

# Oracle Call Interface for Windows NT/95 User's Guide

**Release Release 7.3**

Part No. A44131-1

**ORACLE<sup>®</sup>**

---

The Relational Database Management Company

Oracle Call Interface™ for Windows NT/95 Installation and User's Guide,  
Release Release 7.3

Part No. A44131-1

Copyright © 1996 Oracle Corporation

**All rights reserved. Printed in the U.S.A.**

Author: Joseph Garcia

Contributors: Elaine Chien, Keith Majkut, Stephanie Schuller, Toby Close

**This software was not developed for use in any nuclear, aviation, mass transit, medical, or other inherently dangerous applications. It is the customer's responsibility to take all appropriate measures to ensure the safe use of such applications if the programs are used for such purposes.**

This software/documentation contains proprietary information of Oracle Corporation; it is provided under a license agreement containing restrictions on use and disclosure and is also protected by copyright law. Reverse engineering of the software is prohibited.

If this software/documentation is delivered to a U.S. Government Agency of the Department of Defense, then it is delivered with Restricted Rights and the following legend is applicable:

**Restricted Rights Legend** Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of DFARS 252.227-7013, Rights in Technical Data and Computer Software (October 1988).

Oracle Corporation, 500 Oracle Parkway, Redwood City, CA 94065.

If this software/documentation is delivered to a U.S. Government Agency not within the Department of Defense, then it is delivered with "Restricted Rights", as defined in FAR 52.227-14, Rights in Data - General, including Alternate III (June 1987).

The information in this document is subject to change without notice. If you find any problems in the documentation, please report them to us in writing. Oracle Corporation does not warrant that this document is error free.

ORACLE, OCI, Pro\*C, Oracle Forms, Oracle Reports, Oracle Graphics, SQL\*DBA, SQL\*Forms, SQL\*Net, SQL\*Plus, SQL\*QMX and SQL\*ReportWriter are registered trademarks of Oracle Corporation.

All other products or company names are used for identification purposes only, and may be trademarks of their respective owners.



# Preface

**T**his Guide introduces Release 7.3 of the Oracle Call Interface for Windows NT/95 programmatic interface and its use with Windows NT/95. Specifically, this Guide:

- introduces Oracle Call Interface for Windows NT/95
- gives an overview of the Oracle directory structure
- describes OCI programs and files
- provides information about using Oracle Call Interface for Windows NT/95

For general information on using Oracle Call Interface and Oracle Precompilers, under all operating systems, consult the *Programmer's Guide to the Pro\*C Precompiler*.

**Audience**

This Guide is necessary if you are installing or using Oracle Call Interface for Windows NT/95. It describes all of the operating system-specific information you need to use Oracle Call Interface for Windows NT/95.

**Prerequisites**

This Guide assumes you have the following skills and knowledge:

- ability to use a C compiler for a Windows NT/95 environment
- familiarity with Windows NT/95 utilities for deleting and copying files
- understanding of the concepts of the search path, configuration files, and directory structure
- ability to use a text editor to make changes to an ASCII text file

**Note on Directories**

The installation of Oracle client software establishes the directory structure for your Oracle products. A main directory, referred to as the Oracle home directory, is created to hold the Oracle subdirectories and files. The default Oracle home directory is \ORANT (\ORAWIN95 for Windows 95). For information on the subdirectories under Oracle Home, see Chapter 1.

The Oracle Call Interface for Windows NT/95 files are contained in the Oracle home directory, as are the library files needed to link and run Oracle Call Interface for Windows NT/95 applications, as well as link with other Oracle Windows NT products, such as Oracle Forms.

## Notational Conventions

Note these typographical conventions when reading this Guide:

<i>Feature</i>	<i>Explanation</i>
<code>monospace text</code>	Type text exactly as shown. Text typed on a command line is not case-sensitive, unless noted otherwise.
[ ]	Brackets enclose optional items or indicate a function key. Do not type the brackets.
	A vertical bar represents an "or" option among several options. You must enter one, and only one, of the options separated by the vertical bar. Do not enter the vertical bars themselves.
punctuation	Punctuation other than brackets and vertical bars must be entered in commands exactly as shown.
UPPERCASE	Uppercase characters within the text represent command names.
<code>lowercase mono</code>	Lowercase characters within command lines represent variables. You should substitute an appropriate value for the variable. In examples, lowercase characters represent sample values for the variables.
<i>lowercase italics</i>	Lowercase italics in the text represent variables. You should substitute an appropriate value for the variable.
C>	Represents the command prompt of the disk drive you are using. Your prompt may differ and will at times reflect the subdirectory you are in.
\DIRECTORY	A backslash before a directory name indicates that this is a subdirectory.

## How This Guide is Organized

This Guide is composed of the following sections:

### **Chapter 1: Introducing Oracle Call Interface for Windows NT/95**

This chapter introduces the Oracle Call Interface for Windows NT/95 and describes its features.

### **Chapter 2: Installing Oracle Call Interface for Windows NT/95**

This chapter describes how to install the Oracle Call Interface for Windows NT/95.

### **Chapter 3: Building OCI Applications for Windows NT/95**

This chapter explains how to use the Oracle Call Interface for Windows NT/95 software.

## Related Publications

The following documentation is associated with Oracle Call Interface for Windows NT/95:

- *Pro\*C for Windows NT Installation and User's Guide*
- *Programmer's Guide to the Pro\*C Precompiler*
- *Programmer's Guide to the Oracle Call Interface*

You also should refer to the documentation included with your Microsoft C or Borland compiler.

## Your Comments Are Welcome

We value and appreciate your comments as an Oracle user and reader of our manuals. As we write, revise, and evaluate suggestions, your opinions are the most important input we receive. At the back of this Guide is a Reader's Comment Form. We encourage you to use it to tell us what you like and dislike about this (or other) Oracle manuals.

If the form is missing, or if you would like to contact us, write us at the following address:

Desktop Documentation Manager  
Oracle Corporation  
500 Oracle Parkway, Box 659107  
Redwood Shores, CA 94065



# Contents

<b>Chapter 1</b>	<b>Introducing Oracle Call Interface for Windows NT/95 . . . . .</b>	<b>1 – 1</b>
	Oracle Call Interface (OCI) Overview . . . . .	1 – 2
	What Is Included? . . . . .	1 – 2
	OCIW32.DLL . . . . .	1 – 2
	Loading of Client DLLs (when LoadLibrary() is used) . . . .	1 – 3
	Translating Variables . . . . .	1 – 4
	Linking . . . . .	1 – 4
	Oracle Directory Structure . . . . .	1 – 4
	OCI Subdirectories . . . . .	1 – 5
	Sample OCI Programs . . . . .	1 – 5
 <b>Chapter 2</b>	 <b>Installing Oracle Call Interface for Windows NT/95 . . . . .</b>	 <b>2 – 1</b>
	System Requirements . . . . .	2 – 2
	Before You Install . . . . .	2 – 3
	Installation Overview . . . . .	2 – 3
	Installation . . . . .	2 – 4
	Oracle Installer . . . . .	2 – 4
	Setting Up the Installer on Your Hard Drive . . . . .	2 – 5
	Installing Oracle Call Interface for Windows NT/95 . . . . .	2 – 6
	Performing Other Installation Tasks . . . . .	2 – 7
	Listing Installed Products . . . . .	2 – 7
	Removing Installed Products . . . . .	2 – 7
 <b>Chapter 3</b>	 <b>Building OCI Applications for Windows NT/95 . . . . .</b>	 <b>3 – 1</b>
	Project Files . . . . .	3 – 2

Compiling OCI Windows NT/95 Applications .....	3 – 2
Linking OCI Windows NT Applications .....	3 – 3
Link Libraries .....	3 – 3
OCI Dynamic-Link Libraries .....	3 – 3
Select the Correct Runtime Library .....	3 – 4
Linking Windows NT Applications .....	3 – 4
OCI Header Files .....	3 – 5
OCI Program Calls .....	3 – 5
Running OCI Windows NT Applications .....	3 – 6
WINOCL.C .....	3 – 6

## **Index**



# Introducing Oracle Call Interface for Windows NT/95

**T**his chapter describes the Oracle Call Interface running under the Windows NT/95 operating systems.

Specifically, this chapter covers:

- Oracle Call Interface (OCI)
- Oracle directory structure
- sample OCI programs

---

## Oracle Call Interface (OCI) Overview

The Oracle Call Interface (OCI) is an applications programming interface (API) for accessing an Oracle database from a C program.

You make calls directly to the OCI functions from within your C program to direct the execution of your SQL statements.

OCI requires more programming than Pro\*C and should be used to develop applications which require greater control over processing SQL statements.

You can build OCI applications using techniques detailed in this book. You do not need to precompile the source code, because OCI applications contain no EXEC SQL statements.

---

## What Is Included?

The Oracle Call Interface for Windows NT/95 package includes:

- Oracle Call Interface for Windows NT/95
- Required Support Files (RSF)
- Oracle Installer
- sample programs for demonstrating how to build applications using Oracle Call Interface
- libraries for linking OCI programs
- new client DLL (OCIW32.DLL)

## OCIW32.DLL

OCIW32.DLL is included with OCI Release 7.3 for Windows NT/95. It contains only the OCI layer. This new DLL dynamically loads any Oracle client DLL available on user systems. The impact of this is that users do not generally need be concerned with which Oracle client DLLs are available on their systems.

However, functionality available to users is limited to the DLLs they have loaded. If a function is not available in the loaded client DLL, an error is returned when that function is called.

**Note:** If OCI 7.3-specific functions are used to develop applications, and those applications are then deployed onto 7.2 systems, the 7.3-specific functions will not be available, and an

error (ORA-1010 'Invalid OCI Operation') will be returned.

## Implementation

OCIW32.DLL attempts to translate the variable ORAOCI. If the variable exists, its value is expected to be the name of an Oracle client DLL. If the variable does not exist, or if using its value to call LoadLibrary fails, then OCIW32.DLL continues to search through a predefined list of known Oracle client DLL names (most recent to least recent RSFs). If no Oracle client DLLs are found, an error is returned.

Next, OCIW32 fills in a table of function pointers, one for each OCI call. Obsolete OCI functions are not immediately loaded since they are most likely not to be used (and may be omitted in future OCI releases). These are instead loaded on demand at runtime. No errors are returned when attempting to load function pointers.

When a user calls a function, check to see if a pointer exists, and call the function if it does. If it does not, return an error (ORA-1010 'Invalid OCI Operation')

**Note:** A debug mode is available. Set ORAOCI\_DEBUG to some value, and a number of informational messages boxes are raised.

## Loading of Client DLLs (when LoadLibrary( ) is used)

The following directories are searched in this order by LoadLibrary:

- directory from which the application is loaded
- current directory
- Windows NT:
  - the 32-bit Windows system directory (SYSTEM32). Use the GetWindowsDirectory function to get the path of this directory.
  - the 16-bit Windows directory (SYSTEM). There is not a Win32 function that obtains the path of this directory, but it is searched.
- Windows 95—the Windows directory. Use the GetWindowsDirectory function to get the path of this directory.
- the Windows directory. Use the GetWindowsDirectory function to get the path of this directory.

- the directories that are listed in the PATH environment variable

**Note:** If no Oracle client DLL can be loaded, the LibMain() of OCIW32.DLL will return FALSE and the application will fail to load. If the operating system does not provide an adequate error message to detect this, set ORAOCI\_DEBUG.

## Translating Variables

Variables should be set in the Registry:  
HKEY\_LOCAL\_MACHINE/SOFTWARE/ORACLE.

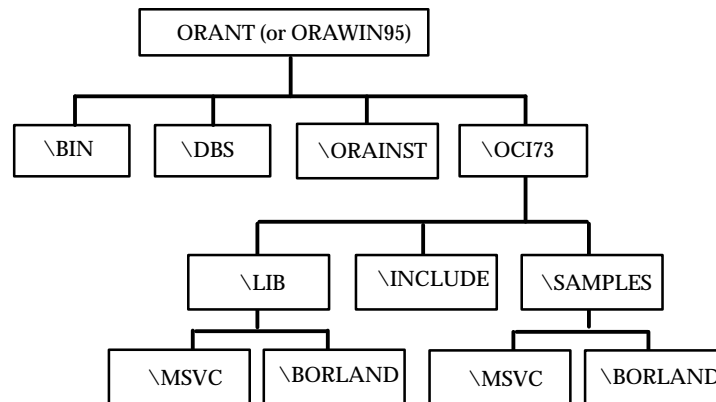
## Linking

No special link options are required. Link your application with OCIW32.LIB instead of ORA7NT.LIB, ORA71.LIB, or ORA72.LIB.

---

## Oracle Directory Structure

When you install Oracle Call Interface for Windows NT/95, an Oracle home directory is created on the hard drive of your computer. Your Oracle home directory, as shown and described below, contains the following subdirectories and files:



The contents of the directories are listed below.

\ORANT (or ORAWIN95)      the Oracle home directory for Windows NT/95

\BIN	executable programs and batch files for the Oracle database tools and the dynamic link libraries (DLLs) used by the SQL*Net driver and other applications
\DBS	some common SQL scripts and message files
\ORAINST	Oracle Installer files

Depending on the supported products you choose to install, the Oracle Installer also creates the appropriate product subdirectory.

For example, if you install Oracle Call Interface for Windows NT/95 Release 7.3:

\OCI73	holds the Oracle Call Interface for Windows NT/95 subdirectories under \ORANT (or ORAWIN95)
--------	---

## OCI Subdirectories

The OCI73 subdirectory under \ORANT (or ORAWIN95) contains the following subdirectories and includes the OCI files listed below.

\INCLUDE	header files, such as OCIDFN.H and OCIAPR.H
\LIB	Oracle libraries that link into Windows NT/95 programs
\SAMPLE	C sample program directories. This subdirectory contains separate subdirectories for Microsoft and Borland samples.

---

## Sample OCI Programs

The OCI installation procedure copies a set of sample programs and their corresponding project files into the \SAMPLE subdirectory (see table below). Oracle recommends that you build and run these sample programs to verify that OCI has been successfully installed and to familiarize yourself with the steps involved in developing OCI applications. After you have finished using these sample programs, you can delete them if you choose. For details, see “Project Files” in Chapter 3.

<b><i>Sample Program Groups</i></b>	<b><i>Contents</i></b>
OCI (WINDOWS)	OCI C sample programs for Windows NT
OCI C (GENERAL)	OCI C sample programs (QuickWin)
OCI C (NONBLOCKING)	OCI C sample nonblocking programs



# Installing Oracle Call Interface for Windows NT/95

**T**his chapter describes how to install Oracle Call Interface for Windows NT/95. Specifically, this chapter provides the following information:

- system requirements
- step-by-step installation instructions

---

## System Requirements

This section lists the minimum required hardware and software necessary to install and run Oracle Call Interface for Windows NT/95.

- IBM, COMPAQ, or 100% compatible PC with an 80386 processor, or higher
- a connected CD-ROM drive, functioning as a logical drive
- 8 Megabytes (MB) of available RAM
- a total of 12 MB of hard disk space for the following product components:
  - OCI (5.0 MB)
  - Oracle (1.5 MB)
  - Required Support (5.5 MB)
- Microsoft Windows NT Version 3.1 or higher OR Windows 95
- access to an Oracle7 Server
- Required Support Files (RSF)
- (if connecting to a remote database) SQL\*Net for Windows NT/95 (required for full syntactical and semantic checking of SQL statements and for any embedded PL/SQL blocks)

In addition to the system requirements listed above, you must also install the following software:

- your preferred application development environment:
  - Microsoft Visual C++ 32-bit Version 4.0 or higher
  - Borland C++ 16-bit Version 4.5 or higher (for Windows NT), Version 5.0 for Windows 95



---

## Before You Install

Before you install Oracle Call Interface for Windows NT/95, make sure that you perform the following tasks:

- read the *Desktop Products Customer Information* booklet and return your registration card to the appropriate support center.
- review the accompanying *Release Notes*.
- install and test your network hardware and software, if applicable.

---

## Installation Overview

After you have loaded your operating system and network software and verified that they are operating properly, you are ready to install Oracle Call Interface for Windows NT/95.

Installing the Oracle Call Interface for Windows NT/95 software entails two procedures:

- setting up Oracle Installer on your hard drive by starting the Installer application from the CD-ROM. After you start the application, Oracle Installer performs the following tasks:
  - creates the Oracle home directory and subdirectories
  - copies the installation files to Oracle Installer directory in the Oracle home directory
  - configures your system's environment for Oracle software
- installing the OCI software by starting Oracle Installer from your hard drive, inserting the CD-ROM, and choosing Install. Oracle Installer performs the following tasks:

- creates the OCI directory
- installs the Required Support Files
- installs Oracle Call Interface for Windows NT/95

**Note:** If you have recently installed another Oracle for Windows NT/95 product, the most current version of Oracle Installer should already be set up on your hard drive. If it is not, Oracle Installer will detect the older version and prompt you to install the latest Oracle Installer from your distribution media.

---

## Installation

You can use any CD-ROM drive that can be attached to the Windows NT/95 machine as a logical drive to set up Oracle Installer on your hard drive and install OCI. This Guide treats the G:\> logical drive as the CD-ROM drive, although Oracle Installer and Windows NT/95 will recognize any drive for which you have configured the CD-ROM.

Before running Oracle Installer from the CD-ROM, be sure you have read your third-party CD-ROM documentation. Also, refer to that documentation if the installed CD-ROM drive cannot copy files to your hard drive.

### Setting Up the Installer on Your Hard Drive

The following steps describe how to set up Oracle Installer on your hard drive. If you already have the latest version of Oracle Installer on your hard drive, you can skip these steps and proceed to the next section. If you are not sure you have installed the latest version of Oracle Installer, proceed with Step 1.

#### **Step 1** Mount the Oracle CD-ROM

Insert your Oracle Call Interface for Windows NT/95 CD-ROM into your CD-ROM drive. Verify that it is mapped to a logical drive letter and that you can access files on the CD-ROM. The installation steps described below assume that the CD-ROM is mapped to the G: drive.

#### **Step 2** Run ORAINST

To install Oracle Installer, run the installer executable, ORAINST.

#### **From the Program Manager**

From the Windows NT Program Manager, select Run from the File menu. Enter the path and executable file name, for example:

G:\NT\_X86\INSTALL\ORAINST.EXE

Then, press [Enter].

### **From the File Manager**

From the Windows NT Program Manager, choose the File Manager icon. Select the drive to which the CD-ROM is connected. Choose the Install directory. Finally, choose ORAINST.EXE.

### **From the Windows 95 Start Button**

From the Windows 95 Start button, choose Run. Select

G:\NT\_X86\INSTALL\ORAINST.EXE

If you are using Oracle Installer for the first time, it prompts you to select a language.

#### **Step 3**

Select the language

Select a language and choose OK, or press [Enter] to accept the default language.

#### **Step 4**

Specify the company

When you run Oracle Installer from the CD-ROM, it prompts you to enter the company name. (Once you have set up Oracle Installer on your hard drive, you will not receive this prompt in subsequent uses of Oracle Installer.) Type in the company name; then choose OK.

#### **Step 5**

Specify the location of the Oracle home directory

If you have already installed Oracle products, Oracle Installer prompts you with the existing Oracle directory. Otherwise, it prompts you to enter the drive and directory path on which the Oracle products will be installed. Choose OK or press [Enter] to accept the default path. If you want to change the destination drive or directory, type in your custom path, then choose OK.

#### **Step 6**

Acknowledge changes

Oracle Installer advises you it has included C:\ORANT (or ORAWIN95)\BIN in the SEARCH PATH variable in the AUTOEXEC.BAT file.

#### **Step 7**

Shut down and restart

If the installation procedure made changes to your operating system's initialization files, Oracle Installer prompts you to exit your operating system and restart your computer. Exit and restart your computer now.

## **Installing Oracle Call Interface for Windows NT/95**

#### **Step 1**

Start Oracle Installer

Start Oracle Installer as described earlier in this chapter.

#### **Step 2**

Answer questions

Type in the company name and choose a language as prompted. The Software Asset Manager appears.

The Software Asset Manager contains the following windows:

**Available Products** Lists all of the products available from the CD-ROM.

**Installed Products** Lists all Oracle products installed in your Oracle home directory.

**Status** Provides feedback on the task you are performing.

Oracle Installer also contains an online help facility. To display help on the features and functions of Oracle Installer, select Using Oracle Installer from the Help menu.

### **Step 3**

Select Oracle Call Interface for Windows NT/95

If no installable products appear in the Available Products window when you first start Oracle Installer, choose the From button. Then, from the Open dialog, choose the CD-ROM drive letter (e.g., G:\) from the Drives list, and choose the \NT\_X86 (or ORAWIN95)\INSTALL directory from the Directories list. Select the \*.PRD file and choose Open.

Scroll through the list of products and select OCI.

### **Step 4**

Start the installation procedure

Choose Install to begin installing OCI.

During installation, a progress bar shows the percentage of the installation that has completed. Messages are displayed indicating file names and Oracle Installer actions that are being taken. Oracle Installer allows you to cancel the installation by choosing Cancel during the installation procedure.

### **Step 5**

Exit Oracle Installer

When the installation is complete, Oracle Installer displays the installed products. Note that Oracle Call Interface for Windows NT/95 and other installed products are listed in the Installed Products window.

Choose Exit from the File menu to exit Oracle Installer.

---

## **Performing Other Installation Tasks**

After installing Oracle products, you may want to perform some of the following tasks:

### **Listing Installed Products**

To list the products currently installed on your system, run Oracle Installer and select Installed Products from the View Menu. Oracle Installer displays the names and version numbers of all the products you have installed.

## **Removing Installed Products**

To remove an Oracle product from your hard disk, run Oracle Installer. Use the arrow keys to highlight the product you want to remove and choose the Remove button.

Removing a product in this manner deletes all the files associated with that product from your hard disk. Removing a product does not delete that product's tables from the database.



# Building OCI Applications for Windows NT/95

**T**his chapter describes how to build Oracle database applications using OCI. It covers the following topics:

- project files
- compiling OCI applications
- linking OCI applications
- running OCI applications



**Additional Information:** For additional information, refer to the *Programmer's Guide to the Pro\*C Precompiler*.

---

## Project Files

Project files are often used to assist in building application programs. They guide and control the steps necessary to precompile, compile, and link programs.

MS Visual C/C++ and Borland C/C++ project files help keep executable versions of your programs current when you modify dependent files. These project files are provided with Windows NT/95 sample programs. The MS Visual C/C++ and Borland C/C++ project files:

- call the compiler to generate an .OBJ file
- call the resource compiler to generate an .RES file from an .RC file
- call the linker to create an .EXE file

For more information on the build process, refer to the applicable product documentation for your development environment.

---

## Compiling OCI Windows NT/95 Applications

To compile the resulting .C source file, switch to the development environment and build the application. Some compiler options are required while others are optional. All options are case-sensitive and are listed below.

### Microsoft Debugging Option

To debug your application using Microsoft CodeView, use the normal debugging option. For more information, see your Microsoft documentation.

/Od Turns off optimization.

/Zi Includes line number and symbolic information in the object file.

Refer to the documentation provided with your development environment to ensure that all applicable options are selected.



Borland Compiler Options	Use the following options when compiling an Oracle database application using Borland C.	
	/c	Compiles the source code only and creates an .OBJ file (required).
	/WS	Makes the target a Windows NT/95 .EXE that uses smart callbacks, with explicit functions exportable.
	/I	Sets include file search paths. Oracle recommends that you include \bc4\include and \orant (or orawin95)\oci73\c\include on the search path.
Borland Debugger Option	To debug your application using Borland Turbo Debugger, use the normal debugging option. For more information, see your Borland documentation.	
	/v	Includes debugging information in the object file.

---

## Linking OCI Windows NT Applications

<b>Link Libraries</b>	When you link OCI applications, you use the following types of library files:	
	Oracle Libraries	Oracle libraries are required for OCI and/or applications that access an Oracle database.
	Runtime Libraries	Runtime libraries are created when you install your C compiler. Runtime libraries are required for any C application, including applications that access the Oracle database.
<b>OCI Dynamic-Link Libraries</b>	The OCI calls are implemented in DLL files that Oracle provides. To use the DLLs, you must link your application with the import libraries (.LIB files) that correspond to the OCI DLLs. Also, you must make sure that the OCI DLL files are installed on the workstation that is using your OCI application.	
	Applications linked with DLLs provide the following benefits over static libraries:	
	<ul style="list-style-type: none"> <li>• Multiple applications can share the same DLL module, conserving disk space and memory.</li> <li>• Import libraries can load more than one DLL module.</li> </ul>	

- You can update DLL modules by overwriting the DLL files. When you do this, it is not necessary to relink applications that access the DLL module.

The required library files are listed in the following tables.

<i><b>Library Type</b></i>	<i><b>Library Name</b></i>	<i><b>DLL Name</b></i>
ORACLE	OCIW32.LIB	OCIW32.DLL

<i><b>Library Type</b></i>	<i><b>Microsoft Library Name</b></i>
Runtime for large model	LLIBCAW.LIB, LLIBCEW.LIB, LIBW.LIB
Runtime for medium model	MLIBCAW.LIB, MLIBCEW.LIB, LIBW.LIB

<i><b>Library Type</b></i>	<i><b>Borland Library Name</b></i>
Runtime for large model	CWL.LIB, MATHWL.LIB, IMPORT.LIB
Runtime for medium model	CWM.LIB, MATHWM.LIB, IMPORT.LIB

### Select the Correct Runtime Library

In order to build a Windows NT/95 application, select the appropriate runtime library for the application you are building. For example, if you are using the medium model, link with the medium model runtime library. Likewise, if you are using the large model, link with the large model runtime library. In addition, designate a minimum of 30K of stack space to perform Oracle database operations. Also, include the OCIAPR.H header file in your source code. See your compiler’s documentation for more information.

### Linking Windows NT Applications

To link a Windows NT/95 application, you must use the runtime libraries installed with the C compiler.

#### Resource File

Before linking a Windows NT/95 application, you must build resources such as menus, dialog boxes, cursors, and character strings. You can create resources by using Microsoft’s App Studio or Borland’s Resource Workshop. For further information, consult your compiler’s documentation.

#### Microsoft Visual C/C++

It is recommended that you include \BC5\LIB on the search path if using MSVC 4.0.

## Borland Link Options

Use the following options to link an Oracle Database application.

- |    |   |
|----|---|
| /L | Specifies library search paths. It is recommended that you include \BC5\LIB and %ORACLE_HOME%\OCI73\LIB on the search path. |
| /v | Adds Borland symbolic debugging information to the executable file (optional).  |

---

## OCI Header Files

To use OCI, include OCI header files in your programs. The files are as follows:

- |            |  |
|------------|--|
| OCIAPR.H   | Declares and gives prototype information for OCI functions. Use for ANSI C compatibility.        |
| OCIDFN.H   | Common header file for OCI C sample programs. Declares the cursor and logon data area structure. |
| ORATYPES.H | Defines C types used by OCI programs.  |
| OCIDEM.H   | OCI demonstration header for CDEMO1 . . . CDEMO6.  |

## OCI Program Calls

The *Programmer's Guide to the ORACLE Call Interfaces* documents the cursor data area definition and the logon data area definition.

---

## Running OCI Windows NT Applications

### WINOCI.C

This program adds new employee records to the personnel database. The program checks the integrity of the database. You can enter as many employee names as you want and perform the SQL commands by selecting the appropriate buttons in the Employee Record box.

The WINOCI program displays a graphical window. Select Connect from the Oracle menu to display the logon dialog box. Type the userid SCOTT, the password TIGER, and the name of the remote Oracle7 Server. Click on OK to connect with the Oracle database.

The following lists the buttons and their definitions available in the programs:

<b>Select</b>	Displays the first record from EMP
<b>Fetch Next</b>	Displays the next record from EMP
<b>Delete</b>	Deletes the current record
<b>Update</b>	Updates the record after changes to column values
<b>Clear</b>	Clears the display
<b>Insert</b>	Inserts a blank record into the current table

**Note:** Oracle recommends that you use Clear, enter values for the buttons, then use Select to enter the new record.

<b>Commit</b>	Commits changes made to the EMP table
<b>Rollback</b>	Undoes changes made to the EMP table since the last COMMIT
<b>Exit</b>	Exits the sample application

To analyze how an OCI for Windows NT/95 application is built, examine the Microsoft project file by using a text editor to view the steps required to compile, create resources, and link a Windows NT/95 application.

# Index

## Symbols

- /L, 3 – 4
- /Od debugging option, 3 – 2
- /v, 3 – 5
- /Zi debugging option, 3 – 2
- \BIN subdirectory, 1 – 4
- \DBS subdirectory, 1 – 5
- \INCLUDE subdirectory, 1 – 5
- \LIB subdirectory, 1 – 5
- \OCI73 subdirectory, 1 – 5
- \ORAINST subdirectory, 1 – 5
- \ORAWIN directory, 1 – 4
- \SAMPLE subdirectory, 1 – 5

## B

- Borland
  - compiler options, 3 – 2
  - debugging options, 3 – 3
  - library, 3 – 4

## C

- CD-ROM Installation, 2 – 4–2 – 8
- Compiler options, Borland, 3 – 2

## D

- Debugging options, 3 – 2
  - Borland, 3 – 3
- Default settings, directory structure, 1 – 5
- Directory structure, 1 – 5

## I

- Import library, 3 – 3
- Installation
  - before you install, 2 – 3
  - CD-ROM, 2 – 4–2 – 7
  - overview, 2 – 3
  - requirements, 2 – 2
  - verifying, 2 – 7
- Installer, setting up on your hard drive, 2 – 5–2 – 6

## L

- Library name, Borland, 3 – 4
- Link libraries, 3 – 3
- Linking
  - selecting runtime library, 3 – 4
  - Windows applications, 3 – 4

Linking an Oracle database application,  
    Borland link options, 3 – 4  
Listing installed products, 2 – 7

## **M**

MAKE files, 1 – 5, 3 – 2  
Module-definition file, 3 – 4–3 – 6

## **O**

Object file, compiling, 3 – 2  
OCI, DLLs, 3 – 3  
    required library files, 3 – 3  
OCI subdirectory, 1 – 5  
OCIAPR.H, 3 – 5  
OCIDFN.H, 3 – 5  
Oracle Call Interface (OCI), Cursor Data Area  
    Definition, 3 – 5  
Oracle directory structure, 1 – 4  
Oracle libraries, use in linking, 3 – 3

Oracle products, removing, 2 – 7  
ORAINST program, other tasks, 2 – 7  
ORATYPES.H, 3 – 5

## **R**

Removing installed products, 2 – 7  
Resource file, creating, 3 – 4  
Runtime libraries, use in linking, 3 – 3

## **S**

Sample programs  
    installing, 1 – 5  
    names and locations, 1 – 5  
Stack space, 3 – 4  
System requirements, 2 – 2

## **W**

WINSAM.DEF file, 3 – 4

# Reader’s Comment Form

**Name of Document:** Oracle Call Interface™ for Windows NT/95 Installation and User’s Guide  
**Part No.** A44131–1

Oracle Corporation welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
- What features did you like most about this manual?

If you find any errors or have any other suggestions for improvement, please indicate the topic, chapter, and page number below:

---

---

---

---

---

---

---

---

Please send your comments to:

Desktop Products Division  
Oracle Corporation  
400 Oracle Parkway  
Redwood City, CA 94065  
Fax: (415) 506–7200

If you would like a reply, please give your name, address, and telephone number below:

---

---

---

Thank you for helping us improve our documentation.