

Oracle[®] Call Interface

Getting Started

Release 8.1.6 for Windows

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Oracle Call Interface Getting Started, Release 8.1.6 for Windows

Part No. A73022-01

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Contact Us!

Oracle Call Interface Getting Started, Release 8.1.6 for Windows

Part No. A73022-01

This document describes how to contact Oracle Corporation if you have issues with the documentation or software.

Read the section...	If you...
How to Contact Oracle Technical Publications on page vi	Have issues with Documentation
How to Contact Oracle Support Services on page vii	Have issues with Software
Resources for Oracle Partners and Developers on page xi	Want to join an Oracle partner or application developer program

How to Contact Oracle Technical Publications

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 guide?
- Do you have suggestions for improvement? Please indicate the chapter, section, and page number (if available).

You can send comments regarding documentation in the following ways:

- Electronic mail - ntdoc@us.oracle.com
- FAX - (650) 506-7370 Attn: Oracle Windows Platforms Server Documentation
- Postal service:
Oracle Corporation
Windows Platforms Server Documentation Manager
500 Oracle Parkway, MS 1OP8,
Redwood Shores, CA 94065
USA

If you would like a reply, please provide your name, address, and telephone number.

How to Contact Oracle Support Services

Please copy this form and distribute within your organization as necessary.

Oracle Support Services can be reached at the following telephone numbers and Web sites. The hours of business are detailed in your support contract and the *Oracle Customer Support Guide* in your kit.

Oracle Support Services In...	Call...
United States of America	+ (650) 506-1500 for customers with support contracts. + (650) 506-5577 to obtain a support contract.
Europe	+44 1344 860 160 or the local support center in your country.
All other locations	The telephone number for your country listed at the following Web site: http://www.oracle.com/support/contact_us/sup_hot_phone.html Oracle Support Services telephone numbers are also listed in the <i>Oracle Customer Support Guide</i> in your kit.

Please complete the following checklist before you call. If you have this information ready, your call can be processed much quicker.

- Your CPU Support Identification Number (CSI Number) if applicable.

- The hardware name on which your application is running.

-
- ❑ The operating system name and release number on which your application is running.

- To verify the operating system version on Windows NT, enter the following at the MS-DOS command prompt:

```
C:\> winmsd
```

The *Windows NT Diagnostics* dialog box displays the operating system and Service Pack version.

-
-
-
- ❑ The release numbers of the Oracle Server and associated products involved in the current problem. For example, Oracle8i Enterprise Edition release 8.1.6.0.0 and Oracle Enterprise Manager release 2.1.0.0.0.

- To verify the release number of the Oracle Server, connect to the database using a tool such as SQL*Plus. The release number is displayed. For example:

```
Connected to:
Oracle8i Enterprise Edition Release 8.1.6.0.0 - Production
With the Partitioning and Java options
PL/SQL Release 8.1.6.0.0 - Production
```

-
-
-
- ❑ The third-party software version you are using.

- To verify an application version, from the application's Help menu, select About...
-
-
-

-
- ❑ The exact error codes and messages. Please write these down as they occur. They are critical in helping Oracle Support Services to quickly resolve your problem. Note whether there were no errors reported.

- ❑ A description of the issue, including:

- **What happened?** For example, the command used and its result.

- **When did it happen?** For example, during peak system load, or after a certain command, or after an operating system upgrade. In addition, what was happening when the problem occurred?

- **Where did it happen?** For example, on a particular system, or within a certain procedure or table.

-
- **What is the extent of the problem?** For example, production system unavailable, or moderate impact but increasing with time, or minimal impact and stable.
 - Did the problem affect one user, several users, or all users?
 - Has anything changed? For example, if this is an operation that used to work and now fails, what is different? Can you undo any recent changes, to verify whether they are relevant to the issue?

- **Can the problem be reproduced?** This is a critical question for support analysts. For example, did the problem recur on the same system, under the same circumstances? Can the problem be reproduced on another system? Additionally:
 - Does installing a software component fail on all client machines, or just one?
 - Do all clients fail to connect to the server, or just one?
 - If you are able to restart the server or database, does restarting the database or rebooting the server or client machine (if applicable) make a difference?

- Keep copies of the Oracle alert log, any trace files, core dumps, and redo log files recorded at or near the time of the incident. Oracle Support Services may need these to further investigate your problem.

To help analyze problems:

- Archive or delete old alert logs. When the database is started without an alert log, a new one is created. In some cases, if you force the problem to recur with a new alert log, the timestamps for the recorded events may indicate which events are relevant.

- Archive or delete old trace files. To check whether the file was modified, right-click and select Properties. The *Properties* dialog box displays the modification date.
- Check the operating system error logs, especially the System log and Application log. These files are relevant to the Oracle Server. To view these files, from the Start menu, choose Programs > Administrative Tools > Event Viewer, and choose System or Application from the Log main menu.

Resources for Oracle Partners and Developers

This section provides information on partner programs and resources for Oracle database administrators and application developers.

Information Source	Description
Oracle Corporation Home Page http://www.oracle.com	This Web site is the starting point for general information on Oracle Corporation.
Alliance Online http://alliance.oracle.com	Oracle provides leading-edge technology, education, and technical support that enables you to effectively integrate Oracle into your business. By joining the Oracle Partner Program, you demonstrate to customers that you are committed to delivering innovative Oracle-based solutions and services. The greater your commitment to Oracle, the more we can help you grow your business. It's that simple. The value you derive is associated directly with your level of commitment.
Oracle Education http://education.oracle.com/	Customers come to Oracle Education with a variety of needs. You may require a complete curriculum based on your job role to enable you to implement new technology. Or you may seek an understanding of technology related to your key area of responsibility to help you meet technical challenges. You may be looking for self-paced training that can be used as an ongoing resource for reference and hands-on practice. Or, you may be interested in an overview of a new product upgrade. Whatever your training need, Oracle Education has the solution.

Information Source	Description
<p>Oracle Technology Network http://technet.oracle.com/</p>	<p>The Oracle Technology Network is your definitive source for Oracle technical information for developing for the Internet platform. You will be part of an online community with access to free software, Oracle Technology Network-sponsored Internet developer conferences, and discussion groups on up-to-date Oracle technology. Membership is free.</p>
<p>Oracle Store http://oraclestore.oracle.com/</p>	<p>This is Oracle's online shopping center. Come to this site to find special deals on Oracle software, documentation, publications, computer-based training products, and much more.</p>
<p>Oracle Support Services' Support Web Center http://www.oracle.com/support/</p>	<p>Oracle Support Services offers a range of programs so you can select the support services you need and access them in the way you prefer: by telephone, electronically, or face to face. These award-winning programs help you maintain your investment in Oracle technology and expertise.</p> <p>Here are some of the resources available in the Support Web Center:</p>
<p>OracleMetaLink http://www.oracle.com/support/elec_sup/index.html</p>	<p><i>OracleMetaLink</i> is Oracle Support Services' premier Web support service. It is available to <i>Oraclemetals</i> customers (Gold, Silver, Bronze), 24 hours a day, seven days a week.</p>
<p>OracleLifecycle http://www.oracle.com/support/sup_serv/lifecycle/index.html</p>	<p><i>OracleLifecycle</i> is designed to deliver customized, industry-focused, full life-cycle support solutions that enable industry leaders to use Oracle technology to make smart business decisions, achieve operational excellence, and succeed in their markets.</p>
<p>ExpertONLINE http://www.oracle.com/support/sup_serv/online/index.html</p>	<p>Oracle Support Services has launched a new line of services called <i>ExpertONLINE</i>. These services provide online database administration for companies looking to supplement their existing DBA staff or fill a DBA role. Services range from <i>ExpertDETECT</i>, a monitoring, diagnostic, and recommendation service, to <i>ExpertDBA</i>, a full online database administration service.</p>
<p>Virtual Support Analyst (VSA) http://www.oracle.com/support/sup_serv/vsa_start.html</p>	<p>VSA is Oracle's Internet e-mail service; it is available to U.S. customers with an <i>Oraclemetals</i> support agreement. With VSA, you can initiate a request for assistance through e-mail, bypassing the queues you may encounter when using telephone support. VSA also enables you to access Oracle's bug database.</p>

Information Source	Description
<p>Customer Service</p> <p>http://www.oracle.com/support/cus_serv/index.html</p>	<p>This site provides resources to make your interactions with Oracle as easy as possible. Among the things you can do are:</p> <ul style="list-style-type: none"> ■ Learn what is a CPU Support Identification (CSI) number ■ Update your technical contact information ■ Find out whom to contact for invoice and collection issues ■ Request product update shipments ■ Access a glossary of Oracle Support Services terms
<p>U.S. Customer Visit Program</p> <p>http://www.oracle.com/support/cus_serv/cus_visit.html</p>	<p>This U.S.-based program has been established to help our customers understand and obtain maximum benefit from the support services they have purchased.</p> <p>The visit typically offers a customized orientation presentation, a comprehensive overview and demonstration of Oracle's electronic services, and helpful tips on working more effectively with Oracle Support Services.</p>
<p>Support Web Center Library</p> <p>http://www.oracle.com/support/library/index.html</p>	<p>This site contains articles, guides, and other documentation to help you leverage the wealth of knowledge and reference material that Oracle Support Services produces.</p>



Preface

This guide provides introductory information for the Oracle Call Interface (OCI) running on Microsoft Windows NT and Windows 95/98. Specific topics discussed in this preface are:

- [Prerequisites](#)
- [Intended Audience](#)
- [How This Guide Is Organized](#)
- [Conventions](#)
- [Documentation Library](#)
- [Related Documents](#)

Prerequisites

This guide assumes that you are familiar with:

- How to compile and link a C program
- Your Microsoft Windows operating system

Intended Audience

This guide is necessary for anyone who wants to use Oracle Call Interface on Microsoft Windows NT and Windows 95/98 operating systems.

How This Guide Is Organized

This guide is organized as follows:

Chapter 1, "Introducing the Oracle Call Interface"

Provides introductory information to help you get started with the OCI.

Chapter 2, "Building OCI Applications"

Provides an overview of how to build Oracle database applications using OCI.

Conventions

The following conventions are used in this guide.

Convention	Example	Meaning
All uppercase plain	SQL> ALTER DATABASE	Indicates command names, SQL reserved words, and keywords.
<i>Italic</i>	Italic is used to indicate a variable: <i>filename</i>	Indicates a value that you must provide. For example, if a command asks you to type <i>filename</i> , you enter the actual name of the file. Italic is also used for emphasis in the text and to indicate the titles of other guides.

Convention	Example	Meaning
square brackets []	x:\[pathname]\oracle\home_name	Encloses optional items. For example, when you create an OFA-compliant Oracle home directory, you can place an optional pathname before the \oracle pathname. Square brackets also indicate a function key, for example [Enter].
C:\>	C:\ORACLE>	Represents the Windows platforms command prompt of the current hard disk drive. Your prompt may differ and may, at times, reflect the subdirectory in which you are working. Referred to as the <i>MS-DOS command prompt</i> in this guide.
Backslash (\) before a directory name	\bin	Indicates that the directory is a subdirectory of the root directory.
oracle_home and oracle_base	Go to the oracle_base\oracle_home\bin directory.	In this Optimal Flexible Architecture (OFA)-compliant release, all subdirectories are no longer under a top level oracle_home directory. There is now a new top-level directory called oracle_base that by default is c:\oracle. The Oracle home directories are located directly under oracle_base. If you install Oracle8i release 8.1.6 on a computer where there is no other Oracle software on the computer, the default settings for the first Oracle home directory is c:\oracle\ora81. If you run Oracle Universal Installer again and install release 8.2.x, the second Oracle home directory is called \ora82. All directory path examples in this guide follow OFA conventions. For more information on OFA, see <i>Oracle8i Administrator's Guide for Windows NT</i> .
HOME_NAME	OracleHOME_NAMETNSListener	Represents the Oracle home name. The home name can be up to sixteen alphanumeric characters. The only special character allowed in the home name is the underscore.

Convention	Example	Meaning
HOMEID	HOME0, HOME1, HOME2	Represents a unique registry subkey for each Oracle home directory in which you install products. A new HOMEID is created and incremented each time you install products to a different Oracle home directory on one machine. Each HOMEID contains its own configuration parameter settings for installed Oracle products.
Symbols	period . comma , hyphen - semicolon ; colon : equal sign = backslash \ single quote ' double quote " parentheses ()	Symbols other than brackets and vertical bars must be entered in commands exactly as shown.

Documentation Library

This guide is part of a larger library of Oracle documentation. The Oracle documentation library consists of two types of documentation:

Documentation Type	Describes...
Operating System-specific	Installation, configuration, and use of Oracle products in a Windows NT and Windows 95/98 environment. Operating system-specific documents are occasionally referred to in the generic documentation set. These documents are easy to identify because they always mention their specific operating system in their title.

Documentation Type	Describes...
Generic	<p>Oracle database, Oracle networking, and application programming interfaces information that is uniform across all operating system platforms. The majority of documents in your documentation set belong to this category. While reading through the generic documentation set, you are occasionally asked to refer to your platform (or operating system) documentation for procedures specific to the for Windows NT and Windows 95/98 operating systems.</p> <p>To easily identify where these generic documentation references are described in your operating system documentation, see the index of this guide for the following entry:</p> <p>generic documentation references</p> <p>All generic documentation references described in this guide appear under this index entry.</p>

Related Documents

For more information, see the following manuals:

- *Oracle8i Installation Guide for Windows NT*
- *Oracle8i Release Notes for Windows NT*
- *Oracle8i Administrator's Guide for Windows NT*
- *Oracle Enterprise Manager Administrator's Guide*
- *Net8 Administrator's Guide*
- *Oracle8i Parallel Server Concepts*
- *Oracle Parallel Server Administrator's Guide for Windows NT*
- *Getting to Know Oracle8i*
- *Oracle8i Reference*
- *Oracle8i Error Messages*
- *Oracle Call Interface Programmer's Guide*

Introducing the Oracle Call Interface

This chapter provides introductory information to help you get started with Oracle Call Interface (OCI) for Windows. Specific topics discussed are:

- [What is the Oracle Call Interface?](#)
- [What is Included in the OCI Package?](#)
- [Oracle Directory Structure](#)
- [Sample Programs](#)

See Also: For detailed information about OCI, including new features and function descriptions, see the *Oracle Call Interface Programmer's Guide*.

What is the Oracle Call Interface?

The Oracle Call Interface (OCI) is an application programming interface (API) that allows applications written in C to interact with one or more Oracle Servers. OCI gives your programs the capability to perform the full range of database operations that are possible with Oracle8i database, including SQL statement processing and object manipulation.

Release 8.1 New Features

OCI includes many new functions and performance enhancements that extend the capabilities of the OCI to handle objects in an Oracle8i database. To use object functionality, you must have installed Oracle8i Enterprise Edition.

For Windows platforms, OCI includes support for applications written with earlier releases (7.x/8.x) of OCI. Oracle has now removed any version number from the library name `oci.lib`.

OCI Release 7.x Functions

OCI functions available in Release 7.x are still available, but they are not able to take full advantage of new Oracle8i features. Oracle recommends that existing applications start using the new calls to improve performance and provide increased functionality.

For Win32 applications running on Windows NT or Windows 95/98, this means that these applications will need to migrate to the new Release 8.x OCI calls in order to continue to be supported. In Release 8.x, the library and DLL containing the OCI calls is named `oci.lib` and `oci.dll`. In Release 7.x, they were named `ociw32.lib` and `ociw32.dll`. At some point in the future, `ociw32.lib` and `ociw32.dll` will no longer be supported or released, making migration to the new calls mandatory.

What is Included in the OCI Package?

The Oracle Call Interface for Windows package includes:

- Oracle Call Interface
- Required Support Files (RSFs)
- Oracle Universal Installer
- Header files for compiling OCI applications
- Library files for linking OCI applications
- Sample programs for demonstrating how to build OCI applications

The OCI for Windows package includes the additional libraries required for linking your OCI programs on Windows NT and Windows 95/98.

Oracle Directory Structure

When you install the Oracle Call Interface for Windows, Oracle Universal Installer creates an *oracle_base\oracle_home* directory on the hard drive of your computer. The default Oracle home directory is `c:\oracle\ora81`.

The OCI files are located in the *oracle_base\oracle_home* directory, as are the library files needed to link and run OCI applications, and link with other Oracle for Windows NT products, such as Oracle Forms.

The *oracle_base\oracle_home* directory contains the following directories that are relevant to OCI:

Directory Name	Contents
<code>\bin</code>	Executable and help files
<code>\oci</code>	Oracle Call Interface directory for Windows files
<code>\oci\include</code>	Header files, such as <code>ocidfn.h</code> and <code>ociapr.h</code>
<code>\oci\lib\msvc, \oci\lib\bc</code>	Library files, for Borland and Microsoft, that link into OCI applications
<code>\oci\samples</code>	Sample programs
<code>\precomp\admin\ottcfg.cfg</code>	Object Type Translator utility and default configuration file

Sample Programs

When OCI is installed, a set of sample programs and their corresponding project files are copied to the `oracle_base\oracle_home\oci\samples` subdirectory. 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.

To build a sample, run a batch file (`make.bat`) at the MS-DOS command prompt. For example, to build the `cdemo1.c` sample, enter the following command:

```
C:> make cdemo1
```

If you are using the Borland Compiler, enter the following command:

```
C:> bccmake cdemo1
```

After you finish using these sample programs, you can delete them if you choose.

A sample OCI application specific to Windows platforms is included. `cdemomt.c` demonstrates OCI multithreading which is the thread safety feature of Oracle8 is also included on the Windows platforms. This sample program requires the EMP table from the default database. The program spawns two simultaneous threads that attempt to insert different employee names with the same ID numbers. Thread synchronization is demonstrated.

`ociucb.c` should be compiled using `ociucb.bat`. This batch files creates a DLL and places it in the `oracle_base\oracle_home\bin` directory. To load user callback functions, set the environment/registry variable `ORA_OCI_UCBPKG = OCIUCB`.

See Also: For more information on multithreading, see the *Oracle Call Interface Programmer's Guide*.

Building OCI Applications

This chapter provides an overview of how to build Oracle database applications using OCI. Specific topics discussed are:

- [Writing OCI Applications](#)
- [Compiling OCI Applications](#)
- [Linking OCI Applications](#)
- [XA Dynamic Registration](#)
- [The Oracle XA Library](#)
- [Using the Object Type Translator and the INTYPE File Assistant](#)

See Also: See the *Oracle Call Interface Programmer's Guide* for detailed information about writing OCI applications.

Writing OCI Applications

The general goal of an OCI application is to connect to an Oracle Server, engage in some sort of data exchange, and perform necessary data processing. While some flexibility exists in the order in which specific tasks can be performed, every OCI application needs to accomplish particular steps.

The basic programming structure used by the OCI is as follows:

1. Initialize the OCI programming environment and processes.
2. Allocate necessary handles, and establish a server connection and a user session.
3. Issue SQL statements to the server, and perform necessary application data processing.
4. Free statements and handles not to be reused or reexecute prepared statements again, or prepare a new statement.
5. Terminate user session and server connection.

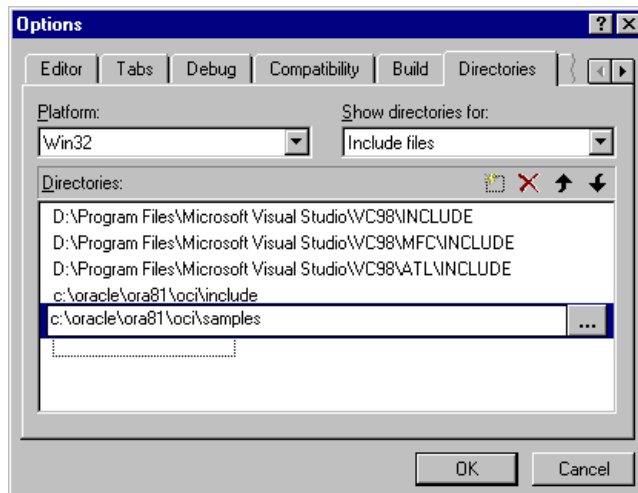
Note: The initialization of an OCI environment in Shared Data Mode that is discussed in the *Oracle Call Interface Programmer's Guide* is not supported on Windows in this release. It will be available in a future release.

Compiling OCI Applications

When you compile an OCI application, you must include the appropriate OCI header files. The header files are located in the `\oracle_base\oracle_home\oci\include` directory.

For example, if you are using Microsoft Visual C++ 6.0, you would need to put in the appropriate path in the Directories page of the Options dialog in the Tools menu. See [Figure 2-1, "Directories Tab of the Options Dialog"](#).

Figure 2-1 Directories Tab of the Options Dialog



See Also: See your compiler's documentation for specific information about compiling your application and special compiler options.

Linking OCI Applications

The OCI calls are implemented in dynamic link libraries (DLLs) that Oracle provides. The DLLs are located in the `oracle_base\oracle_home\bin` directory and are part of the Required Support Files (RSFs).

To use the Oracle DLLs to make OCI calls, you must link your application with `oci.lib`.

You do not have to indicate any special link options.

Note: Other libraries may be necessary, such as `msvcrt.lib` for Microsoft and `bidsft.lib` for Borland. These depend on the compiler.

`oci.lib`

`oci.lib` is a single, programmatic interface to Oracle. Oracle has removed any version number from the library name.

Client DLL Loading When Using `LoadLibrary()`

The following directories are searched in this order by `LoadLibrary()`:

- Directory from which the application is loaded
- Current directory
- Windows NT:
 - 32-bit Windows system directory (`system32`). Use the `GetWindowsDirectory` function to obtain the path of this directory.
 - 16-bit Windows directory (`system`). There is no `Win32` function that obtains the path of this directory, but it is searched.
- Windows 95 or Windows 98:
 - Windows directory. Use the `GetWindowsDirectory` function to obtain the path of this directory.
- Directories that are listed in the `PATH` environment variable

Running OCI Applications

To run an OCI application, ensure that the entire corresponding set of RSFs is installed on the machine that is running your OCI application.

The Oracle XA Library

The XA Application Program Interface (API) is typically used to enable an Oracle8 database to interact with a transaction processing (TP) monitor, such as:

- BEA Tuxedo
- IBM Transarc Encina
- IBM CICS

You can also use TP monitor statements in your client programs. The use of the XA API is supported from OCI.

The Oracle XA Library is automatically installed as part of Oracle8i Enterprise Edition. The following components are created in your Oracle home directory:

Component	Location
<code>oraxa.lib</code>	<code>oracle_base\oracle_home\rdbms\xa</code>
<code>xa.h</code>	<code>oracle_base\oracle_home\rdbms\xa</code>

Compiling and Linking an OCI Program with the Oracle XA Library

To compile and link an OCI program:

1. Compile `program.c` by using Microsoft Visual C++ or Borland C, making sure to include `oracle_base\oracle_home\rdbms\xa` in your path.
2. Link `program.obj` with the following libraries:

Library	Located in...
<code>oraxa.lib</code>	<code>oracle_base\oracle_home\rdbms\xa</code>
<code>oci.lib</code>	<code>oracle_base\oracle_home\oci\lib\msvc</code>
	or
	<code>oracle_base\oracle_home\oci\lib\borland</code>

3. Run `program.exe`.

XA Dynamic Registration

The Oracle8i database supports the use of XA dynamic registration. XA dynamic registration improves the performance of applications interfacing with XA-compliant TP monitors. For TP Monitors to use XA dynamic registration with an Oracle database on Windows NT, you must add either an environmental variable or a registry variable to the Windows NT computer on which your TP monitor is running. See either of the following sections for instructions:

- [Adding an Environmental Variable for the Current Session](#)
- [Adding a Registry Variable for All Sessions](#)

Adding an Environmental Variable for the Current Session

Adding an environmental variable at the command prompt affects only the current MS-DOS session.

To add an environmental variable:

From the computer where your TP monitor is installed, enter the following at the MS-DOS command prompt:

```
C:\> set ORA_XA_REG_DLL = vendor.dll
```

where *vendor.dll* is the TP monitor DLL provided by your vendor.

Adding a Registry Variable for All Sessions

Adding a registry variable affects all sessions on your Windows NT computer. This is useful for computers where only one TP monitor is running.

To add a registry variable:

1. Go to the computer where your TP monitor is installed.
2. On Windows NT, enter the following at the MS-DOS command prompt:

```
C:\> regedt32
```

On Windows 95/98, enter:

```
C:\> regedit
```

The *Registry Editor* window appears.

3. Go to HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE.
4. Choose the Add Value option in the Edit menu. The *Add Value* dialog box appears.
5. Enter ORA_XA_REG_DLL in the Value Name text box.
6. Select REG_EXPAND_SZ from the Data Type list box.
7. Click OK. The *String Editor* dialog box appears.
8. Type *vendor.dll* in the String field, where *vendor.dll* is the TP monitor DLL provided by your vendor.
9. Click OK. The Registry Editor adds the parameter.
10. Choose Exit from the Registry menu.

The registry exits.

XA and TP Monitor Information

Refer to the following general information about XA and TP monitors:

- *Distributed TP: The XA Specification* published by X/Open (now part of OpenGroup). See the web site at:
http://www.opengroup.org/public/pubs/catalog/full_1st.htm
- *Transaction Processing XPG4 X/Open CAE Specification XO/CAE/91/300 or C193 2/92*
- X/Open Company, Ltd., 1010 El Camino Real, Suite 380, Menlo Park, CA 94025, U.S.A.
- Your specific TP monitor documentation

See Also: For more information about the Oracle XA Library and using XA dynamic registration, see *Oracle8i Application Developer's Guide - Fundamentals*.

Using the Object Type Translator and the INTYPE File Assistant

The Object Type Translator (OTT) is used to create C-struct representations of Abstract Data Types that have been created and stored in an Oracle8 database.

To take advantage of objects run OTT against the database, and a header file is generated that includes the C structs. For example, if a PERSON type has been created in the database, OTT can generate a C struct with elements corresponding to the attributes of PERSON. In addition, a null indicator struct is created that represents null information for an instance of the C struct.

The INTYPE file tells the OTT which object types should be translated. This file also controls the naming of the generated structs. The INTYPE File Assistant is a wizard that helps developers to create the INTYPE file.

Note that the CASE specification inside the INTYPE files, such as CASE=LOWER, applies only to C identifiers that are not specifically listed, either through a TYPE or TRANSLATE statement in the INTYPE file. It is important to provide the type name with the appropriate cases, such as TYPE Person and Type PeRsOn, in the INTYPE file.

The INTYPE File Assistant generates type names in the INTYPE file with the same case as in the database. By default, all of the types in the database are created in upper case.

In order to preserve the case, use double quotes when creating types in the database. For example:

```
CREATE TYPE "PeRsOn" AS OBJECT...
```

Object type dependencies are not checked by the Oracle INTYPE File Assistant. When adding an object type for inclusion in the INTYPE file, the INTYPE File Assistant does not add other object types with dependency relationships.

The INTYPE File Assistant requires explicit translations for object types or attributes whose names contain non-ASCII characters. These object types or attributes are indicated by the predefined tag Identifier in the fields where the translations would be entered. Users are required to override this tag with the C identifier translation for the corresponding object type or attribute. The INTYPE File Assistant does not create the INTYPE file until all required translations have been entered.

OTT on Windows NT can be invoked from the command line. Additionally, a configuration file may be named on the command line. For Windows NT, the configuration file is `ottcfg.cfg`, located in `oracle_base\oracle_home\precomp\admin`.

Additional Information: See the *Oracle Call Interface Programmer's Guide* for more information about OTT and INTYPE files. In addition, see the online help for OTT.

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