

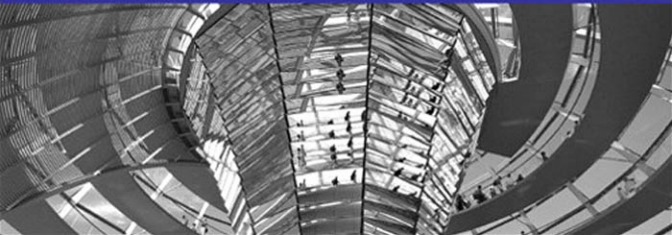
Bert Scalzo  
Dan Hotka

Second Edition



# TOAD<sup>®</sup> Handbook

**Developer's Library**



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# Introduction

This is the second edition of the first ever book to cover the very popular TOAD for Oracle database management and development tool. This book covers all of the most popular and key features of TOAD, including many features that are new additions to TOAD version 9.7. Moreover, this book offers numerous TOAD tips and tricks, with ample expert recommended advice or techniques—without focusing on any particular version of the Oracle database. Readers should be able to identify and readily adapt these “best practices” to their daily TOAD usage.

## Who Should Read This Book

This book should benefit all TOAD users. It is ideal for a wide range of users, from those who are new to both Oracle and TOAD to very sophisticated or experienced users of TOAD. Furthermore, this book attempts to address the specialized needs for three key database personas: database administrators, database application developers, and data/business analysts. In truth, TOAD has so many features and offers so many benefits that no one book can realistically hope to fully cover them all. Thus each chapter focuses on a particular functional or task-related area, covering it in depth with illustrations, tips, and techniques from Oracle and TOAD experts Bert Scalzo and Dan Hotka.

This book is ideal for the following types of readers:

- The power user who wants easy access to data, help with SQL, and help with occasional coding assignments
- The user who wants to increase his or her productivity while using the Oracle RDBMS
- The IT professional who is already familiar with TOAD but needs help with its extended features
- The developer who wants to do something specific but cannot remember how
- Any TOAD user who wants to learn how to take advantage of TOAD’s newly introduced features

## Why This Book Is Unique

This book doesn't make assumptions about readers' prior TOAD or Oracle administrative or development background, so it presents the full range of tips and techniques applicable to these tools. The main goal of this book is to illustrate the use of TOAD and to serve as a handy reference for anyone using the TOAD database tool. To this end, the book is liberally illustrated with working examples of all topics covered.

This book is intended to be a complete, single source of information, usage, tips, and techniques for the TOAD tool. It focuses on the following topics:

- TOAD installation and setup
- Development of PL/SQL and SQL statements and scripts in an easy-to-use and intuitive environment
- Tuning SQL and debugging PL/SQL
- Modeling any user's schema
- Routine and advanced DBA tasks
- Exporting of data into various formats
- Additional features such as FTP, TKProf, StatsPack, and AWR interfaces and the ability to add your own favorite editors and programs

## How This Book Is Organized

The chapters are organized as follows:

**Chapter 1, TOAD Setup and Configuration**, reviews the more common and critical setup and configuration steps necessary to fully maximize your initial TOAD experience. While some of these steps may seem quite simple and fairly obvious, failure to address them properly can radically reduce your initial success.

**Chapter 2, Database and Schema Browsers**, covers the main TOAD interface for exploring your database's structure and content (i.e., meta-data and data). This chapter explores all of the browser's advanced display options and capabilities, as well as key start-up and control options. It also explains how to filter the schemas, objects, and their data.

**Chapter 3, SQL Editor**, covers all of TOAD's features relevant to building and maintaining SQL and SQL scripts. This chapter explores all of the shortcuts and hot keys available, and summarizes them in convenient reference grids. Chapter 3 also explains how to build SQL with code templates and advanced topics such as "scripts that write scripts."

**Chapter 4, TOAD PL/SQL Editor**, covers the features available for building and maintaining PL/SQL, procedures, functions, and triggers. This chapter also illustrates just how easy it is to see the various object relationships using TOAD. In addition, it discusses use of the powerful PL/SQL symbolic debugger and PL/SQL Profiler. This chapter covers all of the shortcuts and hot keys available, and summarizes them in convenient reference grids.

**Chapter 5, Database Reporting**, reviews the various reports that come with TOAD, including HTML reports, the report interface, and ways to generate additional reports using the Fast Reports utility.

**Chapter 6, Tuning Tools in TOAD**, explores the use of the TOAD Explain Plan interface, Oracle Trace with TOAD, the TKProf interface, and newer browsers for both StatsPack and AWR.

Chapter 7, Database Management, focuses on routine DBA tasks such as checking instance status, database performance monitoring, user session monitoring and management, checking/correcting fragmentation, and creating and maintaining database objects. Anyone who has to perform database administration tasks (including power users) will find this chapter useful.

**Chapter 8, Exporting Table Data**, illustrates how easy it is to extract data from Oracle and import it into a variety of customized formats using TOAD. This chapter also discusses how TOAD works with existing Oracle features, such as through the Export/Import utility and the newer Data Pump alternatives.

**Chapter 9, Other Useful Tools**, covers the remaining features of TOAD—for example, browsing master/detail data, building SQL visually using the SQL Modeler, creating “poor man’s” mini-ER diagrams via the Schema Browser hook to the SQL modeler, registering external programs for quick launch from within TOAD, visually comparing text files for differences, working with TNS Names files, making subsets of data, and managing libraries of scripts.

**Chapter 10, TOAD App Designer**, explores the process of creating, running, and scheduling TOAD groupings of tasks (called applications) into command-line-executable packages. Now you can record TOAD actions as macros and then execute them, thereby automating many of the TOAD tasks that you routinely perform.

We hope you enjoy using this book as much as we have enjoyed writing it.

Bert Scalzo  
Dan Hotka

# TOAD Setup and Configuration

**C**ongratulations! You have just purchased TOAD, the market-leading Oracle integrated development environment (IDE) and productivity enhancement tool, and are now preparing to deploy it throughout your organization. TOAD has always adhered to one very simple mantra: to make all Oracle database interactions as easy and productive as possible. Thus, when TOAD has been properly configured, you should find it to be the single most effective and productive database tool on the market today. However, even the world's leading Oracle productivity enhancement tool requires a little attention to detail during both setup and configuration to achieve the best user experience possible. By spending just a few extra minutes wisely upfront, you should then be able to reasonably fulfill all of your various TOAD users' expectations—including database administrators (DBAs), developers, and data or business analysts.

With more than 1 million registered commercial product users, and even more free-ware users, TOAD has already been deployed and utilized in just about any scenario imaginable. Regardless of whether you are working with older Oracle database versions such as 7.3 or newer versions such as 10g or 11g, you can rest assured that TOAD has seen action in those arenas. The TOAD development team takes enormous pride in supporting millions of users in a plethora of environments. You should, therefore, consider that any potential difficulties that you may encounter are most likely setup and configuration issues—and not automatically or necessarily anything particular or overly special related to your situation.

In this chapter, we review some of the more common and critical setup and configuration steps necessary to fully maximize your initial TOAD experience. While some of these steps may seem quite simple and fairly obvious, failure to address them properly can radically reduce your initial success. Once you've mastered this chapter's concepts, you should have TOAD set up properly and working ideally to support most users' needs.

## Windows Platform Support

TOAD is a native Microsoft Windows 32-bit application. Such Windows 32-bit applications are very often referred to as Win-32 apps. TOAD is written in the Delphi 7 programming language, which is essentially just Object Pascal for Windows. You may have observed that some of Quest Software's newer TOAD product family members, such as TOAD for SQL Server, have been written in Microsoft C# and, therefore, require the .Net framework. But that's true only for these newer products, which don't have preexisting code bases. With nearly 2 million lines of legacy code, porting of TOAD to another language simply for the sake of porting is cost prohibitive.

As a Win-32 app, TOAD has been developed to run natively on the various Microsoft desktop operating systems, including these members of the Windows family:

- Windows 2000
- Windows XP (32 or 64 bit)
- Windows 2003 (32 or 64 bit)
- Windows Vista (32 or 64 bit)

Notice that all 64-bit versions of the various Microsoft Windows operating systems are fully supported. Microsoft created a highly compatible 64-bit environment where any well-behaved Win-32 app should run just fine within a 64-bit memory space. TOAD is no exception: It runs perfectly well on 64-bit versions of Windows. To ensure that it works, there is merely a requirement that the Oracle SQL\*Net client installed for TOAD usage also be the 32-bit version. We'll cover this special SQL\*Net client requirement in full detail in the next section on database connectivity.

What about older Windows versions such as Windows 95 and 98: Will TOAD run on those operating systems? The answer to this question is "probably." Unfortunately, the TOAD development team cannot reasonably or even realistically afford to undertake quality assurance (QA) testing for every possible Windows operating system version. Thus, while TOAD might function on those older operating systems, it will be more by luck than by intention. The same logic applies to newer but not yet commercially released versions such as Windows 7. TOAD may work on Windows 7 because it's based on Vista, but that platform has not yet been added to the officially supported TOAD QA list. Rest assured, however, that it will be supported once the new operating system becomes commercially available.

Another question that has come up a lot in recent times focuses on running TOAD on virtual machines that are themselves running Windows: Are there any problems with that setup? The basic answer is "no"; to TOAD, the virtual machine appears as just a Windows operating system as required. Nevertheless, we have seen some cases where memory management between the host operating system, virtualization layer, and client operating system can cause problems for applications such as TOAD. You may encounter these or other issues in your own system. For example, when scrolling a TOAD data grid all the way to the end via the slider control, TOAD may freeze up. So, when you are working on a vir-

tual machine, keep that possibility in mind during troubleshooting efforts. The problem could be something within that technology stack.

## Database Connectivity

TOAD is a database application that connects to, communicates with, and acts upon a database. As such, it requires a valid network pathway from itself to whatever target database you desire to connect to and work with. Regardless of whether that target database is on a database server on your company network or a local database running on your PC, TOAD must be able to see and communicate with it. As a consequence, database connectivity is a supremely critical aspect and step for proper setup and configuration. Figure 1.1 shows what such a valid basic network pathway should look like.

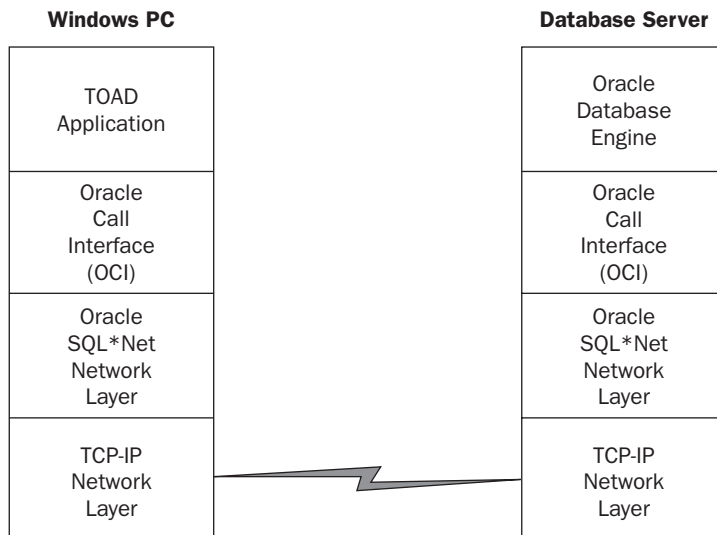


Figure 1.1 Network Pathway between TOAD and the Target Oracle Database

For your Windows PC, where do the four key parts (i.e., the four boxes on the left side of Figure 1.1) of that network pathway between TOAD and the database come from? The TCP/IP layer will already be there from your Windows installation and network card configuration. So that part's very easy—you have nothing to do. When you install TOAD, the “TOAD Application” part of Figure 1.1 is accomplished automatically. That leaves the “Oracle Call Interface (OCI)” and “Oracle SQL\*Net Network Layer” parts of Figure 1.1: Where do they come from? To implement them, you must install the Oracle 32-bit network client from the Oracle installation CD or DVD. Of course, you can also download the software from the Oracle Technology Network (OTN), but you must abide by the license agreement, which states that you have a “limited license to use the programs only for the purpose of



developing a single prototype of your application, and not for any other purpose.” If your target database is also running on your Windows PC, then the installation process for the Oracle database software on your PC would have already created those items for you. As a consequence, you would not need to run the Oracle software installer twice. However, if you plan to run a 64-bit database locally, then you would need to run the Oracle installer a second time to force an installation of the 32-bit client that TOAD requires.

A very common question is, Can TOAD use Microsoft’s Open Database Connect (ODBC)? The answer is an emphatic “no.” The data access layer component within TOAD has been designed to communicate with the database solely via the OCI API provided by Oracle. TOAD will not work with ODBC connections.

But you’re not done just yet—not by a long shot. Once the pieces shown in Figure 1.1 are in place on your Windows PC (i.e., the software is installed), you still need to provide network configuration information. This type of network information tends to be very detailed and site specific, such that any database applications using this framework know how to properly navigate the network pathway. An Oracle database usually has an address and a name by which you reference it. For example, the database might be named **ORCL** and might reside at network address **192.168.1.5**. Clearly, Figure 1.1 does not show or imply how to address any of that information. In other words, the figure provides the highway infrastructure for traffic to flow, but it does not know anything about the server addresses or database names. You will have to manually configure that part of the system yourself. This step is supremely critical, as TOAD cannot talk to an Oracle database whose address and name cannot be resolved. For further reading, we strongly advise that someone at your site be familiar with the *Oracle Database Net Services Administrator’s Guide*. In following examples, you’ll notice that we specify port 1521: What is that and why did we use it? It’s the default Oracle network port. This and a myriad of other Oracle issues are fully explained in the *Oracle Database Net Services Administrator’s Guide*.

If you are working with a remote database (i.e., the database is not running on the same Windows PC as where you’re running TOAD itself), then you need to configure just a single Oracle SQL\*Net file: *tnsnames.ora*. It can be found in the “\network\admin” subdirectory under where you instructed the Oracle installer to install all the files for the Oracle products selected, which in our case is “C:\Oracle\product\11.1.0\db\_1”. Listing 1.1 shows what a basic *tnsnames.ora* file looks like to provide the information required to reach the remote database named **ORCL** and found on the server whose address is **192.168.1.5**. When asking TOAD to connect to a database, the information contained within the *tnsnames.ora* file is absolutely critical; you can’t make a collect call to a person if you don’t know that individual’s name and phone number. The same is true for Oracle databases.

#### Listing 1.1 Remote Database *tnsnames.ora*

---

```
ORCL =
(DESCRIPTION =
  (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.1.5)(PORT = 1521))
  )
)
```

```

(CONNECT_DATA =
  (SERVICE_NAME = ORCL)
  (INSTANCE_NAME = ORCL)
)
)

```

---

If you're instead working with a local database (i.e., the Oracle database is running on your Windows PC where you are also running TOAD), then you have a second file that must be properly configured—the database listener file, known as *listener.ora*. Think of the Oracle listener as a “traffic cop” listening to all the network traffic that passes by his machine. If any network packets contain an address and name that resides on that machine, then the traffic cop (i.e., the listener) waves them onto that server’s streets. Otherwise, all the network traffic just sails on by. So now we have two Oracle SQL\*Net files to properly configure. Listing 1.2 shows what a basic *tnsnames.ora* file looks like to provide the information required to reach the database named **ORCL** that resides on the local Windows PC, which you can generally access via the network alias **localhost** or the address **127.0.0.1**. Listing 1.3 shows the corresponding *listener.ora* file. You will need both to connect TOAD to a local database; otherwise, you cannot traverse the network path even though it’s all on the same machine.

#### Listing 1.2 Local Database tnsnames.ora

---

```

ORCL =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 127.0.0.1)(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = ORCL)
      (INSTANCE_NAME = ORCL)
    )
  )
)

```

---

#### Listing 1.3 Local Database listener.ora

---

```

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC=
      (GLOBAL_DBNAME=ORCL)
      (ORACLE_HOME=C:\oracle\product\11.1.0\db_1)
      (SID_NAME=ORCL)
    )
  )
)

LISTENER =
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=127.0.0.1)(PORT=1521)))

```

---

Finally, there are other mechanisms besides the *tnsnames.ora* file for resolving database addresses. For example, when using the Lightweight Directory Access Protocol (LDAP) concept, and as offered by Oracle Internet Directory (OID) or Microsoft Active Directory (AD), you will see on the TOAD connection screen that TOAD can also connect to databases using either direct connect information or LDAP-based lookup. However, both these options are beyond the scope of this book. Again, we refer you to refer to the *Oracle Database Net Services Administrator's Guide*.

## Database Client Versions

Failure to install and configure the SQL\*Net client will prevent TOAD from functioning. However, you must also keep in mind the version of your client libraries versus the database that you're working with. Having client libraries from an older version of Oracle and working with newer versions of Oracle is a recipe for disaster. You may well encounter Oracle OCI API error messages from within TOAD. Such a problem might well occur as TOAD attempts to call an OCI function for some feature or capability of the newer database version that the older network client library does not support.

For example, using an 8i client with a 9i database and attempting to work with columns whose data type is XMLTYPE will yield the following cryptic message:

```
OCI-21500: internal error code, arguments: [kocgpn129], [2], [], [], [], [], [], []
```

This is not a TOAD bug, nor is it a sign of lack of TOAD support for new database features; rather, it represents a simple user configuration error of trying to use an old and/or incompatible network client library version with a newer version of the Oracle database. The best advice is to always install and use the latest and greatest Oracle network client version, as it will always be fully backward compatible with prior database versions.

For the most current and authoritative reference on this issue, you should consult the Oracle metalink document **207303.1**. At the time this book was written, the document recommended Oracle client versions 11.1 and 10.2, with version 9.2 being supported in some very limited and special scenarios.

We have found version incompatibility to be one of the most prevalent problems when people report a suspected TOAD bug. Because technical support will ask you this question upfront anyway, you might as well fix compatibility problems before the call and save yourself one step in the troubleshooting process.

## Which Version of TOAD to Use

This is the proverbial \$64 million question. The very obvious answer is “the latest and greatest”—always. But sometimes people cannot roll out new versions across large organizations very quickly or easily. At other times people have let their TOAD maintenance contract lapse, so upgrading is no longer free unless they either renew that maintenance agreement or repurchase the product if they've been out of the maintenance loop for too

long. But assuming you're current on your TOAD maintenance such that all TOAD upgrades are available to you for free, and assuming that you can deploy upgrades without restrictions or heartaches due to internal procedures, then our "latest and greatest" advice stands. Figure 1.2 shows the long TOAD versus Oracle Database version history, along with some key Oracle version support references.

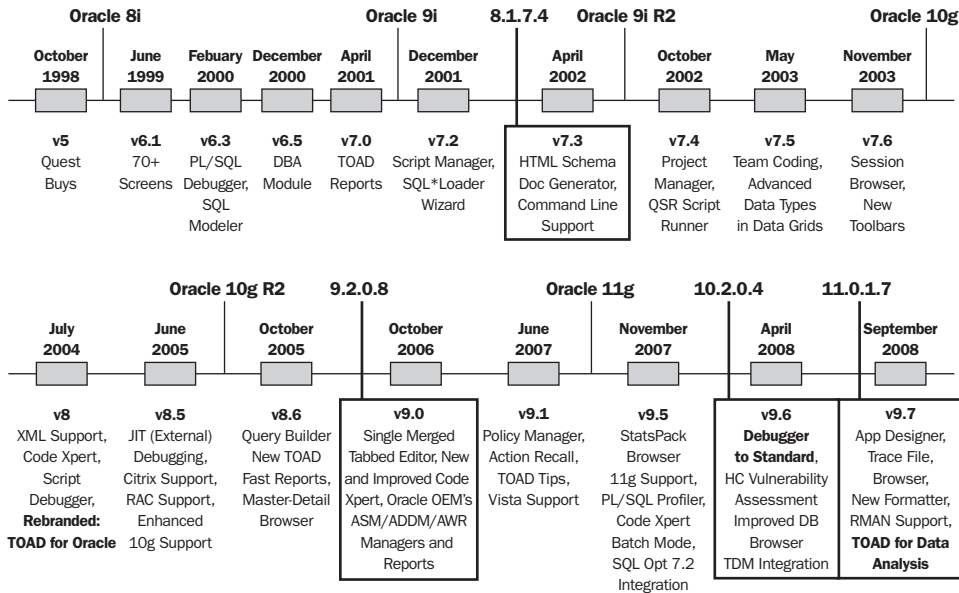


Figure 1.2 TOAD versus Oracle Version History

What, in a nutshell, does this very crowded and complex figure tell you? In short, if you're using Oracle 9.x, then you should be using at least TOAD 9.0; if you're using Oracle 10.x, then you should be using at least TOAD 9.6; and if you're using Oracle 11.x, then you should be using at least TOAD 9.7 (at the time of this writing, the current version). Anything else is like playing Russian roulette with your database work and data.

What's the logic behind our advice? Simple—much like the case with the prior section's client version advice, TOAD cannot work with database features or capabilities that came out years after the TOAD version was written. We find lots of people using TOAD 8.6 with Oracle 10g. Yes, Figure 1.2 shows that TOAD 8.6 came out after 10g Release 2 and, therefore, should support it. But Oracle often makes changes between even the minor database versions that can affect tools such as TOAD (i.e., tools that make heavy access to the internal data dictionary). For example, some Oracle data dictionary changes in version 10.2.0.2 broke a key TOAD screen. Because you should always be running the terminal Oracle release version (e.g., 10.2.0.4) for best Oracle support, then you should also choose your TOAD version based on that terminal Oracle version's release date—and not the

date when the original database version itself debuted. Thus, if you're using Oracle 10g, we recommend TOAD 9.6, because TOAD 9.6 is the very first TOAD version that came out after Oracle 10.2.0.4. It's the only one for which Quest can perform QA testing and guarantee that it works.

## Running the TOAD Installer

As a typical Win-32 app, TOAD provides a simple graphical installer—but you have several choices to make during that installation process. Most of these choices are quite simple and straightforward. Figure 1.3 shows the installer. There are two key items that you must decide during the installation process. First, will you be installing just TOAD by itself or will you install other members of the TOAD family of products (e.g., TOAD for Data Analysts, TOAD Group Policy Manager, TOAD Data Modeler, SQL Optimizer, Spotlight, Benchmark Factory)? The list of available programs to install will depend on which TOAD install image you download from Quest: the base install, the developer's bundle, or the DBA bundle. Second, into which directory are you installing TOAD? If you choose a new directory, that's considered a fresh install. But if you choose or let the installer choose an existing TOAD directory, then the process is actually an upgrade. You will probably want to do a fresh install in most situations so that you can keep your old version around in case you run into any problems with the newer version.

Sometimes, as with most Windows applications, you may find that your TOAD installation needs to be refreshed or removed and replaced. However, before you lay the blame

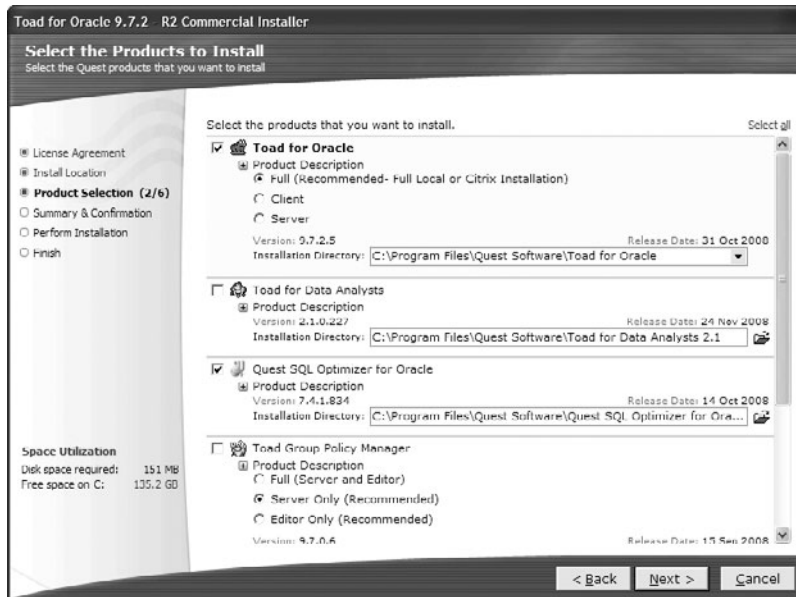


Figure 1.3 Running the TOAD Installer

on TOAD, make sure that your database connectivity is not the real issue. For example, sometimes people install Oracle updates or new tools that modify the Oracle Home setting, which is where the database connectivity information resides. In such a case, TOAD may seem to stop working. Once you're 100% sure it's not a connectivity issue related to something else and, therefore, you know you want to reinstall TOAD, then simply run the TOAD installer and uninstall TOAD.

Furthermore, TOAD creates directories in two key places. First, it places the executables under C:\Program Files\Quest Software\Toad for Oracle. You may decide to manually delete these files if the installer leaves any remnants. Second, TOAD places your custom files (i.e., those special to your Windows login) under C:\Documents and Settings\%USER%\Application Data\Quest Software\Toad for Oracle.

## Copying TOAD Settings

One of the most common TOAD questions we hear is, How do I copy all my TOAD settings from one machine to another? In older versions of TOAD, that process used to be difficult, as the files were not all collected in a central location. Now it's quite simple: Just zip up the directory where all your specific settings are kept—namely, C:\Documents and Settings\%USER%\Application Data\Quest Software\Toad for Oracle\User Files.

Note that some files may be encrypted using your source machine's login information. In this case, copying the password file from one machine to another will not allow you to use those passwords unless the target machine has the same login (i.e., the directory structure is identical). Other than this exception, the remaining files and their settings should port without problem.

## TOAD Adheres to Oracle Security

Probably the question most frequently asked by shops new to TOAD is, Will TOAD permit my developers to do things that they should not? The simple answer is definitely not, because TOAD cannot override or supersede Oracle's inherent security. A TOAD user has only whatever roles, system privileges, or object grants exist for the user within the database. Thus users can do no more in TOAD than they could in SQL\*Plus (they simply can do it more easily and faster via TOAD). To reiterate, TOAD permits database users to have only whatever rights the DBA has granted them—there are no loopholes or exceptions.

This approach does require the DBA managing the Oracle schemas (i.e., users) to have a very firm grasp of all the privileges being handed out. For example, far too many DBAs grant the predefined roles CONNECT, RESOURCE, and DBA to their users—even though Oracle states plainly that these roles are provided merely for backward-compatibility purposes and that you should create and grant your own customized roles. Unfortunately, many people seem to have missed this fact and still overuse the predefined roles. Some DBAs do not fully realize which system privileges the predefined roles grant. For example, granting a schema the CONNECT role means that the user can create clusters, database links, sequences, synonyms, tables, and views via TOAD, because those are

the privileges that CONNECT possesses. Know your predefined roles well if you plan to use them!

We recommend that you create your own custom roles and grant those to your TOAD users. Listing 1.4 shows some database roles we often create in our database for granting privileges to—and thus controlling—various TOAD users.

---

**Listing 1.4 Example TOAD Database Roles**

---

```
-- Role: Junior Developer
-- Trusted to do some things
CREATE ROLE DEVELOPER_JR NOT IDENTIFIED;
--
-- Obviously required privileges
GRANT CREATE SESSION TO DEVELOPER_JR;
GRANT ALTER SESSION TO DEVELOPER_JR;
GRANT ALTER USER TO DEVELOPER_JR;
--
-- Junior Developer privileges
GRANT CREATE PROCEDURE TO DEVELOPER_JR;
GRANT CREATE SEQUENCE TO DEVELOPER_JR;
GRANT CREATE SYNONYM TO DEVELOPER_JR;
GRANT CREATE TRIGGER TO DEVELOPER_JR;
GRANT CREATE TYPE TO DEVELOPER_JR;
GRANT CREATE VIEW TO DEVELOPER_JR;

-- Role: Senior Developer
-- Trusted to do most things
CREATE ROLE DEVELOPER_SR NOT IDENTIFIED;
--
-- Inherit All Junior Developer privileges
GRANT DEVELOPER_JR TO DEVELOPER_SR;
--
-- Senior Developer privileges
GRANT CREATE DATABASE LINK TO DEVELOPER_SR;
GRANT CREATE DIMENSION TO DEVELOPER_SR;
GRANT CREATE INDEXTYPE TO DEVELOPER_JR;
GRANT CREATE LIBRARY TO DEVELOPER_SR;
GRANT CREATE MATERIALIZED VIEW TO DEVELOPER_SR;
GRANT CREATE OPERATOR TO DEVELOPER_JR;
GRANT CREATE TABLE TO DEVELOPER_SR;
```

---

Another area of possible security oversight is not to forget the PUBLIC schema and its granted roles, system privileges, or object grants. For example, granting the privilege of SELECT ANY TABLE to PUBLIC (which generally isn't advisable) means that TOAD users can see the entire database's table data. Given this widespread authority of the grant, you should oversee PUBLIC rights management very wisely. TOAD will not disobey

your security paradigm, but if you leave loopholes open, people generally will find and abuse them. TOAD will simply make the process of locating them easier for users by its very nature of making anything Oracle related easier.

## Activating TOAD's Read-Only Mode

Most people don't realize that TOAD comes with two modes of operation entirely under their control: read/write or read-only. These modes are controlled by the license files in the TOAD install directory. When the TOAD.LIC file is a copy of (i.e., its contents are equivalent to) the FULLTOAD.LIC file (the default), then TOAD operates in read/write mode. When the TOAD.LIC file is a copy of the READONLY.LIC file, then TOAD operates in read-only mode. Here "read-only" refers to the fact that TOAD users cannot save or commit anything to the database. Read-only users are still permitted to create, modify, and save data and SQL files on their local Windows PC; they just cannot permanently affect anything on the database. Thus they cannot create objects, modify data, compile PL/SQL code, drop objects, or do anything else that would have either permanent or lasting effects on the database. For many analysts, this is a viable option.

## Advanced TOAD Security Options

The approach discussed in the prior section was the original method by which TOAD supported a read-only mode of operation (and it is still used today). Over time, however, administrators asked for additional and more complex methods to control their TOAD users. And even though we always said that's what Oracle database security is for, the requests nonetheless persisted. TOAD administrators wanted to manage and control TOAD user behavior based on screens, wizards and utilities. Thus began the quest to create TOAD security.

Beginning with version 7.3, TOAD offered an advanced security management screen permitting your site's TOAD administrator to specifically define which TOAD screens, wizards, and utilities were available and executable by special TOAD security roles granted to users. Unfortunately, this TOAD security approach proved quite resource intensive, as it had to be done at the database level. Thus, for each database you manage that has TOAD users, you had to define these special TOAD roles and then define what users could or could not do within TOAD.

Beginning with version 9.5, TOAD began offering the TOAD Group Policy Manager (TGPM), which totally centralizes the implementation of this application-level TOAD security. To use this functionality, you simply install the TGPM on a Windows server that is accessible by all TOAD users, and then define your security. Think of it as an "active directory" of sorts for controlling TOAD. This highly advanced security feature is beyond the scope of this chapter's basic setup and configuration theme. Because TGPM is not required for most general-purpose TOAD usage scenarios, it is not covered in this book. TOAD's online help and [www.toadworld.com](http://www.toadworld.com) provide more information if you're interested.



## Customizing TOAD to User Taste

There are two key functionalities that any new TOAD user should spend a few moments investigating and adjusting to suit his or her likes or needs—because doing so will radically enhance your productivity. TOAD is shipped with many defaults chosen to apply to a universal and generic audience of millions. There's no way that you'll find all of these preselected defaults acceptable. TOAD is highly customizable, however, so it's easy to make TOAD look and work the way you prefer. This process is painless—and well worth the time spent on it.

First, the TOAD menus and toolbars can be customized by navigating to them and pressing the right-hand mouse key. You will then see a context menu that offers several choices; simply choose the “Customize...” option. TOAD will display a window that shows all the menu and toolbar icons and commands that are available. You can then drag and drop items from this customize window onto the menus and toolbars, or from the menus and toolbars to this window. Doing so will move the selected items back and forth. You can also select items on the existing menus and toolbars and move them around (i.e., rearrange them). In just a few moments' time, you can transform TOAD's primary interface into something that better fits your own personal work style.

Second, and most important, TOAD is a mature application that includes more than 10 years' worth of features. Many of those features have or offer options on how they should look and function. Again, TOAD is supremely customizable and offers you the ability to define numerous default behaviors. Simply click the toolbox icon with three check marks on the main toolbar, or choose the following items from the main menu: View → TOAD Options. Either will result in displaying the TOAD Options screen shown in Figure 1.4.

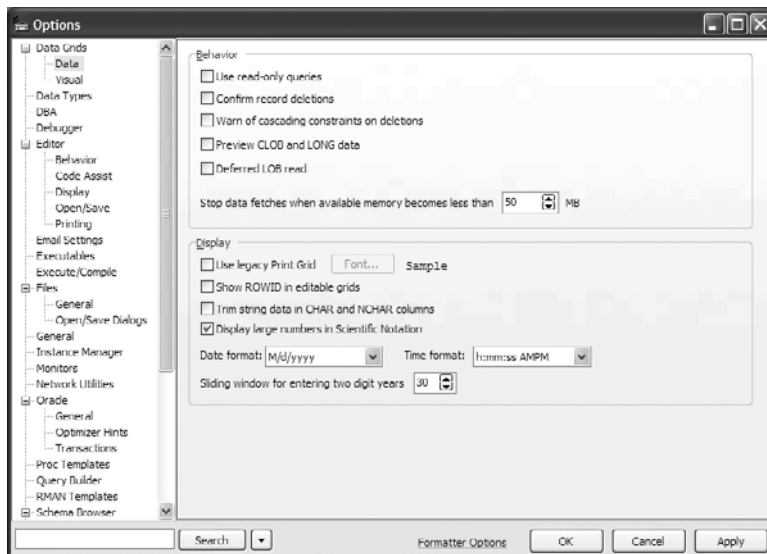


Figure 1.4 The TOAD Options Window

Take the time to navigate, learn, and set many of these values. Note that a search function is available to help you quickly locate items that you might be looking for among the plethora of choices. Use this search feature whenever necessary; it's the single best way to find things quickly. In fact, the majority of user questions about issues such as “Can TOAD do this?” and “Where do I set that?” could be answered by a quick options search. Think of this functionality as being equivalent to a Google search, and use it just as often as you do Web searches. You may need to be a little creative on what you search for, but you can also answer the vast majority of your TOAD-related questions by simply doing a search. So use the search function—you will find good things.

## Summary

In this chapter we reviewed the bare essential TOAD setup and configuration issues that you should address to maximize your TOAD experiences. Once issues such as database network connectivity and client setup are handled properly, running the TOAD installer successfully, running the TOAD product, and making user customizations are fairly straightforward. This chapter's content is critical to making that process simpler and more productive. Once TOAD's prerequisites are handled properly, you should see wonderful productivity gains from using this application.

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