

# **Oracle Procedural Gateway® for APPC**

Installation and Configuration Guide

10g Release 1 (10.1) for Microsoft Windows

**Part No. B13694-01**

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Oracle Procedural Gateway for APPC Installation and Configuration Guide, 10g Release 1 (10.1) for Microsoft Windows

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Primary Author: Platform Technologies Division

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## **Oracle Procedural Gateway for APPC Installation and Configuration Guide, 10g Release 1 (10.1) for Microsoft Windows**

**Part No. B13694-01**

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# Preface

The Oracle Procedural Gateway for APPC provides Oracle applications with seamless access to IBM mainframe data and services through Remote Procedure Call (RPC) processing.

Refer to the *Oracle Database Installation Guide 10g Release 1 (10.1)* for Microsoft Windows and to the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site can be found at:

<http://metalink.oracle.com>

## Intended Audience

Read this guide if you are responsible for tasks such as:

- determining hardware and software requirements
- installing, configuring, or administering an Oracle Procedural Gateway for APPC
- developing applications that access remote host databases through the gateway using either the SNA communication protocol or the TCP/IP for IMS Connect communication protocol.
- determining security requirements
- determining and resolving problems

Before using this guide to administer the gateway, you should understand the fundamentals of the Windows operating system, SNA Server, the Procedural Gateways, PL/SQL and the Oracle Integrating Server.

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## Related Documents

The *Oracle Procedural Gateway for APPC Installation and Configuration Guide for Microsoft Windows* is included as part of your product shipment. Also included is:

- *Oracle Procedural Gateway for APPC Messages Guide for UNIX and Microsoft Windows*
- *Oracle Procedural Gateway for APPC User's Guide for Microsoft Windows*

You might also need Oracle server and Oracle Net documentation. The following is a useful list of the Oracle publications that may be referenced in this book:

- *Oracle Database Installation Guide 10g Release 1 (10.1) for Microsoft Windows*
- *Oracle Database Administrator's Guide 10g Release 1 (10.1) for Microsoft Windows*
- *Oracle Database Application Developer's Guide*
- *Oracle Database Concepts*
- *Oracle Database Server Distributed Systems*
- *Oracle Database Error Messages*
- *Oracle Net Services Administrator's Guide*

Other related publications are listed in "[Documentation Requirements](#)" on page 3-4. Refer to the *Oracle Technical Publications Catalog and Price Guide* for a complete list of documentation provided for Oracle products.

## Conventions

Examples of input and output for the gateway and Oracle environment are shown in a special font:

```
C:\> mkdir \ORACLE\your_name
```

All output is shown as it appears. For input, the list of conventions and their meanings are as follows:

- **example text:** Words or phrases, such as `mkdir` and `ORACLE`, must be entered exactly as spelled and in the letter case shown. In this example, `mkdir` must be entered in lowercase letters and `ORACLE` in uppercase letters.
- **italic text:** Italicized uppercase or lowercase, such as *your\_name*, indicates that you must substitute a word or phrase, such as the actual directory name.
- **BOLD text or bold italic TEXT:** Bold words or phrases refer to a file or directory structure, such as a directory, path, or file ID.

- ... : Ellipses indicate that the preceding item can be repeated. You can enter an arbitrary number of similar items.
- {}: Curly braces indicate that one of the enclosed arguments is required. Do not enter the braces themselves.
- |: Vertical lines separate choices.
- []: Square brackets enclose optional clauses from which you can choose one or none. Do not enter the brackets themselves.

Other punctuation, such as commas, quotation marks or the pipe symbol (|) must be entered as shown unless otherwise specified. Directory names, file IDs and so on appear in the required letter case in examples. The same convention is used when these names appear in text, and the names are highlighted in **bold**. The use of *italics* indicates that those portions of a file ID that appear in *italics* can vary.

Gateway commands, file IDs reserved words, MS-DOS commands, keywords and environment variables appear in uppercase in examples and text. Reserved words must always be entered as shown; they have reserved meanings within the Oracle system.

### SQL\*Plus Prompts

The SQL\*Plus prompt, `SQL>`, appears in SQL statement and SQL\*Plus command examples. Enter your response at the prompt. Do not enter the text of the prompt, `SQL>`, in your response.

### MS-DOS Prompts

The MS-DOS prompt, `C:\>`, appears in MS-DOS command examples. Enter your response at the prompt. Do not enter the text of the prompt, `C:\>`, in your response.

### PGAU Prompts

The PGAU prompt, `PGAU>`, appears in PGAU command examples. Enter your response at the prompt. Do not enter the text of the prompt, `PGAU>`, in your response.

### Directory Names

Throughout this document, there are references to the directories in which product-related files reside. `%ORACLE_HOME%` is used to represent the Oracle home directory. This is the default location for Oracle products. If you have installed into a location other than `%ORACLE_HOME%`, replace all references to `%ORACLE_HOME%` with the drive and path specification you have used.

### Storage Measurements

Storage measurements use the following abbreviations:

- K, for kilobyte which equals 1024 bytes
- M, for megabyte which equals 1 048 576 bytes
- G, for gigabyte which equals 1 073 741 824 bytes

# Accessing Installed Documentation

## Documentation for Oracle Procedural Gateway for APPC for Windows

Documentation for this product includes this guide and the *Oracle Procedural Gateway for APPC User's Guide, 10g Release 1 (10.1) Microsoft Windows* and the *Oracle Procedural Gateway for APPC Messages Guide, 10g Release 1 (10.1) for UNIX and Microsoft Windows*.

To access the documentation in HTML and PDF formats, use a browser to open the top level of the Gateway Documentation CD-ROM. This level contains links to product and Windows-specific documentation.

## Oracle Product Documentation

Oracle product documentation is on the Oracle Database Generic Documentation CD-ROM. Instructions for accessing and installing the documents on the CD-ROM are found in the README file on the top level directory of the CD-ROM.

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Logon to OracleMetaLink before installing or administering your product to search for up to date information about Oracle Database for Microsoft Windows.

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# Introduction to Oracle Procedural Gateway for APPC

The Oracle Procedural Gateway for APPC (the "gateway") enables users to initiate transaction program execution on remote online transaction processors (OLTPs). The Oracle Procedural Gateway for APPC can establish connection with OLTP using the SNA communication protocol. The gateway can also use TCP/IP for IMS Connect to establish communication with the OLTP through TCP/IP. The gateway provides Oracle applications with seamless access to IBM mainframe data and services through Remote Procedural Call (RPC) processing. The gateway can access any application capable of using the CPI-C API either directly or through a TP monitor such as CICS.

This chapter discusses the architecture, uses and features of the gateway. It contains the following sections:

- ["Overview of the Gateway"](#) on page 1-2
- ["Features of the Gateway"](#) on page 1-3
- ["Terms"](#) on page 1-5
- ["Architecture of the Gateway"](#) on page 1-7
- ["Implementation of the Gateway"](#) on page 1-9
- ["Communication With the Gateway"](#) on page 1-9
- ["Remote Procedural Call Functions"](#) on page 1-10
- ["Transaction Types for Gateway Using SNA"](#) on page 1-11
- ["Transaction Types for Gateway Using TCP/IP"](#) on page 1-12

## 1.1 Overview of the Gateway

The Oracle Procedural Gateway for APPC extends the Remote Procedural Call (RPC) facilities available with the Oracle server. The gateway enables any client application to use PL/SQL to request execution of a remote transaction program (RTP) residing on a host. The gateway provides RPC processing to systems using the SNA APPC (Advanced Program-to-Program Communication) protocol and to systems using TCP/IP for IMS Connect protocol. This architecture allows efficient access to data and transactions available on the IBM mainframe and IMS, respectively.

The gateway requires no Oracle software on the remote host system. Thus, the gateway uses existing transactions with little or no programming effort on the remote host.

- ❑ **For gateways using SNA only:** The use of a generic and standard protocol, APPC, allows the gateway to access a multitude of systems. The gateway can communicate with virtually any APPC-enabled system, including IBM Corporation's CICS on any platform, IBM Corporation's IMS and APPC/MVS, and Computer Associates' IDMS. These transaction monitors provide access to a broad range of systems, allowing the gateway to access many datastores, including VSAM, DB2 (static SQL), IMS, IDMS, ADABAS and others.

The gateway can access any application capable of using the CPI-C API either directly or through a TP monitor such as CICS.

## 1.2 Features of the Gateway

The Oracle Procedural Gateway for APPC provides the following benefits:

- TCP/IP support for IMS Connect

This release of the gateway includes TCP/IP support for IMS Connect, giving users a choice of whether to use the SNA or TCP/IP communication protocol. IMS Connect is an IBM product which allows TCP/IP clients to trigger execution of IMS transactions. The gateway can use a TCP/IP communication protocol to access IMS Connect, which triggers execution of IMS transactions. If you choose to use TCP/IP, there is no SNA involvement with this configuration. Related to this new feature of the gateway is:

- The pg4tcpmap tool. This release of the gateway includes a new tool whose purpose is to map the information from your Side Profile Name to TCP/IP and IMS Connect. You may turn on a trace for this tool as well. For more information about the gateway mapping tool, refer to Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide*, and to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) in this guide.

- Fast interface

The gateway is optimized so that remote execution of a program is achieved with minimum network traffic. The interface to the gateway is an optimized PL/SQL stored procedure specification (called the "TIP" or "transaction interface package") precompiled in the Oracle Integrating Server. Because there are no additional software layers on the remote host system, overhead occurs only when your program executes.

- Location transparency

Client applications need not be operating system-specific. For example, your application can call a program on a CICS Transaction Server for z/OS. If you move the program to a CICS region on pSeries, then you need not change the application.

- Application transparency

Users calling applications that execute a remote transaction program are unaware that a request is sent to a host.

- Flexible interface

You can use the gateway to interface with existing procedural logic or to integrate new procedural logic into an Oracle Integrating Server environment.

- Oracle server integration

The integration of the Oracle server with the gateway enables the gateway to benefit from existing and future Oracle features. For example, the gateway can be called from an Oracle stored procedure or database trigger.

- Transactional support

The gateway and the Oracle Integrating Server allow remote transfer updates and Oracle server updates to be performed in a coordinated fashion.

- Wide selection of tools

The gateway supports any tool or application that supports PL/SQL.

- PL/SQL code generator

The Oracle Procedural Gateway for APPC provides a powerful development environment, including:

- a data dictionary to store information relevant to the remote transaction
- a tool to generate the PL/SQL Transaction Interface Package, or TIP
- a report utility to view the information stored in the gateway dictionary
- a complete set of tracing and debugging facilities
- a wide set of samples to demonstrate the use of the product against datastores such as DB2, IMS, IDMS, CICS, and ADABAS

- Site autonomy and security

The gateway provides site autonomy, allowing you to do such things as authenticate users. It also provides role-based security compatible with any security package running on your mainframe computer.

- Automatic conversion

Through the TIP, the following conversions are performed:

- ASCII to and from EBCDIC
- remote transaction program datatypes to and from PL/SQL datatypes
- national language support for many languages

## 1.3 Terms

The following terms and definitions are used throughout this guide. Refer to [Appendix C, "Gateway Terminology"](#) for a more complete list of terms and definitions pertaining to the gateway, its components and functions.

### **Oracle Integrating Server**

This is any Oracle server instance that communicates with the gateway for purposes of performing remote procedural calls to execute remote transaction programs (RTP). The Oracle Integrating Server can be on the same system as the gateway or on a different system. If it is on a different system, then Oracle Net is required on both systems. Refer to [Figure 1-2, "Gateway Architecture"](#) for a view of the gateway architecture.

### **OLTP (Online Transaction Processor)**

OLTP is any of a number of online transaction processors available from other vendors, including CICS Transaction Server for z/OS, IMS/TM, z/OS and IDMS-DC.

### **PGAU (Procedural Gateway Administration Utility)**

PGAU is the tool that is used to define and generate PL/SQL transaction interface packages (TIPs). Refer to Chapter 2, "Procedural Gateway Administration Utility" in the *Oracle Procedural Gateway for APPC User's Guide* for more information about PGAU.

### **PG DD (Data Dictionary)**

This component of the gateway is a repository of remote host transaction definitions and data definitions. PGAU accesses definitions in the PG DD when generating TIPs. The PG DD has datatype dependencies because it supports the PGAU and is not intended to be directly accessed by the customer. Refer to Appendix A, "Procedural Gateway for APPC Data Dictionary" in the *Oracle Procedural Gateway for APPC User's Guide* for a list of PG DD tables.

### **RPC (Remote Procedural Call)**

RPC is a programming call that executes program logic on one system in response to a request from another system. Refer to ["Gateway Term Definitions"](#) on page C-2 for more information, and refer to Appendix C, "Gateway RPC Interface" in the *Oracle Procedural Gateway for APPC User's Guide* as well.

### **RTP (Remote Transaction Program)**

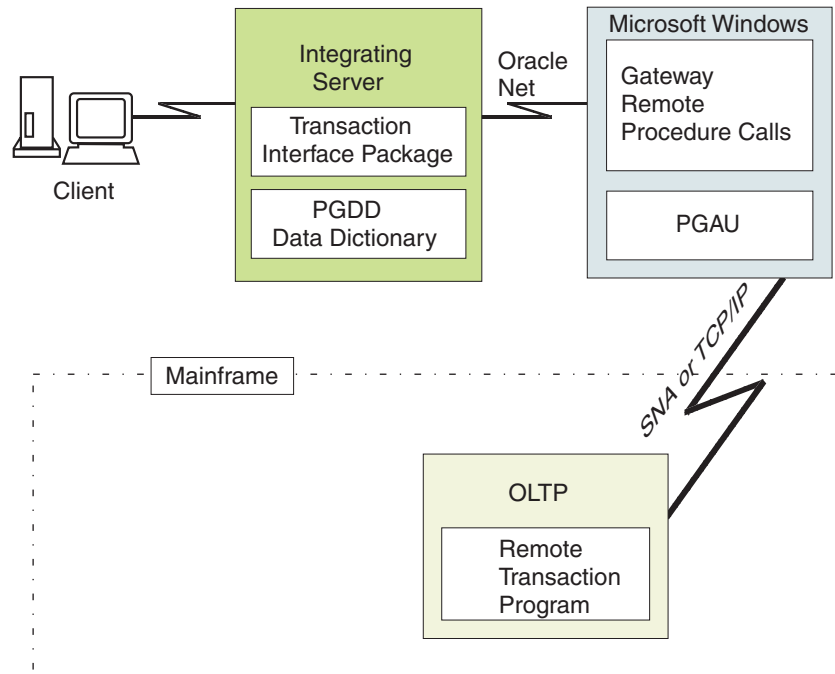
A remote transaction program is a customer-written transaction, running under the control of an OLTP, which the user invokes remotely using a PL/SQL procedure. To execute a remote transaction program through the gateway, you must use RPC to execute a PL/SQL program to call the gateway functions.

### **TIP (Transaction Interface Package)**

A TIP is an Oracle PL/SQL package that exists between your application and the remote transaction program. The transaction interface package, or TIP, is a set of PL/SQL stored procedures that invoke the remote transaction program through the gateway. TIPs perform the conversion and reformatting of remote host data using PL/SQL and UTL\_RAW/UTL\_PG functions.

Figure 1-1, "Relationship of Gateway and Oracle Integrating Server on Windows" illustrates where the terminology discussed in the preceding sections apply within the gateway's architecture.

**Figure 1-1 Relationship of Gateway and Oracle Integrating Server on Windows**



## 1.4 Architecture of the Gateway

The architecture of Oracle Procedural Gateway for APPC consists of several components:

1. Oracle Integrating Server

The Oracle Integrating Server is usually installed on the same system as Oracle Procedural Gateway for APPC.

If you install the Oracle Integrating Server on a system other than the system on which the gateway is installed, then you must install Oracle Net with the Oracle Integrating Server and with the gateway. The Oracle Integrating Server must be capable of connecting to the gateway through any supported Oracle Net protocol.

Refer to "[Product Set](#)" on page 2-2 for a list of Oracle Net protocols currently supported by the gateway and tools.

The Oracle Integrating Server can also be used for non-gateway applications.

2. The gateway

Oracle Procedural Gateway for APPC must be installed on a server that can run the required version of the operating system.

3. An OLTP (online transaction processor)

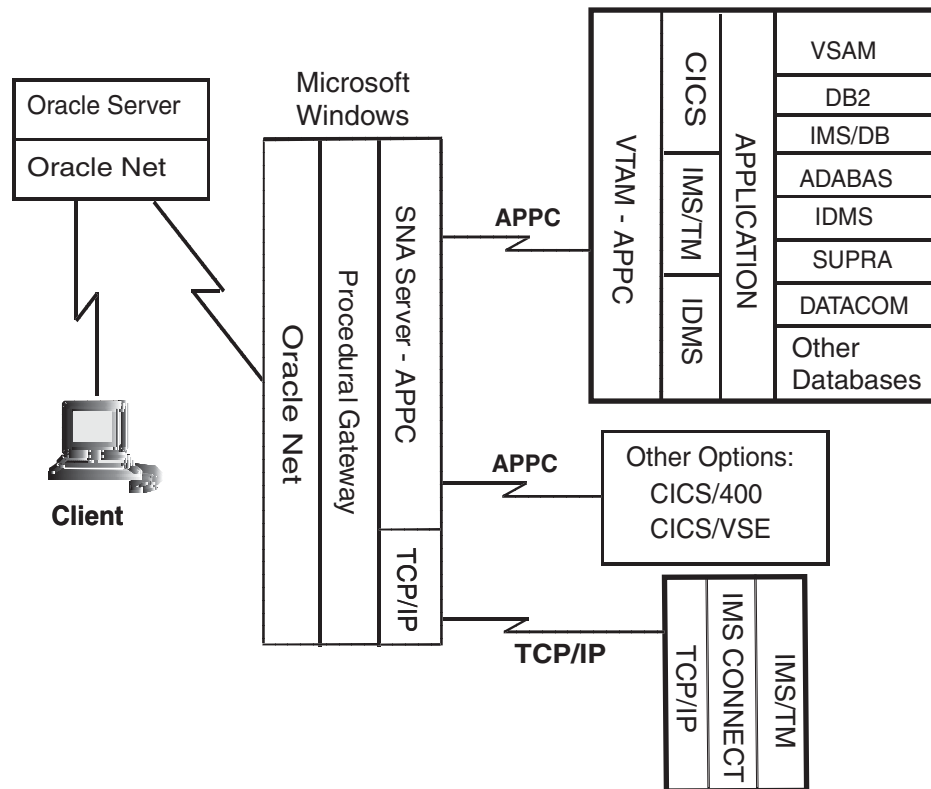
The OLTP must be accessible from the gateway using your SNA or TCP/IP communication protocol. Multiple Oracle Integrating Servers can access the same gateway. A single system gateway installation can be configured to access more than one OLTP.

- **For a gateway using TCP/IP support for IMS Connect:** The only OLTP that is supported through TCP/IP is IMS through IMS Connect.

The OLTP must be accessible to the system using the TCP/IP protocol. Multiple Oracle Integrating Servers can access the same gateway. A single system gateway installation can be configured to access more than one OLTP. Multiple IMS can be accessed from an IMS Connect. If you have a number of IMS Connect systems available, any of these may be connected to one or more IMS systems.

Figure 1–2 illustrates the architecture of Oracle Procedural Gateway for APPC using either SNA or TCP/IP, as described in the preceding section.

**Figure 1–2 Gateway Architecture**





## 1.5 Implementation of the Gateway

The basic structure of the gateway is the same whether your communications protocol is SNA or TCP/IP support for IMS Connect. The gateway has some of the same components as an Oracle database instance on Microsoft Windows. It has the following components:

- a home directory, similar to the one associated with an Oracle instance's ORACLE\_HOME environment variable;
- a system identifier, identified as *sid* or ORACLE\_SID;
- an initialization parameter file, similar to the Oracle Integrating Server's **initsid.ora** file.

The gateway does not have:

- control, redo log, or database files;
- the full set of subdirectories and ancillary files associated with an installed Oracle server.

Because the gateway has no background processes and does not need a management utility such as Oracle Enterprise Manager, you do not need to start the gateway product. Each Oracle Integrating Server user session that accesses a particular gateway creates an independent process on Windows which in turn runs the gateway server and executes either the SNA or TCP/IP functions to communicate with an OLTP.

## 1.6 Communication With the Gateway

All of the communication between the user or client program and the gateway is handled through a transaction interface package (TIP) which executes on an Oracle Integrating Server. The TIP is a standard PL/SQL package that provides the following functions:

- declares the PL/SQL variables that can be exchanged with a remote transaction program;
- calls the gateway packages that handle the communications for starting the conversation, exchanging data and terminating the conversation;
- handles all datatype conversions between PL/SQL datatypes and the target program datatypes.

The Procedural Gateway Administration Utility (PGAU), provided with the gateway, automatically generates the TIP specification.

The gateway is identified to the Oracle Integrating Server using a database link. The database link is the same construct used to identify other Oracle server databases. The functions in the gateway are referenced in PL/SQL as:

*function\_name@dblink\_name*

## 1.7 Remote Procedural Call Functions

The Oracle Procedural Gateway for APPC provides a set of functions that are invoked by the client through remote procedural call (RPC). These functions direct the gateway to initiate, transfer data with, and terminate remote transaction programs running under an OLTP on another system.

[Table 1–1](#) lists the remote procedural call functions and the correlating commands that are invoked in the gateway and remote host.

**Table 1–1 RPC Functions and Commands in the Gateway and Remote Host**

Applications	Oracle TIP	Gateway	Remote Host
call tip_init	tip_init call pgainit@gateway	PGAINIT	Initiate program
call tip_main	tip_main call pgaxfer@gateway	PGAXFER	Exchange data
call tip_term	tip_term call pgaterm@gateway	PGATERM	Terminate program

### 1.7.1 Description of RPC Functions

The following sections describe how the RPC functions perform on gateways using SNA or TCP/IP communication protocols.

#### 1.7.1.1 Remote Transaction Initiation

The TIP initiates a connection to the remote host system, using one of the gateway functions, PGAINIT.

**When the communication protocol is SNA:** PGAINIT provides, as input, the required SNA parameters to start a conversation with the target transaction program. These parameters are sent across the SNA network, which returns a conversation identifier to PGAINIT. Any future calls to the target program use the conversation identifier as an INPUT parameter.

**When the communication protocol is TCP/IP:** PGAINIT provides, as input, the required TCP/IP parameters. Use the pg4tcpmap tool to map the parameters. These parameters are sent across the TCP/IP network to start the conversation with the target transaction program; the TCP/IP network returns a socket file descriptor to PGAINIT. Any future calls to the target program use the socket file descriptor, such as PGAXFER and PGATERM, as an input parameter.

Refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#) in this guide, and to Chapter 6 in the *Oracle Procedural Gateway for APPC User's Guide*, for more information about the function and use of the pg4tcpmap tool.

#### 1.7.1.2 Data Exchange

After the conversation is established, a procedural gateway function called PGAXFER can exchange data in the form of input and output variables. PGAXFER sends and receives buffers to and from the target transaction program. The gateway sees a buffer as only a RAW stream of bytes. The TIP that is residing in the Oracle Integrating Server is responsible for converting the application's PL/SQL datatypes to RAW before sending the buffer to the gateway. It is also responsible for converting RAW to the PL/SQL datatypes before returning the results to the application.

### 1.7.1.3 Remote Transaction Termination

When communication with the remote program is complete, the gateway function PGATERM terminates the conversation between the gateway and the remote host.

**When the communication protocol is SNA:** PGATERM uses the conversation identifier as an INPUT parameter to request conversation termination.

**When the communication protocol is TCP/IP:** PGATERM uses the socket file descriptor for TCP/IP as an INPUT parameter to request conversation termination.

## 1.8 Transaction Types for Gateway Using SNA

The Oracle Procedural Gateway for APPC supports three types of transactions that read data from and write data to remote host systems:

- **one-shot**

In a one-shot transaction, the application initializes the connection, exchanges data and terminates the connection, all in a single call.

- **persistent**

In a persistent transaction, multiple calls to exchange data with the remote transaction can be executed before terminating the conversation.

- **multi-conversational**

In a multi-conversation transaction, the procedural gateway server can be used to exchange multiple records in one call to the remote transaction program.

Refer to "Remote Host Transaction Types" in Chapter 4, "Client Application Development" of the *Oracle Procedural Gateway for APPC User's Guide* for more information about transaction types.

The following list demonstrates the power of the Oracle Procedural Gateway for APPC:

- You can initiate a CICS transaction on the mainframe to retrieve data from a VSAM file for a PC application.
- You can modify and monitor the operation of a remote process control computer.
- You can initiate an IMS/TM transaction that executes static SQL in DB2.
- You can initiate a CICS transaction that returns a large number of records in a single call.

## 1.9 Transaction Types for Gateway Using TCP/IP

The Oracle Procedural Gateway for APPC using TCP/IP for IMS Connect supports three types of transaction socket connections:

- **transaction socket**

The socket connection lasts across a single transaction.

- **persistent socket**

The socket connection lasts across multiple transactions.

- **non-persistent socket**

The socket connection lasts across a single exchange consisting of one input and one output.

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**Note:** Do not use the non-persistent socket type if you plan on implementing conversational transactions because multiple connects and disconnects will occur.

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Refer to the section about `pg4tcpmap` commands in Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide* and to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) in this guide for more information about how to enter these parameters.

You can initiate an IMS/TM transaction that executes static SQL in DB2; this illustrates the power of the Oracle Procedural Gateway for APPC's feature supporting TCP/IP for IMS Connect.

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## Release Information

This chapter provides information about this release of the Oracle Procedural Gateway for APPC. It contains the following sections:

- ["Product Set"](#) on page 2-2
- ["Changes and Enhancements, Release 10.1.0.2.0"](#) on page 2-2
- ["Known Restrictions for the Gateway"](#) on page 2-4

## 2.1 Product Set

The distribution CD for this release of the Oracle Procedural Gateway for APPC includes the following production components:

- Oracle Procedural Gateway for APPC Release 10.1.0.2.0
- Oracle Net Release 10.1.0.2.0

## 2.2 Changes and Enhancements, Release 10.1.0.2.0

The following sections detail the changes and enhancements in this release of the Oracle Procedural Gateway for APPC.

### 2.2.1 Changes

The following section provides information on changes to this release of the Oracle Procedural Gateway for APPC.

#### 2.2.1.1 Bugs Fixed in Release 10.1.0.2.0

[Table 2–1](#) lists the bugs that were fixed in Release 10.1.0.2.0 of the gateway.

**Table 2–1 Bugs Fixed in Release 10.1.0.2.0 of the Gateway**

Bug Number	Description
1310776	PG4APPC to support TCP/IP connectivity to IMS.
1472845	Receiving message ORA-1401: handling multiple items in one call to PGAXFER causes error.
1847587	Receiving message ORA-2047: executing procedures against read-only gateways.
1853035	The gateway generates the wrong message (PGA-20936) instead of generating message number PGA-20938.
1919413	Receiving an ORA-28528 error (Heterogeneous Services datatype conversion error) when sending a buffer of more than 4K of data to CICS.
1920013	Test case tgpsm#34 fails with error message PGA-20910, rc=219, and errno = 9 instead of PGA-20934.
2088612	Receiving message ORA-1401: inserted value too large for column.
2222386	Transferring more than 32760 bytes in a RAW field. Customer receives error message ORA-01401: "inserted value too large for column". When the gateway attempts to transfer 32760 or more bytes back to Oracle in a single transfer, the result is ORA-02055: "distributed update operation failed; rollback required".
2505566	PGDDVCHK.SQL doesn't require spooling file.
2526386	CMDEAL not called in certain error situations in PGAXFER.
2691119	ORA-06510: PL/SQL: Unhandled user-defined exception when using PGATRAC.
3067506	Savepoint and rollback savepoint are not supported by PG4APPC.

## 2.2.2 Enhancements

Components of the Oracle Procedural Gateway for APPC are based on Oracle Database 10g Server, Release 10.1.0.2.0 (the Oracle Integrating Server).

### 2.2.2.1 TCP/IP Support for Connecting the Gateway to IMS Connect Release 1.2

This release of the gateway includes TCP/IP support for IMS Connect. IMS Connect is an IBM product which allows TCP/IP clients to trigger execution of IMS transactions. The gateway can use a TCP/IP communication protocol to access IMS Connect, which triggers execution of IMS transactions. There is no SNA involvement with this configuration. Related to this new feature of the gateway is:

- The pg4tcpmap tool. This release of the gateway includes a new tool whose purpose is to map the information from your Side Profile Name to TCP/IP and IMS Connect attributes. You may turn on a trace for this tool as well. For more information about the gateway mapping tool, refer to Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide*, and to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) in this guide.

### 2.2.2.2 Improved Gateway Log File

The log file for the gateway remote application has been improved.

## 2.3 Known Restrictions

The following sections list the known restrictions for the Oracle Procedural Gateway for APPC and PGAU.

### 2.3.1 Known Restrictions for the Gateway

The following restrictions are known to exist in this release of the Oracle Procedural Gateway for APPC.

#### **Multibyte Character Sets are Not Supported for Numeric Data and Clauses**

The Oracle Procedural Gateway for APPC has supported multibyte character set data for COBOL PIC G data types since version 3.4. However, the non-numeric character data (such as \$, (,), +, -,.) that is allowed in DISPLAY data types and PIC 9 edit masks must still be specified in EBCDIC. The non-numeric character data is not subject to MBCS translation.

#### **CICS Transactions Do Not Allow PF Key Emulation**

When performing a CICS transaction using the Oracle Procedural Gateway for APPC, you cannot emulate CICS PF keys.

#### **APPC PIP Data is Not Supported**

You cannot define and transmit APPC PIP data in this release of the Oracle Procedural Gateway for APPC.

#### **Floating Point Datatype Conversion is Not Supported**

Conversion of the floating point datatype is not supported by the Oracle Procedural Gateway for APPC.

#### **Transaction Programs are Responsible for All Data Compression and Decompression**

The Oracle Procedural Gateway for APPC does not provide exits for compression and decompression facilities. All data exchanged between the gateway and the transaction must be in uncompressed format.

### 2.3.2 Known Restrictions for PGAU

#### **Restrictions with PGAU COBOL COPY REPLACE**

When COBOL input to the PGAU DEFINE DATA statement contains a COPY REPLACE clause, only the first replacement is made.



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# System Requirements

This chapter describes the system requirements of the gateway. It contains the following sections:

- ["Hardware Requirements"](#) on page 3-2
- ["Software Requirements"](#) on page 3-2
- ["Documentation Requirements"](#) on page 3-4

## 3.1 Hardware Requirements

The hardware requirements for this release of the gateway on Microsoft Windows are described in the following sections.

### 3.1.1 Processor Requirements

Refer to the *Oracle Database Installation Guide 10g Release 1 (10.1)* for Microsoft Windows and to the certification matrix on the *OracleMetaLink* for the most up-to-date list of certified hardware platforms and operating system version requirements to operate the gateway for your system. The *OracleMetaLink* Web site can be found at:

<http://metalink.oracle.com>

The Oracle Procedural Gateway for APPC requires an Intel or 100% compatible personal computer based on a Pentium processor that can run Microsoft Windows 2000 and higher.

### 3.1.2 Memory Requirements

For most installations, Oracle recommends a minimum of 256MB of real memory for the machine running the Oracle Procedural Gateway for APPC.

Each concurrent use of the gateway requires a minimum of 10MB.

The following factors affect the virtual memory requirements of the gateway server process:

- number of concurrent gateway connections open by each user;
- number of data items being transferred between the gateway and the remote transaction program;
- additional factors such as configured network buffer size;
- the Oracle Net protocol adapters that were included during the gateway installation.

### 3.1.3 Network Attachment Requirements

The gateway requires any network attachment supported by either the SNA Server for your platform or the TCP/IP Networking Facility for TCP/IP communication.

However, if you are using solely the new TCP/IP support for IMS Connect feature, you will not need an SNA package. Your Windows operating system comes with TCP/IP installed; you will need to configure it.

### 3.1.4 CD-ROM Drive

A CD-ROM drive is required for installation of the software.

### 3.1.5 Disk Space Requirements

The gateway's disk space requirements is a minimum of 300 MB.

## 3.2 Software Requirements

The system software configuration described in these requirements is supported by Oracle, provided that the underlying system software products are supported by their

respective vendors. Verify the latest support status with your system software vendors.

### 3.2.1 Operating System Requirements

Refer to the *Oracle Database Installation Guide 10g Release 1 (10.1) for Microsoft Windows* and to the certification matrix on the *OracleMetaLink* for the most up-to-date list of certified operating system version requirements to operate the gateway for your Windows Intel system. The *OracleMetaLink* Web site can be found at:

<http://metalink.oracle.com>

### 3.2.2 Communication Protocol Requirements

A Microsoft Host Integration Server 2000 is required, or IBM Communication Server V6.1.1 (or higher) for Windows. In this document, either of these communications servers will be referred to generically as SNA Server.

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**Note:** If you choose to use TCP/IP support for IMS Connect as your communications protocol, then you will not need to use an SNA Server. Your operating system comes with a TCP/IP protocol automatically installed. If you choose to use the TCP/IP protocol, you will need to configure it to work properly with the gateway; those instructions are located in [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#).

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### 3.2.3 Oracle Server Requirements

The Microsoft Windows platform requires that the Oracle server which is to act as the Oracle Integrating Server be up to date with the latest patch set for supported Oracle database releases.

### 3.2.4 Oracle Networking Product Requirements

Oracle Net is automatically installed on the system where the Oracle Database 10g Server is installed and on the system where the gateway is installed. Refer to [Chapter 5, "Configuring Your Oracle Network"](#) in this guide for configuration information. Additionally, you may refer to the *Oracle Net Services Administrator's Guide*.

### 3.2.5 IBM Mainframe Requirements

In addition to the other software requirements of the gateway and your particular platform, the following list outlines other requirements necessary on the IBM mainframe:

#### OLTP for SNA

The OLTP must support mapped APPC conversations. If the OLTP transaction programs to be executed through the gateway perform database updates, then the APPC verbs CONFIRM, CONFIRMED, and SEND\_ERR must be supported by the OLTP. These verbs implement APPC sync level 1.

All resources controlled by an OLTP that can be updated by transaction programs invoked through the gateway must be defined as recoverable resources to the OLTP and host system if COMMIT/ROLLBACK capability is required for those resources.

For example, a VSAM file updated by a CICS transaction must be defined to CICS as a recoverable file for COMMIT/ROLLBACK to control the updates.

The gateway is compatible with all supported releases of SNA-enabled products such as CICS, IMS/TM, IDMS and z/OS.

**Important:** For a list of known restrictions, be sure to read the ["Known Restrictions"](#) section on page 2-4 before proceeding with installation of the gateway.

### **OLTP for TCP/IP**

IMS/TM: Release 7.1 or later is required, as well as any APARs (patches) listed in the *IBM IMS Connect Guide and Reference*.

IMS Connect: Release 1.2 or higher is required.

## **3.3 Documentation Requirements**

Oracle recommends that you become familiar with the concepts and components of all products related to your gateway and that you read the following documentation on Oracle products other than your gateway:

- *PL/SQL User's Guide and Reference*
- *Oracle Database Installation Guide for Microsoft Windows*
- *Oracle Database Administrator's Reference*
- *Oracle Database Concepts*
- *Oracle Database Error Messages*
- *Oracle Net Services Administrator's Guide*
- *Oracle Connectivity Guide*
- *Oracle Call Interface Programmer's Guide*

In addition to your Oracle documentation, ensure that you have appropriate documentation for your platform, for your operating system and for your communications packages.

The following IBM documentation may be useful:

- *IMS Connect Guide and Reference*

The title of the IBM publication was accurate at the time of the publication of this guide. Titles and structure of these documents are subject to change. For other operating system, SNA communication package and TCP/IP package references, refer to the appropriate vendor documentation for your system.

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## Installing the Gateway

The following topics in this chapter describe how to install and configure the Oracle Procedural Gateway for APPC:

- ["Before You Begin"](#) on page 4-2
- ["Planning to Upgrade or Migrate the Gateway"](#) on page 4-2
- ["Performing Pre-Upgrade Procedures"](#) on page 4-3
- ["Performing Pre-Installation Procedures"](#) on page 4-4
- ["Installing the Gateway Software"](#) on page 4-5
- ["Installation Steps"](#) on page 4-5
- ["Deinstalling Your Oracle Procedural Gateway for APPC"](#) on page 4-8

## 4.1 Before You Begin

Configuring an online transaction processor to allow access by the gateway requires actions on the OLTP and on certain components of the host operating system. Although no Oracle software is installed on the host system, access to, and some knowledge of the host system and the OLTP are required. Although this chapter includes some information about host system and OLTP installation steps, you must ensure that you have the applicable OLTP and host system documentation available.

Some of the configuration actions on the OLTP might require you to restart the OLTP. In preparation for this, have your host system programmer or DBA review the instructions for your OLTP to allow for any necessary preparations.

To install and configure the gateway with a single Oracle Integrating Server and a single OLTP, perform the procedures described in this chapter.

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**Note:** If your gateway uses the SNA communication protocol, you will follow the instructions for installation and configuration in this chapter and in [Chapter 5, "Configuring Your Oracle Network"](#) and in [Chapter 9, "Gateway Configuration Using SNA Communication Protocol"](#).

If your gateway uses the TCP/IP communication protocol, you follow the instructions for installation and configuration in this chapter and in [Chapter 5, "Configuring Your Oracle Network"](#) and in [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#).

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## 4.2 Planning to Upgrade or Migrate the Gateway

If you have an earlier version of the Oracle Procedural Gateway for APPC installed on your system, you may be upgrading or migrating to the current release. A gateway "upgrade" represents a minor software upgrade within a release, (for example, moving from Release 9.0 to Release 9.2.0); a gateway "migration" represents a significant change from one version number to another, (for example, migrating from Release 9.0 to 10.1).

This section is only for customers who have a previous release of Oracle Procedural Gateway for APPC. If you have a previous gateway installation, you will need to carry out specific tasks before you can install Release 10.1.0.2.0 of the Oracle Procedural Gateway for APPC.

- ❑ After reading this section, you will need to read [Chapter 12, "Migration From Existing Gateways"](#) to determine the specific actions you must take to prepare for upgrade or migration of your gateway. If you are migrating to Oracle Procedural Gateway for APPC Release 10.1.0.2.0 from version 4.01 or earlier, you will find specific material related to migration of the gateway in [Chapter 12, "Migration From Existing Gateways"](#).

You may find it helpful to refer to [Appendix D, "Summary of Changes in Previous Versions"](#) for information on changes or corrected problems from earlier releases of the gateway.

If you are installing for the first time, begin with ["Performing Pre-Installation Procedures"](#) on page 4-4.

## 4.2.1 Performing Pre-Upgrade Procedures

Perform the following steps to prepare for upgrading the Oracle Procedural Gateway for APPC to current versions:

1. Make backups of altered PGA shipped files.
2. Remove or rename any old gateway directories.

## 4.2.2 Upgrade and Migration Considerations

Upgrade considerations are as follows:

- PGAU control files from Gateway Release 8 or 9 are upward compatible and you do not need to change them.
- After upgrade, the PG DD contains all of its earlier entries without modification. New PGAU control information has been added along with some columns to support new features, but no customer entries are altered by the upgrade.
- All TIPs from Oracle Procedural Gateway for APPC Release 4.0.1 or earlier must be recompiled, due to changes in the following:
  - PL/SQL compatibility
  - gateway server RPC interface
  - UTL\_PG interface
- **TCP/IP only:** If you have existing TIPs that were generated previously on a gateway using the SNA communication protocol and you want to utilize the new TCP/IP feature, then the TIPs will have to be regenerated by PGAU with mandatory NLS\_LANGUAGE and Side Profile Settings. Specify the appropriate ASCII character set in the DEFINE TRANSACTION command.

This is due to the fact that the gateway assumes that the appropriate user exit in IMS Connect is being used, which would translate between the appropriate ASCII and EBCDIC character sets.

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**Caution:** An upgraded PG Data Dictionary (PG DD) cannot be accessed by an earlier release of PGAU.

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## 4.2.3 Restoration

If you want to restore a previous release of gateway, then you must restore the following components to their previous versions:

- PGAU
- PG DD
- gateway server

## 4.3 Performing Pre-Installation Procedures

Before you install the gateway, perform the following pre-installation procedures:

- Ensure that your system meets all of the hardware and software requirements specified in [Chapter 3, "System Requirements"](#).
- A CD-ROM drive is required.

The Oracle Procedural Gateway for APPC is currently shipped on CD-ROM media. The hardware required for the medium on which the gateway was ordered must be installed on your system.

- Ensure that your security requirements are met.

Refer to [Chapter 3, "System Requirements"](#) for more information about the security requirements for connections and data access on your OLTP.

- Fill out the worksheet identifying unique parameter names needed to configure your system and your chosen communication protocol (either SNA or TCP/IP), which is located in [Chapter E, "Configuration Worksheet"](#).

- Decide on a SID (system identifier) for your gateway. This SID is used in [Section 9.7, "Configuring the Gateway"](#) on page 9-13.

The SID must be unique and must not be used by any other gateway or Oracle Integrating Server on the system.

- **SNA only:** Your SNA package must be installed and configured before you can proceed with installation of the gateway. Ensure that your system can communicate with the OLTP using the SNA Server appropriate for your platform. Refer to [Chapter 6, "Configuring the SNA Communication Package on Windows"](#) for more information about setting up and configuring SNA for Windows.

- **TCP/IP only:** Your TCP/IP package must be installed and configured before you can proceed with installation of the gateway. Refer to [Chapter 7, "Configuring the TCP/IP Communications Package for IMS Connect"](#) for more information about setting up and configuring TCP/IP for Windows.

Ensure that your system can communicate with the OLTP using the TCP/IP communication package for your platform.

If you need general information about installing Oracle products and using the Oracle Universal Installer, then refer to the *Oracle Database Installation Guide*.

### 4.3.1 Gateway Installation Methods

You can install the gateway in either of the following ways:

1. On the same machine as the existing Oracle Integrating Server but in a different directory.

All tasks for this type of installation or upgrade are discussed in this section.

2. On a system different from a local Oracle Integrating Server.
3. On the same machine as the Oracle Integrating Server, and in the same Oracle home directory. Note that in this case, the Oracle Integrating Server and the gateway must be at the same release level.



## 4.4 Installing the Gateway Software

For general information about installing Oracle products and how to use the Oracle Universal Installer, refer to the *Oracle Database Installation Guide for Microsoft Windows* and perform all necessary tasks there first.

If your server release is different than your gateway release, *do not* install the gateway in the same Oracle home directory as the Oracle Integrating Server. This is required to isolate the gateway from the Oracle Integrating Server upgrades that might cause incompatibilities if the gateway executables were relinked with later versions of the Oracle server libraries.

## 4.5 Installation Steps

If you wish to install the gateway in the same Oracle home as the Oracle Integrating Server, then the release number of both products must be the same.

### 4.5.1 Step 1: Logon to Windows System

Logon to your Windows system as a member of the Administrators group. If you are not currently a DBA user, then contact your system administrator to create a DBA login user ID. Refer to the *Oracle Database Installation Guide* for login information.

### 4.5.2 Step 2: Ensure Appropriate Amount of Disk Space

If you are installing the gateway for the first time, ensure that there is enough space on the disk where the gateway will reside, as specified in "[Disk Space Requirements](#)" on page 3-2.

### 4.5.3 Step 3: Stop All Oracle Services

Before beginning the gateway installation process, you must stop all Oracle services that are currently running. Follow these steps:

1. Click **Start**, then **Settings**, then **Control Panel**.
2. Choose **Services**. A list of all Windows services appears.
3. Select an Oracle service (those services begin with "Oracle").
4. Click **Stop**.
5. Continue to select and stop Oracle services until all active Oracle services are stopped.

### 4.5.4 Step 4: Insert the Gateway Product CD-ROM into Your CD-ROM Drive

Verify that the drive is assigned to the logical drive you selected and that you can access files on the CD-ROM.

---

**Note:** The installation steps that follow assume that the CD-ROM drive is mapped to the **D:** drive.

---

The CD\_ROM package contains the Oracle Procedural Gateway for APPC and the Oracle Universal Installer.

## 4.5.5 Step 5: Start the Oracle Universal Installer

To start the Oracle Universal Installer, run `setup.exe`:

1. From the Start Menu, select **Run**.
2. Enter the path of the executable file name. For example:

`D:\Disk1\setup.exe`

## 4.5.6 Step 6: Step Through the Oracle Universal Installer

---

**Caution:** Oracle Universal Installer automatically installs the Oracle-supplied version of the Java Runtime Environment (JRE). This version is required to run the Oracle Universal Installer and several Oracle assistants. Do not modify the JRE except by using a patch provided by Oracle Support Services. The Oracle Universal Installer also installs JDK 1.3.1.

---

Oracle Universal Installer is a menu-driven utility that guides you through installing the gateway by prompting you with action items. The action items and the sequence in which they appear depend on your platform.

The following section describes how use the Oracle Universal Installer to install the gateway on your platform.

### 4.5.6.1 Oracle Universal Installer on Windows Platforms

Use [Table 4–1](#) as a guide to step through the Oracle Universal Installer. At each prompt from the Oracle Universal Installer, perform the actions described in the Response column of the table in order to install the gateway on your Windows platform.

**Table 4–1 The Oracle Universal Installer: Steps for Installing the Gateway**

Prompt	Response
1. Oracle Universal Installer: Welcome	<p>a. Select "Advance Installation".</p> <p>b. Click "Next".</p>
2. Oracle Universal Installer: File Locations	Specify the source and destination directories and click "Next".
3. Oracle Universal Installer: Installation Types	Select "Custom" and click "Next".
4. Oracle Universal Installer: Available Product Components	<p>a. Deselect the checked products.</p> <p>b. Select "Oracle Transparent Gateway 10.1.0.2.0", open up this row.</p> <p>c. Select "Oracle Procedural Gateway for APPC 10.1.0.2.0". (Note that you may also choose to select other products to install besides the Oracle Procedural Gateway for APPC).</p> <p>d. Click "Next".</p>
5. Oracle Universal Installer: Oracle Home Environment Variable Set	Click "Next".
6. Oracle Universal Installer: Network Software	Specify your network package and click "Next".
7. Oracle Universal Installer: Summary	Click "Install".

**Table 4–1 (Cont.) The Oracle Universal Installer: Steps for Installing the Gateway**

Prompt	Response
8. OracleNetConfiguration Assistance: Welcome	Click "Cancel".
9. Oracle Net Configuration Assistance:	Click "Yes".
10. Oracle Universal Installer: Configuration Tools	Click "Exit".
11. Exit	Click "Yes".

Your gateway is now installed.

When the Oracle Universal Installer confirms that the installation is complete, verify that the installation procedure was successful. To do this, read the contents of the installation log file, which is located in the **C:\Program Files\Oracle\Inventory\logs** directory.

The default file name is **InstallActionsYYYY-MM-DD\_HH-mm-SS-AM/PM.log**, where:

**YYYY** is year;  
**MM** is month  
**DD** is day  
**HH** is hour  
**mm** is minute  
**SS** is seconds  
**AM/PM** is daytime or evening

Each of these variables in the log file name represents the date and time the product was installed.

---

**Attention:** Print the contents of the **%ORACLE\_HOME%\pg4appc\doc\README.doc** file and read the entire document; it contains important information about the installation. After reading the **README.doc** file, proceed with configuration of the gateway.

---

## 4.6 Deinstalling Your Oracle Procedural Gateway for APPC

If you decide to deinstall the gateway, perform the following steps:

1. Drop the PG DD (packages and procedures) as follows:
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
  - b. From SQL\*Plus, run the **pgdddel.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory.
2. Insert the gateway product CD-ROM into your CD-ROM drive.
3. Start the Oracle Universal Installer by running the Oracle Universal Installer executable, **setup.exe**:
  1. From the Start menu, select **Run**.
  2. Enter the path of the executable file name. For example:  
     D: \Disk1\setup.exe
4. Step through the Oracle Universal Installer. Use the prompts listed in [Table 4-2, "Steps to DeInstall the Gateway Using Oracle Universal Installer"](#) as a guide for deinstallation, following the instructions in the Response column.

**Table 4-2 Steps to DeInstall the Gateway Using Oracle Universal Installer**

Prompt	Response
1. Oracle Universal Installer: Welcome	a. Select "Advance Installation" b. Click "Next".
2. Oracle Universal Installer: File Locations	Click "Installed Products".
3. Inventory: click on the "Contents" notebook	You may either choose to deinstall <i>all</i> products that you may have installed at the time of your original gateway installation, or you may choose to deinstall only an instance of Oracle Procedural Gateway for APPC. <ul style="list-style-type: none"> <li>■ To deinstall <i>all</i> products: Select the specified ORACLE_HOME name.</li> <li>■ Click "Remove..."</li> <li>■ To deinstall <i>only</i> the instance of Oracle Procedural Gateway for APPC: Expand the rows within the ORACLE_HOME recursively until you arrive at the folder for "Oracle Procedural Gateway for APPC 10.1.0.2.0".</li> <li>■ Click "Remove..."</li> </ul>
4. Confirmation	Click "Yes".
5. Inventory	Click "Close".
6. Oracle Universal Installer: File Locations	Click "Cancel".
7. Exit	Click "Yes".

5. The gateway is now deinstalled.

When the Oracle Universal Installer confirms that the deinstallation has ended, verify that the deinstallation procedure was successful. To do this, read the contents of the deinstallation log file, which is located in the **C:\Program Files\Oracle\Inventory\logs** directory.

The default file name is **InstallActionsYYYY-MM-DD\_HH-mm-SS-AM/PM.log**, where:

**YYYY** is year;

**MM** is month

**DD** is day

**HH** is hour

**mm** is minute

**SS** is seconds

**AM/PM** is daytime or evening

Each of these variables in the log file name represents the date and time the product was de-installed.

6. The only files that are removed are those that were copied to the **%ORACLE\_HOME%** directory during the gateway installation. You must remove any other related files manually, including deleting **listener.ora** and **tnsnames.ora** entries relating to the gateway, dropping database link(s) and the PGAADMIN user ID and deleting the TIPs.



---

# Configuring Your Oracle Network

Now that you have installed the gateway, this chapter will instruct you in how to configure the network.

It contains the following section:

- ["Configuring the Oracle Network for the Gateway"](#) on page 5-2

## 5.1 Configuring the Oracle Network for the Gateway

The instructions in this section will show you how to configure the network whether your gateway is utilizing the SNA or TCP/IP communication protocol.

The gateway must be defined to the TNS listener, and a service name must be defined for accessing the gateway. To do this, perform the following steps:

1. Add an entry for the gateway to the **listener.ora** file:

❑ **If you are using SNA:**

```
(SID_DESC=
  (SID_NAME=PGA)
  (ORACLE_HOME= C:\oracle\pga\10.0)
  (PROGRAM=pg4asrv)
)
```

where: *C:\oracle\pga\10.0* is your gateway Oracle home and *PGA* is the gateway SID name.

❑ **Or, if you are using TCP/IP:**

```
(SID_DESC=
  (SID_NAME=PGA)
  (ORACLE_HOME= C:\oracle\pga\10.0)
  (PROGRAM=pg4t4ic)
)
```

where: *C:\oracle\pga\10.0* is your gateway Oracle home and *PGA* is the gateway SID name.

2. Add a service name for the gateway to the **tnsnames.ora** file on the system where your Oracle Integrating Server is located. The service name is specified in the USING parameter of the database link defined for accessing the gateway from the Oracle Integrating Server. For example, if you are using the IPC protocol adapter and your gateway *sid* is PGA, add the following entry to **tnsnames.ora**:

```
pgaipc=
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = ipc) (KEY=key))
    (CONNECT_DATA = (SID=PGA))
    (HS=)
  )
```

In this example, *key* is the IPC key defined in the **listener.ora** file for the IPC protocol. You can use the IPC protocol only if the Oracle Integrating Server and the gateway are on the same system.

If you are using the TCP/IP protocol adapter, and if your gateway *sid* is PGA, then add the following entry to **tnsnames.ora**:

```
pgatcp=
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL= TCP) (Host= gateway) (Port= port))
    (CONNECT_DATA = (SID=PGA))
    (HS=)
  )
```

In this example, *port* is the TCP port defined in the **listener.ora** file for the TCP protocol, and *gateway* is the TCP/IP host name of the system where the gateway is located.



---

**Note:** Under the following circumstances:

- If your gateway and Oracle Integrating Server are not on the same machine,
- or, if the gateway and the Oracle Integrating Server are on the same machine but the Oracle Integrating Server Listener is different than the gateway listener,

then you must define the Oracle Integrating Server to PGAU by adding a service name to **tnsnames.ora** on the system where your gateway resides. For example:

```
ora_server =
  (DESCRIPTION=
    (ADDRESS =
      (PROTOCOL= TCP)
      (PORT= port)
      (HOST= ora_srv)
    )
    (CONNECT_DATA= (SID= ora_server))
  )
```

In this example

- *port* is the TCP port defined in the Oracle Integrating Server **listener.ora** for the TCP protocol;
  - *ora\_srv* is the TCP/IP host name of the system where the Oracle Integrating Server resides; and
  - *ora\_server* is the SID of the Oracle Integrating Server.
- 

Make sure to start your defined listener(s). Refer to the *Oracle Net Services Administrator's Guide* for more information about configuring the network.

To see a sample listener.ora file refer to ["Sample listener.ora file for a Gateway using SNA"](#) and ["Sample tnsnames.ora file for a Gateway using SNA"](#) in [Appendix A](#) (if your communication protocol is SNA).

To see a sample listener.ora file refer to ["Sample listener.ora file for a Gateway using TCP/IP"](#) and ["Sample tnsnames.ora file for a Gateway using TCP/IP"](#) in [Appendix B](#) (if your communication protocol is TCP/IP).

### Proceed With Configuring Your Communication Package for the Gateway

- **If your communication protocol is SNA**, you must now configure the SNA Server profiles for APPC connections.

Proceed to [Chapter 6, "Configuring the SNA Communication Package on Windows"](#)

- **If your communication protocol is TCP/IP**, proceed to [Chapter 7, "Configuring the TCP/IP Communications Package for IMS Connect"](#).



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## Configuring the SNA Communication Package on Windows

The Oracle Procedural Gateway for APPC uses the SNA Advanced Program to Program Communication (APPC/LU6.2) protocol to communicate with an OLTP.

APPC support on Microsoft Windows can be provided using two either of the following tools:

- the Microsoft Host Integration Server 2000, or
- the IBM Communications Server v6.1.1 (or higher).

---

**Note:** The term "SNA Server" is used in this document to generally refer to either the Microsoft Host Integration Server or the IBM Communications Server.

---

Read this chapter to learn how to configure your SNA Server on a Windows system in order to run the Oracle Procedural Gateway for APPC, using either a Microsoft Host Integration Server or IBM Communications Server.

This chapter contains the following sections:

- ["Using SNA Security Validation"](#) on page 6-2
- ["Processing Inbound Connections"](#) on page 6-2
- ["Configuring Your Microsoft Host Integration Server"](#) on page 6-2
- ["Creating SNA Server Definitions on Microsoft Host Integration Server"](#) on page 6-5
- ["Configuring an IBM Communications Server"](#) on page 6-15
- ["Creating IBM Communications Server Definitions for the Gateway"](#) on page 6-16
- ["Testing the Connection"](#) on page 6-18
- ["Resume Configuration of the Gateway"](#) on page 6-19

## 6.1 Using SNA Security Validation

When an RPC request to start a remote transaction program is received by the gateway, the gateway attempts to start an APPC conversation with the OLTP. Before the conversation can begin, a session must start between the Windows Logical Unit (LU) and the OLTP LU.

SNA and its various access method implementations (including SNA Server and VTAM) provide security validation at session initiation time, allowing each LU to authenticate its partner. This validation is carried out entirely by network software before the gateway and OLTP application programs begin their conversation and process conversation-level security data. If session-level security is used, then correct password information must be established in the Windows SNA Server definitions and in similar parameter structures in the OLTP to be accessed. Refer to the appropriate communications software product documentation for detailed information about this subject.

## 6.2 Processing Inbound Connections

Many OLTPs provide options for manipulating the security conduct of an inbound (client) APPC session request. Refer to the appropriate OLTP documentation for detailed information about this topic.

Note that for CICS, one security option is not supported by the gateway:

- ATTACHSEC=PERSISTENT, specified on the CICS CONNECTION definition, requires capability that is not yet available in the gateway.

However, ATTACHSEC=LOCAL, ATTACHSEC=IDENTIFY, ATTACHSEC=VERIFY, and ATTACHSEC=MIXIDPE are fully supported by the gateway.

## 6.3 Configuring Your Microsoft Host Integration Server

The following sections discuss general information about the SNA Server and how to configure a Microsoft Host Integration Server.

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**Note:** If you are using the IBM Communication Server to configure your Windows system for the gateway, then proceed to [Section 6.5, "Configuring an IBM Communications Server"](#).

---

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### 6.3.1 Independent Versus Dependent LUs

Oracle recommends independent LUs for the Oracle Procedural Gateway for APPC because they support multiple parallel sessions or conversations. This means that multiple Oracle client applications can be active simultaneously with the same OLTP through the independent LU.

Dependent LUs support only a single active session. The CP (Control Point for the Node, which is SNA Server for Windows in this case) queues additional conversation requests from the gateway server behind an already active conversation. In other words, conversations are single-threaded for dependent LUs.

If a dependent LU is correctly defined, then no alterations to the Oracle Procedural Gateway for APPC configuration are needed, nor should any changes be needed to the host transaction or how the OLTP is started.

The operational impact of dependent LUs is that the first client application can initiate a conversation through the Procedural Gateway with the OLTP. While that transaction is active (which could be seconds to minutes to hours, depending on how the client application and transaction are designed), any other client application initiating a conversation with the same OLTP instance appears to hang as it waits behind the previous conversation.

If a production application really uses only a single conversation or transaction at any one time, then there should be no impact.

However, additional concurrent conversations or transactions might be required for testing or for other application development. Each requires that additional dependent LUs be defined on the remote host, plus additional SNA Server configuration entries, which define the additional dependent LUs on the Windows system. The TIP that initiates the conversation must specify the different Partner LU through a different side information profile or by overriding the LU name. Refer to "PGAU DEFINE TRANSACTION" SIDEPROFILE and LUNAME parameters in Chapter 2, "Procedural Gateway Administration Utility," in the *Oracle Procedural Gateway for APPC User's Guide*.

### 6.3.2 Location of Sample SNA Server Definitions

The %ORACLE\_HOME%\pg4appc\sna subdirectory contains a sample set of gateway SNA Server definitions created with the SNACFG command. The **snacfg.ctl** file contains sample definitions for SNA Server.

Before building the SNA Server definitions, examine the **snacfg.ctl** file to determine the definitions needed, their contents, and their inter-relationships. The file format is text-oriented and each field of each definition is clearly labelled. You can print a copy of the file to use while working with your definitions in a Microsoft Host Integration Server (formerly SNA Server Manager) session.

### 6.3.3 SNA Server Definition Types

Several types of SNA Server definitions are relevant to gateway APPC/LU6.2 operation. Each definition can be created and edited using a corresponding Microsoft Host Integration Server (formerly SNA Server Manager) menu.

The definitions relevant to the gateway are presented here in hierarchical order. Those definition types that are lowest in the hierarchy are discussed first. This matches the logical sequence in which to create the definitions.

Refer to the Windows SNA Server online documentation for a complete discussion of SNA Server definitions. This section provides an overview of SNA Server definitions in relation to the Oracle Procedural Gateway for APPC.

### 6.3.4 Methods of Creating SNA Server Definitions for the Gateway

SNA Server definitions can be created and modified in two ways:

- You can create the definitions using menus in the Microsoft Host Integration Server (formerly SNA Server Manager).

Using the Microsoft Host Integration Server is the recommended method for creating the definitions. You should be able to accept most of the defaults. The default values assigned to many of the fields in a new set of definitions are acceptable to the gateway.

Step through the tasks for creating SNA Server definitions in [Section 6.4, "Creating SNA Server Definitions on Microsoft Host Integration Server"](#) on page 6-5.

- Alternately, you can install the definitions directly on your system using the SNACFG command.

For information on using the SNACFG command, refer to your vendor documentation.

If you use the SNACFG command method you must use Microsoft Host Integration Server (formerly SNA Server Manager) to review and modify the installed definitions. Because of configuration and naming differences, it is unlikely they will work without modification.

Maintenance of SNA definitions is normally done by a user with Administrator authority. The following information is intended for the person creating SNA definitions for the gateway. You should have some knowledge of SNA before reading the following sections.

## 6.4 Creating SNA Server Definitions on Microsoft Host Integration Server

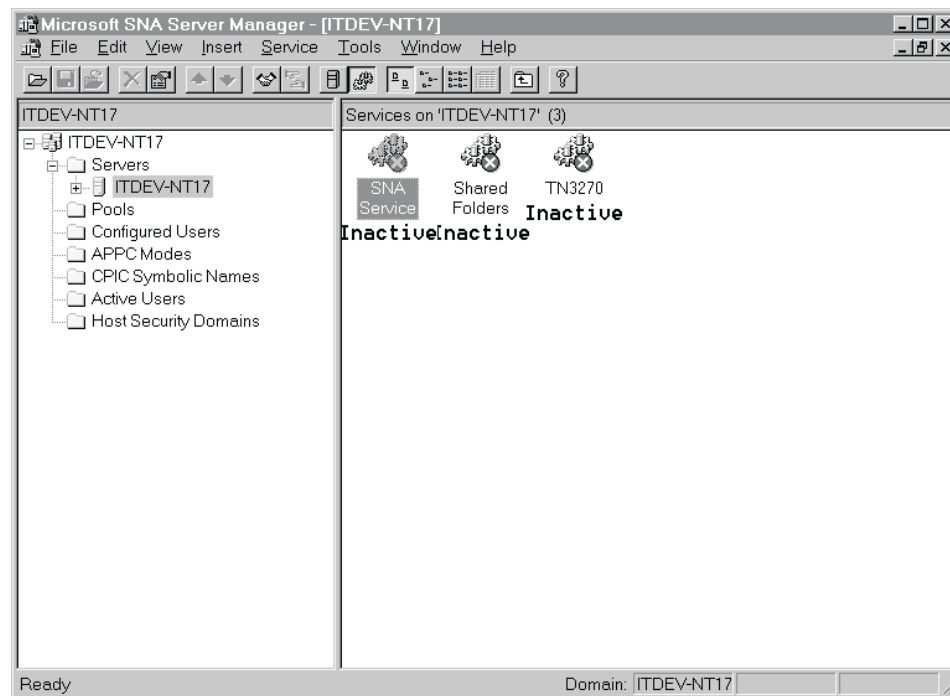
This section describes the process of creating your SNA definitions in the Microsoft Host Integration Server (formerly called the SNA Server Manager). All of the tasks described in this section are performed from within the Microsoft Host Integration Server. Note that the graphical interface you see on your screen when you use this tool will actually carry the name of the Microsoft Host Integration Server.

### 6.4.1 Server Selection

Select the appropriate folder to ensure that definitions created are for that server. When SNA Server Manager is started, a dialog box appears.

Select the "Servers" folder under your local system (in this example ITDEV-NT17) and select the local SNA Server. From a list of services for that server, select the SNA Service. (Refer to [Figure 6-1](#)).

**Figure 6-1 SNA Server Manager Window - Select SNA Service**

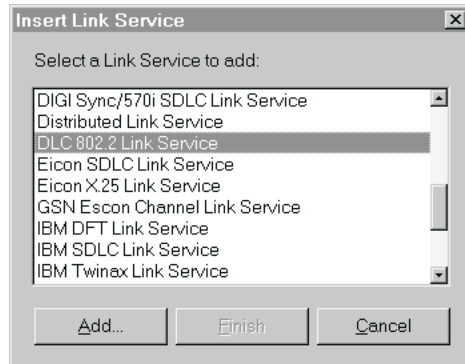


## 6.4.2 Link Service Definition

You must install and configure a link service for SNA Server to use the network adapter installed in your workstation, as follows:

1. From the Insert menu, select Link Service.
2. From the Insert Link Service dialog box, select the Link Service you want to use from the selection list and click the [Add] button. In this example, the DLC 802.2 Link Service is selected. (Refer to [Figure 6–2](#)).

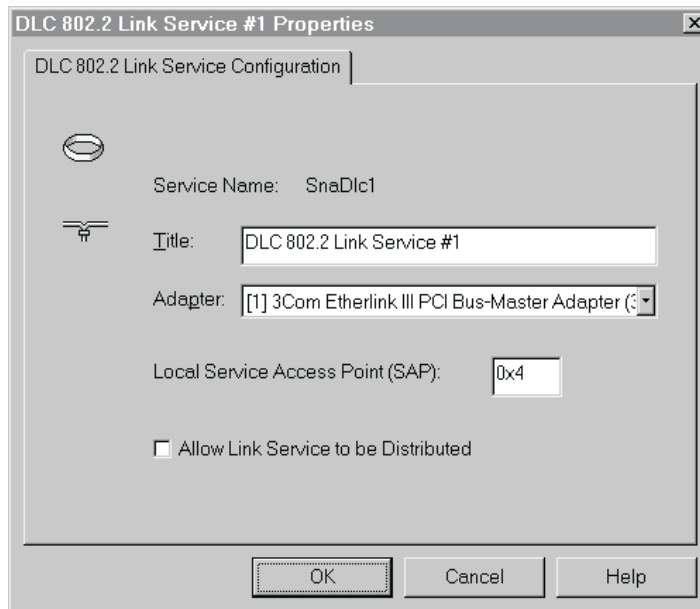
**Figure 6–2 Insert Link Service Dialog Box**



Now the Link Service Properties dialog box is displayed. Note that the contents of this dialog vary depending on which Link Service was selected. In this example, the DLC 802.2 Link Service Properties dialog is used.

Select the appropriate network adapter from the Adapter drop-down menu and click [OK]. From the Insert Link Service dialog box, click the [Finish] button. The system now updates your network bindings. (Refer to [Figure 6–3](#)).

**Figure 6–3 Link Service Properties Box**





### 6.4.3 Connection Definition

You must create a connection definition to define the devices which SNA Server uses to perform SNA communication. From the Insert menu, select Connection. The Connection Properties dialog box appears.

Select the General tab. Enter a Connection Name. This is the name used by SNA Server to name the connection. This example names the connection `TOKEN1`. From the Link Service drop-down menu, select a link service for the connection. All other settings can be left set to their default values. (Refer to [Figure 6-4](#)).

**Figure 6-4 Connection Properties Box - Enter Connection Name and Link Service**

The screenshot shows the 'Connection Properties' dialog box with the 'General' tab selected. The 'Name' field contains 'TOKEN1'. The 'Link Service' dropdown is set to 'SnaDlc1'. The 'Comment' field contains 'Token-Ring to HQMVS2'. There is an unchecked checkbox for 'Supports Dynamic Remote APPC LU Definition'. Below this are three groups of radio buttons: 'Remote End' with 'Host System' selected, 'Allowed Directions' with 'Outgoing Calls' selected, and 'Activation' with 'On Server Startup' selected. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Select the Address tab in the Connection Properties box. Enter the Remote Network Address and the Remote SAP address. (Refer to [Figure 6-5](#)).

**Figure 6-5 Enter Remote Address**

The screenshot shows the 'Connection Properties' dialog box with the 'Address' tab selected. The 'Remote Network Address' field contains '400000FFFFFF' and the 'Remote SAP Address' field contains '04'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Now select the System Identification tab. Under Local Node Name, enter the Network Name, Control Point Name and Local Node ID.

Under Remote Node Name, enter the Network Name, Control Point Name, and optionally, the Remote Node ID. The XID Type should be set to Format 3. (Refer to [Figure 6-6](#)).

**Figure 6-6 Set System Identification**

The figure shows the 'Connection Properties' dialog box with the 'System Identification' tab selected. The '802.2 DLC' tab is also visible. The 'Local Node Name' section contains three fields: 'Network Name' (ORACLE), 'Control Point Name' (ITDVNT17), and 'Local Node ID' (05D 17435). The 'Remote Node Name' section contains three fields: 'Network Name' (ORACLE), 'Control Point Name' (HQMVS2), and 'Remote Node ID' (empty). The 'XID Type' section has two radio buttons: 'Format 0' and 'Format 3' (selected). The 'Peer DLC Role' section has three radio buttons: 'Primary', 'Secondary', and 'Negotiable' (selected). The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

Next, select the DLC tab in the Connection Properties box. In this example, the 802.2 DLC (Token Ring) is being used. For the 802.2 DLC, all of the defaults are usually acceptable. If you need to change any values, do so now.

Now all of the connection properties are set. Click the [OK] button to continue. (Refer to [Figure 6-7](#)).

**Figure 6-7 Select DLC**

The figure shows the 'Connection Properties' dialog box with the '802.2 DLC' tab selected. The 'General', 'Address', and 'System Identification' tabs are also visible. The 'Max BTU Length' field is set to 1493. The 'Receive ACK Threshold (frames)' field is set to 2, and the 'Retry Limit' field is set to 10. The 'Unacknowledged Send Limit (frames)' field is set to 8, and the 'XID Retries' field is set to 3. The '802.2 Timeouts' section has three dropdown menus: 'Response (t1)' (Default), 'Receive Ack (t2)' (Default), and 'Inactivity (ti)' (Default). The 'Connection Retry Limits' section has two dropdown menus: 'Maximum Retries' (No Limit) and 'Delay After Failure' (Default). The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

### 6.4.4 Local LU Definition

You must create a local LU definition. The local LU definition describes the SNA LU through which the gateway communicates with OLTP systems.

From the Insert menu, select Local APPC LU. The local LU Properties dialog box appears.

Select the General tab. Enter the LU alias, Network Name and LU Name. Be sure the APPC Syncpoint Support box is not checked. (Refer to [Figure 6-8](#)).

**Figure 6-8 Select Local APPC LU Properties- Enter General LU Properties**

The screenshot shows the 'Local APPC LU Properties' dialog box with the 'General' tab selected. The 'Advanced' tab is also visible. The 'General' tab contains the following fields and controls:

- LU Alias:** Text box containing 'HQCC101'.
- Network Name:** Text box containing 'ORACLE'.
- LU Name:** Text box containing 'HQCC101'.
- Comment:** Empty text box.
- APPC SyncPoint Support:** A checkbox that is currently unchecked.

At the bottom of the dialog box are three buttons: 'OK', 'Cancel', and 'Help'.

Select the Advanced tab of the Local APPC LU Properties box. Check the "Member of Default Outgoing Local APPC LU Pool" box. Set the LU 6.2 Type to "Independent" to allow parallel sessions. (Refer to [Figure 6-9](#)).

Now the Local LU properties are all set. Click [OK] to continue.

**Figure 6-9 Select Local APPC LU Properties Advanced Tab**

The screenshot shows the 'Local APPC LU Properties' dialog box with the 'Advanced' tab selected. The 'General' tab is also visible. The 'Advanced' tab contains the following fields and controls:

- Member of Default Outgoing Local APPC LU Pool:** A checkbox that is checked.
- Timeout for Starting Invokable TPs:** A text box containing '60' followed by 'sec'.
- Implicit Incoming Remote LU:** A dropdown menu showing '<None>'.
- LU 6.2 Type:** A group box containing two radio buttons: 'Independent' (selected) and 'Dependent'.
- LU Number:** A text box containing '0'.
- Connection:** A dropdown menu showing '<None>'.

At the bottom of the dialog box are three buttons: 'OK', 'Cancel', and 'Help'.

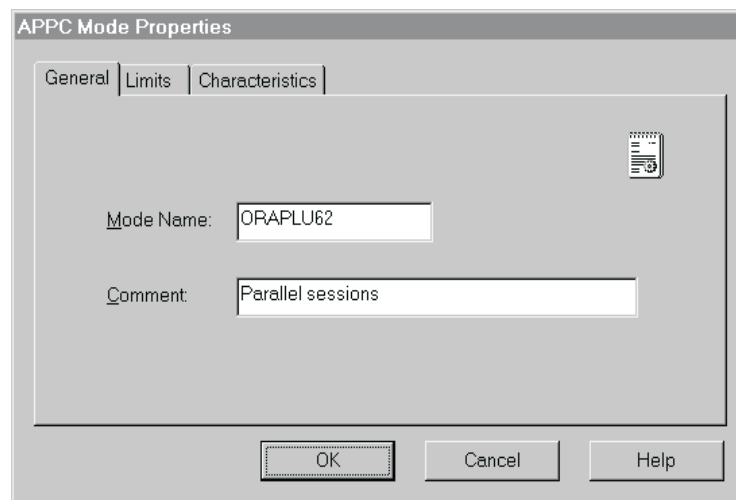
## 6.4.5 Mode Definition

This definition describes an SNA mode entry to be used when establishing sessions between LUs. The mode defined here must match a mode defined on the target system.

From the Insert menu, select APPC Mode Definition. The APPC Mode Properties dialog box appears.

Select the General tab. Enter the Mode Name. The mode name that you specify must be defined to the OLTP communications software. Choose the mode name in addition to other mode parameters after consulting the person responsible for configuring the OLTP communications software. (Refer to [Figure 6–10](#)).

**Figure 6–10 Open APPC Mode Properties Box - Enter Mode Name**



Next, select the Limits tab. Enter the Parallel Session Limit, Minimum Contention Winner Limit, Partner Min Contention Winner Limit, and Automatic Activation Limit.

The Parallel Session limit determines the maximum number of concurrent conversations allowed between the gateway instance and the OLTP. This equates to the maximum number of concurrently active remote transaction program invocations through the gateway instance. (Refer to [Figure 6–11](#)).

**Figure 6–11 Select Mode Properties Limits Tab**

The screenshot shows the 'APPC Mode Properties' dialog box with the 'Limits' tab selected. The dialog has three tabs: 'General', 'Limits', and 'Characteristics'. The 'Limits' tab contains four input fields with the following values: 'Parallel Session Limit' is 255, 'Minimum Contention Winner Limit' is 1, 'Partner Min Contention Winner Limit' is 1, and 'Automatic Activation Limit' is 1. There is a help icon (question mark in a circle) to the right of the first field. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

Now, select the Characteristics tab. Enter the Pacing Send Count, Pacing Receive Count, Max Send RU Size, and Max Receive RU size. For optimal performance, check the High Priority Mode box.

The pacing and RU size parameters are performance-related and should be tuned to suit your application. For most installations, the values set in the example are sufficient. (Refer to [Figure 6–12](#)).

After you finish entering the values called for in this box, all of the APPC mode properties will be set. Click the [OK] button at the bottom of the box to continue.

**Figure 6–12 Set Mode Properties Characteristics**

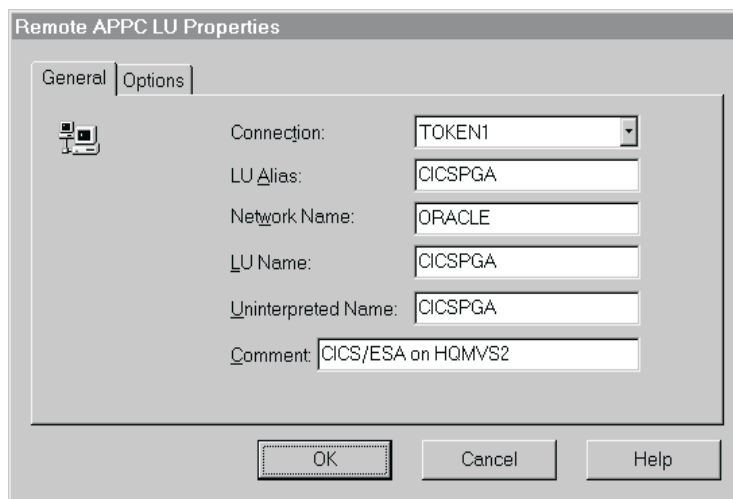
The screenshot shows the 'APPC Mode Properties' dialog box with the 'Characteristics' tab selected. The dialog has three tabs: 'General', 'Limits', and 'Characteristics'. The 'Characteristics' tab contains four input fields with the following values: 'Pacing Send Count' is 7, 'Pacing Receive Count' is 7, 'Max Send RU Size' is 1024, and 'Max Receive RU Size' is 4096. There is a help icon (question mark in a circle) to the right of the first field. Below the input fields is a checked checkbox labeled 'High Priority Mode'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

## 6.4.6 Remote LU Definition

This definition describes the SNA LU of the OLTP system with which the gateway communicates. You must create a remote LU definition for the remote OLTP system. Determine the link with which to associate the LU (in the example, it is `TOKEN1`). From the Insert menu, select APPC Remote LU. The Remote APPC LU Properties dialog box appears.

Select the General tab. Use the Connection drop-down menu to select the connection used to access this LU. Enter the LU Alias, Network Name, LU Name, and Uninterpreted LU Name. You should contact the person responsible for your SNA network to determine the correct LU and network names. Note that you can use the LU Alias to define a name known only to SNA Server, and that name can remain the same even if the remote LU name changes. This helps to reduce the amount of maintenance required when network changes occur. (Refer to [Figure 6–13](#)).

**Figure 6–13 Open Remote APPC LU Properties Box - Enter Remote LU Names**



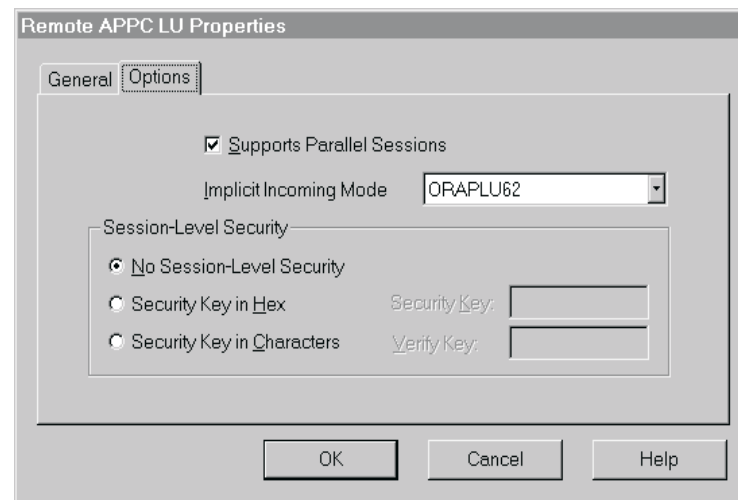
The screenshot shows the 'Remote APPC LU Properties' dialog box with the 'General' tab selected. The 'Options' tab is also visible. The 'Connection' dropdown menu is set to 'TOKEN1'. The 'LU Alias' field contains 'CICSPGA'. The 'Network Name' field contains 'ORACLE'. The 'LU Name' field contains 'CICSPGA'. The 'Uninterpreted Name' field contains 'CICSPGA'. The 'Comment' field contains 'CICS/ESA on HQMVS2'. The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

Field	Value
Connection:	TOKEN1
LU Alias:	CICSPGA
Network Name:	ORACLE
LU Name:	CICSPGA
Uninterpreted Name:	CICSPGA
Comment:	CICS/ESA on HQMVS2

Now select the Options tab. Check the Supports Parallel Sessions box. Use the Implicit Incoming Mode drop-down menu to select the mode. Set any security options you need. (Refer to [Figure 6-14](#)).

Once you have filled in the appropriate values in the Remote APPC LU Properties box, the APPC LU properties will be set. Click [OK] to continue.

**Figure 6-14 Select LU Properties Options**

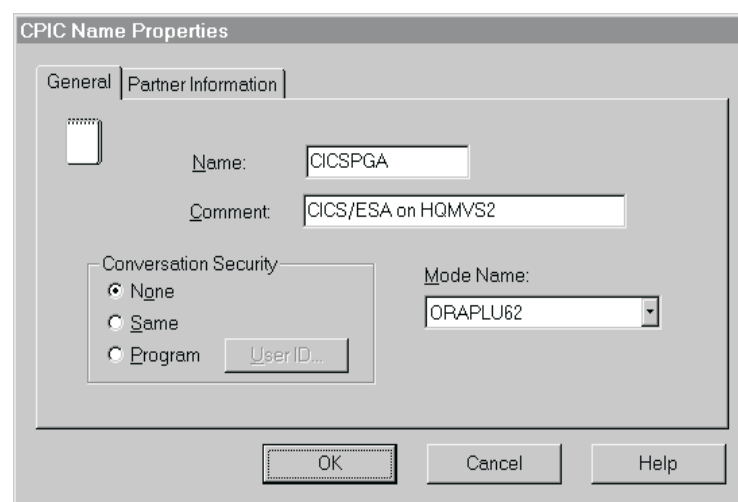


### 6.4.7 CPI-C Symbolic Destination Name

When the Local and Remote Partner definitions and Mode definitions have been created, you can create CPI-C Symbolic Destination Names, also called Side Information. The Side Information is used to identify target OLTP systems to be accessed through the gateway. From the Insert menu, select "APPC CPIC Symbolic Name". The CPIC Name Properties dialog box appears.

Select the General tab. Enter a Name for the Side Information. From the Mode Name pull-down menu, select the appropriate mode. (Refer to [Figure 6-15](#)).

**Figure 6-15 CPI-C Name Properties Box - Enter Side Information Name and Mode**



Now select the Partner Information tab. Select Application TP and enter the TP name. If you plan to define one CPI-C Symbolic Destination Name for accessing multiple transaction programs at an OLTP, you can enter a dummy TP Name at this time. The TP Name is overridden by the gateway at execution time.

Enter the Partner LU Name alias. (refer to [Figure 6-16](#)).

Click the [OK] button to save the Side Information.

**Figure 6-16 Select CPI-C Partner Information**

The screenshot shows the 'CPIC Name Properties' dialog box with the 'Partner Information' tab selected. The dialog has two main sections: 'Partner TP Name' and 'Partner LU Name'. In the 'Partner TP Name' section, the 'Application TP' radio button is selected, and the text field next to it contains 'FLIP'. The 'SNA Service TP [in hex]' radio button is unselected, and its text field is empty. In the 'Partner LU Name' section, the 'Alias' radio button is selected, and the text field next to it contains 'CICSPGA'. The 'Fully Qualified' radio button is unselected, and its text field is empty. At the bottom of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

Configuration of the Microsoft Host Integration Server is now complete. Proceed to ["Testing the Connection"](#) on page 6-18.



## 6.5 Configuring an IBM Communications Server

If you are using IBM Communications Server as your SNA Server, read the following sections to learn how to configure it to communicate with the Oracle Procedural Gateway for APPC.

### 6.5.1 Independent Versus Dependent LUs

Oracle recommends independent LUs for the Oracle Procedural Gateway for APPC because they support multiple parallel sessions or conversations. This means that multiple Oracle client applications can be active simultaneously with the same OLTP through the independent LU.

Dependent LUs support only a single active session. The CP (Control Point for the node, which is IBM Communications Server, in this case) queues additional conversation requests from the gateway server behind an already active conversation. In other words, conversations are single-threaded for dependent LUs.

If a gateway LU is correctly defined, then no alterations to the Oracle Procedural Gateway for APPC configuration are needed, nor should any changes be needed to the gateway server.

The operational impact of dependent LUs is that the first client application can initiate a conversation through the Procedural Gateway with the gateway server. While that transaction is active (which could be seconds to minutes to hours, depending on how the client application and transaction are designed), any other client application initiating a session with the same gateway server appears to hang as it waits behind the previous session.

If a production application really uses only a single conversation at any one time, then there should be no impact.

However, additional concurrent conversations might be required for testing or for other application development. Each requires that additional dependent LUs be defined on the remote host, plus additional IBM Communication Server configuration entries, which define the additional dependent LUs on the host Windows system.

Additional Side Information Profiles should be defined to use the new dependent LUs. New gateway instances should be created and configured to use these new Side Information Profiles.

Refer to PGAU DEFINE TRANSACTION SIDEPROFILE and LUNAME parameters in Chapter 2, "Procedural Gateway Administration Utility," in the *Oracle Procedural Gateway for APPC User's Guide*.

### 6.5.2 Definition Types

Several types of IBM Communications Server definitions are relevant to gateway APPC/LU6.2 operation. Each definition can be created and edited using a corresponding SNA Node Configuration menu.

The definitions relevant to the gateway are presented here in hierarchical order. Those definition types that are lowest in the hierarchy are discussed first. This matches the logical sequence in which to create the definitions.

Refer to the IBM Communications Server online documentation for a complete discussion of IBM Communications Server definitions. This section provides an overview of IBM Communications Server definitions in relation to the Oracle Procedural Gateway for APPC.

## 6.6 Creating IBM Communications Server Definitions for the Gateway

IBM Communications Server definitions are created using the SNA Node Configuration tool, while the actual operation of the server is done using the SNA Node Operations tool, both of which are provided with IBM Communications Server.

Maintenance of SNA definitions is normally done by a user with Administrator privileges.

The following sections describe the process of creating your SNA definitions for IBM Communications Server using the SNA Node Configuration tool. All of the tasks described in this sections are performed within SNA Node Configuration.

### 6.6.1 Creating the Configuration

SNA Node Configuration will first ask you if you are creating a new configuration or loading an existing configuration. These tasks are based on the assumption that a new configuration is being created.

SNA Node Configuration will next prompt you for a configuration scenario.

### 6.6.2 Creating the Node

Each SNA Server must have a Control Point defined. This is typically called the Node definition. To define the node:

1. Click on Node.
2. Click the [Create] button.
3. In the Define the Node dialog box, select the Basic tab. Enter the Control Point, Local Node ID and Node Type information.

You can select Advanced tab options, depending upon your SNA network configuration.

4. Click [OK].

### 6.6.3 Creating Devices

Configure Communication Devices next. Follow these instructions:

1. Click on Devices.
2. Click the [Create] button.

### 6.6.4 Choosing the Device Type

Select the type of device to use for communication. The LAN type is typical for either Ethernet or Token Ring attached network devices.

### 6.6.5 Configuring a LAN Device

Configure a LAN device next. Follow these instructions:

1. Select the Basic tab. Choose the Adapter to use and the Local SAP.  
The other tabs provide options on network tuning parameters.
2. Click [OK].

### 6.6.6 Creating Peer Connections

Configure Peer Connections next. Follow these instructions:

1. Click on Peer Connections.
2. Click the [Create] button.

### 6.6.7 Defining the Link Station

Define the Link Station next. Follow these instructions:

1. In the Basic tab, enter a Link Station name for this connection.
2. Choose the device for the connection.
3. Enter the Destination address and Remote SAP.

### 6.6.8 Defining the Adjacent Node

Define the Adjacent Node next. Follow these instructions:

1. Select the Adjacent Node tab.
2. Enter the Adjacent CP name of the remote system and pick its CP type. You may have to choose a different transmission group (TG) than the default. Consult your SNA network administrator for details.  
  
Other tabs provide options on tuning and reactivation.
3. Click [OK].

### 6.6.9 Creating Local LUs

Create Local LUs for this node next. Follow these instructions:

1. Click on Local LU 6.2 LUs.
2. Click the [Create] button.

### 6.6.10 Defining Local LUs

Define Local LUs next. Follow these instructions:

1. In the Basic tab, enter the name of the Local LU, and, optionally, an alias. The name must match the Local LU definition of the remote host for this Node.  
  
You can examine the other tab for synchronization support and for LU session limits.
2. Click [OK].

### 6.6.11 Creating Partner LUs

Create remote Partner LUs next. Follow these instructions:

1. Click on Partner LU 6.2 LUs.
2. Click the [Create] button.

### 6.6.12 Defining Partner LUs

Define Partner LUs next. Follow these instructions:

1. In the Basic tab, enter the name of the Remote or Partner LU, and, optionally, an alias.
2. Choose the Fully Qualified CP from the Existing list.  
You can examine the other tab for logical record limits and security support.
3. Click [OK].

### 6.6.13 Creating the CPI-C Side Information Profile

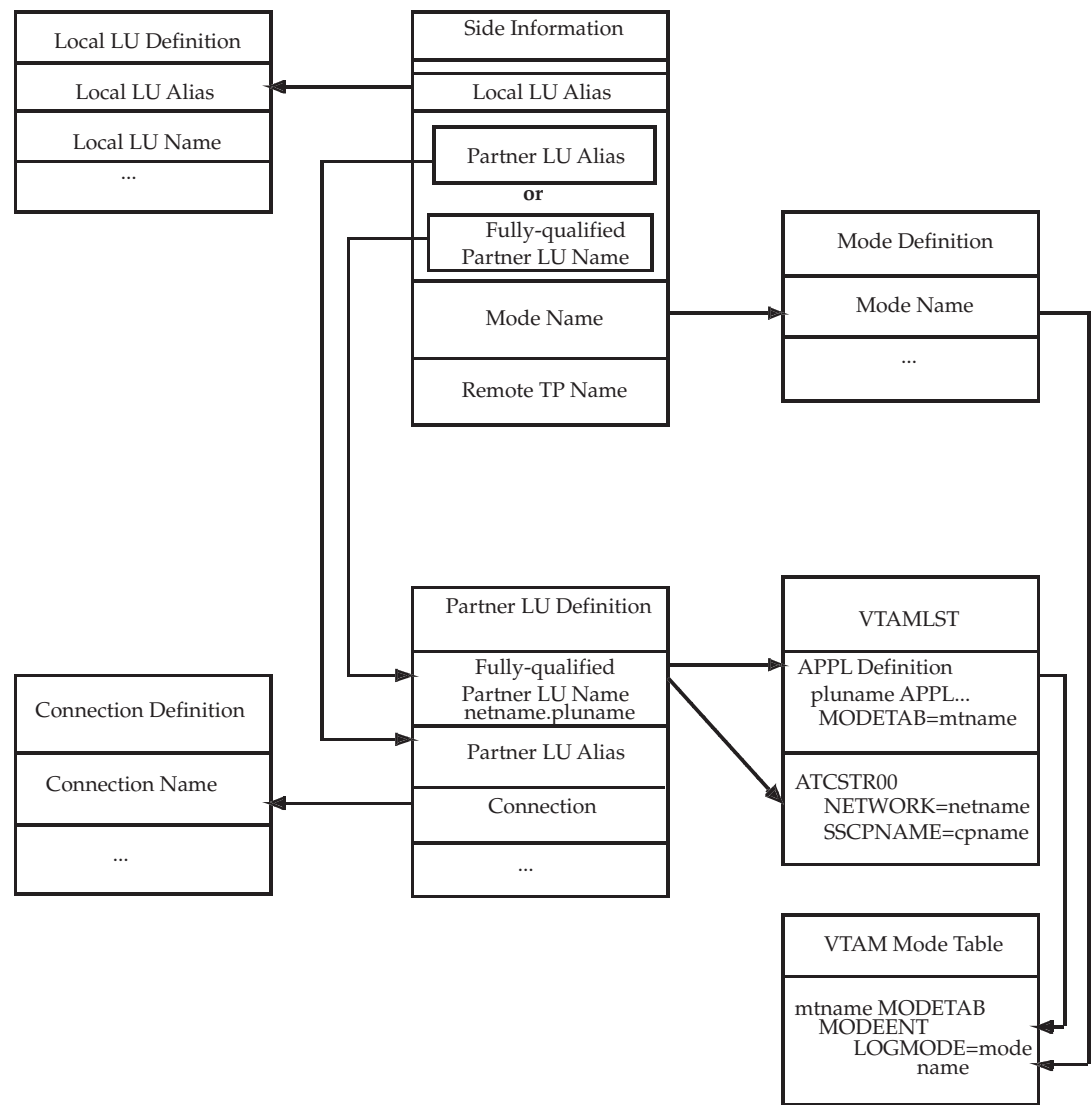
Next, define the CPI-C profile that will be used to create the gateway. Follow these instructions:

1. Click on the CPI-C Side Information Definitions.
2. Click the [Create] button.

## 6.7 Testing the Connection

Before proceeding with the gateway configuration tasks, ensure that your connection is working. You can do this using the Microsoft Host Integration Server (SNA Server Manager).

[Figure 6-17](#) shows the relationship between SNA Server definitions and the VTAM definitions on the host.

**Figure 6–17 Relationship Between SNA Server Definitions and Host VTAM**

## 6.8 Resume Configuration of the Gateway

When you have finished configuring the SNA Server for your Windows system, proceed to [Chapter 8, "Configuring the OLTP"](#) to continue configuring the network.













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## Configuring the TCP/IP Communications Package for IMS Connect

Read this chapter if your gateway uses the TCP/IP communication protocol. It describes how to configure the TCP/IP for IMS Connect feature for Microsoft Windows. TCP/IP is a communication protocol that is already a part of your operating system. No third-party protocol software is required. This chapter contains the following section:

- ["Configuring TCP/IP for IMS Connect on Windows Platforms"](#) on page 7-2

## 7.1 Configuring TCP/IP for IMS Connect on Windows Platforms

The configuration process requires you to enter parameters that are unique to your system in order to properly configure TCP/IP. Ask your network administrator to provide you with a list of the installation parameters you will need to complete the configuration process.

Basic configuration consists of assigning a host name, an IP address and a Network Mask to a given network interface. This basic configuration should have been completed already by your systems administrator. If not, contact your systems administrator to have this configuration completed before you continue.

Additional configuration consists of defining a Name Server IP Address or creating entries in the Hosts file on the local machine. Name Servers translate host names into IP addresses when queried on a particular host name. The hosts file provides this same functionality, but in a non-network participating manner.

For local configuration, (i.e., if the gateway is on the same machine), it may be desirable to use the loop-back address. The IP address is 127.0.0.1 and is typically given the local name ("localhost" or "loopback") in the Hosts file. Using the loop-back address reduces the amount of network overhead by handling the traffic internally without actually "talking" to the network.

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**Note:** The Oracle Procedural Gateway for APPC using TCP/IP support for IMS Connect has specific initialization file parameters. These parameters are located in `%ORACLE_HOME%\pg4appc\admin\initsid.ora`. For information on these parameters, refer to ["Gateway Initialization Parameter File Using TCP/IP"](#) on page B-2.

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For additional information about configuring TCP/IP for a particular host operating system, refer to the appropriate platform and operating system installation and configuration guides.

When you have finished configuring TCP/IP for IMS Connect for the gateway, proceed to [Chapter 8, "Configuring the OLTP"](#) to complete and verify the configuration processes.

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## Configuring the OLTP

The following sections detail how to configure the OLTP.

- ❑ **If your communications protocol is SNA:** proceed to [Section 8.1, "Configuring the OLTP for Your SNA Environment"](#) on page 8-2.
- ❑ **If your communications protocol is TCP/IP:** proceed to [Section 8.2, "Configuring the OLTP for Your TCP/IP Environment"](#) on page 8-8.

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**Note:** On a gateway using TCP/IP support for IMS Connect, you must specify EDIT=ULC in the IMS TRANSACT macro if you need input case sensitivity. When using SNA support, you need not specify EDIT=ULC in the IMS TRANSACT macro.

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## 8.1 Configuring the OLTP for Your SNA Environment

The steps for configuring your OLTP to communicate with the Oracle Procedural Gateway for APPC vary, depending on which OLTP you are using and on which platform the OLTP is running. CICS Transaction Server for z/OS, IMS/TM, APPC/MVS, IDMS-DC and z/OS are the currently supported OLTPs. Choose the instructions appropriate to your OLTP from the following sections:

- ["Configuring CICS Transaction Server for z/OS" on page 8-2](#)
- ["Configuring IDMS-DC" on page 8-4](#)
- ["Configuring IMS/TM" on page 8-6](#)
- ["Configuring APPC/MVS" on page 8-7](#)

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**Note:** You need only perform the configuration steps for an OLTP if this is a first-time configuration for that OLTP.

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### Configuring CICS Transaction Server for z/OS

If your OLTP is CICS Transaction Server for z/OS, then perform the following steps to configure it for communication with the gateway:

1. Configure MVS VTAM for the SNA Server that will make the APPC connection to your system. At least one independent LU must be available to gateway.
2. Check the VTAM logmode table used by the CICS Transaction Server for z/OS. (The table name is specified in the MODETAB parameter in the VTAM APPL definition for CICS.) Ensure that an entry exists for APPC sessions with parallel session and sync-level support.

The **oraplu62.asm** file in the **%ORACLE\_HOME%\pg4appc\sna** directory contains a sample mode entry, including comments that indicate the required values in the mode entry.

3. Using your file transfer facility, transfer the following files from the **%ORACLE\_HOME%\pg4appc\demo\CICS** directory to the z/OS system on which you run CICS Transaction Server for z/OS:
  - **dfhcsdup.jcl** - JCL to run the CICS DFHCS DUP utility
  - **pgaflip.asm** - assembler source for the CICS FLIP transaction
  - **pgaflip.jcl** - JCL to assemble and linkedit the CICS FLIP transaction
4. Using the comments in the **dfhcsdup.jcl** file, tailor the JCL and input statements to match your system setup, and submit it for batch execution. Performing this step updates your Transaction Server for z/OS system definitions.
5. Using the instructions in the **pgaflip.jcl** file comments, tailor the JCL to match your system setup, and submit it for batch execution. Performing this step assembles and linkedit the **pgaflip.asm** file into a load module library accessible to your Transaction Server for z/OS through the DFHRPL DD statement in the CICS startup procedure.
6. Log on to your CICS Transaction Server for z/OS and enter the following transaction:

```
CEDA INSTALL GROUP(ORAPGA)
```

This transaction installs the CICS connection and session definitions for APPC communication with the gateway on Windows. It also installs definitions for the sample CICS programs and transactions provided with the gateway.

Your CICS Transaction Server for z/OS configuration is now complete.

## Configuring IDMS-DC

If your OLTP is IDMS-DC, perform the following steps to configure IDMS-DC and z/OS for communication with the gateway:

1. Configure MVS VTAM for the communication interface APPC connection to Windows. At least one independent LU must be available for use by the gateway.
2. If your IDMS-DC system does not have APPC support, then set up a separate MVS VTAM APPL definition for use by the IDMS-DC LU6.2 interface. IDMS-DC cannot use the same VTAM APPL for both VTAM terminal and VTAM APPC support.

For additional information, refer to vendor documentation.

3. Check the VTAM logmode table used by IDMS-DC. (The table name is specified in the MODETAB parameter in the VTAM APPL definition for IDMS-DC.) Ensure that an entry exists for APPC sessions with parallel session and sync level support. The **oraplu62.asm** file in the **%ORACLE\_HOME%\pg4appc\sna** directory contains a sample mode entry, including comments that indicate the required values in the mode entry.

4. Modify the Mode Profile to be used for your IDMS-DC connections.

To bypass a bug in IDMS-DC, set the "Auto ACTIVATIONS limit" field to the same value as the "maximum number of SESSIONS" field. Without this setting, IDMS-DC rejects the first data packet received from Windows on each conversation, making it impossible for the gateway to communicate with an IDMS-DC transaction.

5. Using *CA-IDMS System Generation* as a guide, perform the following IDMS tasks:

- a. Enable the IDMS-DC multiple session service manager, RHDCCNOS.
- b. Define a VTAM line for APPC use, if one is not already defined.
- c. Define PTERMs and LTERMs for communications with the Windows independent LU, as defined to VTAM on z/OS.

Set up two PTERM/LTERM definitions to use the SNASVCMG mode entry for communications between the SNA Service Managers on MVS and Windows. Set up one of these definitions as a contention winner and set up the other one as a contention loser. Set up additional PTERM/LTERM definitions to use the mode entry defined in the SNA Server. Profile DEFINE/MODE entry for use by the gateway sessions. One PTERM/LTERM definition is required for each concurrent session with the gateway. Set up these definitions with contention off.

In the **%ORACLE\_HOME%\pg4appc\demo\IDMS** directory, the **appcdef.doc** file provides sample IDMS-DC definitions for a VTAM line with PTERMs and LTERMs.

- d. Define the IVP and sample programs and transactions to IDMS-DC.

In the **%ORACLE\_HOME%\pg4appc\demo\IDMS** directory, the **trandef.doc** file provides sample IDMS-DC definitions for the IVP and sample programs and transactions. These definitions should not be modified.



6. Using your file transfer facility, transfer the following files from the `%ORACLE_HOME%\pg4appc\demo\IDMS` directory to the z/OS system on which you run IDMS-DC:
  - **pgaflip.asm** - the assembler source for the IDMS-DC FLIP program
  - **pgaflip.jcl** - JCL to assemble and linkedit the IDMS-DC FLIP program
7. Using the comments in the **pgaflip.jcl** file, tailor the JCL to match your system setup and submit it for batch execution. Performing this step assembles and linkedit the **pgaflip.asm** file into a load module library accessible to your IDMS-DC system through the CDMSLIB DD statement in the IDMS-DC startup procedure.

The IDMS-DC configuration is now complete.

## Configuring IMS/TM

If your OLTP is IMS/TM, then perform the following steps to configure IMS/TM and z/OS for communication with the gateway:

1. Configure your IMS system for the APPC.
2. Configure MVS VTAM for the SNA APPC connection to Windows. At least one independent LU must be available for use by the gateway, unless you are using the IMS LU6.1 Adapter for LU6.2 applications. In this case, you must have one dependent LU defined for each concurrent session. For example, if you want to support 10 concurrent sessions, then you must have 10 dependent LUs defined.
3. Check the VTAM logmode table used by IMS/TM. The table name is specified by the MODETAB parameter in the VTAM APPL definition.

For APPC/IMS, ensure that an entry exists for APPC sessions with sync-level support and parallel session support. The **oralu62.asm** and **oraplu62.asm** files in the %ORACLE\_HOME%\pg4appc\sna directory contain sample mode entries for single session and parallel session support, respectively. The samples include comments that indicate the required values in the mode entries.

4. Using your file transfer facility, transfer the following files from the %ORACLE\_HOME%\pg4appc\demo\IMS directory to the z/OS system on which you run IMS/TM:
  - **pgaflip.asm** is assembler source for IMS FLIP transaction;
  - **pgaflip.jcl** is JCL to assemble and linkedit IMS FLIP transaction;
  - **msgen.asm** is IMS stage 1 gen definitions for the IMS FLIP transaction.
5. Add the statements in the **msgen.asm** file to your IMS stage 1 gen and run your IMS stage 1 and stage 2 gens. Use the online change utility to enable the new transaction definition.
6. Using the comments in the **pgaflip.jcl** file, tailor the JCL to match your system setup and submit it for batch execution. This assembles and linkedit the **pgaflip.asm** file into a load module library that is accessible to your IMS/TM system and creates an PSB and an ACB for the FLIP transaction.
7. Perform the tasks necessary on your system to make the new transaction available to IMS/TM. Depending on your system setup, you might have to restart IMS.

The IMS/TM configuration is now complete.

## Configuring APPC/MVS

If your OLTP is APPC/MVS, then perform the following steps to configure APPC/MVS for communication with the gateway:

1. Configure MVS VTAM for the SNA APPC connection to Windows. At least one independent LU must be available for use by the gateway.
2. Check the VTAM logmode table used by APPC/MVS. (The table name is specified by the MODETAB parameter in the VTAM APPL definition for APPC/MVS.) Ensure that an entry exists for APPC sessions with sync level and parallel session support. The **oraplu62.asm** file in the **%ORACLE\_HOME%\pg4appc\sna** directory contains a sample mode entry, including comments that indicate the required values in the mode entry.
3. Allocate a partitioned dataset (PDS) on your z/OS system where the sample files are placed. The PDS should be allocated with RECFM=FB, LRECL=80, and a BLKSIZE appropriate for the device type on which it resides. Approximately two tracks of 3390 disk space are required with one directory block. Oracle suggests naming this partitioned dataset (PDS) **ORAPGA.APPCMVS.SAMPLIB**.
4. Using your file transfer facility, transfer the following files from the **%ORACLE\_HOME%\pg4appc\demo\MVS** directory to the z/OS PDS you allocated in the previous step, using the following specified member names:
  - **pgaflip.jcl** is JCL to add an APPC/MVS TP profile and to define the execution environment for the transaction. Store this file in your z/OS PDS as member **PGAFLIPJ**.
  - **pgaflip.rex** is the REXX source for the APPC/MVS **PGAFLIP** transaction. Store this file in your z/OS PDS as member **PGAFLIP**.
5. Using the comments in the **pgaflip.jcl** file, tailor the JCL to match your system setup and submit it for batch execution. Performing this step defines the APPC/MVS TP profile for the **PGAFLIP** transaction and stores it in the APPC/MVS profile dataset. Ensure that you change the dataset name in the JCL to match the name of the z/OS PDS allocated in Step 3.

The APPC/MVS configuration is now complete.

- ❑ Now that you have completed configuration of the network on a gateway using the SNA protocol, proceed to [Chapter 9, "Gateway Configuration Using SNA Communication Protocol"](#).
- ❑ If you wish to configure commit-confirm, instructions for this configuration can be found in [Section 9.8, "Configuring Commit-Confirm"](#).

## 8.2 Configuring the OLTP for Your TCP/IP Environment

These are the steps for configuring your OLTP to communicate with Oracle Procedural Gateway for APPC using TCP/IP for IMS Connect. IMS/TM, through IMS Connect, is the only supported OLTP for this release of the gateway.

Perform the following steps to configure IMS/TM and z/OS for communication with the gateway:

1. Configure your IMS system.
2. Configure IMS Connect

For information on how to configure IMS Connect, refer to the IBM *IMS Connect Guide and Reference*.

3. Using your file transfer facility, transfer the following files from the `%ORACLE_HOME%\pg4appc\demo\IMS` directory to the z/OS system on which you run IMS/TM:
  - **pgaflip.asm** is assembler source for IMS FLIP transaction;
  - **pgaflip.jcl** is JCL to assemble and linkedit IMS FLIP transaction;
  - **imsgen.asm** is IMS stage 1 gen definitions for the IMS FLIP transaction.
4. Add the statements in the **imsgen.asm** file to your IMS stage 1 gen and run your IMS stage 1 and stage 2 gens. Use the online change utility to enable the new transaction definition.
5. Using the comments in the **pgaflip.jcl** file, tailor the JCL to match your system setup and submit it for batch execution. This assembles and linkedit the **pgaflip.asm** file into a load module library that is accessible to your IMS/TM system and creates an PSB and an ACB for the FLIP transaction.
6. Perform the tasks necessary on your system to make the new transaction available to IMS/TM. Depending on your system setup, you might have to restart IMS.

The IMS/TM configuration is now complete.

- At this point, proceed to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) to complete configuration of the gateway and its components.

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# Gateway Configuration Using SNA Communication Protocol

This chapter outlines the steps needed to configure the Oracle Integrating Server for a gateway using the SNA protocol on your Microsoft Windows platform. It also shows you how to configure commit-confirm, should you choose to implement it.

This chapter also provides the steps necessary to verify installation and configuration of the gateway components, including optional commit-confirm. It contains the following sections:

- ["Preparing to Configure a Gateway Installation/Upgrade"](#) on page 9-2
- ["Integrating Server Configuration: First-Time Gateway Installations"](#) on page 9-5
- ["Upgrading or Migrating the Oracle Server from Previous Gateways"](#) on page 9-8
- ["Configuring the Oracle Integrating Server for Gateways to Coexist"](#) on page 9-10
- ["Optional Configuration Steps to Permit Multiple Users"](#) on page 9-10
- ["Configuring the Gateway"](#) on page 9-13
- ["Configuring Commit-Confirm"](#) on page 9-14
- ["Verifying the Gateway Installation and OLTP Configuration"](#) on page 9-16
- ["Performing Post-installation Procedures"](#) on page 9-22

Configuring the Oracle Procedural Gateway for APPC using SNA involves working with the following components:

- the Oracle Integrating Server
- your Microsoft Windows system
- your network
- the OLTP

## 9.1 Before You Begin

This chapter requires you to input parameters unique to your system in order to properly configure the gateway and SNA communications interface.

Refer to [Appendix E, "Configuration Worksheet"](#) for a worksheet listing the installation parameters you will need to know before you can complete the configuration process. Ask your network administrator to provide you with these unique parameter names before you begin.

## 9.2 Preparing to Configure a Gateway Installation/Upgrade

There are three ways to establish the gateway-Oracle Integrating Server relationship when you are installing or upgrading/migrating the gateway:

- [When the Oracle Integrating Server and the gateway are installed in the same ORACLE\\_HOME on the same machine](#)
- [When the Oracle Integrating Server and the gateway are installed on separate machines](#)
- [When the Oracle Integrating Server and the gateway are on the same machine but in different directories](#)

Depending upon the location of your gateway and your Oracle Integrating Server, you may need to transfer some of the gateway administrative files to the location where your Oracle Integrating Server is installed.

Follow the instructions appropriate to your combination of the gateway-Oracle Integrating Server locations listed below.

### **When the Oracle Integrating Server and the gateway are installed in the same ORACLE\_HOME on the same machine**

You do not need to transfer files. Proceed to ["Integrating Server Configuration: First-Time Gateway Installations"](#) on page 9-5.

### When the Oracle Integrating Server and the gateway are installed on separate machines

1. Locate the gateway administrative files in the gateway `%ORACLE_HOME%\pg4appc\admin` directory. All files in this directory that have the suffix `.sql`, `.pkh`, and `.pkb` must be copied into a similarly-named directory in the Oracle Integrating Server's Oracle home directory.
2. Now locate the gateway demo files and subdirectories in the gateway's `%ORACLE_HOME%\pg4appc\demo` directory. Copy the `pgavsn.sql` and `pgaecho.sql` files into a similarly named directory in the Oracle Integrating Server.
3. Copy the other subdirectories and files related to your installed OLTP on your remote host. For example, if you have CICS as your only OLTP, then copy the gateway `%ORACLE_HOME%\pg4appc\demo\CICS` files into a similarly named directory in the Oracle Integrating Server.

---

**Note:** Before transferring the files from the `%ORACLE_HOME%\pg4appc\demo` directory, make sure that you have generated your required TIPs. You need to transfer the TIPs as well.

Refer to the *Oracle Procedural Gateway for APPC User's Guide* for information about generating TIPs using PGAU.

---

### When the Oracle Integrating Server and the gateway are on the same machine but in different directories

You must change your gateway's Oracle home to the Oracle Integrating Server's Oracle home directory.

1. For example, if your gateway's Oracle home is set as follows:

```
C:\> echo %ORACLE_HOME%
C:\oracle\pga\10.0
```

and your server's Oracle home is located in the '`\oracle\pga\10.0`' directory, then you need to do the following:

```
C:\> SET ORACLE_HOME=C:\oracle\pga\10.0
```

2. Now create the directories with the following commands:

```
C:\> cd %ORACLE_HOME%
C:\> mkdir pg4appc
C:\> mkdir pg4appc\admin
```

3. Use whatever file transfer mechanism is available on your system to copy all of the `.sql`, `.pkh`, and `.pkb` files from the gateway Oracle home `%ORACLE_HOME%\pg4appc\admin` directory to the Oracle Integrating Server's Oracle home `%ORACLE_HOME%\pg4appc\admin` directory.
4. You may also transfer the demo files from the gateway directory to the Oracle Integrating Server directory. Copy the files and directory recursively from the gateway Oracle home `%ORACLE_HOME%\pg4appc\demo` directory to the Oracle Integrating Server `%ORACLE_HOME%\pg4appc\demo` directory.

For example:

```
C:\> cd %ORACLE_HOME%\pg4appc
C:\> mkdir\demo
C:\> cd demo
C:\> xcopy C:\oracle\pga\10.0\demo /E /I /Q
```

---

---

**Note:** Before transferring the files from the %ORACLE\_HOME%\pg4appc\demo directory, make sure that you have generated your required TIPs. You need to transfer the TIPs as well.

Refer to the *Oracle Procedural Gateway for APPC User's Guide* for information about generating TIPs using PGAU.

---

---

If this is a first-time installation, proceed with ["Integrating Server Configuration: First-Time Gateway Installations"](#) on page 9-5.

If this is an upgrade, proceed with ["Upgrading or Migrating the Oracle Server from Previous Gateways"](#) on page 9-8.

Following those steps, you may want to perform the [Optional Configuration Steps to Permit Multiple Users](#), on page 9-10.



## 9.3 Integrating Server Configuration: First-Time Gateway Installations

Follow these steps to configure your Oracle Integrating Server if you have installed Oracle Procedural Gateway for APPC for the first time:

1. Ensure that the UTL\_RAW PL/SQL package has been installed on your Oracle Integrating Server. All PGAU-generated TIP specifications use UTL\_RAW, which provides routines for manipulating raw data.

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. From SQL\*Plus, enter the following command:

```
SQL> DESCRIBE UTL_RAW
```

The DESCRIBE statement produces output on your screen. If you browse through the output, you should see some functions, including a compare function. If you do not see this output, then continue the UTL\_RAW installation by performing step d below.

If the DESCRIBE statement indicates success, then your Oracle Integrating Server has UTL\_RAW installed and you can proceed to Step 2.

- c. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - d. From SQL\*Plus, run the **utlraw.sql** and **prvtrawb.plb** scripts in the Oracle Integrating Server's %ORACLE\_HOME%\rdbms\admin directory, in the following order:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @utlraw.sql
SQL> @prvtrawb.plb
```

2. Ensure that the DBMS\_OUTPUT standard PL/SQL package is enabled on your Oracle Integrating Server. The sample programs and installation verification programs on the distribution media use this standard package.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. From SQL\*Plus, enter the following command:

```
SQL> DESCRIBE DBMS_OUTPUT
```

The DESCRIBE statement produces output on your screen. If you browse through that output, you should see some functions, including a put\_line function.

If you do not see this output, then you must create the DBMS\_OUTPUT package. Refer to the *Oracle Database Application Developer's Guide* for more information about creating the DBMS\_OUTPUT package. After successful installation of the DBMS\_OUTPUT package, issue the DESCRIBE statement.

If the DESCRIBE statement indicates success, then your Oracle Integrating Server has DBMS\_OUTPUT created, and you can proceed to Step 3.

3. Install the UTL\_PG PL/SQL package. All PGAU-generated TIP specifications use UTL\_PG, which provides routines for performing numeric conversions to and from raw data.
  - a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. From SQL\*Plus, run the **utlpg.sql** and **prvtpgb.plb** scripts in the Oracle Integrating Server's **%ORACLE\_HOME%\rdbms\admin** directory, in the following order:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @utlpg.sql
SQL> @prvtpgb.plb
```

4. Install the Heterogeneous Services (HS) catalogs.
  - a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. Enter the following command:

```
SQL> DESCRIBE HS_FDS_CLASS
```

The DESCRIBE statement produces output on your screen. If the DESCRIBE statement indicates success, then heterogeneous services catalogs have been created on your Oracle Integrating Server and you can proceed to Step 5.

---

**Note:** Follow the next step only if the DESCRIBE statement does not indicate success. Step c will create the Heterogeneous Services catalog.

---

- c. If it is necessary to create the Heterogeneous Services catalog, enter the following command:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> caths.sql
```

5. Create a public database link to access Oracle Procedural Gateway for APPC:

Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM. You can use the following SQL\*Plus sample whether the Oracle Integrating Server and the gateway are on the same system or on different systems. In the following sample, **pgasrv** is the **tns\_name\_entry** that will be assigned to the gateway when you modify the **tnsnames.ora** file later in this chapter.

```
SQL> CREATE PUBLIC DATABASE LINK PGA USING 'PGASRV'
```

6. Create the gateway administrator user PGAADMIN and install the PG DD.
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
  - b. From SQL\*Plus, run the **pgacr8au.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates the PGAADMIN user ID.

The initial password defined for PGAADMIN is PGAADMIN. Use the ALTER USER command to change the password. For further information about password issues, refer to the *Oracle Database SQL Reference*.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgacr8au.sql
```

- c. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- d. From SQL\*Plus, run the **pgddcr8.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script installs the PG DD.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8.sql
```

- e. From SQL\*Plus, connect to the Oracle Integrating Server as user SYS.
- f. Grant execution privileges on DBMS\_PIPE to PGAADMIN:

```
SQL> GRANT EXECUTE ON DBMS_PIPE TO PGAADMIN
```

7. Install the TIP trace access PL/SQL routines. These routines require that the DBMS\_PIPE standard PL/SQL package is installed and that PGAADMIN has execute privileges on it. For more information on DBMS\_PIPE, refer to the *Oracle Database Application Developer's Guide*.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the **pgatiptr.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates PL/SQL routines that can be called to read and purge trace information created by PGAU-generated TIP specifications. It also creates public synonyms for these routines. The script prompts you for the necessary user IDs and passwords.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgatiptr.sql
```

8. Install the GPGLOCAL package. This package is required for compilation and execution of all PGAU-generated TIP specifications. TIP developers should be granted execute privileges on GPGLOCAL (refer to Step 3 of "[Optional Configuration Steps to Permit Multiple Users](#)" on page 9-10).

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the **gpglocal.pkh** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script compiles the GPGLOCAL package specification.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @gpglocal.pkh
```

- c. From SQL\*Plus, run the **gpglocal.pkb** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script compiles the GPGLOCAL package body.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @gpglocal.pkb
```

## 9.4 Upgrading or Migrating the Oracle Server from Previous Gateways

Follow these instructions **only** if you have a previous version of the Oracle Procedural Gateway for APPC installed on your system and need to configure it for Release 10.1.0.2.0 of the gateway.

1. Upgrade your Oracle Procedural Gateway for APPC to current version levels as follows:
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. Install the UTL\_RAW package body. From SQL\*Plus, run the **prvtrawb.plb** script from the **%ORACLE\_HOME%\rdbms\admin** directory. This script upgrades the UTL\_RAW package body.

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @prvtrawb.plb
```
  - c. Install the UTL\_PG package body. From SQL\*Plus, run the **prvtpgb.plb** script from the **%ORACLE\_HOME%\rdbms\admin** directory. This script upgrades the UTL\_PG package body.

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @prvtpgb.plb
```

The **prvtrawb.plb** and **prvtpgb.plb** scripts should complete successfully. If they fail because specifications do not exist or were invalidated, then consider reinstalling the package specifications as directed in the following Note.

### 9.4.1 If You Must Reinstall Package Specifications

If the UTL\_RAW or UTL\_PG package has been invalidated or deinstalled, the **prvtrawb.plb** and **prvtpgb.plb** scripts may not complete successfully; then you might have to reinstall the package specifications.

If you do reinstall the package specifications, any dependent objects (such as existing user TIPs and client applications) are invalidated and will subsequently need to be recompiled. The impact of this is a one-time performance delay while recompilation of the TIPs and dependent client applications proceeds.

---

**Important:** Before proceeding with reinstallation of the package scripts, make sure that you are in the **%ORACLE\_HOME%\pg4appc\admin** directory.

---

TIPs were split into separate specification and body files in release 3.3 to avoid cascaded recompilations in later releases.

#### Step 1 Run the following scripts before proceeding with the PGAU upgrade

From SQL\*Plus, run the **utlraw.sql** script:

1. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
2. From SQL\*Plus, run the **utlraw.sql** and **utlpg.sql** scripts in the Oracle Integrating Server **%ORACLE\_HOME%\rdbms\admin** directory, in the following order, to upgrade their respective package specifications:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @utlraw.sql
SQL> @utlpg.sql
```

**Step 2 Repeat installation of UTL\_RAW and UTL\_PG package body**

After the scripts have run, repeat Steps 1b and c in [Section 9.4, "Upgrading or Migrating the Oracle Server from Previous Gateways"](#) on page 9-8. Then proceed to the section titled ["Upgrading PGAU From Previous Gateway Releases"](#) on page 9-9.

---

**Note:** TIPs and dependent client applications must be recompiled after reinstallation of the package specifications. Refer to the "Compiling a TIP" section in Chapter 3 of the *Oracle Procedural Gateway for APPC User's Guide* for information about compiling TIPs.

---

## 9.4.2 Upgrading PGAU From Previous Gateway Releases

1. Upgrade the PG DD as follows before executing the new PGAU:
  - a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
  - b. From SQL\*Plus, run the `pgddupgr.sql` script in the `%ORACLE_HOME%\pg4appc\admin` directory. This script upgrades the PG DD.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddupgr.sql
```

## 9.5 Configuring the Oracle Integrating Server for Gateways to Coexist

You may have an older version of the gateway already installed. Be aware that although a version 10 gateway can communicate with a version 9 data dictionary (PGDD), a version 9 gateway cannot communicate with a version 10 data dictionary. Thus, if you upgrade your data dictionary to a version 10, no gateways which were configured with a version 9 data dictionary will be able to communicate with it.

## 9.6 Optional Configuration Steps to Permit Multiple Users

The following configuration steps are optional. Perform these steps if you want to allow users other than PGAADMIN to perform PG DD operations using PGAU.

1. Create public synonyms for the PG DD to allow other users to access the tables:
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
  - b. From SQL\*Plus, run the **pgddcr8s.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates public synonyms for the PG DD.
 

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8s.sql
```
2. Create roles for accessing the PG DD, performing definitions of transactions, and generating TIP specifications. The PGAADMIN user can grant these roles to other users as necessary.
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
  - b. From SQL\*Plus, run the **pgddcr8r.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates two roles, PGDDDEF and PGDDGEN. The PGDDDEF role provides SELECT, INSERT, UPDATE, and DELETE privileges against some of the PG DD tables, and select privileges against others, and allows execution of the PGAU DEFINE, GENERATE, REDEFINE, REPORT, and UNDEFINE statements. The PGDDGEN role provides select privileges against the PG DD tables, and allows execution of the PGAU GENERATE and REPORT statements only.
 

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8r.sql
```

3. Grant access to PGA required packages.

TIP developers require access to the following PL/SQL packages, which are shipped with the Oracle Integrating Server:

- DBMS\_PIPE in the **%ORACLE\_HOME%\rdbms\admin** directory
- UTL\_RAW in the **%ORACLE\_HOME%\rdbms\admin** directory
- UTL\_PG in the **%ORACLE\_HOME%\rdbms\admin** directory

Explicit grants to execute these packages must be made to TIP developers.

These grants can be private, as in the following example:

```
C:\> sqlplus SYS/pw@database_specification_string
SQL> GRANT EXECUTE ON UTL_RAW TO tip_developer;
SQL> GRANT EXECUTE ON UTL_PG TO tip_developer;
SQL> GRANT EXECUTE ON DBMS_PIPE TO tip_developer;
SQL> CONNECT PGAADMIN/pw@database_specification_string
SQL> GRANT EXECUTE ON PGAADMIN.PURGE_TRACE TO tip_developer;
```

```
SQL> GRANT EXECUTE ON PGAADMIN.READ_TRACE TO tip_developer;
SQL> GRANT EXECUTE ON PGAADMIN.GPGLOCAL TO tip_developer;
SQL> exit
```

Alternatively, these grants can be public, as in the following example:

```
C:\> sqlplus SYS\pw@database_specification_string
SQL> GRANT EXECUTE ON UTL_RAW TO PUBLIC;
SQL> GRANT EXECUTE ON UTL_PG TO PUBLIC;
SQL> GRANT EXECUTE ON DBMS_PIPE to PUBLIC;
SQL> CONNECT PGAADMIN\pw@database_specification_string
SQL> GRANT EXECUTE ON PGAADMIN.PURGE_TRACE TO PUBLIC;
SQL> GRANT EXECUTE ON PGAADMIN.READ_TRACE TO PUBLIC;
SQL> GRANT EXECUTE ON PGAADMIN.GPGLOCAL TO PUBLIC;
SQL> EXIT
```

You can use either private or public grants. Both are sufficient for using PGA. Public grants are easier and can be performed now. If you use private grants, then they must be issued each time a new TIP developer user ID is created.

SQL scripts for performing these grants are provided in the **%ORACLE\_HOME%\pg4appc\admin** directory. The **pgddapub.sql** script performs these grants for public access to the packages. The **pgddadev.sql** script performs the grants for private access to the packages by a single TIP developer. If you are going to use private grants, then you must run the **pgddadev.sql** script once for each TIP developer's user ID:

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the appropriate script (**pgddapub.sql** or **pgddadev.sql**) from the **%ORACLE\_HOME%\pg4appc\admin** directory. The script performs the necessary grants as described earlier. You are prompted for the required user IDs, passwords, and database specification strings.

If you are using private grants, then repeat this step for each user ID requiring access to the packages.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddapub.sql
or
SQL> @pgddadev.sql
```

4. If you are upgrading from a previous release of the gateway, and if you want to upgrade your existing TIPs with new function and maintenance, then regenerate existing TIP specifications using the PGAU GENERATE statement.

---

**Note:** The Procedural Gateway Administrative Utility (PGAU) has been enhanced to automatically upgrade existing PG DD entries with a new attribute when a PGAU GENERATE command is executed. To support this enhancement, add a new privilege to the PGDDGEN role. To do this – as the PGAADMIN user, use SQL\*Plus to connect to the Oracle Integrating Server where the PG DD is stored. Then issue the following SQL command:

---

```
SQL> GRANT INSERT ON PGA_DATA_VALUES TO PGDDGEN
```

---

- a. Invoke PGAU in the directory path where the PGAU control files are generated and where TIPs are stored:

```
C:\> pgau
PGAU> CONNECT PGAADMIN\pgaadmin@database_specification_string
PGAU> GENERATE tranname
PGAU> EXIT
```

For more information about the GENERATE command, refer to the PGAU GENERATE command section in Chapter 2, of the *Oracle Procedural Gateway for APPC User's Guide*.

Note that it is not necessary to define the PG DD entries again.

5. Invoke SQL\*Plus in the same directory path where the newly-generated TIP specifications are stored.

```
C:\> sqlplus tip_owner\pw@database_specification_string
SQL> @tipname.pkh
SQL> @tipname.pkb
SQL> exit
```

PGAU GENERATE produces the TIP in two output files: a specification and a body. You must compile both, first the specification and then the body.

For more information about the GENERATE command, refer to the PGAU GENERATE command section in Chapter 2, of the *Oracle Procedural Gateway for APPC User's Guide*.



## 9.7 Configuring the Gateway

To configure the gateway, perform the following steps:

1. Tailor the Oracle Procedural Gateway for APPC parameters.

Parameters specific to the gateway are supplied in the gateway parameter file, **initsid.ora**, which is in the %ORACLE\_HOME%\pg4appc\admin directory. A sample gateway parameter file, **initPGA.ora** is provided in this subdirectory.

---

**Note:** In the **initsid.ora** file, substitute your **pg4appc** SID name for "sid" in this file name.

The **initsid.ora** file contains both APPC and TCP/IP parameters, separated by a description. You must modify the **initsid.ora** file by deleting the TCP/IP parameters. Refer to [Appendix A, "Gateway Initialization Parameters for SNA Protocol"](#) for the valid APPC parameters.

---

The parameters fall into two categories:

- gateway initialization parameters

These parameters control the general operation of the gateway in the Oracle environment.

---

**Important:** Before performing the following step, refer to [Appendix A, "Gateway Initialization Parameters for SNA Protocol"](#) for information about tailoring gateway initialization and PGA parameters. Pay special attention to the information about using the PGA\_CAPABILITY parameter.

---

- PGA parameters

PGA parameters control the APPC interface portion of the gateway. Use the SET gateway initialization parameter to specify PGA parameters. Oracle recommends that you group all SET commands for PGA parameters at the end of the **initsid.ora** file.

---

**Note:** Misspelled parameters are ignored.

---

If you do not plan to configure commit-confirm, proceed to "[Verifying the Gateway Installation and OLTP Configuration](#)" on page 9-16.

## 9.8 Configuring Commit-Confirm

---

**Note:** If you are planning to implement commit-confirm, read the detailed explanation of commit-confirm's capabilities in Chapter 5 of the *Oracle Procedural Gateway for APPC User's Guide*, "Implementing Commit-Confirm (SNA Only) before proceeding.

---

Follow these steps to configure the commit-confirm components.

The steps for configuring commit-confirm include:

- configuring the Oracle Integrating Server where the gateway server will store its transaction log information
- configuring the gateway initialization parameters, and
- configuring the OLTP.

All of these steps must be performed before attempting to use any applications that use commit-confirm.

### 9.8.1 Configuring the Oracle Integrating Server for Commit-Confirm

The Oracle Integrating Server where the gateway server will store its transaction log information should ideally be on the same system where the gateway runs. The configuration of the server consists of creating the gateway DBA user, creating the commit-confirm log tables and creating the PL/SQL stored procedure used by the gateway server for logging transactions.

The **pgaccau.sql** script from the **%ORACLE\_HOME%\pg4appc\admin** directory creates the gateway DBA user ID. The default user ID is PGADBA with the initial password set to PGADBA. If you want to change the user ID or initial password, you must modify the script.

1. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
2. From SQL\*Plus, run the **pgaccau.sql** script from the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates the gateway DBA user ID. If you want to change the password at any time after running this script, you can use the ALTER USER command to change the password. For further information, refer to the *Oracle Database SQL Reference*.
3. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGADBA.
4. From SQL\*Plus, run the **pgaccpnd.sql** script from the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates the PGA\_CC\_PENDING table used by the gateway server for its commit-confirm transaction log.
5. From SQL\*Plus, run the **pgacclog.sql** script from the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates the PGA\_CC\_LOG PL/SQL stored procedure used by the gateway server for updating the PGA\_CC\_PENDING table.
6. Disconnect from the Oracle Integrating Server.

## 9.8.2 Configuring Gateway Initialization Parameters for Commit-Confirm

The gateway initialization parameters are described in [Appendix A, "Gateway Initialization Parameters for SNA Protocol"](#). The parameters necessary for commit-confirm support in the gateway are:

- PGA\_CAPABILITY
- PGA\_LOG\_DB
- PGA\_LOG\_USER
- PGA\_LOG\_PASS
- PGA\_RECOVERY\_USER
- PGA\_RECOVERY\_PASS
- PGA\_RECOVERY\_TPNAME

These parameters should be added to your **initsid.ora** file, where *sid* is the gateway SID for your commit-confirm gateway.

Refer to [Appendix A, "Gateway Initialization Parameters for SNA Protocol"](#) for full information about the gateway initialization parameters supported by the Oracle Procedural Gateway for APPC.

## 9.8.3 Configuring the OLTP for Commit-Confirm

Configuration of the OLTP includes the following:

- defining and installing the commit-confirm transaction log database
- defining and installing the commit-confirm forget/recovery transaction
- defining and installing the sample commit-confirm applications provided with the gateway.

---

**Note:** A restart of the OLTP may be necessary to implement the changes required for commit-confirm support. You should plan for this with your OLTP system administrator.

---

Detailed instructions for configuring the Transaction Server for z/OS and IMS/TM are provided in the `%ORACLE_HOME%\pg4appc\demo\CICS\README.doc` and `%ORACLE_HOME%\pg4appc\demo\IMS\README.doc` files, respectively.

Refer to "Implementing Commit-Confirm (SNA Only)" in the *Oracle Procedural Gateway for APPC User's Guide* for detailed information about commit-confirm.

- ❑ You will take steps to verify configuration of commit-confirm later in this chapter, in [Section 9.9.3, "Verifying OLTP Configuration for Commit-Confirm"](#) on page 9-21.

However, first proceed to [Section 9.9](#) to verify the gateway installation.

## 9.9 Verifying the Gateway Installation and OLTP Configuration

To verify the gateway installation and the OLTP configuration, perform the following procedures after installing Oracle Procedural Gateway for APPC. In addition, if you chose to configure commit-confirm, follow the steps to verify the OLTP configuration for commit-confirm.

---

**Note:** If your database link name is not "PGA," modify the demonstration .sql files to give them the particular database link name that you created in Step 5 of ["Integrating Server Configuration: First-Time Gateway Installations"](#) on page 9-5. You must modify the following .sql files:

- pgavsn.sql
  - pgaecho.sql
  - pgacics.sql
  - pgaidms.sql
  - pgaims.sql
  - pgamvs.sql
- 

### 9.9.1 Verifying the Gateway Installation

To verify the gateway software installation using the database link PGA previously created, perform the following steps:

1. Using SQL\*Plus, connect to your Oracle Integrating Server as user PGAADMIN.
2. Run %ORACLE\_HOME%\pg4appc\demo\pgavsn.sql.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo
SQL> @pgavsn.sql
```

The server version number banner appears at your terminal. You will receive the following output:

```
Oracle Procedural Gateway for APPC.
Version 10.1.0.2.0 Thu Feb 13 13:12:49 2003
```

```
Copyright (c) Oracle Corporation 1979,
2003. All rights reserved.
```

```
PL/SQL procedure successfully completed.
```

3. Run %ORACLE\_HOME%\pg4appc\demo\pgaecho.sql.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo
SQL> @pgaecho.sql
```

You will receive the following output:

```
==> Congratulations, your installation was successful. <==
```

## 9.9.2 Verifying the OLTP Configuration

The procedure for verifying your OLTP configuration varies, depending on which OLTP you are using and depending upon which platform the OLTP is running on. CICS Transaction Server for z/OS, IMS/TM, APPC/MVS, IDMS-DC and z/OS are the currently supported OLTPs. Follow the instructions for verifying installation

---

**Attention:** If you have not completed the file transfers detailed in ["Preparing to Configure a Gateway Installation/Upgrade"](#) on page 9-2, complete them now, before proceeding to the next step.

---

### 9.9.2.1 CICS Verification

If your OLTP is CICS Transaction Server for z/OS, perform the following steps to verify the CICS configuration.

1. To verify that the FLIP transaction is installed correctly, log on to your CICS Transaction Server for z/OS and enter the following transaction, replacing `FLIP` with the transaction ID you chose for FLIP when you configured your CICS Transaction Server for z/OS for the gateway:

```
FLIP THIS MESSAGE
```

The following output appears at your terminal:

```
EGASSEM SIHT PILF
```

2. From the Microsoft Windows platform, modify the `pgacics.sql` file which resides at `%ORACLE_HOME%\pg4appc\demo\CICS\pgacics.sql`.

Customize the following three items used for accessing the gateway and the CICS Transaction Server for z/OS, as described in the comments at the beginning of the file:

- the CICS transaction ID
- the side profile name
- the logmode entry name

3. Ensure that the SNA Server on your system has been started.
4. Log on to your CICS Transaction Server for z/OS and enter this transaction, where *name* is the name of the CONNECTION definition installed by the DFHCSDUP job you ran in the CICS configuration steps:

```
CEMT SET CONNECTION(name) ACQUIRED
```

This transaction activates the CICS connection to Microsoft Windows.

5. Use SQL\*Plus to connect to your Oracle Integrating Server as PGAADMIN.
6. Run `pgacics.sql`.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo\CICS
SQL> @pgacics.sql
```

The following message appears:

```
==> Congratulations, your gateway is communicating with CICS <==
```

Your CICS Transaction Server for z/OS installation verification is complete.

### 9.9.2.2 IDMS-DC Verification

If your OLTP is IDMS-DC, perform the following steps to verify the IDMS-DC configuration:

1. From your Microsoft Windows platform, modify the **pgaidms.sql** file, which resides at **%ORACLE\_HOME%\pg4appc\demo\IDMS\pgaidms.sql**. Customize the following three items used for accessing the gateway and the IDMS-DC system, as described in the comments at the beginning of the file:
  - the IDMS-DC transaction ID
  - the side profile name
  - the logmode entry name
2. Ensure that the SNA Server on your system has been started.
3. Using the IDMS-DC DCMT transaction, display the LU6.2 line to check that sessions have been started with your system. Enter the following command, where **linename** is the name of the LINE defined for LU6.2 communications with your system:

```
DCMT DIS LINE linename
```

Each defined L-TERM/P-TERM should show a status of INSRV. Any other status indicates a problem with the IDMS-DC APPC interface

4. Use SQL\*Plus to connect to your Oracle Integrating Server as PGAADMIN.
5. Run **pgaidms.sql**.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo\IDMS
SQL> @$pgaidms.sql
```

The following message appears:

```
==> Congratulations, your gateway is communicating with IDMS-DC<==
```

Your IDMS-DC installation verification is now complete.

### 9.9.2.3 IMS/TM Verification

If your OLTP is IMS/TM, perform the following steps to verify the IMS/TM configuration:

1. To verify that the FLIP transaction is installed correctly, log on to your IMS/TM system and enter the following transaction, replacing `FLIP` with the transaction ID you chose for `FLIP` when you configured your IMS/TM system for the gateway:

```
FLIP THIS MESSAGE
```

The following output appears on your terminal:

```
EGASSEM SIHT PILF
```

2. From a Microsoft Windows platform, modify the `pgaims.sql` file, which resides at

`%ORACLE_HOME%\pg4appc\demo\IMS\pgaims.sql`. Customize the following three items used for accessing the gateway and the IMS/TM system, as described in the comments at the beginning of the file:

- the IMS/TM transaction ID
- the side profile name
- the logmode entry name

3. Ensure that the SNA Server on your system has been started.
4. Use SQL\*Plus to connect to your Oracle Integrating Server as PGAADMIN.
5. Run `pgaims.sql`.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo\IMS
SQL> @pgaims.sql
```

The following message appears:

```
==> Congratulations, your gateway is communicating with IMS/TM <==
```

Your IMS/TM installation verification is now complete.

#### 9.9.2.4 APPC/MVS Verification

If your OLTP is APPC/MVS, perform the following steps to verify the APPC/MVS configuration:

1. Verify that your APPC/MVS subsystem is active.
2. From your Microsoft Windows platform, modify the **pgamvs.sql** file, which resides at **%ORACLE\_HOME%\pg4appc\demo\MVS\pgamvs.sql**. Customize the following three items used for accessing the gateway and the APPC/MVS system, as described in the comments at the beginning of the file:
  - the APPC/MVS transaction ID
  - the side profile name
  - the logmode entry name
3. Ensure that the SNA Server on your system has been started.
4. Use SQL\*Plus to connect to your Oracle Integrating Server as PGAADMIN.
5. Run **pgamvs.sql**.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo\MVS
SQL> @pgamvs.sql
```

The following message appears:

```
=> Congratulations, your gateway is communicating with APPC/MVS <=
```

Your APPC/MVS installation verification is now complete.



### 9.9.3 Verifying OLTP Configuration for Commit-Confirm

If you chose to configure commit-confirm in [Section 9.8, "Configuring Commit-Confirm"](#), the following section will assist you in verifying the configuration.

---

**Note:** Refer to Chapter 5, "Implementing Commit-Confirm" in the *Oracle Procedural Gateway for APPC User's Guide* for background information on the components and capabilities of commit-confirm.

---

Samples are provided with the gateway for Transaction Server for z/OS and IMS/TM for implementing commit-confirm support. They are in the following directories, respectively: `%ORACLE_HOME%\pg4appc\demo\CICS` and `%ORACLE_HOME%\pg4appc\demo\IMS`. A README.doc file in each directory provides detailed information about installing and using the samples. JCL files for compiling and linking the sample programs are provided as well. The samples included with the gateway assist you with the following:

- Creating and initializing the commit-confirm transaction log databases and defining those databases to the OLTP. For Transaction Server for z/OS, the sample uses a VSAM file for the log database. For IMS/TM, a SHISAM/VSAM database is used.
- Using subroutines for receiving the Oracle Global Transaction ID from the gateway and logging it into the commit-confirm transaction log database. These subroutines are provided in the `pgacclg.asm` files. They can be used in your applications to reduce the complexity of the code changes to your programs.

For Transaction Server for z/OS, the subroutine provided is called using the EXEC CICS LINK interface. For IMS/TM, the subroutine provided is called using the standard CALL statement or its equivalent in your application's programming language. Both of these subroutines are written in 370 assembler to eliminate any inter-language interface complexities and compiler dependencies.

- Forget/recovery transactions. These are provided in the `pgareco.asm` files. Forget/recovery transactions must be installed into your OLTP and accessible through APPC so that the gateway can invoke them to forget a transaction once it has been successfully committed, and to query a transaction's state during recovery processing. These transactions delete the entry for a particular Oracle Global Transaction ID from the OLTP commit-confirm transaction log database during forget processing, and query the entry for a particular Oracle Global Transaction ID from the OLTP commit-confirm transaction log database during recovery processing. For both Transaction Server for z/OS and IMS/TM, these transactions are written in 370 assembler.
- Using the sample commit-confirm transaction log databases and subroutines. For Transaction Server for z/OS, a sample DB2 update transaction, DB2C, is provided in the `pgadb2c.cob` file. This is a COBOL example that updates the DB2 sample EMP table. For IMS/TM, a sample DLI update transaction, PGAIMSU, is provided in the `pgaimsu.cob` file. This is a COBOL example that updates the DLI sample PARTS database.

## 9.10 Performing Post-installation Procedures

The following are optional steps that you can perform as necessary. Installation of the sample applications for your OLTP is recommended to help you to fully understand how the gateway works and how it interfaces with your OLTP.

### 9.10.1 Installing Sample Applications

Your Oracle Procedural Gateway for APPC package contains sample PL/SQL procedures and OLTP transaction programs that demonstrate the capabilities of the gateway. Samples are provided for the following:

APPC/MVS

- z/OS dataset information

CICS Transaction Server for z/OS

- ADABAS inquiry
- DB2 inquiry
- DB2 multi-row inquiry
- DB2 update
- VSAM inquiry
- VSAM update
- DLI inquiry
- FEPI DB2 inquiry
- FEPI VSAM inquiry
- IDMS-DC
- IDMS/R inquiry

IMS/TM

- IMS inquiry using IVTNO and IVTNV sample transactions
- IMS PARTS inquiry (CPI-C)
- IMS PARTS update (CPI-C)

Additional samples are added to the distribution media in later releases of the product. Wherever possible, the sample applications use the sample databases provided with the database products.

For this release, full documentation on installing and using the sample applications is available in the **README.doc** files in the following directories:

- %ORACLE\_HOME%\pg4appc\demo
- %ORACLE\_HOME%\pg4appc\CICS
- %ORACLE\_HOME%\pg4appc\IMS
- %ORACLE\_HOME%\pg4appc\MVS
- %ORACLE\_HOME%\pg4appc\IDMS

---

## Gateway Configuration Using TCP/IP Communication Protocol

This chapter outlines the steps needed to configure the Oracle Integrating Server for a gateway using TCP/IP for IMS Connect on your Microsoft Windows platform. It also provides the steps necessary to verify installation and configuration of the gateway and OLTP components. It contains the following sections:

- ["Preparing to Configure a Gateway Installation"](#) on page 10-2
- ["Configuring the Oracle Integrating Server"](#) on page 10-4
- ["Optional Configuration Steps to Permit Multiple Users"](#) on page 10-8
- ["Configuring TCP/IP for the Gateway"](#) on page 10-11
- ["Configuring the Gateway"](#) on page 10-11
- ["Loading the PGA\\_TCP\\_IMSC Table"](#) on page 10-12
- ["Verifying the Gateway Installation and OLTP Configuration"](#) on page 10-13
- ["Performing Post-installation Procedures"](#) on page 10-16

Configuring the Oracle Procedural Gateway for APPC using TCP/IP support for IMS Connect involves working with the following components:

- the Oracle Integrating Server
- your Windows system
- your network
- the OLTP

## 10.1 Before You Begin

This chapter requires you to input parameters unique to your system in order to properly configure the gateway and TCP/IP communications interface.

Refer to [Appendix E, "Configuration Worksheet"](#) for a worksheet listing the installation parameters you will need to know before you can complete the configuration process. Ask your network administrator to provide you with these unique parameter names before you begin.

## 10.2 Preparing to Configure a Gateway Installation

There are three ways to establish the gateway-Oracle Integrating Server relationship when you are installing or upgrading/migrating the gateway:

- [When the Oracle Integrating Server and the gateway are installed in the same ORACLE\\_HOME on the same machine;](#)
- [When the Oracle Integrating Server and the gateway are installed on separate machines;](#) or
- [When the Oracle Integrating Server and the gateway are on the same machine but in different directories](#)

Depending upon the location of your gateway and your Oracle Integrating Server, you may need to transfer some of the gateway administrative files to the location where your Oracle Integrating Server is installed.

Follow the instructions appropriate to your combination of the gateway-Oracle Integrating Server locations listed below.

### **When the Oracle Integrating Server and the gateway are installed in the same ORACLE\_HOME on the same machine**

You do not need to transfer files. Proceed to ["Configuring the Oracle Integrating Server"](#) on page 10-4.

### When the Oracle Integrating Server and the gateway are installed on separate machines

1. Locate the gateway administrative files in the gateway `%ORACLE_HOME%\pg4appc\admin` directory. All files in this directory that have the suffix `.sql`, `.pkh`, and `.pkb` must be copied into a similarly-named directory in the Oracle Integrating Server's Oracle home directory.
2. Now locate the gateway demo files and subdirectories in the gateway `%ORACLE_HOME%\pg4appc\demo` directory. Copy the `pgavsn.sql` and `pgaecho.sql` files into a similarly named directory in the Oracle Integrating Server.
3. Copy the `pgaims.sql` file from the gateway Oracle home `%ORACLE_HOME%\pg4appc\demo\IMS` directory to your Oracle Integrating Server's Oracle home `%ORACLE_HOME%\pg4appc\demo\IMS` directory.
4. **Optional Steps:** If you want to run IVTNV and IVTNO, you will need to copy the `ivtno.ctl`, `ivtnod.sql`, `ivtnv.ctl` and `ivtnvd.sql` files into the Oracle Integrating Server's Oracle home `%ORACLE_HOME%\pg4appc\demo\IMS` directory as well. Make sure to generate the required TIPs and transfer them as well.

### When the Oracle Integrating Server and the gateway are on the same machine but in different directories

You must change your gateway's Oracle home to the Oracle Integrating Server's Oracle home directory.

1. For example, if your gateway's Oracle home is set as follows:

```
C:\> echo %ORACLE_HOME%
C:\oracle\pga\10.0
```

and your server's Oracle home is located in the '`\oracle\pga\10.0`' directory, then you need to do the following:

```
C:\> SET ORACLE_HOME=C:\oracle\pga\10.0
```

2. Now create the directories with the following commands:

```
C:\> cd %ORACLE_HOME%
C:\> mkdir pg4appc
C:\> mkdir pg4appc\admin
C:\> mkdir pg4appc\demo
C:\> mkdir pg4appc\demo\IMS
```

3. Use whatever file transfer mechanism is available on your system to copy all of the `.sql`, `.pkh`, and `.pkb` files from the gateway's Oracle home `%ORACLE_HOME%\pg4appc\admin` directory to the Oracle Integrating Server's Oracle home `%ORACLE_HOME%\pg4appc\admin` directory.
4. You may also transfer the demo files from the gateway directory to the Oracle Integrating Server directory. Copy the `pgavsn.sql` and `pgaecho.sql` files and directory recursively from the gateway Oracle home's `%ORACLE_HOME%\pg4appc\demo` directory to the Oracle Integrating Server's `%ORACLE_HOME%\pg4appc\demo` directory.
5. You may also copy the `pgaims.sql` file from the gateway Oracle home `%ORACLE_HOME%\pg4appc\demo\IMS` directory to the Oracle Integrating Server Oracle home `%ORACLE_HOME%\pg4appc\demo\IMS` directory.

**Optional Steps:** If you want to run IVTNV and IVTNO, you will need to copy the `ivtno.ctl`, `ivtnod.sql`, `ivtnv.ctl` and `ivtnvd.sql` files into the Oracle Integrating

Server's Oracle home %ORACLE\_HOME%\pg4appc\demo\IMS directory as well. Make sure to generate the required TIPs and transfer them as well.

Proceed with "[Configuring the Oracle Integrating Server](#)" on page 10-4. Following those steps, you may want to perform the [Optional Configuration Steps to Permit Multiple Users](#), on page 10-8.

## 10.3 Configuring the Oracle Integrating Server

Follow these steps to configure your Oracle Integrating Server after installing the Oracle Procedural Gateway for APPC.

1. Ensure that the UTL\_RAW PL/SQL package has been installed on the Oracle Integrating Server. All PGAU-generated TIP specifications use UTL\_RAW, which provides routines for manipulating raw data.

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. From SQL\*Plus, enter the following command:

```
SQL> DESCRIBE UTL_RAW
```

The DESCRIBE statement produces output on your screen. If you browse through the output, you should see some functions, including a compare function. If you do not see this output, then continue the UTL\_RAW installation by performing Step d below.

If the DESCRIBE statement indicates success, then your Oracle Integrating Server has UTL\_RAW installed and you can proceed to Step 2.

- c. Use SQL\*Plus to connect to the Oracle Integrating Server as SYS.
  - d. From SQL\*Plus, run the **utlraw.sql** and **prvtrawb.plb** scripts in the Oracle Integrating Server %ORACLE\_HOME%\rdbms\admin directory, in the following order:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @utlraw.sql
SQL> @prvtrawb.sql
```

2. Ensure that the DBMS\_OUTPUT standard PL/SQL package is enabled on your Oracle Integrating Server. The sample programs and installation verification programs on the distribution media use this standard package.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
  - b. Enter the following command:

```
SQL> DESCRIBE DBMS_OUTPUT
```

The DESCRIBE statement produces output on your screen. If you browse through that output, you should see some functions, including a put\_line function.

If you do not see this output, then you must create the DBMS\_OUTPUT package. Refer to the *Oracle Database Application Developer's Guide* for more information about creating the DBMS\_OUTPUT package. After successful installation of the DBMS\_OUTPUT package, issue the DESCRIBE statement.

If the DESCRIBE statement indicates success, then your Oracle Integrating Server has DBMS\_OUTPUT created, and you can proceed to Step 3.

3. Install the UTL\_PG PL/SQL package. All PGAU-generated TIP specifications use UTL\_PG, which provides routines for performing numeric conversions to and from raw data.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
- b. From SQL\*Plus, run the **utlpg.sql** and **prvtpgb.plb** scripts in the Oracle Integrating Server's **%ORACLE\_HOME%\rdbms\admin** directory, in the following order:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @utlpg.sql
SQL> @prvtpgb.plb
```

4. Install the Heterogeneous Services (HS) catalogs.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user SYS.
- b. Enter the following command:

```
SQL> DESCRIBE HS_FDS_CLASS
```

The DESCRIBE statement produces output on your screen. If the DESCRIBE statement indicates success, then heterogeneous services catalogs have been created on your Oracle Integrating Server and you can proceed to Step 5.

If the DESCRIBE statement does not indicate success, then you must create Heterogeneous Services catalogs and you must follow Step c below:

- c. If it is necessary to create the Heterogeneous Services catalog, enter the following command:

```
C:\> cd %ORACLE_HOME%\rdbms\admin
SQL> @caths.sql
```

5. Create a public database link to access the Oracle Procedural Gateway for APPC:

Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM. You can use the following SQL\*Plus sample whether the Oracle Integrating Server and the gateway are on the same system or on different systems. In the following sample, **pgasrv** is the **tns\_name\_entry** that will be assigned to the gateway when you modify the **tnsnames.ora** file later in this chapter.

```
SQL> CREATE PUBLIC DATABASE LINK PGA USING 'PGASRV'
```

6. Create the gateway administrator user PGAADMIN and install the PG DD.

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
- b. From SQL\*Plus, run the **pgacr8au.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates the PGAADMIN user ID.

The initial password defined for PGAADMIN is PGAADMIN. Use the ALTER USER command to change the password. For further information about password issues, refer to the *Oracle Database SQL Reference*.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgacr8au.sql
```

- c. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- d. From SQL\*Plus, run the **pgddcr8.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script installs the PG DD.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8.sql
```

- e. From SQL\*Plus, connect to the Oracle Integrating Server as user SYS.
- f. Grant execution privileges on DBMS\_PIPE to PGAADMIN:

```
SQL> GRANT EXECUTE ON DBMS_PIPE TO PGAADMIN
```

7. Ensure that the pg4tcpmap package has been installed on your Oracle Integrating Server. Follow Steps a through c to test for proper installation of pg4tcpmap.

Refer to "Output for pg4tcpmap Tool" in [Appendix B](#) for a sample of the output from the pg4tcpmap tool, and refer to Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide* for details about the commands needed to run the tool.

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
- b. Enter the following command:

```
SQL> select owner, table_name
from dba_tables
where table_name = 'PGA_TCP_IMSC',
and owner = 'PGAADMIN';
SQL> column owner format a 10
SQL> column owner format a 18
SQL> column owner format a 14
SQL> select owner, index_name, table_name
from dba_indexes
where index_name = 'PGA_TCP_IMSC_IND';
```

Both select statements must produce one row each. Following is the result for the first select statement:

TABLE_NAME	OWNER
PGA_TCP_IMSC	PGAADMIN

Following is the result of the second select statement:

OWNER	INDEX_NAME	TABLE_NAME	UNIQUENESS
PGAADMIN	PGA_TCP_IMSC_IND	PGA_TCP_IMSC	UNIQUE

If the select statements produce the above output on your screen, then you can skip Step C. If the select statement produces no output or more than one row, then the result is not the same as the output described above, and it is necessary for you to perform Step c.

- c. From SQL\*Plus, run the **pgaimsc.sql** script in the Oracle Integrating Server's **%ORACLE\_HOME%\pg4appc\admin** directory:

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgaimsc.sql
```

8. Install the TIP trace access PL/SQL routines. These routines require that the DBMS\_PIPE standard PL/SQL package is installed and that PGAADMIN has



execute privileges on it. For more information on DBMS\_PIPEs, refer to the *Oracle Database Application Developer's Guide*.

- a. If necessary, use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the **pgatiptr.sql** script in the `%ORACLE_HOME%\pg4appc\admin` directory. This script creates PL/SQL routines that can be called to read and purge trace information created by PGAU-generated TIP specifications. It also creates public synonyms for these routines. The script prompts you for the necessary user IDs and passwords.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgatiptr.sql
```

9. Install the GPGLOCAL package. This package is required for compilation and execution of all PGAU-generated TIP specifications. TIP developers should be granted execute privileges on GPGLOCAL (refer to ["Optional Configuration Steps to Permit Multiple Users"](#) on page 10-8).

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the **gpglocal.pkh** script in the `%ORACLE_HOME%\pg4appc\admin` directory. This script compiles the GPGLOCAL package specification.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @gpglocal.pkh
```

- c. From SQL\*Plus, run the **gpglocal.pkb** script in the `%ORACLE_HOME%\pg4appc\admin` directory. This script compiles the GPGLOCAL package body.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @gpglocal.pkb
```

---

**Note: Recompile TIPs when changing communication protocol from SNA to TCP/IP:**

If you have existing TIPs that were generated previously on a gateway using the SNA protocol and you want to utilize the new TCP/IP feature, then the TIPs will have to be regenerated by PGAU with mandatory NLS\_LANGUAGE and Side Profile Settings. Specify the appropriate ASCII character set in the DEFINE TRANSACTION command.

This is due to the fact that the gateway assumes that the appropriate user exit in IMS Connect is being used, which would translate between the appropriate ASCII and EBCDIC character sets.

---

## 10.4 Optional Configuration Steps to Permit Multiple Users

The following configuration steps are optional. Perform these steps if you want to allow users other than PGAADMIN to perform PG DD operations using PGAU.

1. Create public synonyms for the PG DD to allow other users to access the tables:
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user SYSTEM.
  - b. From SQL\*Plus, run the **pgddcr8s.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates public synonyms for the PG DD.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8.sql
```
2. Create roles for accessing the PG DD, performing definitions of transactions, and generating TIP specifications. The PGAADMIN user can grant these roles to other users as necessary.
  - a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
  - b. From SQL\*Plus, run the **pgddcr8r.sql** script in the **%ORACLE\_HOME%\pg4appc\admin** directory. This script creates two roles, PGDDDEF and PGDDGEN. The PGDDDEF role provides SELECT, INSERT, UPDATE, and DELETE privileges against some of the PG DD tables, and select privileges against others, and allows execution of the PGAU DEFINE, GENERATE, REDEFINE, REPORT, and UNDEFINE statements. The PGDDGEN role provides select privileges against the PG DD tables, and allows execution of the PGAU GENERATE and REPORT statements only.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddcr8r.sql
```
3. Grant access to PGA required packages.

TIP developers require access to the following PL/SQL packages, which are shipped with the Oracle Integrating Server:

- DBMS\_PIPE in the **%ORACLE\_HOME%\rdbms\admin** directory
- UTL\_RAW in the **%ORACLE\_HOME%\rdbms\admin** directory
- UTL\_PG in the **%ORACLE\_HOME%\rdbms\admin** directory

Explicit grants to execute these packages must be made to TIP developers.

SQL scripts for performing these grants are provided in the **%ORACLE\_HOME%\pg4appc\admin** directory. The **pgddapub.sql** script performs these grants for public access to the packages. The **pgddadev.sql** script performs the grants for private access to the packages by a single TIP developer. If you are going to use private grants, then you must run the **pgddadev.sql** script once for each TIP developer's user ID:

- a. Use SQL\*Plus to connect to the Oracle Integrating Server as user PGAADMIN.
- b. From SQL\*Plus, run the appropriate script (**pgddapub.sql** or **pgddadev.sql**) from the **%ORACLE\_HOME%\pg4appc\admin** directory. The script performs the necessary grants as described earlier. You are prompted for the required user IDs, passwords, and database specification strings. If you are using private grants, then repeat this step for each user ID requiring access to the packages.

```
C:\> cd %ORACLE_HOME%\pg4appc\admin
SQL> @pgddapub.sql
```

or

```
SQL> @pgddadev.sql
```

These grants can be private, as in the following example:

```
C:\> sqlplus SYS\pw@database_specification_string
SQL> GRANT EXECUTE ON UTL_RAW TO tip_developer;
SQL> GRANT EXECUTE ON UTL_PG TO tip_developer;
SQL> GRANT EXECUTE ON DBMS_PIPE TO tip_developer;
SQL> CONNECT PGAADMIN\pw@database_specification_string
SQL> GRANT EXECUTE ON PGAADMIN.PURGE_TRACE TO tip_developer;
SQL> GRANT EXECUTE ON PGAADMIN.READ_TRACE TO tip_developer;
SQL> GRANT EXECUTE ON PGAADMIN.GPGLOCAL TO tip_developer;
SQL> exit
```

Alternatively, these grants can be public, as in the following example:

```
C:\> sqlplus SYS\pw@database_specification_string
SQL> GRANT EXECUTE ON UTL_RAW TO PUBLIC;
SQL> GRANT EXECUTE ON UTL_PG TO PUBLIC;
SQL> GRANT EXECUTE ON DBMS_PIPE TO PUBLIC;
SQL> CONNECT PGAADMIN\pw@database_specification_string
SQL> GRANT EXECUTE ON PGAADMIN.PURGE_TRACE TO PUBLIC;
SQL> GRANT EXECUTE ON PGAADMIN.READ_TRACE TO PUBLIC;
SQL> GRANT EXECUTE ON PGAADMIN.GPGLOCAL TO PUBLIC;
SQL> EXIT
```

You can use either private or public grants. Both are sufficient for using PGA. Public grants are easier and can be performed now. If you use private grants, then they must be issued each time a new TIP developer user ID is created.

4. If you are upgrading from a previous release of the gateway when the communication protocol was SNA, to the current gateway using TCP/IP, and if you want to upgrade your existing TIPs with new function and maintenance, then regenerate existing TIP specifications using the PGAU GENERATE statement.

---

**Note:** The Procedural Gateway Administrative Utility (PGAU) has been enhanced to automatically upgrade existing PG DD entries with a new attribute when a PGAU GENERATE command is executed. To support this enhancement, add a new privilege to the PGDDGEN role. To do this – as the PGAADMIN user, use SQL\*Plus to connect to the Oracle Integrating Server where the PG DD is stored. Then issue the following SQL command:

```
SQL> GRANT INSERT ON PGA_DATA_VALUES TO PGDDGEN
```

---

- a. Invoke PGAU in the directory path where the PGAU control files are generated and where TIPs are stored:

```
C:\> pgau
PGAU> CONNECT PGAADMIN\pgaadmin@database_specification_string
PGAU> GENERATE tranname
PGAU> EXIT
```

For more information about the GENERATE command, refer to the PGAU GENERATE command section in Chapter 2 of the *Oracle Procedural Gateway for APPC User's Guide*.

Note that it is not necessary to define the PG DD entries again.

5. Invoke SQL\*Plus in the same directory path where the newly-generated TIP specifications are stored.

```
C:\> sqlplus tip_owner\pw@database_specification_string
SQL> @tipname.pkh
SQL> @tipname.pkb
SQL> exit
```

PGAU GENERATE produces the TIP in two output files: a specification and a body. You must compile both, first the specification and then the body.

For more information about the GENERATE command, refer to the PGAU GENERATE command section in Chapter 2, of the *Oracle Procedural Gateway for APPC User's Guide*.

## 10.5 Configuring TCP/IP for the Gateway

You must now configure the TCP/IP for IMS Connect communication package profiles for TCP/IP connections.

Configure the profiles to define the TCP/IP conversations with the OLTP. Refer to [Chapter 7, "Configuring the TCP/IP Communications Package for IMS Connect"](#) for the appropriate instructions.

When you have finished configuring your communications package, return to the following section, [Section 10.6, "Configuring the Gateway"](#) on page 10-11.

## 10.6 Configuring the Gateway

To configure the gateway, perform the following:

1. Tailor the gateway parameters.

There are a number of parameters specific to the Oracle Procedural Gateway for APPC when it is using TCP/IP for IMS Connect. These are supplied in the gateway parameter file, **initsid.ora**, which is in the `%ORACLE_HOME%\pg4appc\admin` directory. A sample gateway parameter file, **initPGA.ora** is provided in this subdirectory.

---

**Note:** In the **initsid.ora** file, substitute your gateway SID name for "sid" in this file name.

The **initsid.ora** file contains both APPC and TCP/IP parameters, separated by a description. You must modify the **initsid.ora** file by deleting the APPC parameters. Refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#) for the valid TCP/IP parameters.

---

The parameters fall into two categories:

- gateway initialization parameters.

These parameters control the general operation of the gateway in the Oracle environment.

---

**Important:** Before performing the following step, refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#) for information about tailoring gateway initialization and PGA parameters. Pay special attention to the information about using the PGA\_CAPABILITY parameter.

---

- PGA parameters.

PGA parameters control the TCP/IP interface portion of the gateway. Use the SET gateway initialization parameter to specify PGA parameters. Oracle recommends that you group all SET commands for PGA parameters at the end of the **initsid.ora** file.

---

**Note:** Misspelled parameters are ignored.

---

## 10.7 Loading the PGA\_TCP\_IMSC Table

Gateway users who wish to employ the TCP/IP protocol do so by using the pg4tcpmap tool.

The pg4tcpmap tool resides on the gateway. Its function is to map the Side Profile Name to TCP/IP and IMS Connect attributes. You must run this tool before executing the PL/SQL gateway statements (such as `%ORACLE_HOME%\pg4appc\demo\IMS\pgaims.sql`).

In PGAINIT TIP, for example, the user must specify a Side Profile Name. The SNA protocol recognizes and utilizes the parameter. In this release of the gateway, the pg4tcpmap tool uses the original PGAINIT TIP format to map the relevant SNA parameters to TCP/IP. The pg4tcpmap tool inserts the values of these parameters into a table called PGA\_TCP\_IMSC.

Before executing pg4tcpmap, you must specify the ORACLE\_HOME, Oracle SID and modify `initsid.ora`. Refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#) in this guide and Chapter 6 in the Oracle Procedural Gateway for APPC User's Guide for complete information about the pg4tcpmap commands.

Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide* contains a list of the pg4tcpmap commands and instructions for using them, as well as a example of the table. Refer to "Problem Determination" in the *Oracle Procedural Gateway for APPC User's Guide* for information about the trace file for the executed pg4tcpmap tool.

To operate this tool execute the following command:

```
C:\> cd %ORACLE_HOME%\bin
C:\> pg4tcpmap
```

Refer to ["Output for pg4tcpmap Tool"](#) on page B-4 for a sample of the pg4tcpmap output.

## 10.8 Verifying the Gateway Installation and OLTP Configuration

To verify the gateway installation and the OLTP configuration, perform the following procedures after installing the gateway.

---

---

**Note:** If your database link name is not "PGA," modify the demonstration .sql files to give them the particular database link name that you created in Step 5 of "[Configuring the Oracle Integrating Server](#)" on page 10-4. You must modify the following .sql files:

- pgavsn.sql
  - pgaecho.sql
  - pgaims.sql
- 
- 

### 10.8.1 Verifying the Gateway Installation

To verify the gateway software installation using the database link PGA previously created, perform the following steps:

1. Using SQL\*Plus, connect to your Oracle Integrating Server as user PGAADMIN.
2. Run %ORACLE\_HOME%\pg4appc\demo\pgavsn.sql.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo
SQL> @pgavsn.sql
```

The server version number banner appears at your terminal. You will receive the following output:

```
Oracle Procedural Gateway for APPC (extension TCP/IP for IMS Connect).
Version 10.0.1.2.0 Thu Feb 13 13:12:49 2003
```

```
Copyright (c) Oracle Corporation 1979,
2003. All rights reserved.
```

PL/SQL procedure successfully completed.

3. Run %ORACLE\_HOME%\pg4appc\demo\pgaecho.sql.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo
SQL> @pgaecho.sql
```

You will receive the following output:

```
==> Congratulations, your installation was successful. <==
```

## 10.8.2 Verifying the OLTP Configuration

Use the following procedure to verify your OLTP configuration.

---

**Attention:** If you have not completed the file transfers detailed in ["Preparing to Configure a Gateway Installation"](#) on page 10-2, complete them now, before proceeding to the next step.

---

### 10.8.2.1 IMS/TM Verification

Perform the following steps to verify the IMS/TM configuration. Be certain that you have installed and configured the IMS Connect and that it is up and running before you begin this procedure. Refer to the *IBM IMS Connect Guide and Reference* for information about how to perform the installation and configuration tasks.

---

**Note:** **TIPs must be recompiled when changing communication protocol to TCP/IP.**

**TCP/IP only:** If you have existing TIPs that were generated previously on a gateway using the SNA protocol and you want to utilize the new TCP/IP feature, then the TIPs will have to be regenerated by PGAU with mandatory NLS\_LANGUAGE and Side Profile Settings. Specify the appropriate ASCII character set in the DEFINE TRANSACTION command.

This is due to the fact that the gateway assumes that the appropriate user exit in IMS Connect is being used, which would translate between the appropriate ASCII and EBCDIC character sets.

---

1. To verify that the FLIP transaction is installed correctly, log on to your IMS/TM system and enter the following transaction (replacing *FLIP* with the transaction ID you chose for FLIP when you configured your IMS/TM system for the gateway):

```
FLIP THIS MESSAGE
```

The following output appears on your terminal:

```
EGASSEM SIHT PILF
```

---

**Attention:** If you have not completed the file transfers detailed in [Section 10.2 "Preparing to Configure a Gateway Installation"](#) on page 10-2, complete them now, before proceeding to the next step.

---

2. From your Windows platform, modify the **pgaims.sql** file, which resides at **%ORACLE\_HOME%\pg4appc\demo\IMS\pgaims.sql**. Customize the following three items used for accessing the gateway and the IMS/TM system, as described in the comments at the beginning of the file:
  - the IMS/TM transaction ID
  - the side profile name
  - the logmode entry name



3. Ensure that the TCP/IP communication protocol on your system has been started.
4. Using SQL\*Plus, connect to your Oracle Integrating Server from PGAADMIN.
5. Run **pgaims.sql**.

```
C:\> cd %ORACLE_HOME%\pg4appc\demo\IMS
SQL> @pgaims.sql
```

The following message appears:

```
==> Congratulations, your gateway is communicating with IMS/TM <==
```

Your IMS/TM installation verification is now complete.

## 10.9 Performing Post-installation Procedures

The following are optional steps that you can perform as necessary. Installation of the sample applications for your OLTP is recommended to help you to fully understand how the gateway works and how it interfaces with your OLTP.

### 10.9.1 Installing Sample Applications

Your Oracle Procedural Gateway for APPC featuring TCP/IP for IMS Connect contains sample PL/SQL procedures and OLTP transaction programs that demonstrate the gateway's capabilities.

---

---

**Note:** When you are calling a gateway that is using TCP/IP as the communication protocol, and you are using EBCDIC as the language in the control files, then you must change the language from EBCDIC to ASCII. Some examples of control files that may be in EBCDIC language are **ivtno.ctl** and **ivtnv.ctl**.

For more information, refer to the  
**%ORACLE\_HOME%\pg4appc\demo\IMS\ivtno.ctl** and  
**%ORACLE\_HOME%\pg4appc\demo\IMS\ivtnv.ctl** files.

---

---

Samples are provided for IMS/TM:

- IMS inquiry using IVTNO and IVTNV sample transactions

Additional samples are added to the distribution media in later releases of the product. Wherever possible, the sample applications use the sample databases provided with the database products.

For this release, full documentation on installing and using the sample applications is available in the **README.doc** files in the following directory:

**%ORACLE\_HOME%\pg4appc\demo\IMS**

---

## Security Requirements

The gateway architecture involves multiple systems, database servers, and communications facilities, each having distinct security capabilities and limitations. To effectively plan and implement your security scheme, you must understand these capabilities and limitations, in addition to knowing your installation's security requirements.

Read this chapter to learn about the capabilities and limitations of the Oracle Procedural Gateway for APPC. This chapter contains the following sections:

- ["Overview of Security Requirements"](#) on page 11-2
- ["Authenticating Application Logons"](#) on page 11-2
- ["Defining and Controlling Database Links"](#) on page 11-3
- ["Using SNA Security Validation"](#) on page 11-4
- ["TCP/IP Security"](#) on page 11-5
- ["Passwords in the Gateway Initialization File"](#) on page 11-7

## 11.1 Overview of Security Requirements

Before implementing your security scheme, you must understand the existing security requirements and expectations in your environment. Because you are enabling application access to different databases on different systems, you must merge multiple security cultures. When developing your security scheme, the most stringent security requirements prevail. When you connect several different systems into an operating whole, the system with the strictest security requirements generally dictates what the other systems can and cannot do.

Gateway security includes two main concerns:

- users and applications that are permitted access to a particular gateway instance and OLTP
- OLTP transactions that users and applications are able to execute

You can control access at several points in the gateway architecture. The primary options are discussed in the following sections. Control over remote transaction program access is provided by each OLTP with native authorization mechanisms based on user ID. These facilities are described in the product documentation for your OLTP. Information in this chapter includes how the gateway facilities determine the user ID that is in effect for a particular OLTP connection.

When the gateway is involved in an RPC request, security mechanisms are in effect for each system component encountered by the gateway. The first system component that is encountered is the application tool or 3GL program. The last system component that is encountered is the OLTP.

Each of the following sections identifies the component and the type of security processing that is available in that component. Each section offers a summary of key features and parameters. Refer to product-specific documentation for detailed information about the non-gateway components for Oracle and non-Oracle products.

## 11.2 Authenticating Application Logons

An application must connect to an Oracle Integrating Server before using that gateway. The type of logon authentication that you use determines the resulting Oracle user ID and can affect gateway operation.

Two basic types of authentication are available:

### 1. Oracle authentication.

With Oracle authentication, each Oracle user ID has an associated password that is known to Oracle. When an application connects to the server, it supplies a user ID and password. Oracle confirms that the user ID exists and that the password matches the one stored in the database.

### 2. Operating system authentication.

With operating system authentication, the server's underlying operating system is responsible for authentication. An Oracle user ID that is created with the IDENTIFIED EXTERNALLY attribute (instead of a password) is accessed with operating system authentication. To log on to such a user ID, the application supplies a forward slash ( / ) for a user ID and does not supply a password.

To perform operating system authentication, the server determines the requester's operating system user ID, optionally adds a fixed prefix to it, and uses the result as the Oracle user ID. The server confirms that the user ID exists and is IDENTIFIED

EXTERNALLY, but no password checking is done. The underlying assumption is that users were authenticated when they logged on to the operating system.

Operating system authentication is not available on all platforms and is not available in some Oracle Net (client-server) and multi-threaded server configurations. Refer to your Windows Oracle server documentation and *Oracle Net Services Administrator's Guide* to determine the availability of this feature in your configuration.

For more information about authenticating application logons, refer to the *Oracle Database Administrator's Guide*.

## 11.3 Defining and Controlling Database Links

The following sections discuss database links for users of the gateway employing either TCP/IP or SNA communications protocols.

### 11.3.1 Link Accessibility

The first point of control for a database link is simply whether it is accessible to a given user. A public database link can be used by any user ID. A private database link can be used only by the user who created it. Database link usability is determined by its ability to open a session to the gateway. The Oracle Integrating Server makes no distinction as to the type of use (such as read-only versus update or write) or which remote objects can be accessed. These distinctions are the responsibility of the OLTP that is accessed.

### 11.3.2 Links and CONNECT Clauses

The CONNECT clause is another security-related attribute of a database link. You can use the CONNECT clause to specify an explicit user ID and password, which can differ from the user's Oracle user ID and password. This CONNECT user ID and password combination is sent to the gateway when the database link connection is first opened. Depending on gateway-specific options, the gateway might send that user ID and password to the OLTP to be validated.

If a database link is created without a CONNECT clause using Oracle authentication, then the user's Oracle user ID and password are sent to the gateway when the connection is opened. If the user logs on to the Oracle Integrating Server with operating system authentication, then the gateway receives no user ID or password from the Oracle Integrating Server. It is impossible for operating system-authenticated Oracle users to use a gateway database link defined without a CONNECT clause. However, if your OLTP provides user ID mapping facilities based on the gateway LU name from which the user is connecting, then such a connection is possible if all users on the same gateway instance can use the same OLTP user ID.

For more information about database links, refer to the *Oracle Database Administrator's Guide*.

## 11.4 Using SNA Security Validation

The information in this section applies only to the security needs of gateway users employing the SNA communications protocol. When an RPC request to start a remote transaction program is received by the gateway, the gateway attempts to start an APPC conversation with the OLTP. Before the conversation can begin, a session must start between Windows' Logical Unit (LU) and the OLTP LU.

APPC support for your Windows platform is provided by the SNA Server (Microsoft Host Integration Server or IBM Communication Server v6.1.1 or higher).

SNA and its various access method implementations, including VTAM and the SNA Server, provide security validation at session initiation time, allowing each LU to authenticate its partner. This validation is carried out entirely by network software before the gateway and OLTP application programs begin their conversation and process conversation-level security data. If session-level security is used, then correct password information must be established in Microsoft Windows' SNA profiles and in similar parameter structures in the OLTP to be accessed. Refer to the appropriate communications software product documentation for detailed information about this subject.

### 11.4.1 Specifying SNA Conversation Security

The `PGA_SECURITY_TYPE` parameter of the gateway initialization file allows you to specify either of three options that determine the security conduct of the LU6.2 conversation that is allocated with the OLTP. These options are part of the SNA LU6.2 architecture, but their precise behavior might vary depending on the particular OLTP system.

#### 11.4.1.1 SNA Security Option `SECURITY=NONE`

If you specify `PGA_SECURITY_TYPE=NONE`, then the gateway performs no processing of the client user ID and password. The conversation is allocated with SNA option `SECURITY=NONE`.

#### 11.4.1.2 SNA Security Option `SECURITY=PROGRAM`

If you specify `PGA_SECURITY_TYPE=PROGRAM`, then the gateway allocates the conversation with SNA option `SECURITY=PROGRAM`, and the following information is sent to the OLTP:

- If the TIP user ID and password overrides are used, then the specified user ID and password are sent regardless of the database link specification.
- If the database link has explicit `CONNECT` information, then the specified user ID and password are sent.
- If the database link has no `CONNECT` clause, and if the application logged on to Oracle with an explicit user ID and password, then the Oracle user ID and password are sent.
- If the application logs on to Oracle with operating system authentication, and if the database link lacks explicit `CONNECT` information, then no user ID and password are sent. If no user ID and password are sent, and if the OLTP is not configured to assign a default user ID, then the connection fails.

In general, SNA option `SECURITY=PROGRAM` tells the OLTP to authenticate the user ID/password combination using whatever authentication mechanisms are available. For example, if CICS Transaction Server for z/OS is the OLTP, then RACF

can be used. This is not always the case, however, because each OLTP can be configured to process inbound user IDs in other ways.

## 11.5 TCP/IP Security

The security information in this section applies only to users of the Oracle Procedural Gateway for APPC using the TCP/IP for IMS Connect feature. When an RPC request to start a remote transaction program is received by the gateway, the gateway attempts to start the TCP/IP conversation with IMS Connect. IMS Connect would contact the OLTP (IMS) through OTMA and XCF. Refer to the *IBM IMS Connect Guide and Reference* for more information. The conversation between the gateway and IMS Connect occurs when the network uses the TCP/IP address or host name and port number to connect from the gateway to IMS Connect.

---

**Note:** Since the gateway is using PGAU to generate TIPs, the TIPs contain SNA information. When using the Oracle Procedural Gateway for APPC with TCP/IP support for IMS Connect, you need to map the SNA names to the TCP/IP host name and port number in order for the gateway to talk to IMS Connect. Use the `pg4tcpmap` tool to map the information from SNA to TCP/IP. Refer to Chapter 6, "*pg4tcpmap Commands*," of the *Oracle Procedural Gateway for APPC User's Guide* for more information.

---

IMS Connect provides validation at session initiation time, allowing each connection to authenticate its partner. This validation is carried out entirely by network software before the gateway and OLTP application programs at IMS begin their conversation and process conversation-level security data. If session-level security is used, then correct password information must be established in Microsoft Windows and in similar parameter structures in the OLTP to be accessed.

### 11.5.1 Specifying TCP/IP Conversation Security

The `PGA_SECURITY_TYPE` parameter of the gateway initialization file allows you to specify the security conduct for the conversation that is allocated by the gateway for OLTP. Refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#).

#### 11.5.1.1 TCP/IP Security Option SECURITY=NONE

If you specify `PGA_SECURITY_TYPE=NONE`, then the gateway performs no processing of the client user ID and password.

#### 11.5.1.2 TCP/IP Security Option SECURITY=PROGRAM

If you specify `PGA_SECURITY_TYPE=PROGRAM`, then the following information is sent to the OLTP:

- If the TIP user ID and password overrides are used, then the specified user ID and password are sent regardless of the database link specification.
- If the database link has explicit `CONNECT` information, then the specified user ID and password are sent.
- If the database link has no `CONNECT` clause, and if the application logged on to Oracle with an explicit user ID and password, then the Oracle user ID and password are sent.

- If the application logs on to Oracle with operating system authentication, and if the database link lacks explicit CONNECT information, then no user ID and password are sent. If no user ID and password are sent, and if the OLTP is not configured to assign a default user ID, then the connection fails.

RACF is the only authentication mechanism available when the Oracle Procedural Gateway for APPC using TCP/IP for IMS Connect talks to IMS Connect.

---

**Important:** You must specify your RACF group name through the pg4tcpmap tool if you have set your PGA security option to SECURITY=PROGRAM. For more information about this issue, refer to the *Oracle Procedural Gateway for APPC User's Guide*.

---



## 11.6 Passwords in the Gateway Initialization File

The Oracle Procedural Gateway for APPC uses user IDs and passwords to access the information on the remote database on the gateway server.

For functions to be handled correctly, some user IDs and passwords must be defined in the gateway initialization file. (For an example, refer to the PGA\_LOG\_PASS parameter in [Appendix A](#) or PGA\_TCP\_PASS parameter in [Appendix B](#).) Because it is not secure to have plain-text passwords accessible in the initialization file, a new encryption feature, **pg4pwd**, has been added to the gateway. With this feature, passwords are no longer stored in the initialization file but are stored instead in an encrypted form in the password file, making the information more secure. The **pg4pwd** utility is an optional feature, but Oracle strongly recommends that you use it. The following section describes how to use it.

---

---

**Note:** The gateway initialization file, regardless of protocol, can hold one or many password parameters. The **pg4pwd** utility will encrypt all of the passwords that are mentioned in this file if they are written in the following format:

```
SET PRIVATE PGA_LOG_PASS=*
```

---

---

### 11.6.1 Using the pg4pwd Utility

This section applies to users of the gateway whether your communications protocol is TCP/IP or SNA. The **pg4pwd** utility encrypts passwords that are normally stored in the gateway initialization file. The **pg4pwd** utility searches the initialization file for parameters with an asterisk, \*. The asterisk denotes that the parameter value is stored in encrypted form in another file. The following is a sample section of the initialization file with this value:

```
SET PRIVATE PGA_LOG_PASS=*
```

To use the **pg4pwd** utility:

1. Edit the initialization file to set the parameter value to \*.
2. Run the **pg4pwd** utility, specifying the gateway SID on the command line. The utility reads the initialization file, and prompts you to enter the values to be encrypted.

The syntax of the command, where *gateway\_sid* is the SID of the gateway, is:

```
C:\> pg4pwd gateway_sid
```

For example, if the gateway SID is "PGA", enter:

```
C:\> pg4pwd PGA
ORACLE Gateway Password Utility (pg4appc)
Constructing password file for Gateway SID PGA
Enter the value for PGA_LOG_PASS
pgaadmin
```

In the preceding example, the PGA\_LOG\_PASS parameter is identified as requiring encryption. The user enters the value, `pgaadmin`, and presses enter. If there are more parameters requiring encryption, they are prompted for in turn. The encrypted data is stored in the `%ORACLE_HOME%\pg4appc\admin\initsid.pwd` file.

---

---

**Note:** It is important that the ORACLE\_HOME environment variable points to the gateway Oracle home directory to ensure that the correct gateway initialization file is read.

---

---

---

## Migration From Existing Gateways

Migrating to new instances of the Oracle Procedural Gateway for APPC from an existing installation is straightforward, provided you follow some guidelines. This chapter provides information to make these new installations as easy as possible. It also provides the parameters you will need if you are using the TCP/IP for IMS Connect communication protocol on your gateway.

This chapter provides information that is specific to this release of the Oracle Procedural Gateway for APPC for Microsoft Windows. It contains the following sections:

- ["Migrating An Existing Gateway Instance to New Release Using SNA Protocol"](#) on page 12-2
- ["Backout Considerations When Migrating to New Releases"](#) on page 12-2
- ["Parameter Changes: Version 4 to Release 10.1.0.2.0 of the Gateway"](#) on page 12-3
- ["Parameter Changes: Version 8 or Earlier to Gateway Release 10.1.0.2.0"](#) on page 12-5
- ["Migrating from an Existing Gateway Using SNA to TCP/IP"](#) on page 12-5

## 12.1 Migrating An Existing Gateway Instance to New Release Using SNA Protocol

Follow these steps to migrate an existing gateway to Release 10.1.0.2.0 of the gateway using the SNA communication protocol.

**Note** that if you are using the gateway's TCP/IP support for IMS Connect, you will not be "migrating" an existing release to the current release of the gateway. However, you will need to place valid Heterogeneous Services parameters into your **initsid.ora** file. Proceed to ["Parameter Changes: Version 4 to Release 10.1.0.2.0 of the Gateway"](#) on page 12-3.

### 12.1.1 Step 1: Install the New Release

Install the new release of the gateway in a separate directory as outlined in [Chapter 4, "Installing the Gateway"](#).

---

---

**Caution:** Do not install the gateway over a previously existing gateway installation. Doing so will corrupt the existing installation.

---

---

### 12.1.2 Step 2: Transfer initsid.ora Gateway Initialization File Parameters

Copy the **initsid.ora** file from the old gateway instance to the new instance.

Note that if you are migrating from Release 9.0.1 or earlier of the gateway, PGA\_TRACE is not supported; you will need to modify the parameter to TRACE\_LEVEL, instead.

---

---

**Note:** If you are using TRACE\_LEVEL, you must set the path for the LOG\_DESTINATION parameter.

---

---

### 12.1.3 Backout Considerations When Migrating to New Releases

Oracle recommends that you keep the old gateway Oracle home directory and instance configurations intact and operational when you are installing a new release of the gateway and upgrading existing instances, in case there are problems with the upgrade. This will help ensure minimal downtime between changes to different gateway instances.

### 12.1.4 Oracle Net Considerations

The Oracle Procedural Gateway for APPC uses the Heterogeneous Services (HS) facilities of Oracle and Oracle Net. If you are upgrading from a version 4 gateway, then you need to slightly modify the gateway service name entries in the **tnsnames.ora** file. Add an (HS=) clause to tell Oracle Net that the gateway uses HS facilities. For more information, refer to ["Configuring the Oracle Network for the Gateway"](#) on page 5-2.

## 12.1.5 Parameter Changes: Version 4 to Release 10.1.0.2.0 of the Gateway

This release of the Oracle Procedural Gateway for APPC introduces new and changed initialization parameters if you are migrating from a Version 4 gateway to Release 10.1.0.2.0 of the gateway.

---

---

**Note:** This section does not apply to you if you are migrating to Release 10.1.0.2.0 from Version 8 of the Oracle Procedural Gateway for APPC.

---

---

If you are using the gateway's TCP/IP support for IMS Connect, you will not be "migrating" from Version 4 to the current release of the gateway. However, you will need to place valid Heterogeneous Services parameters into your **initsid.ora** file.

This chapter contains references to the particular HS parameters you need to run the gateway.

---

---

**Note:** Refer to the *Oracle Connectivity Guide* for a complete list and descriptions of all HS parameters used in Oracle products.

---

---

### New Gateway Initialization Parameters

The following parameters are in the gateway initialization file (**initsid.ora**):

- FDS\_CLASS
- FDS\_INSTANCE
- HS\_FDS\_FETCH\_ROWS
- LOG\_DESTINATION
- TRACE\_LEVEL
- PGA\_TCP\_DB (TCP/IP only)
- PGA\_TCP\_USER (TCP/IP only)
- PGA\_TCP\_PASS (TCP/IP only)

---

---

**Note:** The "HS\_" parameters are specific to Oracle Heterogeneous Services. For details on HS parameters, refer to the *Oracle Database Administrator's Guide*.

---

---

### Renamed Gateway Initialization File Parameters

Following is a list of the gateway initialization file (**initsid.ora**) parameters that have been renamed in this release of the gateway; the parameters' former names are shown in parentheses.

- HS\_COMMIT\_STRENGTH\_POINT (formerly COMMIT\_STRENGTH\_POINT)
- HS\_DB\_DOMAIN (formerly DB\_DOMAIN)
- HS\_DB\_INTERNAL\_NAME (formerly DB\_INTERNAL\_NAME)
- HS\_DB\_NAME (formerly DB\_NAME)
- HS\_DESCRIBE\_CACHE\_HWM (formerly DESCRIBE\_CACHE\_HWM)
- HS\_LANGUAGE (formerly LANGUAGE)
- HS\_NLS\_DATE\_FORMAT (formerly NLS\_DATE\_FORMAT)
- HS\_NLS\_DATE\_LANGUAGE (formerly NLS\_DATE\_LANGUAGE)
- HS\_OPEN\_CURSORS (formerly OPEN\_CURSORS)
- HS\_ROWID\_CACHE\_SIZE (formerly ROWID\_CACHE\_SIZE)

### Obsolete Parameters

The following parameters are now obsolete. Please remove them from your configuration files:

- MODE
- SERVER\_PATH
- ERROR\_LOGGING
- ERROR\_REPORTING
- ERRORTAG
- GATEWAY\_SID
- GROUP\_BY\_OFF
- GTWDEBUG
- INCREMENT\_CURSORS
- INIT\_CURSORS
- LIST
- MAX\_LOG\_SIZE
- OPTIMIZE\_FILE\_OPEN
- ORDER\_BY\_OFF
- RESOLVE\_BINDS
- RETRY
- SET
- SNMP\_SUPPORT
- SQL\_TRACE
- TRIM\_CURSORS
- D\_OPEN\_CURSORS

- D\_INIT\_CURSORS
- D\_INCREMENT\_CURSORS
- D\_TRIM\_CURSORS
- PGA\_TRACE

### 12.1.6 Parameter Changes: Version 8 or Earlier to Gateway Release 10.1.0.2.0

The following startup shell script parameter must be added to **initsid.ora** if you are migrating from a Version 4 or Version 8 gateway to Release 10.1.0.2.0 of the Oracle Procedural Gateway for APPC:

- FDS\_CLASS\_VERSION

### 12.1.7 Migrating from Gateway Release 9.0.1 or 9.2.0 to Gateway Release 10.1.0.2.0

No new parameters were added between release 9.0.1 and this release of the gateway.

## 12.2 Migrating from an Existing Gateway Using SNA to TCP/IP

The following sections are for users who have an existing release of the gateway using the SNA protocol, but who wish to switch to using TCP/IP support for IMS Connect.

The TCP/IP support for IMS Connect feature in this release of the gateway allows you to continue to use existing TIPs.

### 12.2.1 To Use Existing TIPs with Existing SideProfile Definitions

Follow these instructions:

1. Make sure you have used the pg4tcpmap tool to insert valid parameter values into the PGA\_TCP\_IMSC table.

Refer to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) for instructions on loading the PGA\_TCP\_IMSC table.

2. Make sure the LANGUAGE in your TIPs is set to american\_america\_us7ascii.
3. Use PGAU to regenerate the IMS TIPs.
4. Add the following new TCP/IP parameters to the **initsid.ora** file:

- PGA\_TCP\_DB
- PGA\_TCP\_USER
- PGA\_TCP\_PASS

You will find descriptions and information about adding these parameters in [Section 12.1.5, "Parameter Changes: Version 4 to Release 10.1.0.2.0 of the Gateway"](#) on page 12-3. You will also find descriptions of the parameters in [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#).

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**Note:** If your TIPs from a previous version of the gateway were already defined using a SideProfileName and the NLS\_LANGUAGE parameter has been set to a value of american\_america\_us7ascii, then you will not need to recompile these TIPs. You will still need to map your parameter values using the pg4tcpmap tool.

---

---

### 12.2.2 To Use Existing TIPs with LU/TP/LOGMODE Names

The new TCP/IP support for IMS Connect feature of the gateway only supports SideProfile Name coding in the IMS TIPs. If you have been using SNA on a gateway using LU/TP/LOGMODE combinations, the following steps must be taken:

1. Edit the IMS TIPs; create an 8 character, unique identifier and insert it into the TIP as the SideProfile.

This identifier does not need to be a system-defined SNA SideProfile Name; it is simply a unique name.

2. Make sure you have used the pg4tcpmap tool to insert the SideProfile name into the PGA\_TCP\_IMSC table.

Refer to [Chapter 10, "Gateway Configuration Using TCP/IP Communication Protocol"](#) for instructions on loading the PGA\_TCP\_IMSC table.

3. Make sure the LANGUAGE in your TIPs is set to american\_america\_us7ascii.
4. Use PGAU to regenerate the IMS TIPs.
5. Add the following new TCP/IP parameters to the **initsid.ora** file:
  - PGA\_TCP\_DB
  - PGA\_TCP\_USER
  - PGA\_TCP\_PASS

You will find descriptions and information about adding these parameters in [Section 12.1.5, "Parameter Changes: Version 4 to Release 10.1.0.2.0 of the Gateway"](#) on page 12-3. You will also find descriptions of the parameters in [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#).

---

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**Note:** **TIPS must be recompiled when changing communication protocol from SNA to TCP/IP.**

If you have existing TIPs that were generated previously on a gateway using the SNA protocol and you want to utilize the new TCP/IP feature, then the TIPs will have to be regenerated by PGAU with mandatory NLS\_LANGUAGE and Side Profile Settings. Specify the appropriate ASCII character set in the DEFINE TRANSACTION command.

This is due to the fact that the gateway assumes that the appropriate user exit in IMS Connect is being used, which would translate between the appropriate ASCII and EBCDIC character sets.

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## Gateway Initialization Parameters for SNA Protocol

This appendix describes the gateway initialization file location and lists the gateway initialization parameters supported by the Oracle Procedural Gateway for APPC specifically for the SNA protocol. These parameters are fully documented in [Section 12.1, "Migrating An Existing Gateway Instance to New Release Using SNA Protocol"](#) on page 12-2. In addition, this appendix contains sample listener.ora and tnsnames files for a gateway using SNA.

This appendix contains the following sections:

- ["Gateway Initialization Parameter File Using SNA Protocol"](#) on page A-2
- ["PGA Parameters"](#) on page A-2
- ["Sample listener.ora file for a Gateway using SNA"](#) on page A-7
- ["Sample tnsnames.ora file for a Gateway using SNA"](#) on page A-7

## A.1 Gateway Initialization Parameter File Using SNA Protocol

The parameter file for the gateway is located in the %ORACLE\_HOME%\pg4appc\admin directory and is called **initsid.ora**.

---

**Note:** The **initsid.ora** file contains both SNA and TCP/IP parameters. You must modify these files with the appropriate parameters.

---

### A.1.1 PGA Parameters

The PGA parameters control the APPC interface portion of the gateway.

PGA parameters are specified using the SET gateway initialization parameter. For example:

```
SET pga_parm=value
```

where:

- *pga\_parm* is one of the PGA parameter names in the list that follows; and
- *value* is a character string with contents that depend on *pga\_parm*

[Table A-1](#) provides a list of PGA parameters and their descriptions.

**Table A-1 PGA Parameters for Gateway Using SNA**

Parameter	Description
LOG_DESTINATION= <i>logpath</i>	<p><i>logpath</i> specifies the destination at which STDERR is reopened. LOG_DESTINATION specifies a directory only and stderr is reopened to <i>logpath\sid_pid.log</i></p> <p>where:</p> <ul style="list-style-type: none"> <li>■ <i>sid</i> is the sid name</li> <li>■ <i>pid</i> is the process ID assigned to the gateway</li> </ul>
PGA_CAPABILITY	<p>PGA transaction capability. This controls whether updates are allowed through the gateway. The following are valid values:</p> <p>READ_ONLY or RO - read-only capabilities.</p> <p>SINGLE_SITE or SS - single-site update only. This indicates that in a distributed environment, only the gateway can perform updates. No other database updates can occur within the Oracle transaction.</p> <p>COMMIT_CONFIRM or CC - commit-confirm. This indicates that in a distributed environment, updates can be performed by both the gateway and other participants within the Oracle transaction. The gateway is always committed first in this mode, and no other commit-confirm sites are allowed to participate in the Oracle transaction.</p> <p>The default is SINGLE_SITE.</p>

**Table A-1 (Cont.) PGA Parameters for Gateway Using SNA**

Parameter	Description
PGA_CONFIRM	<p>Incoming APPC CONFIRM request handling option. This controls what the gateway does when an APPC CONFIRM request is received from the remote transaction program. This parameter has meaning only when the conversation is running with SYNCLEVEL &gt; 0. The following are valid values:</p> <p>ACCEPT - respond to incoming APPC CONFIRM requests with APPC CONFIRMED responses.</p> <p>REJECT - treat incoming APPC CONFIRM requests as errors causing the conversation to be de-allocated and an error message to be issued.</p> <p>The default is REJECT.</p>
PGA_LOG_DB	<p>The Oracle Net service name for the Oracle server in which the gateway maintains its transaction log. This parameter can be from 1 to 255 characters long. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM.</p> <p>There is no default value.</p>
PGA_LOG_PASS	<p>The Oracle password to be used by the gateway when connecting to the Oracle server specified by the PGA_LOG_DB parameter. The password can be from 1 to 30 characters long. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM. The password can be encrypted. For more information about encrypting the password, refer to <a href="#">"Using the pg4pwd Utility"</a> on page 11-7.</p> <p>There is no default value.</p>
PGA_LOG_USER	<p>The Oracle user ID to be used by the gateway when connecting to the Oracle server specified by the PGA_LOG_DB parameter. The user ID can be from 1 to 30 characters long. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM.</p> <p>There is no default value.</p>
PGA_RECOVERY_PASS	<p>The password to be used by the gateway when allocating an APPC conversation with the transaction specified by the PGA_RECOVERY_TPNAME parameter. The password can be from 1 to 8 characters long. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM and PGA_SECURITY_TYPE is set to PROGRAM. The password can be encrypted. For more information about encrypting the password, refer to <a href="#">"Using the pg4pwd Utility"</a> on page 11-7.</p> <p>There is no default value.</p>
PGA_RECOVERY_TPNAME	<p>The TP name of the transaction installed in the OLTP for commit-confirm FORGET and RECOVERY processing. The TP name can be from 1 to 64 characters long. For CICS Transaction Server for z/OS, the TP name is limited to 4 characters. For IMS/TM, the TP name is limited to 8 characters. Other OLTPs might have other limits on the length of the TP name. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM.</p> <p>The default value is RECO.</p>

**Table A–1 (Cont.) PGA Parameters for Gateway Using SNA**

Parameter	Description
PGA_RECOVERY_USER	The user ID to be used by the gateway when allocating an APPC conversation with the transaction specified by the PGA_RECOVERY_TPNAME parameter. The user ID can be from 1 to 8 characters long. This parameter is required only when PGA_CAPABILITY is set to COMMIT_CONFIRM and PGA_SECURITY_TYPE is set to PROGRAM or SAME.  There is no default value.
PGA_SECURITY_TYPE	APPC conversation security option. This controls what security parameters are sent to the OLTP in the FMH-5 at conversation allocation. The following are valid values:  NONE -which sends no security parameters SAME -which sends only a user ID PROGRAM -which sends a user ID and password The default is NONE. For further information on these options, refer to <a href="#">Chapter 11, "Security Requirements"</a> .
TRACE_LEVEL	PGA trace level. This controls tracing output written to stderr (the target of the LOG_DESTINATION parameter.) The value must be an integer from 0 to 255.  The default is 0, indicating no tracing.  Any value between 1 and 255 will turn tracing on.

### A.1.2 PGA\_CAPABILITY Parameter Considerations

When choosing a setting for the PGA\_CAPABILITY parameter, take care to ensure that the correct setting is used based on what the remote transaction programs will be doing.

The READ\_ONLY setting should always be used when the remote transaction programs are read-only, that is, when the remote transaction programs perform no database updates. READ\_ONLY should never be used when the remote transaction programs perform database updates. For example, if the READ\_ONLY setting is chosen, and if a remote transaction program invoked by the gateway performs updates to a foreign database, then the Oracle Integrating Server does **not** provide any integrity protection for those updates. Furthermore, READ\_ONLY mode allows a gateway transaction to be part of a distributed transaction that might update several other databases. If the gateway invokes a remote transaction program that performs updates in this situation, and if a failure occurs, then the database updated by the remote transaction program is out of sync with the other databases.

In cases where the remote transaction programs perform updates to foreign databases, there are two options for PGA\_CAPABILITY:

- SINGLE\_SITE
- COMMIT\_CONFIRM

Each of these options provides protection against data integrity problems by allowing COMMIT and ROLLBACK requests to be forwarded to the remote transaction program, and by informing the Oracle Integrating Server about the distributed update and recovery capabilities of the gateway. The particular option chosen depends upon the design of the remote transaction programs and upon the capabilities of the OLTP (online transaction processor) where they execute.

If the OLTP has LU6.2 SYNCLEVEL 1 or 2 support, then the COMMIT\_CONFIRM capability provides limited two-phase commit between the Oracle Integrating Server and the OLTP, with the restriction that no other commit-confirm site (gateway or Oracle) can be part of the distributed transaction. If it is not possible to use COMMIT\_CONFIRM, then the SINGLE\_SITE capability provides update capability between the Oracle Integrating Server and the OLTP, with the restriction that only the OLTP can perform updates, and no updates can occur on the Oracle side.

Each of the PGA\_CAPABILITY options for update control imposes specific requirements on the remote transaction program and on the OLTP. For COMMIT\_CONFIRM capability, these requirements are discussed in detail in Chapter 5, "Implementing Commit-Confirm," of the *Oracle Procedural Gateway for APPC User's Guide*. Also refer to [Section 9.8.3, "Configuring the OLTP for Commit-Confirm"](#) on page 9-15 in this guide. For SINGLE\_SITE capability, the remote transaction program is responsible for performing the appropriate tasks in response to COMMIT and ROLLBACK requests received from the gateway on behalf of the Oracle Integrating Server. The gateway uses the APPC CONFIRM and SEND\_ERR requests to implement COMMIT and ROLLBACK, respectively. Upon receipt of a CONFIRM, the remote transaction program must perform COMMIT processing and then respond to the gateway with an APPC CONFIRMED response. Upon receipt of a SEND\_ERR, the remote transaction program must perform ROLLBACK processing.

Because the distributed transaction capability of the Oracle Integrating Server is affected by the PGA\_CAPABILITY option used by the gateway, it is desirable to separate inquiry and update applications by using different gateway instances for each. One gateway can be defined with PGA\_CAPABILITY set to READ\_ONLY and others with PGA\_CAPABILITY set to SINGLE\_SITE or COMMIT\_CONFIRM.

This allows read-only transaction programs to participate in distributed transactions under the control of the Oracle Integrating Server. For example, data from DB2 can be retrieved through the READ\_ONLY gateway by an inquiry-only remote transaction program, and can then be used as input to database updates on the Oracle Integrating Server, all in one Oracle transaction. A SINGLE\_SITE gateway can be used only for accessing remote transaction programs which perform updates to foreign databases outside the scope of the Oracle Integrating Server's control. Data can be read from any databases accessible to the Oracle Integrating Server, and that data can be used to perform updates through the gateway.

When it is necessary to update resources on both the Oracle side and the OLTP side, a COMMIT\_CONFIRM gateway can be used, provided that the OLTP and the remote transaction programs are set up to implement commit-confirm.

All that is necessary to set up multiple gateway instances is to set up the following for each instance:

- an entry in the **listener.ora** file defining the `sid` of the gateway instance
- an entry in the **tnsnames.ora** file defining an alias to be used to connect to the gateway instance defined in **listener.ora**
- a database link in the Oracle Integrating Server that specifies the alias defined in the **tnsnames.ora** file in its USING parameter.

Note that the gateway instances can share one common directory structure, and use the same executables.

For example, to set up two gateways, PGAI and PGAU (for inquiry and update use, respectively) the following steps are required:

1. Define entries in **listener.ora** for two `sids`, PGAI and PGAU.
2. Define two aliases in **tnsnames.ora** that connect to the two new `sids`, PGAI and PGAU.
3. Define two database links in the Oracle Integrating Server, one connecting to PGAI and the other connecting to PGAU.
4. Finally, create the initialization files **initPGAI.ora** and **initPGAU.ora**.

In **initPGAI.ora**, set `PGA_CAPABILITY` to `READ_ONLY`, and in **initPGAU.ora**, set `PGA_CAPABILITY` to `SINGLE_SITE` or `COMMIT_CONFIRM`. Then, use the PGAI gateway for inquiry-only transactions, and use the PGAU gateway for update transactions.

The same steps can be used to set up additional gateway instances.

### A.1.3 PGA\_CONFIRM Parameter Considerations

When deciding upon the setting for the `PGA_CONFIRM` parameter, it is important to understand the effects of each setting. First, keep in mind that this parameter affects only those conversations running at `SYNCLEVEL 1`. The default setting, `PGA_CONFIRM=REJECT`, is appropriate for most applications. With this setting, the gateway generates an error if a `CONFIRM` request is received from the remote transaction program. If you have a remote transaction that uses `CONFIRM` to verify that data was received by the gateway, then you must use `PGA_CONFIRM=ACCEPT` to allow the gateway to respond to those incoming `CONFIRM` requests with `CONFIRMED` responses. You must be aware that the gateway sends `CONFIRM` requests to the remote transaction when the Oracle application has issued a `COMMIT`. In order for the `COMMIT` processing to work correctly, the remote transaction must be written to perform its local commit processing whenever a `CONFIRM` request is received from the gateway, and respond to the gateway with `CONFIRMED` after the commit processing has successfully completed. If an error occurs during commit processing, then the remote transaction must respond to the gateway with `SEND_ERR` to indicate that the commit failed.

One special case for the use of `PGA_CONFIRM=ACCEPT` is with IMS/TM version 7. When using the "implied APPC" support that is provided by IMS/TM version 7, conversations that run at `SYNCLEVEL 1` are handled differently than conversations that run at `SYNCLEVEL 0`. IMS/TM automatically generates `CONFIRM` requests after each APPC `SEND` when the conversation is at `SYNCLEVEL 1`. On the gateway side, if `PGA_CONFIRM=ACCEPT` is not specified, then the `CONFIRM` requests sent by IMS/TM result in errors generated by the gateway. Using `PGA_CONFIRM=ACCEPT` alleviates this problem, allowing the gateway to respond to incoming `CONFIRM` requests with `CONFIRMED` responses. The only limitation with running this way is that the implied APPC support provided by IMS does not notify the application when a `CONFIRM` is received from the gateway. This means that the gateway cannot use `CONFIRM` to implement `COMMIT`, thereby disabling the use of `COMMIT/ROLLBACK` to control updates on the IMS side of the conversation.

### A.1.4 Sample listener.ora file for a Gateway using SNA

```

LISTENER =
  (ADDRESS_LIST =
    (ADDRESS=
      (COMMUNITY= TCP.world)
      (Host = bay)
      (PROTOCOL= TCP)
      (Port= 2621)
    )
    (ADDRESS=
      (COMMUNITY= TCP.world)
      (Host = bay)
      (PROTOCOL= TCP)
      (Port= 2623)
    )
  )

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PGA)
      (ORACLE_HOME = C:\oracle\pga\10.0)
      (PROGRAM = pg4asrv)
    )
  )

```

### A.1.5 Sample tnsnames.ora file for a Gateway using SNA

```

ORA920 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = bay.us.oracle.com) (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORA920.bay)
    )
  )

PGA =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = bay) (PORT = 2621))
    )
    (CONNECT_DATA =
      (SID = PGA)
    )
    (HS = OK)
  )

```





---

## Gateway Initialization Parameters for TCP/IP Communication Protocol

This appendix lists and describes the parameters needed specifically for a gateway featuring the TCP/IP for IMS Connect communication protocol. It also provides a sample output of the pg4tcpmap tool. In addition, this appendix contains sample listener.ora and tnsnames.ora files for a gateway using TCP/IP. It contains the following sections:

- ["Gateway Initialization Parameter File Using TCP/IP"](#) on page B-2
- ["Output for pg4tcpmap Tool"](#) on page B-4
- ["Sample listener.ora file for a Gateway using TCP/IP"](#) on page B-5
- [Sample tnsnames.ora file for a Gateway using TCP/IP](#) on page B-6

## B.1 Gateway Initialization Parameter File Using TCP/IP

The parameter file for the Oracle Procedural Gateway for APPC using TCP/IP for IMS Connect is located in the %ORACLE\_HOME%\pg4appc\admin directory and is called **initsid.ora**.

---

**Note:** The **initsid.ora** file contains both SNA and TCP/IP parameters. You will need to modify these files with the appropriate parameters.

---

### B.1.1 PGA Parameters

The PGA parameters control the TCP/IP interface portion of the gateway.

PGA parameters are specified using the SET gateway initialization parameter. For example:

```
SET pga_parm=value
```

where:

- *pga\_parm* is one of the PGA parameter names in the list that follows
- *value* is a character string with contents that depend on *pga\_parm*

Table B–1 provides a list of PGA parameters and their descriptions.

**Table B–1 PGA Parameters on Gateway Using TCP/IP for IMS Connect**

Parameter	Description
LOG_DESTINATION= <i>logpath</i>	<p><i>logpath</i> specifies the destination at which STDERR is reopened. LOG_DESTINATION specifies a directory only and stderr is reopened to <i>logpath\sid_pid.log</i></p> <p>where:</p> <ul style="list-style-type: none"> <li>■ <i>sid</i> is the sid name</li> <li>■ <i>pid</i> is the process ID assigned to the gateway</li> </ul> <p>NOTE: This parameter will be used for the pg4tcpmap tool when you set your Trace Level to 255. The log file for this tool will reside in the same place as the gateway log file, in <i>pg4tcpmap_sid.log</i>.</p>
PGA_CAPABILITY	<p>PGA transaction capability. The following are valid values:</p> <p>READ_ONLY or RO - read-only capabilities.</p> <p>SINGLE_SITE or SS - single-site update only. This indicates that in a distributed environment, only the gateway can perform updates. No other database updates can occur within the Oracle transaction.</p> <p>The default is SINGLE_SITE.</p>

**Table B–1 (Cont.) PGA Parameters on Gateway Using TCP/IP for IMS Connect**

Parameter	Description
PGA_SECURITY_TYPE	<p>TCP/IP conversation security option. This controls what security parameters are sent to the OLTP. The following are valid values:</p> <p>NONE -which sends no security parameters</p> <p>PROGRAM -which sends a user ID and password</p> <p>The default is NONE.</p> <p>For further information on these options, refer to <a href="#">Chapter 11, "Security Requirements"</a>.</p> <p><b>Important:</b> You must specify your RACF group name through the pg4tcpmap tool if you have set your PGA security option to SECURITY=PROGRAM. For more information about this issue, refer to the <i>Oracle Procedural Gateway for APPC User's Guide</i>.</p> <p>If you have already loaded the table <b>pga_tcp_ims</b> and you did not first specify the RACF group name, delete the row and reinsert it with the value for the RACF group name.</p>
PGA_TCP_DB	<p>The Oracle Net service name for the Oracle server in which the gateway receives its TCP/IP for IMS Connect information, such as host name and port number. This parameter can be from 1 to 255 characters long. This parameter is required.</p> <p>There is no default value.</p>
PGA_TCP_PASS	<p>The Oracle password to be used by the gateway when connecting to the Oracle server specified by the PGA_TCP_DB parameter. The password can be from 1 to 30 characters long. This parameter is required. The password can be encrypted. For more information about encrypting the password, refer to <a href="#">"Using the pg4pwd Utility"</a> on page 11-7.</p> <p>There is no default value.</p>
PGA_TCP_USER	<p>The Oracle user ID to be used by the gateway when connecting to the Oracle server specified by the PGA_TCP_DB parameter. The user ID can be from 1 to 30 characters long. This parameter is required.</p> <p>There is no default value.</p>
TRACE_LEVEL	<p>PGA trace level. This controls tracing output written to stderr (the target of the LOG_DESTINATION parameter.) The value must be an integer from 0 to 255.</p> <p>The default is 0, indicating no tracing.</p> <p>NOTE: This parameter will be used in the pg4tcpmap tool as well as the gateway.</p>

## B.2 Output for pg4tcpmap Tool

The following output illustrates the results from executing the pg4tcpmap tool when running TCP/IP for IMS Connect on the gateway. Refer to [Section 10.7, "Loading the PGA\\_TCP\\_IMSC Table"](#) on page 10-12 of this guide and to Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide* for detailed information about the function and parameters of the pg4tcpmap tool.

Note that input in this sample is shown within brackets (<>).

```
C:\oracle\bin\<pg4tcpmap>
```

```
PG4TCPMAP: Release 10.1.0.2.0 - Production on Fri Jun 20 14:57:41 2003
```

```
Copyright(c) 1982,2003 Oracle Corporation. All rights reserved.
```

```
This tool takes the IMS Connect TCP/IP information, such as host name
and port number and maps them to your TIPS.
```

```
You may use this tool to insert or delete IMS Connect TCP/IP
information.
```

```
If you want to insert a row, type I
```

```
If you want to delete a row, type D
```

```
<i>
```

```
Enter the Unique Side Profile.
```

```
pgaimst
```

```
Enter either the remote hostname or its TCP/IP address.
```

```
<mvs08>
```

```
Enter the IMS Connect port number.
```

```
<9900>
```

```
Do you want to select a Conversational Protocol?(Y|N)
```

```
The default is NO, 'no request for acknowledgment or deallocation'
```

```
<n>
```

```
Enter one of the following letters for Timer.
```

```
For .25 second, enter 'D'.
```

```
For .01 to .25 second, enter 'S'.
```

```
For 'does not set the timer, no wait occurs', enter 'N'.
```

```
For Receive waits indefinitely, enter 'I'.
```

```
The default is 'D'.
```

```
<d>
```

```
Enter one of the following letters for 'socket connection type'.
```

```
For transaction socket, enter 'T'.
```

```
For persistent socket, enter 'P'.
```

```
For non-persistent socket, enter 'N'.
```

```
The default is 'T'.
```

```
<t>
```

```
Do you want to enter the client ID name? (Y|N)
```

```
If NO, IMS Connect (user exit) will generate it.
```

```
<n>
```

```
Enter one of the following letters for 'commit mode'.
```

```
For Commit Mode set to 0, enter '0'.
```

```
For Commit Mode set to 1, enter '1'.
```

```
The default is '1'.
```

```
<1>
```

```
Enter the Datastore name (IMS Destination ID).
```

```
The maximum string length is 8 and the Datastore name must be
specified.
```

```
<imse>
```

```
Do you want to enter the LTERM? (Y|N)
```

```
If NO, the default is blank.
```

```
<n>
```

```

Do you want to enter the RACF group name? (Y|N)
If NO, the default is blank.
<n>
Requested to INSERT a row.
'Side Profile name' is 'PGAIMST'
'remote host name' is 'MVS08'
'IMS Connect port number' is '9900'
'conversational protocol' is ' '
'Timer' is 'D'
'socket connection type' is 'T'
'client ID' is ' '
'commit mode' is '1'
'Datastore name (IMS destination ID)' is 'IMSE '
'IMS LTERM override' is ' '
'RACF group name' is ' '
pg4tcpmap is complete.

```

## B.2.1 Sample listener.ora file for a Gateway using TCP/IP

```

LISTENER =
  (ADDRESS_LIST =
    (ADDRESS=
      (COMMUNITY= TCP.world)
      (Host = bay)
      (PROTOCOL= TCP)
      (Port= 2621)
    )
    (ADDRESS=
      (COMMUNITY= TCP.world)
      (Host = bay)
      (PROTOCOL= TCP)
      (Port= 2623)
    )
  )

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PGA)
      (ORACLE_HOME = C:\oracle\pga\10.0)
      (PROGRAM = pg4t4ic)
    )
  )

```

## B.2.2 Sample tnsnames.ora file for a Gateway using TCP/IP

```
ORA920 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = bay.us.oracle.com) (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORA920.bay)
    )
  )

PGA =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = bay) (PORT = 2623))
    )
    (CONNECT_DATA =
      (SID = PGA)
    )
    (HS = OK)
  )
```

---

## Gateway Terminology

This appendix contains of a list of terms and definitions pertaining to the gateway and its components and function.

For a list of other terms and definitions associated with the gateway, refer to Chapter 1 of the *Oracle Procedural Gateway for APPC User's Guide*.

This appendix contains the following section:

- ["Gateway Term Definitions"](#) on page C-2

## C.1 Gateway Term Definitions

Following is a list of some of the terms and definitions used in this edition of the *Oracle Procedural Gateway for APPC Installation and Configuration Guide*.

### Gateway Initialization File

This file is known as **initsid.ora** and it contains parameters that govern the operation of the gateway. If you are using the SNA protocol, refer to [Appendix A, "Gateway Initialization Parameters for SNA Protocol"](#) for more information. Refer to [Appendix B, "Gateway Initialization Parameters for TCP/IP Communication Protocol"](#) if your protocol is TCP/IP.

### Gateway Remote Procedure

The Oracle Procedural Gateway for APPC provides prebuilt remote procedures. In general, the following three remote procedures are used:

- PGAINIT, which initializes transactions
- PGAXFER, which transfers data
- PGATERM, which terminates transactions

Refer to ["Remote Procedural Call Functions"](#) on page 1-10 in this guide and to [Appendix C, "Gateway RPC Interface"](#) in the *Oracle Procedural Gateway for APPC User's Guide* for more information about gateway remote procedures.

### pg4pwd

**pg4pwd** is a utility which encrypts passwords that are normally stored in the gateway initialization file. Passwords are stored in an encrypted form in the password file, making the information more secure. Refer to ["Passwords in the Gateway Initialization File"](#) on page 11-7 for detailed information about how the **pg4pwd** utility works.

### pg4tcpmap tool

This gateway mapping tool is applicable only when the gateway is using TCP/IP support for IMS Connect. Its function is to map the Side Profile Name to TCP/IP and IMS Connect attributes into the PGA\_TCP\_IMSC table.

### PGA (Procedural Gateway Administration)

PGA is a general reference within this guide to all or most components comprising the Oracle Procedural Gateway for APPC. This term is used when references to a specific product or component are too narrow.

### PGDL (Procedural Gateway Definition Language)

PGDL is the collection of statements used to define transactions and data to the PGAU.

### PL/SQL Stored Procedure Specification (PL/SQL package)

This is a precompiled PL/SQL procedure that is stored in Oracle Integrating Server.

### UTL\_RAW PL/SQL Package (the UTL\_RAW Functions)

This component of the gateway represents a series of data conversion functions for PL/SQL RAW variables and remote host data. The types of conversions performed depend on the language of the remote host data. Refer to ["UTL\\_RAW Functions"](#) in [Appendix D](#) of the *Oracle Procedural Gateway for APPC User's Guide* for more information.



**UTL\_PG PL/SQL Package (the UTL\_PG Functions)**

This component of the gateway represents a series of COBOL numeric data conversion functions. Refer to "NUMBER\_TO\_RAW and RAW\_TO\_NUMBER Argument Values" in Appendix D of the *Oracle Procedural Gateway for APPC User's Guide* for supported numeric datatype conversions.



---

## Summary of Changes in Previous Versions

This appendix provides a summary of changes in previous versions of the Oracle Procedural Gateway for APPC.

This appendix contains the following sections:

- ["Changes and Enhancements in Previous Versions"](#) on page D-2
- ["Corrected Problems in Previous Versions"](#) on page D-5
- ["Known Restrictions in Previous Releases"](#) on page D-8

## D.1 Changes and Enhancements in Previous Versions

The following sections list changes and enhancements that were made to previous releases of the gateway.

### D.1.1 Release 9.2.0.1.0

The following section lists changes and enhancements that were made to Release 9.2.0.1.0 of the gateway:

- Oracle Call Interface: Because of changes to the Oracle Call Interface (OCI), Oracle Procedural Gateway for APPC internal codes for calling COMMIT/CONFIRM have changed. This does not affect user functions.
- APPC log file: The Oracle Procedural Gateway for APPC log file is improved, and provides more information about transactions. For a sample of the new log file, refer to Chapter 6 of the *Oracle Procedural Gateway for APPC User's Guide for Microsoft Windows, Release 9.2.0.1.0*.
- Password encryption utility for gateway initialization file: This release of the gateway includes a utility to support encryption of plain-text passwords in the gateway initialization file.

### D.1.2 Release 9.0.1.1.0

The following section lists changes and enhancements that were made to Release 9.0.1.1.0 of the gateway:

- Release 9.0.1.1.0 of the Oracle Procedural Gateway for APPC requires and Oracle9i release 9.0.1.1.0 (Oracle 9i database server 9.0.1) or higher Oracle Integrating Server.
- If you are installing Oracle Procedural Gateway for APPC release 9.0.1.1.0 on the system for the first time, the ORACLE\_HOME directory is **C:\orant**, by default.

### D.1.3 Release 9.0.1.0.1

The following section lists changes and enhancements that were made to Release 9.0.1.0.1 of the gateway:

- PGA\_TRACE parameter no longer supported: With this release of Oracle Procedural Gateway for APPC, the PGA\_TRACE parameter is no longer supported. If you are copying the **initsid.ora** file from an older version of the gateway, you must remove this parameter.
- FDS\_CLASS\_VERSION parameter added: You will need to add the FDS\_CLASS\_VERSION parameter to your startup shell script file (**initsid.ora**). A default value is specified in **initsid.ora**.

## D.1.4 Release 8.0.6.0.0

The following section lists changes and enhancements that were made to Release 8.0.6.0.0 of the gateway:

- The Oracle Procedural Gateway for APPC does not support Oracle7 server or earlier.

- Heterogeneous Services architecture

This release of Oracle Procedural Gateway for APPC utilizes the Oracle Heterogeneous Services component within the Oracle8 server. Heterogeneous Services is the building block for the next generation of Oracle Open Gateways.

- Performance enhancements

Oracle Procedural Gateway for APPC contains several internal performance enhancements. This product has shown major improvements over the version 4 gateways, particularly in response time and CPU utilization for all relevant address spaces for a variety of workloads. The actual performance improvement at your site may vary, depending on your installation type and workload.

- PL/SQL V3 compatibility

Before Release 8 you had to set the `PLSQL_V2_COMPATIBILITY` parameter to "TRUE" to compile PGAU80-generated TIP specifications. This is no longer necessary.

- Oracle server dependencies

This release of Oracle Procedural Gateway for APPC requires that the Oracle Integrating Server be an Oracle8 server Release 8.0.6.0.0 or later.

- Gateway initialization parameters

In previous versions of the gateway the initialization parameters were stored in files named **initsid.gtwboot** and **initsid.ora**, both found in the gateway instance directories. With version 8, most parameters that were in **initsid.gtwboot** have been moved to the **initsid.ora** file. The syntax of **initsid.ora** has been simplified.

When migrating from previous releases of the gateway, be aware of these differences. Refer to "Parameter Changes for Version 4 to Release 9i Migration of Gateway" on page 7-3 for information about these parameters.

- **tnsnames.ora**: The service name definition (from the Oracle Integrating Server to the gateway) must contain an extra parameter, (**HS=(DRIVER)**).
- In this release of the Oracle Procedural Gateway for APPC for Microsoft Windows, the following names have changed:
  - PGAU80.EXE (known as PGAU80) has been changed to PGAU.EXE (known as PGAU).
  - PG4APPC80.EXE (known as PG4APPC80) has been changed to PG4APPC.EXE (known as PG4APPC)
- With this release of the Oracle Procedural Gateway for APPC for Microsoft Windows, the gateway no longer runs as a Windows service. The process-based gateway provides faster performance because it does not need a management utility. Instead, each Oracle Integrating Server user session that accesses a particular gateway creates an independent process on Windows that runs the gateway server and executes SNA functions.

- GTWSRV.EXE is no longer included  
As a result of the process-based gateway, the Oracle Procedural Gateway for APPC package no longer includes the GTWSRV.EXE management utility.
- The process-based gateway removes the restriction of a four-character limit for the SID name. Refer to the *Oracle Net Administrator's Guide* for more information about character limits for SID names.
- The GTWCONF.EXE process is no longer included in the Oracle Procedural Gateway for APPC for Windows, beginning with this release.
- Microsoft SNA Server Version 2 is no longer supported with this release of the Oracle Procedural Gateway for APPC for Microsoft Windows.

### D.1.5 Release 4.0.1.1.0

The following section lists changes and enhancements that were made to Release 4.0.1.1.0 of the gateway:

- Gateway components now based on Oracle7 Server release 7.3.3  
The gateway components are now built using the Oracle7 server release 7.3.3 product libraries as a base. All product components shipped with the gateway, including SQL\*Net, are now at the release 7.3.2 level.
- Gateway supports Oracle8 Server release 8.0.3  
The gateway now supports Oracle8 server release 8.0.3 as an integrating server.
- UTL\_PG now shipped with Oracle Server  
The scripts for installing the UTL\_PG PL/SQL package are now shipped with the Oracle7 or Oracle8 server and are no longer shipped with the gateway.
- Gateway no longer supports Oracle7 Server release 7.1.6 and 7.2  
The gateway no longer supports Oracle7 server release 7.1.6 and 7.2 as integrating servers.
- User ID and password overrides now supported by gateway (Enh. No. 423300)  
A new TIP override is now available to allow the user ID and password sent by the gateway to the OLTP (online transaction processor) to be specified by the user. For complete information on using this override, refer to "Overriding TIP Initializations" in Chapter 2 of the *Oracle Procedural Gateway for APPC User's Guide*.
- New "LENGTH IS" clause supported by PGAU (Enh. No. 428783)  
A new "LENGTH IS" clause in COBOL data definitions is now recognized by PGAU and allows the definition of variable-length character fields without using OCCURS DEPENDING ON. For complete information on using this clause, refer to "Format Conversion" in Appendix G of the *Oracle Procedural Gateway for APPC User's Guide*.
- Date/time stamp in trace output  
All trace and debug output from the gateway server now contains a date/time stamp in the beginning of each line.
- Installer improvements: The installer prompts not relevant to the gateway have been eliminated to streamline the installation process.

## D.2 Corrected Problems in Previous Versions

The following tables list the numbers and descriptions of each bug fixed in previous releases of the gateway.

### D.2.1 Release 9.2.0.1.0

Table D–1 lists the bugs that were fixed in Release 9.2.0.1.0 of the gateway, along with their descriptions:

**Table D–1 Bugs Fixed in Release 9.2.0.1.0**

Bug Number	Description
1276298	When using an invalid value for receive parameter for the pgaxfer procedure, the user receives an ORA 28511 error message.
1302253	Oracle Procedural Gateway for APPC procedure statements executed on the Oracle integrating servers would hang in SQL*Plus, without giving any messages.
1336805	When the PGA_SECURITY_TYPE parameter was set to PROGRAM and the PGA_CAPABILITY parameter was set to COMMIT_CONFIRM, the user received an authentication error but could not see who was complaining about it.
1404454	The <b>pg4appc</b> log file should be improved and have the received buffer in the log file.
1411694	The user receives message ORA-28527 when the PGA_CAPABILITY is set to READ_ONLY.
1472800	Multi-row queries failed on the following error messages: ORA-01401 and ORA-06512.
1519088	User received sporadic abends when inserting CICS records to VSAM file.
1677939	Oracle Procedural Gateway for APPC would partially transfer low values to VSAM files.
1722467	When the PGA_SECURITY_TYPE parameter was set to PROGRAM and the user specified the user ID and password through database link explicit CONNECT information, the query failed with message PGA-20910 RC=6.
1724988	When the programmer used RPC PGAINIT_SEC, no matter what synclevel was being used, the following message was received: "invalid SYNCHLEVEL, 152, specified; valid range is 0:1."
2092204	When using PGATCTL procedure with specifying the function code as "D", the user receives the message PGA-20932 with an invalid function code.
2128785	Oracle Server Heterogeneous Services place unwanted trace files into <b>\tmp</b> directory.

## D.2.2 Release 9.0.1.0.1

Table D–2 lists the bugs that were fixed in Release 9.0.1.0.1 of the gateway, along with their descriptions:

**Table D–2 Bugs Fixed in Release 9.0.1.0.1**

Bug Number	Description
1276298	When using an invalid value for receive parameter for the pgaxfer procedure, the user receives an ORA-28511 error message.
1302253	Oracle Procedural Gateway for APPC procedure statements executed on the Oracle integrating servers would hang in SQL*Plus, without giving any messages.
1336805	When the PGA_SECURITY_TYPE parameter was set to PROGRAM and the PGA_CAPABILITY parameter was set to COMMIT_CONFIRM, the user received an authentication error but could not see who was complaining about it.
1404454	The pg4appc log file should be improved and have the received buffer in the log file.
1411694	The user receives message ORA-28527 when the PGA_CAPABILITY is set to READ_ONLY.
1472800	Multi-row queries failed on the following error messages: ORA-01401 and ORA-06512.
1519088	User received sporadic abends when inserting CICS records to VSAM file.
1677939	Oracle Procedural Gateway for APPC would partially transfer low values to VSAM files.
1722467	When the PGA_SECURITY_TYPE parameter was set to PROGRAM and the user specified the user ID and password through database link explicit CONNECT information, the query failed with message PGA-20910 RC=6.
1724988	When the programmer used RPC PGAINIT_SEC, no matter what synclevel was being used, the following message was received: "invalid SYNCHLEVEL, 152, specified; valid range is 0:1."



### D.2.3 Release 8.0.6.0.0

Table D–3 lists the bugs that were fixed in Release 8.0.6.0.0 of the gateway, along with their descriptions:

**Table D–3 Bugs Fixed in releases 8.0.6.0.0**

Bug Number	Description
1329386	PGAU core dumped on large packages. When users tried to generate large packages with PGAU, they got a core dump.
561128	The PLSTYPE attribute of binary integers (COBOL COMP data items) had the wrong precision when the data was defined without COMPOPTS('TRUNC(BIN)') specified.
599696	PGAU COBOL parser did not accept OCCURS clause appearing before datatype as valid syntax.
603934	When COBOL data definitions contained OCCURS and REDEFINES, the PGAU-generated .pkb file was invalid.
689304	This bug occurred when a CICS transaction abended between the time that the Oracle server called the gateway to perform a commit and the time that the CICS transaction was successfully committed.  When this occurred, the Oracle recovery process (RECO) would call the gateway's recovery function (GTARECO) to resolve the transaction. The GTARECO function mistakenly relayed that it had successfully rolled back the CICS transaction, but in fact it had failed to delete the row from PGA_CC_PENDING.
883761	System Process - Out of virtual Memory. After hours of service, pg4appc.exe would crash with an access violation. Using Windows Task Manager, customer would see pg4appc growing in memory continuously, until reaching the maximum amount of virtual memory. Then pg4appc.exe crashed with an access violation.

### D.2.4 Release 4.0.1.1.0

Table D–4 lists the bugs that were fixed in Release 4.0.1.1.0 of the gateway, along with their descriptions:

**Table D–4 Bugs Fixed in Release 4.0.1.1.0**

Bug Number	Description
420391	PGAU generated invalid PL/SQL in the TIP when a COBOL definition contained an OCCURS clause and was defined as an IN OUT parameter. A PLS-103 error was generated when attempting to compile the TIP.
460960	ORA-9199 errors were generated by the gateway after some gateway exceptions due to a memory overlay.
473360	PGAU encountered a segment fault when executing a GENERATE command for a transaction with a very large number of fields defined in its COBOL data.
506777	An ORA-1017 error was generated by the gateway when RECO attempted to log onto the gateway during recovery of a distributed transaction, even though the gateway was running in READ-ONLY mode.
521084	ORA-3106 errors were generated by the gateway on Windows under heavy transaction load.

## D.3 Known Restrictions in Previous Releases

The following section lists restrictions that were known to exist in previous releases of the gateway. A current list of problems is available online at:

<http://metalink.oracle.com>

If you have problems accessing this online information, then contact Oracle Support Services for assistance.

### D.3.1 Release 9.2.0.1.0

No known problems were documented in Release 9.2.0.1.0 of the Oracle Procedural Gateway for APPC.

### D.3.2 Release 8.0.6.1.0 and 4.0.1.1.0

The following problems in other products are known to affect the operation of products in this release:

- UTL\_PG Does Not Handle Numeric Data Values Between 0 and +1 (Bug No. 360427)  
The UTL\_PG.NUMBER\_TO\_RAW function erroneously issues messages ORA-08414 and ORA-08467 when converting an Oracle number between 0 and +1 into a COBOL numeric value. Contact Oracle Support Services to order the patch correcting this bug.
- PGA Grows Excessively When Using Indexed PL/SQL Tables (Bug No. 373700)  
When TIPs are executed that use large PL/SQL tables, the memory usage grows excessively. Contact Oracle Support Services to order the patch correcting this bug.
- UTL\_PG Does Not Handle Leading or Trailing Signs Correctly for DISPLAY Data (Bug No. 383510)  
The UTL\_PG.RAW\_TO\_NUMBER and UTL\_PG.NUMBER\_TO\_RAW functions do not handle leading or trailing signs correctly for numeric data defined with USAGE IS DISPLAY. Contact Oracle Support Services to order the patch correcting this bug.

## Configuration Worksheet

The following worksheet lists the parameter names and the reasons you will need them to configure the gateway and the communications interface you have chosen (either SNA or TCP/IP). Use the worksheet to gather the specific information you need before you begin the configuration process.

Ask your systems administrator to provide you with any parameter names you do not know.

**Table E-1 Parameters for Configuring Gateway and Communication Protocols**

Name of Parameter Needed	Purpose	Your Specific Parameters Here
ORACLE_HOME	for: gateway's Oracle Home	_____
ORACLE_SID	for: gateway's system ID	_____
Any Security Options Needed	for: SNA remote LU properties options	_____
Appropriate Name for Each Side Information Profile	for: SNA creating CPI-C symbolic destination names (side information profiles), general information	_____
Appropriate Mode	for: SNA	_____
TP Name	for: SNA partner information in CPI-C name properties	_____
Partner LU Name Alias	for: SNA partner information in CPI-C name properties	_____
Unique Side Profile Name	for: Configuring TCP/IP support for IMS Connect	_____
Remote Hostname or TCP/IP Address	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
IP Address	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____

**Table E-1 (Cont.) Parameters for Configuring Gateway and Communication Protocols**

<b>Name of Parameter Needed</b>	<b>Purpose</b>	<b>Your Specific Parameters Here</b>
IMS Connect Port Number	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
Conversational Protocol (Y/N)	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
Timer choice: a) .25 b) .01 to .25 c) Does not exist d) Receives wait	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
Socket Connection Type Choice: a) transaction b) persistent c) non-persistent	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
IMS Client ID Name	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
IMS Commit Mode Choice: a) 0 b) 1	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
IMS Destination ID, datastore name	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
LTERM	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____
RACF Group Name	for: Configuring TCP/IP support for IMS Connect, pg4tcpmap tool	_____

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