 14
VTAM 14
ETE 13
  availability to OMEGAMON 19
  CIHT parameter on EXEC statement 35
coeexistence with prior releases 15
load library 20
multiple copies 21
non-destructive dumb 40
prerequisites to startup 18
resetting 29
single system 15
starting 17, 19
stopping 20, 28
TIME parameter 18
verification 19, 20
ETE command 27–30
arguments 27
CLRDUMB argument 27
direct to ETE version 21
DUMP argument 27
DUMPDXL argument 27
Help argument 28
multiple ETE versions 21
NOVERBOSE argument 28
QUIESCE argument 17, 28
RESET argument 29
subsystem identifier 27
syntax 27
SYSTEM argument 29
TRACEOFF argument 29
TRACEON argument 29
USER argument 30
USERS argument 19, 30
version number 21
exception response protocol 13
exclusion list 31
changing 32
element 31
KETXDLDR member 31
RKANPAR dataset 18, 31
EXEC keyword 35
CICS definite response 35
EXEC statement 17, 34
EXECKEY keyword 35
EXITS keyword 35

FAILNL2 parameter 18
FDRNL2 parameter 17
forcing definite response 13, 33

GTF traces 40

G

HELP argument of ETE command 28
host response time 25

H

identifying subsystems 21, 27
information centers, searching to find software problem resolution 41
installation considerations 34
installation instructions, CICAT 15

I

installation, CICS DR considerations 34

J

JOB statement, TIME parameter 18

K

KETVTMnn ddname 21
KETX transaction 35, 37, 40
KETXCOUN exit module 36
KETXCPLN program 35
KETXDLDR member 31
knowledge bases, searching to find software problem resolution 41

L

loading the RKANMOD dataset 19
LU types supported 14
LU-LU sessions 23

M

major node recycling 20
master console log 40
message DFH3465, CICS 33
MSM
  CICS definite response considerations 34
customization 20
ETE operations 25
interface 23
real terminals 24
sessions
VLUs 23
multiple copies of ETE 21
multi-session manager 20
See MSM
Multi-Session Manager (MSM) Customization 20
MVS STOP command 28

N

NetSpy 15
Netview Performance Monitor
  See NPM considerations
network response time 25
  See End-to-End response time
newsgroups 9
NFDRNL2 parameter 17
non-destructive ETE dumb 40
NOVERBOSE argument of ETE command 28
NPM consideration 15
NPM considerations 22
OMEGAMON

depth screens 40
ETE as service to 15
VTAM trace facility 40
Operating ETE with MSMS 25
ordering publications 9

P

PCT table 35
PLTPI table 36
PLTSD table 36
PLU 25
PLU domain 25
PPT table 35
preventing
  CICS session termination 33
timeout 18
preventing timeout 18
problem reporting 39
protecting devices from DR 31
protocol
definite response 13
exection response 13
violation 33
publications
ordering 9

Q

QUIESCE argument of ETE command 28

R

real terminal 23, 24, 40
recommended CIHT parameter 36
recycling ETE
  recycling 20
recycling VTAM major node 20
reporting problems 39
RESET argument of ETE command 29
response mode protocol violation 33
RKANPAR dataset
  adding 18
device exclusion list 18
  KETXDLDR member 18, 31
 RKETVTnn ddname 21
 RSPVTMnn ddname 21
running concurrent ETE version 21

S

SEND exit, CICS 36
session switching message
sessions, multiple

single ETE system 15
single VLU 23
SIT table 35
size of CIHT table 18, 35
SNA LU types supported 14
Software Support
  contacting 43
starting ETE 17, 19
startup JCL 17
STATUS argument of KETX transaction 37
STOP command (MVS) 28
stopping ETE 20, 28
storage considerations 28
subsystem identifier 21, 27
subsystem status 29
syntax, ETE command 27
SYSTEM argument of ETE command 29

T

table size parameter CIHT 18, 34
table updates, CICS 35
tape copy 40
TASKDATAKEY keyword 35
terminal supported 14
termination, preventing in CICS 33
TIME parameter, JOB statement 18
timeout, preventing 18
trace ETE
  starting 29
  stopping 29
trace facility, OMEGAMON II for VTAM 40
TRACEOFF argument of ETE command 29
TRACEON argument of ETE command 29
traces for problem reporting 40
transaction KETX 37

U

USER argument of ETE command 30
USERS argument of ETE command 30

V

Verify OMEGAMON and ETE Operation 20
verifying startup 19
version number 21, 27
virtual logical unit
  See VLU
virtual terminal 40
Vital Signs, coexistence with 15
VLU
  configuration 23
  multiple 23
VLU pool
configuration 23
LU-LU 23
single 23
VTAM
  actual PLU 25
  major node recycling 20
  releases supported 15
  response time 14
  trace facility, OMEGAMON II 40
VTAM domain 25

X

XZCOUNT exit 36