

# Bull DPX/20

## Open Terminal Management (OTM) Administrator and User's Guide

AIX



# Bull DPX/20

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AIX

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**Software**

April 1996

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## About this Book

This guide contains the information for configuring, administering and using the Open Terminal Manager (OTM) product on Bull DPX/20 computers using the Unix operating system.

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## Who Should Use this Book

This book is for the Unix system administrators who must manage OTM on their systems, and for the users of OTM.

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## The OTM Product

The OTM product covers the emulations necessary to connect DPX/20 Unix machines to other Bull machines using the different GCOS operating systems as well as to IBM machines through the Bull/IBM gateway.

This present manual contains the basic information to setup and run OTM. Specific instructions for the necessary emulations are covered in manuals listed below.

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## The OTM Manual Set

1. OTM Administrator and User's Guide, ref: 86 A2 31PE.
2. OTM TWS2107 Terminal Emulation User's Guide, ref: 86 A2 33PE.
3. OTM VIP7800 Terminal Emulation User's Guide, ref: 86 A2 34PE.
4. OTM CPI-C SS in Bull Environment User's Guide (emulation tailoring for applications), ref: 86 A2 32PE.
5. OTM & CPI-C SS Diagnostic Guide, Stack C, ref: 86 A2 52AJ.
6. The various Software Release Bulletins (SRB) delivered with each software release.

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## Software Requirements

OSI Stack layers.

The AIX Version 4.1 of UNIX.

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## Organization of this Book

- |                    |  |
|--------------------|--|
| <b>Chapter 1.</b>  | <b>Introduction</b><br>provides main concepts of Open Terminal Manager and its architecture. |
| <b>Chapter 2.</b>  | <b>Configuration</b><br>describes OTM configuration and provides configuration examples.     |
| <b>Chapter 3.</b>  | <b>CPI-C SS Quick Test</b><br>describes the test of a CPI-C SS connection.                   |
| <b>Chapter 4.</b>  | <b>Using OTM</b><br>information on using OTM for the administrator and the user.             |
| <b>Chapter 5.</b>  | <b>Debugging</b><br>describes how to set up and use the trace facility to debug OTM.         |
| <b>Appendix A.</b> | <b>Error Messages</b><br>provides OTM error messages and return codes.                       |

**Appendix B. Statistics**

describes the statistics utility and how to use it.

**Appendix C. Commands**

provides a description for each OTM command.

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## Conventions

The generic term DPX is used throughout this guide, meaning by this DPX/20.

As OTM is available also on Bull DPX/2 systems, whenever the use of the generic term DPX could be misleading or not precise enough, the complete name is used (DPX/20 or DPX/2).

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## Prerequisite Publications

*OSI Services Reference Manual*, order no. 86 A2 05AQ

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## Related Publications

*System User's Guide: Communications and Networks*, ref: 86 A2 52AP

*System Management Guide: Communications and Networks*, ref: 86 A2 54AP

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# Chapter 1. Introduction

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## OTM Introduction Summary

This chapter provides information on the following:

- OTM Overview, on page 1-1.
- Supported Terminals and Emulators, on page 1-6.
- OTM Architecture, on page 1-7.
- System Configuration, on page 1-7.
- Connection Scenarios, on page 1-9.
- The OTM SMIT Menus, on page 1-13.
- Start/Stop OTM, on page 4-1.
- License Control – iFor/LS, on page 1-17.

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## OTM Overview

Open Terminal Management (OTM) is a software product that runs on the Bull DPX/20 UNIX based systems. OTM provides two main services:

1. connection of DPX/20 users to applications running on the Bull DPS6000, DPS7000 and DPS9000 mainframes running under the GCOS 6, 7 or 8 operating systems, and
2. printing by applications running on the Bull GCOS 6, 7 or 8 operating systems on printers connected to DPX/20 machines.

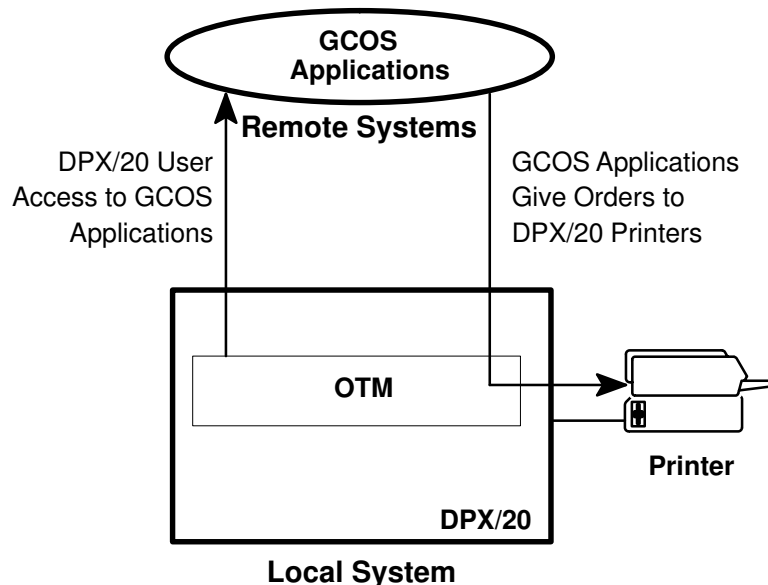


Figure 1. The OTM Connections

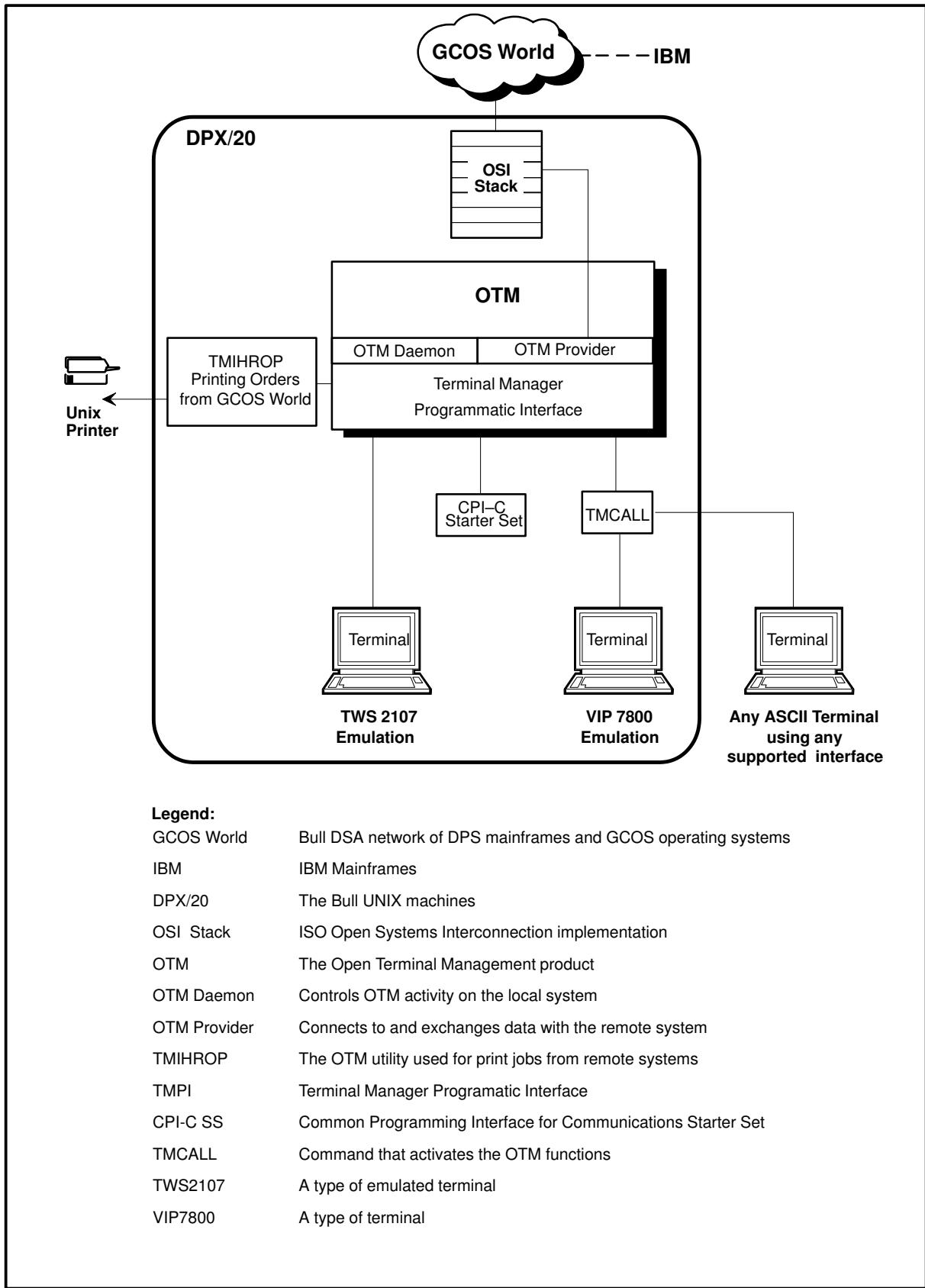


Figure 2. The Open Terminal Manager (OTM) Product

The Open Terminal Manager package allows a user working on a terminal connected to a local system to access applications running on a remote system, via the session layer.

The local system must belong to the DPX/20 system family.

The remote system can belong to one of the following families:

- Bull DPS6000
- Bull DNS (DataNet)
- Bull DPS7000
- Bull DPS9000
- Bull DPX/20
- Bull DPX/2
- IBM mainframes (series 30, 90, 41xx and AS400)

Working with OTM, the terminal acquires a double functionality:

- It can continue to operate as a terminal of the local system, with complete visibility of the local operating system.
- It can operate as a terminal of the remote system, with complete visibility of the communication applications of the remote system.

In addition to terminals, a PC can also be used, provided that a terminal emulator is installed on it; in this case the PC behaves like the corresponding terminal.

Your OTM must be configured for the terminal emulation that you need. There are two main types:

1. TWS2107 Emulation
2. VIP7800 Emulation

Also, an IBM 3270 presentation is supported, but, as a 3270 emulator is not provided, this presentation can be managed only through the CPI-C SS programming interface.

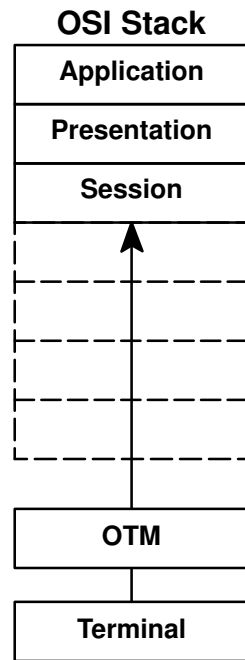
The Terminal Manager function is independent from the selected presentation.

While connected through OTM, documents that are generated on the remote systems can be transferred to and printed on printers connected to the local UNIX system.

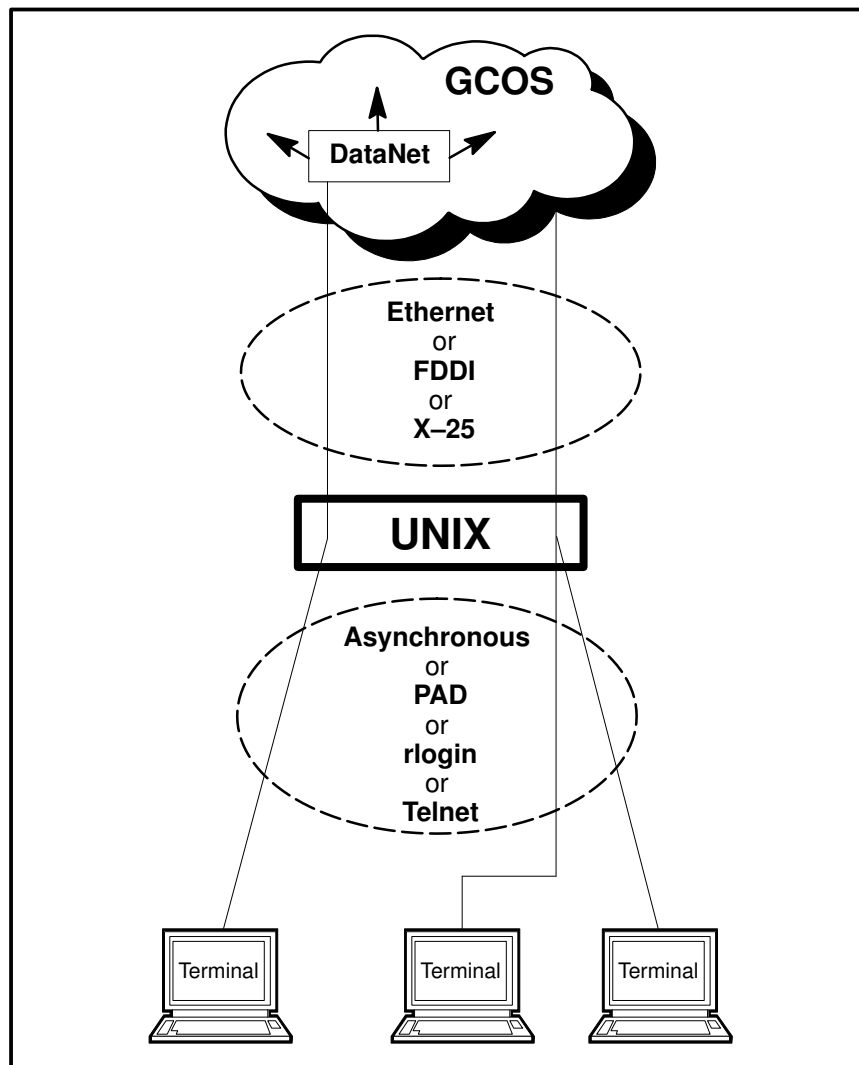
The applications on the remote systems, which the local system may access, are:

SYSTEM	SOFTWARE APPLICATION
DPS6000	GCOS6 TP (for example TPS6 or DTF or DM6TP or ECL)
DNS (DataNet)	\$NOI
DPS7000	TDS or IOF or GTWRITER through DataNet (H/W) with PID (S/W)
DPS9000	DMIVTP or TSS or TP8 (through Gateway) or TP8 (CXI) through DataNet (H/W) with PID (S/W) INFOEDGE
DPX/2 DPX/20	CPI-C User Applications (cpic_ss); remote printing functions
DPX/20	HVX
IBM Mainframes	CICS-VTAM applications through OSF (DSA/SNA) via special applications

OTM uses the ISO/OSI Stack to communicate with the Bull GCOS machines. GCOS-specific protocols (equivalent to the presentation and application layers of the ISO 7 layer model) are implemented within the OTM product. This function is equivalent to the Terminal Manager functions provided by the Bull Datanet communications processor working with the remote systems.



The OSI Stack is accessed at the Session Layer.



The connection between the local and the remote systems can be one of the following:

- ISO type Local Area Networks (LAN) using either Ethernet or FDDI technology
- X-25 type Wide Area Networks (WAN)

The type of connection does not influence the use and functions of OTM. The local system may be simultaneously connected to more than one remote system. The physical connections may also be different, provided that they are one of the above.

The type of connection between the terminal and the local system does not influence OTM behavior. Every connection supported by the local system can be used:

- Asynchronous
- PAD
- rlogin
- Telnet

More than one concurrent connection may be established on different terminals according to the connection capability provided by the connected remote systems and by the local ISO communications stack.

# Supported Terminals and Emulators

In the list of supported terminals and emulators below, “source” stands for presentation from terminal side (i.e. physical presentation) and “target” stands for presentation from host side (i.e. emulated presentation).

## Supported Terminals

Table 1. The terminals supported by the different OTM modules are explained by this table:

Source: Terminal Type/Protocol	tmcall Function	Target:	
		TWS2107 Function	VIP-EMU Function
BDS71XX/WYSE50	NO	YES	NO
BDS74XX/VT220	YES	YES	NO
BQ303/VT320	YES	YES	YES
BQ3102/VT320	YES	YES	YES
BQ3102/SDP7102	NO	NO	YES
BQ3103/VT320	YES	YES	YES
BQ3155/VT320	YES	YES	YES
BQ3156/VT320	YES	YES	YES
BQ3157/VT320	YES	YES	YES
BQ3158/VT320	YES	YES	YES
BQ3155/VIP7800	YES	N/A	NO
BQ3156/VIP7800	YES	N/A	NO
BQ3157/VIP7800	YES	N/A	NO
BQ3158/VIP7800	YES	N/A	NO
BQ3302/SDP7102	NO	NO	YES
BQ3302/VIP7800	YES	N/A	NO
XST306X/SDP7102	NO	NO	YES
Any Terminal with VIP-EMU Emulator	YES	N/A	NO
Any PC with PCI VT220 Emulation	YES	YES	NO
Any PC with PCI SDP7102 Emulation	NO	NO	YES
XST (xdku) SDP7102 Emulation	NO	NO	YES
LFT Display Aixterm	NO	NO	NO

## Supported Emulators

PCI-PC with V220 source and VIP7800 or P200 target, or SDP/7102 source and P200 target



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## OTM Architecture

OTM can be divided into three parts: TM daemon, TM provider and TM users.

The TM daemon controls OTM activity on the local system. The daemon is started at system boot. It performs the following tasks:

- manages the local administration requests: ending of a session, information about a session, stopping and restarting an OTM connection;
- manages the statistics file used by the statistics utility;
- allocates and deallocates the resources used by the incoming and outgoing connections;
- defines the TM provider to be used to access the application on the remote system.

8 TM providers are activated at OTM startup. All the OTM connections are evenly distributed amongst them. For example, for 1024 connections, each TM provider is charged with 128 connections.

The TM provider is in charge of performing the connection and of exchanging data with the remote system, using session layer services. Several connections can be managed at the same time by the TM provider.

TM users are OTM modules that use TM services. TM users manage the terminal interface: see TWS2107 emulation, tmcalls, tmihrop, cpic-ss applications.

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## System Configuration

### Getting Started

OTM can be started in three different ways: automatically when the OSI stack is loaded by using the SAS (Start Application Support) environment, or by using the System Management Interface Tool (SMIT) to run the */etc/rc.OTM* procedure, or using the OTM SMIT menus described in chapter 2.

OTM is started and stopped automatically when the OSI Stack is loaded or unloaded.

Whatever the OTM startup procedure selected, it is necessary to configure:

- the global parameters,
- the local site,
- the sites to be accessed.

This activity must be performed before or after starting OTM, by using `smit`, the standard operating system command (see chapter 2).

When the OSI Stack is loaded, the **osisas** command is invoked as follows:

```
osisas -c otm ON
```

If you do not want to start OTM automatically when the stack is loaded, before loading the stack, run the following command:

```
osisas -c otm OFF
```

These operations can also be performed using the SMIT system management tool.

## Site Configuration

Before establishing an OTM connection, some activities are to be performed both on the local system and on the remote system.

- To connect a DPX system, which supports the ISO network architecture to a DPS system, which supports the DSA network architecture, it is necessary to configure the ISO/DSA Plug (PID). PID may reside on DataNet or directly on DPS6000.
- To connect a DPX system, which supports the ISO network architecture, to an IBM mainframe, which supports the SNA network architecture, it is necessary to configure the ISO/DSA DSA/SNA gateway (OSF).
- To connect two DPX systems (ISO network architecture), configure OTM on both systems.

## Dynamic Configuration

The OTM configuration can be changed dynamically. The configuration parameters can be modified during an OTM session. The new configured values are available whenever the “Load New Environment Configuration” or “Load New Printer Configuration” options are selected.

Certain OTM parameters are not reconfigured dynamically:

- Maximum number of connections
- Connections that are already open
- Part of the trace level information.

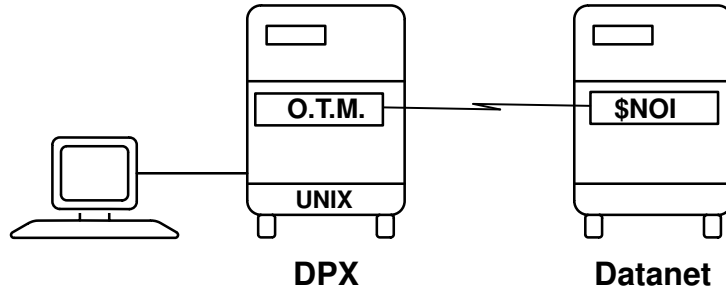
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## Scenarios

Examples of possible environments follow.

### Connection Between a DPX System and a DNS (Datnet) System

In this connection, OTM sends a session connection request to the \$NOI (Network Operator Interface) application on DNS (DataNet).



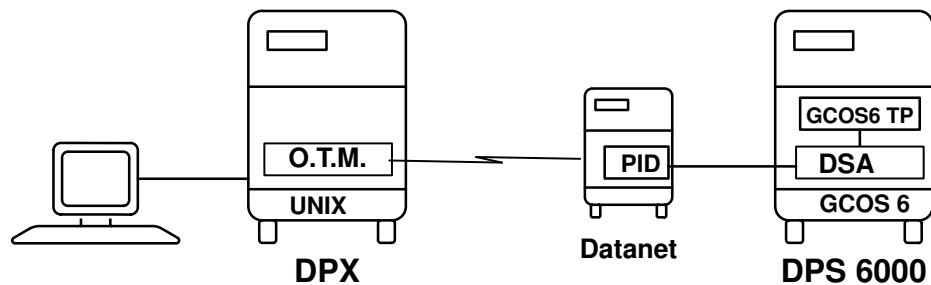
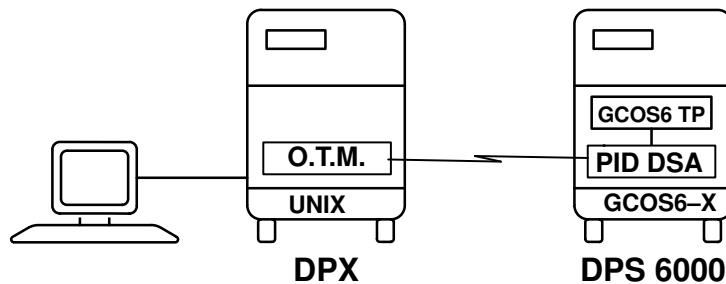
The \$NOI functionality on DataNet is used to perform network administration functions. CPI-C SS utilities can be used.

### Connection Between a DPX System and a DPS 6000 System

If the local system is a DPX and the remote system is a DPS6, OTM can be used to perform the following operations:

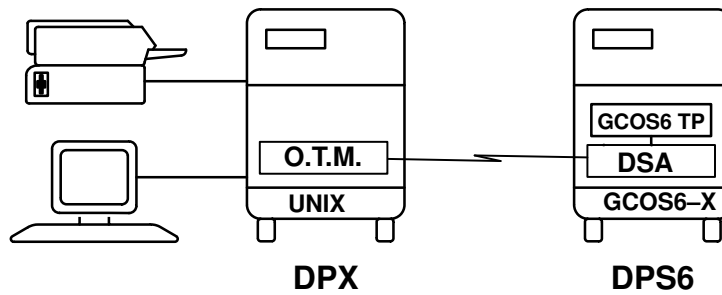
1. To connect DPX terminals to the DPS 6000 system.

In this case the terminal sends a session connection request to the DPS 6000 applications via OTM. PID software may be installed either on DPS 6000 or on Datnet.



CPI-C SS utilities can be used.

- To locally print reports created on the DPS 6000 system. For further details, refer to “Printing Functionality”.

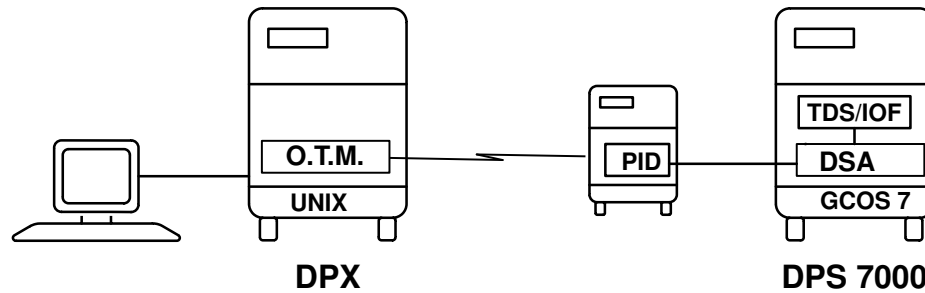


## Connection Between a DPX System and a DPS 7000 System

If the local system is a DPX and the remote system is a DPS7/7000, OTM can be used to perform the following operations:

- To connect DPX terminals to the DPS 7000 system.

In this case OTM sends a session connection request to the DPS 7000 applications via PID. PID may reside either on a Datanet or on the DPS 7000, managed by MicroFEP subsystem.

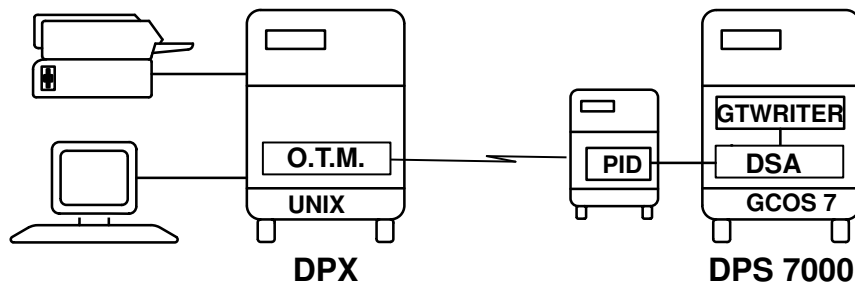


CPI-C SS utilities can be used.

- To locally print reports created on the DPS 7000 system.

To receive reports, define an incoming address (a DPX user: node-name+printer-name, for example if the node-name is DG91 and the printer-name is PR1, the new DPX user is dg91pr1) or a mailbox.

Normally, device mode is used to print reports. For further details, refer to “Printing Functionality”.

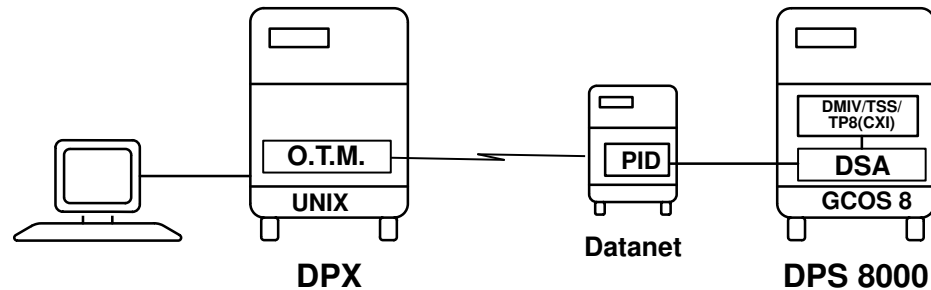


## Connection Between a DPX System and a DPS 8000 System

If the local system is a DPX and the remote system is a DPS 8000, OTM can be used to perform the following operations:

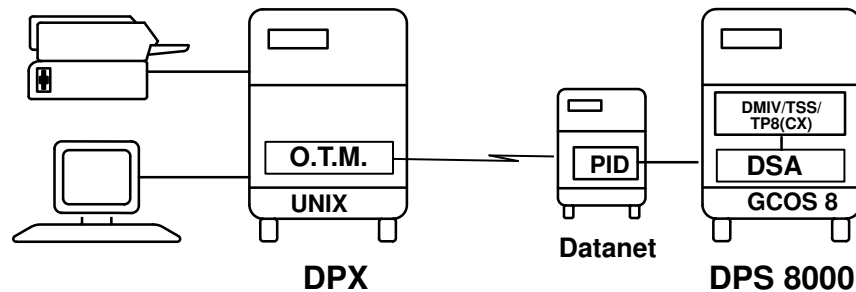
1. To connect DPX terminals to the DPS 8000 system.

In this case, OTM sends a session connection request to the DPS 8000 applications via PID.



CPI-C SS utilities can be used.

2. To locally print reports created on the DPS 8000 system. Normally, station mode is used to print reports. For further details, refer to "Printing Functionality".



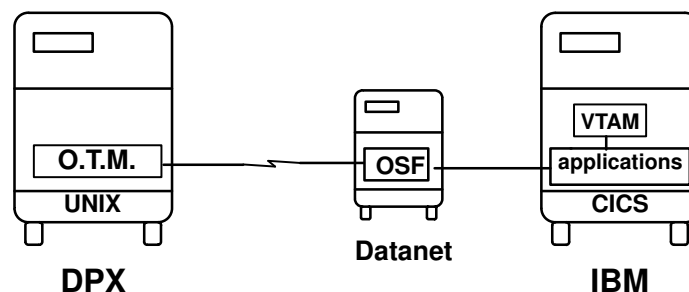
## Connection Between a DPX and an IBM System

If the local system is a DPX and the remote system is an IBM, OTM can be used to perform the following:

1. To connect the local system to the VTAM applications.

In this case, OTM sends a session connection request to the IBM applications via Datamet or through the MicroFEP subsystem installed on DPS 7000.

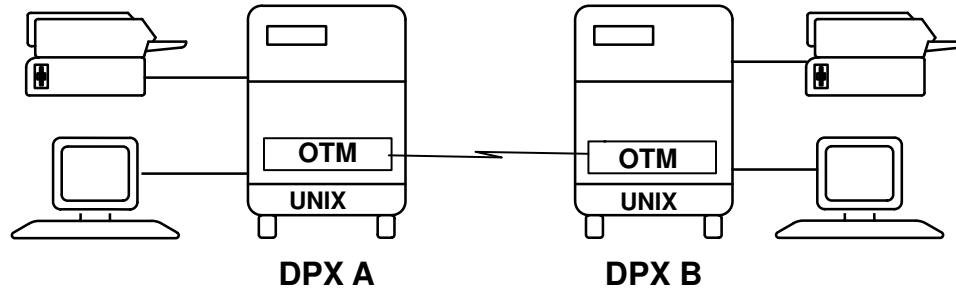
CPI-C SS programmatic interface can manage the connection with the IBM applications.



## Connection Between Two DPX Systems

If the local system is a DPX and the remote system is a DPX/20 or a DPX/2, OTM can be used to perform the following:

1. To connect local CPI-C SS applications to the CPI-C SS applications of the remote system.
2. Reports created on the remote system can be transferred on the local DPX and then printed.
3. Reports created on the local system can be transferred on the remote DPX and then printed.



For further details, refer to "Printing Functionality".

This connection may also take place through Datamet.

---

# The OTM SMIT Menus

## Introduction

To establish a connection, OTM needs information about the remote system, the application to be accessed, the printers to be used and the configuration parameters. This information is stored in files managed by OTM and updated dynamically. During the configuration phase, all errors, whether syntactical or semantical, are automatically detected and displayed.

The OTM configuration must be defined using the **smit** command.

Four different configuration phases can be identified:

1. OTM global parameters: definition of the parameters concerning the conversation to be established and the local DSA site name.
2. Remote Site Configuration (ISO Environment): configuration information concerning the called site.

The Remote Site Configuration option customizes the lower layers.

3. Session User Configuration (ISO Environment): definition of the parameters used to identify the remote application.
4. Printers configuration (if remote printers are to be used): Configuration information about the printers to be used.

The parameter values are passed from the application layer, through the ISO stack only when OTM is running and requesting a connection.

**Note:** The above phases, are also necessary when the DPX is used as the remote system.

To configure the Open Terminal Manager, execute the following steps:

1. Login as root or as a superuser.
2. When the prompt is displayed, enter the following command:

```
#smit
```

To obtain a display in ascii format, enter the following command:

```
#smit -C
```

For further details about the use of SMIT, refer to the “AIX System Management Guide”.

From the SMIT main menu, select the “Communications Applications and Services” item and then the “OTM Main Menu” item.

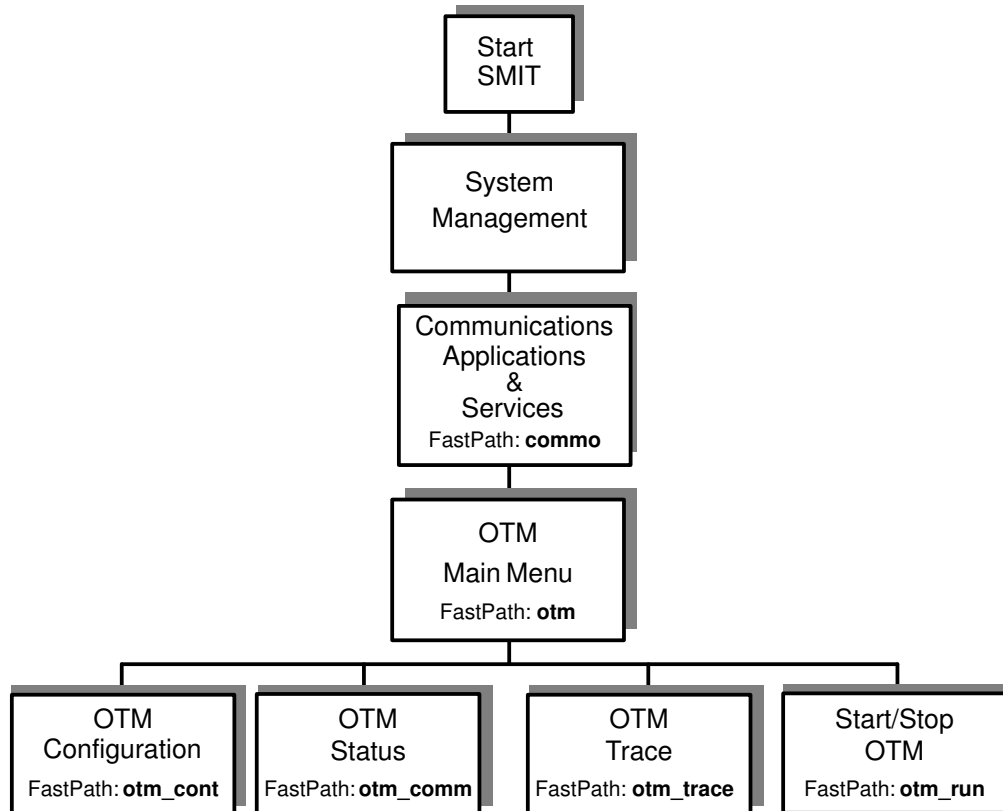


Figure 3. SMIT and the Principal OTM Menu with the FastPath Commands

The principal SMIT and OTM menus with their FastPath commands are shown in the above diagram.

The diagram below indicates the entire series of SMIT menus and screens for OTM.



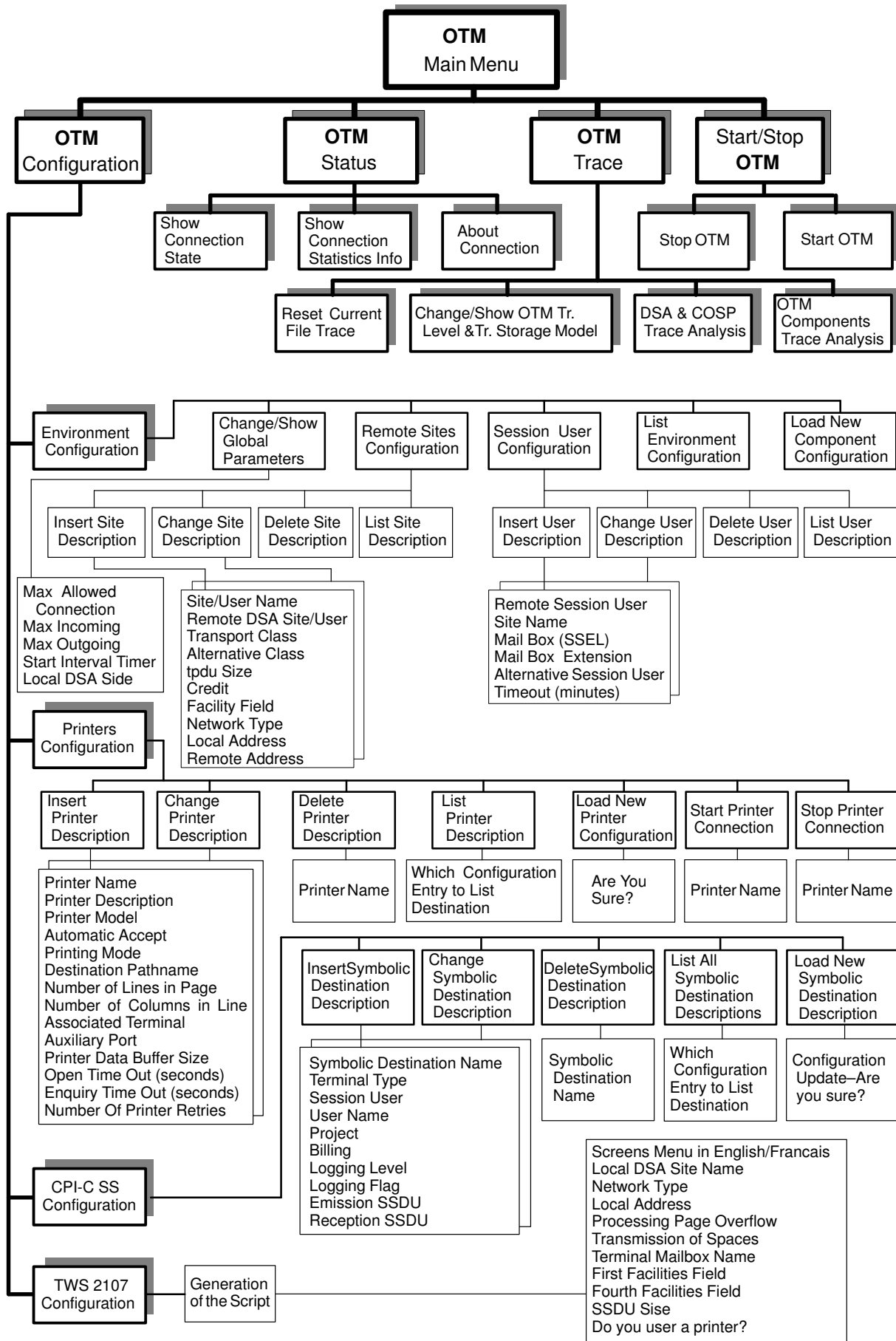


Figure 4. The Complete SMIT Arborescence for OTM

The OTM Main Menu is displayed as follows:

```
OTM Main Menu

Move cursor to desired item and press Enter.

OTM Configuration
OTM Status
OTM Trace
Start/Stop OTM

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

**Item Descriptions:**

**OTM Configuration**

This option configures the OTM environment (global parameters, remote addressing, remote application, list configuration), the OTM printers, the CPI-C starter set symbolic destination names, and the TWS2107 emulator. OTM Configuration is explained in Chapter 2.

**OTM Status**

This is a menu is used to show OTM active connections and the detailed characteristics of a given connection, to abort a list of given connections, and to create, modify, delete or list printer descriptions. OTM Status is further explained in Chapter 3, Using OTM.

**OTM Trace**

With this menu the user can:

- reset current OTM traces.
- change show OTM global trace level and trace storage mode.
- analyse COSP API parameters and DSA protocol parameters.
- report OTM trace for OTM components Provider, Daemon, tmcalls, tws2107, tmihlp and tmihrop.

The OTM Trace is explained in detail in Chapter 4, Debugging.

**Start/Stop OTM**

This menu is used to start or stop OTM. This menu is presented just below.

---

## License Control – iFor/LS

This product uses iFOR/LS encrypted license keys for license management. It supports the 'Nodelocked' license type only. License status is validated only when the product is used, thus permitting installation and configuration without need of the license key.

Refer to the iFOR/LS Installation Notice and Password Order Form delivered with your Communications Product.

Refer to the SRB file for details on how the product uses the license key.

### License Control Prerequisites

The prerequisites which apply to the licenses are derived from functional prerequisites.

To use OTM, it is mandatory to have the OSI Stack upper and lower layers (`osi_frame`, `osi_low`, `osi_high`) and therefore the associated licenses.

### OTM License Control Implementation

OTM needs a license in nodelocked mode to work.

The absence or the expiration of the OTM license locks the new incoming and outgoing connections.

The "1000 TMPI error 70 : connection not yet allowed" is displayed. The meaning of this error code can be found in the `/usr/include/utm_error.h` file. Error 70 means "License is unavailable".

The current connections are not affected by the expiration of the OTM license.

The absence of the OSI layers licenses will lock the top and bottom sub-components of the OSI layers: session, transport, LLC and X25.3 mapper.



---

# Chapter 2. Configuration

---

## OTM Configuration Summary

This chapter covers the following topics:

- Introduction, on page 2-1.
- Environment Configuration, on page 2-3.
- Printers Configuration, on page 2-20.
- CPI-C Starter Set Configuration, on page 2-30.
- TWS2107 Configuration, on page 2-36.
- Configuration Examples, on page 2-39.

---

## Introduction

To establish a connection, OTM needs information about the remote system, the application to be accessed, the printers to be used and the configuration parameters. This information is stored in files managed by OTM and updated dynamically. During the configuration phase, all errors, whether syntactical or semantical, are automatically detected and displayed.

The OTM configuration must be defined using the **smit** command.

Four different configuration phases can be identified:

1. OTM global parameters: definition of the parameters concerning the conversation to be established and the local DSA site name.
2. Remote Site Configuration (ISO Environment): configuration information concerning the called site.

The Remote Site Configuration option customizes the lower layers.

3. Session User Configuration (ISO Environment): definition of the parameters used to identify the remote application.
4. Printers configuration (if remote printers are to be used): Configuration information about the printers to be used.

The parameter values are passed from the application layer, through the ISO stack only when OTM is running and requesting a connection.

**Note:** The above phases, are also necessary when the DPX is used as the remote system.

To configure the Open Terminal Manager, execute the following steps:

1. Login as root or as a superuser.
2. When the prompt is displayed, enter the following command:

```
#smit
```

To obtain a display in ascii format, enter the following command:

```
#smit -C
```

---

## The OTM Configuration Menu

The OTM Configuration Menu, selected in the OTM Main Menu, is displayed as follows:

```
OTM Configuration

Move cursor to desired item and press Enter.

Environment Configuration
Printers Configuration
CPI-C Starter Set Configuration
TWS2107 Configuration

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Items Description:

#### Environment Configuration

This option configures the OTM environment: OTM Global Parameters, Remote Sites, Session Users to be called; it lists the existing configuration (Sites, Session Users, Parameters), and loads a new configuration.

#### Printers Configuration

This option is used to create, modify, delete or list printer descriptions.

#### CPI-C Starter Set Configuration

This option configures, modifies, lists or deletes a symbolic destination.

#### TWS2107 Configuration

This option is used to configure the TWS2107 emulator.

---

## Environment Configuration

This item is selected from the "OTM Configuration" Menu.

For ASCII format the following is displayed:

```
Environment Configuration

Move cursor to desired item and press Enter.

Change/Show Global Parameters
Remote Sites Configuration
Session Users Configuration
List Environment Configuration
Load New Environment Configuration

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Item Descriptions:

#### Change/Show Global Parameters

This option is used to specify the Global Parameters and the local DSA site name

#### Remote Sites Configuration

This option is used to configure, modify, list or delete a site name

#### Session Users Configuration

This option is used to create, modify, list or delete a session user entry

#### List Environment Configuration

This option is used to list the global parameters and the configured remote sites

#### Load New Environment Configuration

This option is used to dynamically update the global parameters and the configured remote sites.

## Change/Show Global Parameters

If the “Change/Show Global Parameters” item is selected from the “Environment Configuration” menu the following is displayed:

```
Change/Show Global Parameters

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                     [Entry Fields]
* Maximum allowed connections        [20]      +#
* Maximum incoming connections       [20]      +#
* Maximum outgoing connections       [20]      +#
* Statistical Interval Timer          [-1]      +
* Local Dsa Site (TSAP)              [SITE]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Reset     F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit       Enter=Do
```

The default values are displayed on the form.

### Item Descriptions:

#### Maximum Allowed Connections

is the maximum number of connections which can be established, either incoming or outgoing. The values range from 1 to the maximum number of allowed connections (1024 in the current release). This value must be in coherence with the OSI stack configuration.

#### Maximum Incoming Connections

is the maximum number of incoming sessions allowed from a remote system. The values range from 1 to the maximum number of allowed connections.

#### Maximum Outgoing Connections

is the maximum number of outgoing sessions allowed from the local system. The values range from 1 to the maximum number of allowed connections.

#### Statistical Interval Timer

It is the time interval between one recording of information on active sessions and the following one. The values range from 0 to 99 minutes. Value -1 disables the recording function. If the value is different from -1, every day, the system creates a file called:

```
/usr/lib/iso/otm.stat.yy.ddd.
```

It is the user's responsibility to delete the previous files after use.

**Local DSA Site** is the DSA site name of the local system. It is the access point from the remote system.

To open a connection, OTM uses this parameter to determine the local access point via which the transport service (TSAP) must pass.

Pay attention to the consistency of the DSA name and associated site when modifying a parameter. Check the configuration by selecting the “*List Environment Configuration*” item.



## Remote Sites Configuration

Selecting this item from the “Environment Configuration” Menu, a site configuration can be defined, modified or deleted.

For ASCII format:

```
Remote Sites Configuration

Move cursor to desired item and press Enter.

Insert Site Description
Change Site Description
Delete Site Description
List Site Descriptions

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Item Descriptions:

#### Insert Site Description

This option is used to insert the description of a new site to be configured.

#### Change Site Description

This option is used to modify the parameters relating to an existing site description.

#### Delete Site Description

This option is used to delete an existing site description.

#### List Site Description

This option is used to list all the site descriptions.

## Insert Site Description

If this option is selected from the “Remote Sites Configuration” Menu, the following is displayed:

```

      Insert Site Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Site Name                      []
* Remote DSA Site (TSAP)         []
* Transport Class                 [2]      +#
* Alternative Class              [2]      +#
* tpdu size                      1024      +
* Credit                         [2]      +#
* Facility Field                 []
* Network Type                   LAN DSA    +
  Local Address                  []      +
* Remote Address                 []

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit       Enter=Do

```

**Note:** Refer to the “OSI Services Reference Manual” for further details about the following parameters.

### Item Descriptions:

**Site Name** This parameter defines the symbolic name of the site (the system being called).

### Remote DSA Site

This parameter is the DSA site identifier.

### Transport Class

The basic job of the Transport Layer, also known as the End-to-End Layer, is to accept data from the session layer, split it into smaller units, if need be, and pass these to the Network Layer, plus insure that all the units arrive correctly at the other end. The Session Layer is independent from the hardware technology.

The Transport Layer is divided into 5 different service classes depending on the minimum quality required for the connection:

Class 0 offers a minimal service. There is no connection establishment retry on error detection, and neither multiplexing nor flow control.

Class 1 is not supported.

Class 2 offers multiplexing and flow control mechanisms over a connection oriented underlying service.

Class 3 offers class 2 services and recovery from network disconnection or reset. Selection of this class is usually based on reliability criteria.

Class 4 is an extension of class 3 which also retry for error not notified by the underlying service but detected by the transport provider itself.

Here are some guidelines for selecting the value:

If LAN DSA or FULL ISO with NSAP network type are being used, the transport class must be set to 4.

If NETSHARE (RFC1006) with NSAP is being used, the transport class must be set to 0.

If X25 is being used, the transport class should usually be set to 2. However, if the X25 network is not reliable, use transport class 3.

Other values should only be used if requested by the administrator at the Datanet (DSA).

For a complete explanation of the different transport classes, see the *OSI Services Reference Manual* or the OSI standard.

#### **Alternative Class**

This parameter will be used by the system if the previous transport class cannot be used. This value must be lower than or equal to the value given to the transport class parameter. This value should be set to 2.

#### **tpdu size**

This value is the number of characters of the message between the transport layers of the two systems. A bigger value gives higher throughput, but increases the amount of memory used by the stack.

#### **Credit**

Credit is the number of messages that the system can send without waiting for the confirmation signal of the other system. The value ranges from 0 to 7. A good value to use is 4.

#### **Facility Field**

This parameter specifies the X25 facility when the network type 1 (X25) is used. The maximum length taken into account using network type 1 is 10 bytes. The value must be entered in hexadecimal format according to X25 ISO 8208 document.

#### **Network Type**

This parameter specifies the type of network between the two systems. The default value for this field is "LAN DSA" (i.e Ethernet address). Select one of the following values:

LAN DSA – Inactive CLNS on LAN with SNPA and LSAP DSA addresses

FULL ISO with NSAP – Full CLNS on LAN and WAN with NSAP addresses

NETSHARE (RFC1006) with NSAP – OSI Session on top of TCP/IP

X25 SVC – CONS on WAN (X25) with SNPA addresses

X25 PVC – X25 on PVC

#### **Local Address**

This parameter specifies the local address depending on the network type selected. A list of values is proposed using the F4 smit key. Possible syntaxes are the following:

For "LAN DSA" – Local Ethernet address. 12 hexadecimal characters.

For "FULL ISO with NSAP" – Local NSAP. Maximum size is 40 hexadecimal characters.

For "NETSHARE (RFC1006) with NSAP" – Local TCP/IP address. For example 129.183.144.204.

For "X25 SVC" – Local X25 address. 15 decimal characters maximum.

For "X25 PVC" – Null value.

#### **Remote Address**

This parameter specifies the remote address depending on the network

type selected. No default value is provided for this parameter. Possible syntaxes are the following:

For "LAN DSA" – Remote Ethernet address. 12 hexadecimal characters.

For "FULL ISO with NSAP" – Remote NSAP. Maximum size is 40 hexadecimal characters.

For "NETSHARE (RFC1006) with NSAP" – Remote TCP/IP address. For example 129.183.50.43.

For "X25 SVC" – Remote X25 address. 15 decimal characters maximum.

For "X25 PVC" – PVC name. 1 to 8 characters maximum.

## Change Site Description

If "Change Site Description" is selected from the "Remote Site Configuration" Menu the following form is displayed:

```
Change Site Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]
* Site Name                      []      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

**Site Name** Enter the site name to be modified. If the name corresponds to an existing site a form containing the current values for that site will be displayed as follows.

```
Change Site Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]
* Site Name                      dg12
* Remote DSA Site (TSAP)         [DG12]
* Transport Class                 [2]      +#
* Alternative Class               [2]      +#
* tpdu size                       [1024]   +#
* Credit                          [4]      +#
* Facility Field                  []
* Network Type                    X25 SVC  +
* Local Address                   [210131] +
* Remote Address                  [210018]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

## Delete Site Description

If this item is selected from the “Remote Sites Configuration” Menu, the program will display the following form:

```

Delete Site Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                     [Entry Fields]
* Site Name                          [ ]      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

**Site Name** Enter the site name to be deleted. A check is performed on the name. If the name exists, the defined site will be deleted.

## List Site Descriptions

If this item is selected from the Remote Sites Configuration menu, the program will display the following form:

```

List Site Descriptions
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                     [Entry Fields]
* Entry to list                       [_all]   +
* Destination                          [_screen] +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

**Entry to list** This item specifies the site name for which information is retrieved. **all** (default value) means all configured sites.

**Destination** Enter the name of the device where the list of the sites will be sent. If no name is specified, the output device is the screen. The list of site descriptions, with a complete description of the parameters, will be displayed on the screen one at a time.

If the name specified is a site name recognized by the spooler, the list is printed, one site description per page.

## Example of Site Description

An example of site description is given below:

```
COMMAND STATUS

Command:OK

Before command completion, additional instructions
may appear below.

[TOP]

Tue Jul 4 09:56:48 1993

Sites Description
=====

bc7c      tsap:BC7C   rem. address: 210018 (X25 SVC)
dg12      tsap:DG12   rem. address: 210018 (X25 SVC)

Site description for <bc7c>

Site Name           : bc7c
Remote DSA Site (TSAP) : BC7C
Transport Class     : 2
Alternative Class    : 2
tpdu size           : 1024
Credit              : 2
Facility Field      : 031a430303
Network Type        : X25 SVC
Local Address       : 210145
Remote Address      : 210018

Site description for <dg12>

Site Name           : dg12
Remote DSA Site (TSAP) : DG12
Transport Class     : 4
Alternative Class    : 2
tpdu size           : 1024
Credit              : 2
Facility Field      : 031a430303
Network Type        : X25 SVC
Local Address       : 210131
Remote Address      : 210018

[BOTTOM]
```

By pressing <DOWN ARROW>, the next screen is displayed. At the end of the catalogue, the following message is displayed:

BOTTOM

## Session Users Configuration

Selecting this item from the “Environment Configuration” menu, a session user description can be defined, changed, listed or deleted. The Session User Configuration Menu is displayed:

```
Session Users Configuration

Move cursor to desired item and press Enter.

Insert Session User Description
Change Session User Description
Delete Session User Description
List Session User Descriptions

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Item Descriptions:

#### Insert Session User Description

This option is used to insert a new session user description to be configured.

#### Change Session User Description

This option is used to change a configured session user description.

#### Delete Session User Description

This option is used to delete an existing session user description.

#### List Session User Description

This option is used to list all or a specific session user description.

## Insert Session User Description

If this item is selected from the “Session User Configuration Menu”, the following is displayed:

```
Insert Session User Description

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[Entry Fields]

* Remote Session User      []
* Site name                 []      +
* Mail box (SSEL)          []
  Mail box extension        []
  Alternate Session User    []      +
  Timeout (minutes)        []      #

F1=Help      F2=Refresh   F3=Cancel    F4=List
F5=Undo      F6=Command   F7=Edit      F8=Image
F9=Shell     F10=Exit    Enter=Do
```



## **Item Descriptions:**

### **Remote Session User**

This parameter defines the symbolic name of the address being defined.

### **Site Name**

This parameter is the symbolic name of the site (the system being called). This site name must be the same one defined in the "Insert Site Description" Form.

### **Mailbox (SSEL)**

A mailbox corresponds to the Session Selector value (or SSAP). The Mailbox is used to identify the application to be accessed.

### **Mailbox extension**

This is additional information on the Mailbox. It is used by the correspondent.

### **Alternate Session User**

This parameter is used in a High Availability environment. The "alternate or secondary session user" is associated to a "first session user". It specifies the Session User to be called if the first Session User is unreachable.

### **Timeout**

In a High Availability environment an application can be disabled for the time specified in this item, when the session user cannot be accessed. OTM automatically tries to establish a connection with the specified Alternate Session User.

The time is specified in minutes.

The Remote Session User, mailbox and mailbox extension identify the application running on the defined site or the printer name defined on the site.

## Change Session User Description

If "Change Session User Description" is selected from the "Remote Session User Configuration" Menu, the following form is displayed:

```
Change Session User Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Remote Session User          []      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit          Enter=Do
```

### Item Descriptions:

#### Remote Session User

Enter the session user name to be modified. If the name corresponds to an existing session user, a form containing the current values for that session user will be displayed as follows.

```
Change Session User Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Remote Session User          tssph79
* Site name                    [ph79]  +
* Mail box (SSEL)              [TSS]
  Mail box extension           []
  Alternate Session User       []      +
  Timeout (minutes)           [0]      #

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit          Enter=Do
```

## Delete Session User Description

If this item is selected from the "Remote Session User Configuration" Menu, the program will display the following form:

```

Delete Session User Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                     [Entry Fields]
* Remote Session User                []      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

#### Remote Session User

Enter the session user name to be deleted. A check is performed on the name. If the name exists, the defined session user will be deleted.

## List Session User Descriptions

If this item is selected from the Session User Configuration menu, the program will display the following form:

```

List Session User Descriptions
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                     [Entry Fields]
* Which Configuration ?                [new]      +
* Entry to list                         [_all]     +
* Destination                           [_screen]  +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

#### Which Configuration

Enter the configuration to be displayed: **new** for the modified configuration containing the new or modified session users; **online** for the previously existing configuration.

#### Entry to list

This item specifies the session user name for which information is retrieved. **all** (default value) means all configured session users.

#### Destination

Enter the name of the device where the list of the session users will be sent. If no name is specified, the output device will be the screen. The list of session users descriptions, with a complete description of the parameters, will be displayed on the screen.

If the name specified is a session user name recognized by the spooler, the list is printed, one session user description per page.

An example of session user description is as follows:

```
COMMAND STATUS

Command:OK
Before command completion, additional instructions
may appear below.

[TOP]
Tue Jul 4 09:56:48 1993
Session Users configuration: new
=====
iofbc7c      site: bc7c
iofbm83     site: bm83

Session User description for <iofbc7c>

Remote Session User      : iofbc7c
Site Name                : bc7c
Mail box (SSEL)         : IOF
Mail box extension       :
Alternate Session User   :
Timeout (minutes)       : 0

Session User description for <iofbm83>

Remote Session User      : iofbm83
Site Name                : bm83
Mail box (SSEL)         : IOF
Mail box extension       :
Alternate Session User   : iofbc7c
Timeout (minutes)       : 1

[BOTTOM]
```

By pressing <DOWN ARROW>, the next screen is displayed. At the end of the catalogue, the following message is displayed:

BOTTOM

## List Environment Configuration

If this item is selected from the Environment Configuration menu the following is displayed:

```

List Environment Configuration
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
      [Entry Fields]
* Which Configuration ?           [new]      +
* Entry to list                   [_all]    +
* Destination                      [_screen] +

F1=Help      F2=Refresh   F3=Cancel   F4=List
F5=Undo      F6=Command   F7=Edit     F8=Image
F9=Shell     F10=Exit     Enter=Do
```

### Item Descriptions:

#### Which Configuration

Enter the configuration to be displayed: **new** for the modified configuration containing the new or modified remote entities; **online** for the previously existing configuration.

#### Entry to list

This item specifies the site name for which information is retrieved. **all** (default value) means all configured remote entities.

#### Destination

Enter the name of the device where the list of the sites will be sent. If no name is specified, the output device will be the screen. The list of remote entity descriptions, with a complete description of the parameters, will be displayed on the screen.

If the name specified is a site name recognized by the spooler, the list will be printed, one site description per page.

A list containing the OTM global parameters and the Remote Entities is produced as follows:

```

                                COMMAND STATUS

Command:OK
Before command completion, additional instructions
may appear below.
[TOP]
Tue Jul 4 09:56:48 1993

Environment Description   configuration: new
=====
    OTM GLOBAL PARAMETERS
-----
Maximum allowed connections : 20
Maximum outgoing connections : 20
Maximum incoming connections : 20
Logging level                : 0
Logging flag                 : 0
Statistical interval timer   : -1
Local DSA Site (TSAP)       : DG81

    LIST OF REMOTE ENTITIES
-----

Remote Entity Description for <ph79>
Mail box (SSEL)              : TSS
Mail box extension          :
Alternative Session User:
Time out (minutes)          : 0
Site Name                   : ph79
Remote Dsa Site (TSAP)     : PH79
Transport Class             : 2
Alternative Class           : 2
tpdu size                   : 1024
Credit                     : 2
Facility Field              : 031a430303
Network type                : X25 SVC
Local address               : 210129
Remote address              : 210018
Local Dsa Site (TSAP)      : DG81

Remote Entity Description for <iofbm83>
Mail box (SSEL)              : IOF
Mail box extension          :
Alternative Session User: iofbc7c
Time out (minutes)          : 1
Site Name                   : bm83
Remote Dsa Site (TSAP)     : BM83
Transport Class             : 2
Alternative Class           : 2
tpdu size                   : 1024
Credit                     : 2
Facility Field              : 031a430303
Network type                : X25 SVC
Local address               : 210145
Remote address              : 210018
Local Dsa Site (TSAP)      : DG81

```

By pressing <RETURN>, the next screen is displayed. At the end of the catalogue, the following message is displayed:

BOTTOM

## Load New Environment Configuration

```
Load New Environment Configuration
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
      [Entry Fields]
* Configuration Updating - Are you sure ?      [y]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit      F8=Image
F9=Shell     F10=Exit      Enter=Do
```

### Item Descriptions:

Configuration Updating – Are you sure

This option is used to dynamically load a new configuration.

---

## Printers Configuration

Printers can be defined, modified or deleted using the Printers Configuration sub menu of the "OTM Configuration" Menu. The ASCII format looks like this:

```
Printers Configuration

Move cursor to desired item and press Enter.

Insert Printer Description
Change Printer Description
Delete Printer Description
List Printer Descriptions
Load New Printers Configuration
Start Printer Connection
Stop Printer Connection

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Item Descriptions:

#### Insert Printer Description

This option is used to insert a new printer description.

#### Change Printer Description

This option is used to modify the parameters relating to an existing printer description.

#### Delete Printer Description

This option is used to delete an existing printer description.

#### List Printer Descriptions

This option is used to list all printer descriptions.

#### Load New Printers Configuration

This option is used to dynamically load all the new or changed printer descriptions.

#### Start Printer Connection

This option is used to enable an incoming call for a printer.

#### Stop Printer Connection

This option is used to disable an incoming call for a printer.



## Insert Printer Description

If this entry is selected from the "Printers Configuration" Menu, the following form is displayed:

```
Insert Printer Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Printer Name                    []
  Printer Description              []
* printer model                   []      +
* automatic accept                [y]      +
* printing mode                   [L]      +
* destination pathname            []
* number of lines in page         []      + #
* number of columns in Line       []      + #
  associated terminal              []
* auxiliary port                  [n]      +
  .. Printer data Buffer size     [512]   + #
  .. Open Time out (seconds)     [0]    + #
  .. Enquiry Time out (seconds)  [5]    + #
  .. Number of Printer Retry     [36]   + #

F1=Help      F2=Refresh    F3=Cancel    F4=List
F5=Undo      F6=Command    F7=Edit      F8=Image
F9=Shell     F10=Exit     Enter=Do
```

### Item Descriptions:

**Printer Name** This 12-character parameter is the logical name of the printer (8 characters for the mailbox and 4 characters for the extension). The Mailbox and the mailbox extension are used to identify the remote application to be accessed.

### Printer Description

This 39-character field contains a description of the printer.

### Printer Model

This 12-character field contains the printer and terminal model identifiers. This model is to be chosen among the ones contained in the */usr/lib/iso/tmstypes.src* file. The names must be entered exactly as those defined in the file, because the program is case sensitive.

### Automatic Accept

This 1-character parameter specifies the accept mode. Specify one of the following values:

Y/y

automatic mode. The local printer is ready to receive remote reports automatically at OTM start up. During the OTM start up phase, the command **tmihrop** is run to wait for incoming printing requests.

N/n

manual mode. The local printer is able to receive remote reports entering the shell command **tmihrop printer-name** (see the description of this command later in this chapter).

**Printing Mode** This parameter (1 character) is used to locally define the report handling, no matter which host the reports come from.

Specify one of the following values:

S

all the reports of one session connection will be stored in the same file, one after the other, under the directory specified in the *dest* parameter field. A connection manages only one report. The file name format will be:

*devname-year.day.seconds*

The file will be available on the local system only after the end of the connection session.

L

(default value) defines the printer configured in the system spooler. If a report is generated during a connection, it will be seen and printed by the local system spooler only after the end of the connection.

f

the report is addressed as standard input to a user program.

F

the report is addressed as standard input to a user program and a shadow file is saved on disk under the *usr/lib/iso/prt* directory, with the name *devname-yy.day.seconds*. If the printer is a secondary device, this parameter cannot be used as destination.

D

the report is directly printed and a shadow file is saved on disk under the *usr/lib/iso/prt* directory.

d

the report is directly printed. The device must exist under */dev* directory.

If the auxiliary port is set to "y", only the "d" and "D" values are meaningful.

### Destination Pathname

This 50-character parameter completes the previous parameter with either the related name or pathname. No spaces are admitted.

printing mode = S

destination pathname = destination disk file pathname

printing mode = L

destination pathname = destination printer device name ("d" in the **lp** command)

printing mode = F/f

destination pathname = destination user program name

printing mode = D/d

destination pathname = destination printer device name (*/dev/xxx*)

If Auxiliary Port = y dest = */dev/spty* where y is an odd number and must be unique on the system.

**Number of Lines per Page**

This two-character field specifies the number of lines per page. The value ranges from 1 to 99.

**Number of Columns per Line**

This three-character field specifies the number of columns per line. The value ranges from 1 to 198.

**Associated Terminal**

This 12-character parameter gives the terminal name to which the printer has logically to be associated during a “station mode” connection. It defines the secondary device. (Refer to the S parameter in **tmcall** command).

If “any” is specified, the printer can be logically associated to any terminal.

**Auxiliary Port**

This one-character field specifies if a printer is connected to the auxiliary port of a VIP7800 asynchronous family terminal (or of a PC running the VIP7800 emulator). The default value is **n**.

**Printer Data Buffer Size**

This value defines the buffer size dedicated to the printer connected to the auxiliary port of the terminal. The range of this parameter is from 64 to 4096. The default value is 512.

**Open Timeout**

This value defines the physical line open timeout. The unit of measurement is the second. The range of this parameter is from 0 to 3600. The default value is 0. This timeout is the time interval between the instant in which the OTM links up on physical line and the instant in which the OTM cuts the connection if no reply. This value must take into account the timeout used on the network to which OTM is trying to link up.

**Enquiry Timeout**

This value defines the printer enquiry timeout. The unit of measurement is the second. The range of this parameter is 1 to 3600. The default is 5.

**Number of Printer Retries**

This value defines the retry to carry out when no OK message from printer enquiry is received. The unit of measurement is the number of attempts. The range of this parameter is 1 to 720. The default value is 36.

**Note:** A high printer enquiry timeout is used to privilege the screen/keyboard access with respect to the printer accesses (enquiry).

A large printer data buffer size is recommended to obtain faster printing when the screen/keyboard accesses are limited (Printer Data Buffer Size).

If an error is detected, it will be indicated with asterisks on the left side of the particular field. Move the cursor over the indicated field to display the error message on the last line of the screen.

If no errors are detected, press <Return> to store the values in the file and to go back to the main menu.

**Note:** In order to print files from a DPS7 machine to a DPX system, create on the DPX system a new user having the user name specified in the connection record (submitter identity record) as follows: node–name + printer–name, for example:

node–name: DG81  
printer–name: PR81

Create the user: dg81pr81 (uppercase or lowercase letter). The end report messages will be addressed to this user (via mail mechanism). If there are reports from other remote systems, if the user has not been created the end report messages will be addressed to the default user “adm”. If errors occur, the error messages will be mailed to the administrator user “adm”.

## Printer and Terminal Models

The file `/usr/lib/iso/tmstypes.src` contains terminal and printer models. Usually this file must not be modified but when it is necessary to insert new printer or terminal models, this file may be modified and then must be recompiled. To recompile this file use the command:

```
tmscomp -i /usr/lib/iso/tmstypes.src
        -o /usr/lib/iso/tmstypes.tmp
```

The object file will be copied on `/usr/lib/iso/tmstypes.cnf` (current) at next OTM start-up.

The `tmstypes.src` file contains the parameter description for terminals and printers.

### 1. Example of terminal description (hw40 – hn40)

```
VTU0040 = terminal identifier.
          This parameter is used by CPI-C Starter Set (2LTP).

Type     = T (as terminal).

Uname    = hw40 (unix name). This parameter is used by tmcall.

Dsaidd   = \x26 (DSA identifier).

Termchr  = \x03\x04\x17 (text terminator characters).

Tinit    = character string to abandon the local UNIX system
          terminal setting and to be ready for OTM connection at
          opening connection time.

Treset   = character string to go back to local UNIX system
          terminal setting, at closing connection time

Break    = character string to generate the transition of BREAK
          (coincident with SHIFT + FK12 )

FK1-FK24= character string simulating the FK keys.
```

To provide a better understanding, a printout of the file `tmstypes.src` for synchronous and asynchronous terminals for VTU0040 and VIP7800C entries follows:

```
:VTU0040, type=T, uname=hw40, dsaid=26, termchr=030417dd,
  tinit=\E``\E[G\E\I\E[e,
  treset=\E``\Ek\Ev\Em\Er\E[D\E[i\E[n\E[W ,
  break= E\x5f, cnabt= E\x5d,
  fk1=\E0, fk2=\E2, fk3=\E6, fk4=\E8, fk5=\E\x3c,
  fk7=\E>, fk8=\EP, fk9=\ER, fk10=\ET, fk11=\E\x5c, fk12=\E\x5e,
  fk13=\E1, fk14=\E5, fk15=\E7, fk16=\E9, fk17=\E;, fk18=\E\x3d,
  fk19=\E?, fk20=\EQ, fk21=\EV, fk23=\E , fk24=\E_)

:VIP7800C, type=T, uname=hn40, vip,
  dsaid=\x47, same=VTU0040 )
```

If the `vip` parameter is present, the terminal works in VIP mode: this means that the variable `TERM` should be changed from `hw40` (asynchronous mode) to `hn40` (synchronous mode), before running **tmcall**, to change to VIP mode.

### 2. Example of printer description (PRT 4/66)

```
COMPRT  = printer terminal identifier.
Type    = T (as terminal).
Uname   = hw466 (unix name).
Dsaidd  = xd0 (DSA identifier).
Treset  = x00.
Tinit   = x00.
pgline  = line number per page.
pgcoln  = column number per page.
```

## Change Printer Description

If “Change Printer Description” is selected from the “Printers Configuration” Menu the following form is displayed:

```
Change Printer Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Printer Name                    []      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit        Enter=Do
```

### Item Descriptions:

#### Printer Name

Enter the Printer name to be modified. If the name corresponds to an existing printer a form containing the current values for that printer will be displayed as follows.

```
Change Printer Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.
                                [Entry Fields]

* Printer Name                    [PR11]
  Printer Description              []
* printer model                   [COMPRT]      +
* automatic accept                [y]          +
* printing mode                   [d]          +
* destination pathname             [/dev/spt1]
* number of lines in page          [24]         + #
* number of columns in line        [80]         + #
  associated terminal              []
* auxiliary port                   [y]          +
  .. Printer data Buffer size      [512]        + #
  .. Open Time out (seconds)      [0]          + #
  .. Enquiry Time out (seconds)   [5]          + #
  .. Number of Printer Retry      [36]         + #

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit        Enter=Do
```

## Delete Printer Description

If this item is selected from the "Printers Configuration" menu, the program will display the following form:

```

Delete Printer Description

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                     [Entry Fields]

* Printer Name                        [ ] +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit       F8=Image
F9=Shell     F10=Exit        Enter=Do


```

### Item Descriptions:

**Printer Name** Enter the Printer name to be deleted. A check is performed on the name. If the name exists, the defined printer will be deleted.

## List Printer Descriptions

If this item is selected from the "Printers Configuration" menu, the program will display the following form:

```

List Printer Descriptions

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                     [Entry Fields]

* Which Configuration ?              [new]      +
* Entry to list                       [_all]     +
* Destination                         [_screen]  +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit       F8=Image
F9=Shell     F10=Exit        Enter=Do


```

### Item Descriptions:

#### Which Configuration

Enter the configuration to be displayed:

**new** for the modified configuration containing the new or modified printers;  
**online** for the previously existing configuration.

#### Entry to list

This item specifies the printer for which information is retrieved. **all** means all configured printers.

(Default value).

**Destination** Enter the name of the device where the list of the sites will be sent. If no name is specified, the output device will be the screen. The list of site descriptions, with a complete description of the parameters, will be displayed on the screen.

If the specified name is a printer name recognized by the spooler, the list will be printed, one printer description per page.

An example of printer description is as follows:

```

                                COMMAND STATUS

Command:OK

Before command completion, additional instructions may appear
below.

[TOP]

Fri Oct 1 18:24:58 CDT 1993

Printers Description      configuration: new
=====

pr83
pr33      [aux]
Printer description for <pr83>
Printer Name      : PR83
Printer Description : incoming printing
Printer Model     : COMPRT
Automatic Accept  : n
Printing Mode     : S
Destination Pathname : /users/myhome
Number of Lines per Page : 24
Number of Columns per Line : 80
Associated Terminal :
Auxiliary Port    : n

Printer description for <pr33>
printer name      : PR33
printer description : incoming printing
printer model     : COMPRT
automatic accept  : y
printing mode     : d
destination pathname : /dev/spt1
number of lines per page : 24
number of columns per line : 80
associated terminal : any
auxiliary port    : y
```

By pressing <DOWN ARROW>, the next screen is displayed. At the end of the catalogue, the following message is displayed:

[BOTTOM]

## Load New Printers Configuration

If this item is selected from the “Printers Configuration” menu, the program will display the following form:

```
Load New Printers Configuration

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Entry Fields

* Configuration Updating - Are you sure ?      [y]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit      F8=Image
F9=Shell     F10=Exit      Enter=Do
```

### Item Descriptions:

#### Configuration Updating – Are you sure

This option is used to dynamically load a new configuration.

## Start Printer Connection

If this item is selected from the “Printers Configuration” menu, the program will display the following form:

```
Start Printer Connection

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Entry Fields

* Printer Name      []      +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit      F8=Image
F9=Shell     F10=Exit      Enter=Do
```

### Item Descriptions:

**Printer Name** This is the name of the printer for which incoming calls are enabled.

**Note:** The contents of this field can only be obtained by using the **list** option.



## Stop Printer Connection

If this item is selected from the "Printers Configuration" menu, the program will display the following form:

```

                                Stop Printer Connection
Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                [Entry Fields]
* Printer Name                                [ ] +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit         Enter=Do
```

### Item Descriptions:

**Printer Name** This is the name of the printer to disable.

**Note:** The contents of this field can only be obtained by using the **list** option.

---

## CPI-C Starter Set Configuration

If the "CPI-C Starter Set Configuration" item is selected from the "OTM Configuration" Menu, the following is displayed:

```
CPI-C Starter Set Configuration

Move cursor to desired item and press Enter.

Insert Symbolic Destination Description
Change Symbolic Destination Description
Delete Symbolic Destination Description
List All Symbolic Destination Descriptions
Load New Symbolic Destination Configuration

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

The configuration information defined through this menu, is written to the *site.new* file, under the */usr/cpi c* directory.

## Insert Symbolic Destination Description

This item is selected from the "CPI-C Starter Set Configuration" Menu.

When this functionality is chosen, another mask is displayed:

```

      Insert Symbolic Destination Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                     [Entry Fields]
* Symbolic Destination Name          []
* Terminal Type                      []      +
* Session User                       []      +
  User Name                          []
  User Password                       []
  Project                             []
  Billing                              []
* Trace Level                        [-1]     +
* Trace Storage Mode                 [-1]     +
* Emission SSDU                      [18432]  + #
* Reception SSDU                     [18432]  + #

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit        Enter=Do
```

### Item Descriptions:

#### Symbolic Destination Name

This is the key to identify a specific configuration; when a conversation is started (CMINIT verb), reference to a key will be made; the conversation will be performed according to the values defined for that key. This field is mandatory and must be unique.

#### Terminal Type

This is the type of terminal emulated by the local application. This field is mandatory.

Possible values for this field are:

VTU0040

(DSA code 0x26)

VIP7800N

(DSA code 0x47)

T32762

(DSA code 0x60)

DKU7102

(DSA code 0x1B)

DKU7107

(DSA code 0x94)

DKU7105

(DSA code 0x41)

The terminal type to specify is to be chosen among the ones supported by OTM.

The supported terminal types are defined in `/usr/lib/iso/tmstypes.src`. Refer to the “Printer and Terminal Model” paragraph.

**Session User** This is the local identifier of the remote application. This value depends on CMA CCP usage in the `cpi-c` program:

it is the local mailbox when the `cpi-c` program is a host application and it can receive data from terminal `cpi-c` applications running only on DPX machines.

(environment variable `API_TP_NAME`)

it is the symbolic destination name (an address) when the `cpi-c` program is a terminal application and it can receive data from other terminal applications running on GCOSx host or DPX machines or DataNet machines.

(environment variable `API_TERM_NAME`)

This field is mandatory.

**User Name** This is the name of the user who can access the remote application.

**User Password**

This is the password, if one is defined, of the above specified user. The password is encrypted when stored on the configuration file.

**Project** This field and the *billing* field are to be filled only when their values are other than the default values stored in the Site Catalog. For further information refer to the Host manual.

**Billing** See the previous parameter description.

**Trace Level** This specifies the level of logging. The Trace facility is used by the administrator to store information about the conversation.  
The amount and level of detail depend upon the trace level. The higher the specified level, the more information is logged.

If not specified, the default value is assumed (0). 0 is used to log the detected errors. The other values are:

-1 Logging is disabled. (The OTM trace level will be used.)

2 States and events are logged. Function names and their parameters and function return codes are traced.

4 All internal routines are traced. **This level can slow down operation of OTM on your system. Use it with care.**

The logging file is named *apilog* under the directory */tmp* and can be viewed using the command **cpi-clog**.

**Trace Storage Mode**

Specify the storage mode. The values for this field are:

-1 Logging Flag is disabled. (The OTM trace flag will be used.)

0 Logging output produced using the ELOG driver.

1 Logging output produced on file under the */tmp* file.

**Emission SSDU**

This is the SSDU size for an outgoing connection.

**Reception SSDU**

This is the SSDU size for an incoming connection.

## Change Symbolic Destination Description

If this functionality is selected from the "CPI-C Starter Set Configuration" menu, a new form with only one field is displayed; the name of the symbolic destination to be modified must be specified in this field.

```
Change Symbolic Destination Description

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                [Entry Fields]

* Symbolic Destination Name      []  +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit      F8=Image
F9=Shell     F10=Exit        Enter=Do
```

If the entered name is correct, a form with the current values of the specified symbolic destination is displayed, with the exception of the Symbolic Destination Name field, which cannot be modified. The password is decrypted when displayed. If the value for the password field is changed, the password is encrypted again to be stored in the configuration file.

```
Change Symbolic Destination Description

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                [Entry Fields]

* Symbolic Destination Name      IOFBM83
* Terminal Type                  [VIP7800N]  +
* Session User                   [iofbm83]  +
  User Name                       [PLUTO]
  User Password                   [PL]
  Project                          []
  Billing                           []
* Logging Level                   [5]      +
* Logging Flag                     [1]      +
* Emission SSDU                   [18432]  + #
* Reception SSDU                  [18432]  + #

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit      F8=Image
F9=Shell     F10=Exit        Enter=Do
```

## Delete Symbolic Destination Description

When this functionality is selected from the “CPI-C Starter Set Configuration” menu, a form asks the name of the symbolic destination description to be deleted.

```

                                Delete Symbolic Destination Description
Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                [Entry Fields]
* Symbolic Destination Name          []  +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit        Enter=Do

```

## List All Symbolic Destination Descriptions

When this functionality is selected from the “CPI-C Starter Set Configuration” menu, a form asks the device name for output.

```

                                List Symbolic Destination Configuration
Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                [Entry Fields]
* Which Configuration ?              [new]      +
* Entry to list                      [_all]     +
* Destination                        [_screen]  +

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit        Enter=Do

```

### Item Descriptions:

#### Which Configuration

Enter the configuration to be displayed:

**new** for the modified configuration containing the new or modified symbolic destinations;

**online** for the previously existing configuration.

#### Entry to list

This item specifies the symbolic destinations for which to retrieve information. **all** means all configured symbolic destinations. (Default value).

#### Destination

Enter the name of the device where the list of the symbolic destinations will be sent. If no name is specified, the output device will be the screen. The list of symbolic destinations descriptions, with a complete description of the parameters, will be displayed on the screen.

If the specified name is a symbolic destination name recognized by the spooler, the list will be printed, one symbolic destination description per page.

An example of symbolic destination description is as follows:

```
COMMAND STATUS

Command:OK

Before command completion, additional instructions may appear
below.

[TOP]

Fri Oct 1 18:24:58 CDT 1993

Symbolic Destinations Description  configuration: new
=====

IOFBM83  term: VIP7800N rem.user: iofbm83
Symbolic Destination description for <IOFBM83>
Symbolic Destination Name      : IOFBM83
Terminal Type                  : VIP7800N
Remote Session User            : iofbm83
User Name                      : PLUTO
User Password                  : PL
Billing                        :
Project                        :
Logging Level                  : 5
Logging Flag                   : 1
Emission SSDU                  : 18432
Reception SSDU                 : 18432
```

By pressing <DOWN ARROW>, the next screen is displayed. At the end of the catalogue, the following message is displayed:

[BOTTOM]

## Load New Symbolic Destination Configuration

This item is selected from the “CPI-C Starter Set Configuration” menu.

```
Load New Symbolic Destination Configuration

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[Entry Fields]

* Configuration Updating - Are you sure ? [y]

F1=Help      F2=Refresh   F3=Cancel    F4=List
F5=Undo      F6=Command   F7=Edit      F8=Image
F9=Shell     F10=Exit     Enter=Do
```

### Item Description:

#### Configuration Updating – Are you sure

This option is used to dynamically load a new configuration.

# TWS2107 Configuration

By selecting "TWS2107 Configuration" from the "OTM Configuration" Menu the following is displayed:

```
Move cursor to desired item and press Enter.

Generation of the script - tws2107 -
F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit     Enter=Do
```

This entry displays the local configuration menu with the mandatory information defining the local entity for TWS2107 future connections. Remember that some of these fields are equivalent to the requested and mandatory ones for OTM environment. These fields must be coherently chosen with the OTM ones (e.g. Local DSA site, Network type, Local address).

Remember that if the connection is established via the TWS2107 emulator, OTM configuration tools and database are not used, but the TWS2107 configuration menu and files (*vip\_annu* user files) are used. Refer to the "TWS2107 Emulation User's Guide" for further details.

After selecting "Generation of the script -tws2107 -" the following is displayed:

```
Generation of the script -tws2107-

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[TOP]

                                     [Entry Fields]
* Screens menu in English/Francais (1/2)  [1]  +
* Local DSA Site Name                      []
* Network Type                             []  + #
* Local address                             []
* Processing page overflow                  [n]  +
  .. Timing in seconds                      []  + #
* Transmission of spaces (TRANSPES)        [n]  +
  Terminal Mailbox Name
  First Facilities Field                    []
  Second Facilities Field                   []
  Third Facilities Field                    []
  Fourth Facilities Field                   []
  SSDU Size                                []  + #
* Do you use a printer ?                    [n]  +
  .. Printer via Hard-Copy / Spooler (1/2)  []  + #
  .. Printer Name (spooler only)           []  +
  .. Printer Model                          []  +
  .. Nr. of char received before printing  []  #
  .. Delay before printing                  []  #
  .. Incoming connection on local printer  [n]  +
  .. .. Local SSAP for the printer          []

[BOTTOM]
```



## Item Descriptions:

### Screens Menu in English/Francais (1/2)

Enter your answer depending on the selected language.

### Local DSA site name

this argument is used to determine the local access point through which the transport service (TSAP) must pass. Specific characteristics:

- Mandatory parameter,
- Length of name: 4 characters,
- If alphanumeric, it must be in UPPERCASE (an ISO/DSA name must be declared in DATANET)

**Network Type** This parameter specifies the type of network between the two systems. The default value for this field is "LAN DSA" (i.e Ethernet address). Select one of the following values:

- DSA LAN – Inactive CLNS on LAN with SNPA and LSAP DSA addresses
- FULL ISO with NSAP – Full CLNS on LAN and WAN with NSAP addresses
- NETSHARE (RFC1006) with NSAP – OSI Session on top of TCP/IP
- X25 SVC – CONS on WAN (X25) with SNPA addresses
- X25 PVC – X25 on PVC

**Local Address** This parameter specifies the local address depending on the network type selected. A list of values is proposed used F4 smit key. Possible syntaxes are the following:

For "DSA LAN" – Local Ethernet address. 12 hexadecimal characters.

For "FULL ISO with NSAP" – Local NSAP. Maximum size is 40 hexadecimal characters.

For "NETSHARE (RFC1006) with NSAP" – Local TCP/IP address. For example 129.183.144.204.

For "X25 SVC" – Local X25 address. 15 decimal characters maximum.

For "X25 PVC" – Null value.

### Processing of page overflow

The TWS2107 emulator enables automatic processing (with or without a time delay) of the display of the remaining information following detection of a page overflow. The time delay may be set between 0 and 1200 seconds.

If this option is not selected, page overflow processing is manual.

### Timing in seconds

Delay time for the "processing of page overflow" item.

### Transmission of spaces

Spaces initialized by the central system as well as those entered by the user are transmitted by TWS2107, which is standard operation for a DKU7107.

Retransmission should not be automatic if there are old applications that function according to the position of a switch on the terminal (former version of DKU7107).

**Mailbox Name**

Terminal mailbox name: up to 8 UPPERCASE characters maximum.  
Default value: the terminal name, converted into UPPERCASE characters  
(e.g.: TTY14)

**First Facilities field****Second Facilities field****Third Facilities field****Fourth Facilities field**

X25 facilities. Each field can contain only one facility. The value must be entered in hexadecimal format according to X25 ISO 8208 document.

**SSDU Size** It is the Session layer SERVICE DATA UNIT size (SSDU). Default value: 8192 characters, must be greater than 1980 characters, optional. The size of the SSDU must be set according to the application with which a dialogue is carried out. In particular, the SSDU must be sized to receive the largest screen formats of the remote application. In most cases, the default values of the other parameters are sufficient.

**Do you use a printer**

Select the correct answer.

**Printer via Hard-Copy/Spooler**

Select the correct answer.

**Printer Name** Enter the name of the printer to be configured. This field must be filled in only if the printer is to be managed via spooler.

**Printer Model**

TWS2107 uses this argument to identify the configuration file of the printer connected to the terminal. During installation, various combinations are proposed for the printer and its operating mode. If the printer is used via a spooler, the system will request the name set up in the machine by the administrator (consult your administrator).

Specific characteristics:

– Mandatory parameter if a printout is requested,

**Nr. of char received before printing**

Minimum number of received characters before beginning printing.

**Delay before printing**

Time delay before beginning printing.

**Incoming connection on local printer**

TWS2107 waits for incoming connection reserved to the printer.

Choose the answer.

**Local SSAP for the printer**

This is the mailbox name for the printer (up to UPPERCASE characters).

---

## Configuration Examples

Following are some connection examples: each example will be structured as follows:

- a brief description
- a figure
- the **smit** parameters

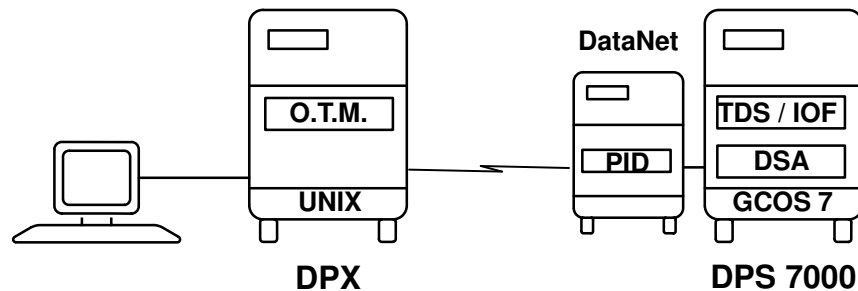
### First Example

This example shows a connection between a DPX and a DPS 7000 using TDS. In the first part of the example, a DPS 7000 remote site is configured on the DPX system.

In the second part of the example a printer is configured to print the TDS reports.

#### First Part

On the DPX system (DSA name DG81), the DPS7 remote site (DSA name BC11 and site name oscar) must be configured. From the DPX system the user can access the TDS application (identified with oscbc11 as session user and OSCX as mailbox or SSEL).

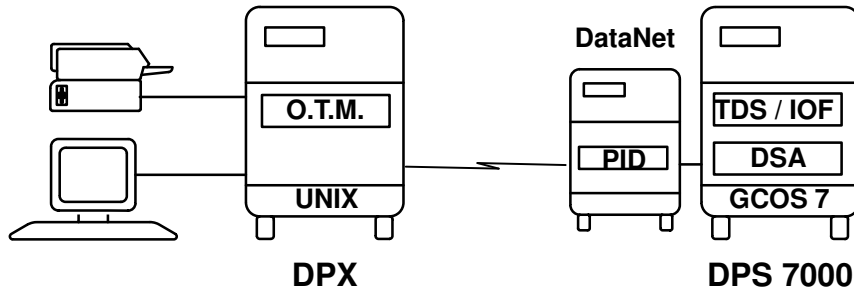


First of all, on the DPX you must run the following commands:

- `smit Change/Show Global Parameters`  
to configure the local DSA site (DG81 in the example)
- `smit Insert Site Description`  
to create the remote DSA site (BC11 in the example)  
Site Name oscar  
Remote DSA Site BC11
- `smit Insert Session User Description`  
to create the remote session user (oscbc11)  
Remote Session User oscbc11  
Site Name oscar  
Mail box OSCX1  
Mail box (SSEL) : OSCX  
Mail box extension :  
Alternative Session User:  
Time out (minutes) : 0  
Site Name : oscar  
Remote DSA Site (TSAP) : BC11  
Transport Class : 2  
Alternative Class : 2  
tpdu size : 1024  
Credit : 4  
Facility Field :  
Network type : X25 SVC  
Local address : 210129  
Remote address : 210018  
Local DSA Site (TSAP) : DG81

## Second Part

A printer is to be configured to printout the TDS reports (during DPX – DPS 7000 connection), using a DPX printer.



After configuring the site name and the session user as specified in “First Part”, **smit** must be run again to configure the printer on the DPX system. This DPX printer must be configured also on the DPS 7000 and must be seen by the TDS subsystem.

```
Printer Name           : DPXPR
Printer Description    : DPX and DPS7 connection
Printer Model         : COMPRT
Automatic Accept      : y
Printing Mode         : D
Destination Pathname  : /dev/nodename
Number of Lines per Page : 24
Number of Columns per Line : 80
Associated Terminal    :
Auxiliary Port        : n
```

**Note:** For further information on the remote printer on the host system, see the manual “DPS7 GENERALIZED TERMINAL WRITER USER’S GUIDE”.

Create on the DPX system a new user having the user name specified in the connection record (submitter identity record) as follows:

node-name + printer-name

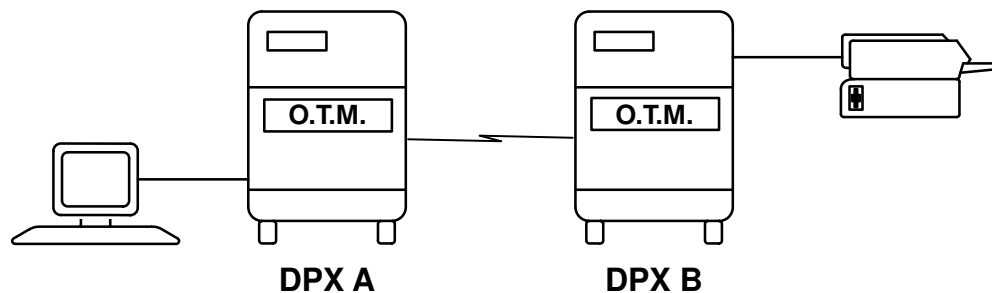
```
node-name: DG81
```

```
printer-name: DPXPR
```

create the user: dg81dpxpr (uppercase or lowercase letter).

## Second Example

This example illustrates the connection between two DPX systems and the possibility to send reports to a printer physically connected to the system “B” using the Ip spooling system of system “A”.



First of all, on the local DPX A run:

- `smit` to create a site name (DPX B)
- `smit` to create a session user, where session user must be *QueueName* defined in `smit` and mailbox must be the DPX B *PrinterName* defined in `smit` on DPX B.

To address reports to a printer via OTM, configure the printer queue on DPX A.

1. Enter the following SMIT FastPath: “`smit lprint`”
2. Select the “Local Printer Queues” entry.
3. Select the “Add a Local Queue” entry.
4. A mask is displayed. Enter the following values for the mandatory parameters:
  - NAME of the queue: *QueueName*
  - NAME of the device: *QueueDeviceName*
  - BACKEND output file: `/dev/null`
  - BACKEND program pathname: `/usr/lib/lpd/piobe -fn`

**Note:** The name used for *QueueDevice* is only a symbolic name; there is no relation between this name and the configuration of the system in use. *QueueName* is the same name specified for session user in the “Session User Configuration”.

5. Define a “virtual printer” associated to a “queue device”:
  - `mkvirprt -d QueueDeviceName -q QueueName -s asc -t type -n /dev/null`
  - `chvirprt -d QueueDeviceName -q QueueName -a “fn=“/usr/lib/iso/tmplpc %l@1’`

to insert OTM filter

```
Mail box (SSEL)           : DPXB printer name
Mail box extension       :
Alternative Session User:
Time out (minutes)       : 0
Site Name                 : v21sitename
Remote Dsa Site (TSAP)   : V21B
Transport Class          : 2
Alternative Class        : 2
tpdu size                 : 1024
Credit                   : 4
Facility Field           :
Network type             : X25 SVC
Local address            : 2222
Remote address           : 1111
Local Dsa Site (TSAP)    : V31B
```

Then, on the remote DPX B must be run:

- smit            to create a printer (where the reports received from the other DPX are printed, in this case the reports are sent to the spooler. The printer name must be the same one as specified for the mailbox field in the “Session User Configuration” on DPX A.

```
Printer Name           : DPXB printer name
Printer Description    : DPX DPX connection
Printer Model         : COMPRT
Automatic Accept      : y
Printing Mode        : L
Destination Pathname  : pathname *
Number of Lines per Page : 24
Number of Columns per Line : 80
Associated Terminal   :
Auxiliary Port        : n
```

- \* pathname of the printer defined in the spooling system

## Third Example

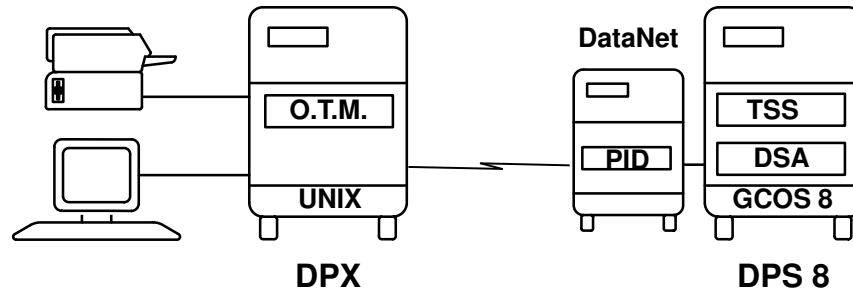
This example illustrates the connection between a DPX (DSA name DG81 and symbolic name phoenix), and a DPS8 (DSA name PH79) to access the TSS subsystem.

In the first part of the example a DPS8 remote site is configured on the DPX system. The second part of the example illustrates how to define a secondary device (associated printer).

**Note:** To perform this example, the terminal type must be hn40 (term = hn40), otherwise a DSA code will occur.

### First Part

On the DPX system the DPS8 remote site must be configured. From the DPX system the user can access the TSS subsystem.



First of all, on the DPX run:

- smit to create a site name
- smit to create a session user

Then, to define a secondary device:

- smit to create a local printer as secondary device.

```
Mail box (SSEL)           : TSS *
Mail box extension        :
Alternative Session User:
Time out (minutes)       : 0
Site Name                 : phoenix
Remote Dsa Site (TSAP)   : PH79
Transport Class          : 2
Alternative Class         : 2
tpdu size                 : 1024
Credit                   : 4
Facility Field           :
Network type             : X25 SVC
Local address            : 210129
Remote address           : 210018
Local Dsa Site (TSAP)    : DG81
```

\* mailbox name in DSA environment.

## Second Part

The definition of a secondary device follows. (The secondary device is defined associating the terminal and the printer to the same logical line. Refer to the Associated Terminal item in the "Insert Printer Description" form). In particular, it is defined that reports will be stored on a disk file.

```
Printer Name           : REPFILF
Printer Description    : DPS8 reports
Printer Model         : COMPRT
Automatic Accept      : n
Printing Mode         : S
Destination Pathname  : /users/otm/report
Number of Lines per Page : 24
Number of Columns per Line : 80
Associated Terminal    : any
Auxiliary Port        : n
```

After these configuration operations reinitialize the system. Then, to establish the connection enter:

```
tmcall -s DPS8 -S REPFILF
```



---

# Chapter 3. CPI-C SS Configuration Quick Test

---

## Quick Test Summary

Quick Test verifies connections of the CPI-C API in an OTM environment. The chapter is organized as follows:

- Quick Test, OTMAPI Utility, on page 3-1.
- Example of a Connection Test, on page 3-14.

---

## test\_OTMAPI Utility

**test\_OTMAPI** is a menu driven utility to test the connection.

The **test\_OTMAPI** command is under the `/usr/cpi-c` directory. To run **test\_OTMAPI** create “Symbolic Destinations” using the **smit** menus: OTM Configuration (fast-path **otm\_cont**), then the CPI-C Configuration submenu.

## Main Menu

To run the **test\_OTMAPI** command, enter **test\_OTMAPI** without any parameter. The main menu is displayed:

Available Commands to Test the Existence of the Connection	
(1) Initiate	
(2) Allocate	
(3) Send	
(4) Receive	
(5) Deallocate	
(6) Dump off	
(7) Dump on	
(8) Accept	
(9) Send Error	
(a) Set Error Direction	
(b) Set Deall. Type	
(c) Tmpi Status	
(d) Exit	
Use (l) to refresh screen.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask consists of two parts. In the first, in the upper part of the screen, all the options are displayed. In the second, in the lower part of the screen, the parameter status is displayed.

## Parameter Status

The meaning of each status variable is the following:

### **Conversation Id.**

is the descriptor of the conversation currently in use. It is used by all functions.

**Return Code** reports the exit code of the function being tested. It is used by all functions.

### **Request to Send**

indicates if the remote host requests the transmission of data. It is used by the CMSEND and CMRCV functions.

### **Requested Length**

reports the length of the data required by the user. It is used by the CMRCV function.

### **Status Received**

indicates if the local host received the acknowledge to send data from the remote host. It is used by the CMRCV function.

### **Direction of Errors**

indicates the direction in which errors are to be sent. It is used by the CMSED function.

### **Symbolic Destination name**

indicates the name of the remote host with which the conversation must be opened. It is used by the CMINIT function.

### **Buffer Address**

indicates the buffer address in which data to be sent or received must be placed. It is used by CMSEND and CMRCV functions.

**Sent Length** indicates the length of data sent to the remote host. It is used by the CMSEND function.

### **Received Length**

indicates the length of data received from the remote host. It is used by the CMRCV function.

### **Data Received**

indicates if data has been received from the remote host. It is used by the CMRCV function.

### **Deallocate Type**

indicates the deallocation type to be performed by a CMDEAL . It is used by the CMSDT function.

## Command Options

The options (1), (2), (3), (4), (5), (8), (9), (a), (b) are the commands to test the existence of the connection. Option (c) reports the status code of the last executed Tmpci function, the function return code and information about any aborts.

Option (d) causes the end of the program.

For each selected option, the parameters needed to test the connection behavior are to be entered.

When a connection is tested, some functions are called. When each of these functions is executed, the variables status is updated.

The Return Code for the executed function is associated with an error message. To display the error message run the command **testmsg**.

The values entered as parameters when a function is tested, are not canceled and become the default values for the next time the function is selected.

The option (7) enables the DUMP of the transmission buffer for the CMSEND and CMRCV functions.

The option (6) disables the DUMP for the same functions. After having executed the options (3) and (4), if the DUMP is enabled, a mask is displayed, asking if data to be transmitted or to be received that is in a buffer, is to be displayed.

### INITIALIZE FORM

When option (1) is selected in the main menu, the following mask is displayed:

INITIALIZE FORM	
Conversation Id. =	
System Name =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMINIT function. **conversation ID** is an output parameter of the function; **System name** is the symbolic destination name parameter, which is an input parameter of the function.

If a value is entered for a parameter, the function behavior with that particular parameter is tested.

If no value is entered for a parameter, and the <RETURN> key is pressed, the parameter is assumed to have the default value and the function behavior is tested with that value.

The default values are displayed in the lower side of the mask.

At the end of the test, the new parameter status which refers to the current test is displayed on the screen.

## ALLOCATE FORM

When option (2) is selected in the main menu, the following mask is displayed:

ALLOCATE FORM	
Conversation Id. =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameters status of the CMALLC function.

**conversation ID** is the input parameter of the function.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test is displayed on the screen.

## SEND FORM

When option (3) is selected in the main menu, the following mask is displayed:

SEND FORM	
Conversation Id. =	
Sent Length =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMSEND function.

**conversation ID** is the input parameter of the function. **Sent length** is the length of the data to be sent to the remote host during the CMSEND operation.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

If no value is assigned to the second parameter, the length of the data to be sent is automatically computed by the **test\_OTMAPI** command before executing the function CMSEND. This length depends on the input data of the user.

After entering the new values for the parameters, or pressing RETURN, the following mask will be displayed:

Enter the data =
------------------

The data to be sent can be entered. If RETURN is pressed, no data is sent for the CMSEND test.

Data is a string of an arbitrary length consisting of an arbitrary sequence of characters. Special character sequences which cannot be reproduced on a keyboard, can be entered as data to send. These special ASCII characters must be entered in the following sequence:

\ <ASCII mnemonic>

An ASCII mnemonic is a sequence of 3 characters preceded by the character “\”. The following ASCII mnemonic can be used with **test\_OTMAPI**.

MNE	VAL	MNE	VAL
NULL	0x00	DC1	0x11
SOH	0x01	DC2	0x12
STX	0x02	DC3	0x13
ETX	0x03	DC4	0x14
EOT	0x04	NAK	0x15
ENQ	0x05	SYN	0x16
ACK	0x06	ETB	0x17
BEL	0x07	CAN	0x18
BS	0x08	EM	0x19
HT	0x09	SUB	0x1A
LF	0x0A	ESC	0x1B
VT	0x0B	FS	0x1C
FF	0x0C	GS	0x1D
CR	0x0D	RS	0x1E
SO	0x0E	US	0x1F
SI	0x0F	SP	0x20
DLE	0x10	DEL	0x7F

It is also possible to specify characters whose values are greater than 0x20 and less than 0x7F and characters whose values range from 0x80 to 0xFF by entering the string:

`\xnn`

For example: `\x21`.

To enter the “\” character, type “\\”.

To correct an error while entering the data string, press <BACK SPACE>.

To end the data string, press <RETURN>.

If the DUMP functionality has been disabled, the following two masks are not displayed on the screen.

After entering the data to be sent to the remote system, the following mask is displayed:

If you want to see the buffer data type (y)

To see how the data entered has been stored, enter Y.

Entering a letter different from Y, causes the main menu to be displayed.

If Y has been answered, the following string may appear:

This is the mask shown when the Dump is enabled

and the following mask will be displayed:

\*\*\*\* Dumping buffer (address) = 20e8d0, size = 2f \*\*\*\*

00000000 54 68 69 73 20 69 73 20 74 68 65 20 6d 61 73 6b "This is the mask"

00000010 20 73 68 6f 77 6e 20 77 68 65 6e 20 74 68 65 20 " shown when the "

00000020 44 75 6d 70 20 69 73 20 65 6e 61 62 6c 65 64 2e "Dump is enabled."

\*\*\*\*\* End of dump \*\*\*\*\*

— More — (q)

The data entered is displayed in hexadecimal format. If all data cannot be displayed, at the lower side of the mask, the request to continue the display appears. If **q** is entered, the display terminates.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

### RECEIVE FORM

When option (4) is selected in the main menu, the following mask is displayed:

RECEIVE FORM	
Conversation Id. =	
System Name =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameters status of the CMRCV function.

**conversation ID** is the input parameter of the function. **Requested length** is the length of the data to be sent by the host during the CMRCV operation.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

If the second parameter is not assigned a value, data will be read for the maximum length supported by the remote host.

If the DUMP function has been disabled, the following two masks are not displayed on the screen.

After the execution of the command, if data has been received from the remote system, the following mask is displayed:

```
If you want to see the buffer data type (y)
```

To see how the data entered has been stored, enter **Y**.

Entering a letter different from **Y**, causes the main menu to be displayed.

If **Y** has been entered, the following mask will be displayed:

```
**** Dumping buffer (address) = 20e8d0, size = 26 ****
00000000 54 68 69 73 20 69 73 20 74 68 65 20 6d 61 73 6b "This is the mask"
00000010 20 73 68 6f 77 6e 20 77 68 65 6e 20 74 68 65 20 " shown when the "
00000020 44 75 6d 70 20 69 73 20 65 6e 61 62 6c 65 64 2e "Dump is enabled."
***** End of dump *****
```

— More — (q)

The received data is displayed in hexadecimal format. If all data cannot be displayed, at the lower side of the mask, the request to continue the display appears. If **q** is entered, this functionality ends.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

### DEALLOCATE FORM

When option (5) is selected in the main menu, the following mask is displayed:

DEALLOCATE FORM	
Conversation Id. =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMDEAL function.

**conversation ID** is an input parameter of the function.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.



## ACCEPT FORM

When option (8) is selected in the main menu, the following mask is displayed:

ACCEPT FORM	
Conversation Id. =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMA CCP function.

**conversation ID** is an output parameter of the function.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

## SEND ERROR FORM

When option (9) is selected in the main menu, the following mask is displayed:

SEND ERROR FORM	
Conversation Id. =	
System Name =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMSERR function.

**conversation ID** is an input parameter of the function;

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

## SET ERROR FORM

When option (a) is selected in the main menu, the following mask is displayed:

SET ERROR FORM	
Conversation Id. =	
Set Error Value =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMSED function.

**conversation ID** is an input parameter of the function; **Set error value** is the Direction of errors parameter, which is an input parameter of the function.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

### SET DEALL. TYPE FORM

When option (b) is selected in the main menu, the following mask is displayed:

SET DEALL. TYPE FORM	
Conversation Id. =	
Deallocation Type =	
WARNING: These values will overwrite the default one if typed.	
Status table of parameters passed to CPI C functions	
Conversation Id. =	Sym. Dest. Name =
Return Code = 00000000	Buffer Address = 00000000
Request to Send = 00000000	Sent Length = 00000000
Requested Length = 00000000	Received Length = 00000000
Status Received = 00000000	Data Received = 00000000
Direction of Errors = 00000000	Deallocate Type = 00000000

This mask displays the parameters and the parameter status of the CMSDT function.

**conversation ID** is an input parameter of the function; **Deallocation Type** is the deallocate type parameter, which is an input parameter of the function.

The function behavior for a specified parameter can be tested in the same way as for the (1) option.

At the end of the test, the new parameter status which refers to the current test will be displayed on the screen.

## TMPI STATUS FORM

When option (c) is selected in the main menu, the following mask is displayed:

<p>TMPI STATUS FORM</p> <p>Last Tmpi Function Executed = Name() Last Tmpi Function Return Code = 00000 Last Tmpi Function Status Code = 00000 Tmpi Abort Information = Not present</p> <p style="text-align: center;">Type Any Key to Continue</p>
--

This mask displays a summary concerning the last function executed. If an abort has occurred, a message similar to the following is displayed indicating the error Code that caused the abort.

<p>ABORT REQUESTED BY REMOTE APPLICATION</p> <p>Abort DSA Code = 4000</p> <p style="text-align: center;">Type Any Key to Continue</p>
---

An abort message can be caused by the following:

- a remote application abort causes a DSA Code to be displayed.  
Refer to the “DSA Network System Messages and Return Code Message Compendium” (Code 39A226DM–Rev3) for further details about the DSA Code.
- a session abort causes a session return code to be displayed.

Enter the command:

```
pmaderror code
```

or

```
pmaderror <orig> <cause>
```

if <orig> and <cause> are specified

- administrator abort caused by an **abttms cnt-id** command

## EXIT

When option (d) is selected in the main menu, a mask reporting the execution status of the selected command is displayed. If no error is detected during the execution of the test for the selected command, the following mask is displayed.

```
Execution ended normally. Msg = 0.
```

If execution errors are detected, a message describing the detected errors is displayed.

## Example of a Connection Test

The following is an example describing the steps to follow to test a connection, using the Transparent Mode:

- run the **test\_OTMAPI** command
- set the environment variable

```
API_MODE = TRANSPARENT
```

```
export API_MODE
```

– to set the Transparent Mode

- execute (1) CMINIT with a system destination name already configured and active (after the start up operation)
- execute (2) CMALLC which is composed of a connect operation and one or more receive operations.
- execute (4) CMRCV
- test the buffer.

The sequence of actions to be performed is the same as the one to be executed if a terminal is to be used.

If after the execution of each step the Return Code, displayed in the second part of the form, is zero this means that no error occurred and the connection test has successfully completed.

If other Return Codes are displayed, an error occurred. To display the error message associated with the Return Code run the command **testmsg**.

The following form is displayed:

MESSAGE CODE: [ ]
insert message code [nnnn] q(quit)

Enter a return code and the corresponding error message will be displayed as follows:

MESSAGE CODE: [ ]
#####
code    message text—————>
0020    CM_RESOURCE_FAILURE_NO_RETRY
#####

Execute (c) to display further information on the error.

---

# Chapter 4. Using OTM

---

## Using OTM Summary

- Start/Stop OTM, on page 4-1.
- Connecting to the Remote System, on page 4-2.
- Environment Variables, on page 4-3.
- Remote Printing with OTM, on page 4-4.
- More about tmihrop, on page 4-6.
- Loopback Test with tmihlp, on page 4-9.
- OTM Status, on page 4-11.
- Administration Utilities, on page 4-13.
- High Availability Functions, on page 4-14.

---

## Start/Stop OTM

The OTM Start/Stop menu is selected from the OTM Main Menu and is displayed as follows:

```
Start/Stop OTM

Move cursor to desired item and press Enter.

Start OTM
Stop OTM

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

**Item Descriptions:**

**Start OTM**     Starts OTM.

**Stop OTM**     Stops OTM.

---

## Connecting to the Remote System

Once OTM has been configured on your UNIX system, it is used to set up connections to remote systems running on the Bull or IBM mainframes. The OTM connections are accomplished using one of the following:

- TWS2107 Terminal Emulation Product
- TMCALL Command
- Applications created with the CPI-C Starter Set
- VIP7800 Emulation through the TMCALL Command

### TWS2107 Emulation

The TWS2107 emulation provides connections requiring emulation of terminals operating in DKU mode. For complete information on the implementation of OTM operating with TWS2107, see the *OTM TWS2107 Terminal Emulation User's Guide*, order number: 86 A2 33PE.

### The TMCALL Command

The TMCALL command can be used for the connection of any ASCII terminal under OTM. TMCALL is explained in Appendix C, Commands.

### CPI-C SS Applications

The Common Programming Interface for Communications Starter Set (CPI-C SS) is used to write programs to extract information, through OTM, from Bull and IBM mainframes. For complete information on the implementation of CPI-C SS with OTM, see *CPI-C Starter Set in Bull Environment User's Guide for OTM*, order number: 86 A2 32PE.

### VIP7800 Emulation

It is also possible to establish OTM connections that require VIP emulation. These connections are run with the TMCALL command. For complete information on the implementation of a VIP emulation with OTM, see the *OTM VIP7800 Terminal Emulation User's Guide*, order number: 86 A2 34PE.



---

# Environment Variables

## General

The Environment Variables are often used with UNIX systems. They can be set when the user logs in or an application program is run. There are two specific environment variables pertaining to connections using OTM: LOCMB and USERINFO.

## LOCMB

The LOCMB variable is parameter that identifies the calling terminal (mailbox). If the remote application requests the mailbox, this parameter value must be defined by the system administrator.

If no value is requested, a default value is internally assigned by OTM. This parameter must conform to the rules of the mailbox name (8 characters maximum).

This variable is used by **tmcall** and by CPI-C SS applications.

## USERINFO

The USERINFO variable is used to contain information for the remote host. It cannot exceed 32 characters.

If the remote application requests this information, it is passed to the remote Bull or IBM host.

This variable is used by **tmcall** and by CPI-C SS applications.

---

## Remote Printing with OTM

OTM enables a remote GCOS application to give printing orders to the printer connected to the local UNIX system.

These remote printing functions are over a Session-layer connection. If a Datanet is used at the remote site, OTM can use the DSA network as well.

The printing utilities are tmihrop and tmihlp.

### The tmihrop Utility

The tmihrop utility is used to enable the remote GCOS applications to send documents to OTM to be printed.

The tmihrop utility is the most frequently used. The remote application most frequently used is called GTWRITER, and runs on GCOS 7 machines. This document will discuss how tmihrop works, how the Datanet and GTWRITER are configured, and how to debug problems.

### The tmihlp Utility

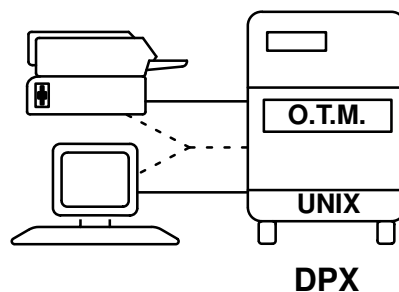
The tmihlp utility is used to perform a loopback test to check the configuration of OTM and the Datanet. Also, the configuration required to use tmihlp to print to other machines can be deduced from the examples given. In principle tmihlp should be integrated into the UNIX spool.

## Printing Functions

Reports can be received from remote DPSx or DPX systems to be printed on local devices. Users can access applications running on the remote system to generate reports. If the remote system is a DPX system, reports generated locally can also be printed on the remote system. OTM manages terminals and/or printers connected as follows:

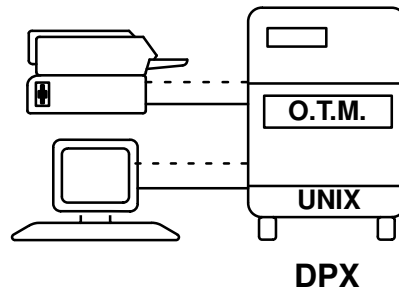
### Station Mode

one logical connection exists between the workstation (terminal + secondary device) and the system. Data and commands addressed to the printer or to the terminal are sent to the same logical connection. For further details refer to the *“Insert Printer Description”* item of the *Printers Configuration* menu and to the **tmcall -S** command.



### Device Mode

two logical connections exist: one of them connects the terminal to the system; the other connects the printer to the system. Data and commands addressed to a device are sent to the specific logical connection established between that device and the system.



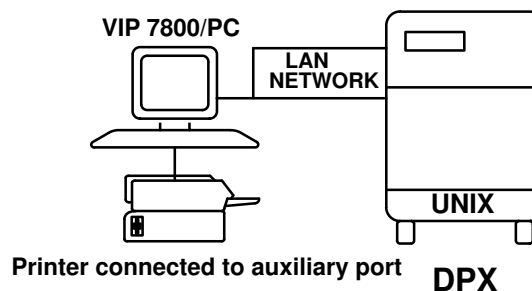
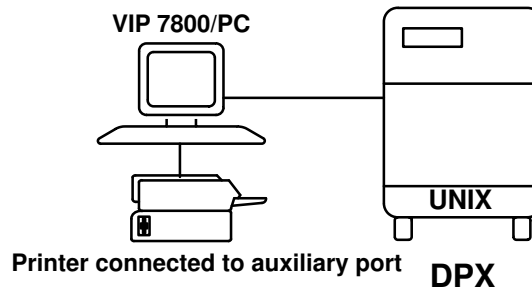
How to manage reports can be defined locally, no matter where the reports come from.

A report can be managed in the following ways:

- filed on disk
- managed by the spooling system (lp or any other local spooler)
- as input to a user program (pipe)
- printed directly (sent to a node).

A printer managed by the local spooling system can be made available to all OTM users or it can be made available only for reports generated during a specific TWS2107 connection, for the time frame of that connection. This depends on the configuration defined for that printer.

Printers can also be connected to the auxiliary port of a terminal. The configuration of the auxiliary printer depends on the type of terminal it is connected to. If the printer is connected to a VIP7800 terminal, it is necessary to configure it through the *Printers Configuration* menu available from *OTM Configuration* menu.



OTM manages the printer connected to the auxiliary port of the VIP7800 terminal using a dedicated process, called LCS (Line Control Server that is a part of OTM). This process splits the physical line into two logical lines: the former dedicated to the information directed to the screen and the latter dedicated to the information addressed to the printer.

The **enable-pr** command activates the LCS process and links the two logical lines.

Reports addressed to the specified line are sent to the auxiliary printer. If the printer is connected to a TWS2107 terminal, it is necessary to configure it, using the *TWS2107 Configuration* menu defining it as a “Printer via Hardcopy”. The TWS2107 emulator itself will manage the print requests.

---

## More about tmihrop

### What it is and what it does

"tmihrop" is a simple tool that allows the UNIX printer spool to be accessed by GCOS applications, via OTM and a DSA network. Think of tmihrop as being the opposite to tmcalls.

'tmcalls' allows a terminal to be connected to a GCOS application. The connection is requested by tmcalls and is (hopefully) accepted by the GCOS application (ex "IOF").

'tmihrop' allows a GCOS application to connect to a UNIX printer. The connection is requested by the GCOS application (ex "GTWRITER") and accepted by tmihrop.

GTWRITER works by opening a "Session-layer" connection with a printer. Usually the printer is attached to a Datanet, so it is the Datanet that receives the Session-layer connection, interprets the control information and sends the appropriate data to be printed. If the printer is occupied, then the Datanet refuses the Session-level connection – only one print-management application can write to a printer at one time.

In some circumstances a printer may be much slower than the throughput of a session connection, for example if the network is not heavily loaded. In other circumstances, a printer may be very much faster than the session connection, especially laser printers or fast line printers. Thus some form of flow control is needed. This is achieved by using the Data Token as an "End-to-End ack".

The print-management application sends the data token, and the printer controller (the Datanet for example) returns the token when the printer is ready for more data. Ideally the printer controller only sends back the token when the data has physically been printed, however if this is not detectable, it is sent back when the printer is ready to receive more data.

GTWRITER is an application (a TDS) running on GCOS 7 machines that performs approximately the same function as the UNIX Printer Spooler – it sends documents to printers.

As with the UNIX spool, it can send documents to local printers and remote (networked) printers.

As with the UNIX spool, it works in "background". This means that a command is used to "request" that a file be printed on a printer. The spooler takes the request, tries to open a connection to the printer, prints the file, and if any problems are detected an error message is sent to the user.

GTWRITER uses a configuration file (often) called "genfile". The general format of this file is too complicated to show here, however the following extract shows how the printer "PRT1" on the machine "JUCC" should be declared to GTWRITER:

```
FORM I10000 FORMHT=66 TOP=3 BOTTOM=3 WIDTH=132; TERM LPT1 ID=PRT1  
NODE=JUCC DRIVER=TW01 AUTO=LPT1 MAXCNCT=100 FBANNER=0 EBANNER=1  
REALSKIP NOSKIP FORM=I10000;
```

- LPT1 is the printer name to be used with 'dpr'.
- JUCC is the name of the STID, which must correspond to the name declared in the Datanet and the GCOS 7 configuration.
- PRT1 is the mailbox name to be used in the OTM configuration.

### Configuration Example for the DATANET

Configuring a Datanet is a multi step process. Before starting a detailed knowledge of the devices and applications is required.

Using that knowledge a configuration file, called the "CONFIG" file, must be written. This process is documented in the following manuals:

- DNS V.4 – System Generation (39 A2 22DN)
- DNS V.4 – NGL Reference Manual (39 A2 32DN)

Once the CONFIG file has been created or updated, the configuration must be "generated". The generation process is similar to a compilation. A generation may take several hours.

Once the generation is complete, it may be loaded. Loading a generation requires rebooting the Datanet.

Some Datanet configuration may be performed dynamically. However this will be lost when the Datanet is rebooted.

The CONFIG file is split into a series of "directives". Each type of directive is identified by a 2-letter mnemonic. The general format of a configuration directive is:

<directive-type> <name> <sub-type of directive> <list-of-attributes>

For example, in the directive: SR JUCC ISO -TS JUCC

```
"SR" - Session Route declaration directive
"JUCC" - declare a Session Route with the name JUCC (4 letters
max)
"ISO" - Route points to an ISO machine
"-TS JUCC" - any number of attributes are allowed, depending on
the directive.
```

## Declaring a STID accessible over X25

```
&*****
&*
&* Example configuration for the node 'JUCC'
&* (This example is based on a real DATANET configuration file,
&* but it has been modified.)
&*
&* Remote SITE (STID) =          JUCC
&* X25 Address of JUCC =        11122233344
&* X25 Address of Datanet =     11122233355
&

&*****
&*
&* SC JUCC RMT -SR JUCC -ADDR 009:009 -NAT ISO
&* SR JUCC ISO -TS JUCC
&* TS JUCC DIWS -NR JUCC
&*
&* NR <Name> SW - defines a Network Route over X25
&* The local X25 address is referenced by the -NS parameter
&* The Remote X25 address is referenced by the -RMT parameter
&* NR JUCC SW -NS TPC1 -RMT NSX1
&*
&* The '-RMT' parameter points to an 'NS' directive....
&*
&* NS NSX1 RMT -CALL 11122233344
&*
&* Local X25 Configuration
&*
&* NS TPC1 X25 -NTW TRANSPAC -NBVC 2 -CALL 11122233355 -LL TPC1
&* LL TPC1 HDLC -LAPB -PRIM 3 -PL TPC1
&* PL TPC1 HDLC -CT 2000 -PHTP 2140 -PHAD X'2000'
```

## Declaring a STID accessible over Ethernet

```
&*****
&*
&* Example configuration for the node 'JTCC'
&* (This example is based on a real DATANET configuration file,
&* but it has been modified.)
&*
&* Remote SITE (STID) =    JTCC
&* Ethernet Address of JUCC =  0800382005AE
&* Ethernet Address of Datanet = 080038509904
&*
&*****
&*
SC JTCC RMT -SR JTCC -ADDR 019:058 -NAT ISO
SR JTCC ISO -TS JTCC
TS JTCC DIWS -RTRY 2 -T1 40 -T2 400 -NR JTCC
NR JTCC LAN1 -PL JTCC
PL JTCC CSM1 -ETHAD 0800382005AE -CB CBL1
&*
&*   Local Ethernet Configuration
&*
CB CBL1 LAN1 -PL CBPL
PL CBPL CSMA -ETHAD 080038509904 -PHAD X'4000' -CT 4000
CT 4000 ELNC -PHAD X'4000'
```

---

# Loopback Test with tmihlp

## General

With 'tmcalls' it is easy to test the configuration of OTM – run tmcalls and try to connect to a remote host.

With tmihrop, however, it is the opposite – the remote application must test if it can connect to tmihrop.

This section describes how to perform a loopback test, using tmihlp to send a document to "tmihrop" (on the same machine), via the Datanet.

This test (if successful) validates the tmihrop configuration, plus the Datanet configuration, plus the general OTM configuration and network access. If this works, all the other problems are external!

The idea is very simple: the utility 'tmihlp' is provided to allow documents to be printed from one printer to another, going through the DSA network. Thus it can be used to send a document from the local machine, through the Datanet and back to the local machine.

This example uses the same information as the previous configuration examples already discussed. To use "tmihlp" in loopback, a remote session user must be defined with a "Mail Box" set to "PRT1" and a "Remote Site" that points to "JUCC".

The same procedure can be used to define a printer on a remote UNIX machine or on a Datanet.

## Setting Up the Test

First configure the remote site as follows – using SMIT, select the OTM Main Menu, then choose the following submenu options:

```
OTM Configuration
  Environment Configuration
    Remote Sites Configuration
      Insert Site Description
```

Once everything has been set up as described; stop and restart OTM.

```
Blue690 # endtma -e0;
0930 SHUT-DOWN executed
Blue690 # rc.OTM
Starting OTM ...
OTM license available ...
OTM start-up completed
Blue690 #
```

Verify that the tmihrop process is running with one or both of the following commands:

```
Blue690 # ps -ef | grep tmihrop
  root 1822  1  0 18:41:16 pts/2  0:00 /usr/lib/iso/tmihrop PRT1
  root 3620 4716  0 18:42:34 pts/2  0:00 grep tmihrop
Blue690 # inftms

provider ID 0 ,activated cnt 2 entry 20 license available
  CNT  LOCAL MB  REM SITE  REM MB
    1  PRT1
Blue690 #
```

## Running the Test

Now run 'tmihlp' as follows:

```
Blue690 # /usr/lib/iso/tmihlp /etc/inittab LoopPRT1 juccprt1 </etc/inittab
Blue690 # echo $?
0
Blue690 # cd /tmp/printdir
Blue690 # ll
total 16
-rw-rw-rw- 1 root  system  3291 Aug 12 13:03 PRT1-94.224.46978
Blue690 # diff * /etc/inittab
Blue690 #
```

## Getting Error Reports

If the transfer is unsuccessful, errors are reported in the OTM error log and via a mail message to 'adm':

```
$ mail
Mail [5.2 UCB] [AIX 4.1] Type ? for help.
"/var/spool/mail/adm": 1 message 1 new
>N 1 root      Tue Aug 16 13:48 11/332
?
Message 1:
From root Tue Aug 16 13:48:10 1994
Date: Tue, 16 Aug 1994 13:48:10 +0200
From: root
To: adm

1104  Abort requested by REMOTE. DSA error code = 0x03EE

? d
? q
$ ^D
Blue690 # utmlog -cER
          UTM-X LOGGING FILE PRINTOUT
          =====
          13:51:03 16-08-94

Pid 18416 M.ID. 'RO' C.ID. 'ER' fun.id. 'D8'    - fprint logging
50 - 13:48:09 16.08.94
      TMIHROP: FROM REMOTE: DSA error code = 0x000003EE
          ***** END OF FILE *****

Blue690 #
```

**Note:** This error was generated by using tmcalls to connect to the printer.

For further information about OTM printing, refer to the OTM and CPI-C Diagnostic Guide, Stack C, ref: 86 A2 52AJ.



---

## OTM Status

The OTM Status Menu is selected from the OTM Main Menu and is displayed as follows:

```
OTM Status

Move cursor to desired item and press Enter.

Show connections state
Show connection statistics information
Abort connections

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

### Item Descriptions:

#### Show Connections State

Selecting this option executes the **infms** command. See Appendix C for a complete description of this command.

#### Show Connection Statistics Information

This option displays the first menu below.

#### Abort Connections

This option displays the second menu below:

```
Show Connection Statistics Information

Type or select values in entry fields.
Press ENTER after making all desired changes.

* Connection Identifier      Entry fields
                             []

F1=Help      F2=Refresh   F3=Cancel    F4=List
F5=Reset     F6=Command   F7=Edit      F8=Image
F9=Shell     F10=Exit    Enter=Do
```

#### Connection Identifier

Enter, between the brackets, the identifier of the connection that you want to show, or press F4 for a range of identifiers from which you can make a choice.

### Abort Connections

Type or select values in entry fields.  
Press ENTER after making all desired changes.

Entry fields

\* Connection Identifier(s)

[]

F1=Help

F2=Refresh

F3=Cancel

F4=List

F5=Reset

F6=Command

F7=Edit

F8=Image

F9=Shell

F10=Exit

Enter=Do

#### **Connection Identifier(s)**

Enter, between the brackets, the identifier of the connection that you want to abort, or press F4 for a range of identifiers from which you can make a choice.

---

## Administration Utilities

After the configuration phase, a connection to the remote system can be established. The user can send a connection request to a remote host using the **tmcall** command. Refer to the description of the **tmcall** command for a complete explanation of the parameters needed by this command.

Utilities are provided to control the activity of OTM and to produce global statistics on use of the system resources for OTM remote connections.

### **CAUTION:**

**Only a user with appropriate privileges (super-user) must use the administration commands because their improper use can damage the OTM environment.**

The **endtma -s nn** and **endtma -f nn** commands execute a shutdown of the daemon and close all opened connections.

The **rsttma** command restarts the daemon after an **endtma-sn** or **endtma-fn** command.

The **endtma-e0** command stops all OTM activities including OTM daemon and OTM provider. To restart OTM after an **endtma-e0** command has been executed, run the */etc/rc.OTM* command.

The **abttms** command stops an active connection.

The **infmts** command provides information about the active connections and the status of the job.

The **otmpr** command changes, shows or deletes a printer.

The **otmstat** command produces a report about global statistics of the OTM activity.

The **otmsu** command lists, adds, deletes, changes or shows a session user.

The **tmihrop** command enables a configured printer to receive incoming calls.

The **enable-pr** command is used to enable a printer connected to the auxiliary port of a VIP7800 native terminal.

The **test\_OTMAPI** command is used to test the connection.

The **tmadmlg** command is used to change the logging parameters for a specified connection.

The **infdis** command lists all the disabled applications. It is used in a High Availability environment.

The **rstdis** command restarts a disabled application. It is used in a High Availability environment.

For more information about the Administrative Utilities, see Appendix C, Commands.

---

## High Availability Functions

The OTM high availability feature allows OTM to use an “alternate application” or an “alternate access route”, if there is one.

For example two DPS 7000 systems may be setup in a “mirrored” environment. When one machine is no longer accessible, the other machine can continue to perform all the required tasks.

Alternatively a DPS machine may be accessible by two different routes or via two Datanets.

This is achieved in a way completely transparent to the user.

---

# Chapter 5. Debugging

---

## Debugging Summary

- OTM Trace Facility, on page 5-1.
- Environment Variables, on page 5-4.
- Using OTM Trace with the SMIT Menus, on page 5-5.
- Using admlog to Configure the Trace Circular File, on page 5-8.

---

## OTM Trace Facility

The OTM Trace Facility is a powerful yet flexible tool for monitoring OTM processing. It provides an integrated mechanism to trace events concerning data structures, and it is used to check various OTM processes or to locate any sort of abnormality.

The trace facility operates in two phases. First you must activate the trace and select the level of information to be collected and saved. Next you analyse the information that has been collected.

### Trace Activation

A trace is activated and the information to be collected is determined by two parameters: Trace Level and Trace Storage Mode.

For normal use it is recommended that you set the Trace Level to 0 and the Trace Storage Mode to BUFFER.

If you need to locate a problem, the first action should be to set the Trace Level to 1. For more information and to facilitate your trace analysis, set the Trace Storage Mode to FILE and keep increasing the Trace Level.

### Trace Level

Each level includes the levels below it. They collect the following information;

Level 0	Errors and warnings.
Level 1	Level 0 plus OTM Provider state transitions and events.
Level 2	Level 1 plus TM User state transitions and events.
Level 3	Level 2 plus OTM Provider user data (Session API Interface).
Level 4	Level 3 plus TM Users user data.
Level 5	Level 4 plus OTM Provider user data (at TMPI Interface).

**Note:** In general, the higher the level of information saved, the greater the possible influence on the normal OTM processing.

### Trace Storage Mode

The Trace Storage Mode is either BUFFER or FILE:

BUFFER (0)	Trace information is sent to a special STREAMS driver called ELOG. The information is then sent to a circular file which can be left unattended. There is very little impact on OTM performance.
FILE (1)	Trace information is written directly to disk. The output is stored in a binary file <code>/tmp/tmpilog</code> . The output file is sequential with no maximum size. It captures all information; it is easy to reset traces before a test and there is

a low risk of bugs. On the other hand, it can take up the entire file system and can have a heavy impact on OTM performance at high trace levels.

## Setting the Trace Level and the Trace Storage Mode

The Trace Level and the Trace Storage Mode are set as follows:

1. via the smit menus as explained beginning on page 5-5.
2. via environment variables

The environment variables are used to set a specific value of Trace Level and Trace Storage Mode for a particular TM user (for example tws2107 or tmcalls).

OTM\_LOGLEV to set the trace level. Specify a value ranging from 0 to 5.

OTM\_LOGFLG to set the trace storage mode and the subsystem through which data is to be redirected. Specify either 0 for BUFFER, or 1 for FILE.

Set the variables before initiating the TM user. All processes initiated after setting the variables produce a trace file with the specified trace level.

The processes that are running while setting the variables produce an output file with the old trace level: the variables do not affect all the environment (See page C-1).

3. via the tmadmlg command.

To dynamically modify the Trace Level use this command. It is possible to change the trace level and trace storage mode values while the connection is established. This means that the values statically stored via smit can be replaced at run-time for all the running OTM entities.

These choices apply to all the OTM processes running on the system: TM user, TM provider and TM daemon.

## Trace Analysis

The trace that OTM produces can be used to analyse processing, internal/external interfaces, and connection status. The log file generated by communications protocol layers can also be used for information about lower layer interfaces and control frames.

Data is saved in a disk file that is processed with one of these utilities: **lgprint**, **utmlog** or **dumps**.

OTM produces the output log file in two different manners depending on whether the Trace Storage Mode used to collect the data is BUFFER or FILE.

### BUFFER Storage Mode

When the data is collected in the BUFFER storage mode, log data is produced on a circular file (*elgfile*) under the directory */usr/adm* on disk created with a stream driver called the ELOG driver.

The ELOG driver insures a minimum of system interferences. The *elgfile* is cleared at system startup.

The command **lgprint** produces the *elog\_print* file from the *elgfile* input file, which then can be printed or displayed to perform your analysis.

### FILE Storage Mode

When the data is collect using the FILE storage mode, a private file is created containing all data collected since trace activation. This is the sequential file */tmp/tmpilog*. It can be processed either by selecting the smit menu item "OTM Components Trace Analysis" from the OTM Trace submenu, or directly by using the **utmlog** command.

With the **utmlog -m MID** command, it is possible to get information about a specific subsystem in the OTM environment from this log file. *MID* can have the following values:

Pv	OTM provider
Dm	OTM daemon
AH	tmcall
RO	tmihrop
LP	tmihlp
TW	TWS2107
Ap	CPIC
GE	gettyemu
LO	loginemu
VE	vipemu

For example:

```
utmlog -m Pv > file
```

will produce a file containing only the provider logging output.

To log all the errors that are produced during a connection, enter the following command:

```
utmlog -m TW -c ER -l 0
```

ER is used to log all detected errors.

The */tmp/tmpilog* file can also be processed to generate a simplified output to analyse the COSP API and DSA protocol parameters by selecting the smit menu item "DSA and COSP Trace Analysis" from the OTM Trace submenu, or directly by using the **dumps** command.

---

# Environment Variables

## General

The Environment Variables are often used with UNIX systems. They can be set when the user logs in or an application program is run. There are three specific environment variables used with the OTM trace facility: LOGFILE, OTM\_LOGLEV and OTM\_LOGFLG.

## LOGFILE

LOGFILE This parameter contains the logging file name when it is different from the default.

## OTM\_LOGLEV

OTM\_LOGLEV

This variable contains the value of the logging level. The values range from 0 to 5, 0 is the minimum value. 0 is used to log the detected errors. The other values are reserved for authorized personnel.

## OTM\_LOGFLG

The OTM\_LOGFLG variable is used to select the output log file. The values for this variable are:

0                   to produce the logging data using the ELOG driver. The log file is named *elgfile* under the directory */usr/adm* and it is a circular file. *elgfile* is cleared at system startup. The command **lgprint** produces the file *elog\_print* from the input file *elgfile*. *elog\_print* can then be printed or displayed.

It is recommended that you use this value to produce the logging data.

1                   if the logging data is to be stored in the temporary file */tmp/tmpilog* and can be viewed using the command **utmlog**.

The created file can become very large and affect the functioning of OTM. It is recommended that this value be used only by authorized personnel.

This is not a fixed size file and can store a large quantity of logging information. This file is written in append mode. It is a temporary file and is therefore deleted at system start-up. To save the stored information, the file */tmp/tmpilog* must be copied into a private file before system shutdown.



---

## Using OTM Trace with the SMIT Menus

The SMIT menus are probably the easiest and best way to set up and use the OTM Trace Facility. The SMIT menus are explained below:

The OTM Trace Menu is selected from the OTM Main Menu and is displayed as follows:

```
OTM Trace

Move cursor to desired item and press Enter.

Reset current file trace
Change/Show OTM trace levels
DSA and COSP trace analysis
OTM components trace analysis

F1=Help      F2=Refresh    F3=Cancel    F8=Image
F9=Shell     F10=Exit     Enter=Do
```

### Item Descriptions:

#### Reset Current File Trace

This option executes the **reset** command. It allows the user to reset current OTM traces depending on the logging flag selected in the "OTM Global Parameters" dialog screen. If the logging flag selected is 0 (Trace in memory), the memory buffer dedicated to OTM trace is reset. If the logging flag selected is 1 (Trace in file), the trace file /tmp/tmpilog is reset.

#### Change/Show OTM Trace Levels

This option displays the first menu below. It enables the user to change or show OTM global trace level and trace storage mode. These values are configured and are active for all the running OTM processes (provider, daemon and TM users).

#### DSA and COSP Trace Analysis

This option displays the second menu below. It enables the user to analyse COSP API parameters and DSA protocol parameters. The command activated by this dialog screen is the "dumps" command explained at page C-6 of this manual.

#### OTM Components Trace Analysis

This option displays the third menu below. It enables the user to report OTM trace for OTM components Provider, Daemon, tmcalls, tws2107, tmihlp and tmihrop. The command activated by this dialog screen is the "utmlog" command explained at page C-22 of this manual.

```

Change/Show OTM Trace Levels

Type or select values in entry fields.
Press ENTER after making all desired changes.

Entry fields

* Trace level          [0]
* Trace storage mode   [BUFFER]

F1=Help      F2=Refresh  F3=Cancel    F4=List
F5=Reset     F6=Command  F7=Edit     F8=Image
F9=Shell    F10=Exit   Enter=Do

```

**Item Descriptions:**

**Trace Level** This parameter specifies the value of the trace level. Possible values are from 0 to 5. Press the F4 key to select the appropriate trace level.

**Trace Storage Mode**

This parameter is used to select trace storage mode between the following possibilities:

**BUFFER** → To produce the logging data using the ELOG driver. enter 0 between the brackets.

**FILE** → To store logging data in a binary file, enter 1 between the brackets.

```

DSA and COSP Trace Analysis

Type or select values in entry fields.
Press ENTER after making all desired changes.

Entry fields

* Filename to creat report from  [/tmp/tmpilog]
* Filename to write report to   [stdout]

F1=Help      F2=Refresh  F3=Cancel    F4=List
F5=Reset     F6=Command  F7=Edit     F8=Image
F9=Shell    F10=Exit   Enter=Do

```

**Item Descriptions:**

**Filename to Create Report from**

This parameter specifies the store logging data temporary file. The file /tmp/tmpilog is the default file used by OTM trace when FILE is selected in the "Trace storage mode" parameter in the "Change/Show OTM trace levels" menu.

**Filename to Write Report to**

This parameter specifies the output file. The default file is stdout.

## OTM Components Trace Analysis

Type or select values in entry fields.  
Press ENTER after making all desired changes.

	[Entry fields]
* Filename to create report from	[/tmp/tmpilog]
* Filename to write report to	[stdout]
* Component Identifier	[all]

F1=Help	F2=Refresh	F3=Cancel	F4=List
F5=Reset	F6=Command	F7=Edit	F8=Image
F9=Shell	F10=Exit	Enter=Do	

### Items Description:

#### Filename to Create Report from

This parameter specifies the store logging data temporary file. The file /tmp/tmpilog is the default file used by OTM trace when FILE is selected in the "Trace storage mode" parameter in the "Change/Show OTM trace levels" menu.

#### Filename to write report to

This parameter specifies the output file. The default file is stdout.

#### Component Identifier

This parameter specifies the OTM subsystem to obtain logging information on. Press the F4 key to select the appropriate subsystem.

---

# Using admlog to Configure the Trace Circular File

## General

admlog is a simple, full screen tool used to configure part of the OTM internal trace system.

With admlog, the name of the output file and the maximum amount of disk space to be used can be changed when required.

Internally, OTM can send trace information to one of two destinations:

- The file '/tmp/tmpilog'

- The STREAM driver, ELOG

When the traces are sent to the STREAM driver, they are written to disk by a normal UNIX process called 'lgdem'. lgdem is very flexible – it can handle a circular file (this is the default – 32K long), or sequential files, in any directory, etc.

## Using admlog

Here is the main menu of "admlog":

```
Blue690 # admlog
```

```
A D M L O G      F U N C T I O N A L I T Y
1) Current log environment information
2) Configure log environment
3) Set/reset log level for a specific module
4) Reset all log levels
5) Print current log levels
6) Clean current circular file
7) Quit admlog
      choice >
```

Options 1, 2, 6, and 7 apply to OTM. The other options apply to other products that also use the ELOG driver.

The option 7 returns control to the shell prompt.

The option 1 (Current log environment information) displays the following information. By default, the configuration is:

```
A D M L O G :   C U R R E N T   L O G   E N V I R O N M E N T   I N F O R M A T I O N
max file # 0
current file # 0
file count 0
file size (Kbytes) 32
file type d
file name /usr/adm/elgfile
```

Press 'return' key to continue

The option 2 (Configure log environment) shows the following sub-menu:

```
A D M L O G :   C O N F I G U R E   L O G   E N V I R O N M E N T
1) Circular file
2) Serial files
3) Set default log file
4) Quit admlog
choice >
```

Option 4 of this menu exits admlog without passing through the main menu. The other choices return directly to the main menu.

The options 1 and 2 of this sub-menu lead to question-reponse dialogues. All the questions have default responses.

The following example shows how to change the output file to be '/var/tmp/osi/elgfile':

```
A D M L O G :   C O N F I G U R E   L O G   E N V I R O N M E N T
1) Circular file
2) Serial files
3) Set default log file
4) Quit admlog
choice > 1
```

Give max file dimension (in Kbytes) [default=32] >

Default file pathname : /usr/adm/elgfile

Give file pathname > /var/tmp/osi/elgfile

New log configuration activated



---

# Appendix A. Error Messages

---

## Error Messages Summary

This Appendix covers the following:

- Error Messages, on page A-1.
- Message Structure, on page A-1.
- Application Handler Messages, on page A-2.
- Printer Handler Messages, on page A-3.
- SMIT Configurator Messages, on page A-5.
- Statistics Report Messages, on page A-9.
- tmscomp Messages, on page A-10.

---

## Message Structure

The error messages generated by OTM are listed with a particular structure.

Within the text of the messages, the following identifiers have been used:

xxxx	to indicate a hexadecimal code
yyyy	to indicate a printer name or an alphanumeric string
zzzz	to indicate a decimal number
id-num	to identify the connection number.

Some error messages contain the following sentence:

```
return code xxxx cause xxxx orig xxxx
```

where:

return code	is the error code from the layer
orig	is the number of the layer from which the error occurred
cause	is the reason of the error

The command

```
pmaderror retcode
```

or

```
pmaderror <orig> <cause>
```

displays on the screen a description of the error code.

For a further description of the meaning of return code, origin and cause, refer to the "OSI Services Reference Manual".

---

## Application Handler Messages

- 1000 TMPI error zzzz : connection not yet allowed  
A system error occurred, the connection that was in progress has aborted.  
Save and print the current logging file for its usage, contact Technical Staff.
- 1001 System errno xxxx : connection to yyyy refused  
The OTM connection open request is refused by system process. The possible error codes are:  
4 error in system call  
1 error in OTM daemon.  
Submit the **tmcalls** command again, if the error persists contact the Technical Staff, quoting the error code given in the message.
- 1002 Connection to yyyy terminated  
The OTM connection has been closed.  
Information only.
- 1003 Connection to yyyy interrupted by terminal operator  
A system error has occurred during OTM connection, and the connection in progress has aborted.  
Save and print the current logging file. Contact the Technical Staff.
- 1004 Connection to yyyy interrupted by operator  
The OTM connection has been interrupted by a user command.  
Information only.
- 1006 Connection interrupted: tmcalls received a signal zzzz  
The connection has been interrupted by a signal from the terminal.
- 1008 Terminal type not supported : connection to yyyy refused  
The current terminal type is not handled by the OTM functionality.  
See the "OTM" SRB for the list of supported terminals.
- 1009 Printer type not supported  
The current printer type is not managed by OTM.  
See the "OTM" SRB for the list of the supported terminals.
- 1010 Terminal not supported in Work Station connection  
The current terminal type is not handled by the OTM functionality.  
See the "OTM" SRB for the list of supported terminals.
- 1101 Abort requested by administrator  
The **abttms** command has been executed. The connection has aborted.
- 1102 SESSION error: return code xxxx cause xxxx orig xxxx
- 1103 UTM Internal error: ret code xxxx cause xxxx orig xxxx
- 1104 Abort requested by REMOTE. DSA error code = xxxx
- 1105 Remote address not found in configuration file!  
The session user has not been configured.  
Run **smit** to create a new session user.



---

## Printer Handler Messages

- 1201 Connection id–num refused: user yyyy not found in */etc/passwd*  
The user who requested the connection is not one of those currently catalogued in the system. The OTM request has been refused.
- 1202 Connection id–num refused: device yyyy not defined as lp printer  
The report destination is unknow or invalid in the current session.  
Use the INFDEV/LPSTAT functions to know the enabled receive(s) only in the current session.
- 1203 Connection zzzz aborted: I/O error zzzz writing the report data  
A system error has occurred while the system was writing the temporary file in the */tmp* directory. The OTM connection in progress has been interrupted.  
Submit the command again. If the error persists, inform the System Administrator.
- 1205 Connection terminated : end of report  
The report has been completely transferred. The OTM connection has been closed.  
Information only.
- 1300 Cnt Refused: Printer yyyy not defined in OTM configuration  
The remote printer has not been configured.  
Run **smit** to create a new printer.
- 1302 Cnt Refused: cannot create lp temporary report file
- 1303 Cnt Refused: I/O error zzzz opening the yyyy device
- 1304 Cnt Refused: Device yyyy not ready
- 1305 I/O error zzzz opening the yyyy disk file  
An error opening disk file has occurred.
- 1306 Cnt Refused: Printer yyyy not secondary device in Work station  
The auxiliary printer cannot be defined.  
Run **smit** to redefine the printer.
- 1307 Cnt Refused: Printer yyyy is a filter not supported as secondary device  
A filter cannot be defined for auxiliary printer.  
Filters can be used to print via lp or to write on disk.
- 1310 Cnt zzzz I/O error zzzz writing on yyyy device  
An error writing on device has occurred.
- 1311 Cnt zzzz I/O error zzzz writing the report data  
An error writing the data report under the directory */usr/lib/iso/prt* has occurred.
- 1312 Cnt zzzz I/O error zzzz writing on yyyy device: report saved on disk
- 1313 Cnt zzzz I/O error zzzz writing on yyyy device: report saved as yyyy
- 1314 Cnt zzzz I/O error zzzz at close time on yyyy device

- The device cannot be closed.
- 1320 Report enqueue at lp yyyy destination  
The report is enqueued to lp.  
Information sent by mail.
- 1321 Report enqueue at lp spool subsystem failed: report saved as yyyy  
The report cannot be enqueued to lp.  
The report is saved.
- 1322 Printer data stored in yyyy file  
The report is stored on file.  
Information only.
- 1323 Cnt zzzz no data report received

---

## SMIT Configurator Messages

- 0200 OTM configurator is already in use.  
The OTM configurator is being updated by another user.  
Wait for the termination of the current updating phase.
- 0201 Internal error zzzz
- 0202 OTM configurator: end of function  
The OTM configuration session has finished.  
Information only.
- 0203 Lstcnf (): Cannot Open destination file.  
An error in the report management has occurred.
- 0204 Lstcnf (): Cannot Open OTM configuration file.  
The cnf file does not exist or it is damaged.
- 0205 Lstcnf (): Cannot Open Directory file.  
An error in the report management has occurred.
- 0206 Lstcnf (): I/O Error reading directory file.  
An error reading */usr/lib/iso/dir.new* file has occurred.
- 0208 Chgcnf() cannot write data on file. Status = zzzz  
An error writing file has occurred.
- 0209 Run\_sysconf: Cannot execute system() (C) Library Function  
An internal error has occurred.  
Call Technical Staff.
- 0210 Run\_sysconf: Cannot run tmconf configurator  
An internal error has occurred.  
Call Technical Staff.
- 0211 Run\_sysconf: Cannot run dir\_mng configurator  
An internal error has occurred.  
Call Technical Staff.
- 0227 Conf\_otm: usage allowed only for super-user  
An internal error has occurred.  
Call Technical Staff.
- 0229 Run\_prtcnf: Cannot execute system() (C) Library Function  
An internal error has occurred.  
Call Technical Staff.
- 0230 Run\_prtcnf: Cannot run tmconf configurator  
An internal error has occurred.  
Call Technical Staff.
- 0300 Site not found in catalogue  
The */usr/lib/iso/site* file does not exist.

- 0301 Wrong Transport class  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0302 Wrong Alternative Transport class  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0303 Wrong Credit (>0 <7)  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0304 Wrong Remote Site definition (eg. len != 4)  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0305 Wrong network type (1 x25 2 eth)  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0306 Wrong Connection type (0 cvc 1 cvp)  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0307 Site catalogue I/O error  
An error opening */usr/lib/iso/site* file has occurred.
- 0308 Site already found in catalogue  
The site description already exists in */usr/lib/iso/site*.  
Run **smit** to enter a new site name.
- 0321 Wrong input parameters  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0322 Wrong input parameters  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0323 Wrong input parameters  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0324 Wrong input parameters  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0325 Site not found in */usr/lib/iso/site* file  
The site description does not exist in */usr/lib/iso/site*.  
Run *smit* to modify an existing site description.

- 0326 Wrong mail box definition  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0327 Wrong mail box definition  
The value entered is not correct.  
Run **smit** to enter a new value.
- 0328 The entry already exists in */usr/lib/iso/dir.new* file  
The session user name exists in */usr/lib/iso/dir.new*.  
Run **smit** to enter a new session user name.
- 0329 The entry does not exist in */usr/lib/iso/dir.new* file  
The session user description does not exist in */usr/lib/iso/dir.new*.  
Run **smit** to modify an existing session user description.
- 0330 Site catalogue I/O error  
An error opening */usr/lib/iso/site* file has occurred.
- 0399 Site configurator : end of function  
The Remote Site configuration session has finished.  
Information only.
- 0402 Dir configurator : end of function  
The Session User configuration session has finished.  
Information only.
- 0101 Printer description already exists in *Prt.tmp* file  
The printer name already exists in the configuration file */usr/lib/iso/Prt.tmp*.  
Enter a new name.
- 0102 Remote printer description does not exist in *dir* file  
If the printer is remote, the name must be the same as the session user during the **smit** session  
Run **smit** to enter a remote session user.
- 0103 Remote location is incompatible with local protocol type
- 0104 Terminal type not described in *tmstypes.tmp* file  
The printer model is not included in the file */usr/lib/iso/tmstypes.tmp*.  
Check the *tmstypes.src* file for an admitted model name.
- 0105 I/O error – cannot open *tmstypes.tmp* file  
An I/O error has occurred during the open of */usr/lib/iso/tmstypes.tmp*.
- 0106 Printer name not present in *Prt.tmp* file  
The name of the printer does not exist.  
Enter a valid printer name.
- 0107 Output device unknown  
The name of the output device entered is not recognized by lp spooler or it is not a device or it is not a directory.  
Enter a valid output device name.

- 0108 If otm, the printer name must not be longer than 8 char.  
The printer name must not be longer than eight (8) characters.  
Enter another printer name of less than eight (8) characters.
- 0114 Destination definition incorrect.  
The printer name does not exist in */usr/lib/iso/Prt.tmp* file.
- 0151 TM configurator: end of function.  
The auxiliary printer configuration session has finished.  
Information only.
- 0152 smit internal error zzzz  
An internal error has occurred during the **smit** procedure.  
Run the procedure again, if the error persists, call the Technical Staff. The number shown in the error message could be useful to detect the kind of error occurred.
- 0153 smit internal error zzzz – configurator file not found.  
An internal error has occurred during the search of the configurator file.  
Call the Technical Staff. The number shown in the error message could be useful to detect the kind of error occurred.
- 0157 TM configurator is already in use.  
The auxiliary printer configurator is being updated by another user.  
Wait for the termination of the current updating phase.
- 0158 TM configurator file is damaged (record 'a' missing).  
The */usr/lib/iso/Prt.tmp* file is damaged.  
Call the Technical Staff.

---

## Statistics Report Messages

- 0201 Parameter format incorrect
- The second part of the statistical file name has been entered with an incorrect format.
- Use the format `yy.ddd` where `yy` is the year and `ddd` is the day of the year.
- 0202 Statistical file not found
- An invalid file name has been entered.
- Enter the name of an existing file. (List the directory `/usr/lib/iso`)
- 0203 Output device unknown
- The name of the output device entered is not recognized by lp spooler.
- Enter a valid output device name.
- 0231 OTM statistics: end of function.
- The OTM statistics session has finished.
- Information only.
- 0232 OTM statistics: internal error zzzz.
- An internal error has occurred during the **otmstat** procedure.
- Run the procedure again, if the error persists call the Technical Staff. The number shown in the error message could be useful to detect the kind of error occurred.

---

## tmscomp Messages

0301 redefined option y  
0302 unknown option y usage: tmscomp -cio  
0311 source line zzzz too long  
0312 entry zzzz too long (overflow at source file line zzzz)  
0313 unexpected EOF or I/O error at entry zzzz (source file line zzzz)  
0314 start of a new entry expected at line zzzz  
0315 unexpected start of entry found at line zzzz  
0321 entry zzzz: error zzzz (source file line zzzz)  
0322 entry zzzz: same of yyyy, not found (error at source file line zzzz)  
0323 entry zzzz: duplicates entry yyyy  
0331 entry yyyy written to outfile  
0332 end of TM station model source catalogue scanning  
0333 TM station models file compilation completed  
0334 TM station models file compilation aborted  
0335 zzzz errors during compilation



---

# Appendix B. Statistics

---

## OTM Statistics Summary

This Appendix covers the following:

- Statistics Overview, on page B-1.
- User Visibility, on page B-2.
- Running the Statistical Activity, on page B-3.
- Description of the Reports, on page B-4.
- Managing the Reports on the Screen, on page B-13.

---

## Statistics Overview

The user is given the possibility to obtain statistical reports on OTM activity and on the connections established during this activity.

A user wishing to use the statistics function must have previously specified a value greater than 0 in the *Statistical Interval Timer* parameter of the OTM Global Parameter Mask of the OTM Configurator. So, when the OTM is activated, a file will be created in each system connected via OTM.

This file is called `/usr/lib/iso/otm.stat.yy.ddd` where *yy* is the year and *ddd* is the day of the year.

This file will contain information about the activity and the connections, such as:

- name of the user who opened/closed the connection
- start/end connection time
- number of sent/received messages and characters
- number of buffer pool overflows, if any
- name of the local/remote printers
- type of printer
- printer model

The above information is recorded in two different ways:

- The information about each single connection is recorded asynchronously: once when the connection is started, once when the connection is closed.
- The information about all the connections opened during the activity is recorded according to a sampling interval, which is defined by the user in the OTM Global Parameter Mask.

For this reason, the reliability of the reports based on the information about the activity depends on the sampling interval: the smaller the interval, the more reliable the results will be.

The user may retrieve the information stored in the file through a menu which offers a choice of seven different reports. Each report may be displayed on the screen or sent to a printer.

---

## User Visibility

When a report is produced, it may be sent to printer or to video, giving almost the same visibility.

When a report generating a diagram is printed, it is followed by a key which gives information about the minimum and maximum values represented on the axes and the scale with which information is represented.

When a report generating a diagram is sent to video, the key is not displayed. Instead, some interactive functions are supplied.

**Note:** If you wish to send the reports on screen, refer to paragraph “Managing the Reports on the Screen”. The reports are described in detail in the section “Description of Reports”.

---

## Running the Statistical Activity

To run the statistical activity enter the following command:

```
otmstat
```

and press <Return>.

The following mask will be displayed:

```
OTM statistics                               Tue Feb 16 XX:XX:XX 1992
```

```
date : <                                     second part of the statistical file name
                                             (use the format: 'yy.ddd')
mode : <                                     output device name (default is the screen,
                                             otherwise enter a printer name recognized
                                             by lp spooler)
```

```
^X erase to eol
```

where:

```
date           is the second part of the file name, for instance 92.112
mode           is the report destination. If left blank the report will be sent to the screen.
               Otherwise enter the name of a printer recognized by lp spooler.
```

Press <Return>. The main menu will be displayed:

```
Menu:
```

```
*** OTM Statistical Report           Menu ***
0 - List all the reports
1 - List the 1.st report (connection list)
2 - List the 2.nd report (connection number graph)
3 - List the 3.rd report (characters sampled)
4 - List the 4.th report (messages sampled throughput)
5 - List the 5.th report (character total throughput)
6 - List the 6.th report (messages total throughput)
7 - List the 7.th report (user accounts)
8 - Return to initial menu
select:
```

```
^r prev. screen
```

Enter the number corresponding to the kind of report requested and see paragraph "Description of the Reports".

---

## Description of the Reports

This section describes each report obtained in a real OTM session.

The diagrams are shown as they are printed. For an explanation of the user visibility of reports on video, see paragraph "Managing the Reports on the Screen".

**Note: In the diagrams printed by report 3 through 6 the vertical scale is defined with scientific notation, e.g. : 1.82e+02  
The corresponding numeric value may be found by multiplying the mantissa (1.82) by 10 to the power of the exponent (in this case 10 to the power of 2). So the result would be 182.**

**Examples :**

11.48e+00	<b>corresponds to</b>	11.48
7.38e-02	<b>corresponds to</b>	0.0738

0 - List all the reports

Lists all the reports available. See below for an explanation on each report.

1 - List the 1.st report (connections list)

Lists each terminated connection giving information as in the following example:

```
***** OTM connection identifier: 0010 ***** (OTMsn = 0010)
User name:                MARI
Local mailbox name:       TTYC7D0
                          type:  terminal
Remote mailbox name:      TSS
                          type:  system
Connection Start Time:    Thu Feb 20 09:24:05 1992
Connection End Time:      Thu Feb 20 09:25:53 1992
Connection Duration:      0h 1' 48"
Message counter from Local Mailbox: 3
Character counter from Local Mailbox: 56
Message counter from Remote Mailbox: 8
Character counter from Remote Mailbox: 2578
Buffer Pool Overflow Counter: 0
```

2 - List the 2nd report (connections number graph)

Lists the number of opened connections within a fixed sampling time (this sampling time is the one defined in the global parameter mask)

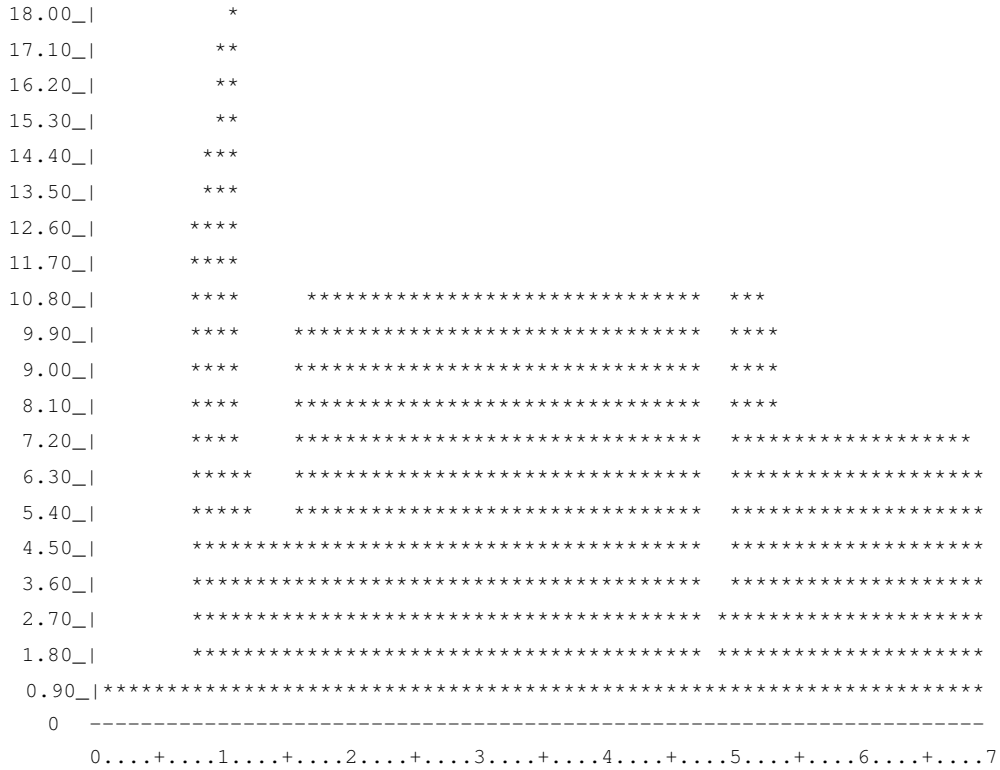
The report sent to a printer consists of a diagram and a table, whereas on video the table is not displayed.

OTM opened connections table: Thu Feb 20 1992 report 2 page 1

Time	cnt #	Session time	Time delta
09:13:09	1	Start time	Start time
10:10:58	15	0h 57' 49"	0h 57' 49"
10:27:10	18	0h 16' 12"	1h 14' 1"
10:43:13	5	0h 16' 3"	1h 30' 4"
11:15:15	11	0h 32' 2"	2h 2' 6"
15:28:37	1	4h 13' 22"	6h 15' 28"
15:44:38	11	0h 16' 1"	6h 31' 29"
16:16:40	8	0h 32' 2"	7h 3' 31"
18:24:47	1	2h 8' 7"	9h 11' 38"
18:27:47	0	0h 3' 0"	9h 14' 38"

Number of opened connections during the activity

(each column is the average connection number during the abscissa step, only the connections opened at the sampling time are detected)



Legenda:           max. ordinate = 18  
                  min. ordinate = 0  
                  ordinate step = 0.900  
  
                  graph start time = 09:13:09  
                  graph end time    = 18:27:47  
                  abscissa step,each graph column represents 8 minutes

In this example diagram, column 16 represents the 16th 8-minute abscissa step from the beginning; that is the abscissa step between the 120th (8 \* 15) and 128th (8 \* 16) minutes.

In this step there were about 9.90 opened connections.

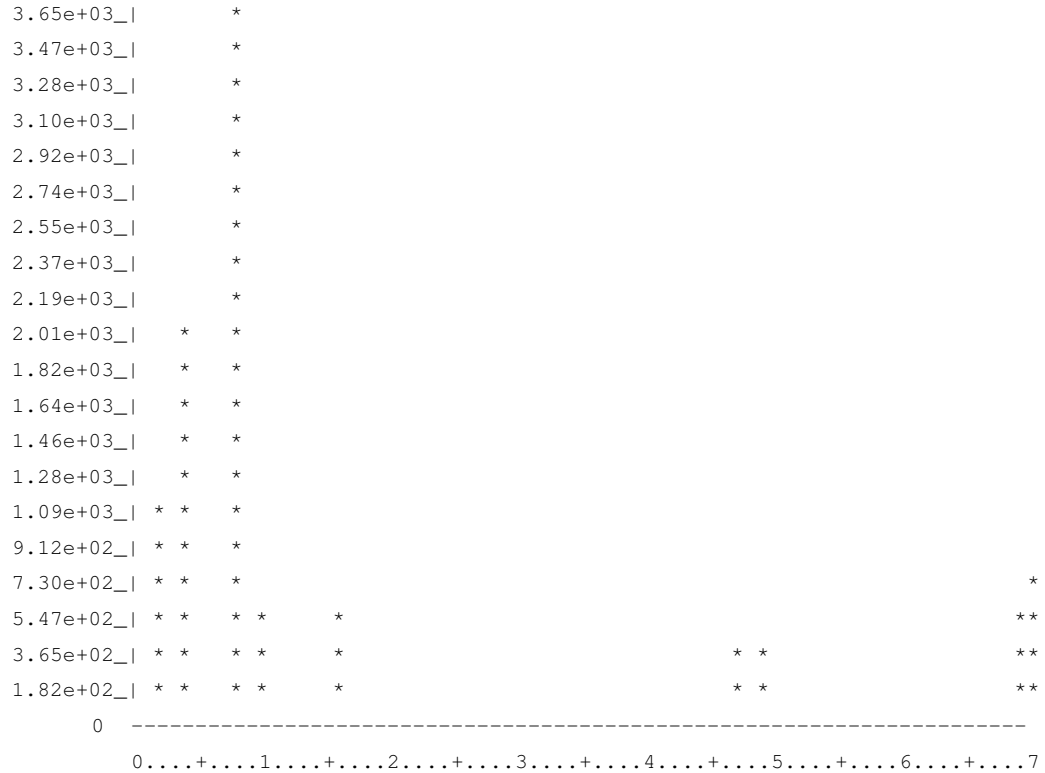
3 - List the 3.rd report (connections number graph)

Lists the number of sent/received characters during a time slice (1 minute) of the OTM activity.

OTM statistical report 3 Thu Feb 20 09:13:09 1992

Characters sampled throughout during the activity

(each column is the average characters throughput during the abscissa step)



Legenda: max. ordinate = 3647  
min. ordinate = 0  
ordinate step = 182.381  
graph start time = 09:13:09  
graph end time = 18:27:47  
abscissa step, each graph column represents 8 minutes

In this example diagram, column 4 represents the 4th 8-minute abscissa step from the beginning; that is the abscissa step between the 24th (8 \* 3) and 32nd (8 \* 4) minutes.

In this abscissa step there was an average of 2010 sent/received characters per minute. Therefore in the whole step there were about 16080 (8 \* 2010) sent/received characters.

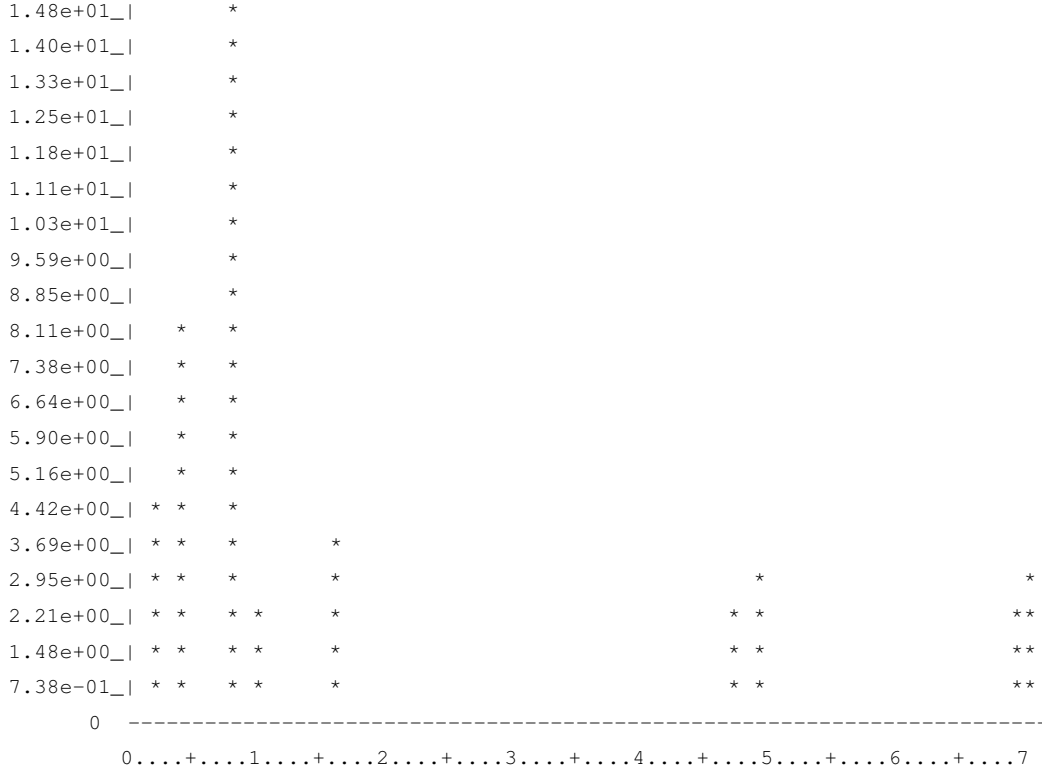
4 - List the 4.th report (messages sampled throughput)

**Lists the number of messages sent/received during a time slice (1 minute) of the OTM activity.**

OTM statistical report 4 Thu Feb 20 09:13:09 1992

Messages sampled throughput during the activity

(each column is the average messages throughput during the abscissa step)



Legenda: max. ordinate = 14  
 min. ordinate = 0  
 ordinate step = 0.738  
 graph start time = 09:13:09  
 graph end time = 18:27:47  
 abscissa step, each graph column represents 8 minutes

In this example diagram, column 4 represents the 4th 8-minute abscissa step from the beginning; that is the abscissa step between the 24th (8 \* 3) and 32nd (8 \* 4) minutes.

In this abscissa step there was an average of 8.11 sent/received messages per minute. Therefore in the whole step there were about 64.88 (8 \* 8.11) sent/received messages.

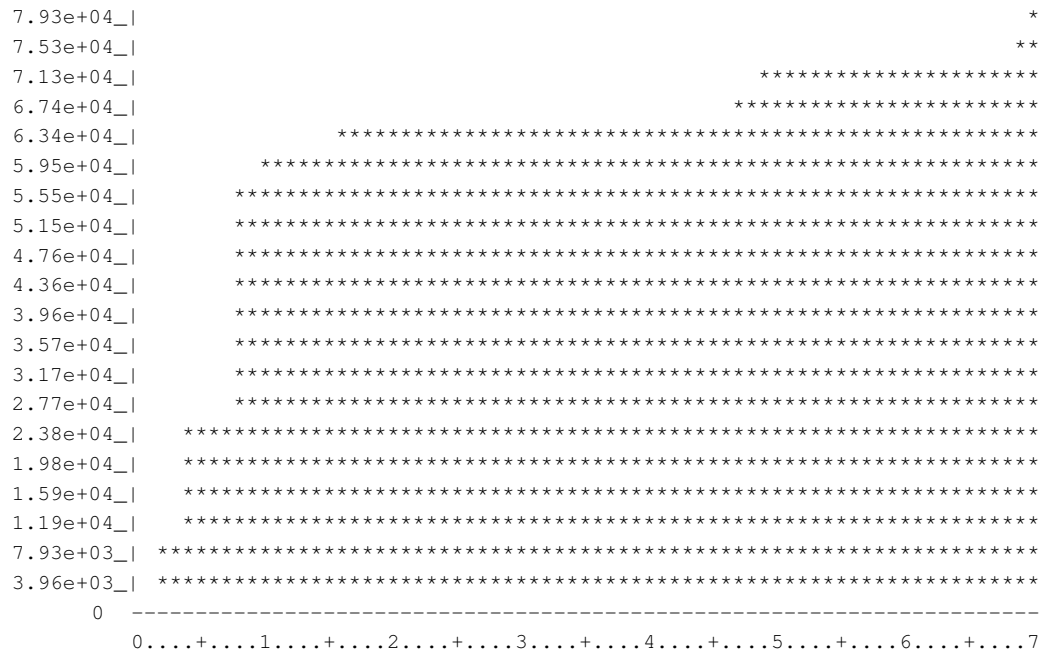


5 - List the 5.th report (character total throughput)

Lists the total number of characters sent/received during the OTM activity.

OTM statistical report 5 Thu Feb 20 09:13:09 1992

Cumulated characters throughput during the activity



Legenda:                   max. ordinate = 79274  
                              min. ordinate = 0  
                              ordinate step = 3963.700  
  
                              graph start time = 09:13:09  
                              graph end time    = 18:27:47  
                              abscissa step, each graph column represents 8 minutes

In this example diagram, column 16 represents the 16th 8-minute abscissa step from the beginning; that is at the 128th (8 \* 16) minute, 63400 characters had been exchanged (sent/received).

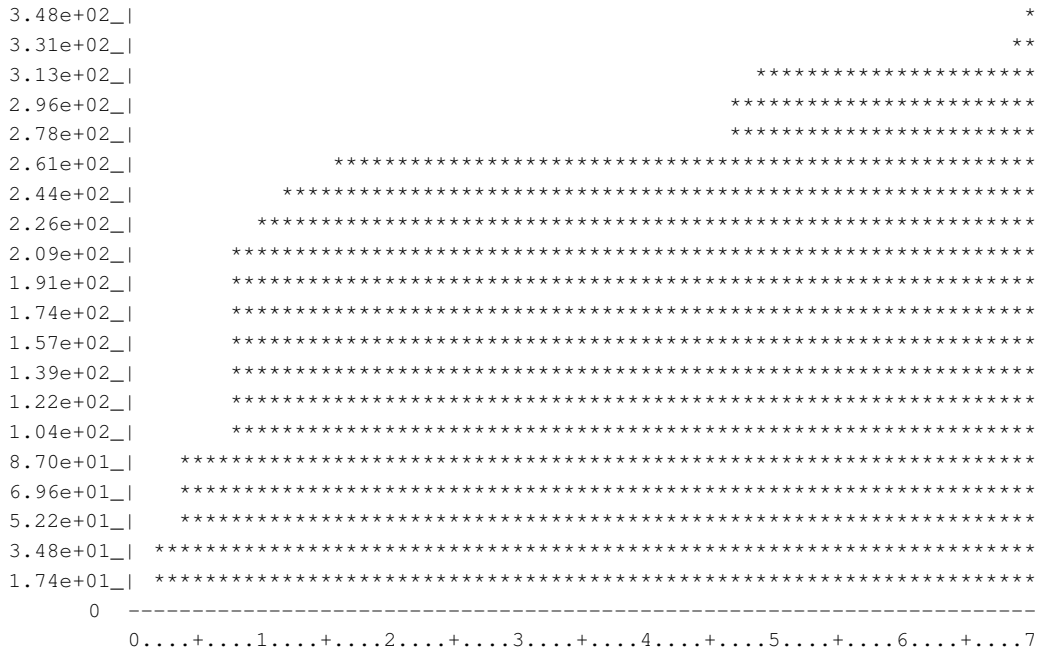
As in the period between the 128th and the 368th (8 \* 46) minute the graph has not varied, the number of sent/received characters for that period is not significant.

6 - List the 6.th report (messages total throughput)

Lists the total number of sent/received messages during the OTM activity.

OTM statistical report 6 Thu Feb 20 09:13:09 1992

Cumulated messages throughput during the activity



Legenda:           max. ordinate = 348  
                   min. ordinate = 0  
                   ordinate step = 17.400  
  
                   graph start time = 09:13:09  
                   graph end time    = 18:27:47  
                   abscissa step, each graph column represents 8 minutes

In this example diagram, column 16 represents the 16th 8-minute abscissa step from the beginning; that is at the 128th (8 \* 16) minute, 261 messages had been exchanged (sent/received).

As in the period between the 128th and the 368th (8 \* 46) minute the graph has not varied, the number of sent/received messages for that period is not significant.

7 - List the 7.th report (user accounts)

Produces a tabulated summary of the information associated with the activity throughput, followed by a table for each user that used the OTM.

Since these statistics are based on connections that have already been closed, the data is completely reliable and consistent.

The global report will resemble the following example:

```

***** OTM activity global report

Total amount of users                23
Total amount of opened connections:   55

Connections global duration:         19h 21' 38"
Connection average duration:         0h 21' 7"

|                                     | total | /seconds | /cnet#
+-----+-----+-----+-----+
|                                     |       |          |
| Message counter from Local Mailboxes | 145 | 0 | 2
| Character counter from Local Mailboxes | 15433 | 12 | 280
|                                     |       |          |
| Message counter from Remote Mailboxes | 203 | 0 | 3
| Character counter from Remote Mailboxes | 63841 | 50 | 1160
|                                     |       |          |
| Buffer Pool Overflow Counter          | 0 | 0 | 0
|                                     |       |          |
+-----+-----+-----+-----+
+

```

For each user a report like the following will be printed:

\*\*\*\*\* OTM user name : MARI

Total amount of opened connections: 5

Connections global duration: 0h 7' 50"

	total	/seconds	/cnct#
-----+-----+-----+-----			
+			
Message counter from Local Mailbox:	5	0	1
Character counter from Local Mailbox:	46	0	9
Message counter from Remote Mailbox:	18	0	3
Character counter from Remote Mailbox:	6388	13	1277
Buffer Pool Overflow Counter:	0	0	0
-----+-----+-----+-----			
+			

# Managing the Reports on the Screen

A report sent to the screen gives almost the same visibility as a report sent to a printer.

Since the legend is not supplied, some interactive functions are provided to help the user to obtain more information about the report.

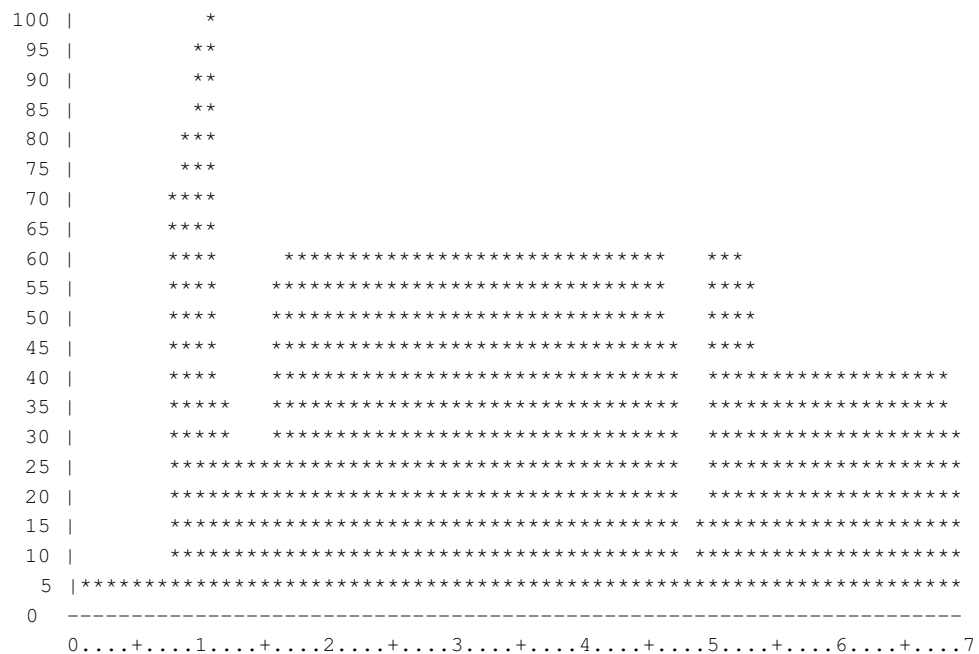
When report 1 or 7 is sent to the screen, it is then piped to the *pg* command, therefore the rules for this command apply.

The following example refers to Report 2, which regards the number of connections; therefore any references are based on the information produced by this specific report.

**Note:** Note that the operability described in the example, is the same also for report 3, 4, 5 and 6.

## Example of Report 2 sent to video

The following is an example of a diagram produced by Report 2.



Enter: a abscissa, o ordinate, z zoom, p print, i init, c clear, e end:  
horizontal scale: xx(minutes), vertical scale yy

Note that each value displayed on the abscissa represents the number of column, i.e. 1 = 10, 2 = 20 and so on.

The horizontal axis is drawn as a line of hyphens. The underscore may be used to indicate that the rightmost section of the diagram is not significant.

The first message displayed on the bottom of the screen allows the user to select a function. See later for the explanation of each function.

The second message at the bottom of the screen shows the values for the horizontal and vertical scales.

`xx` is the interval of minutes for each column and varies according to the duration of the activity and according to the zooming. On the screen each hyphen represents `xx` minutes.

`yy` is the minimum value for which a connection is shown in the diagram. Any value less than `yy` is not represented on the diagram. This value may also refer to a non-integer value, since it is an average value.

## Zooming

This function may be used to enlarge a part of the diagram included in two columns.

To request the zooming enter `z` and press `<Return>`. The following messages will be displayed on the same line one after the other:

```
zoom from:      to:
```

The user should first enter the number of the starting column and press `<Return>`. Then, at the `to:` request, the user should enter the number of the ending column.

The horizontal and vertical scale will be modified according to the zooming requested and the diagram will be rebuilt and displayed as in the following example:

```
100 |          *****
95  |          *****
90  |          *****
85  |          *****
80  |          *****
75  |          *****
70  |          *****
65  |          *****
60  |          *****
55  |          *****
50  |          *****
45  |          *****
40  |          *****
35  |          *****
30  |          *****
25  |          *****
20  |          *****
15  |          *****
10  |          *****
5   |          *****
0   |-----
    | 0....+....1....+....2....+....3....+....4....+....5....+....6....+....7
```

```
Enter: a abscissa, o ordinate, z zoom, p print, i init, c clear, e end:
horizontal scale: xx(minutes), vertical scale yy
```

The user may return to the initial diagram by pressing `i`.

The following functions may be used either in a zoomed screen or in a normal screen. To run a function, enter the corresponding key and press `<Return>`. When the function has been executed, press `<Return>` to return to the enter command mode.

## Abscissa Range Request

This function may be used to obtain the time range within which the value of the column is computed.

To request the abscissa range, enter **a** and press <Return>.

The following prompt will be displayed:

```
enter abscissa:
```

A number in the range **1** to **n** may be entered, where **n** is the last valid column. A message similar to the following will be displayed:

```
real abscissa range from 13:30:23 to 13:37:23
```

## Ordinate Step Request

On the screen, the vertical scale is always represented with normalized values between **0** and **100**. That is, whatever the minimum and the maximum number of connections, the vertical scale is always shown between 0 and 100.

To obtain the true number of connections corresponding to a particular value on the vertical scale, press the <o> key.

The following prompt will be displayed:

```
enter ordinate:
```

Enter a number from 0 to 100. The following message will be displayed:

```
ordinate approx: xxx
```

where xxx is the number of connections corresponding to the specified ordinate step.

## Print Request

To print the diagram currently displayed, the user must enter **p**. The following prompt will be displayed:

```
printer name:
```

Enter the name of a printer. The diagram will then be printed and the name of the printer will remain as a default value until the end of the statistic session.

To send a report to a printer different from the default one press the **r** (reset printer-name) at any moment, then enter **p**.

Note that the **r** function is not one of the displayed commands and does not produce any prompt.

## Clearing the Screen

To refresh the screen enter **c** clear.

## End Statistics

To exit the statistics enter **e**.





---

# Appendix C. Commands

This appendix describes all commands available with the OTM package.

---

## Commands Summary

The following commands are found in this Appendix:

- **2ltp\_reorg**, on page C-2.
- **abttms**, on page C-3.
- **cpi-clog**, on page C-4.
- **dumpcpic**, on page C-5.
- **dumps**, on page C-6.
- **enable-pr**, on page C-7.
- **endtma**, on page C-8.
- **infdis**, on page C-9.
- **inftms**, on page C-10.
- **lgprint**, on page C-12.
- **otm\_ana\_dsa.sh**, on page C-13.
- **otm\_dec\_dsa**, on page C-14.
- **otm\_dec\_prep**, on page C-17.
- **otmstat**, on page C-18.
- **rstdis**, on page C-19.
- **rsttma**, on page C-20.
- **scancpic**, on page C-21.
- **test\_OTMAPI**, on page C-22.
- **tmadmlg**, on page C-23.
- **tmcalls**, on page C-24.
- **tmihrop**, on page C-25.
- **tws2107**, on page C-26.
- **utmlog**, on page C-29.
- **vipemu**, on page C-31.
- **vipemutab**, on page C-33.

---

## 2ltp\_reorg

### Purpose

Configuration file check

### Syntax

```
2ltp_reorg
```

### Description

This command is used to remove incorrect records from the configuration file. During reorganization, the message:

```
      Please wait for file reorganization.
```

is displayed.

A record is discarded if:

- its parameter number is not correct;
- the length of one or more parameters is not correct;
- any mandatory parameter is missing;
- a record with the same key is already present in the file. In this case, the discarded record is moved to a file under the */tmp* directory, called *dupstxxx*. This file can be viewed using the **vi** command.
- *xxx* is a string generated with the **tmpnam** function.

During the file reorganization, a counter displays the number of discarded records.

---

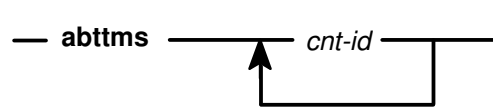
# abttms

## Purpose

Interrupts an OTM session

## Syntax

**abttms** *cnt-id* [... *cnt-idn*]



## Description

The **abttms** command is used to interrupt one or more OTM sessions. *cnt-id* is the OTM connection identifier. The *cnt-id* is specified as output of the **infms** command. At least one *cnt-id* must be specified.

---

## **cpi-clog**

### **Purpose**

View logging file

### **Syntax**

**cpi-clog**

### **Description**

*cpi-clog* is used to display or to print the file *apilog*. *apilog* contains all logging information about the conversation.

### **Files**

/tmp/apilog

### **Suggested Reading**

“OTM Error Messages” in the *OTM Administrator’s and User’s Guide*.

---

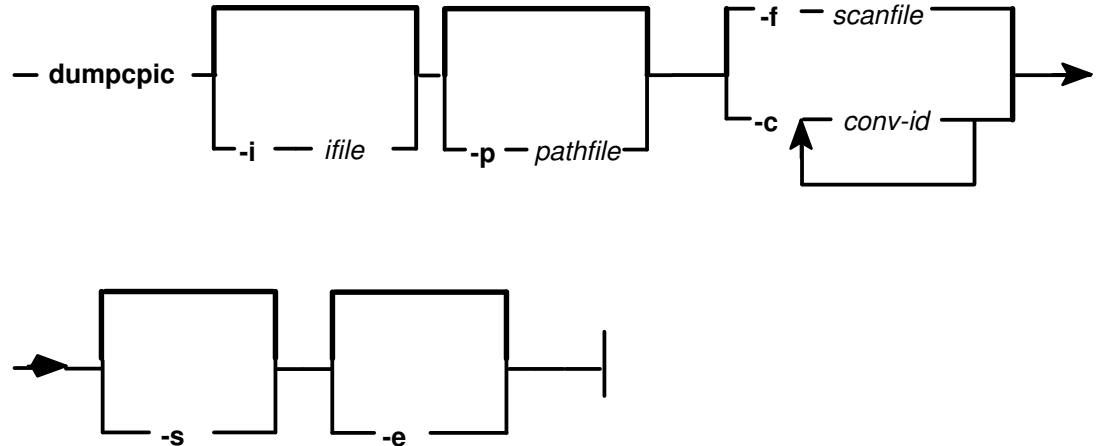
# dumpcpic

## Purpose

Produce a CPIC-OSI standard trace file

## Syntax

**dumpcpic** [ **-i** *ifile* ] [ **-p** *pathfile* ] [ **-c** *conv\_id* [*conv\_id*] ] [ **-f** *scanfile* ] [ **-s** ] [ **-e** ]



## Description

**dumpcpic** is used to produce a CPIC-OSI standard trace file from the input file */tmp/apilog*. It produces the file *pathfile/dumpcpic*.

One of the options or **-f** must be specified. If **-c** is specified, **-f** must not be specified (the options **-c** and **-f** are mutually exclusive).

This command is to be used only when the logging level is greater than or equal to 2.

## Flags

- i ifile** is the input non printable file. The default value is */tmp/apilog*.
- p** *pathfile* is the pathname of the output file. The default value is */tmp*.
- c conv\_id** is the conversation identifier to obtain information. All the CPI-C SS connections about the specified conversation identifier will be traced. More than one *conv\_id* can be specified.
- f scanfile** If the conversation id cannot be specified, run first the **scancpic** command. *scanfile* is the output of the **scancpic** command.
- s** the output of the *dumpcpic* is produced on different files ("pathfile/trcpic\_conv\_id"). Each file contains information about the conversation ids contained in *scanfile*.
- e** the dumped data in *dumpcpic* is automatically converted from EBCDIC format to ASCII format.

## Files

*/tmp/apilog*  
*pathfile/dumpcpic*

## Suggested Reading

"OTM Error Messages" in the *OTM Administrator and User's Guide*.

---

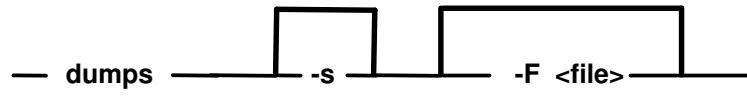
# dumps

## Purpose

Produce a readable DSA record log file

## Syntax

```
dumps [ -s ] [ -F <file> ]
```



## Description

This command processes the input file */tmp/tmpilog* and produces the dump format for the Provider module.

## Flags

- s** This option produces the logging flow of the above communication layers.
- F file** is the tmpilog compliant trace file to analyse.

## Suggested Reading

“OTM Error Messages” in *OTM Administrator and User’s Guide*.

---

# enable-pr

## Purpose

This command activates a LCS process to enable the local printer.

## Syntax

**enable-pr** *local-printer-name*

— **enable-pr** ——— *local-printer-name* —|

## Description

The **enable-pr** command is used to activate a LCS process from the VIP7800 native terminal to which a local printer is connected. The LCS process enables printing using the printer connected to the auxiliary port of a native VIP7800 terminal.

**Warning:** This command works only with a native VIP7800. It will not function with the OTM VIP7800 emulator.

The only necessary parameter to this command is the *local-printer-name*: this name must be the same given to the parameter name on the form Insert Printer Description. If the parameter is not supplied, the command *enable-pr* asks for it from standard input. This command gets the printer name and searches for it in the LCS configuration file */etc/lcs.conf*. If the printer name is not present in the file, an appropriate error message is displayed.

If the *local-printer-name* is an lp-destination name, the **enable-pr** command executes automatically the **enable** system command. The printer is only enabled to print within a login session, after **enable-pr** command execution.

In order to save the report printing it is necessary to wait for the end of the printing phase before logout (CTRL+D), or disabling of the LP destination can occur.

The *enable-pr* command may be run only from the shell at the same login level.

**Note:** The printer must be turned on before turning on the terminal or the PC and the paper alignment is an end user responsibility.

This device may be seen via LP and via redirection with device */dev/sptxxx* where *xxx* is the value defined in the *destination pathname* field.

The special file */dev/sptxxx* can be used to receive the data. For example:

```
cat "my-file">/dev/sptxxx
```

prints *my-file* on the printer connected to the auxiliary port.

---

# endtma

## Purpose

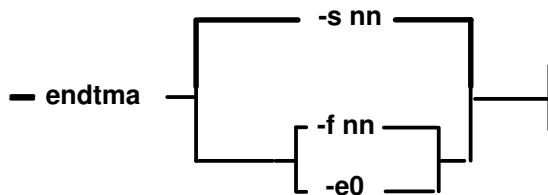
Terminate an OTM Activity

## Syntax

**endtma** -s nn

**endtma** -f nn

**endtma** -e0



## Description

The *endtma* command is used to terminate the OTM activity.

The *nn* parameter defines the number of minutes after which the command will be executed.

## Flags

If the **-s** option is used (soft shutdown) the currently opened connections will be maintained active until their normal termination. After the time specified by *nn*, any new connection request will be refused.

Daemon and provider processes will not be stopped.

If the **-f** option is used (forced shutdown) the currently opened connections will terminate after the time specified by *nn* and any new connection request will be refused.

Daemon and provider processes will not be stopped.

If the **-e0** option is used all OTM processes will be stopped.

After an **endtma -e0** OTM must be reinitiated by running the **/etc/rc.OTM** command.

## Examples

**endtma -s1** means that after a minute any new connection request will be refused, whereas the already opened connections will be maintained.

**endtma -f1** means that after a minute any new connection request will be refused, and the already opened connections will be closed.

**Note:** An **endtma** command may be run after a previous **endtma** command if more restrictive.

## Related Information

The **rsttma** command.



---

# infdis

## Purpose

Information on disabled applications

## Syntax

**infdis**

## Description

This command is used in a High Availability environment.

*infdis* displays the following information about a disabled application:

- the ID of the disabled application
- the REASON of the refused connection (refer to the “DSA Network System Messages and Return Code Message Compendium” for further details about the DSA error messages).
- the remote SITE and the MAILBOX to be accessed
- the RESTART TIME to enable the application

In a High Availability environment an application can be disabled when the session user cannot be accessed. OTM automatically tries to establish a connection with the specified Alternate Session User.

## Examples

ID	REASON	SITE-MAILBOX	RESTART TIME
0050	0018	BC7C IOF	0007 min

## Related Information

The **inftms** command.

---

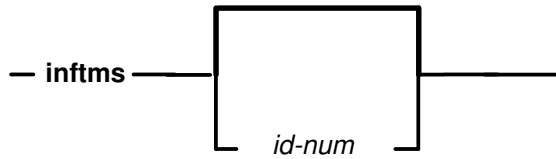
# inftms

## Purpose

List OTM sessions

## Syntax

**inftms** [*id-num*]



## Description

If **inftms** is run without parameters, it lists all the active sessions, giving for each session, provider identifier, connection identifier, local mailbox (i.e terminal name or printer name), remote site (i.e DSA STID), and remote mailbox (i.e remote application name).

If OTM is not launched, the result will be the following :

```
-----  
OTM is not running  
-----
```

If no OTM sessions are present at a time, the **inftms** gives the following report:

```
-----  
OTM Licence AVAILABLE  
Maximum OTM connections = 512  
No active OTM connections  
-----
```

When there are active connections, a list similar to the following will be produced :

```
-----  
OTM Licence AVAILABLE  
Maximum OTM connections = 512  
Active OTM connections = 4  
PRV ID   CNT ID   LOC MB           REM SITE   REM MB  
0        1    TERM5           SCE6       FKEYS  
1        2    PRT1  
2        3    TERM6           BX29       IOF  
3        4    TERM7           BU09       OSCX  
-----
```

In the report listed above, connections 1, 3 and 4 are outgoing connections, which indicate terminals connected to host applications. Connection 2 is an incoming connection, which indicates a printer facility waiting for a report from the remote host.

If id-num is specified, a list similar to the following will be produced:

---

Provider ID	:	0
OTM Connection ID	:	3
Connection Phase	:	Data Transfer
Connection Mode	:	Outgoing
OTM logging level/logging flag	:	0/0
User Name	:	
Connection Start Time	:	95.09.08:10.20
Message count from local mailbox	:	12
Char count from local mailbox	:	187
Message count from remote mailbox	:	7
Char count from remote mailbox	:	7187
Remote Site	:	BU09
Remote Mailbox	:	OSCX
Local Mailbox	:	TERM7

---

---

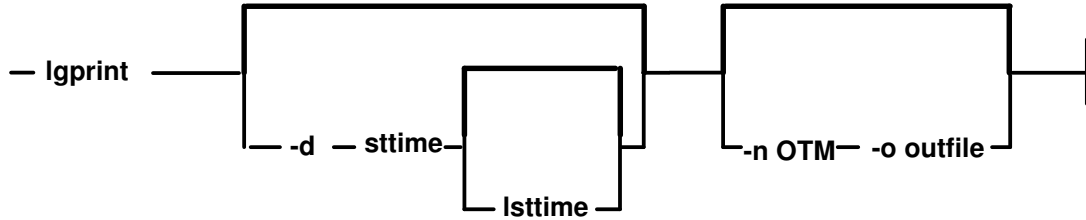
# lgprint

## Purpose

Print logger data

## Syntax

**lgprint** [ -d *stime* [/i>lstime]] [ -n *OTM*] [ -o *outfile*]



## Description

If the parameter **-o** is specified, the parameter **-n OTM** must also be specified. If no parameter is given, **lgprint** produces the current log file (*/usr/adm/elog\_print*) from the input file *elgfile*. *elog\_print* can then be printed or displayed.

## Flags

### **-d stime** [/lstime]

print logged information starting from **stime** and ending at **lstime**, where **stime** and **lstime** have the following format:

mmddhhmm.

If **lstime** is not specified, information is printed from the specified **stime** until the end of the file.

### **-n OTM -o outfile**

Data about OTM is extracted from the input file *elgfile*. **lgprint** produces the *outfile* binary file to be processed by **utmlog**.

---

## otm\_ana\_dsa.sh

### Purpose

This command combines the **otm\_dec\_prep** and the **otm\_dec\_dsa** commands, thus obtaining the dump analysis in one step instead of two.

### Syntax

```
otm_ana_dsa.sh [-C] [-D] [-i <file>]
```

### Options

-C option must be included if counters are present in the original dump.

-D option requests a record dump. It is mandatory.

-i option designates a file containing the buffer to be analysed.

### Example

See **otm\_dec\_dsa** for an example of the result.

---

# otm\_dec\_dsa

## Purpose

The **otm\_dec\_dsa** command is used to decode a DSA record dump that has been cleaned with the **otm\_dec\_prep** command.

## Syntax

**otm\_dec\_dsa [-D ] [-i < file > ]**

## Options

- D option requests a record dump. It is mandatory.
- i option designates a file containing the buffer to be analysed.

## Example

```
otm_dec_dsa
--> Enter strings to decode - terminated by ! - :
40 00 00 06 00 00 40 6B 00 14 0A 7A 20 42 03 00
10 01 18 50 C0 05 20 42 11 03 50 73 00 36 00 00
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
50 72 00 1C 41 50 49 31 30 36 37 32 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 41 00 00 07
01 03 01 41 CB 00 08 01 04 80 01 41 8A 00 0D 02
03 80 02 03 00 03 03 88 41 93 00 4D 65 05 01 00
80 65 05 02 00 01 65 05 02 00 02 65 05 02 00 04
65 05 02 00 0C 65 04 03 00 67 03 05 68 04 80 F0
69 03 50 6A 03 18 6B 03 02 6C 03 02 6D 03 01 6D
03 03 6F 03 01 6F 03 02 71 09 44 4B 55 37 31 30
37 72 04 00 01
!
+=====+
+=====< START OF DSA DUMP ANALYSIS >=====+
+=====+

-----< INDICATION RECORD >-----

Record header : 40 00 00 06 - Record length : 6 (0x06)
Control indicator      -> ON
Record per letter     -> Only one
```

-----< TRANSPARENT PROTOCOL RECORD >-----

Record header : 40 6B 00 14 - Record length : 20 (0x14)

```
Control indicator      -> ON
DSA Level             -> 3
Options
| Device Procedure Header -> Mandatory
| Mode                -> Device Station
Sender identifier
| Emitter type        -> Pseudo station
| Identification number -> 0x42 (DKU7107)
Code_set              -> EBCDIC ASCII
Symbols               -> Graphics 96
Number of devices     -> 1
| Device number # 1
| | Page length       -> 24
| | Line length       -> 80
| | Type              -> (Keyboard input device) (Output
                        device)
| | User class of service -> 0 (Unspecified)
| | Device type       -> 5 (Screen)
| | Device Id Number  -> 0x42 (DKU7107)
| | Wrap-around mode  -> ON
| | Auto line fold    -> ON
| | Horizontal tab    -> ON
| | Vertical tab      -> ON
```

-----< SUBMITTER IDENTITY RECORD (ASCII) >-----

Record header : 50 73 00 36 - Record length : 54 (0x36)

```
Control indicator      -> ON
Active indicator       -> ON
Identity indicators
| Billing               ->          | 2020202020202020202020 |
| User                 ->          | 2020202020202020202020 |
| Project              ->          | 2020202020202020202020 |
| Password             ->          | 2020202020202020202020 |
```

-----< TERMINAL IDENTITY RECORD (ASCII) >-----

Record header : 50 72 00 1C - Record length : 28 (0x1C)

```
Control indicator      -> ON
Active indicator       -> ON
Terminal Identifier    -> API10672
```

-----< PRES LVL CONTROL RECORD (CONNECT) >-----

Record header : 41 00 00 07 - Record length : 7 (0x07)

```
Control indicator      -> ON
Record Contents        -> | 010301 |
```

-----< PROTOCOL ID RECORD (CONNECT) >-----

Record header : 41 CB 00 08 - Record length : 8 (0x08)

```
Control indicator      -> ON
Record Contents        -> | 01048001 |
Protocol Name          -> Terminal Management
```

```

-----< STATION CONFIGURATION (CONNECT) >-----
Record header : 41 8A 00 0D - Record length : 13 (0x0D)

Control indicator      -> ON
Record Contents       -> | 020380020300030388 |

-----< LOGICAL DEVICE CONFIG (CONNECT) >-----
Record header : 41 93 00 4D - Record length : 77 (0x4D)

Control indicator      -> ON
[101] - Unknown meaning -> Undecoded      | 6505010080
[101] - Unknown meaning -> Undecoded      | 6505020001
[101] - Unknown meaning -> Undecoded      | 6505020002
[101] - Unknown meaning -> Undecoded      | 6505020004
[101] - Unknown meaning -> Undecoded      | 650502000C
[101] - Unknown meaning -> Undecoded      | 65040300
[103] - Device type     -> Keyboard display| 670305
[104] - Unknown meaning -> Undecoded      | 680480F0
[105] - Line length     -> 80 (0x50)      | 690350
[106] - Page length     -> 24 (0x18)      | 6A0318
[107] - Line overflow   -> Line folding  | 6B0302
[108] - Page overflow   -> Wrap          | 6C0302
[109] - Char encoding   -> ISO 7 bits    | 6D0301
[109] - Char encoding   -> EBCDIC        | 6D0303
[111] - Character mode   -> 64 Characters  | 6F0301
[111] - Character mode   -> 96 characters  | 6F0302
[113] - Model identifier -> DKU7107       | 109444B5537313037
[114] - End to End Ack  -> Data Ack       | 72040001

+=====+
+=====< END OF DSA DUMP ANALYSIS >=====+
+=====+

```



---

# otm\_dec\_prep

## Purpose

The **otm\_dec\_prep** command is used by the OTM administrator to prepare a DSA dump for analysis by the **otm\_dec\_dsa** command. It cleans the DSA record dump by removing the counters and comments.

## Syntax

**otm\_dec\_prep [-C] [-i <file>]**

## Options

-C option must be included if counters are present in the original dump.

-i option is needed if the dump must be obtained in a particular file.

## Example

```
otm_dec_prep -C
```

```
Enter strings to prepare - terminated by ! - :
```

```
00000 40 00 00 06 00 00 40 6B 00 14 0A 7A 20 42 03 00 "@.....@k...z B.."
00010 10 01 18 50 C0 05 20 42 11 03 50 73 00 36 00 00 "...P.. B..Ps.6.."
00020 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 " "
00030 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 " "
00040 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 " "
00050 50 72 00 1C 41 50 49 31 30 36 37 32 20 20 20 20 "Pr..API10672 "
00060 20 20 20 20 20 20 20 20 20 20 20 20 20 20 41 00 00 07 " A..."
00070 01 03 01 41 CB 00 08 01 04 80 01 41 8A 00 0D 02 "...A.....A..."
00080 03 80 02 03 00 03 03 88 41 93 00 4D 65 05 01 00 ".....A..Me..."
00090 80 65 05 02 00 01 65 05 02 00 02 65 05 02 00 04 ".e.....e....."
000A0 65 05 02 00 0C 65 04 03 00 67 03 05 68 04 80 F0 "e.....e...g..h..."
000B0 69 03 50 6A 03 18 6B 03 02 6C 03 02 6D 03 01 6D "i.Pj..k..l..m..m"
000C0 03 03 6F 03 01 6F 03 02 71 09 44 4B 55 37 31 30 "...o...o...q.DKU710"
000D0 37 72 04 00 01 "7r..."
!
```

Resulting data is the following:

```
40 00 00 06 00 00 40 6B 00 14 0A 7A 20 42 03 00
10 01 18 50 C0 05 20 42 11 03 50 73 00 36 00 00
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
50 72 00 1C 41 50 49 31 30 36 37 32 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 41 00 00 07
01 03 01 41 CB 00 08 01 04 80 01 41 8A 00 0D 02
03 80 02 03 00 03 03 88 41 93 00 4D 65 05 01 00
80 65 05 02 00 01 65 05 02 00 02 65 05 02 00 04
65 05 02 00 0C 65 04 03 00 67 03 05 68 04 80 F0
69 03 50 6A 03 18 6B 03 02 6C 03 02 6D 03 01 6D
03 03 6F 03 01 6F 03 02 71 09 44 4B 55 37 31 30
37 72 04 00 01
```

Note that this command may take as entry any buffer. Although delivered with OTM, it is not only for the OTM product.

---

# otmstat

## Purpose

Get statistical reports

## Syntax

**otmstat**

## Description

**otmstat** is a menu driven command to get statistical reports about the OTM activity and the connections established during this activity. To run the command, enter **otmstat** as super user. The *OTM Statistical Report Menu* is displayed.

## Files

/usr/lib/iso/otm.stat.yy.ddd

## Suggested Reading

“Statistics” in the *OTM Administrator and User’s Guide*.

---

# **rstdis**

## **Purpose**

Enables an application

## **Syntax**

**rstdis** *num*

**—rstdis** — *num* |

## **Description**

This command is used in a High Availability environment.

**rstdis** enables the application **num** after having disabled it.

## **Related Information**

The **infdis** and **inftms** commands.

---

## **rsttma**

### **Purpose**

Restarts the OTM activity

### **Syntax**

**rsttma**

### **Description**

**rsttma** restarts the OTM activity after an **endtma-snn** command or an **endtma-fnn** command has been executed.

---

# scancpic

## Purpose

Scan logging file

## Syntax

```
scancpic -i ifile -o ofile
```

```
— scancpic — -i — ifile — -o — ofile — |
```

## Description

**scancpic** scans the input file (usually */tmp/apilog*) and produces an editable file *ofile*. *ofile* contains the pseudo conversation ids (a pseudo conversation id is a process identifier that matches the conversation ids associated to that process) that can be input to the **dumpcpic** command. *ofile* can be edited to cancel the conversation ids not to be examined. *apilog* contains all logging information about the conversation.

## Files

*/tmp/apilog*

## Examples

Below is an example of the output file of the **scancpic** command.

```
*****
* Do not remove the comments from this file. The only thing *
* you can do with the vi command is to delete the lines in *
* which are described pseudo conversation IDs that do not *
* concern you. *
* Before running dumpcpic please remove the invalid entries *
* (Invalid ID because trace level is less than 2). *
* *
* PSEUDO CONVERSATION IDS          START OFFSET IN INPUT FILE *
*****
          1eb70000          Invalid ID because trace
                          level is less than 2.
          1eb90000          000000fb
```

## Suggested Reading

“OTM Error Messages” in the *OTM Administrator and User’s Guide*.

---

## test\_OTMAPI

### Purpose

Provides interactive access to CPI-C primitives

### Syntax

`test_OTMAPI`

### Description

`/usr/cpi-c/test_OTMAPI` is a menu driven utility providing interactive access to all CPI-C primitives. The parameters relative to the invoked primitive must be entered by the user. All information concerning user and program status is displayed at the bottom of the screen.

### Suggested Reading

“Quick Test Procedure” in the *OTM Administrator's and User's Guide*.

---

# tmadmlg

## Purpose

Change logging parameters for the specified connection

## Syntax

```
tmadmlg -c connection_id -l logging_level -f logging_flag
```

```
— tmadmlg — -c — conn-id — -l — loglevel — -f — logflag — |
```

## Description

The **tmadmlg** command changes the trace level and the trace storage mode for the specified connection. If the connection cannot be established, an error is returned to OTM.

## Flags

The options description follows.

- c** The connection identifier specifies a connection for which the trace logging parameters are to be changed.
- greater or equal to 0** The connection is identified by a number greater than or equal to zero. The trace level is changed for the specified connection.
- 1** The trace level and the trace storage mode are changed for the daemon program.
- 2** The trace level and the trace storage mode are changed for the provider program.
- 3** The trace parameters (level and storage mode) are changed for the daemon and for the providers.
- 4** The trace parameters (level and storage mode) are changed for the connection, for the daemon and for the provider.
- l** This specifies the trace level. The trace function is used to store information about the conversation. The amount and level of detail depend upon the trace level. The value ranges from 0 to 5. If 0 is specified the logging file is produced only if errors occur. The higher the level, the more information is logged. If not specified, the default value is assumed (0).
- f** The trace storage mode specifies the device where the logging trace is to be saved.
- 0** The logging messages are saved on *elgfile* using the ELOG logging driver under the directory */usr/adm*. *elgfile* is a circular file. The command **lgprint** produces the file *elog\_print* from the input file *elgfile*. *elog\_print* can then be printed or displayed.
- 1** The logging messages are saved in a private file */tmp/tmpilog* and can be viewed using the command *utmlog*.

---

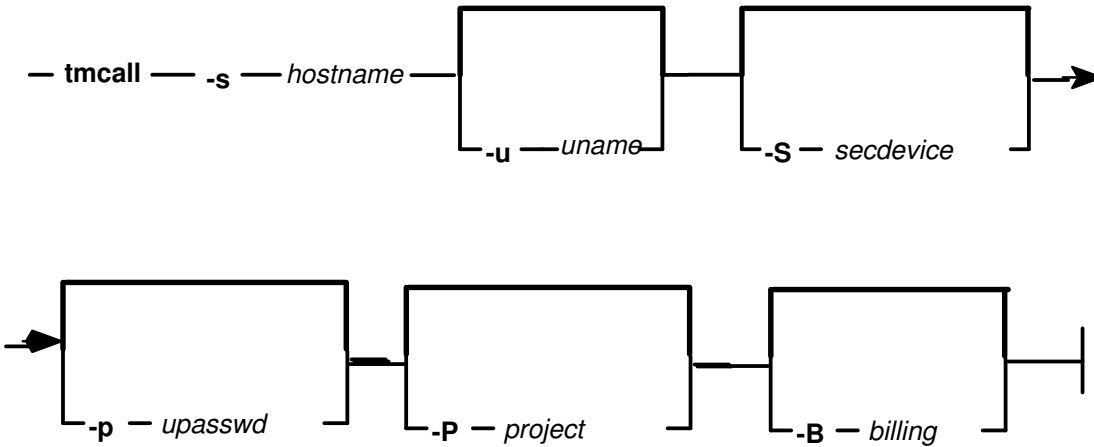
# tmcall

## Purpose

Call the open terminal manager

## Syntax

```
tmcall -s host_name [-S secondary_device] [-u user_name]
      [-p [user_password]] [-P project] [-B billing]
```



## Description

- s host\_name** is the name of the Session User of the remote site that has been entered in the “Session User Configuration” phase. This parameter is meaningful for all host systems.
- S secondary\_device** is the device to which the remote user application will address its reports.
- u user\_name** is the name of the user accessing the remote system.
- p [user\_password]** is the password corresponding to the `user_name`.
- P project** the `project` and `billing` fields are to be filled only when their values are other than the default values stored in the Site-Catalog. For further information refer to the Host manual.
- B billing** see the previous parameter.

**Note:** The name and password must correspond to that defined on the remote system.



---

# tmihrop

## Purpose

Enable incoming call for a printer

## Syntax

`/usr/lib/iso/tmihrop printer-name`

`—tmihrop ——— printer-name —|`

## Description

**tmihrop** creates an address recognized by OTM to enable a configured printer to receive an incoming call. *printer-name* has been configured using the **smit** “Insert Printer Description” item in the “Printers Configuration” menu.

**Note:** It is suggested to run this command in background mode.

---

# tws2107

## Purpose

To initiate the tws2107 emulator

## Syntax

1. Connection and administration in OFF-LINE mode, using the tws2107 screens.

```
tws2107 [-D Terminal Configuration File] [-P Terminal Profile]
```

2. Automatic connection using TWS2107 configuration files generated by the TWS2107 ADMINISTRATION menus.

```
tws2107 -A Correspondent [-D Terminal Configuration File]
[-P Terminal Profile]
```

3. Automatic connection using OTM configuration files generated by the OTM configuration or by the Easy Bundle-GCOS configuration.

```
tws2107 -U Session_User [-u user_name] [-p user_password]
[-j project] [-B billing] [-D Terminal Configuration File]
[-P Terminal Profile]
```

## Description

**tsw2107** is a shell script created in the /usr/bin directory via the smit interface during OTM configuration with the tws2107 configuration submenu, or with the Easy Bundle - GCOS product.

It starts the **usr/bin/vipixTM** process and launches the TWS2107 emulator (usr/bin/vipxTM process).

## Options

There are two types of parameter for **vipixTM**:

1. The first are automatically generated during tws2107 configuration with the Configuration submenu of the OTM Main Menu. These parameters are as follows:

**-S Mailbox** Name of the terminal's mailbox (SSAP), up to 8 characters maximum.

The mailbox name parameter identifies the terminal on which TWS2107 is running in the ISO/DSA network. This parameter is optional.

**-T TSAPName**

Name of the local site (TSAP) to which the terminal is connected, up to 4 characters maximum. This parameter is mandatory.

**-N Local\_X25\_Address** or **!Local\_Ethernet\_Address** or **?Local\_NSAP\_Address** or **@Local\_TCP/IP\_Address** or **=X25\_PVC**

Each special character corresponds to a network type, as explained below:

– For "X25 SVC" : Local X25 address (15 decimal characters maximum.)

– For "LAN DSA" : !Local Ethernet address (12 hexadecimal characters.)

– For "NSAP FULL ISO" : ?Local NSAP (Maximum size is 40 hexadecimal characters.)

– For "NSAP NETSHARE" : @Local TCP/IP address with a specific format:  
AFI=54, IDI=00728722, and DSP=prefix and IP address format as  
"www.xxx.yyy.zzz"  
eg: for the address IP=129.183.1.84 the syntax is:  
–N @5400728722129183001084

– For "X25 PVC": = (followed by character space)

- f *FacilityField* Entry in the facility field, up to 10 characters maximum. This parameter is optional.
- I *PrinterType* Name of the file which contains the information specific to the printer used by the terminal.
- s *SSDUsize* SSDU size negotiated for a connection request. Must be greater than 1980 and lower than 65535. This parameter is optional.
- L *LocalPrinterName*  
The local name is the local SSAP name. This parameter is optional.

**Note:** The above parameters can also be used with the tws2107 command. If you do this, be careful, because they will overwrite the values configured in the tws2107 script.

2. The second type of parameter for **vipixTM** is not automatically generated. They must be entered with the tws2107 command. These parameters are as follows:

- D *Terminal Configuration File*  
This is the name of the configuration local file: *\$HOME/vip\_conf*, if it exists. If not, it is this file by default: */usr/bin/vip\_fic/vip\_conf*. This parameter is optional.
- P *TerminalProfile*  
Name of the "terminal" entry in the terminal configuration file which defines the set-up required for the emulated terminal.  
  
The default value is the LOGIN name of the user, converted to upper case letters. This parameter is optional.

• These parameters use tws2107 configuration files:

- A *Correspondent*  
Name of a correspondent defined in the TWS2107 correspondent register, up to 12 characters maximum. The connection is carried out directly, without going through the connection screens. This parameter is optional.
- C *SymbolicName*  
This argument is used to call a file containing the start-up parameters. In the event of a parameter conflict, the last value read is the one implemented.  
  
When followed by a symbolic name, causes the initialization of TWS with the parameters associated with this symbolic name. These elements (name and parameters) are in the */usr/bin/vip\_fic/vip\_site* file.  
  
This parameter is to be used with care as it can overwrite all the other parameters defined above. It is optional.

- These parameters use OTM configuration files:

**-U** *Session-User*

Name of the Session User of the remote site in the OTM configuration.

**-u** *user-name*

Name of the user accessing the remote system.

**-p** *user-password*

The password corresponding to the user-name.

**-j** *project*

**-B** *billing*

The Project and Billing fields are to be filled in only when their values are different from the default values stored in the site-catalog (GCOS) of the remote system. For further information, see the appropriate GCOS documentation.

## Suggested Readings

“TWS2107 Configuration” in the *OTM Administrator’s and User’s Guide*.

---

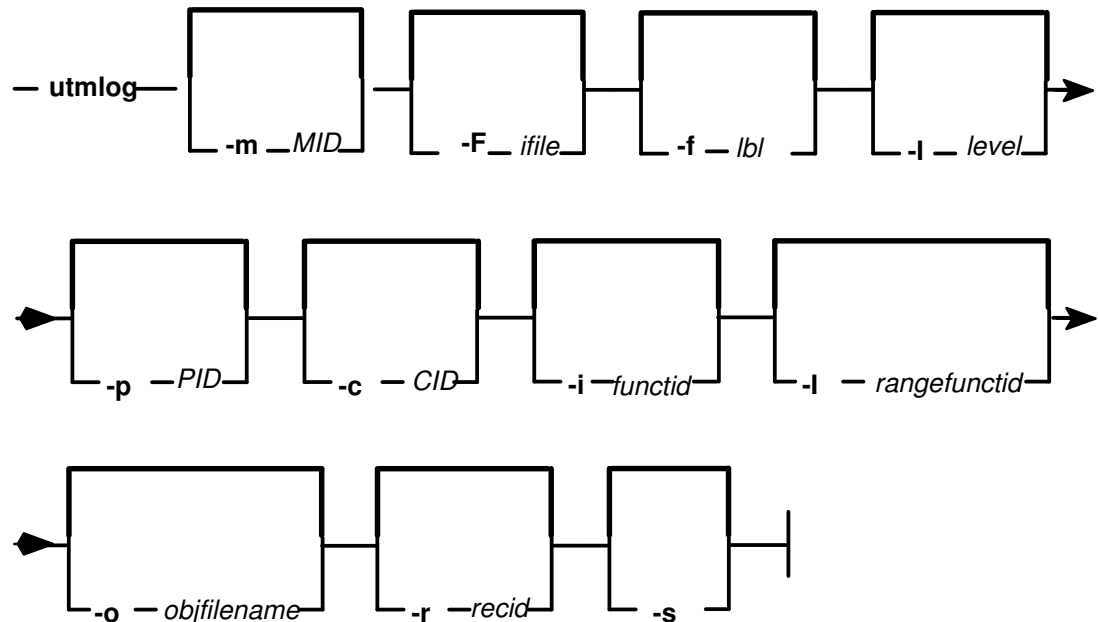
# utmlog

## Purpose

View logging file

## Syntax

```
utmlog [-m MID] [-F ifile] [-f lbl] [-l level] [-p PID]
        [-c CID] [-i funct_id] [-l range_funct_id] [-r rec_id]
        [-s] [-o obj_filename]
```



## Description

`utmlog` is used to display or to print the file `tmpilog`.

## Flags

<b>-m</b> <i>MID</i>	specifies the subsystem to obtain logging information on. The values <i>MID</i> can have are:
Pv	OTM provider
Dm	OTM daemon
AH	tmcall
RO	tmihrop
LP	tmihlp
TW	TWS2107
Ap	CPI-C
GE	gettyemu
LO	loginemu
VE	vipemu

`tmpilog` contains all logging information about the OTM session.

- F** *ifile* specifies the input file containing the logged records (if no file is specified, the default value is */tmp/tmpilog*).
- f** *lbl* records are logged depending on the specified **lbl**. **lbl** can have one of the following values:
  - print – to log PRINT record format
  - dump – to log DUMP record format
  - trace – to log TRACE record format
- l** *level* extracts the logged records which were dumped at a particular level.
- p** *pid* all records logged by a particular process or set of processes are extracted.
- c** *cid* it is possible to point out the logging flow generated by a particular subroutine which was executed by a process or module. Up to ten component identifiers can be selected. A module is composed of component identifiers.
- i** *funct\_id* select the logging record dumped by a particular subroutine identified by its hexadecimal code. Up to ten function identifiers can be selected. A component is composed of function identifiers.
- r** *rec\_id* select the logging record dumped with a particular record identified by its hexadecimal code. Up to ten record identifiers can be selected
- l** *range\_funct\_id* It is possible to give a range of hexadecimal function identifiers. Note that this range is always included between 0 and 255 values.
- s** negates the selection rules specified. For example
 

```
utmlog -s -l level
```

 extracts all the logging levels different from the specified one.
- o** *object\_filename* this option generates a non editable file. To make *object\_filename* printable, run **utmlog** without this option.

## Files

*/tmp/tmpilog*

## Examples

```
utmlog -m Pv > file
```

will produce a file containing only the provider logging output.

## Suggested Reading

“OTM Error Messages” in the OTM Administrator’s and User’s Guide.

---

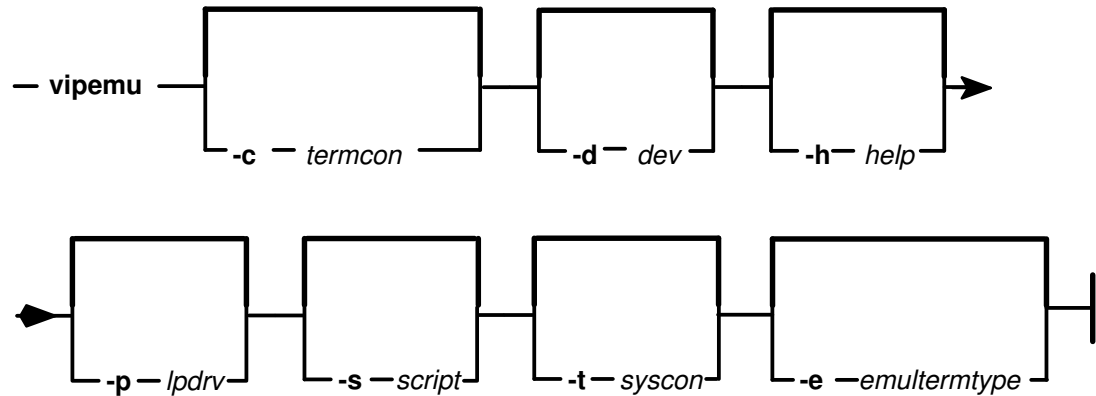
# vipemu

## Purpose

Run vipemu emulator

## Syntax

**vipemu** [-c *termcon*] [-d *dev*] [-h *help*] [-p *lpdrv*] [-s *script*] [-t *syscon*] [-e *emultermtype*]



## Description

**vipemu** is a command to configure and administer the vip7800 emulator. **vipemu** causes the screen and keyboard to behave as if they were of a native VIP7800 Bull terminal.

## Flags

The options have the following meaning:

- c *termcon*** *termcon* is the configuration pathname of the directory where *vip.cfg* or *viptyNN.cfg* resides, which contains the parameters for the terminal screens.  
If nothing is specified, the default pathname is */usr/emu*.
- h *help*** *help* is the pathname of the help file.  
If nothing is specified, the default pathname is */usr/emu*.
- p *lpdrv*** *lpdrv* is the pathname of the printer driver file.  
If nothing is specified, the default pathname is */usr/bin/lpdrv*.
- t *syscon*** *syscon* is the pathname of the configuration system file, *vipemutab*.  
If nothing is specified, the default pathname is */etc*.
- s *script*** *script* is the pathname of a source file that controls message exchange between the terminal and the host with the ".spt" suffix.
- d *dev*** *dev* is the tty where messages are addressed.  
If nothing is specified, the default tty is the console. To exit the emulator enter the KEY SEQUENCE [MAGIC] + [Q].
- e *emultermtype*** This is the terminal type that is emulated. It can be hw40 or hw78. By default, vipemu uses the hw40 emulation type.

## Files

***.kbd	These files contain tables which show the relationships between the function keys and the <b>vipemu</b> .
***.cfg	The different configurations are stored in these files. The default name is " <i>vip.cfg</i> ". Each time that a new configuration is stored by Vip Setup, the file " <i>vipTTYNN.cfg</i> " is either created, for the first time only, or else subsequently updated. The characters "NN" correspond to the number of the terminal on which <b>vipemu</b> is running.
***.spt	These files contain the user-written dialogues, between the Bull host and the emulator, used by the script utility.
***.hlp	These files contain help information that may be used during the emulation.

## Suggested Readings

"Configuration" in the *VIP7800 EMU User's Guide*.



---

# vipemutab

## Purpose

vipemu configuration file

## Syntax

**vipemutab**

## Description

This is the system configuration file. It must be present in the *“/etc”* directory. The file *vipemutab* creates correspondences between the physical terminal name and the logical name used by **vipemu**. See *“VIPEMU User Guide”* for a description of this file.

## Examples

A line in the vipemutab file is as follows:

```
phystty|natpres|lnode
phystty is the physical tty
natpres is the native presentation.
lnode is the logical node: the master side node of the pty
configured for vipemu.
tty10|vt320|ety1
pts/9|wyse50|ety2
```

## Suggested Readings

“Configuration” in the *VIP7800 EMU User’s Guide*.



---

# Glossary

This glossary contains the abbreviations, key-words and phrases that can be found in this document.

**2LTP**

Two-Level Transaction Processing.

**ACB**

Application Control Block.

**ACSE**

Association Control Service Element: Single consistent means for establishing and terminating all associations.

**Adapter code**

Address where the communications adapter is located in the machine. The format is AA-BB-(CC).

**AFI**

Authority Format Identifier.

**AFNOR**

Association Francaise de NORmalisation: French Standards Association.

**AIO**

Asynchronous I/O Extension.

**API**

Application Programming Interface: Functional interface allowing a high-level language application program to use specific data or functions of the operating system.

**ASCE**

Application Control Service Element.

**ASCII**

American National Standard Code for Information Interchange.

**ASE**

Application Service Element.

**AIXV3.2**

**International Business Machines** Operating System: **DPX/20** Operating System (Version 3.2) derived from AT&T UNIX System V.

**DPX/20**

Second generation International Business Machines mainframe in UNIX environment.

**Cache**

High speed special buffer store.

**CCB**

Change Control Block.

**CCITT**

Consultative Committee on International Telegraphy & Telephone: United Nations Specialized Standards Group proposing recommendations for international telecommunications.

**CD**

Collision Detection.

**CEN/CENELEC**

Comité Européen de Normalisation ELECtronique: European Electronic Standards Committee.

**cfcInS**

Dynamic updating of Local NSAP and Subnet.

**CL**

ConnectionLess.

**CLNP**

ConnectionLess Network Protocol: Protocol where no acknowledgement is returned to the originating source.

**clnp\_resolver**

ISO addressing daemon.

**CLNS**

ConnectionLess Network Service.

**Confirmation**

Can be asked of a user before execution of a command associated with a dialog (SMIT).

**CO**

Connection Oriented.

**CONP**

Connection Oriented Network Protocol.

**CONS**

Connection Oriented Network Service: Service with protocol provided by X.25.3 protocol.

**COPP**

Connection Oriented Presentation Protocol.

**COSP**

Connection Oriented Session Protocol.

**COTP**

Connection Oriented Transport Protocol.

**COTS**

Connection Oriented Transport Service.

**CPI-C**

Common Programming Interface for Communications: API allowing X/Open-compliant systems to communicate with systems implementing SNA Logical Unit type 6.2 (LU6.2) or XCP2 protocols.

**CPU**

Central Processing Unit.

**CR**

Connection Request.

**CSDN**

Circuit Switched Data Network.

**CSMA-CD**

Carrier Sense Multiple Access – Collision Detection.

**CTP**

Co-operative Transaction Processing.

**CTX**

Context.

**CUG**

Closed User Group: Users who can inter-communicate within, but not outside of a closed group. Identification is inserted in the facilities field of call packets used to set up the Virtual Circuit.

**DARPA**

Defense Advanced Research Projects Agency: Department of Defense Agency (USA).

**DAS**

Dual-Attach Station (Network).

**Datagram**

The basic unit of information (a self-contained packet) that is passed across the Internet, containing the destination and source addresses.

**Dataless workstation:**

A machine with a local disk and local or remote file systems. The local disk may be used for a boot image, paging, or a local file system.

**DCB**

Data Control Block.

**DCC**

Data Country Code.

**DCD**

Data Carrier Detect.

**DCE**

Data Circuit-Terminating Equipment: Entry point to the network (X.25) including the modem and its interconnections.

**DCS**

Defined Context Set.

**Dialog**

Window where parameter fields are entered before the execution of a required command (SMIT).

**Dialog, ghost**

Where there is no parameter and the command is executed immediately (SMIT).

**DISC**

SDLC frame used for DISConnection.

**Diskless workstation**

A machine with no disk and where boot images, paging space and all file systems reside on one or more servers.

**DLL**

Data Link Layer: Level between physical level and packet level, working according to the High-level Data Link Control procedure (HDLC).

**DLSAP**

Data Link Subnetwork Access Point.

**DM**

Disconnect Mode (SDLC frame).

**DPF**

Distributed Print Facility.

**DSA**

Distributed Systems Architecture.

**DSAC**

Distributed Systems Administration & Control.

**DSP**

Domain Specific Part.

**DTE**

Data Terminal Equipment: Part of terminal installation which transmits and/or receives data.

**DWM**

Diskless Workstation Management: A set of utilities to help setup and manage a diskless workstation environment.

**ECMA**

European Computer Manufacturers' Association.

**ES**

End System: Final recipient system of the transport and upper OSI layer messages.

**ES-IS protocol**

End System – Intermediate System (Dynamic RIB).

**ESH**

End System Hello (PDUs).

**Ethernet**

A baseband LAN specification (IEEE 802.3) using the CSMA-CD technique.

**FastPath**

Simplified keystroke commands permitting SMIT functions to be quickly activated (IBM).

**FCB**

UFT Control Block.

**FDDI**

Communications adapter interface with a Fiber Distributed Data Network.

**Field**

Display dialog sub-window.

**FIFO**

First In First Out.

**FRMR**

FRame Reject (SDLC frame).

**FTAM**

File Transfer Access and Management: ISO file service function enabling user application processes to manage and access a file system.

**Functions**

Communication products.

**GAP**

Subnet table.

**Gateway**

Software, linking two networks using different communication architectures. Gateway performs routing, conversion and relaying operations.

**GCOS**

General Comprehensive Operating System.

**Git table**

Memory Management Interface Table.

**GOSIP**

Government OSI Profile.

**HCON**

Host CONnection.

**HDLC**

High-level Data Link Control: Use of specialized series of bits to control data links in accordance with International Standards.

**HPAD**

Host PAD: Server side in the PAD client/server model.

**ICB**

Interface Control Block.

**ICD**

Initial Domain Identifier.

**IDP**

Initial Domain Part.

**IEEE**

Institute of Electrical & Electronic Engineers.

**iniMAG**

OSI stack initialization.

**IP**

Internet Protocol.

**IPS**

Internet Protocol Suite.

**IS**

Intermediate System: A relay system enabling data to be routed to the destination, or another intermediate system.

**ISDN**

Integrated Services Digital Network: Network supporting voice and non-voice communications.

**ISH**

Intermediate System Hello (PDU).

**ISM**

Integrated System Management.

**ISO**

International Standards Organization: Originator of Open Systems Interconnection reference model (ISO-IS 7498).

**JFS**

Journalled File System.

**KDB**

Kernel Debugger.

**LAPB**

Link-Access Procedure Balanced (also LAP): Link level elements used for data interchange (X.25 communications) between Data Circuit Terminating Equipment and Data Terminal Equipment operating in user classes of service 8 to 11, as specified in CCITT Recommendation X.1.

**LFS**

Logical File System.

**LIFO**

Last In First Out.

**List**

Mechanism which allows several possible values to be proposed in a parameter field. Number of values may vary. A list commands is executed to give possible values (SMIT).

**LLC**

Link Layer Control.

**LLC**

Logical Link Control: Protocol governing the assembly of transmission frames and their exchange between data stations, independent of the medium access control protocol.

**LNSAP** also **Local NSAPs**

Local Network Service Access Point: Access point to INTERNET Protocol (IP) services. Their names are used to identify the source and destination of messages.

**LPP**

Licensed Program Product.

**LSAP**

Link Service Access Point.

**LVM**

Logical Volume Manager: A flexible data storage system allowing the size of logical volumes to span multiple physical volumes in a volume group; the data appearing in unbroken sequence to the user.

**MAC**

Medium Access Control.

**MAD**

Distributed Access Method: A set of primitives used to define relations between client and server processes which manage the communications services.

**MAG**

General Administrator Module.

**Mandatory**

Characteristic of a parameter field. If data is not entered in the field, the command of the dialog is not executed (SMIT).

**MASK**

A pattern of characters used as a control for other patterns of characters.

**MCA**

Micro Channel Architecture.

**MHS**

Message Handling System.

**MSDSG**

Multi-system Distribution System Gateway.

**MsgLifeTime**

This parameter defines the validity period of the elementary Protocol Data Unit (PDU) transferred through the ISO 8473 protocol (CLNP). It determines the time-out before eliminating the packets lost because of non-efficient routing, or whose reference could be confused with more recent data. This period is measured by the number of passages in the Intermediate- and End-systems.

**MTA**

Message Transfer Agent.

**MTS**

Message Transfer System.

**Multiselection**

Characteristic of a parameter field for which several values can be entered (SMIT).

**NCB**

Network Control Block.

**NCSC**

National Computer Security Center (USA).

**NET**

Network Entity Title.

**Network type**

Type of outgoing subnetwork to be used (in accordance with subnet entries of the outgoing line to be used).

**NFS**

Network File System: Protocol developed by Sun Microsystems allowing users to directly access files on other systems in a network.

**NIC**

Network Information Center: Public distribution center for DARPA TCP/IP information.

**NIS**

Network Information System.

**NIST**

National Institute of Standards & Technology.

**NSAP**

Network Service Access Point: A chain of 15 hexadecimal characters identifying the NSAP of a remote machine. It must be an even number of 40 characters maximum.

**NSAP priority**

Equivalent to the routing priority.

**NSDU**

Network Service Data Unit.

**NSEL**

Network SElector.

**NUA**

Network User Address: The 15-digit number that uniquely identifies an X.25 line.

**ODM**

Object Database Manager: A data manager intended for the storage of system data (IBM).

**OLTP**

On-Line Transaction Processing.

**OPP**

Optional Program Product.

**OSI**

Open Systems Interconnection: Reference model defined in OS-IS 7498.

**OTM**

Open Terminal Manager.

**Output**

Window where the results of dialog commands are displayed. The standard output of commands are sent to this window (SMIT).

**PAD**

Packet Assembler Disassembler: Functional device enabling un-equipped Data Terminal Equipments to access a packet switching network.

**PAVI**

Videotex Access Point.

**PCI**

Protocol Control Information.

**PDU**

Protocol Data Unit: Unit of protocol control information specified in the protocol of a given layer.

**PHY**

Physical Layer Protocol.

**PICS**

Protocol Implementation Conformance Statement.

**PMD**

Physical layer Medium Dependent.

**POWER**

Performance Optimization With Enhanced Risc.

**Presentation**

Presentation protocol: Set of actions and resources guaranteeing the presentation of the syntax of data during their transfer.

**PRI**

Primary Rate Interface.

**PSDN**

Packet Switched Data Network.

**PSE**

Portable Stream Environment.

**PSTN**

Public Switched Telephone Network.

**PVC**

Permanent Virtual Circuit: A Virtual Circuit (X.25) with a logical channel permanently assigned to it at each Data Terminal Equipment. A call establishing protocol is not required. Each PVC is identified with a name using the following syntax:  
<site name><line number><PVC number> Where:  
Site name (4 characters) = identity of a unique X.25 subscription (valid if PVC number \_ 1).  
Line number (2 characters) = 01 (with 1 subscription per adapter).  
PVC number (2 characters) = number between 1 and 8.

**QLLC**

Qualified Logical Link Control: Data link control protocol enabling SNA to SNA communications over an X.25 network.

**RAM**

Random Access Memory: A storage device into which data can be written and subsequently read.

**RAS**

Reliability, Availability, Serviceability.

**RCB**

Request Blocks.

**RD**

ReDirect (PDU).

**Relay – NSAP address**

NSAP address of an intermediate system.

**Remote SNPA type**

Remote Sub Network Point of Attachment.

**RFC**

Request For Comments.

**RIB**

Routing Information Base: Network directory (library) which contains all the required routing information to remote NSAPs. For each (group of) NSAPs, it gives the remote SNPA and local subnetwork to use. The SNPA is found by using the Subnet table.

**RIB, Static, “variable”**

STATICV: the entry is part of the “variable” RIB on disk loaded into CPU memory only on express request of the internetwork protocol (CLNP). The allocated CPU memory is called the “variable” Static RIB.

**RIB, Static, “fixed”**

STATICF: the entry is part of the “fixed” RIB on disk automatically loaded into CPU memory at the initialization of the OSI stack. The allocated CPU memory is called the “fixed” Static RIB.

**Ring**

Loop function which allows several predefined values to be proposed in a parameter field (SMIT).

**ROSE**

Remote Operations Service Element.

**RTS**

Reliable Transfer System.

**SCB**

Session Control Block.

**SCO**

Santa Cruz Operations.

**SCX**

DPX/20 Communications System.

**SDLC**

Synchronous Data Link Control: Control using commands to regulate the transfer of data over a communications line.

**SDU**

Service Data Unit.

**Selector**

Window where a function parameter is entered with the possibility to: select a subsequent dialog or find default values for parameters of subsequent dialogs (SMIT).

**Session**

Session protocol: Virtual relationship permitting communications between two network addressable units.

**SID**

Specifications ISO/DSA.

**SMIT**

System Management Interface Tool (IBM): Menu-driven, resident command-building system management facility.

**SMT**

Station Management.

**SMTP**

Shared Memory Transport Protocol.

**SNA**

Systems Network Architecture.

**SNAP**

Service Network Access Point.

**SNPA**

Sub Network Point of Attachment: Information for accessing the system within the domain (Transpac or Ethernet address).

**SPECFS**

Special File System.

**SPI**

Subsequent Protocol Identifier: Used for routing incoming calls.

**SPOT**

Shared Product Object Tree: The */export/exec* directory on a server which contains a client's */usr* file system.

**SSAP**

Session Service Access Point.

**SSDU**

Session Data Unit.

**SSEL**

Session SElector.

**Stanza file**

Description file of screen objects used in Object Data Manager to update the SMIT database (SMIT).

**Subdomain**

Logical Name associated to a physical network, linking RIB information and the Subnet table. Linking the local system and the next system to be reached. Decimal or hexadecimal character chain (value given using a 32 bit format).

**Subnet entry identifier**

Code with CN format where: C is a character representing the Network Type: E for Ethernet: R for Token Ring: X for X.25. N is number in the range 0 to 9, identifying a communications adapter from another of the same type.

**Subnet table**

Describes all the available network access on a station. Networks are identified by subdomain names, each associated with a physical address (SNPA).

**Super-user**

A System Administrator with unrestricted authority to access and modify any part of the Operating System.

**SVC**

Switched Virtual Circuit: Requested by a virtual call and released when the call is cleared.

**SYSLFS**

VFS switch layer.

**TA**

Terminal Adapter.

**TCB**

Transport Control Block.

**TCP**

Transport Control Protocol: Protocol used in ARPA Internet (U.S. Department of Defense standards for inter-networks).

**TCP-IP**

TCP and IP are the two fundamental protocols of the Internet protocol suite. (Acronym for this suite). TCP provides reliable transfer of data, while IP transmits.

**TCSEC**

Trusted Computer System Evaluation Criteria.

**Token Ring**

Access procedure used with a sequential topology.

**TPAD**

Terminal PAD: Client side in the PAD client/server model.

**TPDU**

Transport Protocol Data Unit.



**TPISES**

Transport Provider Interface for SESSion layer: OSI driver module which allows the Stack session layer to communicate with the TP1006 driver.

**TRANSPAC**

French public packet-switched network offering connections in packet mode (X.25) or character mode (X28-X3).

**TSAP**

Transport Service Access Point.

**UA**

User Agent.

**UCB**

User Control Block.

**UFT**

Unified File Transfer.

**UNIX**

Portable operating system, implemented in "C" language.

**US GOSIP V1**

U.S. Department of Commerce – Federal Information Processing Standards 146. August 1988 – Government Open Systems Interconnection Profile – Version 1.

**VC**

Virtual Circuit: A logical end-to-end X.25 transmission channel.

**VFS**

Virtual File Service: A remote file system mounted so that it is accessible to the local user.

**VT**

Virtual Terminal.

**WAN**

Wide Area Network: Network providing communications capability in geographic areas larger than served by Local Area Networks.

**Window**

An area of a display screen with visible borders within which information is displayed.

**XCB**

General term for different control blocks corresponding to the OSI levels, SCB, TCB, NCB, ...

**XCP2**

eXtended Cooperative Protocol level 2.

**XTI**

X/Open Transport Interface Definition.

**Xwindows display interface**

A software graphical user interface environment based on AIX.

**X.21**

CCITT recommendation defining a synchronous interface for public data networks.

**X.25**

CCITT recommendation defining an interface for connection to a packet-switched network with virtual circuit service. Defines the three lowest ISO layers: Electrical interface, HDLC procedure application, Packet structure.

**X.25.3**

Packet level protocol in layer three of X.25.

**HiSpeed WAN Communications**

HiSpeed WAN Comm.Adapter. (x4 = 4-channel, x1 = single channel).

**X.121**

The 121st CCITT recommendation in the X series, defining a naming convention for the network user address.

**X.400**

Message handling service. CCITT recommendation defining the message handling services which can be provided by telecommunications authorities to their subscribers enabling them to exchange messages in the store and forward mode.

**X.500**

Open System directory management service applying CCITT recommendations.



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