Transaction Processing Facility Operations Server

Reference

Release 1

SH31-0174-03

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Note!
Before using this information and the product it supports, be sure to read the general information under “Notices” on page vii.

Fourth Edition (February 2002)

This is a major revision of, and obsoletes, SH31-0174-02.

This edition applies to TPF Operations Server support program number 5799–GKX, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. Make sure you are using the correct edition for the level of the product.

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About This Book

This book describes TPF Operations Server support (the IBM Operating System/2 (OS/2) version and the Microsoft Windows 2000 Professional version).

In this book, abbreviations are often used instead of spelled-out terms. Every term is spelled out at first mention followed by the all-caps abbreviation enclosed in parentheses; for example, Systems Network Architecture (SNA). Abbreviations are defined again at various intervals throughout the book. In addition, the majority of abbreviations and their definitions are listed in the master glossary in the *TPF Library Guide*.

Who Should Read This Book

This book is designed for system administrators, application programmers, and console operators who need to understand TPF Operations Server support.

How This Book is Organized

This book is organized by chapter.

Conventions Used in This Book

The following highlighting conventions are used in this book:

- Important terms and phrases are represented in *italic* type, for example:

  A *data base* is a collection of data.
- Information that displays on your screen, such as messages and prompts, is represented in `monospaced` type, for example:

  The message `Generating Records` displays in the status area of the window.
- Examples and information that you are directed to type, such as commands, are represented in `UPPERCASE MONOSPACE` type, for example:

  Type `3215QSRV` at the command prompt.
- Pushbuttons and choices selectable from action bars, pull-downs, and windows are represented in **boldface** type, for example:

  Select **File** from the action bar.

As you can use the procedures provided in this book, you will see instructions such as: Press the Find (Alt+F) key.

In this instruction, Find is the name of the key. The information in the parentheses represents the characters engraved on the key or keys you must press. For example, to press the Find key, you press and hold down the Alt key and then press the F key.

Related Information

A list of related information follows. For more information on how to order or access any of this information, call your IBM representative.

Miscellaneous IBM Books

- *S/390 IOCP User's Guide and ESCON Channel-to-Channel Reference*, GC38-0401.

Miscellaneous Books

- *Microsoft Windows 2000 Professional Library*.

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Chapter 1. Introduction to TPF Operations Server Support

IBM now provides the TPF Operations Server so that you can send TPF commands and receive TPF operations messages by using the 3215 protocol. TPF Operations Server support is provided in both an IBM Operating System/2 (OS/2) version and a Microsoft Windows 2000 Professional version. TPF commands and operations messages are referred to as TPF messages in the remainder of this book.

The TPF Operations Server connects to the TPF host system using an IBM Enterprise Systems Connection (ESCON) channel card. The TPF Operations Server converts TPF messages that are sent to a remote console workstation (referred to as a *console session*) through Transmission Control Protocol/Internet Protocol (TCP/IP) on a local area network (LAN).

You must establish the connections from the console session in your complex to the TPF Operations Server and modify your console session programs to send TPF commands. Once a connection is established, console sessions can send TPF commands to a TPF host system and receive TPF messages back from that TPF host system.

Figure 1-1 provides a sample configuration for how console sessions can communicate with the TPF Operations Server.

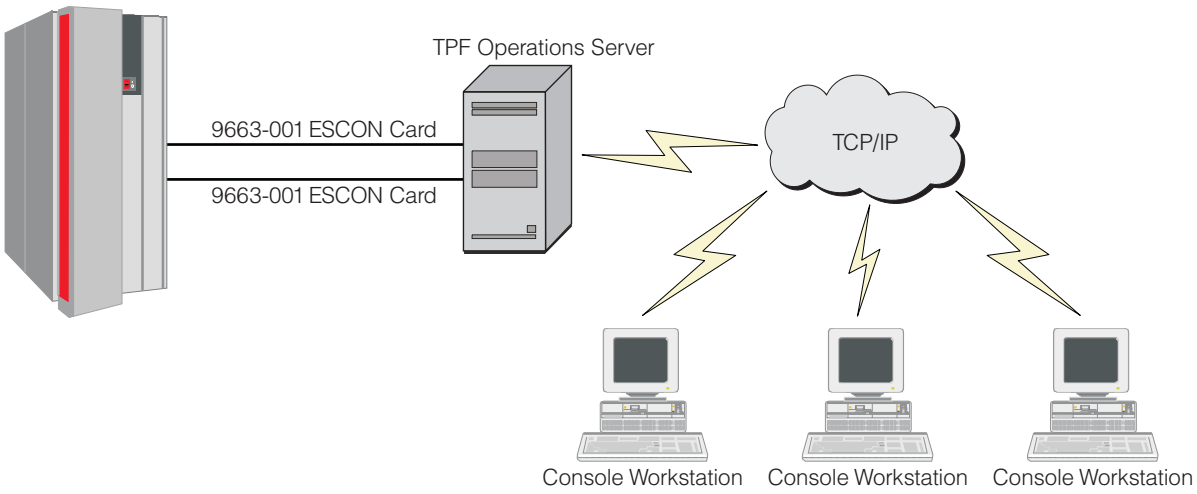

Figure 1-1. Sample Configuration: Console Sessions Communicating with the TPF Operations Server

Required Operating Environment

To ensure that your system functions properly with TPF Operations Server support, you must plan for the hardware and software you will need.

Hardware Requirements

The following hardware is required:

- A Pentium server (or better certified) for use with an IBM ESCON channel card
- A personal computer with at least one Peripheral Component Interconnect (PCI) slot
- The IBM System/390 Channel to LAN Connectivity card (9663-001)

- Network adapter cards; either an IBM Token-Ring Network adapter card or an Ethernet card.

  Note: You can find additional information about configuring the LAN connectivity card in the *TPF Systems Technical Newsletter, Volume 7, Number 1*. This newsletter is available on the IBM TPF Web site at:

  http://www.ibm.com/tpf/news/nv7n1/nv7n1.htm

Software Requirements

The software requirements are divided into those needed for the IBM OS/2 version and those needed for the Microsoft Windows 2000 Professional version.

IBM OS/2 Version

The following software is required for the IBM OS/2 version:

- IBM OS/2 WARP Server for e-business or IBM OS/2 WARP Version 4.0 with corrective service diskette (CSD) 10 or higher
- IBM OS/2 Transmission Control Protocol/Internet Protocol (TCP/IP) Version 4.0 or higher
- IBM Multi-Protocol Transport Services (MPTS)
- TPF Operations Server support.

Microsoft Windows 2000 Professional Version

Microsoft Windows 2000 Professional Version 5.0 is required. In addition, TCP/IP must be configured on your system and the TPF Operations Server support must be installed on your system.

TPF Operations Server Limitations

Keep in mind the following limitations when using TPF Operations Server support:

- The TPF Operations Server supports a maximum of two IBM ESCON channel cards and a total of sixteen host connections on a workstation. With multiple connections through one IBM ESCON channel card there may be performance considerations.
- The TPF Operations Server connects to the TPF host system using an IBM ESCON channel card, and then communicates with a console session through TCP/IP on a LAN. Only a single connection is supported between a console session and the TPF host system. If other console sessions try to connect to the same TPF host system, an error message is returned to a console session and the socket connection is ended. A console session is responsible for parsing messages sent from the TPF Operations Server.

Chapter 2. Functional Overview

This chapter describes the following functions provided with TPF Operations Server support:

- TPF Operations Server installation process
- TPF Operations Server startup process
- Console session connection interface
- System heart beat
- TPF Operations Server error process
- TPF Operations Server commands.

TPF Operations Server Installation Process

The installation process is divided into one for the IBM OS/2 version and one for the Microsoft Windows 2000 Professional version.

IBM OS/2 Version

To install IBM OS/2, do the following:

1. Define the following environment variables in the CONFIG.SYS file:
   - `SET EYNROOT=<drive>:\3215SRV`, which defines the TPF Operations Server root directory.
   - `SET EYN3215IOTIMEOUTSEC=<n seconds>`, which defines the TPF Operations Server `read()/send()` timeout value in seconds. This is used when the system heart beat timer is turned off. When the TPF Operations Server cannot read or send messages from the client within the timeframe allotted in the specified timeout value, the TPF Operations Server ends the Transmission Control Protocol/Internet Protocol (TCP/IP) connection. The default timeout value is 60 seconds.
   - `SET EYN3215TRACE=YES`, enables the trace facility. See your IBM service representative for more information.
   - `SET TPFOSNOAGECHO=YES`, which disables sending command echoes from the TPF Operations Server to the client.
2. Add a 9663–001 device driver statement to the CONFIG.SYS file. The following is an example of the device driver statement to support two IBM ESCON channel cards:

```
DEVICE=<drive>:\3215SRV\BIN\SNOWDDT.SYS
     M=<drive>:\3215SRV\BIN\SNOW960.ABS
     N=<drive>:3215SRV\BIN\SNOWMCM
     C1=<drive>:\3215SRV\BIN\NCA.CFG
     C2=<drive>:\3215SRV\BIN\NCA.CFG Q
```

3. The following 9663-001 device driver is located in the `3215SRV\BIN` directory:
   - SNOW960.ABS
   - SNOWDDT.SYS
   - SNOWMCM.CON
   - SNOWMCM.DMP
   - SNOWMCM.EXE
   - SNOWMCM.POR
   - SNOWMSG.MSG
   - NCA.CFG.

The NCA.CFG file contains an IBM ESCON channel card configuration. If a console session has a direct connection to the TPF system (no IBM ESCON Director), no changes are required to this file. If you are using an IBM ESCON Director, update the ADDR statement in the NCA.CFG file. For example:

```
ADDR=cc   ddu ......
     cc - subchannel address
     dd - ESCON Director port to TPF host processor
      u - corresponds to CUADD value in IOCP
```

4. Add the following entries to the PATH and LIBPATH statements in the CONFIG.SYS file for the TPF Operations Server:

```
PATH=......;<drive>:\3215SRV\BIN;....
LIBPATH=......;<drive>:\3215SRV\DLL;....
DPATH=......;<drive>:\3215SRV\BIN;...
```

Microsoft Windows 2000 Professional Version

Installing TPF Operations Server support puts the 9663 device driver in the C:\9663 directory, which is needed to install and configure the cards.

Installing the TPF Operations Server on Microsoft Windows 2000 Professional

To install TPF Operations Server support on Microsoft Windows 2000 Professional, do the following:

1. Run the TPF Operations Server SETUP.EXE program.
2. Select **Next** in the Welcome dialog box that is displayed.
3. Enter **Yes** to continue installation of TPF Operations Server support.
4. Select **Next** in the Select Destination Directory dialog box.
5. Select **Next** in the Select Program group.
6. Select **Install** in Ready to Install.
7. Select **Yes** to restart your workstation and click **Finish**.

Installing the 9663 Device Driver

Microsoft Windows 2000 Professional has Plug-n-Play support, so the 9663 device driver is installed after the 9663 adapter is physically installed in the system. After the 9663 adapter is installed and your workstation is restarted, TPF Operations Server support determines that the new hardware is present.

To install the 9663 device driver, do the following:

1. To begin, Microsoft Windows 2000 Professional displays **Found New Hardware**, specifying **PCI Simple Communications Controller**. The Found New Hardware Wizard window is displayed.
2. Click **Next** in the Found New Hardware Wizard window to continue the installation.
3. Check mark **Search for a suitable driver** and click **Next** to continue.
4. Check mark **Specify Location** and click **Next** to continue.
5. Specify **C:\9663** in **Copy Manufacturer's Files From:** and click **OK**. A dialog box is displayed indicating that Microsoft Windows 2000 Professional has found a suitable driver for the device, and that the file name is 9663.inf.

   Note: If the hardware was installed before installing TPF Operations Server support, the device drivers are located on the installation disk in the 9663 directory.
6. Click **Next** to continue.

7. Click **Finish** to complete the installation. A window is displayed that directs you to restart your workstation to complete the installation.
8. Click **OK** to shut down and restart your workstation. Next you will set the parameters.
9. Select **Start**.
10. Select **Settings** and then **Control Panel**. The Control Panel window is displayed.
11. Select **Administrative Tools** from the Control Panel window.
12. Select **Computer Management** and click on **Device Manager**.
13. Click the + before **Other Devices**. You will see the device **IBM 9663 Host Channel Adapter** displayed.
14. Select **Properties**. The IBM 9663 Host Channel Adaper Properties dialog box is displayed.
15. Click the **9663 Driver Parameters** tab in the IBM 9663 Host Channel Adapter Properties dialog box. The default values for the parameters are displayed.

    Note: TPF Operations Server support can have as many as two IBM ESCON channel cards installed in the system.
16. Select **OK** to stop the system and restart the device driver to make your changes active.

Altering the 9663.CFG and EYNAHOST.DAT Files

The IBM ESCON channel card for the 9663 device driver offers many different configurations such as the use of the IBM ESCON multiple image facility (EMIF) and virtual subchannel addressing. To take advantage of these configuration options, you must modify the 9663.CFG and EYNAHOST.DAT files. After proper installation of TPF Operations Server support, you will find the 9663.CFG file in the C:\9663 directory. You will find the EYNAHOST.DAT file in the *drive*:IBM TPF Operations Server\bin directory, where *drive* is the drive where TPF Operations Server support was installed.

EMIF or an ESCON Director will allow an IBM ESCON channel card to be shared by different TPF systems. A virtual subchannel addressing scheme is used on an IBM ESCON channel card to enable the same subchannel address to be used more than once for each card. To do this, each subchannel must have a different path defined in the 9663.CFG file. The advantage of this virtual subchannel addressing scheme is that different TPF systems, including loosely coupled systems, can use the same subchannel address for TPF Operations Server support and physically attach to the same IBM ESCON channel card.

The two examples that follow show how to make use of the configuration options mentioned previously.

Example 1: The first example explains EMIF and virtual channel addressing, taking into account that there is the physical configuration shown in Figure 2-1 on page 2-4.

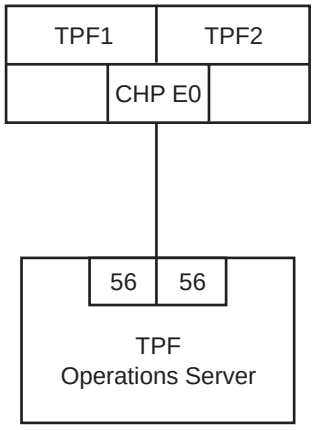

Figure 2-1. EMIF and Virtual Channel Addressing

To make the changes necessary for the configuration to work correctly with TPF Operations Server support, some information must be obtained from the TPF IOCP file. The following are the fragments of a TPF IOCP file that contain the pertinent information:

```
*IOCP

RESOURCE PARTITION=((TPF1,1),(TPF2,2))

CHPID PATH=E0,TYPE=CNC,SHARED,PARTITION=(TPF1,TPF2)

*IOCP

*IOCP 1 9663-001 Card 1 CHPID PATH EMIF

CNTLUNIT CUNUMBR=7000,PATH=(E0),                  *

      UNIT=7412,UNITADD=((56,01)),CUADD=3

IODEVICE ADDRESS=(056,01),CUNUMBR=7000,UNIT=3215,UNITADD=56,PART=TPF1

CNTLUNIT CUNUMBR=EA00,PATH=(E0)),                 *

      UNIT=7412,UNITADD=((56,01)),CUADD=4

IODEVICE ADDRESS=(056,01,CUNUMBR=EA00,UNIT=3215,UNITADD=56,PART=TPF2
```

You should pay particular attention to the following fields:

- The UNITADD fields
- The CUADD fields
- The RESOURCE PARTITION numbers (**1** and **2** in this example).

The following shows an example of how address statements in the 9663.CFG file should look to coincide with the TPF IOCP file mentioned previously:

```
(*
(*Snow Leopard Card configuration file *)
(*
SERIAL=012345678901
MODEL=0
TYPE=3215
XLEN-4096
RLEN=4096
(*X'010' is a direct connection to the host *)
ADDR=01 013 01 56 1 1 2
```

```
ADDR=02 014 02 56 2 1 2
ADDR=03 010 03 03 0 1 2
:
ADDR=FF 010 03 FF 0 1 2
TABL=1 C:\9663\SC3215S.STD
TABL=2 C:\9663\SC3215R.STD
```

The two addresses that are presented in bold font (address **01** and address **02**) are the focus of this example. The first parameter in the address statements of the 9663.CFG file refers to a subchannel address that will map to the subchannel field in the EYNAHOST.DAT file.

The following is a sample EYNAHOST.DAT file:

```
*
* Host Port     1
Adapter Number  1
Delay for ATTN'S  3000
Host Interface    ESCN3215
Max. Input Delay  12000
MCS Identifier  '
Subchannel        01
*
*
*
* HostPort        2
Adapter Number    1
Delay for ATTN's  3000
Host Interface    ESCN3215
Max. Input Delay  12000
MCS Identifier    '
Subchannel        02
*
```

As you can see, the address statements mapped are **01** and **02**. The valid range of values for that field in the 9663.CFG file are **01 – FF**.

The second parameter in the address statements of the 9663.CFG file describes the path to the host system. It is in the form of DDA, where the DD field corresponds to the port in the IBM ESCON Director and the A field corresponds to the CUADD value in the TPF IOCP file. In the example described here, there is no ESCON Director (a direct connection to the host system is used), so **DD=01** is used to represent a direct connection to the host system.

The third parameter in the address statements of the 9663.CFG file must be unique for each different logical path. In this example, address **01** and address **02** are connected to different TPF logical partitions (LPARs), so the unique identifiers are different for each statement. The unique identifiers should start at **01** and work up from there in decimal notation. If any additional statements were to share an LPAR, the unique identifier would be the same for every statement that used it.

The fourth parameter in the address statements of the 9663.CFG file corresponds to the UNITADD field in the TPF IOCP file. In this example, it is **56** and is identifical for both address statements. Both address statements can use the same value as long as there are different paths defined for each statement.

The fifth parameter in the address statements of the 9663.CFG file refers to the RESOURCE PARTITION field in the TPF IOCP file and is used with EMIF to allow the partition number to be specified.

Parameters six and seven should be one and two respectively and refer to the TABL statement at the end of the 9663.CFG file.

Example 2: Example 1 described how to make the changes to the 9663.CFG file and the EYNAHOST.DAT files with a direct connection. Example 2 is very similar and describes how to modify the 9663.CFG file if an IBM ESCON Director is being used. The system would look as shown in Figure 2-2.

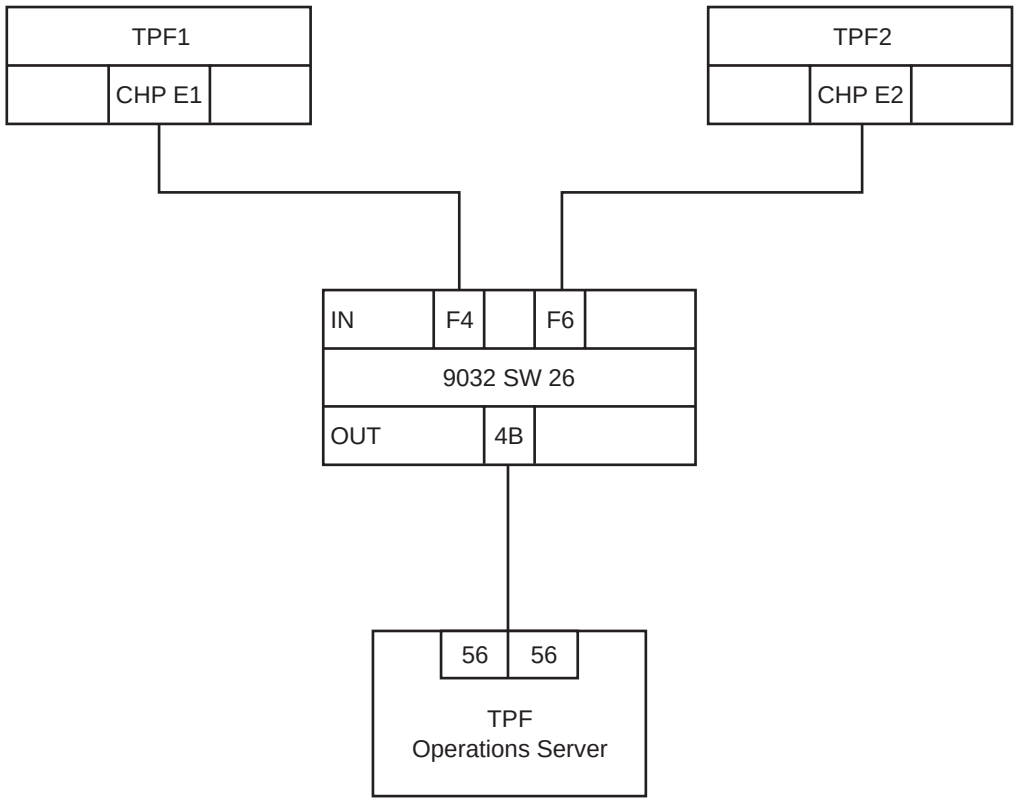

Figure 2-2. TPF Operations Server with an ESCON Director

With this system, the TPF IOCP fragments would be as follows:

```
*IOCP
*IOCP for Processor TPF1
CHPID PATH=E1,TYPE=CNC,SWITCH=26
CNTLUNIT CUNUMBR=7000,PATH=(E1), LINK=4B                  *
     UNIT=7412,UNITADD=((56,01)),
IODEVICE ADDRESS=(056,01),CUNUMBR=7000,UNIT=3215,UNITADD=56

*IOCP
*IOCP for Processor TPF2
CHPID PATH=E2,TYPE=CNC,SWITCH=26
CNTLUNIT CUNUMBR=EA00,PATH=(E2), LINK=4B                  *
     UNIT=7412,UNITADD=((56,01)),
IODEVICE ADDRESS=(056,01),CUNUMBR=EA00,UNIT=3215,UNITADD=56
```

The corresponding address statements in the 9663.CFG file would be as follows:

```
ADDR=01 F40 01 56 0 1 2
ADDR=02 F60 02 56 0 1 2
```

Pay particular attention to the second parameter because the connections to the host systems are no longer direct, and different procesors are being used instead of LPARs. The input ports on the ESCON controller are now specified in the DD field

of the DDA parameter. They are filled out with **F4** and **F6** because they are not direct connections (address **01**). Additionally, because no LPARs are being used, the A field of the DDA parameter is 0 because it corresponds to the CUADD value in the TPF IOCP file, and that value is not defined.

Articles about configuring the IBM ESCON channel card for the 3215 consoles have been published in the *TPF Systems Technical Newsletter*. These articles are available on the TPF Web page at:

http://www.ibm.com/tpf/news/nv7n1/v7n1a08.htm

http://www.ibm.com/tpf/news/nv5n1/v5n1a4.html

For more information about the TPF IOCP files, see *S/390 IOCP User's Guide and ESCON Channel-to-Channel Reference*.

Configuration Options

The following environment variables may be configured as appropriate:

- `SET TPFOSIOTIMEOUTSEC=<n>`, where `n` is the TPF Operations Server `read()` or `send()` timeout value in seconds. When the TPF Operations Server cannot read or send messages from the client in the time frame allotted in the specified timeout value, the TPF Operations Server ends the TCP/IP connection. The default timeout value is 20 seconds, which is used if the connecting client does not specify a heart beat value or specifies a heart beat value of zero.
- `SET TPFOSTRACE=YES`, which enables the trace facility. See your IBM service representative for more information.
- `SET TPFOSNOAGECHO=YES`, which disables sending command echoes from the TPF Operations Server to the client.
- `SET TPFOSUNSOTIMESEC=<n>`, where `n` is the frequency, in seconds, with which the unsolicited message is displayed by the TPF Operations Server Simulator if the UNSOLICITED.DAT file is included.

To modify the environment variables in Microsoft Windows 2000 Professional, do the following:

1. Select **Start**.
2. Select **Settings** and then **Control Panel**. The Control Panel window is displayed.
3. Select **System** from the Control Panel window.
4. Select the **Advanced** tab.
5. Select **Environment Variables**. The Environment Variables window is displayed.
6. Select **New** or **Edit** in the Environment Variables section to add or change the environment variables.

TPF Operations Server Startup Process

To start the TPF Operations Server you need a host interface configuration file, which is read during the startup process. The name of this file is EYNAHOST.DAT and it contains the following information:

- The type of host interface cards. At this time only an IBM ESCON channel card is supported.
- The subchannel address that is used to connect to the TPF host system.
- The card tuning parameters.

Host Interface Configuration (EYNAHOST.DAT) File

The TPF Operations Server supports up to 16 host connections. At least one host port definition must be defined in the EYNAHOST.DAT file. Each host port definition is associated with a host connection to the TPF host system. Only the first 16 host records are read into the TPF Operations Server. Any additional records are ignored. Any line that begins with an * is a comment. Although you can have only one type of host interface defined in any host interface configuration file, you can have more than one host interface configuration file defined for a server.

The following is a sample of the EYNAHOST.DAT file:

```
* Host Port              1
Adapter Number           1
Delay for ATTN's         3000
Host Interface           ESCN3215
Max. Input Delay         12000
MCS Identifier           '
Subchannel               C0
*
* Host Port              2
Adapter Number           1
Delay for ATTN's         3000
Host Interface           ESCN3215
Max. Input Delay         12000
MCS Identifier           '
Subchannel               C1
*
* Up to 16 Host Port Records.
```

An explanation of each statement in the EYNAHOST.DAT file follows here:

- **Adapter Number**: An integer that identifies which IBM ESCON channel card should be used. This is a counter. The maximum number of IBM ESCON channel cards is two.
- **Delay for ATTN's**: This is a time delay in milliseconds between attention (ATTN) signals when sending TPF commands. The host port workstation must send an ATTN signal before sending a TPF command to the TPF host system. If the TPF host system does not acknowledge this signal before the time limit has expired, the host port workstation repeats another ATTN signal.
- **Host Interface**: `ESCN3215` for an IBM ESCON adapter used in the 3215 protocol mode. This is the S/390 channel-to-LAN connectivity card 9663–001. `TPFSIM` is used to define the host interface for the TPF Operations Server Simulator.
- **Max. Input Delay**: This is a time delay in milliseconds before an attempt to send TPF messages to the TPF host system is ended abnormally. When setting this time, keep in mind that the time should be at least as long as the delay between ATTN signals (set on the Delay for ATTN's statement), and the combination of the two time limits governs how many retries are attempted.

  Note: If a TPF message is not sent to the TPF host system because the TPF host system does not acknowledge the ATTN signals before the value set on the Max. Input Delay statement is exceeded, then a message displays to the console operator. This message explains that the TPF host system is not responding and the TPF message was not sent.
- **MCS Identifier**: A character used by the TPF host system to identify multiple console support and to mark the prefix that contains the terminal address and the functional support console (FSC) indicators.
- **Subchannel**: If Host Interface specifies `ESCN3215`, this is a hexadecimal value (01–FF) that represents the subchannel to be used for host communication. If

Host Interface specifies TPFSIM, the subchannel is the full path of where the simulation DAT files reside. See “TPF Operations Server Simulator” for more information.

TPF Operations Server Simulator

The TPF Operations Server Simulator provides an easy way to test application code with the TPF Operations Server (TOS). To begin a simulator session, you can either start it from the Windows 2000 Start Menu and select **Programs -> IBM TPF Operations Server -> Tools -> Simulator** or enter simstrt from a command line. To stop the simulator, go to the Windows 2000 Start Menu and select **Programs -> IBM TPF Operations Server -> Tools -> Stop Simulator** or enter stopsim from a command line.

Note: To connect to the simulator, you must be connected to TCP/IP port 10002.

A sample host interface configuration file that will work with the simulator is provided (EYNASIM.DAT). In this file, the Host Interface parameter is specified as TPFSIM for a simulated host interface instead of ESCN3215 for an ESCON fiber optic connection.

Note: Each host interface configuration file can contain only one type of Host Interface parameter specified. Simulated and ESCON fiber optic connection interfaces cannot be mixed in the same configuration file.

Simulator Command and Response Files

The simulation mechanism of entering a command and receiving a response to that command is done with user-defined flat text files, where the file name is the command to be simulated and the file extension is DAT. The contents of the DAT file is the response returned as output to the command specified by the file name.

Following is an example of a command and response file:

```
Name of the file:

ZTMNT.DAT

Text contained in the file:

CSMP0097I 15.46.44 CPU-B SS-BSS  SSU-HPN  IS-01
COTM0046I 15.46.44 TMNT BSS    TAPE RTA MOUNTED ON DEVICE F40
                   VSN A00278 G0019 S0001 D38K   SL  BLK    NOCOMP +
CSMP0097I 15.46.44 CPU-B SS-BSS  SSU-HPN  IS-01
COTM0046I 15.46.44 TMNT BSS    TAPE ALT MOUNTED ON DEVICE F41
                   VSN A00279 G     S     D38K   SL +
```

This file simulates the following actions:

1. From an application that is connected to the TPF Operations Server, enter the command ZTMNT.
2. In response to the command, the application sends the following output:

   ```
   CSMP0097I 15.46.44 CPU-B SS-BSS  SSU-HPN  IS-01
   COTM0046I 15.46.44 TMNT BSS    TAPE RTA MOUNTED ON DEVICE F40
       VSN A00278 G0019 S0001 D38K   SL  BLK    NOCOMP +
   ```

Only the text up to the first + character is displayed. If you enter the command a second time, the remaining text up to the second + character is displayed. If the command is entered a third time, the first part of the message up to the first +

character is displayed again. The + character is used to make a command cycle through different output each time it is entered. If no text is found after the + character, the responses are displayed again from the beginning of the file.

Note: If you name a file ZRIPL.DAT, the + character does not make the simulator cycle through different output responses. This is a special case and the whole file is displayed.

To simulate a command that requires a parameter, you name the file using both the command and the parameter separated with a _ character as follows:

```
<COMMANDNAME>_<PARAMETER>.DAT
```

For example, a command and response file named `ZSTAT_U.DAT` simulates the entry of command and parameter `ZSTAT U`.

Simulator Host Interface Configuration (EYNASIM.DAT) File

The Simulator Host Interface Configuration file, EYNASIM.DAT, is similar to the Host Interface Configuration file (EYNAHOST.DAT) except that the Host Interface entry is specified as `TPFSIM` and the Subchannel entry is used to specify the path and directory containing the command and response files; for example:

```
 Subchannel C:\DAT
```

If a directory name in the path contains a blank, the whole path must be enclosed with quotation marks; for example:

```
 Subchannel   "C:\DAT 01"
```

Following is an example of an EYNASIM.DAT file:

```
* Licensed Materials - Property of IBM
* 5799-GKX (C) Copyright IBM Corp. 2001. All Rights Reserved.
* US Government Users Restricted Rights -
* Use, duplication or disclosure restricted
* by GSA ADP Schedule Contract with IBM Corp.
*
* This is a sample data file (EYNASIM.DAT)  for the TPF Operations
* Server and may need to be modified to configure your environment.
* For more information on how to setup this file  see the
* TPF Operations Server Reference Document.
*
* When editing it is recommended that a mono spaced font is used.
* Note that the "*" is the character to indicate a comment.
*
* Host Port         1
Adapter Number      1
Delay for ATTN's    3000
Host Interface      TPFSIM
Max. Input Delay    12000
MCS Identifier      `
Subchannel          "C:\IBM TPF Operations Server\simulator"
*
* Host Port         2
Adapter Number      1
Delay for ATTN's    3000
Host Interface      TPFSIM
Max. Input Delay    12000
MCS Identifier      `
Subchannel          C:\DAT
*
```

Other Simulator Support Options

The simulator provides support for displaying an unsolicited message. The unsolicited message option is turned on by defining a file named UNSOLICITED.DAT containing the message text and including it with the other command files. By default, the message is displayed every 30 seconds whether or not you enter a command. See “Configuration Options” on page 2-7 for information about how to change the frequency with which the unsolicited message is displayed.

Another option that the simulator provides is to change the loaded files during operation. While the simulator is running, you can open any of the command and response DAT files and modify their contents. When done, enter the `[reload]` command (the command is not case-sensitive), and the changed output for any of the commands is displayed when the command is entered.

Note: You cannot change the file names. If a file name is changed, that file is no longer accessible and any information loaded from the file is lost.

Simulator Usage Requirements Summary

To use the TPF Operations Server Simulator, the following requirements must be met:

1. The host interface configuration file, EYNASIM.DAT, must be defined.
2. The Host Interface variable for the host port to be used to connect to the simulator must be specified as `TPFSIM`.
3. The Subchannel variable in the configuration file must specify the path and directory containing the command and response files. If the path contains embedded blanks, the complete path must be enclosed in quotation marks.
4. The names of the command and response files must correspond to any commands (including parameters, if required) that are to be simulated. The file name and extension must not exceed 100 characters in length and may not contain any embedded blanks.
5. If an unsolicited message is to be simulated, it must be specified in a file named UNSOLICITED.DAT and included in the directory with the command and response files.
6. There is a maximum of 32 command and response files and 1 unsolicited message file (a total of 33 files).
7. Although any line editor should work, the only editors officially supported for creating DAT files are the Notepad and WordPad editors included in the standard installation package of Microsoft Windows 2000 Professional.
8. The maximum size of a response is 65 535 characters.

Console Session Connection Interface

To connect to the TPF Operations Server, the console session must use TCP/IP socket application programming interface (API) calls. The Internet Protocol (IP) port number for the TPF Operations Server is 10001. The console session must use this port number to connect the TPF Operations Server.

Figure 2-3 on page 2-12 shows that the console session connects to the TPF host system.

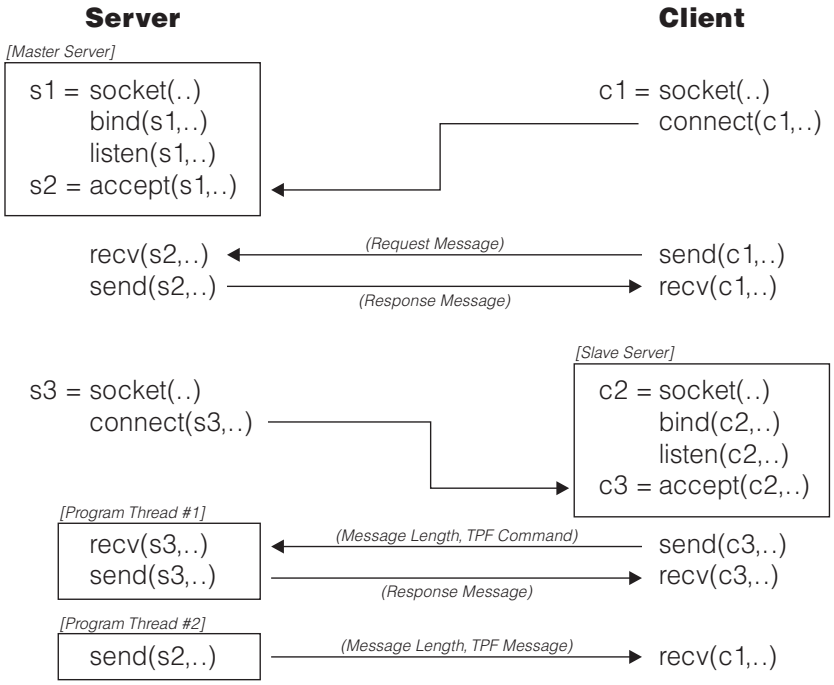

Figure 2-3. TPF Operations Server Connection and TPF Message Flows

Request Message

Once the connection is established between the console session and the TPF Operations Server, the console session sends a request message that contains the host port number and the slave server port number.

The format of the request message is:

```
struct RequestMessageFormat  {
     unsigned short eyn_ver3215;       /* 3215 version code     */
     unsigned short eyn_hostportID;    /* TPF host port ID      */
     unsigned short eyn_sspnum;        /* Slave server port no. */
     unsigned short eyn_sysheartbeat;  /* heart beat in second  */
}
```

An explanation of each request message field follows here:

- **en_ver3215**: The version code for the TPF Operations Server. Currently, the version code is 0.
- **eyn_hostportID**: The TPF host port ID, which is a number from 1 to 16.
- **eyn_sspnum**: The slave server port number that is used by the TPF Operations Server to establish the second socket connection as shown in Figure 2-3.
- **eyn_sysheartbeat**: The system heart beat timer in seconds.

Note: All data is represented in little endian format.

Response Message

After the TPF Operations Server receives a request message, the server tries to establish a connection to the TPF host system on the host port requested. The host port workstation sends a response message back to the console session to confirm

or reject the TPF host system connection. If any errors occur, the TPF Operations Server replies with an error return code and closes the socket connection. The error is logged in the system message log.

The format of the response message is:

```
struct ResponseMessage Format  {
     unsigned short eyn_msglen
     unsigned short eyn_retcode;
#define RC3215NoError         000
#define RC3215BadHostPort     001
#define RC3215UndefHostPort   002
#define RC3215ErrHostPort     003
#define RC3215TooMuchConn     004
#define RC3215BadSlavePort    005
#define RC3215InvalidVersion  007
#define RC3215PTFCMDReject    100
#define RC3215SRVCMDReject    101
#define RC3215HeartBeatACK    102
}
```

Response Return Code	Description
000 RC3215NoError	The operation completed successfully.
001 RC3215BadHostPort	The requested host port identifier (ID) is not valid. The ID of the host port workstation must be a number from 1 to 16.
002 RC3215UndefHostPort	The requested host port workstation is not defined in the TPF Operations Server. Check the TPF Operations Server configuration.
003 RC3215ErrHostPort	An error occurred while connecting to the TPF host system. Review the system message log for more information about the error.
004 RC3215TooMuchConn	There is already a console session connected to the requested host port workstation.
005 RC3215BadSlavePort	The slave server port is not valid. It must be between 1024 and 65 535.
007 RC3215InvalidVersion	The software version is not valid. Ensure that the version number is supported.
100 RC3215TPFCMDReject	The TPF command sent by the console session is rejected. The TPF Operations Server may be busy. Review the system message log for more information. The console session should try to send the TPF command again.
101 RC3215SRVCMDReject	The TPF command sent by the console session is rejected. The TPF host system did not receive the previous TPF command. The console session must wait for the response message from the TPF Operations Server before sending the TPF command again.

Console Session Connection

After the console session connects to the TPF host system, the TPF Operations Server tries to connect to the slave server. The console session is responsible for

opening this socket. This will create two socket pipes. One socket pipe (socket S2 and socket C1) is for TPF messages. The other socket pipe (socket S3 and socket C3) is for TPF commands

When a console session sends a TPF command to the TPF Operations Server, it must send 2 bytes, which contains the message length, followed by the TPF command. Each TPF command sent by the console session requires a confirmation from the TPF Operations Server. The TPF host system may reject the TPF command from the console session because the TPF Operations Server may be busy or there may be a hardware problem. The confirmation message uses the `ResponseMessageFormat`structure. For the other socket pipe, the TPF Operations Server sends TPF messages to the console session who must read the first 2 bytes, which contains the message length. After that, it should read the host message based on the length. To determine the end of the TPF message block, the message length must be equal to 0xFFFF. The client session must then send an acknowledgment (the 000 RC3215NoError response return code) back to the TPF Operations Server.

A sample console session program follows here:

```
........
struct sockaddr_in mserv_addr_in;
struct sockaddr_in sserv_addr_in;
struct RequestMessageFormat  reqmsg;
struct ResponseMessageFormat respmsg;

char samplecmd[] = "zdsys";
char TPFcmd[256];
char TPFmsg[256];

unsigned int c1, c2, c3;
unsigned short TPFcmdlen;
unsigned short TPFmsglen;
unsigned int rc;

c1 = socket (AF_INET, SOCK_STREAM, 0);
c2 = socket (AF_INET, SOCK_STREAM, 0);

/* Setup the slave server */
sserv_addr_in.sin_family       = AF_INET;
sserv_addr_in.sin_addr.s_addr  = INADDR_ANY;
sserv_addr_in.sin_port         = htons (5001);
rc = bind(c2, (struct sockaddr *)&sserv_addr_in, sizeof(sserv_addr_in);

rc = listen(c2,SOMAXCONN);

/* Connect to master server */
mserv_addr_in.sin_family       = AF_INET;
mserv_addr_in.sin_addr.s_addr  = inet_addr("9.117.107.67");
mserv_addr_in.sin_port         = htons(10001); /*Default to simulator is 10002*/
rc = connect(c1,(struct sockaddr*) &mserv_addr_in,sizeof(sserv_addr_in));

/* Pass host port and slave server port number */
(void)memset(&reqmsg, 0, sizeof(reqmsg));
reqmsg.eyn_ver3215      = 0;       /* 3215 version 0                */
reqmsg.eyn_hostportID   = 1;       /* Connect to the TPF port #1    */
reqmsg.eyn_sspnum       = 10011;   /* Slave server port no = 10011  */
reqmsg.eyn_sysheartbeat = 10;      /* System heart beat - 10 sec    */
rc = send(c1, (char *)&reqmsg,  sizeof(reqmsg),  0);
rc = recv(c1, (char *)&respmsg, sizeof(respmsg), 0);
if (respmsg.eyn_retcode != RC3215NoError){
  /* Error receive from the server */
}
```

```
/* Start slave server and establish the 2nd socket pipe */
c3 = accept(c2, (struct sockaddr *) 0, (int *) 0);
if (c3 == -1) }
  /* Error in accept connection from 3215 server */

/* Spin off a process or a thread, I.e. fork(), for this socket */
TPFcmdlen = strlen(samplecmd);
(void)memset(TPFcmd, 0, sizeof(TPFcmd));
(void)memcpy(TPFcmd, &TPFcmdlen, sizeof(TPFcmdlen));
rc = send(c3, TPFcmd, sizeof(TPFcmd), 0);
rc = recv(c3, (char *) &respmsg, sizeof(respmsg), 0);
if (respmsg.eyn_retcode != RC3215NoError) {
 /*  Error in send command to the TPF Host */
 /*  R-send the command again??            */
}

/* Read TPF message */
for(;;) {
  rc = recv(c1, (char *) &TPFmsglen, sizeof(TPFmsglen), 0);
  If (TPFmsglen != OxFFFF)
    rc = recv(c1, (char *) TPFmsg, TPFmsglen, 0);
  else {
    respmsg.eyn_msglen  = 2;
    respmsg.eyn_retcode = RC3215NoError;
    rc = send(c1,(char *) &respmsg,sizeof(rspmsg),0);
    break;
  }
}

 /* Display the TPF message to the client console window(s) */

........
```

System Heart Beat

After all socket connections are established (socket S3 to socket C3, socket S2 to socket C1), heart beats are sent to monitor the health of the console session and the TPF Operations Server. The heart beats are sent based on the heart beat timer. The heart beat timer is controlled by the console session program, which is contained in the request message. Both the console session and the TPF Operations Server send heart beats. The console session heart beat is sent from the TPF command pipe (socket C3), and the TPF Operations Server heart beat is sent from the TPF message pipe (socket S2).

Figure 2-4 on page 2-16 shows the TPF Operations Server heart beat flows. The heart beat is 3 bytes long (0x01001E). The first 2 bytes contain the message length (message size = 1), and the last byte contains the special character (0x1E).

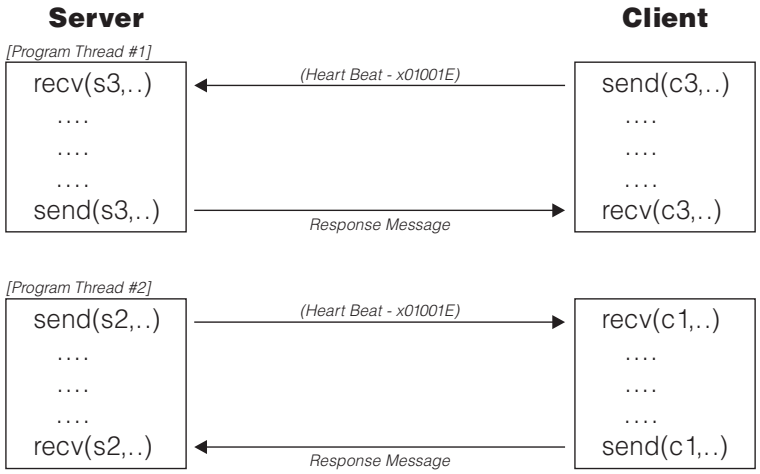

Figure 2-4. TPF Operations Server Heart Beat Flows

After a heart beat is sent, the TPF Operations Server program or console session must reply with an acknowledgement message to the requester that is 4 bytes long (0x02006600). The first 2 bytes contain the message length (message size = 2) and the last 2 bytes contain the RC3215HeartBeatACK return code (0x6600).

If a heart beat message, a command message, or a response message is not received in a certain amount of time (heart beat timeout), which is twice the heart beat timer value, the TPF Operations Server (socket S2, socket S3) will shut down. The TPF Operations Server assumes that a communication error occurred and the console session is required to reconnect to the TPF Operations Server.

Because the purpose of the heart beat is to make sure that threads on the TPF Operations Server and the console sesssion are up and running, the heart beat timeout is reset every time a command message or a response message is sent or received, as well as when a heart beat message is sent. Resetting the heart beat timer to schedule the next heart beat only occurs when the acknowledgement to the last heart beat is received.

To account for any unexpected changes in time against the workstation's clock, which the heart beat function is based upon, monitoring of the hear beat must be as follows:

- Instead of closing off the connection immediately if a heart beat or heart beat acknowledgment is not received in the time you expected it, use a Boolean variable to indicate if you have encountered a heart beat error previously. The first time such an error occurs, set the variable to indicate it, but do not close the connection. If the next time a heart beat or heart beat acknowledgement is expected, it arrives on time, or if other traffic such as a command or a TPF message is received, then the variable can be reset and processing continued normally. If, however, the heart beat or heart beat acknowlegement does not arrive when expected a second time, then the connection should be closed.

  Sample pseudo code follows here:

```
bool error = false // declaration
.
.
.

if (current time > hb_expected_time)  {
```

```
   if (error)
      exit program
   else {
      error = true
      reset hb_expected_time
   }

else { ..... }
.
.
.

rc = recv( )
   if (rc == hb || rc == hb_ack || rc == msg || rc == cmd_ack) {
      error = false
      reset hb_expected_time
   }
.
.
.
continue processing
```

- On the client thread that sends out the heart beat and waits for acknowledgments from the server, the following must be done when a heart beat acknowledgment has already been received and the time to send the next heart beat is checked:

```
.
.
.
if (current_time > hb_send_time)
send hb

else if (current_time < hb_send_time - hb_value)  /*new, hb_value is the number
that the client requested at connection time as the heart beat*/
   .
   .
   .
continue processing
```

Normal message flows with heart beats are shown in Figure 2-5 on page 2-18 for the console session (client) and in Figure 2-6 on page 2-19 for the server. These figures show that messages that are sent or received cause the heart beat timeout to be reset. When the heart beat acknowledgement is received, the heart beat timer is reset to schedule the next heart beat.

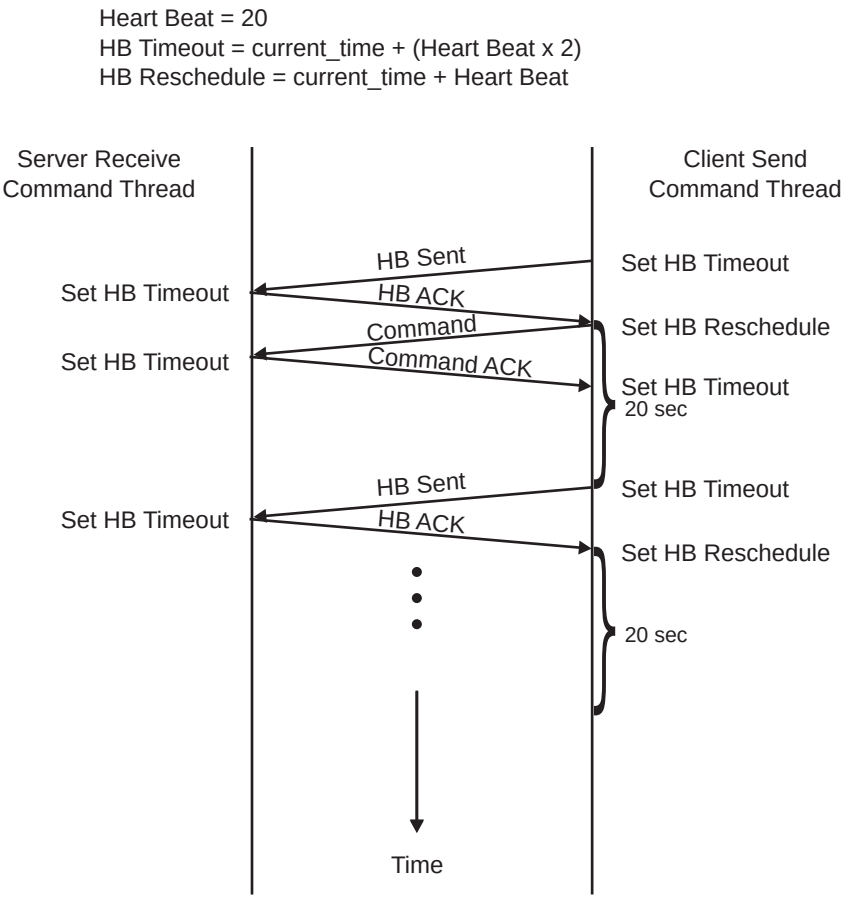

Figure 2-5. TPF Operations Server, Client Heart Beat and Command Flow

Note: The time line in the message flows shown in Figure 2-5 and in Figure 2-6 on page 2-19 is not to scale.

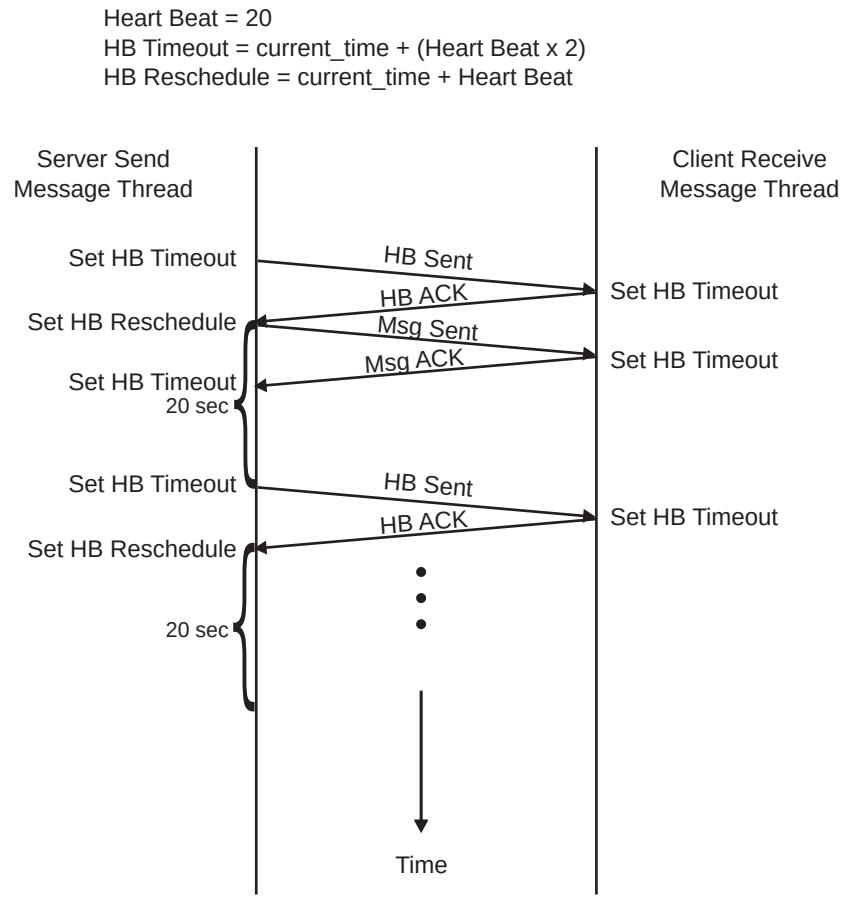

Figure 2-6. TPF Operations Server, Server Heart Beat and Message Flow

TPF Operations Server Command Echo

When a TPF command is sent to a TPF host system through the TPF Operations Server, the TPF Operations Server echoes the TPF command back to the client. The TPFOSNOAGECHO environment variable is used to turn the command echo feature off. If the TPF command is not sent to the TPF host system successfully, the TPF Operations Server sends an error message back to the client. See “TPF Operations Server Installation Process” on page 2-1 for more information about the TPFOSNOAGECHO environment variable.

TPF Operations Server Error Process

All system messages (informational, warning, and error) are saved to system message log files when either of the following occurs:

- An error occurs while connection to the host port workstation
- Connecting to the TPF Operations Server is successful.

System Message Log Files

IBM OS/2 and Microsoft Windows 2000 Professional handle and log messages differently.

IBM OS/2 Version

There are two different system message log files:

- The *external system message log file*, which is the EYNCSERR.LOG file. You can use this file to view information about which processes were successful and which were not. The following is a sample entry in the EYNCSERR.LOG file:

```
********************************************************************************
Error Manager log activated (local time) 99.03.03 08:25:35
********************************************************************************
Local Time        : 99.03.03 08:25:35
Workstation Alias : BEAR
Program           : EYNGENTR.EXE
Command Line      : "D:\3215SRV\BIN\EYNGENTR.EXE"
Parent Process ID : X'0000'
Process ID        : X'004D'
Thread ID         : 1


EYNAG0116I:

AG startup is in progress.
```

- The *internal system message log*, which is the EYNCIERR.LOG file. Your IBM service representative uses this file. Although this file is similar to the external system message log file (EYNCSERR.LOG), it also contains the following types of information used by your IBM service representative:
  - Undocumented internal-use-only messages that are used for debugging
  - Debugging information such as the source file name, line number, and so on.

  The following is a sample entry in the EYNCIERR.LOG file:

```
********************************************************************************
Error Manager log activated (local time) 99.03.03 08:25:36
********************************************************************************
Local Time        : 99.03.03 08:25:35
Workstation Alias : BEAR
Program           : EYNGENTR.EXE
Command Line      : "D:\3215SRV\BIN\EYNGENTRY.EXE"
Parent Process ID : X'0000'
Process ID        : X'004D'
Thread ID         : 1
Source File       : (copy of message box - no source line available)
Line Number       : 0
Sequence Number   : 0


EYNAG0116I:

AG startup is in progress.
```

The TPF Operations Server backs up the last two copies of the following system message log files:

- EYNCSERR.LO1
- EYNCSERR.LO2
- EYNCIERR.LO1
- EYNCIERR.LO2.

See “TPF Operations Server Commands” on page 2-22 for more information about the TPF Operations Server commands.

Microsoft Windows 2000 Professional Version

For Microsoft Windows 2000 Professional, all system messages are logged to the Event Log. The following is an example of an Event Log Entry:

```
Command Line : eyn3serv
Parent ID : 824
Thread ID : 488
Source File  : C:\mscpp\3215srv\eyn3serv.cpp
Line Number  : 562

EYNAG1206W:

3215 exit list program is exected.  Server will be terminated
```

See “Microsoft Windows 2000 Professional Version” for more information about accessing, viewing, and saving the Microsoft Windows 2000 Professional Event Log.

Viewing the System Message Log Files

The process for viewing the system message log files is divided into one for the IBM OS/2 version and one for the Microsoft Windows 2000 Professional version.

IBM OS/2 Version

You can view the system message log files locally or remotely. To view the system message log files locally, type **EPM** *filename.ext* from a command window, where *filename.ext* is one of the following:

- EYNCSERR.LOG
- EYNCIERR.LOG

To view the system message log files remotely, do the following:

1. Ensure that the TELNETD is started in the TPF Operations Server.
2. Telnet to the TPF Operations Server by typing **TELNET** *workstation name* from a command window, where *workstation name* is the name of the TPF Operations Server.
3. Write the system message log file to another file by typing **TYPE** *filename.log newfilename.newext*, where *filename.log* is EYNCSERR.LOG or EYNCIERR.LOG and *newfilename.newext* is the name of the new file.
4. Use TEDIT to edit the new file by typing **TEDIT** *newfilename.newext*.

Microsoft Windows 2000 Professional Version

Microsoft Windows 2000 Professional logs error messages to the Application portion of the Microsoft Windows 2000 Professional Event Log. With administrator access to the server workstation you can view the system message log files locally and remotely by using the Event Viewer. See the *Microsoft Windows 2000 Professional Library* for more information about the Microsoft Windows 2000 Professional Event Viewer.

To access the Microsoft Windows 2000 Professional Event Viewer, do the following:

1. Select **Start**.
2. Select **Settings** from the **Start** window.
3. Select **Control Panel** from the **Settings** window.
4. Double-click the **Adminstrative Tools** icon. The **Adminstrative Tools** folder is displayed.
5. Double-click the **Event Viewer** icon in the folder. The Event Viewer window is displayed.

To view Microsoft Windows 2000 Professional and TPF Operations Server messages, do the following:

1. Access the Microsoft Windows 2000 Professional Event Viewer.
2. Select **Application Log** from the Event Viewer tree located on the left panel.
3. Select **Filter** from the **View** pull-down. The **Filter** window is displayed.
4. Select **IBM TPF Operations Server** for event source and click **Apply**.

To save Microsoft Windows 2000 Professional and TPF Operations Server messages, do the following:

1. Access the Microsoft Windows 2000 Professional Event Viewer, and view the TPF Operations Server messages as specified previously.
2. Select **Save Log File As** from the **Action** pull-down. The **Save As** dialog window is displayed.
3. Enter a file name for the archived log file in **File Name**.
4. In **Save as type**, leave the extension as **Event Log** and click **Save**.

To restore Microsoft Windows 2000 Professional and TPF Operations Server messages, do the following:

1. Access the Microsoft Windows 2000 Professional Event Viewer.
2. Select **Open Log File** from the **Action** pull-down. The **Open** dialog window is displayed.
3. Locate and select your saved log file. You may need to search for the drive or folder in which the archived log file was saved.
4. Select **Application** as the **Log Type** and click **Open**.
5. Select **Saved Application Log** from the Event Viewer tree located on the left panel.
6. Select the **Filter** setting from the **View** pull-down menu.
7. Select **IBM TPF Operations Server** as the event source and click **Apply**.

Console Session Termination

When a socket connection ends normally or abnormally, the TPF Operations Server writes all unsent messages into a file from which you can view those lost messages. The name of the file is EYNGDQ*xx*.DAT where *xx* is the host port ID; for example, EYNGDQ01.DAT. The TPF Operations Server appends unsent messages to the end of the file. You are responsible for maintaining the EYNGDQ*xx*.DAT files.

The following is a sample file:

```
* Thu Sep 9 16:50:12 1999
* Client IP@: 9:117.158.204, Client port#: 1027
* Host port: 2, Subch: C9
 CSMP0097I 07.46.35 CPU-B SS-BSS  SSU-HPN  IS-01
 CVAD0012E 07.46.35 ILLEGAL FUNCTION- NO LINKAGE FOUND+
                  .....
```

The first three lines of each unsent message record contains client information. It records the broken connection timestamp, the client Internet Protocol (IP) address and port number, and the host port information.

TPF Operations Server Commands

The following TPF Operations Server commands are available for your use:

- The 3215STRT command. This command starts the TPF Operations Server. To use this command, type **3215STRT** from a command window.
- The 3215STOP command. This command stops the TPF Operations Server. To use this command, type **3215STOP** from a command window.
- The 3215QSRV command. This command checks the status of the TPF Operations Server and displays the host port information and client connection. The format of the command is:

  ```
  3215QSRV <host port | ALL> <hostname | IP address> <port number>
  ```

  host port | ALL
  Displays one host port or all host ports.

  hostname | IP address
  The host name or Internet Protocol (IP) address of the TPF Operations Server.

  port number
  The port number of the TPF Operations Server.

  All parameters are optional. If no parameters are passed, the default value is used. The default value is:

  ```
  <host port> = ALL, <IP address> = local IP address, <port number> = 1001
  ```

Under normal operation, the following shows an example of the display that results from the 3215QSRV command:

```
Host name - lrvega.pok.ibm.com, IP Address - 127.0.0.1

            Sub          Last Successful
Host Port   Channel       I/O Timestamp       Client IP Address    Ready (Y|N)
---------   -------   -------------------    -----------------    -----------
    1          01            None             009.117.158.031          Y
    2          02       01/00/00 00:00:00      000.000.000.000          N
    3          03       01/00/00 00:00:00      000.000.000.000          N

** means that the Sub Channel is in use by the simulator.
```

When using the simulator, the following is an example of the results displayed by a 3215QSRV command:

```
Host name - lrvega.pok.ibm.com, IP Address - 127.0.0.1

            Sub          Last Successful
Host Port   Channel       I/O Timestamp       Client IP Address    Ready (Y|N)
---------   -------   -------------------    -----------------    -----------
    1          **            None             009.117.158.031          Y
    2          **       01/00/00 00:00:00      000.000.000.000          N
    3          **       01/00/00 00:00:00      000.000.000.000          N

** means that the Sub Channel is in use by the simulator.
```

The following information is found in this example:

Host Port
The host port number of the TPF Operations Server.

Subchannel
The address of the subchannel. If the ** characters are displayed, the host port is configured for use by the TPF Operations Server Simulator.

Last Successful I/O Timestamp
The timestamp of the last successful read or write to the TPF host system.

Client IP Address
The current or last connected client IP address.

Ready (Y|N)
Indicates the TPF Operations Server is ready to send or receive messages from the TPF host system.

Chapter 3. Messages

EYNAG0074E An error occurred while establishing communications with host port <*host port number*>.

Where:

host port number
The port number for the host session.

Explanation: This error message is logged when a communication error occurs while trying to establish communication with a TPF host system.

User Response: None.

System Administrator Action: Do the following:

1. Review the system message log for previous error messages that were logged.
2. Use those messages to determine the cause of the problem.
3. Correct the problem.

System Action: The TPF Operations Server tries to establish communication with the TPF host system again. The TPF host system may fall back to another TPF Operations Server.

EYNAG1000I All connections are up. Host port – <*host port number* >, slave port number – <*slave port number*>.

Where:

host port number
The port number for the host session.

slave port number
The port number for the slave server.

Explanation: All the necessary console session and server connections are complete. The TPF Operations Server is ready to send TPF messages to the console session and receive TPF commands from the console session.

User Response: None.

System Administrator Action: None.

System Action: None.

EYNAG1001E Invalid host port request – <*host port number*>, client connection shutdown.

Where:

host port number
The port number for the host session.

Explanation: After the console session connects to the TPF Operations Server, a request was sent to open a host port that is not valid because the port number is not a number from 1 to 16.

User Response: Do the following:

1. Verify the port number for the host session.
2. Try the request again.

System Administrator Action:

System Action: The TPF Operations Server rejects the request from the console session and the connection is shut down.

EYNAG1002E Undefined host port request – <*host port number*>, client connection shutdown.

Where:

host port number
The port number for the host session.

User Response: After the console session connected to the TPF Operations Server, a request was sent to open an undefined host port. The host port must be defined in the EYNAHOST.DAT file on the TPF Operations Server.

User Response: Do the following:

1. Verify the host port definition in the EYNAHOST.DAT file on the TPF Operations Server.
2. Try the request again.

System Administrator Action: None.

System Action: The TPF Operations Server rejects the request from the console session and the connection is shut down.

EYNAG1003E Error in activate the host port request – <*host port number* >, client connection shutdown.

Where:

host port number
The port number for the host session.

Explanation: After the console session connected to the 3215 Server, an error occurred when the TPF Operations Server tried to activate the requested host port.

User Response: See your system administrator for more information.

System Administrator Action: Do the following:

1. Review the system message log for previous error messages that were logged.
2. Use those messages to determine the cause of the problem.
3. Correct the problem.

System Action: The TPF Operations Server rejects the request from the console session and the connection is shut down.

EYNAG1004E Too many client connections to the same host port – <*host port number* >, client connection shutdown.

Where:

host port number
The port number for the host session.

Explanation: After the console session connected to the TPF

Operations Server, the server discovered that the requested host port is connected already.

User Response: Do the following:

1. End the console session that is connected to the TPF Operations Server.
2. Try the request again.

System Administrator Action: None.

System Action: The connection is shut down.

EYNAG1005E Invalid slave port number – <*slave port number***>, client connection shutdown.**

Where:

slave port number
The port number for the slave server.

Explanation: After the console session connected to the TPF Operations Server, it required a connection back to the console session to establish a second communication pipe. An error occurred because the slave port number provided is not valid.

User Response: Do the following:

1. Verify the slave port number
2. Try the request again.

System Administrator Action: None.

System Action: The TPF Operations Server rejects the request from the console session and the connection is shut down.

EYNAG1007E Invalid TPF Operations Server version.

Explanation: This error message is logged after the console session connects to the TPF Operations Server and passes a TPF Operations Server version number that is not supported by the TPF Operations Server.

User Response: Do the following:

1. Verify that the version number for the TPF Operations Server is correct.
2. Try the request again.

System Administrator Action: None.

System Action: The TPF Operations Server rejects the request from the console session and the connection is shut down.

EYNAG1008E The IBM TPF Operations Server has shut down.

Explanation: The TPF Operations Server has shut down. The application shut down either normally or abnormally.

User Response: None.

System Administrator Action: Do the following:

1. Review the error log to determine the cause of the problem.
2. Correct the problem and restart the TPF Operations Server, if necessary.

System Action: The application shut down either normally or abnormally.

EYNAG1101W Host is busy with the previous command, retry again.

Explanation: This warning message is logged when the console session tries to send another TPF command to the TPF host system while the TPF Operations Server is sending the previous TPF command to the TPF host system.

User Response: Wait for the acknowledgment of the previous TPF command before sending any more TPF commands.

System Administrator Action: None.

System Action: The TPF Operations Server rejects the request from the console session.

EYNAG1102E System heart beat timeout occurred. Connection terminated. Client IP addr : <*ip addr***>, Host port ID : <***host port number***>**

Where:

ip addr
The connected client Internet Protocol (IP) address.

host port number
The port number for the host session from the EYNAHOST.DAT file.

Explanation: The communication is ended because either a heart beat message or a response message was not received within a certain time limit, which is twice the system heart beat timer.

User Response: Do the following:

1. Review the console session and server programs.
2. Start the console session again.

System Administrator Action: None.

System Action: The connection is ended.

EYNAG1200E An error occurred in EYNAHOST.DAT: <*additional description***>**

Where:

additional description
Contains additional information that describes the error while reading the EYNAHOST.DAT file.

Explanation: An error occurred while processing the EYNAHOST.DAT file. The additional information referenced in the message describes the cause of the problem.

User Response: None.

System Administrator Action: Do the following:

1. Correct the problem in the EYNAHOST.DAT file.
2. Start the TPF Operations Server.

System Action: The TPF Operations Server is ended.

EYNAG1201E Unexpected data received from client: <*data***>**

Where:

data
Data sent from the client.

Explanation: Unexpected data was received from the client such as heart beat acknowledgment or TPF message acknowledgment.

User Response: Verify the client program.

System Administrator Action: None.

System Action: The connection is ended.

EYNAG1202E An error occurred in <*additional description***>**

Where:

additional description
Contains additional information that describes the error while writing to a file.

Explanation: An error occurred while writing data to a file. The additional information referenced in the message describes the cause of the problem.

User Response: None.

System Administrator Action: None.

System Action: None.

EYNAG1203E The following command was not sent to the host: <*client command text***>, Host port – <***host port number***>**

Where:

client command text
The text of the command sent by the client.

host port number
The port number for the host session from the EYNAHOST.DAT file.

Explanation: The command cannot be sent from the client to the TPF host system.

User Response: Send the client command to the TPF host system again.

System Administrator Action: Verify the link connection between the TPF host system and the TPF Operations Server.

System Action: None.

EYNAG1204E The TPF Operations Server was unable to receive message: <*additional description*>

Where:

additional description
Contains additional information that describes the error while reading from the hardware.

Explanation: An error occurred while reading data from the application programming interfaces (APIs). The additional information referenced in the message describes the cause of the problem.

User Response: None.

System Administrator Action: See your IBM service representative for more information.

System Action: The connection is ended.

EYNAG1205E TPF Operations Server internal system error. Program is terminated.

Explanation: An internal TPF Operations Server system error occurred.

User Response: None.

System Administrator Action: Review any preceding error messages for more information.

System Action: The connection is ended.

EYNAG1206W TPF Operations Server exit list program is executed. Server will be terminated.

Explanation: When an external interrupt has occurred, such as a CTL-C, it causes the TPF Operations Server to end.

User Response: None.

System Administrator Action: Start the TPF Operations Server again.

System Action: The TPF Operations Server is ended.

EYNAG1207W TPF Operations Server was unable to send an echo of the command to the console – Client command: <*client command text***>, Client IP addr <***IP addr***>, Host port ID – <***host port number***>**

Where:

client command text
The text of the command sent by the client.

ip addr
The connected client Internet Protocol (IP) address.

host port number
The port number for the host session.

Explanation: The TPF Operations Server cannot send the last command echo to the client. This error may be caused by slow client processing of the TPF commands or a client may be hung.

User Response: If the problem continues, check the status of the client workstation.

System Administrator Action: None.

System Action: None.

EYNCO00400E A MMC/9663 host interface error occurred.

Explanation: This error message is logged when the IBM Personal System/2 System/370 Channel Adapter card (IBM MMC card) or IBM 9663 Enterprise Systems Connection (ESCON) card issues an a attention to the TPF host system to request that the host system issue a read. A timeout occurred while waiting for the read to be issued by the TPF host system.

User Response: None.

System Administrator Action: This error message may indicate that the timeout values defined in the EYNAHOST.DAT file for the TPF Operations Server are too low for your system and should be higher. Fine tuning the timeout values for the TPF Operations Server may require some trial and error to find the optimum value. The device parameters whose timeout

values you may need to fine turn are:

- Delay for ATTN's
- Max. Input Delay.

Modify the timeout values for the device parameters in the EYNAHOST.DAT file until you find the optimum value for your system.

System Action: The TPF Operations Server logs the message in the error log and continues operation.

EYNCO00401E A MMC/9663 adapter error has occurred.

Explanation: This error message is logged when the IBM Personal System/2 System/370 Channel Adapter card (IBM MMC card) or IBM 9663 Enterprise Systems Connection (ESCON) card encounters a microcode or hardware error.

User Response: None.

System Administrator Action: See your IBM service representative for more information.

System Action: The TPF Operations Server continues to operate, but the TPF host system may initiate fallback to an alternate console session the next time the TPF host system tries to send data to the TPF Operations Server.

EYNCO00402E A MMC/9663 host interface error occurred.

Explanation: This error message is logged when an error occurs somewhere in the IBM Personal System/2 System/370 Channel Adapter card (IBM MMC card) or IBM 9663 Enterprise Systems Connection (ESCON) card between the automation gateway (AG) and the TPF host system.

User Response: None.

System Administrator Action: Do the following:

1. Review the system error log to determine the cause of the problem.
2. Correct the problem.
3. If no related error messages are found and the problem continues, see your IBM service representative for more information.

System Action: The TPF Operations Server continues to operate, but the TPF host system may initiate fallback to an alternate console session the next time the TPF host system tries to send data to the TPF Operations Server.

EYNCO0599E A TCP/IP error occurred: <*additional information***>, Client IP addr : <***ip addr***>, Host port ID : <***host port number***>**

Where:

additional information
Contains additional information that describes the Transmission Control Protocol/Internet Protocol (TCP/IP) error.

ip addr
The connected client Internet Protocol (IP) address.

host port number
The port number for the host session from the EYNAHOST.DAT file.

Explanation: A socket error occurred. The additional information referenced in the message describes the cause of the problem.

User Response: None.

System Administrator Action: Do the following:

1. Review the system error log to determine the cause of the problem.
2. Correct the problem. If no related error messages occur and the problem continues, see your IBM service representative for more information.

System Action: None.

EYNCO0600I A shutdown condition occurred: Client issued a disconnect Client IP addr <*ip addr***> Host port ID <***host port number***>**

Where:

ip addr
The connected client Internet Protocol (IP) address.

host port number
The port number for the host session from the EYNAHOST.DAT file.

Explanation: A client that was connected to the TPF Operations Server issued a graceful disconnect (normal termination of connection).

User Response: None.

System Administrator Action: None.

System Action: The TPF Operations Server continues to run normally.

EYNSIM1208E An error occurred reading in the DAT files for the TPF Operations Server Simulator. No files were found in the specified path. Check the path specified in the Subchannel variable of the EYNASIM.DAT file.

Explanation: The TPF Operations Server Simulator tried to read the command and response DAT files from the path specified in the Subchannel variable of the EYNASIM.DAT file, but did not find the files.

User Response: Verify that the path specified in the Subchannel variable of the EYNASIM.DAT file is the correct path and is entered according to the guidelines specified. If the path is correct, verify that the DAT files are in the specified directory. See "Simulator Command and Response Files" on page 2-9 for more information about the path.

System Administrator Action: None.

System Action: The TPF Operations Server processing ends.

EYNSIM1209E An error occurred reading in the DAT files for the TPF Operations Server Simulator. The total number of DAT files in the path specified in the Subchannel variable of the EYNASIM.DAT file exceeds the maximum allowed files. See the *TPF Operations Server Reference* for the allowed number of files.

Explanation: The maximum number of files was exceeded when reading command and response files from the path specified in the Subchannel variable of the EYNASIM.DAT file.

User Response: Verify that the number of files in the path specified in the Subchannel variable of the EYNASIM.DAT file does not exceed the maximum number and, if necessary, remove excess files. See “Simulator Usage Requirements Summary” on page 2-11 for more information about the maximum number of files.

System Administrator Action: None.

System Action: The TPF Operations Server processing ends.

EYNSIM1210I TPF Operations Server Simulator loaded the specified DAT files successfully. The UNSOLICITED.DAT file was one of the files loaded.

Explanation: The TPF Operations Server Simulator successfully loaded the simulator command and response files including the unsolicited message file, UNSOLICITED.DAT, from the path specified in the EYNASIM.DAT file.

User Response: None.

System Administrator Action: None.

System Action: The TPF Operations Server runs normally.

EYNSIM1211I TPF Operations Server Simulator loaded the specified DAT files successfully. The UNSOLICITED.DAT file was not loaded.

Explanation: The TPF Operations Server Simulator successfully loaded the simulator command and response files from the path specified in the EYNASIM.DAT file. However, the unsolicited message file, UNSOLICITED.DAT, was not found and an unsolicited message will not be displayed by the simulator.

User Response: None.

System Administrator Action: None.

System Action: The TPF Operations Server runs normally.

EYNXX0015E The program ended due to a system error.

Explanation: This error message displays when a program encounters a system error and ends.

User Response: See your system administrator for more information.

System Administrator Action: Do the following:

1. Review the system error log to determine the cause of the problem.
2. Correct the problem. If no related error messages occur and the problem continues, see your IBM service representative for more information.

System Action: None.

EYNXX3000E A Windows API error occurred:

API: <*API call***>**
RC: <*API return code***>**
GetLastError(): <*return code***>**

Where:

API call
The application programming interface (API) call that is in error.

API return code
The return code from the API call that was in error.

return code
Additional return code from the API.

Explanation: An error occurred while calling a Windows system API.

User Response: See your system administrator for more information.

System Administrator Action: See your IBM service representative for more information.

System Action: None.

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