

## PL/SQL Server Pages Setup & Installation

This document<sup>1</sup> outlines the steps to install and configure Oracle 10g Database Server Release 1 (10.1.0.2.0) for Windows, Oracle 10g Client, and Oracle HTTP Server. *A machine should either have the Oracle 10g Database Server and Oracle HTTP Server installation, or a Oracle 10g Client installation.* The document also provides the setup instructions for database connect string as well as the PL/SQL Gateway. The database connect string is needed for communication with the database server. The PL/SQL Gateway is needed to enable PL/SQL Web applications like PL/SQL Server Pages. *The PL/SQL Gateway setup is not needed for Oracle 10g Client installation.*

The installation and setup can be categorized as:

1. A computer with Oracle 10g Database Server and Oracle HTTP Server installation, including database connect string and PL/SQL Gateway setup.
2. A computer with Oracle 10g Client installation with database connect string setup.

The installation instructions pertain to Windows 2000 or Windows XP Professional operating system. Select the link below for installation instructions.

- [Install Oracle 10g Database Server](#)
- [Install Oracle 10g Client](#)
- [Database Connect String](#)
- [HTTP Server](#)
- [PL/SQL Gateway](#)

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<sup>1</sup> Modified October 28, 2005.

## Install Oracle 10g Database Server

The minimum recommended memory for a successful installation of Oracle 10g Database Server is 256 MB (512 MB recommended) . The amount of hard drive space required is approximately 1.5 GB. To proceed with the installation, login as a member of the Administrators group to the computer on which the server will be installed. The major steps in a typical installation are as follows.

1. To start the installation, close any program that is running, and then insert the Oracle Database 10g Release 1 (10.1.0.2) CD in the CD-ROM drive. The Oracle Database10g – Autorun dialog box opens. If the program does not automatically start, open Windows Explorer, navigate to the CD-ROM drive and run setup.exe on the CD.

If at anytime during the installation process, a Windows Security Alert dialog box appears, click the Unblock button.

2. Click **Install/Deinstall** Products. Before the Welcome to the Oracle Universal Installer dialog box opens, Oracle will check your system for the necessary installer requirements.
3. The Oracle Universal Installer now starts to guide the installation process. The Welcome to the Oracle Database 10g Installation window appears. The window displays two installation methods – **Basic Installation** or **Advanced Installation**. Accept the default Basic Installation option, and in its frame complete the entries as follows:

Specify a folder path for Oracle Home where the software will be installed, or accept the default: **C:\oracle\product\10.1.0\Db\_1 path.**

Select the Installation Type **Personal Edition**, **Standard Edition**, or **Enterprise Edition**. For home installations, the Personal Edition can be selected.

Accept the default Create Starter Database option and the default Global Database Name: **orcl**. The global database name is the **SID**. If a different database name is preferred it should be entered here.

Choose a password for the database. This password is used to login to the database as a SYS, SYSTEM, SYSMAN, or DBSNMP user. Type the password in the Database Password and Confirm Password text boxes.

*NOTE:* The following restrictions apply to passwords:

- Passwords must be between 4 and 30 characters long.
- Passwords cannot be the same as the user name.
- Passwords must be from the database character set and can include the underscore (\_), dollar (\$), and pound sign (#) characters.
- Passwords cannot be Oracle reserved words.

4. The Preparing to Install window appears for a few moments, followed by the Summary window. Click the **Install** button to start the installation process. The Install page appears. The installation process will take several minutes.
5. After the installation, when the Database Configuration Assistant page appears, click the Password Management button to unlock the Scott user. Scroll to the Scott user and uncheck the **Lock Account?** box. The default password for Scott is **tiger**, click **OK**, and then click OK close the Database Configuration Assistant.
6. When the End of Installation page displays and confirms that the installation was successful, click **Exit**, and then click **Yes** to confirm exiting. The Oracle Enterprise Manager 10g Database Control web page now opens. The Oracle Enterprise Manager is utilized to perform database administration tasks.

Once the Oracle 10g database has been installed, the database starts automatically whenever the computer is started. However, before one can use the Oracle10g database, it is necessary to create a user account, which is identified by a user name and password. The user account is the logical storage area in the database to create database objects like tables. Lets now create a user account *pspuser*, with password *weboracle*.

### Creating a New User Account for the Oracle10g Database

1. Start the Web browser, and type the URL `http://hostname:5500/em` to open the Oracle Enterprise Manager Database Control Login page. If the Enterprise Manager is already open then proceed to type **SYS** as the **User Name**, and enter the password specified in step 3 above, select SYSDBA from Connect As drop down list, and then click **Login**.
2. The Oracle Database Licensing Information 10g page will appear. Read the page and scroll to the bottom and then click **I Agree**. This page appears the first time a new user logs into the Oracle Enterprise Manager Database Control application.

The Oracle Enterprise Manager Database Control Home page will appear. To create a new user for the Oracle database, click the **Administration** link.

3. Under the Security heading click the **Users** link.
4. On the Oracle Enterprise Manager Database Control Users page, click the **Create** button located on the right hand side of the page. In the ensuing Web page,

Type **PSPUSER** in the *Name* field, **weboracle** in the *Enter Password* field, and **weboracle** in the *Confirm Password* field.

Type **USERS** in the Default Tablespace field and **Temp** in the Temporary Tablespace field.

Click the **System Privileges** link, click the **Modify** button, select *Create Procedure* in the Available System Privileges list, and then click the move arrow so that *Create Procedure* appears in the Selected System Privileges list. Repeat these steps for *Create Sequence*, *Create Synonym*, *Create Trigger*, *Create Type*, *Create View* system privileges.

Click **OK** on the Modify System Privileges page, and then click **OK** on the Create User page. A message confirms that the object was successfully created.

5. Click the **Logout** link at the bottom or top right corner of the Web page. Close the Web browser.

### Login to the Oracle Database 10g

To confirm connection to the installed Oracle10g database, start SQL\*Plus editor and login to the database using the PSPUSER account.

1. Click **Start** on the Windows taskbar, select **All Programs**, select **Oracle – OraDb10g\_home1**, select **Application Development**, and then click **SQL Plus**. The Log On dialog box opens.
2. Type **PSPUSER** in the User Name field, press Tab, type **weboracle** in the Password field, **leave the Host String field blank**, then click **OK**. The SQL\*Plus program window opens, and the SQL prompt appears.
3. Close the Oracle SQL\*Plus window.

## Install Oracle 10g Client

The minimum recommended memory for a successful installation of Oracle 10g Client is 256 MB (512 MB recommended). The amount of hard drive space is approximately 1.5 GB. The major steps in a typical installation are as follows.

1. To start the installation, close any program that are running, and then insert the Oracle Database 10g Client Release 1 (10.1.0.2) CD in the CD-ROM drive. The Oracle Database 10g – Autorun dialog box opens. If the program does not automatically start, start Windows Explorer, navigate to the CD-ROM drive and run **setup.exe** on the CD.

If at anytime during the installation process, a Windows Security Alert dialog box appears, click the Unblock button.

2. Click **Install/Deinstall Products**. Before the Welcome to the Oracle Universal Installer dialog box opens, Oracle will check your system for the necessary installer requirements.
3. The Oracle Universal Installer now starts to guide through the installation process. The Welcome to the Oracle Database 10g Installation window appears. Click Next to proceed with the installation.
4. In the following Specify File Locations screen, in the Destination section enter the Name and Path for a new Oracle Client home name and folder or keep the default.

The default Oracle client home is **OraClient10g\_home1** while its default path is **C:\oracle\product\10.1.0\Client\_1**.

5. In the next Select Installation Type screen, select **Runtime**, and click Next.
6. On the next Summary screen, check the list of products that will be installed, and click **Install**. The Install page appears. The installation process will take several minutes.
7. After the installation, the Configuration Assistant page appears. Once the configuration is complete, the Oracle Net Configuration Assistant welcome screen appears. Click Next, and Oracle Net Configuration Complete message shows up in the following screen. Click Finish to close the Configuration Assistant.
8. Now, the End of Installation page displays and confirms that the installation was successful, click **Exit**, and then click **Yes** to confirm exiting.

Once the installation of Oracle 10g client is complete, complete the Connect String setup in the Database Connect String section.

## Database Connect String

Once the database client is installed, it is necessary to connect to the some installed Oracle database server. Alternately, it is also possible to connect an existing database server computer to another Oracle database server. To connect to another Oracle database, a **connect string** has to be defined. The connect string is also utilized to connect Oracle utilities to the database server. There are two ways to setup the connect string – use the Net Configuration Assistant wizard, or modify the tnsnames.ora file.

### Net Configuration Assistant Wizard

1. Click Start on the Windows taskbar, select All Programs, select Oracle – OraDb10g\_home1, select Configuration and Migration Tools, and then click Net Configuration Assistant.
2. In the Welcome screen, select the Local Net Service Name configuration radio button and click the Next button.
3. In the Net Service Name Configuration window screen, select the Add radio button.
4. In the Net Service Name Configuration, Service Name window screen enter the database server SID entry as the service name. SID entry is similar to the orcl entry in step 3 of Install Oracle 10g Server Installation section. This entry could either be SID or SID.MachineName.
5. In the Net Service Name Configuration, Select Protocols window screen select TCP.
6. In the Net Service Name Configuration, TCP/IP Protocol window screen enter the host name of the database server. Leave the default radio button selection for “Use the standard port number of 1521” entry.
7. In the Net Service Name Configuration, Test window screen, based on preference select either “No, do not test” or “Yes, perform a test” radio button. In case of Yes, perform a test choice enter a correct database login and password in the following window screen. By default the wizard uses the SYSTEM username and its default password. Use the Change Login button to enter a different valid username and password.
8. Enter a Net Service Name in the following screen. *This service name will be the connect string to the database server.*
9. If no more service name (connect strings) have to be defined, select the No radio button in the Net Service Name Configuration, Another Net Service Name window screen. The Net service name Configuration Complete message screen appears.

## Modify tnsnames.ora

Go to the Admin folder having the path C:\oracle\product\10.1.0\Db\_1\NETWORK. There will be a text file named “tnsnames.ora.” Open the file through the Notepad editor and enter (or copy/paste an existing connect string entry) at the end of the last entry. The entries in the angle brackets are specific to the Oracle server setup.

```
<connect string> =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = <machine name>) (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = <SID>.<machine name>)
    )
  )
```

An example of connect string “orcl” is shown below.

```
ORCL =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = oracle.missouristate.edu) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = orcl)
    )
  )
```

Define similar connection string in the tnsnames.ora file for Oracle Client installations. *Loadpsp* command uses such connection strings to transfer *PL/SQL Server Pages* to the server.

## HTTP Server

The Oracle Database Companion CD contains products that improve the performance of or complement Oracle Database. The Companion CD includes two sets of products: Oracle Database 10g Products and Oracle Database 10g Companion Products.

The Oracle Database 10g Products includes Oracle Database Examples, natively compiled Java libraries for Oracle JVM and Oracle interMedia, Oracle Text supplied knowledge bases, and Legato Single Server Version (LSSV). The Oracle Database 10g Companion Products includes Oracle HTTP Server and Oracle HTML DB.

Oracle HTTP Server is the Web server component of Oracle Database. It is based on the Apache HTTP Server, version 1.3.28. It is a robust, reliable Web server, preconfigured to do the following:

- provide a high availability infrastructure integration with Oracle Process Manager and Notification Server (OPMN), for process management, death detection and failover for Oracle HTTP Server processes.
- provide Dynamic Monitoring Services (DMS) metrics that give runtime performance statistics for Oracle HTTP Server processes.
- provide a request ID, which enhances request tracking through various components by attaching a request ID to each request. This provides more detailed information, allowing you to see how much time a particular request spends in any component or layer.
- enable securing of transactions with Secure Sockets Layer (SSL) technology.
- execute Perl scripts in the same process as the Oracle HTTP Server, or as CGI script.
- access database stored procedures with a PL/SQL engine.
- enable scripting of HTML pages with PL/SQL code.

Oracle HTTP Server must be installed into its own separate Oracle home folder. Oracle HTML DB can be installed either with Oracle HTTP Server, or into an Oracle home folder that contains Oracle HTTP Server.

To install HTTP Server, login as a member of the Administrators group to the computer on which Oracle components will be installed. Follow these steps:

1. Insert the CD-ROM labeled Oracle Database Companion CD 10g Release 1 (10.1) Disk 1 of 1. The Autorun screen automatically appears. If the Autorun screen does not appear, then in Windows Explorer navigate to the drive with the CD and program \autorun\autorun.exe. The Welcome screen appears. Click Next.
2. Oracle Installer first checks the system for the necessary installer requirements. In the following Specify File Locations screen, in the Destination section enter the **Name** and **Path** for the new Oracle HTTP home folder. **Make sure that the HTTP Server home name and folder are different from Oracle server name and folder.** (The default Oracle home name and path is offered. Do not enter a folder path that has spaces.)

3. In the next Select a Product to Install screen, choose **Oracle Database 10g Companion Products** and click Next.
4. In the Available Product Components screen, choose **Apache Standalone** (which is Oracle HTTP Server), and click Next.
5. On the next Summary screen, check the list of products that will be installed, and click **Install**. If at anytime during the installation process, a Windows Security Alert dialog box appears, click the Unblock button.
6. At the End of Installation screen, **make a note of the URLs that Oracle HTTP Server will use**. Click **Exit** and then click Yes to exit from the Oracle Universal Installer.

The HTTP Server is automatically started after a successful database server installation. To check the running of the HTTP Server go to the Services window in the Administrative Tools window of the Control Panel for an entry like “Oracle<HTTP Server home name>ProcessManager” (the server should have started automatically).

The working of the HTTP Server is controlled by (default) entries in a configuration file called “http.conf.” This file is located in conf folder having the path C:\<oracle HTTP home folder>\Apache\Apache\conf\. This is a text file that can be opened with Notepad editor. There are basically two entries that need to be set in the http.conf file – port number and virtual folders.

### Port Number

Port number specifies the port on which the browser URL will access the Web server. In the http.conf file, scroll to “Section 2: ‘Main’ server configuration” section. There will be an existing entry for port number (eg. Port 7777). Enter an entry for port 80 as follows:

```
Port 80
```

The Port 80 entry allows the default access to the server without typing the port number in the browser URL. Another Port entry can be entered as desired. To remove an existing port number just delete the entire entry or make it a comment by adding # at the beginning of the line.

### Virtual Folder

Virtual folder is defined in the Alias section within the section 2 of the http.conf file. The format is

```
Alias <virtual folder> <physical folder>.
```

There will be existing Alias entries. Enter your entry after the existing entries. For example,

```
Alias /images/ "c:\Oracle\App/" .
```

In the above example, the physical folder `c:\Oracle\App\` is mapped to a virtual folder `/images/`. So any file within the `c:\Oracle\App\` folder can be accessed in the URL as:

`http://yourserver.com/images/yourfile.html`

## PL/SQL Gateway

PL/SQL Server Pages are accessed through the `mod_plsql` plug-in for the PL/SQL Gateway. To enable PL/SQL Server Pages working, (i) a DAD connect string needs to be setup, and (ii) a Database Access Descriptor (DAD) created. A DAD entry is part of the URL that is necessary to access PL/SQL server pages from the browser.

### DAD Connect String (`PlsqlDatabaseConnectionString`)

The DAD connect string is also the `PlsqlDatabaseConnectionString` that is utilized later in DAD specification. Go to the Admin folder with the path `C:\<oracle HTTP home folder>\network\admin`. There will be a text file named “`tnsnames.ora`.” Open the file through the Notepad editor and enter (or copy/paste an existing connect string entry) at the end of the last entry. The entries in the angle brackets are specific to the Oracle server setup.

```
<connect string> =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = <machine name>) (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = <SID>.<machine name>)
    )
  )
```

An example of connect string “`orcl`” is shown below.

```
ORCL =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = oracle.missouristate.edu) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = orcl)
    )
  )
```

### DAD Setup

Perform the following steps to create a DAD:

1. Edit the DAD configuration file `dads.conf` located in the `conf` folder with path `C:\<oracle HTTP home folder>\Apache\modplsql\conf\`. The `dads.conf` is a text file.
2. Add a DAD where the DAD has the following format:
  - a. The Oracle HTTP Server `<Location>` directive which defines a virtual path used to access the PL/SQL Web Application. This directive defines a group of additional directives that apply to the named Location.

For example, the directive `<Location /myapp>` defines a virtual path called `"/myapp"` that will be used to invoke a PL/SQL Web Application through a URL like `http://host:port/myapp/`.

Note:

Older versions of `mod_plsql` were always mounted on a virtual path with a prefix of `'/pls'`. This restriction is removed in Oracle 10g.

- b. The Oracle HTTP Server `"SetHandler"` directive which directs Oracle HTTP Server to enable `mod_plsql` to handle the request for the virtual path defined by the named `Location`

```
SetHandler pls_handler
```

- c. Additional Oracle HTTP Server directives as follows:

```
Order deny,allow
Allow from all
AllowOverride None
```

- d. One or more `mod_plsql` specific directives. For example:

```
PlsqlDatabaseUsername      scott
PlsqlDatabasePassword     tiger
PlsqlDatabaseConnectString orcl
PlsqlAuthenticationMode   Basic
```

The `PlsqlDatabaseUsername` is an existing Oracle database username, while `PlsqlDatabasePassword` is its password. The `PlsqlDatabaseConnectString` setup is described above.

- e. An Oracle HTTP Server `</Location>` directive which closes the group of directives for the named `Location`, and defines a single DAD.

3. Save the edits.
4. Optionally, obfuscate the DAD password by running the `"dadTool.pl"` script located in `ORACLE_HOME/Apache/modplsql/conf`. For instructions on performing the obfuscation, please refer to `<Oracle HTTP Home>/Apache/modplsql/conf/dadTool.README` file.
5. Restart the Oracle HTTP Server for the configuration to take effect.

An example DAD is shown below.

```
<Location /myapp>
  SetHandler pls_handler
  Order deny,allow
  Allow from all
  AllowOverride None
  PlsqlDatabaseUsername      scott
  PlsqlDatabasePassword     tiger
  PlsqlDatabaseConnectionString  orcl
  PlsqlAuthenticationMode   Basic
</Location>
```

If necessary, create additional DADs with different username/passwords.