TNVIP Server 7
Administrator’s Guide

Operating System: Administration

REFERENCE
47 A2 36UT 00
DPS7000/XTA
NOVASCALE 7000
TNVIP Server 7
Administrator’s Guide

Operating System: Administration

January 1997

BULL CEDOC
357 AVENUE PATON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

REFERENCE
47 A2 36UT 00
The following copyright notice protects this book under Copyright laws which prohibit such actions as, but not limited to, copying, distributing, modifying, and making derivative works.

Copyright © Bull SAS 1996, 1997

Printed in France

Suggestions and criticisms concerning the form, content, and presentation of this book are invited. A form is provided at the end of this book for this purpose.

To order additional copies of this book or other Bull Technical Publications, you are invited to use the Ordering Form also provided at the end of this book.

**Trademarks and Acknowledgements**

We acknowledge the right of proprietors of trademarks mentioned in this book.

Intel® and Itanium® are registered trademarks of Intel Corporation.

Windows® and Microsoft® software are registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark in the United States of America and other countries licensed exclusively through the Open Group.

Linux® is a registered trademark of Linus Torvalds.

The information in this document is subject to change without notice. Bull will not be liable for errors contained herein, or for incidental or consequential damages in connection with the use of this material.
# Table of Contents

1. Introduction ........................................................................................................... 1-1

2. Overview ................................................................................................................. 2-1
   2.1 PRODUCT OBJECTIVE ............................................................................................. 2-1
   2.2 PRODUCT ARCHITECTURE ..................................................................................... 2-2
   2.3 TNVIP SERVER 7 FEATURES ................................................................................... 2-4
      2.3.1 Communication ......................................................................................................... 2-4
      2.3.2 Administration ........................................................................................................... 2-4
   2.4 TNVIP SERVER 7 IN THE BULL ENVIRONMENT .................................................... 2-5
      2.4.1 Communication with the BULL DPS 7000 Mainframe ........................................... 2-5
      2.4.2 BULL Connection Functionalities on the PC ......................................................... 2-5
   2.5 FUNCTIONAL FEATURES ......................................................................................... 2-7
   2.6 STRUCTURE OF COMMUNICATION LAYERS ........................................................ 2-8

3. General Description ............................................................................................... 3-1
   3.1 ARCHITECTURE OF THE TNVIP SERVER 7 .......................................................... 3-1
   3.2 THE TNVIP SERVER 7 .......................................................................................... 3-3
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>THE ADMINISTRATION APPLICATIONS</td>
<td>3-4</td>
</tr>
<tr>
<td>3.4</td>
<td>THE TNVIP SERVER 7 CLIENT</td>
<td>3-5</td>
</tr>
<tr>
<td>4.</td>
<td>Installing TNVIP Server 7</td>
<td>4-1</td>
</tr>
<tr>
<td>4.1</td>
<td>INSTALLING TNVIP SERVER 7 ON OPEN 7</td>
<td>4-1</td>
</tr>
<tr>
<td>4.2</td>
<td>INSTALLATION</td>
<td>4-2</td>
</tr>
<tr>
<td>5.</td>
<td>Configuration</td>
<td>5-1</td>
</tr>
<tr>
<td>5.1</td>
<td>GENERAL</td>
<td>5-1</td>
</tr>
<tr>
<td>5.2</td>
<td>TNVIP SERVER 7</td>
<td>5-3</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Services / Resources / Application Associations</td>
<td>5-3</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Number of Connections</td>
<td>5-4</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Configuration Check</td>
<td>5-4</td>
</tr>
<tr>
<td>5.2.4</td>
<td>Automatic Configuration</td>
<td>5-5</td>
</tr>
<tr>
<td>5.3</td>
<td>TNVIP SERVER 7 CLIENT</td>
<td>5-6</td>
</tr>
<tr>
<td>5.3.1</td>
<td>TCP/IP Communication</td>
<td>5-6</td>
</tr>
<tr>
<td>6.</td>
<td>Starting</td>
<td>6-1</td>
</tr>
<tr>
<td>6.1</td>
<td>STARTING THE TNVIP SERVER 7 ON OPEN 7</td>
<td>6-1</td>
</tr>
<tr>
<td>6.1.1</td>
<td>Starting all TNVIP Server 7 Services</td>
<td>6-1</td>
</tr>
<tr>
<td>6.1.2</td>
<td>Starting a Single TNVIP Server 7 Service</td>
<td>6-2</td>
</tr>
<tr>
<td>6.2</td>
<td>STOPPING THE TNVIP SERVER 7 ON OPEN 7</td>
<td>6-3</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Stopping all TNVIP Server 7 Services</td>
<td>6-3</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Stopping a Single TNVIP Server 7 Service</td>
<td>6-3</td>
</tr>
<tr>
<td>6.3</td>
<td>STARTING AND STOPPING WITH TWO DIFFERENT PARTITIONS</td>
<td>6-4</td>
</tr>
</tbody>
</table>
# Table of Contents

7. Monitoring ................................................................. 7-1

7.1 GENERAL INFORMATION ........................................ 7-1

7.2 FOR THE EXPERT ...................................................... 7-3

8. Maintenance and Debugging ........................................ 8-1

8.1 LOG FILES ............................................................. 8-2

8.2 TRACE FILES .......................................................... 8-3
Appendices

A. Configuration Process ........................................................................................................... A-1
A.1 GENERAL PROCESS ........................................................................................................... A-1

B. Error Codes ........................................................................................................................ B-1
B.1 POSSIBLE VALUES FOR WINSOCKETS ON THE PC ....................................................... B-1
B.2 MESSAGES DISPLAYED ON THE PC ................................................................................. B-3
B.3 DSA AND OTHER PC ERRORS ......................................................................................... B-6
### Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>TNVIP Server 7 Communications Environment</td>
<td>2-1</td>
</tr>
<tr>
<td>2-2</td>
<td>Open 7 Architecture</td>
<td>2-3</td>
</tr>
<tr>
<td>2-3</td>
<td>PC Architecture</td>
<td>2-3</td>
</tr>
<tr>
<td>2-4</td>
<td>TNVIP Server 7 Communications Environment</td>
<td>2-5</td>
</tr>
<tr>
<td>2-5</td>
<td>Structure of Communication Layers</td>
<td>2-8</td>
</tr>
<tr>
<td>3-1</td>
<td>TNVIP Server 7 Architecture</td>
<td>3-2</td>
</tr>
<tr>
<td>3-2</td>
<td>TNVIP Server 7 Internal Architecture</td>
<td>3-2</td>
</tr>
<tr>
<td>3-3</td>
<td>Files Referenced by the TNVIP Server 7</td>
<td>3-3</td>
</tr>
<tr>
<td>5-1</td>
<td>Configuration Files</td>
<td>5-2</td>
</tr>
<tr>
<td>5-2</td>
<td>Objects Used to Configure the TNVIP Server 7</td>
<td>5-3</td>
</tr>
<tr>
<td>5-3</td>
<td>Automatic Configuration</td>
<td>5-5</td>
</tr>
</tbody>
</table>
MANUAL SUBJECT

This manual describes how to configure and start the TNVIP Server 7, and how to establish the first connection.

INTENDED AUDIENCE

This document is intended for administrators and users of the TNVIP Server 7.

RELATED DOCUMENTATION

Installation Guide..........................................................40 A2 04LG
User’s guide (Affinity 2) .................................................40 A2 03LG
LAC Reference manual......................................................40 A2 05LG
User’s guide (Affinity 32) ...................................................40 A2 06LG
UVTI Reference Manual..................................................40 A2 10WA
DKU 7107 Reference Manual ..........................................40 A2 23WA
VIP 7800 Reference Manual ...........................................40 A2 24WA
User Script Language Reference Manual .......................80 A2 27TW

Open 7 Administrator’s Guide ........................................47 A2 81US
OPEN 7 Administrator’s Reference Manual Volume 1........47 A2 82US
OPEN 7 Administrator’s Reference Manual Volume 3........47 A2 84US

OSI/DSA Network System Messages and Return Codes........39 A2 26DM
Interoperability Software Installation Administrator’s Guide........47 A2 56UU
STRUCTURE OF THIS GUIDE

This manual consists of the following chapters:

**Chapter 1 - Introduction**
This chapter gives a brief introduction to the product.

**Chapter 2 - Overview**
This chapter introduces you to the available services and their environment.

**Chapter 3 - General Description**
This chapter describes the architecture of the product.

**Chapter 4 - Installing TNVIP Server 7**
This chapter describes how to install the product with the ISI 7 tool.

**Chapter 5 - Configuration**
This chapter describes the configuration of the TNVIP SERVER 7 on the server and on the PC.

**Chapter 6 - Starting**
This chapter describes how to start the TNVIP Server 7 on Open 7 and on the PC.

**Chapter 7 - Monitoring**
This chapter describes the connections used by TNVIP SERVER 7 on the server and how to stop them.

**Chapter 8 - Maintenance and debugging**
This chapter describes the use of trace and log mechanisms.

**Appendix A - Configuration process**
This appendix describes the steps required to configure the server.

**Appendix B- Error codes**
This appendix lists the error codes.

**Glossary**
The Glossary defines the terminology and acronyms used in this manual.
1. Introduction

The purpose of this document is to describe the Affinity TNVIP Server 7 product.

This product allows Affinity DKU 7107 and/or VIP 7800 emulations on a PC to be connected through the TCP/IP of Open 7 to BULL DPS 7000 DSA applications such as IOF and TDS.

The PC can operate under Windows 3.1x, Windows 95 or Windows NT.

The main functions of TNVIP Server 7 are:

- terminal emulation,
- file transfer,
- line printing,
- hard copy printing,
- TP applications using UVTL.
2. Overview

2.1 PRODUCT OBJECTIVE

TNVIP Server 7 on Open 7 is a solution for connecting PCs running a BULL DPS 7xxx emulation to a Bull host through Open 7.

Figure 2-1. TNVIP Server 7 Communications Environment
2.2 PRODUCT ARCHITECTURE

The communication server runs under Open 7. It uses the PTQ (Path Through Quick) drivers in Open 7 to open connections with BULL DSA applications (TDS, IOF) through the GCOS 7 VCAM session layer.

The TNVIP SERVER 7 product is composed of the following main applications for communication and administration.

The TNVIP SERVER 7 mapper (tnvipd) controls the connections and the traffic with the PC, handles its own communication services, and provides the information necessary for monitoring.

The Terminal Manager (tnviptmd) allows DSA connections, controls the connections and the traffic, handles its own communication services, and provides the information necessary for monitoring.

The administration application (tnvip) includes the following main functions: operation and configuration.

The configuration global modifier (tnvipmod) is a tool to modify globally some parameters of a configuration file. It is useful for sharing configuration templates between several Open 7 servers.

The administration tool for the TNVIP SERVER 7 mapper (tnvipdump) dumps data and contexts in shared memory to show all connections (whether active or not) as well as statistics on each connection (PC names, etc.).

The administration tool for the Terminal Manager (tnviptm) dumps data and contexts inside the terminal manager to show all connections (whether active or not), as well as statistics on each connection (Host user name, terminal type, host parameters, etc.).

The administration tools to start (tnvpsrvstart) or stop (tnvpsrvstop) a given service.

The administration tool to stop the server (tnvipboot) with a specified delay and to warn the users of this event.

The administration tool to send a message (tnvipmail) to the 25th line of the user screens.
Overview

<table>
<thead>
<tr>
<th>TDS</th>
<th>IOF</th>
<th>GT-Writer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VCAM SESSION</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PTQ DRIVERS</td>
</tr>
<tr>
<td>TNVIP SERVER</td>
<td>TNVIP SERVER</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP/IP SOCKET</td>
</tr>
<tr>
<td></td>
<td>TCP/IP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAN</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2-2. Open 7 Architecture

<table>
<thead>
<tr>
<th>LAN BOARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
</tr>
<tr>
<td>(Winsockets)</td>
</tr>
<tr>
<td>TNSOCK DLL</td>
</tr>
<tr>
<td>TNVIP DLL</td>
</tr>
<tr>
<td>AFFINITY KERNEL</td>
</tr>
<tr>
<td>UVTI</td>
</tr>
<tr>
<td>Affinity 71xx</td>
</tr>
<tr>
<td>Microfit*</td>
</tr>
</tbody>
</table>

Figure 2-3. PC Architecture

* Note also that the Affinity PC product includes a client FTP module which can access the server module of Open 7, and which has a higher performance than Microfit.
2.3 TNVIP SERVER 7 FEATURES

2.3.1 Communication

The PC communicates with Open 7 using the TCP/IP protocol. Then the TNVIP Server 7 uses the services of the PTQ drivers of Open 7 to connect to BULL applications through DSA mailboxes.

2.3.2 Administration

The TNVIP SERVER 7 administration application has a menu-driven interface. The end-user can perform the following operations:

- Configuration
- Administration

CONFIGURATION

TNVIP Server 7 configuration is described in files that can be modified using the administration application.

Configuration can be carried out from reference models.

Configuration is dynamic unless the service is already running.

The administrator can request syntax analysis and consistency checks.

The administrator is the only person allowed to configure the TNVIP Server 7.

LOG FILE & TRACE FILE

The TNVIP Server 7 maintains a log file containing the events memorized during its execution. The administrator can display this file.

A trace facility used mainly for problem analysis is also integrated in the TNVIP Server 7.

START/STOP

It is possible to start and stop the TNVIP Server 7 from the administration application, or by using specific commands (rc.tnvip start/stop, tnvipsrvstop, tnvipsrvstart).

**DO NOT, UNDER ANY CIRCUMSTANCES**, use the *kill* command to stop either of the daemons *tnvpd* or *tnviptmd*. 
2.4 TNVIP SERVER 7 IN THE BULL ENVIRONMENT

2.4.1 Communication with the BULL DPS 7000 Mainframe

The TNVIP Server 7 uses Open 7 which is a high performance DPS 7000 gateway to the TCP/IP world using LAN links.

![Diagram of TNVIP Server 7 Communications Environment]

Figure 2-4. TNVIP Server 7 Communications Environment

2.4.2 BULL Connection Functionalities on the PC

7xxx TERMINAL EMULATION

The TNVIP Server 7 provides a gateway to the client station for AFFINITY 7xxx emulation. The emulation of the station corresponds to one or two DSA sessions.

The AFFINITY workstation 7xxx software emulates many Bull terminals. The DKU 7107D (PLW: Pluri-Lingual West character set) and VIP7804 (US character set) are recommended. The default is DKU7211.
FILE TRANSFER

The TNVIP Server 7 provides a gateway for MICROFIT file transfer to/from SSL subfiles.

Note also that the Affinity PC product includes a client FTP module which can access the server module of Open 7, and which has a higher performance than Microfit.

For UFAS sequential files, use the Affinity FTP client.

ON LINE PRINTING

The TNVIP Server 7 provides a gateway for client station printing operations by using a DSA connection to the GTWRITER on the DPS 7000 family of mainframes.

Through the gateway mechanism, the TNVIP Server 7 is able to transfer the print result at station level.

HARD COPY PRINTING

The TNVIP Server 7 provides a gateway to synchronize client station printing operations. These operations take place between the ON LINE PRINTING of the GCOS 7 and the hard copy printing of the PC.

It is possible to enable hard copy printing without configuring the ON LINE PRINTING.

UVTI

APIs (UVTI) are available on the client station. The programmer can create transactional applications between a PC station and the BULL DPS 7000 host. The BULL DPS 7000 host sees Windows applications that use UVTI as 7xxx terminals.
## 2.5 FUNCTIONAL FEATURES

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>FUNCTIONAL FEATURES</th>
</tr>
</thead>
</table>
| OS Supported               | Open 7 3.10 and higher  
GCOS 7 V7 TS7254 and higher                                                                                                                        |
| Environment                | PC-client with TNVIP Server 7 over TCP/IP                                                                                                            |
| Administrative functions   | Start and stop of the TNVIP Server 7  
Display of active connections  
- per service  
- sorted by service  
Display of the current configuration  
Display of the LOG file (list, view, scan)  
Display of connection statistics (general, zoom)  
Display of traffic statistics  
Stop an active connection  
Inactivity Timeout  
Statistics accessible from shell-script  
Change front-end messages  
Display of the state of the services  
Send messages to the PC (messaging)  
Stop and start a specific service |
| Configuration              | Automatic creation of the configuration file  
Dynamic modification of the configuration  
Check of configuration file consistency  
Resource management  
Global update of some parameters of a configuration file  
Configure the printer type (TTU or SDP) |
| Supported GCOS 7 LANs      | Ethernet  
FDDI                                                                                                                                                    |
| Communication protocols (PC)| TCP/IP (access via WinSocket TCP/IP)                                                                                                                   |
| Host protocols (transport & session) | TCP/IP, Ethernet and FDDI.  
DSA VCAM with DPS 7000 applications                                                                                                                   |
| Application protocols      | AFFINITY emulation  
MICROFIT transfer  
Printing operations  
Hard copy printing  
UVTI interface  
FTP                                                                                                                                                    |
| Administration station     | Asynchronous terminal (VT100,VT320)  
Telnet or rlogin connection                                                                                                                              |
| Administration applications| Menu-driven configuration  
Applications: Operation-Configuration                                                                                                                    |
| Support and maintenance    | LOG file  
trace file  
tools to dump the internal contexts and memory  
tool to get the environment                                                                                                                              |
2.6 STRUCTURE OF COMMUNICATION LAYERS

Figure 2-5. Structure of Communication Layers
3. General Description

3.1 ARCHITECTURE OF THE TNVIP SERVER 7

The TNVIP Server 7 provides the means for establishing and releasing DSA connections, and for controlling the connected users and PCs.

For each 7xxx connection from the PC, one or two DSA sessions is/are opened to connect this 7xxx session to the host; one session for the screen and/or one session for the printer.

NOTE: It is possible to connect only the printer without the screen; in this case only one DSA connection is opened.

There are different kinds of connection from the PC:

- using a general local dialog to choose the users and communication parameters, with or without printer,
- using a partial local dialog to choose the users, billing, password and project parameters, with or without printer,
- automatically connected to the DPS 7000, with or without printer,

The TNVIP Server 7 on the server is composed of two main parts:

- the mapper and the Terminal Manager,
- the administration applications.
Figure 3-1. TNVIP Server 7 Architecture

Figure 3-2. TNVIP Server 7 Internal Architecture
3.2 THE TNVIP SERVER 7

The TNVIP Server 7 is composed of the TNVIP Server 7 mapper (tnvipd) and the TNVIP Server 7 Terminal Manager (tnviptmd) daemons. They can be started by the administrator in three ways:

- at OPEN 7 start-up,
- by using the command rc.tnvip start,
- interactively by using the tnvip menu.

The TNVIP Server 7 mapper calls the terminal manager. This terminal manager then uses an OSI based Session API to access the DSA session using PTQ drivers. The Session API has been adapted to the PTQ interface.

The only OSI concepts which you need to be familiar with are the TSAP, which corresponds to a DSA node, and the SSAP, which corresponds to a DSA mailbox.

The dialog between the TNVIP Server 7 mapper and the terminal manager uses Unix named pipes, and the dialog between the terminal manager and the DSA Session layer uses PTQ drivers and the GCOS 7 VCAM Session layer.

Each mapper and terminal manager started is called a SERVICE. The files used by the TNVIP Server 7 are listed below:

- tnvip.srv: list of services started
- tnvip.res: list of resources called from PC emulators
- tnvip.app: list of application associations used by the resources and displayed in the local dialog
- tnvip.msg: list of messages from the TNVIP Server 7 mapper displayed on the 25th line of the PC emulator
- tm.msg: list of messages from the TNVIP Server 7 terminal manager displayed on the 25th line of the PC emulator
- <service>.log: log files (one per service for tnvipd)
- <service>.logtm: log files (one per service for tnviptmd)
- <service>.tra: TNVIP Server 7 mapper trace files (one per service)
- <service>.ttm: TNVIP Server 7 terminal manager trace files (one per service)

---

Figure 3-3. Files Referenced by the TNVIP Server 7
3.3 THE ADMINISTRATION APPLICATIONS

The administration applications (tnvip, tnvipmod, tnvipdump, tnviptm) start the mapper and manage configuration and connections. The configurator creates the SERVICES, the RESOURCES, and the APPLICATION ASSOCIATIONS. The RESOURCES and the APPLICATION ASSOCIATIONS are dynamically configured: it is not necessary to restart the mappers and the terminal manager.

In addition to creating the objects (SERVICES, RESOURCES, APPLICATION ASSOCIATIONS), the configurator also manages the connections and the trace files. This includes:

- **Global changes** in a configuration file used as a template.
- **Configuration** (add, delete, or change the configuration; for example, dynamically cancel the call to a local dialog request for a specified RESOURCE, etc.),
- **Automatic configuration,**
- **Configuration control,**
- **Log file display,**
- **Trace file display (for mapper and terminal manager),**
- **Mapper state display** (service status and state of the share memory),
- **Stopping the TNVIP Server 7,**
- **Starting the TNVIP Server 7.**

**Connection management:**

- Displays sessions connected,
- Displays the state of the connections,
- Displays the name of the connected PCs or IP addresses,
- Displays the resources used,
- Displays the services used (IP port),
- Displays the date/time of the connections and disconnections,
- Displays the number of packets and bytes sent and received,
- Displays the application associations used,
- Displays terminal manager errors for screen and printer connections,
- Find a session in the list by resource name
- Dumps, or does not dump, all mapper connection activities, and give the result to a user shell script
- Dumps, or does not dump, all terminal manager connection activities and gives the result to a user shell script
- **Stops active connections.**
3.4 THE TNVIP SERVER 7 CLIENT

The **TNVIP Server 7 Client** is the Affinity 32 Desktop software. This software can also be used for AIX and Mainway.

This Affinity 32 Desktop software is a set of DLLs (Dynamic Link Library) which connect the 7xxx emulator to the TCP/IP. These DLLs also manage a protocol with the mapper installed on the Open 7 system. These DLLs display specific error messages sent by the mapper from the Open 7 system on the 25th line of the emulator.

The Affinity 32 Desktop software contains modules for both 16 bit (Windows 3.11, Windows 95 and Windows NT), and 32 bit (Windows 95 and Windows NT) Windows installations.
4. Installing TNVIP Server 7

4.1 INSTALLING TNVIP SERVER 7 ON OPEN 7

TNVIP Server 7 is installed by Interoperability Software Installation 7 (ISI 7) on the DPS 7000. By default TNVIP Server 7 software is installed in the Open 7 partition that is created for first installation (refer to ISI 7 document).

There are two installation modes:

- Production mode,
- Check-out mode.

**Production mode** is the standard mode to run TNVIP Server 7 in a production environment. This is the default mode and it is installed on:

/\users/telnet7

**Check-out mode** allows you to check a new release of TNVIP Server 7 against the particular constraints of your own production environment, but without disturbing the existing production environment which continues to run at the same time. Check-out mode is installed on:

/\users/telnet7/test

The MIs purchased by the client are checked at installation time. This check is also made when TNVIP Server 7 is started.
4.2 INSTALLATION

During installation all software in the given Open 7 partition is replaced by the new release from the tape.

In the installation procedure, ISI 7 checks if a configuration exists in the given Open 7 partition. If it exists, ISI 7 tools saves the configuration to /etc/aff7tnconf and restores it after installation.

If a configuration exists in the partition, the ISI 7 tool will start the TNVIP Server 7 automatically after installation.

If there is no configuration in the partition, the ISI 7 tool stops after installation. You must then create a valid configuration before starting TNVIP Server 7 services.
5. Configuration

5.1 GENERAL

TNVIP Server 7 is generally installed in the Open 7 partition:

/users/telnet7

This is the path for TNVIP Server 7 commands.

To configure the TNVIP Server 7, use the following commands:

```
  cd /users/telnet7
  . ./env.tnvip
  tnvip
```

The last command above starts the ‘Bull TNVIP Server Management Facility’, and displays the Main Menu. You need to select the first menu item:

```
Configuration
```

A list of configuration functions is displayed. The first three items on the list are:

- List/Add/Delete/Modify Services
- List/Add/Delete/Modify Resources
- List/Add/Delete/Modify Applications Associations

These three menu items are used to update the configuration files for Services, Resources and Application Associations, as illustrated in the next figure. The concepts of Services, Resources and Application Associations are described in the next paragraph, TNVIP Server 7.

When you configure TNVIP Server 7 using the menus, use F1 to get help on how to complete the fields.
Figure 5-1. Configuration Files

These files are located on the local Open 7 file system:

/users/telnet7/cfg

**NOTE:** To configure the TNVIP Server 7 Client, use the Affinity configurator tool. For more details, see the paragraph TNVIP Server 7 Client later in this chapter.
5.2 TNVIP SERVER 7

5.2.1 Services / Resources / Application Associations

We can consider Services, Resources and Application Associations as three 'objects' which are used to configure the TNVIP Server 7:

- **A SERVICE** is used to define the parameters of a specific TNVIP Server 7. For example:
  - the network type (TCP/IP only),
  - TCP/IP port,
  - the default resource name called if the PC emulation does not indicate the resource to call,
  - keepidle,
  - printer time-out,
  - SSDU sizes for terminal manager,
  - log and trace activation.

- **A RESOURCE** is a connection point, as seen from the PC. It can be defined as one or two APPLICATION ASSOCIATIONS (one for the screen and one for the printer).

- **An APPLICATION ASSOCIATION** is a connection template. It is defined by all the communication parameters necessary to connect a user to the DPS 7000 (User, Password, Billing, Project, TSAP, SSAP, etc.).

**NOTES:**

1. The APPLICATION ASSOCIATION can be accessed with the local dialog on the PC.

2. An APPLICATION ASSOCIATION can be linked to one or more RESOURCES.

3. A RESOURCE can be called by one or more SERVICES.
The on-line help describes the parameters for these three objects (press F1).

The SERVICE is static: the mapper(s) and terminal manager(s) must be restarted after any modification.

RESOURCES and APPLICATION ASSOCIATIONS will be dynamically modified. Any modifications to these files will be immediately usable by the mapper(s) and the terminal manager(s) after the save function is called.

After each "save" configuration operation the old files become "tnvip.xxx_sv":

- tnvip.srv_sv
- tnvip.res_sv
- tnvip.app_sv.

The Administrator can restore the previous configuration by copying these files into the normal files.

5.2.2 Number of Connections

The number of declared connections is not limited and it is possible to start more than one service for performance optimization. The global maximum number of simultaneous connections for all mappers is limited (see your Bull representative).

One socket connection includes 2 DSA connections, one flow for screen emulation and one flow for the printer.

Each service is functionally limited to 46 connections or by the maximum number above. The maximum number of services is 16 TNVIP Server 7s, (each TNVIP Server 7 is one service). For flexibility and availability of the TNVIP Server 7, it may be useful to limit the number of simultaneous connections in each service to 16. For example, you could start 4 services to support 64 simultaneous connections.

5.2.3 Configuration Check

There are two kinds of configuration check:

- fatal errors only,
- additional warning list.

The errors list indicates if an object is not linked. For example:

- an application association not used by any resource file,
- a duplicate object,
- a default resource not configured,

To make a configuration check, from the Main Menu, make the following menu selections:

Configuration, and then
Check Configuration
5.2.4 Automatic Configuration

To call this function, from the Main Menu, make the following menu selections:

Configuration and then Create Automatic Configuration

**WARNING**

This configuration overwrites the current configuration after the call to the save function (see the end of paragraph Services / Resources / Application Associations earlier in this chapter for information about restoring the previous configuration).

In general, automatic configuration is used at the beginning to facilitate configuration. The following diagram describes the procedure:

![Diagram of automatic configuration process]

**Figure 5-3. Automatic Configuration**

The automatic configuration uses two application associations, one for the screen and one for the printer. These two application associations are linked to a unique resource linked with all services. There is one service for TCP/IP. Each SERVICE uses a single resource file (common to all services).

To modify the result of an automatic configuration, refer to the beginning of this chapter.
5.3 TNVIP SERVER 7 CLIENT

To configure the DLL, use the Affinity Configurator defined in the Affinity program group.

Select the TNVIP Server 7 in the Affinity Configurator in the Communication list and then select the terminal type and the communication type in the list box: TNSOCK (for WinSockets TCP/IP)

The on-line help describes all parameters.

5.3.1 TCP/IP Communication

The name of this DLL is TNSOCK in the Affinity configurator. Select it to display the following dialog box:

If you type a name in the first field (Address or Name of the Server), this name must be defined in the "hosts" file or name server of TCP/IP installed on the PC.

The Resource Name is the RESOURCE defined in Open 7. This parameter is optional. If not specified, the TNVIP Server 7 uses the default resource configured in the service called by the PC.

The Buffer Size depends on the GCOS 7 application's message size in the DPS 7000 configuration. The minimum size is 4 kbytes, the maximum size is 50 kbytes (16 kb is recommended).

The Port number is defined in the SERVICE object created on Open 7.
6. Starting

6.1 STARTING THE TNVIP SERVER 7 ON OPEN 7

6.1.1 Starting all TNVIP Server 7 Services

To start TNVIP Server 7 on the Open 7 system, use one of the following:

1. the TNVIP Server Management Facility, Main Menu:

   cd /users/telnet7/bin
   . ./env.tnvip
   tnvip

   chose the menu item

   Start TNVIP Server

2. Command line:

   cd /users/telnet7/bin
   . ./env.tnvip

   rc.tnvip start

NOTE: This procedure starts all Services declared in the configuration in the order that they are found in the configuration table, starting from 0. To selectively start a single Service, see the next paragraph.
6.1.2 Starting a Single TNVIP Server 7 Service

It is possible to selectively start a single Service. This is useful in the case of maintenance or debugging. Use the command:

```
$ cd /users/telnet7/bin
$ ./env.tnvip
tnvipsrvstart <n>       where n = number of Service.
```

The number of a Service is its position in the list in the configuration file. To display the configuration file, use the TNVIP Server Management Facility, Main Menu, and select List/Add/Delete/Modify Services. This displays the List of Services. The number of the Service is its position in the list, starting with 0.

**NOTE:** To use this command the corresponding Service must be stopped.
6.2 STOPPING THE TNVIP SERVER 7 ON OPEN 7

6.2.1 Stopping all TNVIP Server 7 Services

To stop TNVIP Server 7 on the Open 7 system, use the same method:

1. the TNVIP Server Management Facility, Main Menu:
   
   ```
   cd /users/telnet7/bin
   . ./env.tnvip
   tnvip
   
   chose the menu item
   Stop TNVIP Server
   ```

2. command line:

   ```
   cd /users/telnet7/bin
   . ./env.tnvip
   rc.tnvip stop
   ```

   **NOTE:** This procedure stops all Services declared in the configuration and which are currently running. To selectively stop one Service, see the next paragraph.

6.2.2 Stopping a Single TNVIP Server 7 Service

It is possible to selectively stop a single Service. This is a useful utility in case of maintenance or debugging. Use the following command:

```
   cd /users/telnet7/bin
   . ./env.tnvip
   tnvipsrvstop <n>   where n = number of the Service
   ```
6.3 STARTING AND STOPPING WITH TWO DIFFERENT PARTITIONS

Two partitions may have been installed on your server, one for production, and one for check-out. The production partition normally contains a version of the telnet server which has been proven in the local environment. The check-out partition contains a more recent version of telnet server which can be tested under local environmental conditions while the production version continues to run.

To run the check-out version at the same time as the production version, follow the instructions below.

- Copy your old-configuration into the new one:
  
  $ cp /<production_partition>/cfg/* /<check-out_partition>/cfg

- Add a new TNVIP Server 7 Service to the new partition. To do so, start TNVIP Server 7 with:
  
  $ tnvipsrvstart <n> where n = new Service

- Stop TNVIP Server 7 with:
  
  $ tnvipsrvstop <n> where n = new Service

**NOTE:** Do not use the tnvip interactive command, or the rc.tnvip command when the two environments are running simultaneously.

**Example:**

Below is an example of the 'TNVIP Server Management Facility' screen displayed with the two menu choices:

**Configuration**

List/Add/delete/Modify/ Services

<table>
<thead>
<tr>
<th>Network</th>
<th>Port/Name</th>
<th>Lana</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
<td>9009</td>
<td>bc04</td>
<td>tnvip pour iof port 9009</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>9010</td>
<td>bc04</td>
<td>tnvip pour iof port 9010</td>
</tr>
</tbody>
</table>

When you add a new Service (port 9011) you will see:

<table>
<thead>
<tr>
<th>Network</th>
<th>Port/Name</th>
<th>Lana</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
<td>9009</td>
<td>bc04</td>
<td>tnvip pour iof port 9009</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>9010</td>
<td>bc04</td>
<td>tnvip pour iof port 9010</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>9011</td>
<td>bc04</td>
<td>tnvip pour iof port 9011</td>
</tr>
</tbody>
</table>

Now you can start the new Service number 2 (port 9011):
Starting

<tnvip_path>/tnvipsrvstart 2

You **must** stop the Service with:

<tnvip_path>/tnvipsrvstop 2

**Do not** stop the Service with the `rc.tnvip` command or using the menus unless you want to stop all Services in your Open 7 host.
7. Monitoring

7.1 GENERAL INFORMATION

To list the connections used by the TNVIP Server, start the TNVIP SERVER MANAGER FACILITY:

```
cd /tnvip_path
cd bin
tnvip
```

From the Main Menu, choose:

TNVIP Connection Management

The Statistics Menu is displayed. It contains the following items:

1. **Display global statistics**: shows maximum connections, enabled connections, pending connections, closed connections.

2. **Display all active connections**: shows only the active connections, sorted by their internal index.

3. **Display all connections**: shows all the connections being used, whether active or closed.

4. **Display active connections per service**: shows the active connections grouped for each Service.

5. **Display active connections all services sorted**: shows all active connections in one screen sorted by Service.

For items 2, 3, 4, and 5 in the above list, you can do the following:

- **zoom** on a connection to see all its parameters. To do so, select a line and then press the <ENTER> key. (See next page for an example)

- **stop** a connection. Press the < - > key on the selected connection. The connection is stopped and a message confirms disconnection from the PC.

The **on-line help** describes all parameters of these windows.
Example of zoom on a connection:

<table>
<thead>
<tr>
<th>State</th>
<th>Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td></td>
</tr>
<tr>
<td>PC name</td>
<td>PC1</td>
</tr>
<tr>
<td>Network type</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>Port/Name</td>
<td>7323</td>
</tr>
<tr>
<td>[lananum]</td>
<td></td>
</tr>
<tr>
<td>Resource name</td>
<td>dupond</td>
</tr>
<tr>
<td>Date/Hour of the last or current connection</td>
<td>02/28/95 11:32:34</td>
</tr>
<tr>
<td>Date/Hour of the last disconnection</td>
<td>01/01/70 00:00:00</td>
</tr>
<tr>
<td>Number of messages sent to the host</td>
<td>0</td>
</tr>
<tr>
<td>Number of messages sent to the workstation</td>
<td>1</td>
</tr>
<tr>
<td>Number of bytes sent to the host</td>
<td>1680</td>
</tr>
<tr>
<td>Number of bytes sent to the workstation</td>
<td></td>
</tr>
<tr>
<td>Screen Application Association</td>
<td>APP1</td>
</tr>
<tr>
<td>Printer Application Association</td>
<td>APP2</td>
</tr>
<tr>
<td>Screen error</td>
<td>0x0</td>
</tr>
<tr>
<td>Printer error</td>
<td>0x0</td>
</tr>
</tbody>
</table>


7.2 FOR THE EXPERT

The command:

```bash
/<tnvip_path>/bin/tnvip -tr
```

enables a trace if you wish to debug the "tnvip" command. The trace file is stored in

```bash
/<tnvip_path>/log/tnvip.tra
```

```bash
/<tnvip_path>/bin/tnvipdump
```

Lists the connections used by TNVIP Server 7 in the Open 7 shell environment. This command lists all connections (whether active or not) in the TNVIP Server 7 mapper, and counts the connections. It is very easy to create an application to scrutinize all errors, for example, with the associated Open 7 command "cut".

```bash
/<tnvip_path>/bin/tnvipcnx
```

This command lists all connections (whether active or not) in the TNVIP Server 7 mapper, and counts the connections per service. This command is a shell script using `tnvipdump`.

```bash
/<tnvip_path>/bin/tnvipscan
```

This command lists all connections (whether active or not) in the TNVIP Server 7 mapper, and displays error counts. This command is a shell script using `tnvipdump`.

```bash
/<tnvip_path>/bin/tnvipsupport
```

This command is an application reserved for your support representative.
/tnvip_path/bin/tnvipmod

This command performs global “search and replace” of some parameters in a configuration file. For example you can replace a given Remote TSAP by a new one for all entries in the file. The following options are available:

<table>
<thead>
<tr>
<th>Option</th>
<th>Changed parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>-r &lt;oldvalue&gt; &lt;newvalue&gt;</td>
<td>Security</td>
</tr>
<tr>
<td>-t &lt;oldvalue&gt; &lt;newvalue&gt;</td>
<td>Local TSAP</td>
</tr>
<tr>
<td>-T &lt;oldvalue&gt; &lt;newvalue&gt;</td>
<td>Remote TSAP</td>
</tr>
<tr>
<td>-s &lt;oldvalue&gt; &lt;newvalue&gt;</td>
<td>Local SSAP</td>
</tr>
<tr>
<td>-S &lt;oldvalue&gt; &lt;newvalue&gt;</td>
<td>Remote SSAP</td>
</tr>
</tbody>
</table>

/tnvip_path/bin/tnvipboot Delay

This command allows you to specify a delay (in minutes) before stopping the server. Every 30 seconds the users are warned by a message on the 25th line indicating the remaining time before the emulators will stop.

/tnvip_path/bin/tnvipsrvstop ServiceNum
/tnvip_path/bin/tnvipsrvstart ServiceNum

These two commands are used to stop or restart the requested service.

/tnvip_path/bin/tnvipmail Opt -m"message"

This command allows you to send a message to the 25th line of the emulator for all the users or to the selected users according to Opt:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-s</td>
<td>sets the silent mode</td>
</tr>
<tr>
<td>-n(service name)</td>
<td>Specifies the TCP port. The message is sent only to the users of the specified service.</td>
</tr>
<tr>
<td>-p(PC name)</td>
<td>Specifies the PC name (TCP). The message is sent only to the corresponding PCs whatever the service used.</td>
</tr>
<tr>
<td>-m&lt;message&gt;</td>
<td>message to transmit to the PCs</td>
</tr>
</tbody>
</table>
8. Maintenance and Debugging

To display log and trace files used by the TNVIP Server7, start the TNVIP SERVER MANAGER FACILITY:

```
cd /<tnvip_path>/bin
tnip
```

then choose the menu item:

Display Log and Trace files

In the menu which is displayed, you can select the following commands:

View the mapper Trace file
Scan the mapper Trace file
List the Log file
View the Log file
Scan the Log file
List the terminal manager Trace file
View the terminal manager Trace file
Scan the terminal manager Trace file
8.1 LOG FILES

Log files are written by each service (or mapper); there is one log file per service. Each log file is limited to 10,000 lines; when this limit is exceeded, the log file is copied to a file with the suffix -old.

To disable the log file, change the value of the flag defined in the configuration of the service (Log=Y -> Log=N). By default, the log file is enabled.

There is one log file for the mapper (tnvipd) and one log file for the terminal manager (tnviptmd).

They will be created with the paths:

/<tnvip_path/log/Tnnnn0.log
where nnnn is the port number (this file is for the mapper process, tnvipd)

/<tnvip_path/log/Tnnnn0.logtm
where nnnn is the port number (this file is for the terminal manager, tnviptmd)

The following information is written to the log file:

- new connection details,
- disconnection details,
- errors.

Example of a log file:

Date / Time = 09/29/95 12:59:04
New TELNET SERVER7 connection resource name = dupond.
   PC name = 129.182.158.230, port/name = 7323.

Date / Time = 09/29/95 12:59:09
Close connection resource name = dupond, for user = , on the Application Association = dupondS.
   PC name = 129.182.158.230, port/name = 7323.
   ---> Nb messages from hosts = 1.
   ---> Nb messages from pc = 0.
   ---> Nb bytes from hosts = 403.
   ---> Nb bytes from pc = 0.
8.2 TRACE FILES

Trace files are written by each mapper and by each terminal manager; there is one trace file per service. Each trace file is limited to 10,000 lines; when this limit is exceeded, the trace file is copied to a file with the suffix `-old`.

To enable the trace file, change the value of the flag defined in the configuration of the service (`Trace=N -> Trace=Y`). By default, the trace file is disabled.

If a problem is identified and can be easily reproduced, do not stop all services running on the Open 7 server. To trace the problem, proceed as follows:

1. Create a new service with the trace file in the TNVIP Server 7 configurator.
2. Start the TNVIP Server 7. Only the new mapper and terminal manager are started.
3. Configure the PC for the test with the new name of the service (or new port for TCP).
4. Start the emulation on the PC and reproduce the problem.
5. Open the mapper trace file using the TNVIP SERVER MANAGER FACILITY on the Open 7 system. From the Main Menu select:
   - Display Log and Trace files
   - Select the new service and press return.
   - View the TNVIP Server 7 Mapper trace file
   - This menu option opens a `vi` session to view the mapper trace file.
   - Or you can use another editor and read the file:
     ```
     /<tnvip_path>/log/Tnnnn0.tra  where nnnn is the port number
     ```
6. Save the trace file with the following `vi` command:
   ```
   :w /tmp/trace
   ```
7. Quit the editor using the following `vi` command:
   ```
   :q!
   ```
8. Open the terminal manager trace file using the TNVIP SERVER MANAGER FACILITY. From the Main Menu select:
   - Display Log and Trace files and then select
   - View the Terminal Manager trace file
9. Save the trace file with the following `vi` command:
   ```
   :w /tmp/tracetm
   ```
10. Quit the file with:

    :q!

11. Exit the TNVIP SERVER MANAGER FACILITY.

12. At the Open 7 prompt, do one of the following

    - copy the trace file to an SLLIB and send it to support,
    - FTP the trace file to your PC diskette drive and send it to support.
A. Configuration Process

A.1 GENERAL PROCESS

This figure presents the different steps for configuring Affinity TNVIP Server 7 and communication environments.
B. Error Codes

B.1 POSSIBLE VALUES FOR WINSOCKETS ON THE PC

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10004</td>
<td>The blocking call was cancelled</td>
</tr>
<tr>
<td>10014</td>
<td>An argument is incorrect</td>
</tr>
<tr>
<td>10022</td>
<td>The socket is not already bound to an address</td>
</tr>
<tr>
<td>10024</td>
<td>No more file descriptors are available</td>
</tr>
<tr>
<td>10035</td>
<td>The socket is marked as non-blocking and the requested operation cannot be completed immediately</td>
</tr>
<tr>
<td>10036</td>
<td>A blocking Windows Sockets operation is in progress</td>
</tr>
<tr>
<td>10038</td>
<td>The descriptor is not a socket</td>
</tr>
<tr>
<td>10039</td>
<td>A destination address is required</td>
</tr>
<tr>
<td>10041</td>
<td>The specified protocol is a wrong type for this socket</td>
</tr>
<tr>
<td>10043</td>
<td>The specified protocol is not supported</td>
</tr>
<tr>
<td>10044</td>
<td>The specified socket type is not supported in this address family</td>
</tr>
<tr>
<td>10047</td>
<td>The specified address family is not supported</td>
</tr>
<tr>
<td>10048</td>
<td>The specified address is already in use</td>
</tr>
<tr>
<td>10049</td>
<td>The specified address is not available from the local machine</td>
</tr>
<tr>
<td>10050</td>
<td>The Windows Sockets implementation has detected that the network subsystem has failed</td>
</tr>
<tr>
<td>10051</td>
<td>The network cannot be reached from this host at this time</td>
</tr>
<tr>
<td>10052</td>
<td>The connection must be reset because the Windows Sockets implementation dropped it</td>
</tr>
<tr>
<td>Code</td>
<td>Message</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10053</td>
<td>The virtual circuit was aborted due to timeout or other failure</td>
</tr>
<tr>
<td>10054</td>
<td>The virtual circuit was reset from the remote end</td>
</tr>
<tr>
<td>10055</td>
<td>No buffer space is available</td>
</tr>
<tr>
<td>10056</td>
<td>The socket is already connected</td>
</tr>
<tr>
<td>10057</td>
<td>The socket is not connected</td>
</tr>
<tr>
<td>10058</td>
<td>The socket has been shut down</td>
</tr>
<tr>
<td>10060</td>
<td>Connection timeout without establishing a connection</td>
</tr>
<tr>
<td>10061</td>
<td>Forced rejection of connection attempt</td>
</tr>
<tr>
<td>10091</td>
<td>The underlying network subsystem is not ready for network communication</td>
</tr>
<tr>
<td>10092</td>
<td>The version of Windows Sockets API support requested is not provided by this particular Windows Sockets implementation</td>
</tr>
<tr>
<td>10093</td>
<td>Bad initialisation</td>
</tr>
</tbody>
</table>
B.2 MESSAGES DISPLAYED ON THE PC

**Bad Compatibility flag**: Open 7 configuration error; check the Open 7 configuration in the Open 7 configurator and re-save the configuration.

**Bad host type**: Internal error; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**Bad terminal type**: Open 7 configuration error; check the Open 7 configuration in the Open 7 configurator and re-save the configuration.

**Bad total data size**: Internal error.

**Buffer is full**: Buffer too small for reception of all frames from the Open 7 server (see the field `Reception Buffer Size` in the configuration of this communication).

**Buffer too small**: Buffer too small for reception of the current frame (see the field `Reception Buffer Size` in the configuration of this communication).

**Canceled open**: Open connection canceled (the connection is canceled by the user on PC).

**Cnx stopped from Unix**: The Open 7 administrator has stopped this connection with the TNVIP Server 7 Manager Facility (TNVIP Server 7 Connection Management menu).

**Connection closed**: Connection closed normally by the TNVIP Server7.

**Duplicate frame**: Protocol error between the PC and the Open 7 server; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**End of Read**: Unexpected end of reception; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**Gateway is stopped**: The TNVIP Server 7 service or the whole TNVIP Server7 is stopped (commands "rc.tnvip stop" or tnvipsrvstop or by using the configurator)
Internal error (see the TNVIP Server7 MANAGER on the Open7 system): This is a protocol error between the PC and the Open 7 server; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

Internal error (see the TNVIP Server7 MANAGER on the Open7 system): This is a protocol error between the PC and the Open 7 server; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

Invalid frame when connecting: Invalid connection, the connection is aborted by the Open 7 server.

Maximum connection: The max number of connections has been exceeded in the TNVIP Server7. Change this value in the `/usr/lpp/tnvip/bin/rc.tnvip` script by modifying the MAX CONNECTIONS parameters by a higher value (by default this value is 64 connections for all TNVIP Server7s).

No buffer size: Enter a buffer size (minimum = 2060, maximum = 8204).

No lana number: Enter a Lana number (depends on your PC configuration).

No port number: Enter a port number (refer to the administration application on the Open 7 server).

No printer connection: It is not possible to connect the on-line printer.

No resource name: Enter a resource name (refer to the administration application on the Open 7 server).

No service name: You must enter a service name (e.g. a TCP name).

Not available: This is a protocol error between the PC and the Open 7 server; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

Not enough memory: Not enough memory (PC configuration).

Not unix memory free: Not enough memory on the Open 7 server.

Printer not configured: There is no printer declared.

Printer not operational: impossible to connect the on-line printer to the network (OSI refusal)

Printer type error: Open 7 configuration error; check the Open 7 configuration in the Open 7 configurator and re-save the configuration.

Printing on-line running: Thus it is not possible to perform a hard-copy printing during this on-line printing. Wait for the end of the on-line printing then retry.
Error Codes

**Resource not found:** The name of this resource is not defined in the resource menu configuration.

**Resource not shared:** Open 7 configuration error; check the Open 7 configuration in the Open 7 configurator and re-save the configuration.

**Screen type error:** Open 7 configuration error; check the Open 7 configuration in the Open 7 configurator and re-save the configuration.

**Service name too long:** Enter a service name of correct length.

**Session time out** *(keepidle):* The connection is stopped by the TNVIP Server 7 after a certain period of inactivity. If the value is too short, change the value or suppress this timer in the TNVIP Server 7 configurator.

**Station operational:** For a resource with the option "Local dialog display compatibility" set to Yes, this message indicates that the station is ready to issue the SHIFT F10 command (or the Session/Local dialog menu command) in order to receive the Local Dialog screen.

**Unexpected Frame:** Internal, unknown frame; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**Unexpected length of frame:** Internal; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**Unknown TNVIP Server 7 function:** Internal error (Front end and back end not compatible); check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.

**Violation protocol:** This is a protocol error between the PC and the Open 7 server; check the version of the mapper on the Open 7 system and the versions of the dll on the PC using the `what` command.
B.3 DSA AND OTHER PC ERRORS

See the appropriate documentation. For DSA, see OSI/DSA Network System Messages and Return Codes.

For other PC errors: select the "Error codes" option in the pull-down Help menu on the PC.
Glossary

This glossary defines the terms and acronyms used in this manual. For additional information on any of the glossary items or any other terms used, see the manuals referenced in the Preface.

DLL

Dynamic link library: this is the type of module called by the Affinity kernel to dialog with the Unix server.

Frame

A unit of transmission in the network. A frame includes delimiters, control characters, information, and checking characters.

Gateway

A device that allows the exchange of information between dissimilar systems that require some type of protocol conversion.

Host

A DPS 7000.

Keepidle

Time out of inactivity.

LAN

Local Area Network. Defines all links between a PC and a TNVIP Server 7 server; in general it is either Ethernet or FDDI.

Microfit

File transfer between the Bull mainframe and the PC. This software uses an emulation connection to transfer the files.
Resource

An object linked to one or two Application Associations.

Server

A pair of mapper and terminal manager daemons started on a TCP port.

Service

A configured server.

Session

The means of communication over a logical connection in an OSI/DSA network.

SSAP

Session Service Access Point, (which corresponds to a DSA mailbox).

SSDU

Size of the frames at the session level negotiated between two SSAPs.

status line

The 25th line on the screen, containing the operating and status information.

TCP/IP

Transmission Control Protocol / on IP.  Transport of the IP frames (Internet frames).

TNVIP

TELNET VIP: protocol used, in general, to access the Bull mainframe from a PC.

TNVIP Server 7 Mapper

A daemon on the Open 7 server which waits on TCP/IP and calls the Terminal Manager.

TNVIP Server 7

The product on Open 7 which manages the TNVIP Server 7 protocol.

TSAP

Transport Service Access Point (which corresponds to a DSA node).
Glossary

**UVCI**

Unified Virtual Communication Interface: interface between the Affinity kernel and the TNVIP SERVER7 DLL for example.

**UVPI**

Unified Virtual Presentation Interface: interface between the Affinity kernel and the 7107 DLL for example.

**UVTI**

Unified Virtual Terminal Interface: programmer's interface with the emulators for Bull mainframes.

**WAN**

Wide Area Network.

**Winsockets**

Interface on the PC mainly used to access the transport TCP/IP.
Technical publication remarks form

Title: DPS7000/XTA NOVASCALE 7000 TNVIP Server 7 Administrator’s Guide
Operating System: Administration

Reference No.: 47 A2 36UT 00
Date: January 1997

ERRORS IN PUBLICATION

SUGGESTIONS FOR IMPROVEMENT TO PUBLICATION

Your comments will be promptly investigated by qualified technical personnel and action will be taken as required. If you require a written reply, please include your complete mailing address below.

NAME: ___________________________ Date: __________
COMPANY: _______________________
ADDRESS: _______________________

Please give this technical publication remarks form to your BULL representative or mail to:

Bull - Documentation Dept.
1 Rue de Provence
BP 208
38432 ECHIROLLES CEDEX
FRANCE
info@frec.bull.fr
Technical publications ordering form

To order additional publications, please fill in a copy of this form and send it via mail to:

BULL CEDOC
357 AVENUE PATON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

<table>
<thead>
<tr>
<th>CEDOC Reference #</th>
<th>Designation</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

( _ _ ) : The latest revision will be provided if no revision number is given.

NAME: _______________________________ Date: __________
COMPANY: ________________________________
ADDRESS: ________________________________

PHONE: ____________________ FAX: ____________________
E-MAIL: ________________________________

For Bull Subsidiaries:
Identification: ________________________________

For Bull Affiliated Customers:
Customer Code: ________________________________

For Bull Internal Customers:
Budgetary Section: ________________________________

For Others: Please ask your Bull representative.
BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

REFERENCE
47 A2 36UT 00