Peregrine

BI Portal 5.0 Installation Guide

For Windows, AIX, and Solaris

PART NO: DBNI-5-EN03

Peregrine SYSTEMS

Peregrine Systems, Inc.
3611 Valley Centre Drive San Diego, CA 92130
Tel 800.638.5231 or 858.481.5000
Fax 858.481.1751
www.peregrine.com

Contents

About this Guide

The *BI Portal Installation Guide* provides information about installing and configuring Peregrine BI Portal and the related third-party software.

This guide details how to install BI Portal Real Estate on the OAA platform and includes the following chapters:

- *Chapter 1, BIPortal component overview*
- *Chapter 2, Preparing for the BI Portal Installation*
- *Chapter 3, Installing on Windows*
- *Chapter 4, Installing on UNIX*
- *Chapter 5, Load Balancing*
- *Chapter 6, Configuring Software Components*
- *Appendix A, Troubleshooting the installation*

Using this Guide

This guide is designed to be used in sequence. Beginning with Chapter 1 and continuing through the other chapters, you will install and configure the BI Portal software and all related third-party software.

Important: It is important that you perform the installation process according to the sequence presented.

Prior to using this guide, you should read the following sections:

- *Related Documentation* on page 10
- *Documentation Conventions* on page 11
- *Contacting Peregrine Systems* on page 11

Related Documentation

In addition to this guide, the following documentation is available for the BI Portal product:

This manual…	Provides information on…
BI Portal Administration Guide	Provides an overview of the OAA platform. Describes how you customize the BI Portal and the OAA Administration module. Provides information about security in BI Portal, and RDS Universe administration.
BI Portal User's Guide	Helps you get started with Peregrine BI Portal and use it to generate queries and reports.
BI Portal Release Notes	Includes enhancements and known issues for the OAA platform and for BI Portal.
OAA Platform Administrator's Guide	Describes installing and maintaining systems that use the Peregrine OAA platform.
WebIntelligence User's Guide	Describes how to use WebIntelligence for building and running queries, reporting, and analysis.
Business Objects Installation and Configuration Guide for Windows	Describes how to install and configure Business Objects products under Windows.

Documentation Conventions

The following typographical conventions are used in this guide.

Text Formatting	Meaning
italics	Text that acts as a placeholder for information you will provide. Italics are also used for book titles and for emphasis.
sans serif font	Text that you type. Examples are filenames and URLs. This font is also used for samples of code and commands.
bold	Names of user interface elements. Examples are menu items and names (select **Open** from the **File** menu), button names (click **Accept**), and names of screens or dialogs (the **Server Manager** window).

Contacting Peregrine Systems

For further information and assistance with this release, you can download documentation or schedule training.

Customer Support

For further information and assistance, contact Peregrine Systems' Customer Support at the Peregrine CenterPoint Web site.

To contact customer support:

1. In a browser, navigate to http://support.peregrine.com
2. Log in with your user name and password.
3. Follow the directions on the site to find your answer. The first place to search is the KnowledgeBase, which contains informational articles about all categories of Peregrine products.
4. If the KnowledgeBase does not contain an article that addresses your concerns, you can search for information by product; search discussion forums; and search for product downloads.

Documentation Web site

For a complete listing of current BI Portal documentation, see the Documentation pages on the Peregrine Customer Support Web.

To view the document listing:

1. In a browser, navigate to http://support.peregrine.com.
2. Log in with your login user name and password.
3. Click either **Documentation** or **Release Notes** at the top of the page.
4. Click the BI Portal link.
5. Click a product version link to display a list of documents that are available for that version of BI Portal.
6. Documents may be available in multiple languages. Click the Download button to download the PDF file in the language you prefer.

You can view PDF files using Acrobat Reader, which is available on the Customer Support Web site and through Adobe at http://www.adobe.com.

Important: Release Notes for this product are continually updated after each release of the product. Ensure that you have the most current version of the Release Notes.

Education Services Web Site

Peregrine Systems offers classroom training anywhere in the world, as well as "at your desk" training via the Internet. For a complete listing of Peregrine's training courses, refer to the following web site:

http://www.peregrine.com/education

You can also call Peregrine Education Services at +1 858.794.5009.

1 BIPortal component overview

CHAPTER

BI Portal uses software components that can be installed in a variety of hardware configurations.

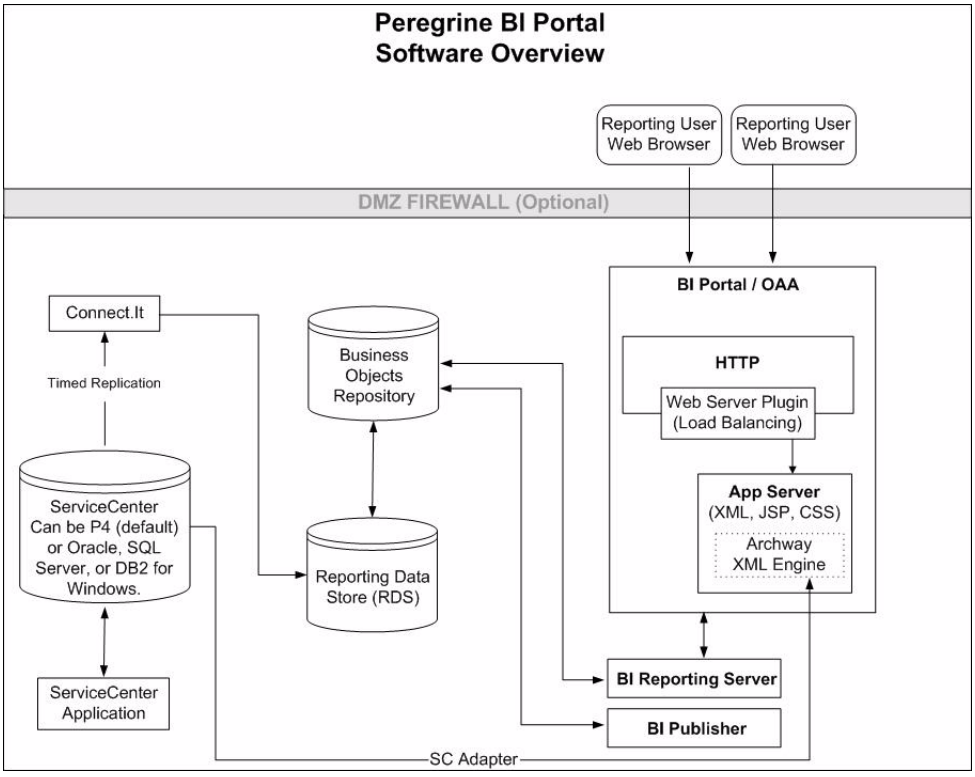
BI Portal architecture

BI Portal uses the following components:

Component	Description
BI Portal	A Web application that you use to create and edit queries and reports. For more information about using BI Portal, see the *BI Portal User's Guide*.
BI Reporting Server	Deploys the Peregrine version of the Business Objects Repository. In addition, the WebIntelligence Reporting Server must be installed on the BI Reporting Server. Publishes Peregrine content meta-data such as ServiceCenter meta-data. The rds universe is stored on the BI Reporting Server. For more information about universes, see the *BI Portal User's Guide* section *Universes, classes, and objects*.
Business Objects Repository	An RDBMS that contains the Business Objects Security, Document, and Universe domains. Stores all data sets and documents.
Reporting Data Store (RDS)	Stores ServiceCenter reporting data. Storing data on the RDS reduces the performance impact on your ServiceCenter database of running queries and reports.

Component	Description
Connect-It	Used to establish a connection between the RDS and the ServiceCenter database.
ServiceCenter database	The ServiceCenter database is a repository for all the data stored in your ServiceCenter implementation. The ServiceCenter database is the P4 database by default; however, you can also use one of the following RDBMS products: Oracle, SQL Server, or DB2 for Windows.
ServiceCenter application	The ServiceCenter application is the interface where you perform ServiceCenter tasks.
Application server	The default application server that is installed with the BI Portal typical installation is Tomcat. You can use another application server if you prefer. To use an application server other than Tomcat, you first perform a custom installation and then manually configure the BI Portal components.
Web server	The default Web server that is installed with the BI Portal typical installation is Apache. You can use another Web server if you prefer. To use a Web server other than Apache, you first perform a custom installation and then manually configure the BI Portal components.

The following diagram depicts the BI Portal architecture:



CHAPTER 2 Preparing for the BI Portal Installation

The chapter includes all the software installation and configuration processes that are required prior to installing and running BI Portal.

Topics in this chapter include:

Hardware requirements

The following items are the minimum hardware requirements for BI Portal:

Item	Minimum Requirement
Processor	Pentium 1 GHz or faster
RAM	512 MB minimum on each server machine. More RAM may be required if you will be running multiple instances of the application server, or if you intend to use very large databases.
Disk Space	100 MB minimum available on web server 615 MB minimum available on Oracle servers

Software and platform requirements

For complete information about the requisite software that must be installed and configured before you install BI Portal, see the BI Portal Compatibility Matrix at support.peregrine.com.

Software installation and configuration requirements

Before you perform a typical or custom BI Portal installation, in either a single-server or multi-server configuration, you need to make the following preparations:

- Install and configure the database servers that you will use.
- Install the database server on a separate server machine from those on which you will install BI Portal components.
- Install the database client you intend to use, on each server machine on which you will install BI Portal components. See the section *Install the database client on each server machine* on page 29.
- Create a Windows user named BO_User on the server machine where the BI Portal client will reside. See the section *Create a Windows user named BO_User* on page 31 for more information.
- Make sure that Business Objects is installed on the same server machine as the Reporting Server. Then create a Business Objects user who has permission to log in as administrator. See the section *Install Business Objects and configure it for BI Portal* on page 33.

- Install Connect-It on the same server machine on which you plan to install the RDS. The Connect-It installation CD is included with BI Portal. See the section *Install Connect-It* on page 41 for installation instructions.
- ServiceCenter should be installed on a separate server machine from those on which you will install BI Portal components. To check your ServiceCenter installation, refer to the section *Check ServiceCenter installation* on page 44.

Configuring the database

This section describes the steps you take to set up your database server to function with BI Portal. There are three sections, one for each type of database that BI Portal is designed to use: Oracle, DB2 for Windows, and SQL Server.

Configuring Oracle for BI Portal

BI Portal 5.0 uses Oracle as the default database server. This section explains how to set up Oracle in preparation for installing BI Portal.

Note: The SQL commands shown below are examples only. The actual commands you use may differ.

Installing Oracle

Install the Oracle server, version 8.17 or 9i, from the Oracle CD.

If you are installing Oracle for the first time on the server, set both the database name and the database instance name to the same name, such as ORCL.

Note: Record the following information about your Oracle installation: the database name (either the global name or the service name) and the database SID (instance name).

Creating the tablespace and the BI Portal user

The tablespace is the storage location for the BI Portal databases. You create two tablespaces, called BI_REPO and RDS.

Creating the tablespace

Note: The BI_REPO and RDS tablespaces requires 615 MB of free space each. Make sure your hard drive has 1230 MB of free space.

To create the tablespace:

1 On the database server, go the **Start** menu, select **Programs** > **Oracle** > **OracleHome8i** > **Database Administration** > **SQLPlus Worksheet**.

Note: Do not use SQLPlus. Use SQLPlus Worksheet.

2 Log in as System, using **manager** as the password, or log in as the super user for your system.

Note: Consult your database administrator if you need help logging in.

3 Type a script such as the following, which creates a tablespace for BI_REPO.

```
CREATE TABLESPACE BI_REPO DATAFILE
'C:\ORACLE\Ora81\database\BI_REPO.ora'
SIZE 600M
AUTOEXTEND ON NEXT 1M MAXSIZE UNLIMITED;
commit;
```

Note: When creating the RDS tablespace, replace "BI_REPO" with "RDS" throughout.

If necessary, edit the string to reference the drive and directory where Oracle is installed. The path you enter, such as C:\ORACLE\ORADATA\ORCL, must exist on the system.

4 Click the lightning icon to run the script.

The script may take up to three minutes to run. When the following lines appear, the script is finished:

```
Tablespace created.
Commit complete.
```

5 Look in the lower pane for any errors messages. If the previous lines appeared and there are no errors, go to the next section, "Creating BI Portal users."

Creating BI Portal users

You create four users for BI Portal: BI_REPO, BIREPO1, BIREPO1L, and RDS_DBA. These four users are the database administrator IDs that BI Portal uses to connect to the database. The following script creates a BI_REPO user who has "connect" and "resource" rights. (You can tailor the script as necessary for your system. Consult your database administrator for assistance.)

"Connect" provides the following rights:

- create session
- create table
- create synonym
- create database link
- alter session
- create view
- create sequence
- create cluster

"Resource" provides these rights:

- create cluster
- create procedure
- create sequence
- create table
- create trigger

To create the BI_REPO user:

1. On the database server, from the Edit menu, click **Clear All** to delete the text in the window.
2. Type a script such as the following. Of course, when creating each of the other three users, BIREPO1, BIREPO1L, and RDS_DBA, replace "BE_REPO" with the appropriate name.

Important: Use "password" for BI_REPO, BIREPO1, and BIREPO1L. Use "passw0rd" (where the sixth character is the number zero, not the letter "O") when creating RDS_DBA.

```
CREATE USER BI_REPO IDENTIFIED BY password
  DEFAULT TABLESPACE BI_REPO
  TEMPORARY TABLESPACE TEMP
  QUOTA UNLIMITED ON BI_REPO
  QUOTA UNLIMITED ON TEMP
  PROFILE DEFAULT
  ACCOUNT UNLOCK;
GRANT CONNECT TO BI_REPO WITH ADMIN OPTION;
GRANT RESOURCE TO BI_REPO WITH ADMIN OPTION;
GRANT DBA TO BI_REPO WITH ADMIN OPTION;
ALTER USER BI_REPO DEFAULT ROLE CONNECT, RESOURCE, DBA;
GRANT UNLIMITED TABLESPACE TO BI_REPO WITH ADMIN OPTION;
COMMIT;
```

3 Click the Lightning Bolt icon to execute the script.

4 Execute steps 2 and 3 to create users BIREPO1, BIREPO1L, and RDS_DBA.

Create a TNS name for Oracle database server

You need to create a TNS name for the Oracle database server. To do so, perform these steps:

1 Open the Oracle Net Configuration Assistant.

2 Choose Local Net Service Name Configuration.

3 Create a TNS name BI_REPO.

Configuring DB2 for Windows for BI Portal

To configure DB2 for BI Portal, you create default tablespaces that an authorized user can access.

Note: The SQL commands shown below are examples only. The actual commands you use may differ.

To configure DB2 for BI Portal:

1 Create four Windows local users, BI_REPO, BIREPO1, BIREPO1L, and RDS_DBA:

a Right-click **My Computer** and click **Manage**.

b In the Computer Management window open the **Local Users and Groups** folder, right-click **Users**, and click **New User** from the menu.

c Use "password" for BI_REPO, BIREPO1, and BIREPO1L. Use "passw0rd" (where the sixth character is the number zero, not the letter "O") when creating RDS_DBA.

d Either assign all four users to the Administrator group, or assign these users permissions in DB2.

2 Create an RDS database with the wizard using the default settings:

```
CREATE DATABASE RDS ON C: ALIAS RDS USING CODESET IBM-1252
TERRITORY US COLLATE USING SYSTEM
```

3 Create two bufferpools for the RDS database:

```
CREATE Bufferpool RDS32K SIZE 250 PAGESIZE 32 K

CREATE Bufferpool IBMDefault2 SIZE 250 PAGESIZE 32 K

CREATE BUFFERPOOL RDSDBA SIZE 250 PAGESIZE 32K
```

4 Enter the following commands from the DB2 Command Window to restart the database and make new bufferpool active:

```
db2 force application all
db2stop
db2start
```

5 Create two tablespaces for the RDS database

```
CREATE  REGULAR  TABLESPACE RDS_32K PAGESIZE 32 K  MANAGED BY
DATABASE  USING ( FILE 'C:\DB2_DataContains\rds_32kspace' 6400)
EXTENTSIZE 32 OVERHEAD 24.1 PREFETCHSIZE 32 TRANSFERRATE 0.9
BUFFERPOOL RDS32K

CREATE SYSTEM TEMPORARY TABLESPACE IBMDefaultBP2 PAGESIZE 32 K
MANAGED BY SYSTEM USING ('C:\DB2_DataContains\IBMDefaultBP2' )
EXTENTSIZE 32 OVERHEAD 10.5 PREFETCHSIZE 32 TRANSFERRATE 0.33
BUFFERPOOL IBMDEFAULT2;

CREATE USER TEMPORARY TABLESPACE USERSPACE PAGESIZE 32 K
MANAGED BY SYSTEM USING ('D:\USERTEMP' ) EXTENTSIZE 32 OVERHEAD
10.5 PREFETCHSIZE 32 TRANSFERRATE 0.33 BUFFERPOOL RDSDB2;
```

6 Grant the user access to the tablespaces:

```
GRANT USE OF TABLESPACE RDS_32K TO USER RDS_DBA WITH GRANT
OPTION

GRANT USE OF TABLESPACE USERSPACE TO USER RDS_DBA WITH GRANT
OPTION
```

7 Change the appheapsz parameter in the RDS database from the default, 128, to 256.

8 Change the logfil_siz parameter in the RDS database from the default, 250, to 2500.

9 Create a BI_REPO database with the wizard using the default settings:

```
CREATE DATABASE BI_REPO ON C: ALIAS BI_REPO USING CODESET
IBM-1252 TERRITORY US COLLATE USING SYSTEM
```

10 Create a bufferpool for the BI_REPO database

```
CREATE BUFFERPOOL BI_REPO32K SIZE 250 PAGESIZE 32 K

CREATE BUFFERPOOL IBMDefault2 SIZE 250 PAGESIZE 32 K

CREATE BUFFERPOOL RDSDB2 SIZE 250 PAGESIZE 32 K
```

11 Enter the following commands from the DB2 command window to restart the database and make new bufferpool active:

```
db2 force application all
db2stop
db2start
```

12 Create a tablespace for the BI_REPO database (not using the wizard. Choose **DMS** > **Advance setting** for 16k buffer pool setting)

```
CREATE REGULAR TABLESPACE BI_REPO_32K PAGESIZE 32 K MANAGED BY
DATABASE  USING ( FILE 'C:\DB2_DataContains\bi_repo_32kspace' 6400)
EXTENTSIZE 32 OVERHEAD 24.1 PREFETCHSIZE 32 TRANSFERRATE 0.9
BUFFERPOOL BI_REPO32K

CREATE SYSTEM TEMPORARY TABLESPACE IBMDefaultBP2 PAGESIZE 32 K
MANAGED BY SYSTEM USING ('C:\DB2_DataContains\IBMDefaultBP1' )
EXTENTSIZE 32 OVERHEAD 10.5 PREFETCHSIZE 32 TRANSFERRATE 0.33
BUFFERPOOL IBMDEFAULT2;

CREATE USER TEMPORARY TABLESPACE USERSPACE PAGESIZE 32 K
MANAGED BY SYSTEM USING ('D:\USERTEMP1' ) EXTENTSIZE 32 OVERHEAD
10.5 PREFETCHSIZE 32 TRANSFERRATE 0.33 BUFFERPOOL RDSDB2;
```

13 Grant the new table space to the users:

```
GRANT USE OF TABLESPACE BI_REPO_32K TO USER BI_REPO WITH GRANT
OPTION

GRANT USE OF TABLESPACE BI_REPO_32K TO USER BIREPO1 WITH GRANT
OPTION
```

```
GRANT USE OF TABLESPACE BI_REPO_32K TO USER BIREPO1L WITH GRANT
OPTION

GRANT USE OF TABLESPACE USERSPACE TO USER BI_REPO WITH GRANT
OPTION

GRANT USE OF TABLESPACE USERSPACE TO USER BIREPO1 WITH GRANT
OPTION

GRANT USE OF TABLESPACE USERSPACE TO USER BIREPO1L WITH GRANT
OPTION
```

14 Change the appheapsz parameter in the BI_REPO database from the default, 128, to 256.

15 Change the logfil_siz parameter in the BI_REPO database from the default, 250, to 2500.

Configuring SQL Server 2000 for BI Portal

This section explains how to set up SQL Server 2000 in preparation for installing BI Portal. Setting up SQL Server involves the following steps:

Note: The SQL commands shown below are examples only. The actual commands you use may differ.

Step 1 Perform the steps in the section *Preparing the SQL Server 2000 for BI Portal* that follows.

Step 2 *Creating four Security Login names* on page 27.

Step 3 *Setting security authentication* on page 28.

Important: The SQL Server database requires two sets of licenses:
SQL Server connections require four or more SQL Server licenses.
Sprinta2000 driver requires three or more Sprinta2000 licenses.

Preparing the SQL Server 2000 for BI Portal

You must successfully install the SQL Server. When installing the SQL Server, the default port is 1433.

To prepare the SQL Server 2000:

1 Install SQL Server 2000.

2 Create two databases on the database server, called BI_REPO and RDS.

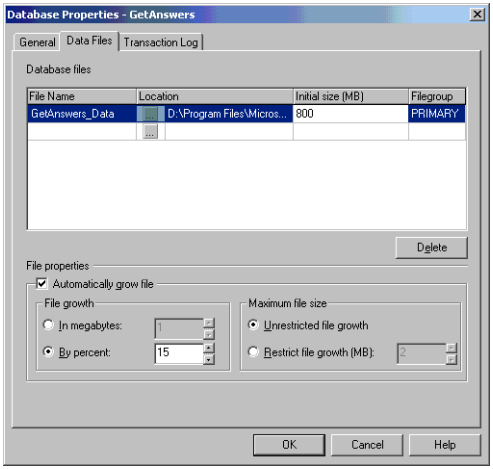
a Right-click the database.

b Select New Database.

- A window opens requesting the properties of the new database; for example, bi_repo.

Important: Make sure that the database name is alphanumeric and does not contain any dashes.

Note: Each database requires at least 800 MB of free space. Defragment your hard drive if necessary to insure that your hard drive has 1.6 GB contiguous free space.



- Click the **Data Files** tab. In the **Initial size** (**MB**) field, set the database size to 800 (at a minimum) and set the **By percent** to 15.

  If the database is less than 800 MB at creation time, intermittent **Update failure** messages will occur, and the database will need to be backed up and dropped; a new database of size 800MB created; and the old data restored into the newer larger database.

- Always consult your SQL Server database administrator before configuring the database.

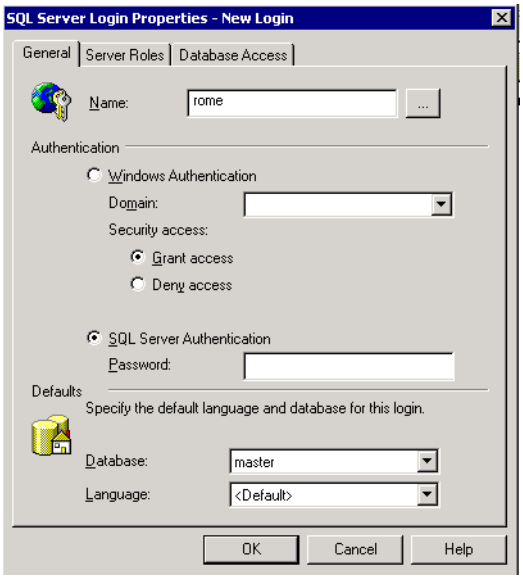
- Click **OK**.

Creating four Security Login names

Use the SQL Server Enterprise Manager to create four login names, assign roles, and grant permissions.

To create a Security Login name:

1 From the SQL Server Enterprise Manager, scroll to the Security folder and right-click **Logins** to open the SQL Server Login Properties > New Login dialog box.



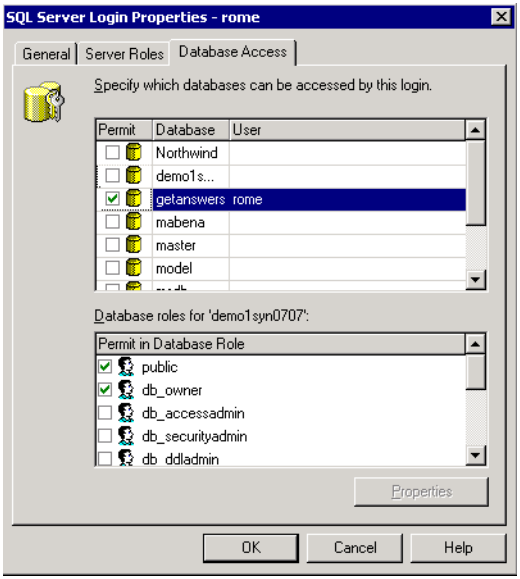
a Type the login name **BI_REPO**.

b Select the **SQL Server Authentication** option and type **password** in the Password field.

c Select the database **BI_REPO** from the drop-down list.

Note: All the login names, databases, and passwords described in this section must be entered *exactly* as shown.

2 Click the **Database Access** tab. In the Database column click the check box to select bi-repo. In the Database roles section click **db_owner** to select it. Click **OK**.



3 In the Confirm Password dialog type **password** (in lower-case letters) and click **OK**.

4 Repeat step 1 through step 3 to create users called "BIREPO1" and "BIREPO1L" using the same password, and the same database, BI_REPO.

5 Repeat step 1 through step 3 to create a user called "RDS_DBA" and enter the following as the user password: **passw0rd** (where the sixth character is a zero, not the letter "O."). Use RDS as the default database for the RDS_DBA.

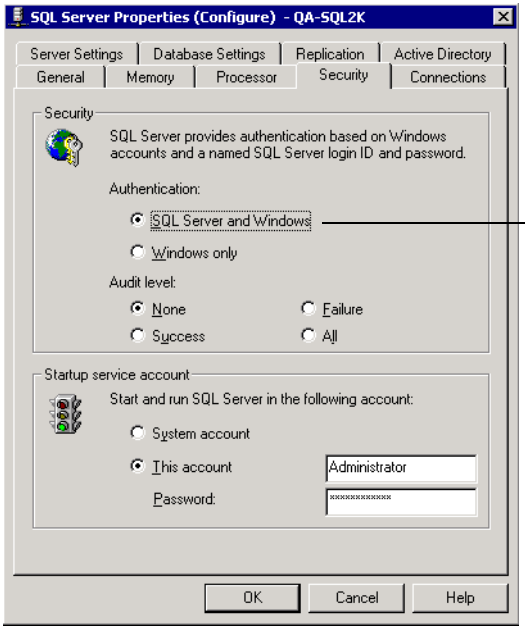
Setting security authentication

After you create the Security Login name, verify that your server has Security set to SQL Server and Windows authentication.

To set security authentication:

1 From the SLQ Server Enterprise Manager, scroll to your server and right-click.

2 Select **Properties** to open the SQL Server (Configure) dialog box.



Verify that you select the SQL Server and Windows option.

3 Click the **Security** tab and select **SQL Server and Windows**.

4 Click **OK**.

Install the database client on each server machine

Make sure that the database client you intend to use is installed on each server machine. BI Portal supports the Oracle, DB2 for Windows, and SQL Server 2000 databases.

If your database is Oracle, perform the steps in the following section. If your database is DB2 or SQL Server, perform the steps in the section *Create a DSN name on client machines for SQL Server database* on page 30.

Create a TNS name for Oracle database server

You need to create a TNS name for the Oracle database server. To do so, perform these steps:

1. Open the Oracle Net Configuration Assistant.
2. Choose Local Net Service Name Configuration.
3. Create a TNS name BI_REPO.

Create a DSN name on client machines for SQL Server database

On each server machine where a database client resides, you need to create a DSN name in the ODBC Data Sources Administrator for DB2 and SQL Server databases. To do so, perform these steps:

1. Click **Start** > **Settings** > **Control Panel**. Double-click **Administrative Tools**.
2. Double-click **Data Sources**.
3. Add the DSN name BI_REPO in the System DSN tab. Choose the ODBC driver that is appropriate for your database, either DB2 or SQL Server.
4. Click **Finish**.
5. Type **bi-repo** in the Name field.
6. Select the SQL Server name you are using. Click **Next**.
7. Click SQL Server Authentication and type **bi-repo** and **password** in the appropriate login information fields. Click **Next**.
8. Click the **Default Database** box and ensure that "bi-repo" is displayed in the field. Click **Next**.
9. Click **Finish**. Then click **Test Data Source** to test the connection.
10. Repeat step 2 through step 9 to create a DSN name "RDS" for the rds database. Enter the name **RDS** (instead of "bi-repo") and **passw0rd** (instead of "password").

If you are using SQL Server, you register the SQL Server client.

To register a SQL Server client

1. On the server machine where SQL Server is installed click **Programs** > **Microsoft SQL Server** > **Enterprise Manager**.
2. Right-click the **SQL Server** group and click **New SQL Server Registration** to start the registration wizard. Click **Next**.
3. Select the SQL Server host name from the list and click **Add**. Click **Next**.
4. Choose the second option and click **Next**.
5. Enter a name and password for a user who can log onto SQL Server and click **Next**.

6 Choose the default option, **Add the SQL Server to an existing SQL Server group**. Click **Next**.

7 Click **Finish** and then click **Close**.

Create a database alias on client machines for DB2 databases

The next step in configuring DB2 to function with BI Portal is to create an alias for the DB2 databases.

To create a DB2 alias:

1 Open the DB2 Client Configuration Assistant.

2 Click the **Add** button to add a database alias.

3 Find the BI_REPO database.

4 Enter the database alias **bi_repo**.

5 Click "**Register this database for ODBC**" box.

6 Click **Finish**.

7 Click the **Test** button to check the connection to the database.

8 Repeat step 2 through step 7 for the RDS database.

Create a Windows user named BO_User

On each server machine on which a BI Portal component will be installed, create a local user account, BO_User, who has rights to: Log on as a service and Act as part of the operating system. Make sure to write down the User name (BO_User) and password (passw0rd) for later use, in the section *Configuring Business Objects for BI Portal* on page 40.

Note: After you create BO_User on each server machine, log in to each server machine as BO_User before installing Business Intelligence.

To set up a user BO_User:

1 On the Desktop right-click **My Computer** and click **Manage** on the menu.

2 Open the **System Tools** folder and click **Local Users and Groups**.

3 Right-click the **Users** folder and click **New User** on the menu.

4 Type **BO_User** in the **User name** field.

5 Type **passw0rd** in the **Password** and **Confirm password** fields. (The sixth character in **passw0rd** is the number zero.)

6. Make sure to un-check the box **User must change password at next login**.
7. Check the box **Password never expires**.
8. Click **Create**.
9. Click **Groups**. Double-click the **Administrators** group.
10. Add **BO_User** to the list of administrators.
11. Click **Close**.
12. Close the Computer Management Console.

To assign rights to BO_User:

1. Click **Start** > **Programs** > **Administrative Tools** > **Local Security Policy**.
2. Click **Local Policies**.
3. Click **User Rights Assignment**.
4. In the Local Security Settings window double-click **Act as part of the operating system**.
5. In the **Local security policy setting** window click **Add**.
6. In the **Select Users or Groups** window choose **BO_User** from the list of users and click **Add**. Click **OK twice**.
7. In the **Local Security Settings** window double-click **Log on as a service**.
8. In the **Local Security Policy Setting** window click **Add**.
9. Click **BO_User** in the list of users and click **Add**. Click **OK** twice.
10. Close the Local Security Policies window.
11. Repeat all the steps in the section *Create a Windows user named BO_User* on each server machine where any BI Portal component is installed.
12. After you have completed all the steps, re-boot the system for your changes to take effect.

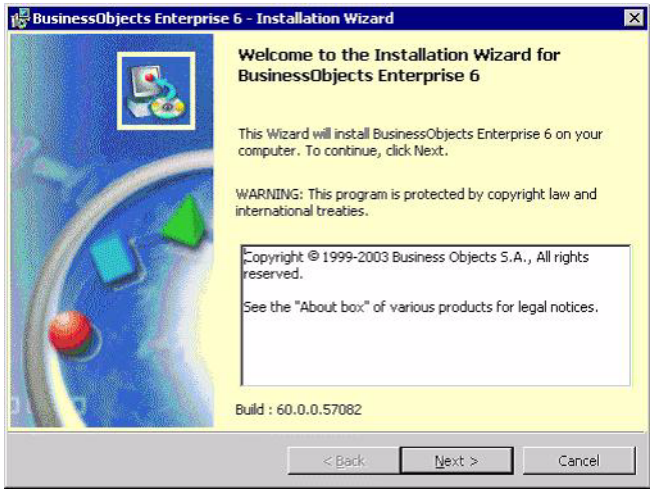
Install Business Objects and configure it for BI Portal

Before you can install BI Portal, you install Business Objects and configure it.

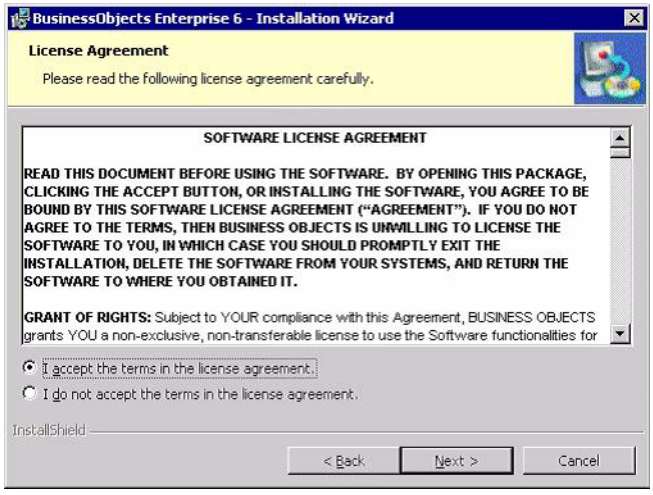
To install Business Objects:

1 Insert the Business Objects CD into the CDROM drive on the server machine where you want to install Business Objects.

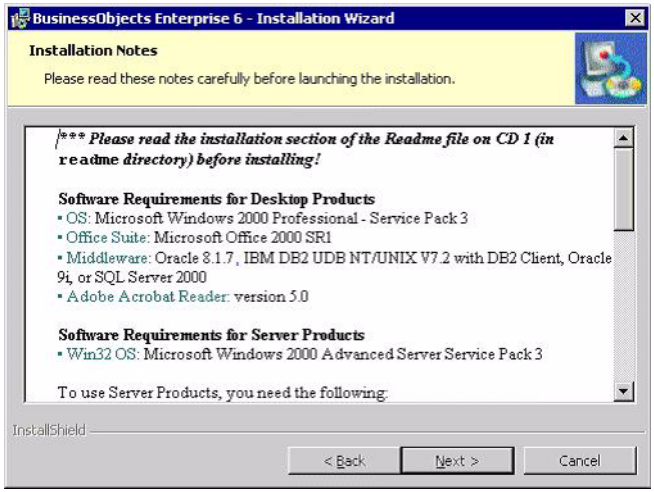
2 The Business Objects installer starts.



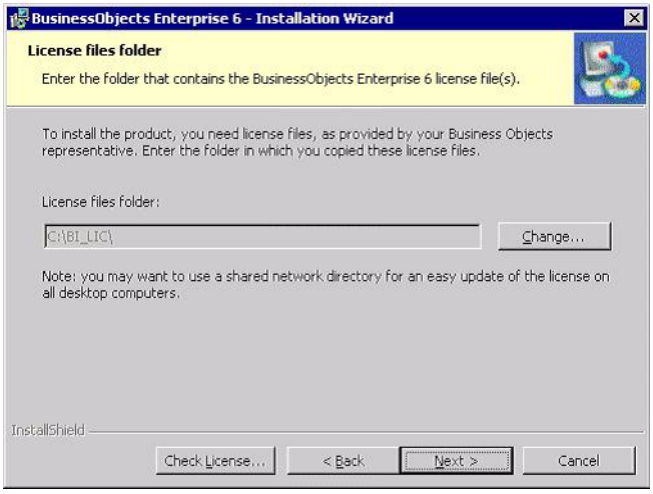
3 Click **I accept the terms in the license agreement.** and click **Next**.



4 Read the installation notes and click **Next**.

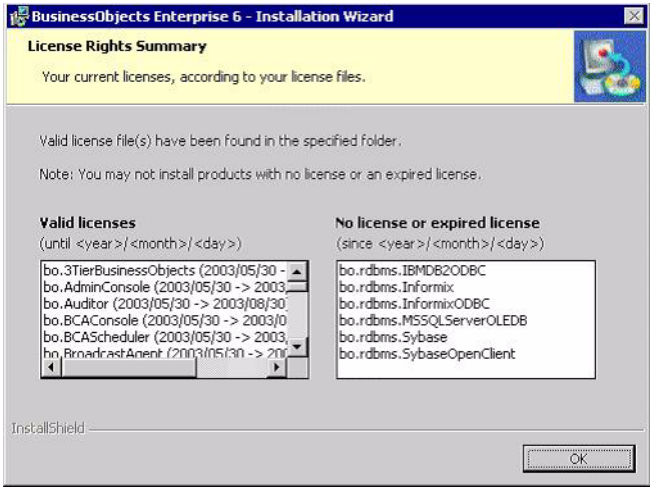


5 Specify the folder where your Business Objects license files reside and click **Next**.

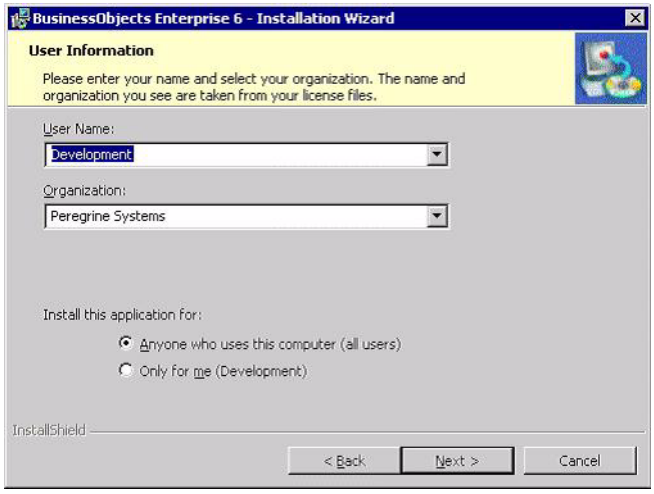


Note: When you purchase BI Portal, you purchase a license to use Business Objects as well. Peregrine Systems send you an e-mail file that contains your Business Objects license keys. You can store this file store wherever you like (but make sure to note its location!). When prompted by the following screen, you specify the location of this license file.

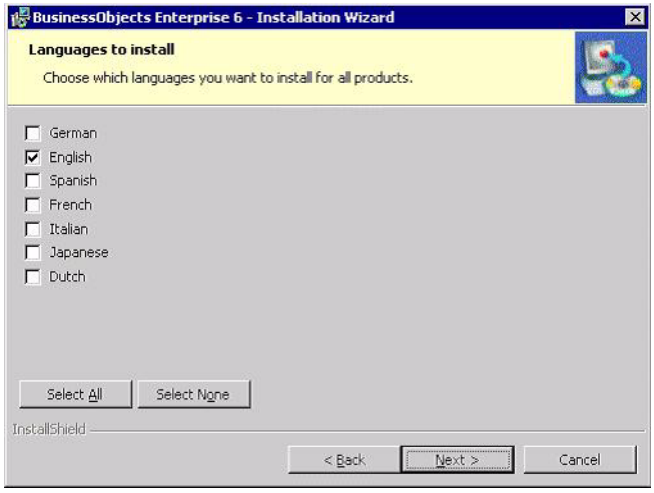
6 Click the **Check License** button. Verify that your licenses appear in the Valid Licenses column, click **OK**, and click **Next**.



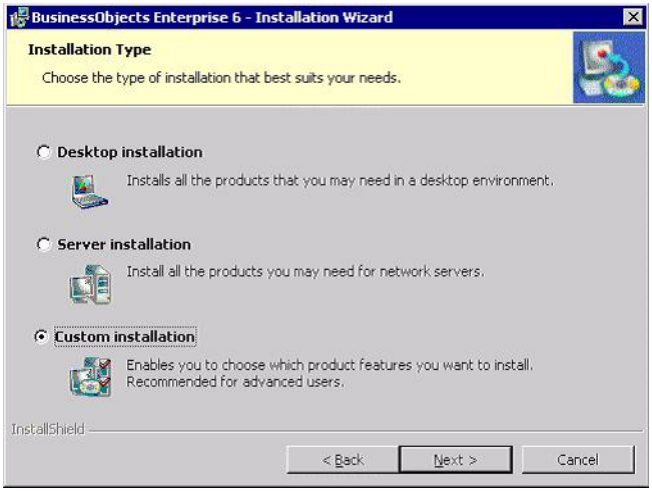
7 Enter your user name and company name and click **Next**.



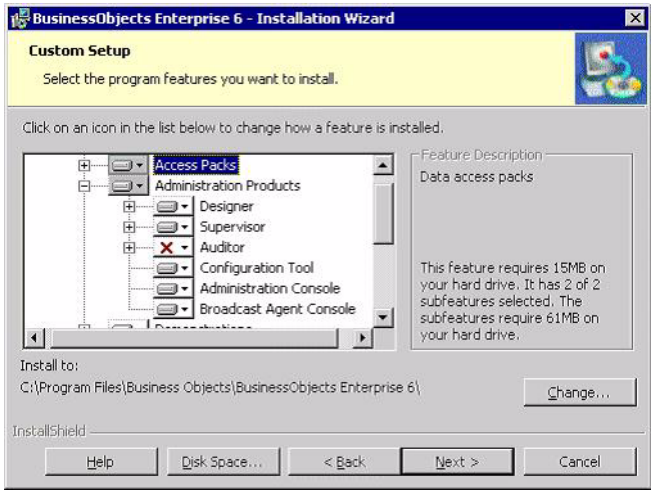
8 Specify that the English language Business Objects be installed and click **Next**.



9 Choose the **Custom** installation option. Click **Next**.

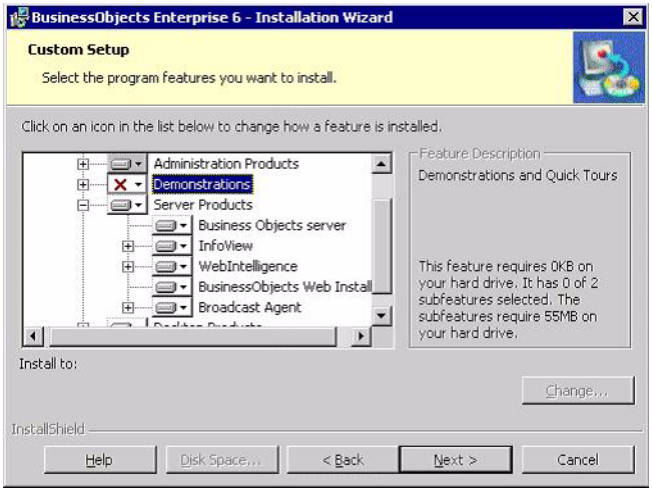


10 In the Custom Setup screen, navigate to **Administration Products**. Click **Auditor** and select **This feature will not be available.**

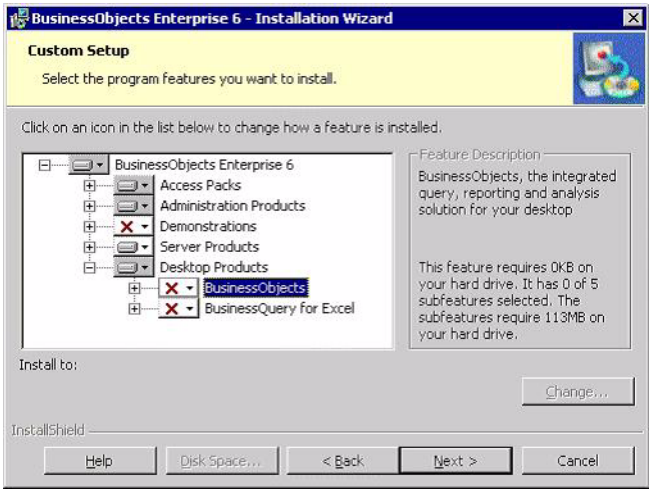


Note: The Custom Setup screen may not appear exactly as shown because the Business Objects license you buy may offer different components.

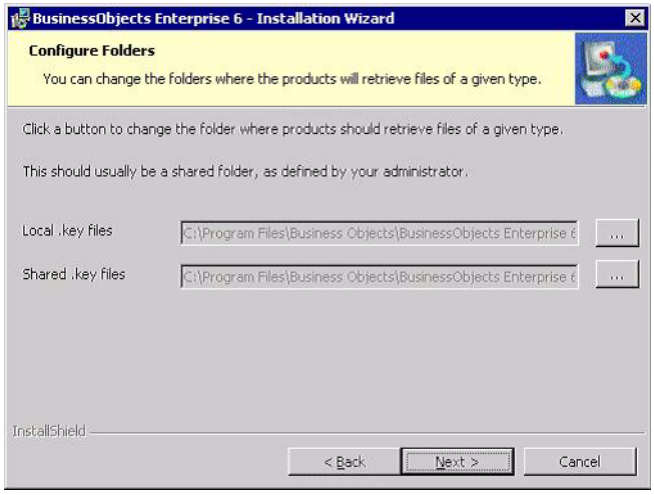
11 In the Custom Setup screen navigate to **Demonstrations.** Select **This feature will not be available.**



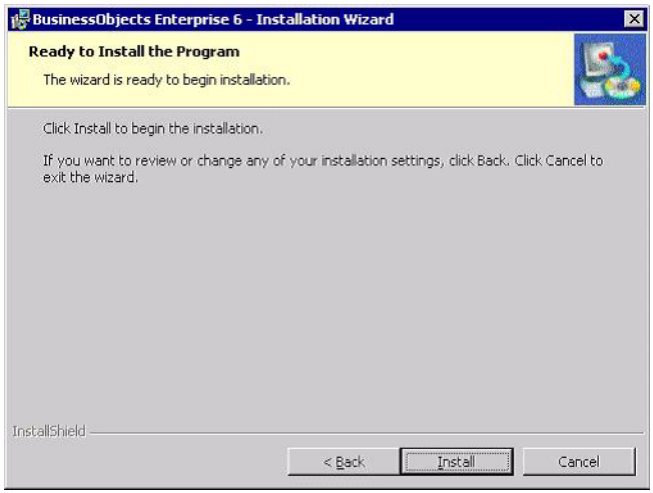
12 In the Custom Setup screen navigate to **Desktop Products.** Select **This feature will not be available.** Click **Next**.



13 In the Configure Folders screen accept the default values and click **Next**.

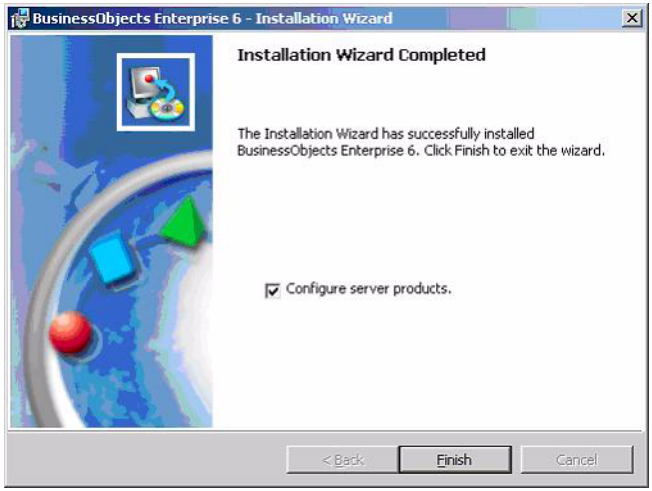


14 In the Ready to Install the Program screen click **Install**.

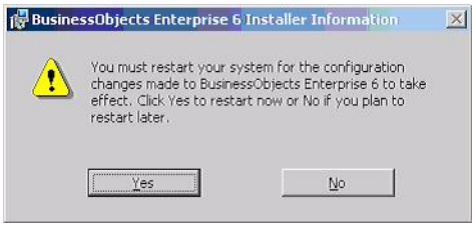


15 When prompted to install Disk 2, insert it in the CDROM drive and click **OK**.

16 When the installation is complete, make sure that **Configure server products** is selected, and click **Finish**.



17 The installer asks whether you want to re-start your server machine now. Click **No**. (You will re-start your server machine later, after you configure Business Objects for BI Portal.)



Configuring Business Objects for BI Portal

After you install Business Objects, you configure it to function with BI Portal. Make sure that you are logged on as user BO_User. (You created BO_User in the section *Create a Windows user named BO_User* on page 31.)

To configure Business Objects:

Note: If you stop the configuration at any time, you need to delete the cluster and start from step 1.

1 In Windows click **Start** > **Programs** > **Business Objects** > **Configuration tool**.

2 Choose **Custom**.

3 Create a cluster with any name you choose. Click **Next**.

4 Set up ORB:

- **a** For your first configuration select **ORB**, choose **DEFINE ORB** from the drop-down, and click **Next**. Proceed to step 5.
- **b** If you have configured ORB previously, select **ORB**, choose **Update ORB** from the drop-down, and click **Next**.

5 You should not need to modify settings. Simply click **Test Ports** and verify that ports are available. If not, make modifications as needed. Click **Next**.

6 After the ORB is configured, perform the following steps in the service configuration screen that is displayed:

- **a** Select **Define node as a service** and **Start automatically**.
- **b** Type user information that you used to create BO_USER, where the Domain is the name of the computer. Refer to the section *Create a Windows user named BO_User* on page 31.

c Click **Next.** A message is displayed that indicates the service parameters have been configured successfully.

d Click **Finish.**

7 Re-start your server machine so that your settings will take effect.

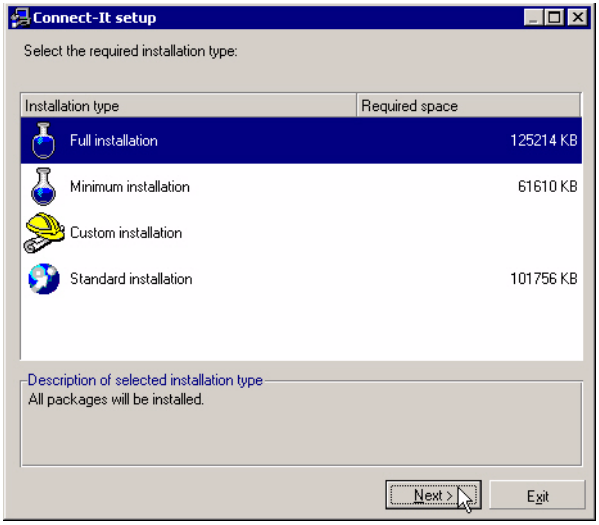
Install Connect-It

Before you install BI Portal. Follow these steps:

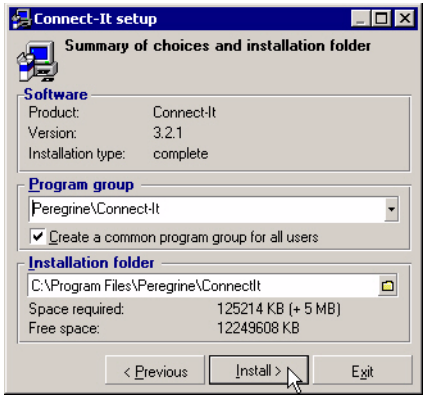
1 Insert the Connect-It CD into the CD ROM on the same server machine where you intend to install RDS. If the Connect-It installer does not start automatically, click Start > Run and enter the following: *<CDROM drive>*:\setup.exe.

2 The Connect-It installer informs you that it is best to close all open applications while installing Connect-It. You can close applications from the Windows Task Bar. After you close all applications, click **Continue**.

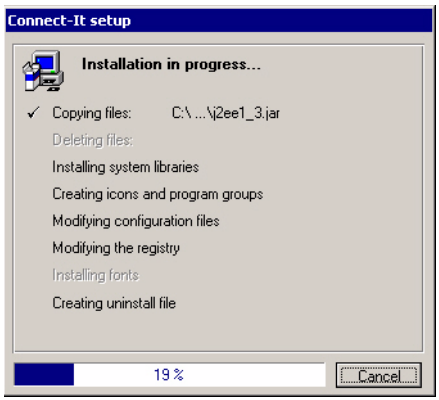
3 Choose the **Full installation** option in the Connect-It setup screen and click **Next**.



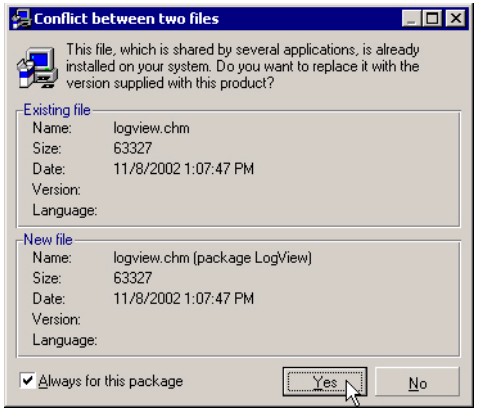
4 The Connect-It installer confirms the Program group (where you will click on the Windows Start menu to open Connect-It), and the folder where Connect-It will be installed. Click **Install**.



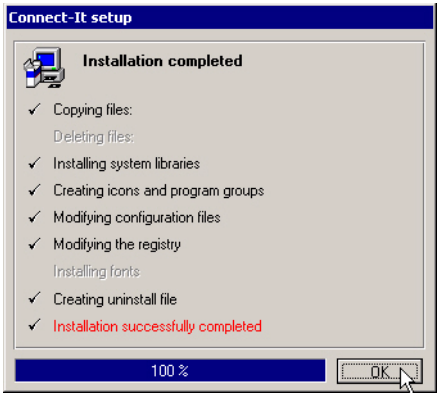
5 The Connect-It setup screen displays the progress of the installation process.



6 If there is an existing log file, the installer asks you whether you want to replace it with a new version. Click **Yes**. (Click **No** only if you would lose important data if the log file were replaced.)



7 The following screen indicates that Connect-It was installed successfully. Click **OK**.



8 Peregrine Customer Support provides a text file that contains an authorization code for the Connect-It database connector when you purchase BI Portal. Copy the file into a directory such as `C:\Program Files\Peregrine\Connect-It`, and note its location. When you install the RDS component of BI Portal, you specify the location of this file.

9 Click **Exit** to close the Connect-It installer.

Check ServiceCenter installation

Before you install BI Portal in any configuration, make sure that ServiceCenter is installed; and note the ServiceCenter server's host name or IP address, and its port number. After you install RDS, you will be prompted to run the Connect-It Service Console and configure the RDS scenario.

Note: For information about running the RDS Service Console, see *Chapter 6, Configuring Software Components*.

To check whether ServiceCenter is installed:

1 On the Windows desktop of the ServiceCenter server click **My Computer**.

2 Click the root drive (usually drive C)

3 Navigate to **Program Files** > **Peregrine**.

If Service Center is installed, a subdirectory such as `ServiceCenter2` is included in the list of files and folders.

CHAPTER 3 Installing on Windows

When you install BI Portal and choose the default application server, Tomcat, and default Web server, Apache, and you install all BI Portal components in C:\Program Files, you perform a *typical* installation. See the sections *Performing a typical, single-machine installation* on page 49 and *Installation on multiple machines* on page 89.

Whenever you use a different application server or Web server, or install any BI Portal components in a folder other than C:\Program Files, you perform a *custom* installation. For more information about performing a custom installation, see *Custom installation of BI Portal* on page 93.

Note: There are two versions of the BI Portal client: Windows and UNIX. This chapter discusses the steps you take to install the Windows version of the BI Portal client. To install the UNIX version of the BI Portal client, perform all the steps in this chapter up to the section *Installing the Web-based interface of BI Portal* on page 89 and then go to *Chapter 4, Installing on UNIX*.

Installation configurations

This chapter includes instructions for performing a typical BI Portal installation in one of the following configurations:

- All components on one server machine
- Components on two server machines
- Components on three server machines

Topics include:

Important: Before you install BI Portal, make sure to prepare for the installation process by performing the steps described in the section *Software installation and configuration requirements* on page 18.

Typical versus Custom installation

A typical BI Portal installation uses the Apache Web server and the Tomcat application server. Further, in a typical installation *all BI Portal components* are installed in the `C:\Program Files` directories of one or more server machines.

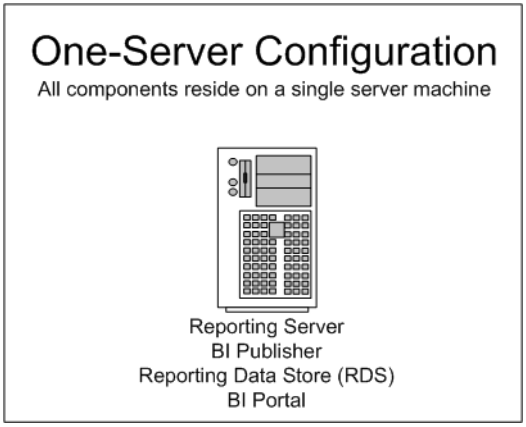
If you wish to use another Web server, another application server, or install in a different folder, perform a custom installation. See the section *Custom installation of BI Portal* on page 93.

BI Portal configuration scenarios

You can install all the BI Portal components on one server machine; or you can install BI Portal components on two, or three server machines. The following diagrams depict the various configuration scenarios.

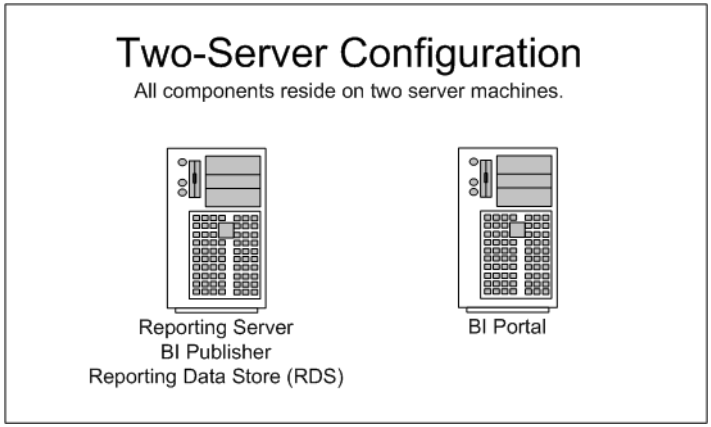
One-server configuration

In this configuration, all BI Portal components are installed on one server machine, in addition to Connect-It and Business Objects:



Two-server configuration (recommended)

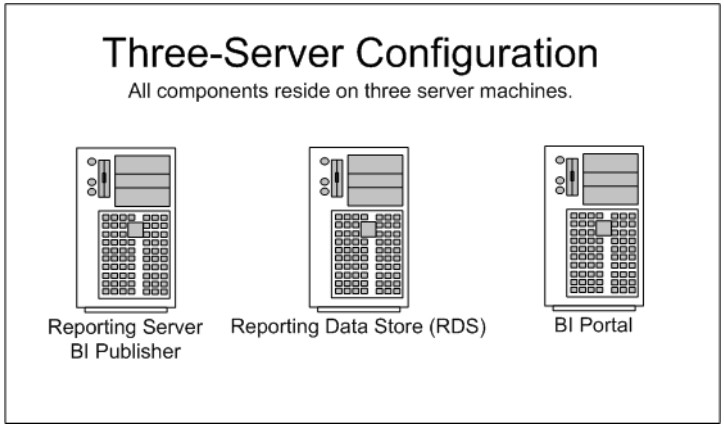
In this configuration, the Reporting Server, BI Publisher, and the Reporting Data Store (RDS) are installed on one server machine; and the Web-based BI Portal client is installed on a second server machine:



Note: The Reporting Server must be installed on the same server machine on which Business Objects is installed. Further, Connect-It must be installed on the same server machine on which RDS is installed.

Three-server configuration

In this configuration, the Reporting Server, and BI Publisher are installed on one server machine; the RDS is installed on a second server machine; and the BI Portal Web-based client is installed on a third server machine:



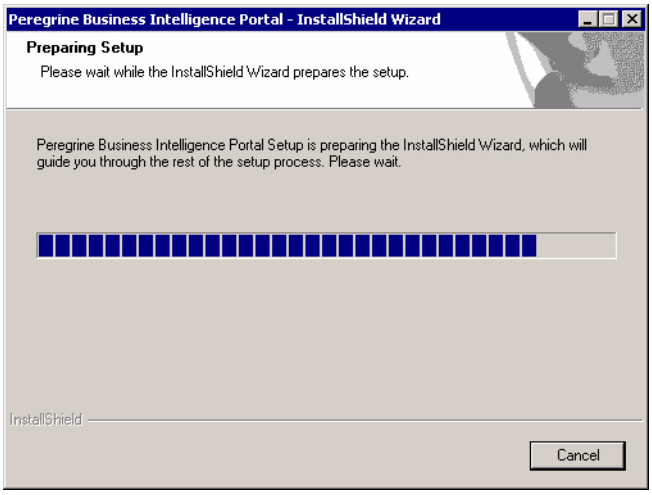
Note: The Reporting Server must be installed on the same server machine on which Business Objects is installed. Further, Connect-It must be installed on the same server machine on which RDS is installed.

Performing a typical, single-machine installation

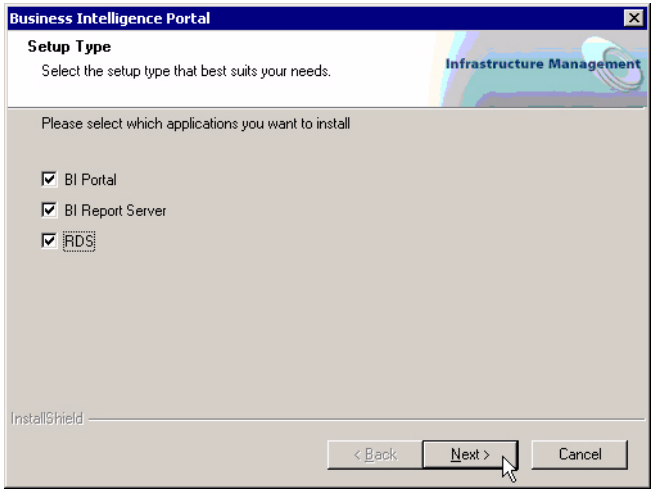
To perform a typical installation where *all* BI Portal components are installed on one server machine, in C:\Program Files, follow these steps:

1 To start the BI Portal installation process insert the BI Portal CD into your CDROM drive. If the setup program fails to start, click Start > Run > and enter *<CDROM_Drive>*:\setup.

The following screen indicates that the installation procedure has begun:

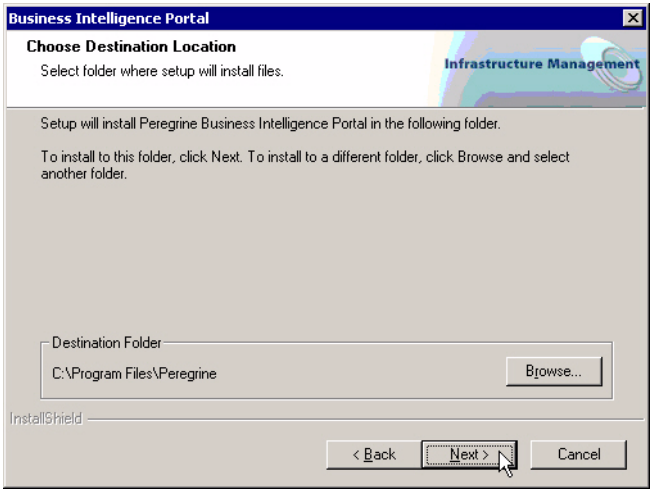


2 Click all three check boxes, **BI Portal**, **BI Report Server**, and **RDS**. This specifies that all BI Portal components be installed on this server machine during this installation process.



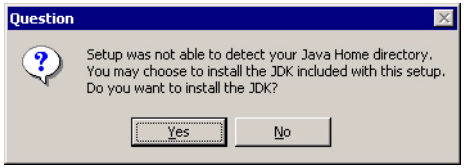
Note: When you install BI Portal on multiple server machines, you run the installer separately on each server machine and select only those components you want to install on that server machine. See the section *Installation on multiple machines* on page 89.

3 Choose a destination location where you want BI Portal to be installed. The default directory location is C:\Program Files\Peregrine. Click **Next**.

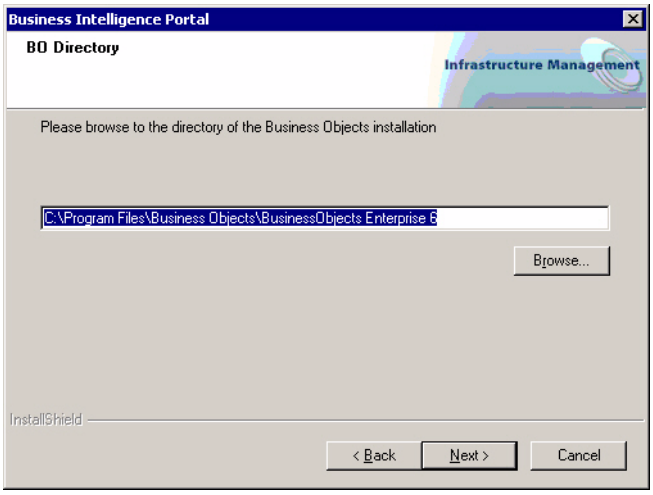


Note: If you prefer to install *any* BI Portal components in another folder, you perform a custom installation. See the section *Custom installation of BI Portal* on page 93.

4 If the installer cannot locate the Java SDK version 1.3 or greater, or WebSphere version 4.0, on your server machine, the following message box asks you to confirm that you want the JDK installed. Click **Yes**.

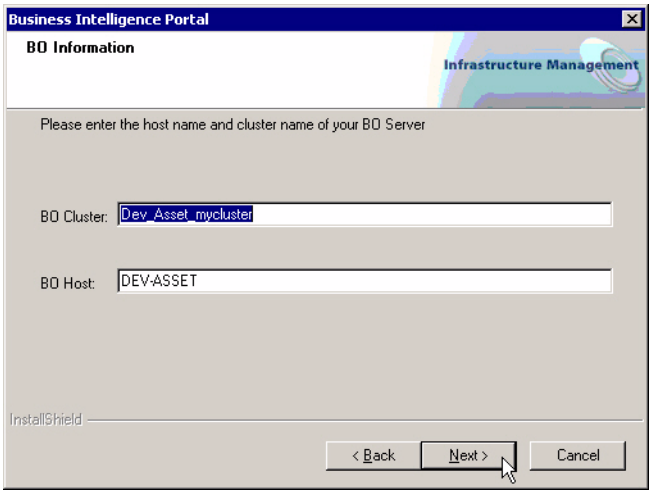


5 The installer locates the directory where Business Objects is installed, and prompts you to confirm that the location is correct. Click **Next**.

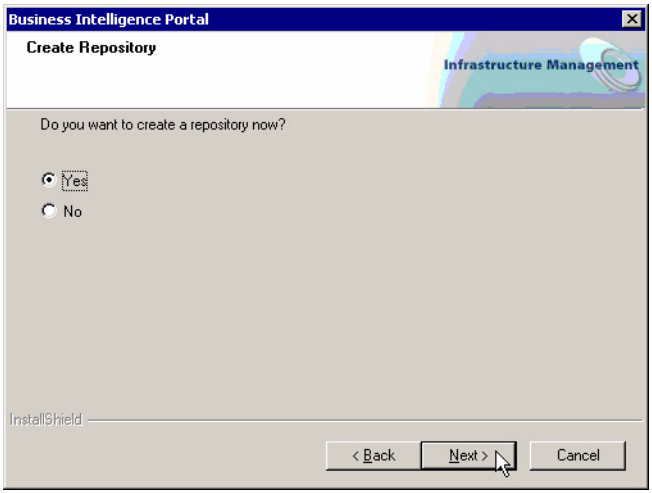


Note: If for some reason you changed the directory, click **Browse** and locate the directory in which Business Objects is installed. Then click **Next**.

6 The installer determines the host name and cluster name of your Business Objects server. Click **Next**.



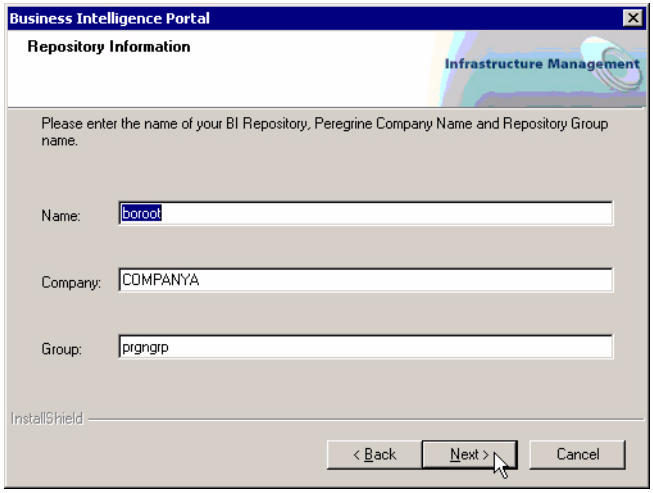
7 The installer prompts you to confirm that you want to create a Business Objects Repository. Choose the default, **Yes**, and click **Next.**



Note: Click **No** *only* if you have previously created a Business Objects Repository. In that case, you will enter information about your existing Business Objects Repository in the next step.

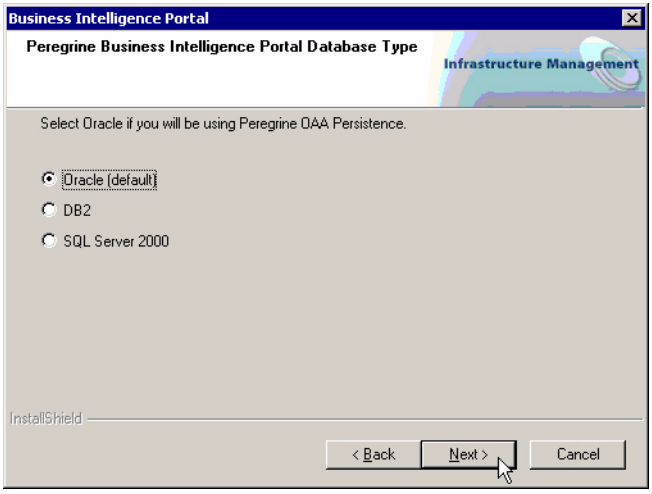
8 In the Repository Information screen you enter the name of the Business Objects Repository, the name of your company, and the name of the Repository group. (The Business Objects Repository is an RDBMS that contains the Business Objects Security, Document, and Universe domains; and stores all data sets and documents.)

Accept the default values and click **Next**.

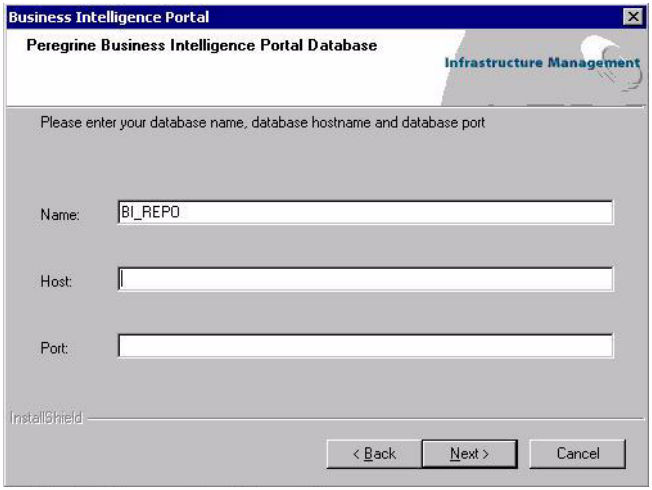


Note: The Company must be in uppercase letters.

9 Specify the type of database you will use for the Business Objects Repository, either **Oracle (default)**, **DB2**, or **SQL Server**. Click **Next**.

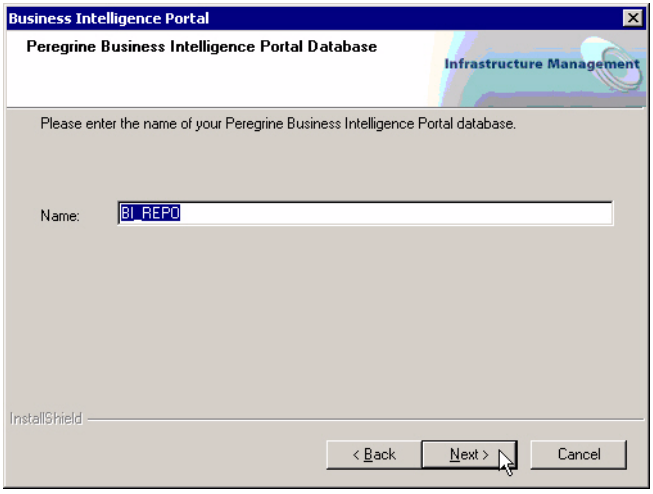


10 Specify the database name **BI_REPO**, the host name, and the port number. Click **Next**.

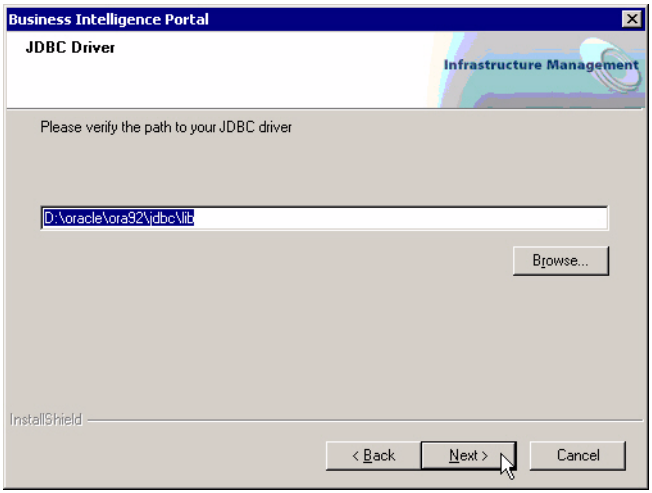


Note: This screen may not be displayed or may vary depending on the type of database you are using.

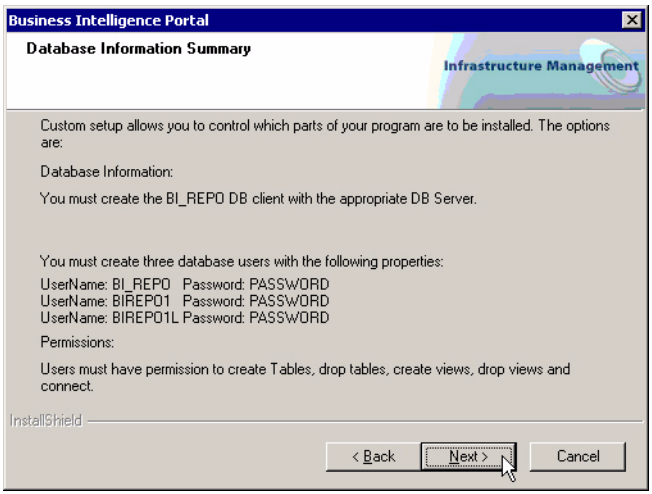
11 Specify a name for the Business Objects Repository. Accept the default value, BI_REPO, and click **Next**.



12 The installer locates the JDBC driver that will be used with the Business Objects Repository, based on the database type you chose. If for some reason you need to specify another driver, click **Browse**, locate the driver, and click **OK**. Click **Next**.

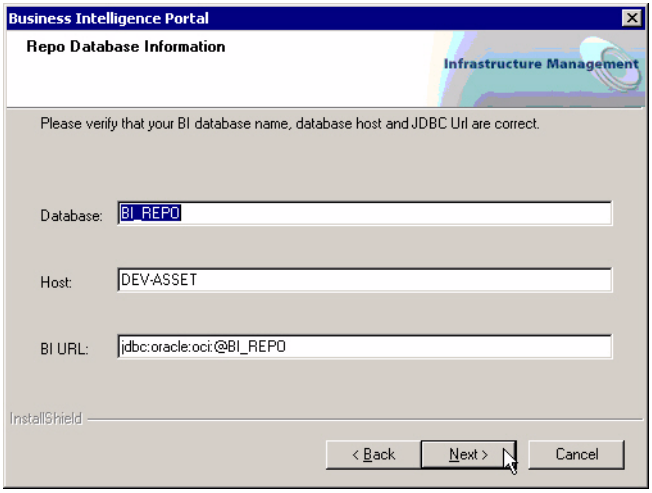


13 The installer informs you that you must have created three database users in order to use BI Portal, names BI_REPO, BIREPO1, and BIREPO1L. Each user must have permission to create and drop tables and views, and to connect. Click **Next**.

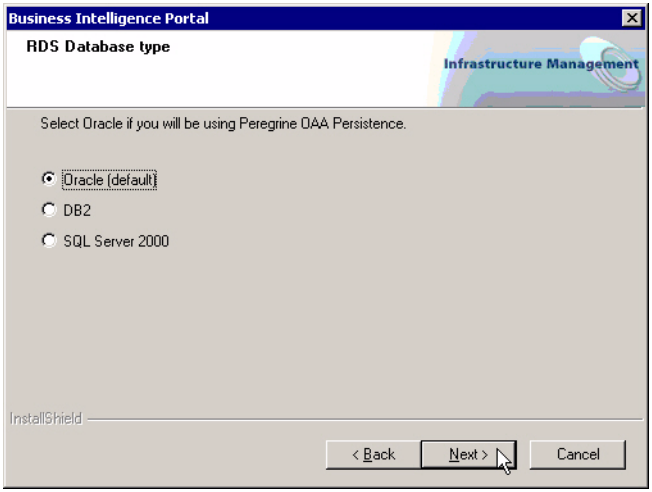


Note: You add these users to your database separately from this installer, *before* you begin the installation process. For more information see the section *Software installation and configuration requirements* on page 18.

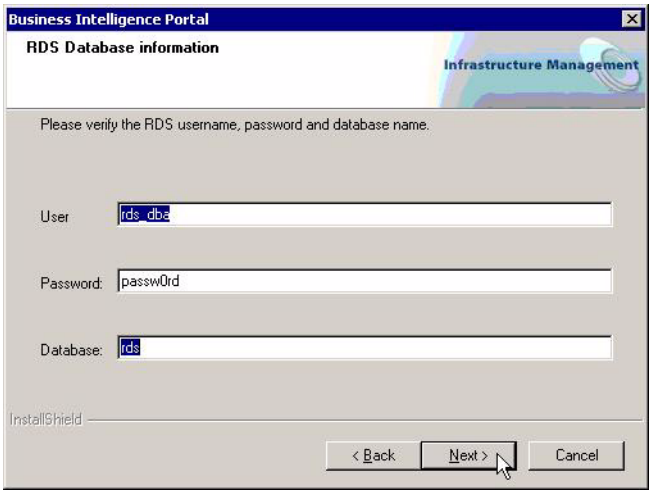
14 Confirm that the name of the Business Intelligence database name, database host name, and the URL to the JDBC driver are correct. Click **Next**.



15 Specify the type of database you will use for the Reporting Data Store (RDS). Click either **Oracle (default)**, **DB2**, or **SQL Server 2000**, and then click **Next**.

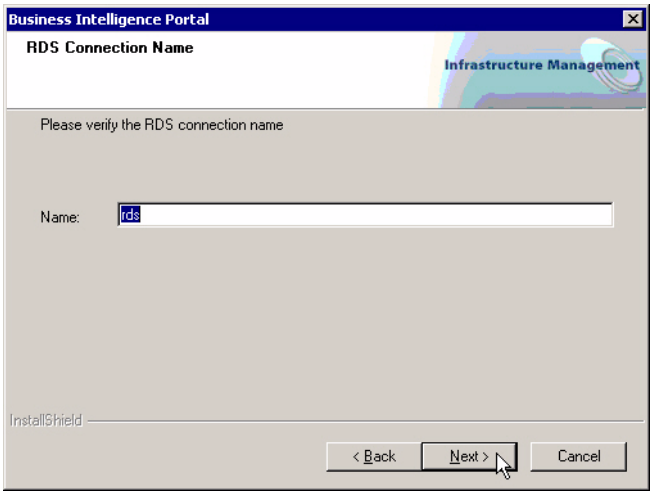


16 Verify the RDS user name, password, and database name. Click **Next**.

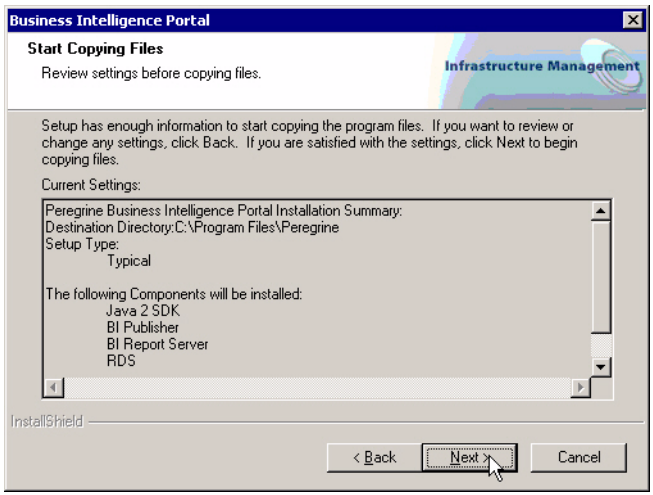


17 Accept the default name of the connection to the RDS and click **Next**.

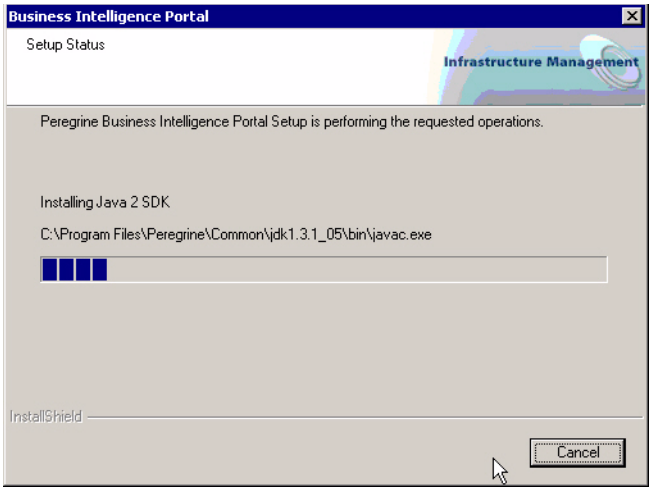
Note: Do not change the name of the connection to the RDS.



18 The installer displays all the information that it has gathered for the installation. Click **Next**.

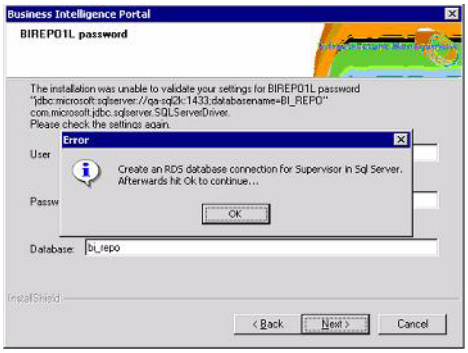


19 The Setup Status screen displays the progress of the BI Portal installation process.



The installer edits configuration files; validates connections; initializes and configures the database; starts the WebIntelligence Cluster service; and configures Business Objects server connections.

20 If you are installing BI Portal with DB2 or SQL Server, the installer displays the following screen.

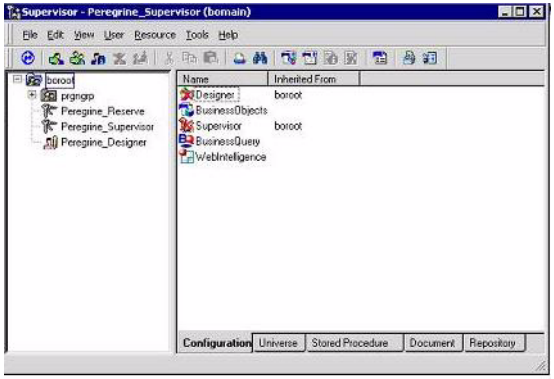


Note: If you are installing BI Portal with Oracle, this screen is not displayed; go directly to step 21 on page 62.

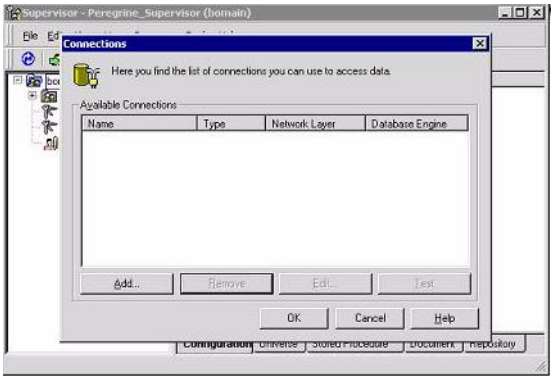
Before you click **OK** in the BI Portal installer, perform these steps to configure an ODBC database driver in Business Objects:

a In Windows, click **Start** > **Programs** > **Business Objects** > **Supervisor 6.0**.

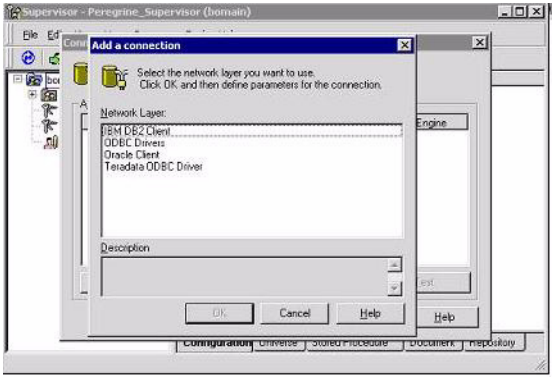
b Log in to the Business Objects Supervisor. Type **Peregrine_Supervisor** in the User field and enter **pass** (lower-case) as the password. Business Objects displays the following screen, where you click **Tools** > **Connections**.



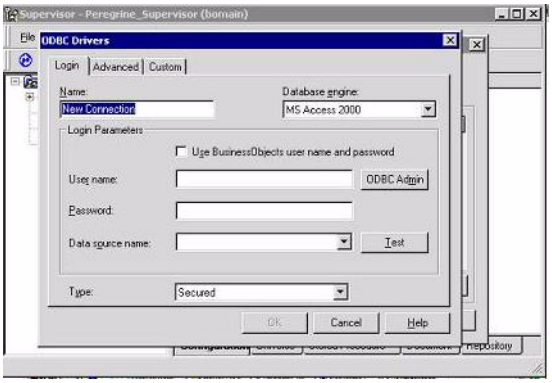
c In the following screen click **Add**.



d In the following screen click **ODBC Drivers** (if you are using SQL Server) or **IBM DB2 Client** (if you are using DB2) and click **OK**.



e In the following screen specify the following information, *exactly* as shown:

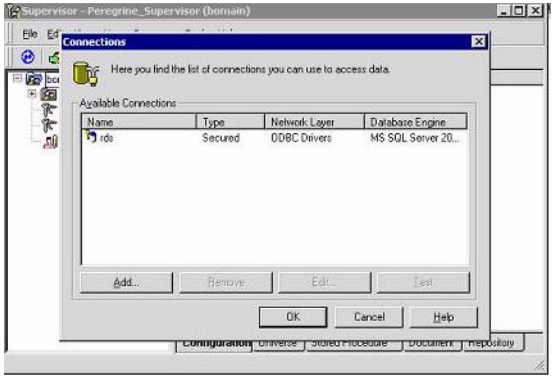


- In the Name field type **rds**.
- In the Database engine pull-down choose **MS SQL Server 2000** (if you are using SQL Server) or **DB2 Engine** (if you are using DB2).
- In the User name field type **rds_dba** (the user you already created on your SQL Server machine for the RDS database).
- In the Password field type **passw0rd** (where the sixth character is the number zero, not the letter "O").
- In the Data source name pull-down choose **rds**.

f Click the **Test** button to ensure that the database connection has been successfully established.

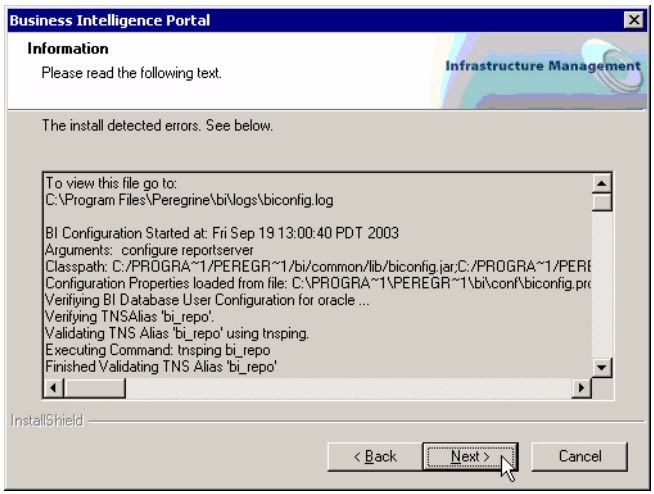
g Click **OK**.

h Click **OK** in the following screen:



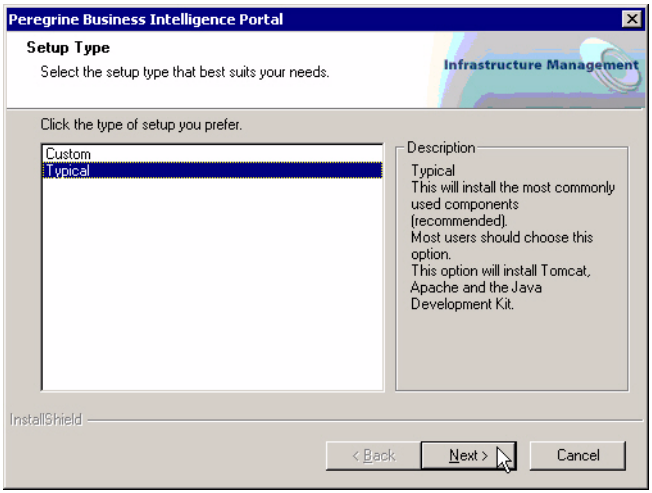
i Exit from the Business Objects Supervisor and continue with the BI Portal installer in the next step.

21 If the installer encountered any errors it displays them now. You can view all the errors in the log file at **C:\Program Files\Peregrine\bi\logs\biconfig.log**. Correct any problems that might have occurred; click the **Back** button so that the installer can verify the corrected information; and then click **Next** to continue.



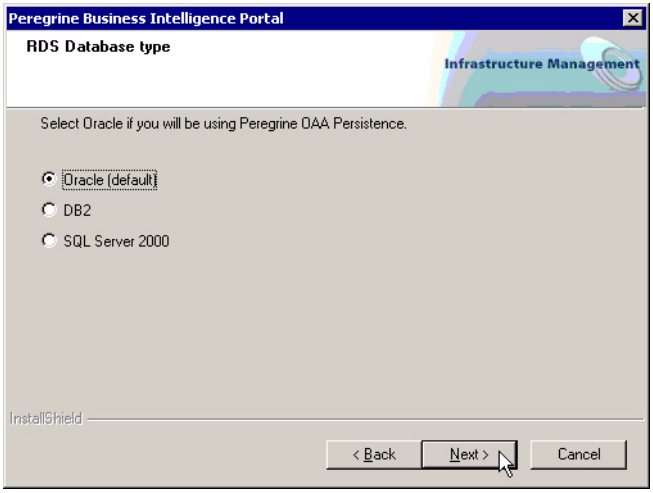
At this point the installer stops the WebIntelligence Cluster service, configures connections to servers and launches that portion of the BI Portal installer that installs the user interface.

22 When prompted, choose the **Typical** install type and click **Next**.

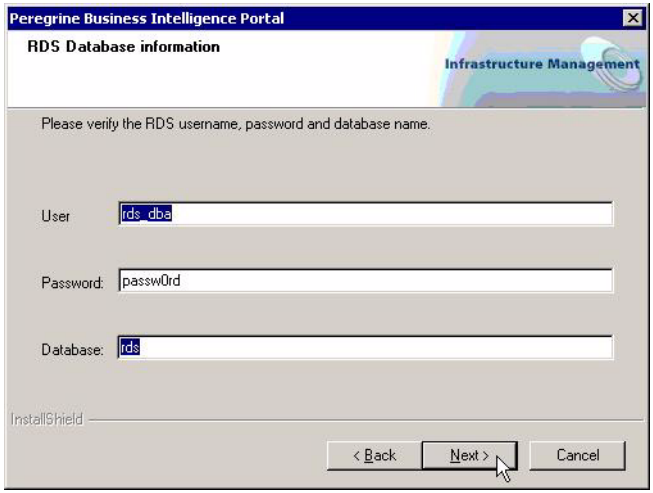


Note: If you are installing on any drive other than the default drive (normally drive C:\Program Files\Peregrine), choose the **Custom** install. Choose the **Typical** install *only* if installing in C:\Program Files\Peregrine.

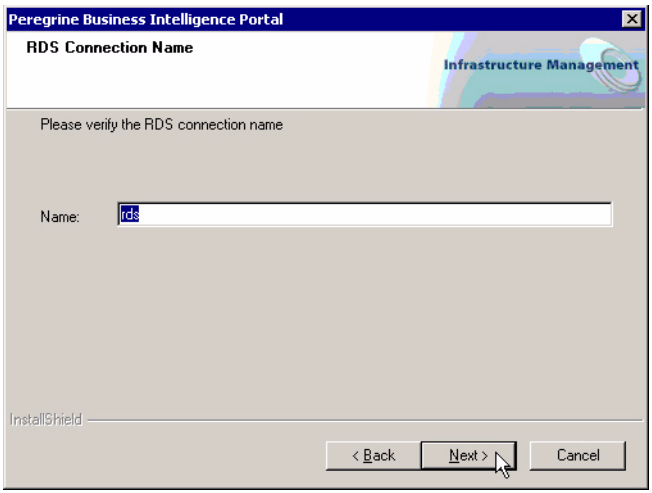
23 Choose the type of database that BI Portal will use, either **Oracle (default)**, **DB2**, or **SQL Server**. Then click **Next**.



24 Verify the database user name, password, and database name. (This is the same information you confirmed in step 16.) Then click **Next**.

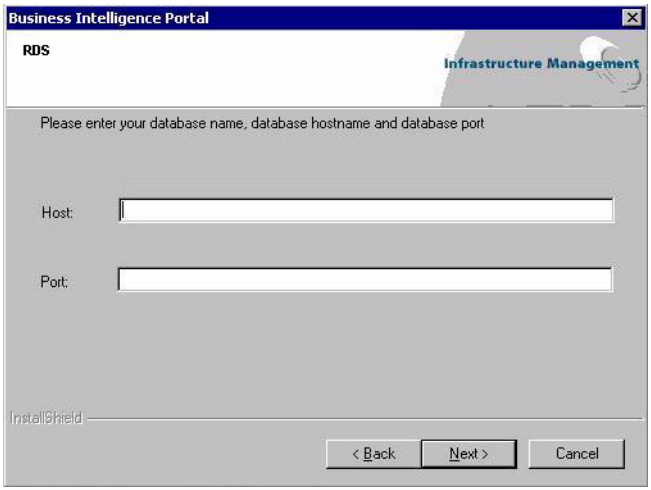


25 The installer prompts you to verify the name of the connection to the RDS database. (This is the same RDS connection name you confirmed in step 17.) Click **Next**.

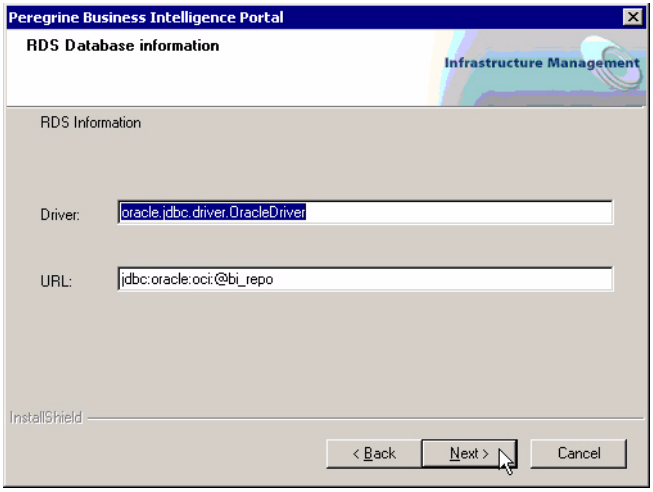


26 **Note:** Perform this step *only* when installing BI Portal on multiple machines.

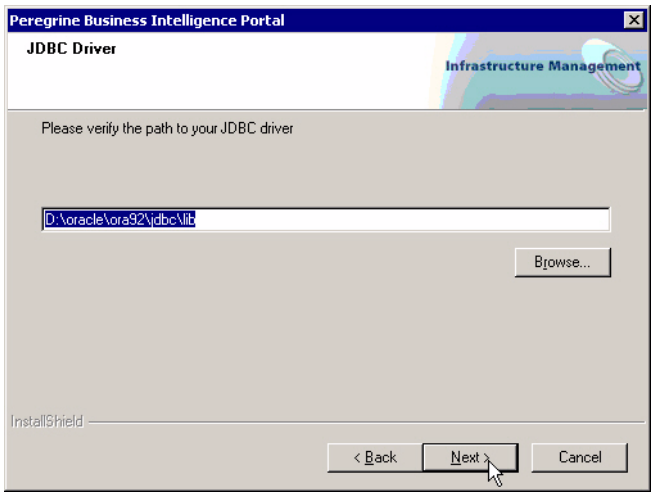
Specify the host name and the port number of the server machine where the RDS database is installed. Click **Next**.



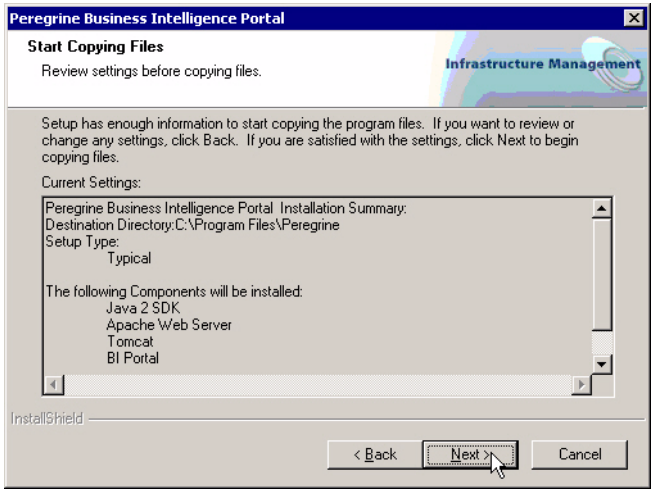
27 Verify the name of the database driver and the URL that points to it. Click **Next**.



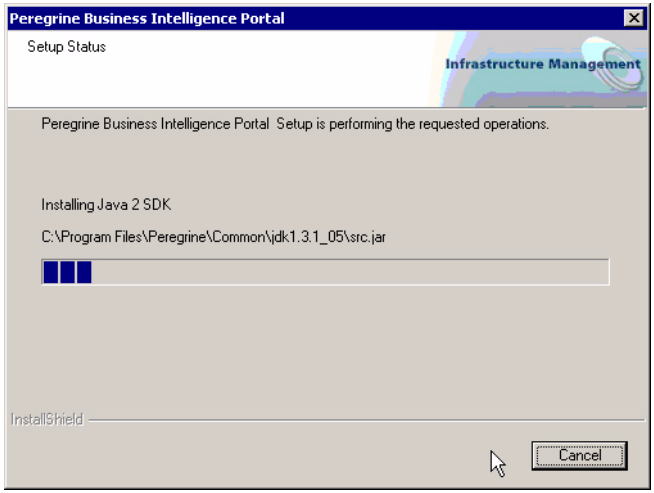
28 Verify the path to the database driver. (This is the same information you confirmed in step 12.) Click **Next**.



29 The installer displays all the information that it has gathered for the installation of the OAA packages that BI Portal uses. Verify that the information is correct. Click **Next**.

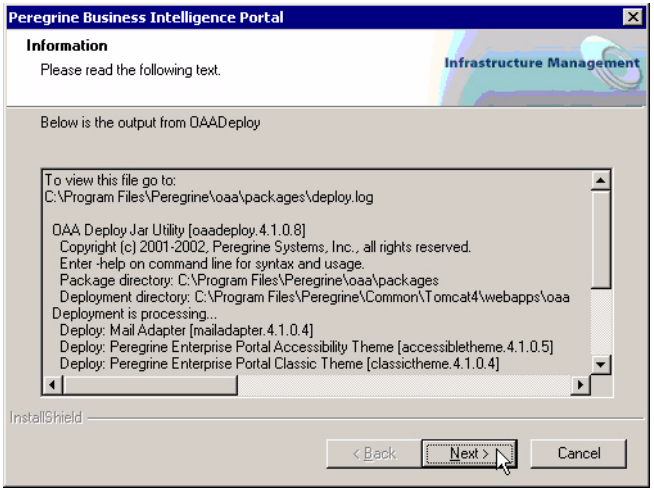


30 The Setup Status screen displays the progress of the installation process.



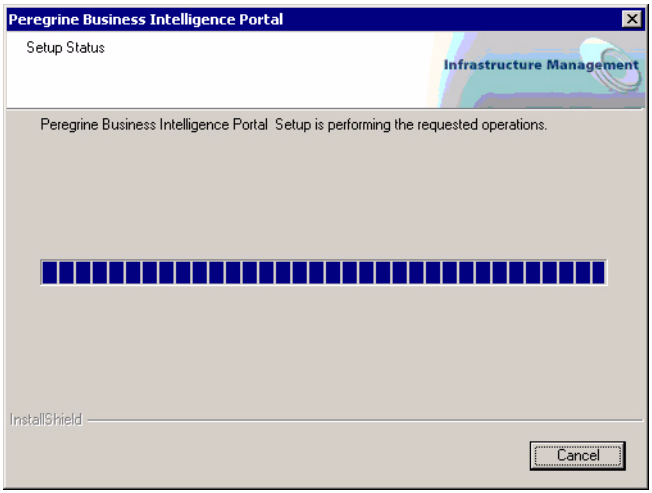
The BI Portal installer deploys packages.

31 The BI Portal installer displays the output of the deployment of OAA packages. Click **Next**.

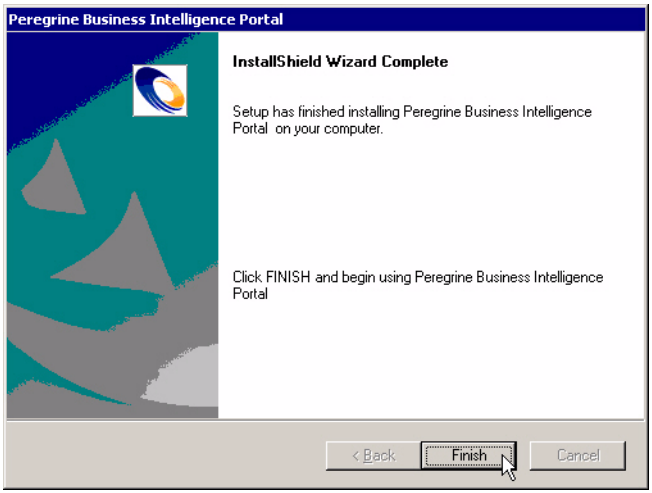


The BI Portal installer installs the Tomcat application server and configures server connections.

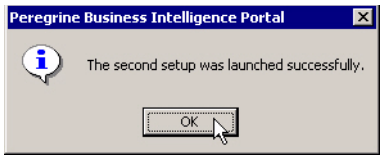
32 The BI Portal installer displays the status of the installation process.



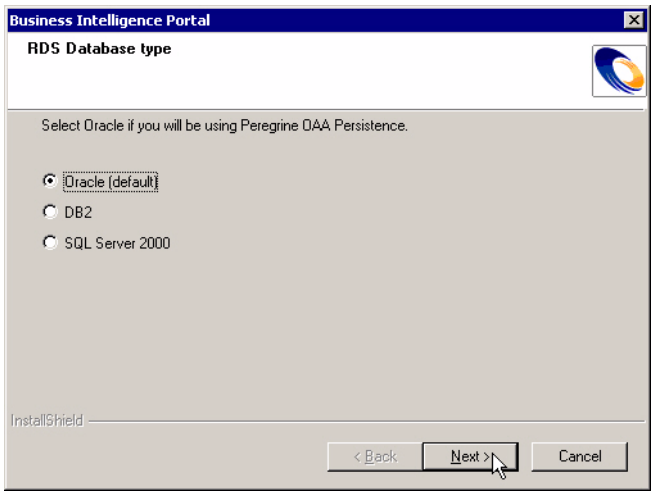
33 The following screen indicates that the OAA part of BI Portal was installed successfully. Click **Finish**.



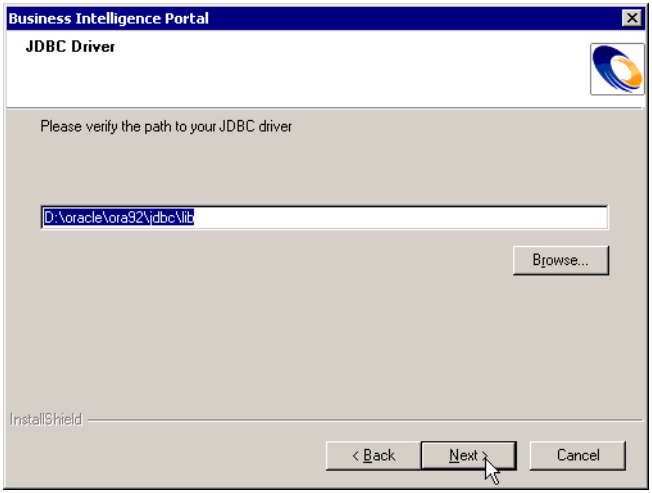
34 The following screen indicates that the installation of BI Portal was launched successfully. Click **OK**.



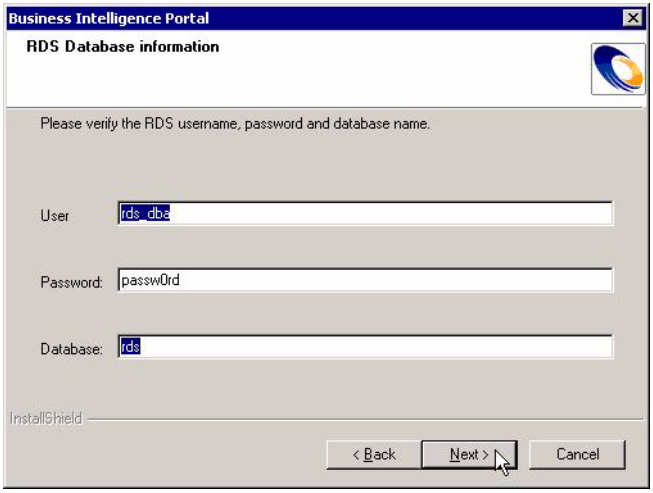
35 Choose the type of database that BI Portal uses, either **Oracle** (**default**), **DB2**, or **SQL Server**. Click **Next**.



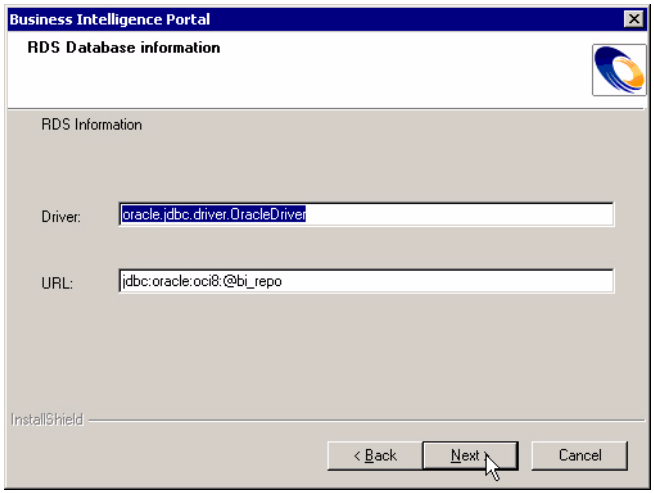
36 The installer locates the JDBC driver. (This is the same information you confirmed in step 12 and step 28.) Click **Next**.



37 Confirm the RDS database user name, password, and database name. (This is the same information you confirmed in step 24.) Click **Next**.

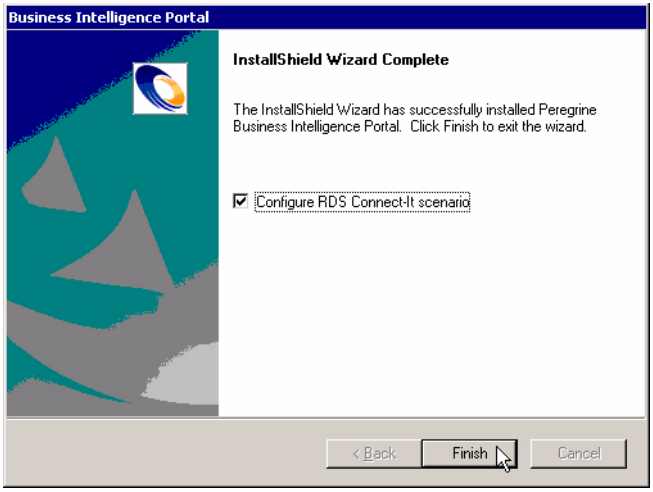


38 Confirm the RDS database driver and the URL that points to it. Click **Next**.

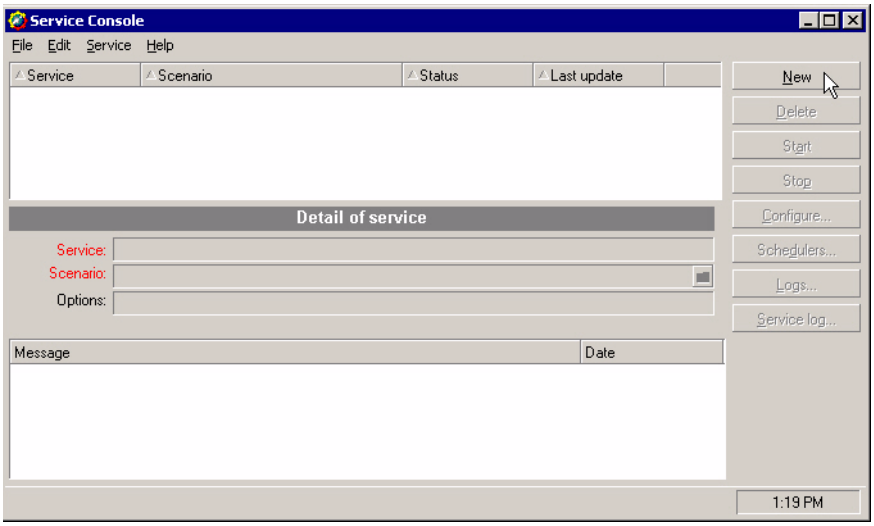


The installer configures connections to the server and initializes the RDS.

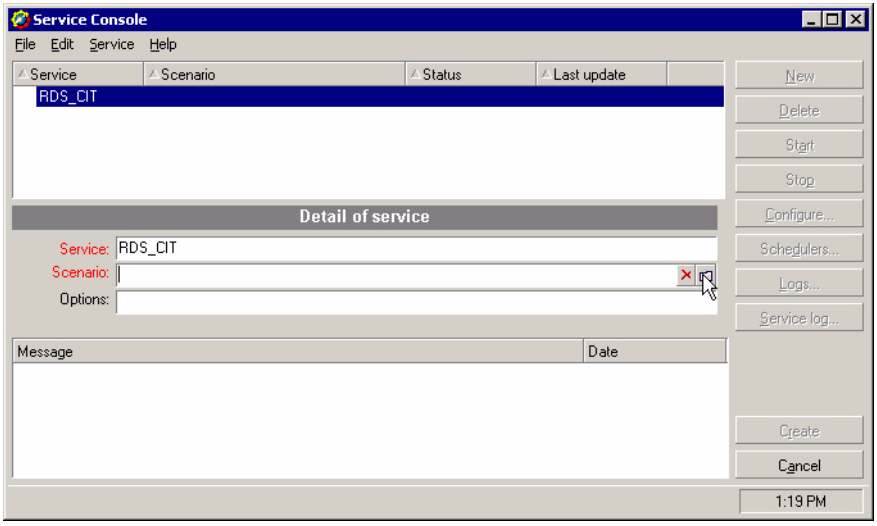
39 The installer notifies you that the BI Portal installation was successful. Make sure that **Configure RDS Connect-It scenario** is checked and click **Finish**.



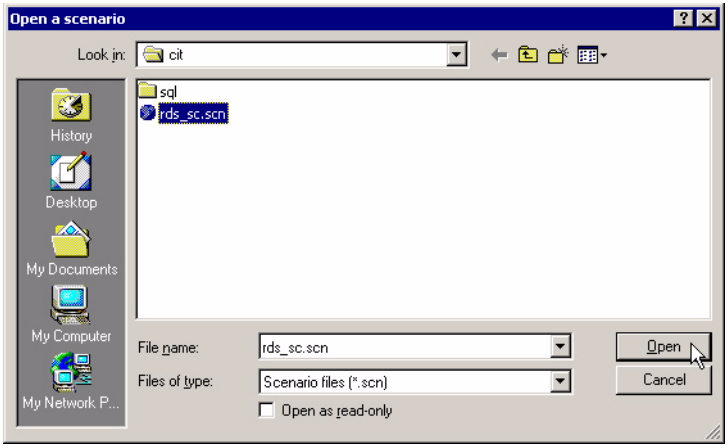
40 The Connect-It Service Console helps you to configure a connection between BI Portal and the RDS. Click **New**.



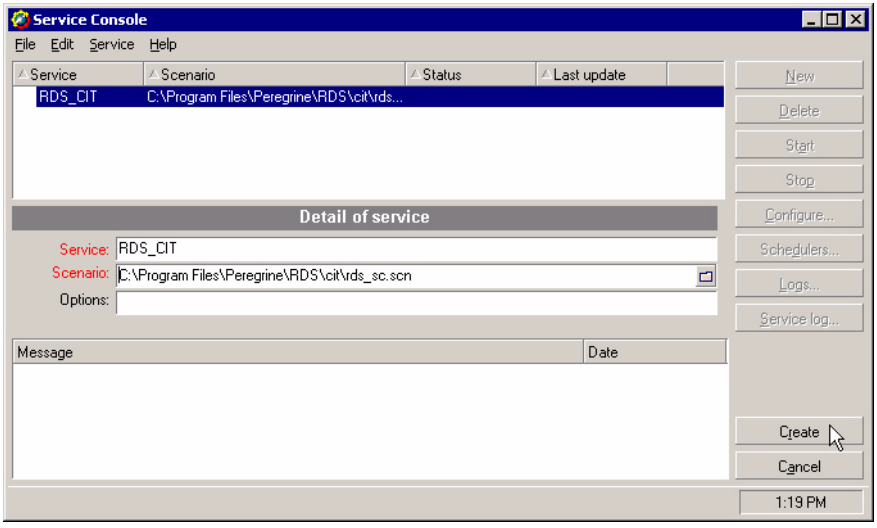
41 Type **RDS_CIT** in the Service field. Click the **Browse** button and navigate to the following file: **C:\Program Files\Peregrine\RDS\CIT\rds_sc.scn**.



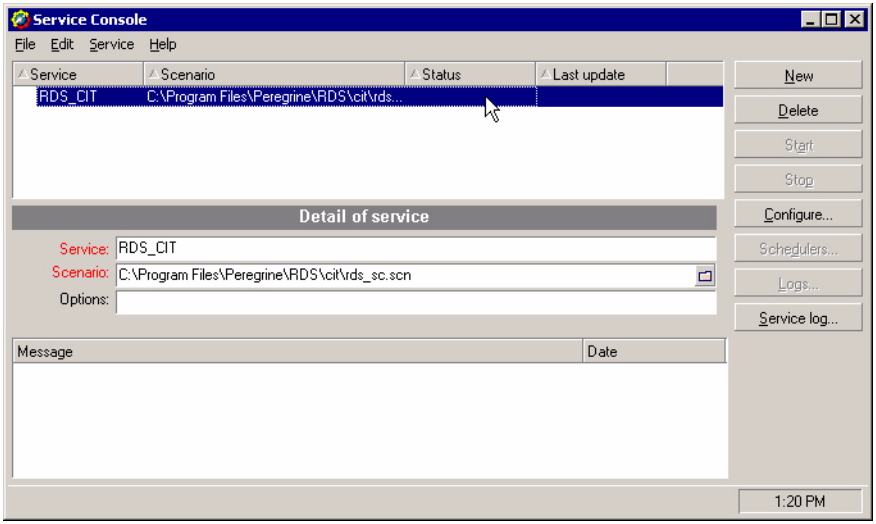
42 Click the **rds_sc.scn** scenario file to select it, and click **Open**.



43 Click **RDS_CIT** to select it, and click **Create**.

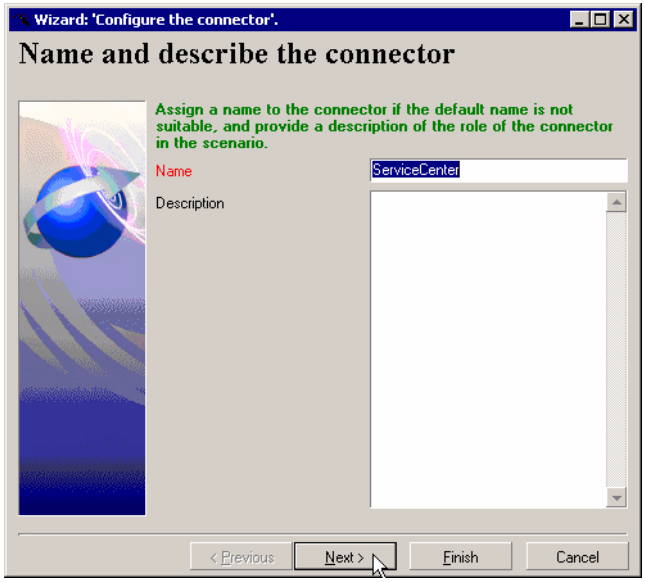


44 Click **RDS_CIT** to select it, and click **Configure**.



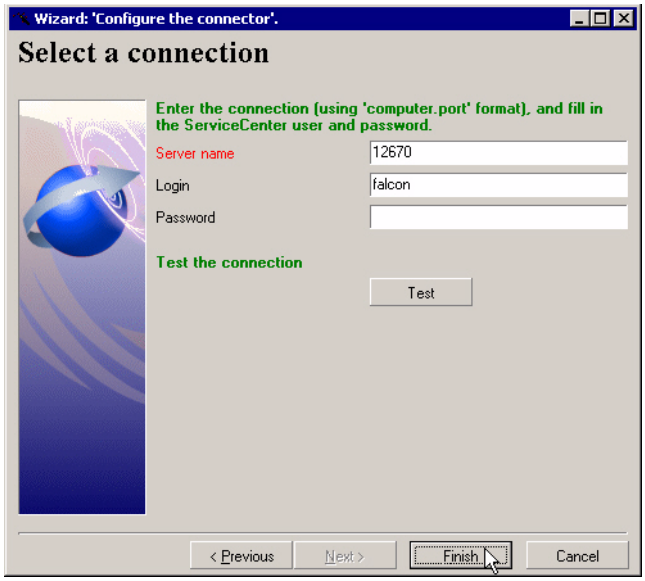
45 The Connect-It splash screen indicates that Connect-It is being loaded.

46 You now begin the process of configuring scenarios and connectors. Accept the default name, **ServiceCenter**, and click **Next**.



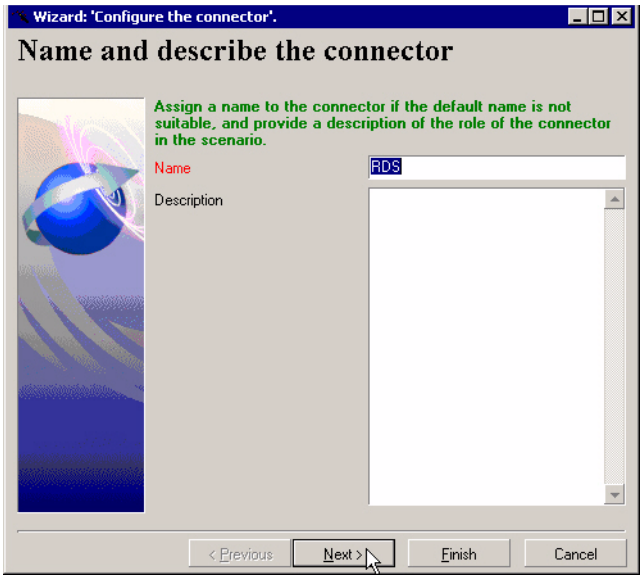
Note: Whenever one of the three ServiceCenter connectors is displayed throughout the scenario configuration, accept the default name and click **Next**.

47 The connection wizard displays the server name and login of the ServiceCenter connection. Enter the ServiceCenter host name and port, in the format *hostName.Port*, and click **Finish**.



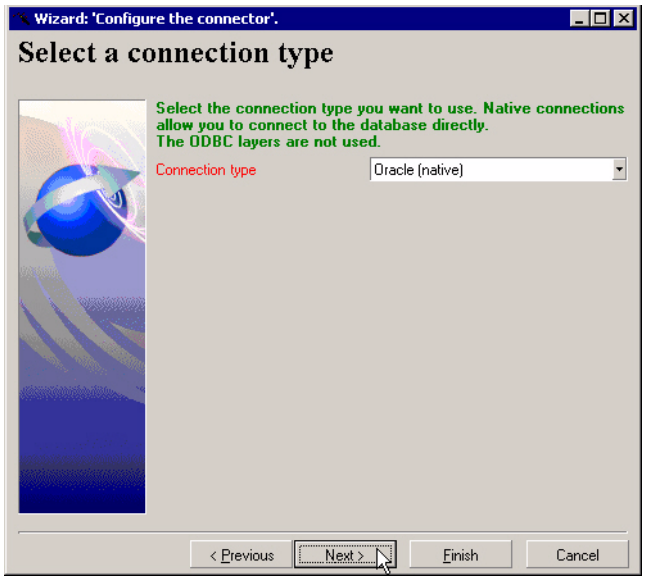
Note: Whenever you select a connection, always click the **Test** button to check the connection. Then click **Close** in the Test the Connection window.

48 Accept the default name for the connector to the RDS, called **RDS**, and click **Next**.



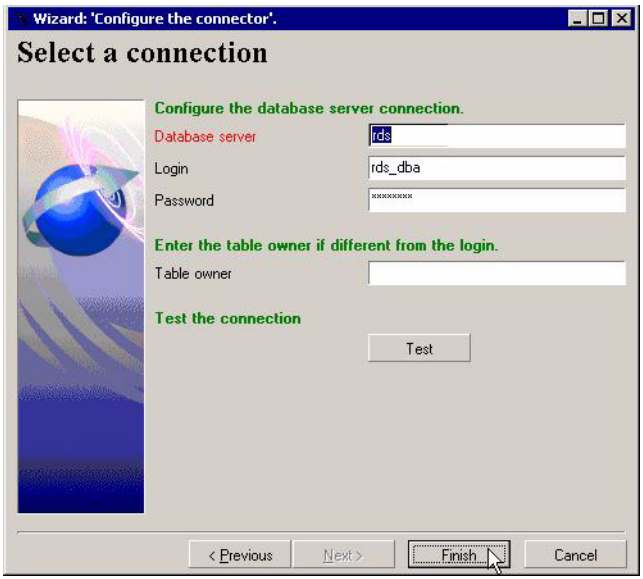
Note: Whenever one of the five RDS connectors is displayed throughout the scenario configuration, accept the default name and click **Next**.

49 Choose your RDS database type. In this case you selected Oracle for RDS, so accept the default database Connection type, **Oracle (native).** Click **Next**.



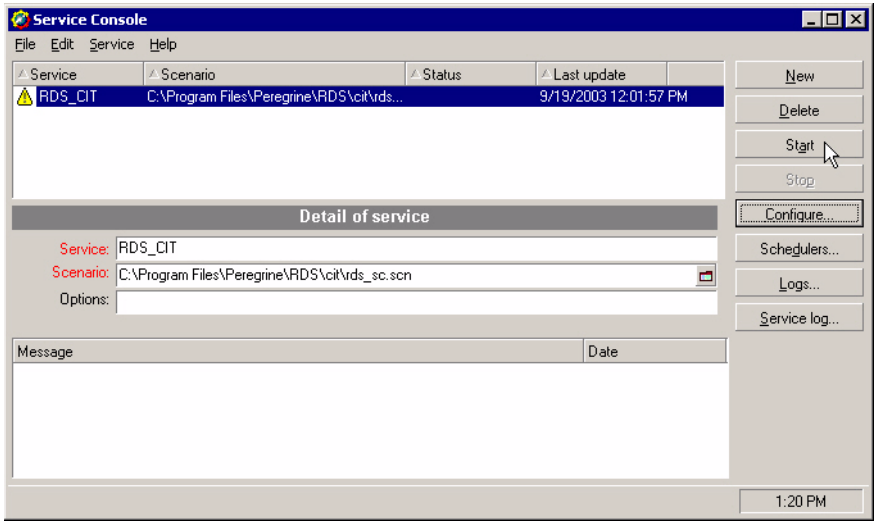
Note: If you selected Oracle as your database, choose **Oracle** (**Native**) from the pull-down. If you selected DB2 as your database, choose **DB2** (**Native**) from the pull-down. If you selected SQL Server as your database, choose **ODBC** from the pull-down.

50 The connection wizard displays the RDS database name, login, and password. Verify the values and click **Finish**.

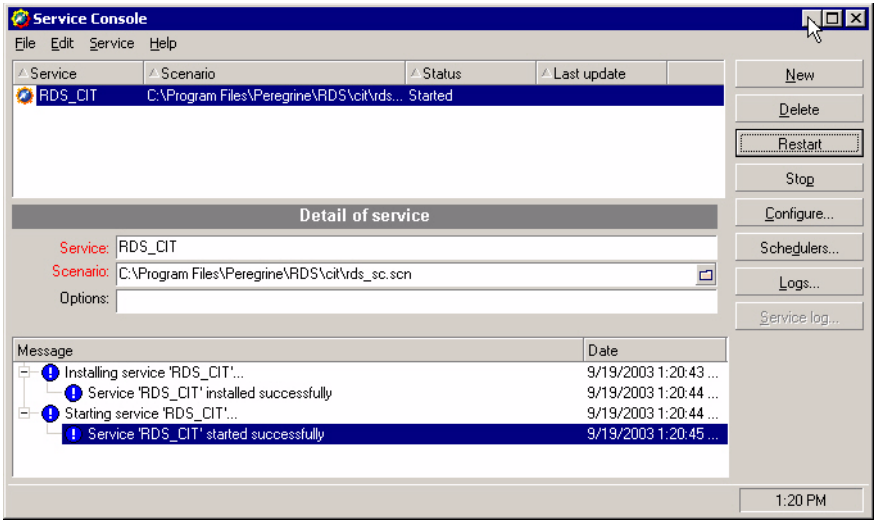


51 Whenever the installer displays connector settings not related to ServiceCenter or RDS, accept the defaults and click **Next**.

52 Click **RDS_CIT** in the Service column and click **Start**.



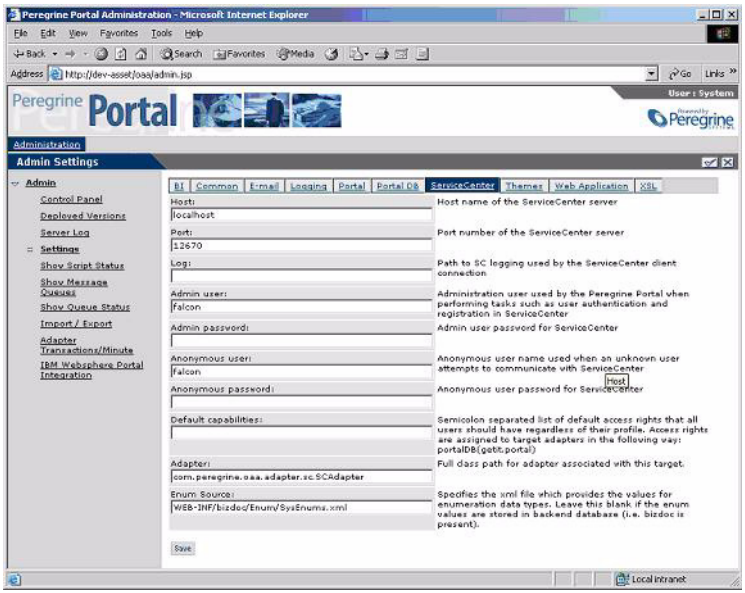
53 Close the Connect-It Service Console.



Configuring the portal

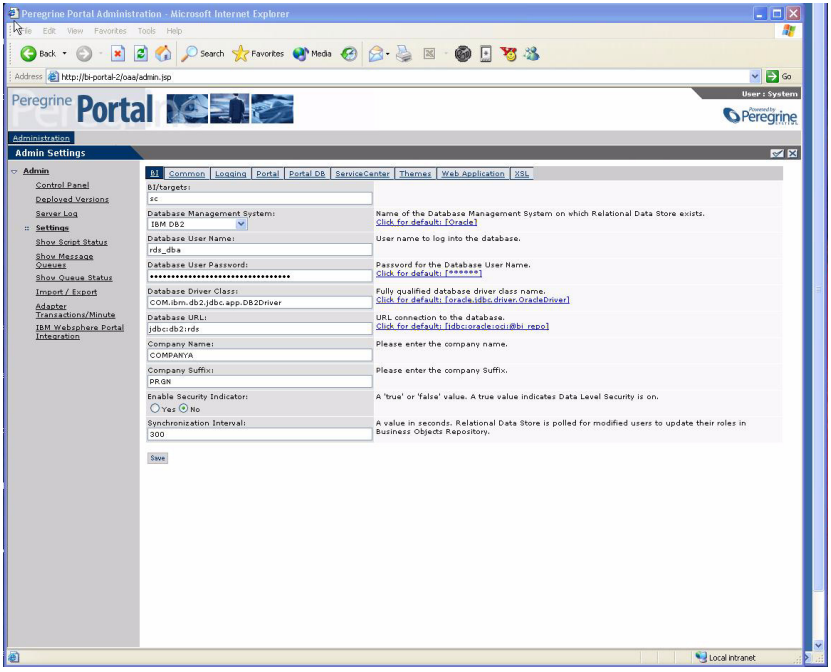
You configure the portal by setting parameters in the Administration module.

1. To start BI Portal, choose **Start** > **Programs** > **Peregrine Portal** > **Admin**.
2. Enter **System** in the User Name field and click **Login**.
3. In the Administration page click **Settings**.
4. Click the **ServiceCenter** tab and type settings for the ServiceCenter host, port, and Admin user. Click **Save**.



5. In the Administration page click **Settings** and click the **Portal DB** tab. Type **sc** in the **Alias for** field and click **Save**.
6. In the Administration page click **Settings** and click the **Web Application** tab. Type **sc** in the **Alias for** field. Click **Save**.

7 In the Administration page click **Settings**. Click the **BI** tab and choose the database management system, database driver class, database URL, and Company (in capital letters). Click **Save**.



Example database drivers and URLs:

Database type	Driver/URL
Oracle	jdbc.driver=oracle.jdbc.driver.OracleDriver
	jdbc.url=jdbc:oracle:oci8:@*databaseName*
DB2	jdbc.driver=COM.ibm.db2.jdbc.app.DB2Driver
	jdbc.url=jdbc:db2:rds
SQL Server Sprinta driver	jdbc.driver=com.inet.tds.TdsDriver
	jdbc.url=jdbc:inetdae7:*hostname*:*port*?database=*databaseName*

Database type	Driver/URL
SQL Server Microsoft driver	jdbc.driver=com.microsoft.jdbc.sqlserver.SQLServerDriver
	jdbc.url=jdbc:microsoft:sqlserver://*hostName*:*port*;databasename=*databaseName*

8 Click **Reset Server**.

9 To begin using BI Portal, perform the following steps:

a Close BI Portal.

b Re-start BI Portal. In Windows click **Start** > **Programs** > **Peregrine Portal** > **Login**.

c Log in to BI Portal as the user name you specified.

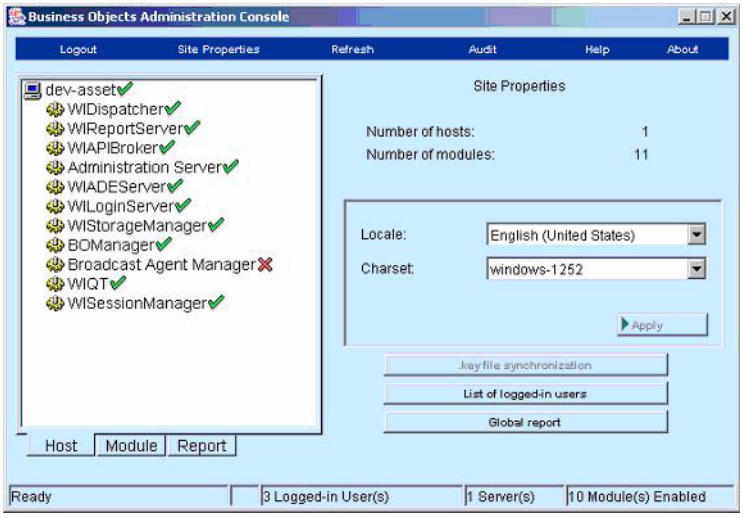
Enable the BI Portal Broadcast Agent

To enable the BI Portal Broadcast Agent, perform the following steps on the server machine where the user interface component of BI Portal is installed. You use the BI Portal Broadcast Agent to schedule reports to run automatically. See the BI Portal User's Guide for more information about scheduling automatic report generation.

Note: The BI Portal Broadcast Agent is available only if you chose this option when you purchased BI Portal.

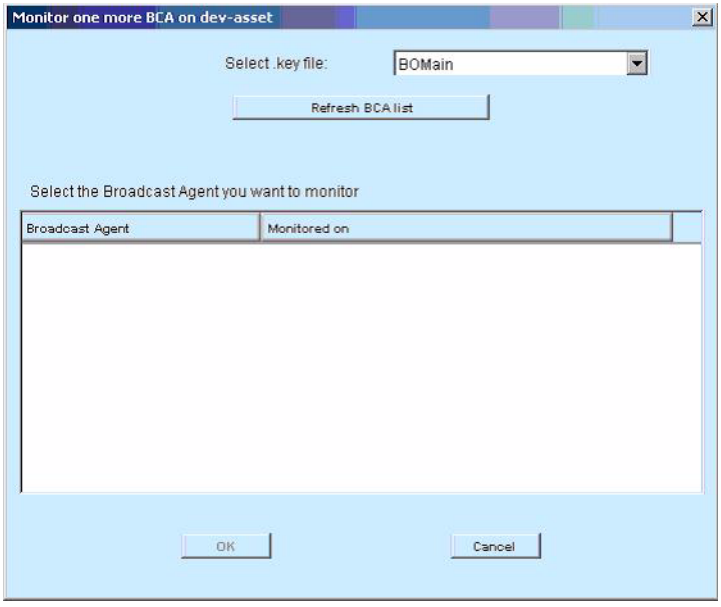
1 Open the Business Objects Administration Console by clicking **Start** > **Programs** > **Business Objects** > **Administration Console**.

2 Log in as user **Peregrine_Supervisor** and password **pass** (lower-case). The red **X** after Broadcast Agent Manager indicates that this feature is disabled.

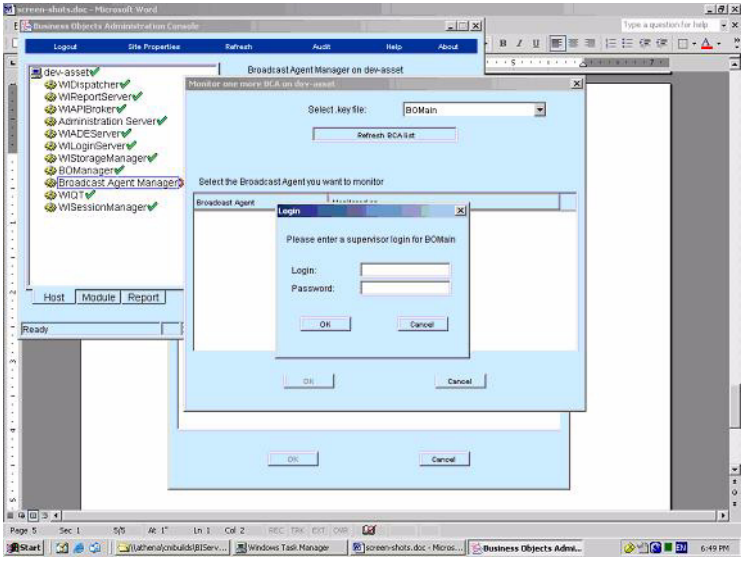


3 Click **Broadcast Agent Manager** to select it.

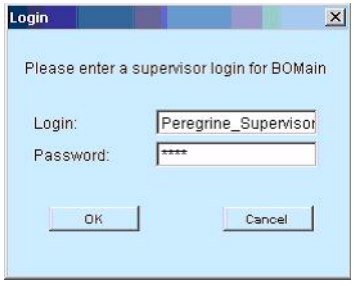
4 Click **Add**. The following window is displayed.



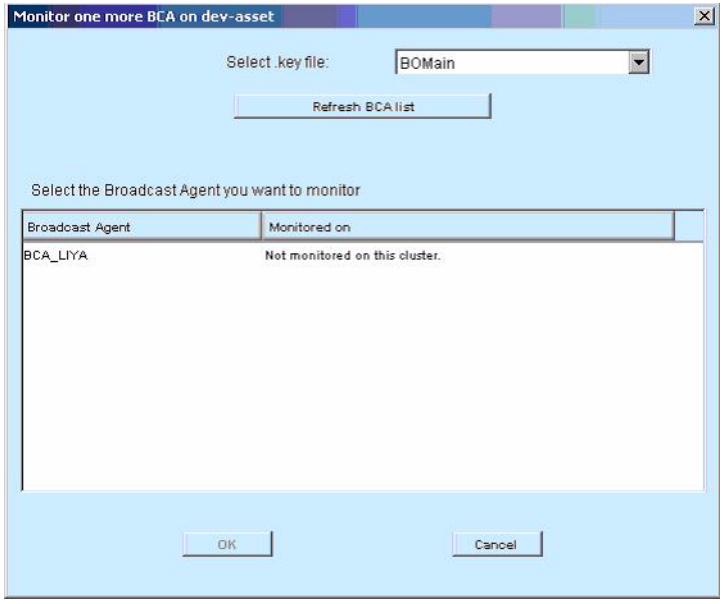
5 Click **Refresh BCA List.**



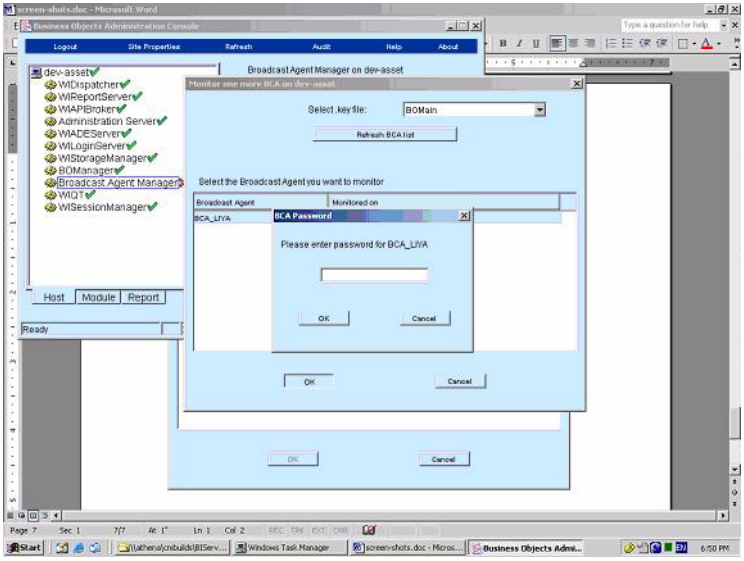
6 In the Login field type **Peregrine_Supervisor**. In the Password field type **pass**. (Both entries are case-sensitive.) Click **OK**.



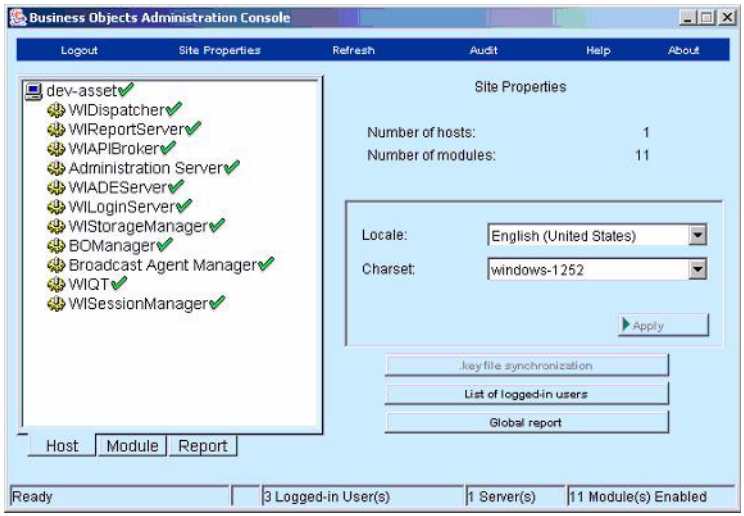
7 Select the Broadcast Agent you want to monitor and click **OK**.



8 Enter the Broadcast Agent's password, **pass**. Click **OK**.



9 The green check after Broadcast Agent Manager indicates that the Broadcast Agent is now enabled.



Installation on multiple machines

You can install the Web-based user interface portion of BI Portal on a separate server machine, and you can install the RDS on a separate server machine. For diagrams that depict the various BI Portal installation scenarios, see the section *BI Portal configuration scenarios* on page 47.

Order in which BI Portal components are installed

You always install BI Portal in this order:

1. Reporting Server/BI Publisher
2. RDS database
3. BI Portal (the user interface component)

Important: Make sure to install *all* the BI Portal components that you intend to install on each server machine at *one* time. After you run the BI Portal installer on any server machine, you must uninstall BI Portal before you run the installer on that server machine again. For this reason, plan your BI Portal configuration carefully *before* you begin the process of installing BI Portal.

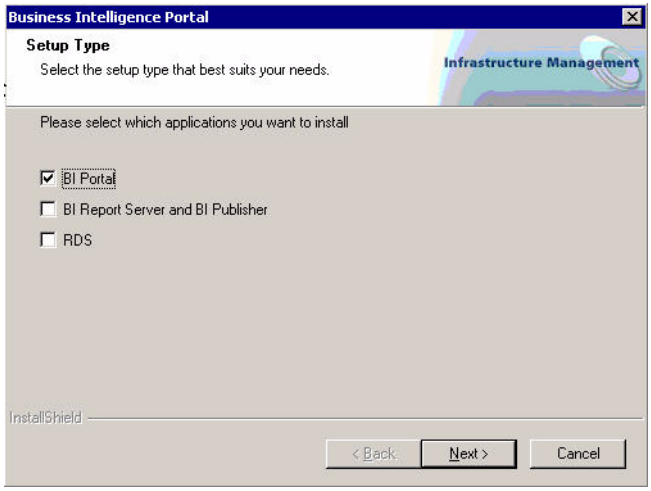
Installing the Web-based interface of BI Portal

Follow these steps when installing on a separate server machine.

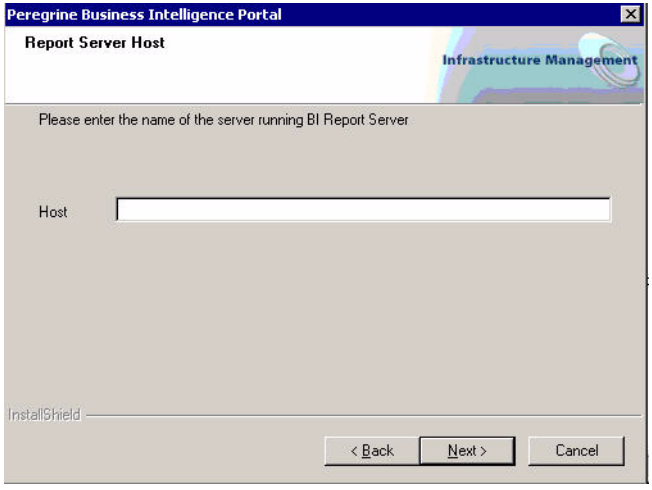
To install the Web-based interface of BI Portal:

1. Insert the BI Portal CD into the CDROM drive on the server machine where you want to install the Web interface of the BI Portal. If the setup program fails to start, click Start > **Run** > and enter *<CDROM_Drive>*:\setup.
2. Make sure you are logged onto the server machine on which you intend to install BI Portal as BO_User.

3 Click only BI Portal and click **Next**.



4 Specify the name of the Reporting Server host and click **Next**.

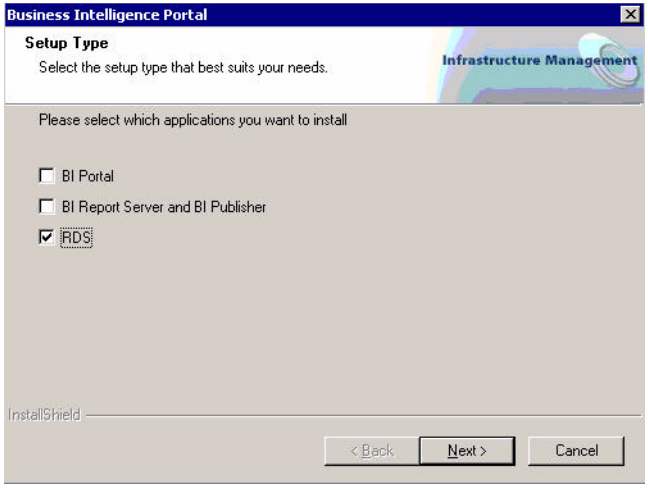


5 Continue with a Typical installation, following the same steps as step 22 on page 63 through step 34 on page 69.

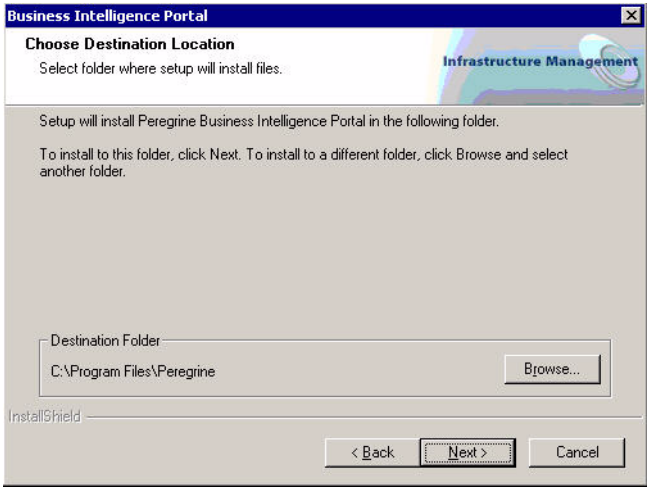
Installing the RDS component of BI Portal

To install the RDS portion of BI Portal on a separate server machine:

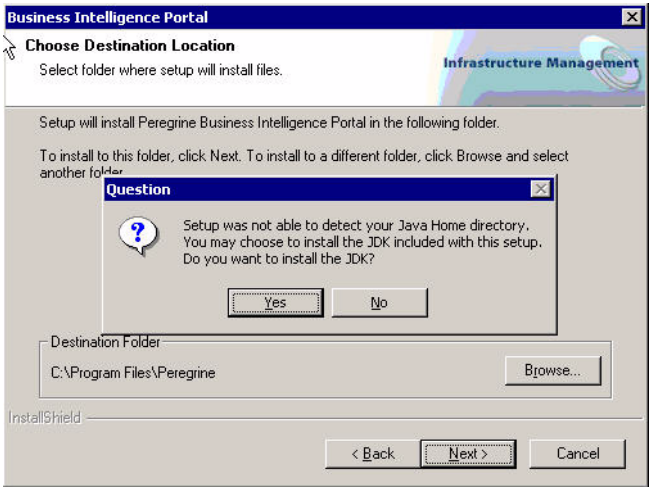
1. Insert the BI Portal CD into the CDROM drive on the server machine where you want to install the Web interface of the BI Portal. If the setup program fails to start, click Start > **Run** > and enter ***<CDROM_Drive>***:\setup.
2. Click only **RDS** and click **Next**.



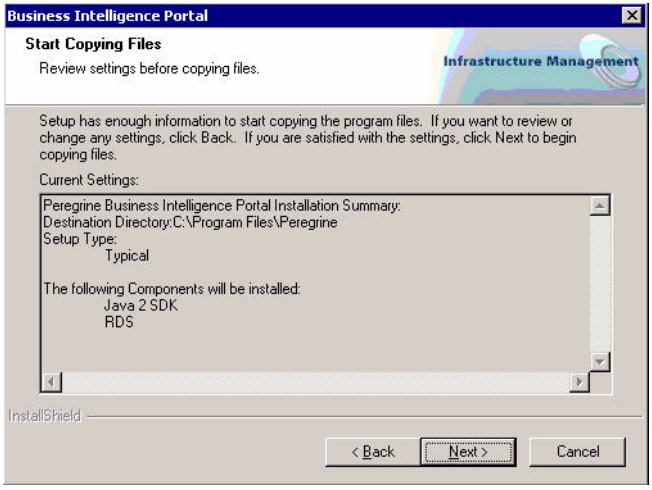
3. Choose the destination directory where you want the RDS installed and click **Next**.



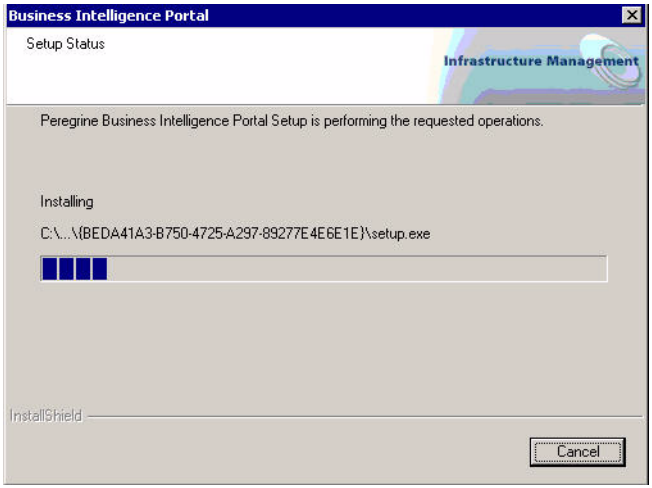
4 The installer informs you that the JDK has not been installed and asks you whether you want to install it. Click **Yes**.



5 Verify that the information is correct and click **Next** to begin the installation of RDS.



6 The installer informs you of the progress of the installation and deployment.



7 Continue with a Typical installation, following the same steps as step 35 on page 69 through step 53 on page 80.

Custom installation of BI Portal

This section discusses how you perform a custom installation of BI Portal.

When do I perform a custom installation?

You perform a custom installation when:

- You want to install one or more BI Portal components in a directory *other than* C:\Program Files; or
- You want to use a Web server/application server combination other than Apache/Tomcat.

The steps you take to perform a custom installation are the same as those for a typical installation in step 22 on page 63, in the section *Performing a typical, single-machine installation*, except that you choose Custom rather than Typical.

Sequence of steps in a custom installation

1. Install the Web server and application server (only if you are using a Web server/application server combination other than the default Apache/Tomcat).
2. Run the BI Portal installer and choose the **Custom** option.
3. Configure the application server and Web server to run with BI Portal.

Configure Tomcat 4.1.24 to connect to IIS 5.0

You can use the BI Portal installer to install the Tomcat application server. If you use the typical installation option, the BI Portal installer configures Tomcat for the Apache Web server. In order to configure the Tomcat for the IIS Web server, you must perform a custom installation and configure IIS using the following instructions.

Note: These instructions are for setting up Tomcat to use a single Java Virtual Machine (JVM). See the *Installation Guide* chapter on *Load Balancing* for installing multiple JVMs.

To configure Tomcat to connect to an IIS 5.0 Web server:

Step 1 Configure the ISAPI Plug-in for IIS. See *Configuring the ISAPI Plugin for IIS* on page 95.

Step 2 Configure IIS to use isapi_redirector2.dll as an ISAPI Filter. See *Configuring the isapi_redirector2.dll as an ISAPI filter* on page 95.

Step 3 Create and configure a jakarta virtual directory in IIS. See *Configuring a jakarta virtual directory in IIS* on page 96.

Step 4 Create and configure an oaa virtual directory in IIS. See *Configuring an oaa virtual directory in IIS* on page 97.

Step 5 Edit the server.xml file to add performance settings and configure alternate communications ports (Optional). See *Editing the server.xml file for IIS* on page 99.

Step 6 Install Tomcat as a service using installservice.bat (Optional). This file can be found in the Tomcat\bin directory. See *Installing Tomcat as a service* on page 100.

Running the installer

Run the BI Portal installer and select the Custom installation option.

Configuring the ISAPI Plugin for IIS

The ISAPI plugin for IIS establishes a connection between Tomcat and the IIS Web server. Before configuring IIS to use this connector, you must update the registry file entry for the connector to ensure that it has the proper paths listed for the Tomcat application server.

The BI Portal installer automatically places a copy of the ISAPI plug-in for IIS in the following folder:

c:\Program Files\Peregrine\Common\Tomcat4\bin

Use the following procedures to configure the plugin for your intranet environment.

To configure the ISAPI plugin for IIS:

1 Open the file jk2.reg in a text editor. The default file path is:

C:\Program Files\Peregrine\Common\Tomcat4\conf

2 Verify that the "serverRoot" and "workersFile" values list the proper installation path to Tomcat. By default, these values are:

```
"ServerRoot"="C:\\Program Files\\Peregrine\\Common\\Tomcat4"
"workersFile"="C:\\Program Files\\Peregrine\\Common\\Tomcat4\\conf\\
workers2.properties"
```

Tip: You do not need to make any changes if you installed this file to the default location.

3 Save and close the jk2.reg file.

4 Double-click on the jk2.reg file from Windows Explorer.

Windows adds the registry settings to the Windows registry.

Configuring the isapi_redirector2.dll as an ISAPI filter

To establish a connection between Tomcat and IIS, you will need to install isapi_redirector2.dll as an ISAPI filter.

To install isapi_redirect2.dll as an ISAPI filter:

1. From Windows Control Panel > Administrative Tools, open the Internet Services management console.
2. Right-click the **Default Web Site** node and then click **Properties**.
3. Click the **ISAPI Filters** tab.
4. Click **Add**.
5. Enter the following information:
   a. **Filter Name**: jakarta. The filter name must match the name you defined the jk2.reg registry file. By default, the filter name is jakarta.
   b. **Executable**: isapi_redirector2.dll. The default file path is:

      C:\Program Files\Peregrine\Common\Tomcat4\bin\isapi_redirector2.dll
6. Click **OK**.

   Note: You must stop and then start the IIS service for changes to take effect. You must also restart Peregrine Tomcat.
7. From the Internet Services management console, right-click the **Default Web Site** node, then select **Properties**>**Isapi Filters** again.

   The ISAPI filter in IIS displays a green status arrow to indicate that it is running.
8. Close the Internet Services management console.

Configuring a jakarta virtual directory in IIS

The ISAPI plugin for IIS requires a specific virtual directory in order to run. Use the following guidelines to create the virtual directory on the Default Web Site. For specific instructions about configuring IIS, refer to your Windows Help.

To configure a jakarta virtual directory in IIS:

1 Use the following guidelines to create the virtual directory on the Default Web Site.

Requirements for a jakarta virtual directory

Requirement	Setting
Create virtual directory	jakarta
Map to physical path	<Tomcat>\bin
Directory access rights	Read, Run scripts, Execute

2 For <Tomcat>, enter the path to your Tomcat installation. The default file path is:

3 C:\Program Files\Peregrine\Common\Tomcat4

Configuring an oaa virtual directory in IIS

To run BI Portal from IIS, you need to create a virtual directory that maps to your Tomcat deployment folder. For specific instructions about configuring IIS, refer to your Windows Help.

To configure an oaa virtual directory in IIS:

▶ Use the following guidelines to create the virtual directory.

Requirements for an oaa virtual directory

Requirement	Setting
Create virtual directory	<oaa>
Map to physical path	<Tomcat>\webapps\<oaa>
Directory access rights	Read, Run scripts

For <*oaa*>, enter the name of the virtual directory you want to use for BI Portal. The recommended virtual directory name is oaa. If you choose to use another virtual directory name, you must enter the new name in the following places:

- Rename the folder <Tomcat>\webapps\oaa to <Tomcat>\webapps\<new name>
- Rename the [uri] mappings in workers2.properties from oaa to the new virtual directory name.
- Rename all the oaa context entries in mod_jk2.conf from oaa to the new virtual directory name.
- Rename the <Context> path and docBase attributes in server.xml from oaa to the new virtual directory name.

Important: The virtual directory name you choose will become part of the URL users enter to connect to BI Portal. For example: http://server_name/<new name>/login.jsp

For *<Tomcat>*, enter the path to your Tomcat installation. The default file path is:

C:\Program Files\Peregrine\Common\Tomcat4

Note: Depending on your Web server configuration, if you browse to http://servername/oaa, the Web server may display a list of all the OAA files instead of the login page.

If your server displays this behavior, follow these steps to configure your Web server to display the OAA login page instead of a directory listing.

To configure IIS:

1. Open the Internet Services Manager.
2. Expand the Default Web Site.
3. Right-click on the OAA virtual directory and click Properties.
4. Click the Documents tab.
5. Verify that **Enable Default Document** is checked.
6. Click the **Add** button.
   a. Type login.htm.
   b. Click **OK**.
7. Highlight login.htm and using the up and down arrows, move login.htm to the top of the file list.
8. Click **OK** to accept the changes to the OAA directory properties.

Editing the server.xml file for IIS

A default Tomcat installation is sufficient for most BI Portal installations. However, if you are experiencing performance problems or communications port conflicts, you may need to edit the Tomcat server.xml file to correct these problems.

Performance settings

The Tomcat server.xml file allows you to determine how Tomcat processes BI Portal files. If you are experiencing performance problems, you can change the <Context> setting for BI Portal to disable page reloading.

Tip: Make a back up copy of the server.xml file before editing.

To edit the server.xml performance settings:

1 Open the file server.xml in any text editor. The default file path is:

C:\Program Files\Peregrine\Common\Tomcat4\conf

2 Create a <Context> element entry from Tomcat to the BI Portal deployment directory to establish a point of reference for docBase.

Add the entry just above the "examples" Context entry.

Example:

```
<Context path="/oaa"
docBase="<Tomcat>/webapps/oaa"
crossContext="false"
debug="0"
reloadable="false" >
</Context>
```

Setting the reloadable attribute to false results in faster JSP page processing.

For the docBase attribute, set *<Tomcat>* to the absolute path of the first or master Tomcat instance.

Communications port settings

If your BI Portal server already uses communications ports 8005 and 8009, you will have a port conflict if you install Tomcat with the default settings. To avoid a port conflict, you must edit the server.xml file to change the communications ports used by Tomcat.

Important: You do not need to perform these optional steps if Tomcat's default communication ports are available on your server.

Tip: Make a back up copy of the server.xml file before editing.

To edit the server.xml communications port settings:

1 Open the file server.xml in any text editor. The default file path is:

C:\Program Files\Peregrine\Common\Tomcat4\conf

2 Update the port number attribute of the <Server> element to a free communications port.

Note: By default, Tomcat uses port 8005 for shutdown requests.

Example:

```
<Server port="8005" shutdown="SHUTDOWN" debug="0">
```

3 Update the port attribute of the Coyote Connector <Connector> element to a free communications port.

Note: By default, Tomcat uses port 8009 for the Coyote connector.

Example:

```
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector" port="8009"
minProcessors="5" maxProcessors="75" enableLookups="true" redirectPort="8443"
acceptCount="10" debug="0" connectionTimeout="20000"
useURIValidationHack="false"
protocolHandlerClassName="org.apache.jk.server.JkCoyoteHandler" />
```

4 Save the server.xml file.

5 Restart Tomcat for your new settings to take effect.

Installing Tomcat as a service

After you have edited the Tomcat files, you can install Tomcat as Windows services using installservice.bat.

Note: The installer does not reset the JAVA_HOME environment variable when installing on systems where a previous instance of Tomcat is installed. Manually redefine the JAVA_HOME environment variable to point to the new Java Development Kit. The default path is: C:\Program Files\Peregrine\Common\jdk1.3.1_05

To install Tomcat as a service:

1 Open a DOS command prompt and change directories to your Tomcat bin directory.

2 Enter the following command to create each Tomcat instance:

```
installservice <service name> <tomcat_home> <jvm_dll_path>
```

Where <*service name*> is the name you wish to give the Tomcat service, <*tomcat_home*> is the Tomcat install directory of the instance for which you are creating the service, and <*jvm_dll_path*> is the Java SDK install directory.

The second and third parameters are optional if you have already set the CATALINA_HOME and JAVA_HOME environment variables.

Example:

```
installservice Tomcat8009 C:\Program Files\Peregrine\Common\Tomcat4
C:\Program Files\Peregrine\Common\jdk1.3.1_05
```

3 Repeat step 1 through step 2 for each Tomcat service you wish to create.

Testing your installation

Use the following steps to confirm that you have properly installed BI Portal on Windows.

To test your BI Portal installation:

1 Verify that your application and Web servers are started.

2 Open a Web browser and type the following in the Address field:

http://<server name>:<port>/oaa/admin.jsp

For <*server name*>, enter the server name where the BI Portal Web server resides.

For <*port*>, enter one of the following communications port numbers:

Application Server used	Port Number
WebSphere	9080
Tomcat	80, can be omitted from URL

If everything is configured properly, the Administrator login page opens.

If the BI Portal administration login page does not open, see *Troubleshooting* for more information.

Uninstalling BI Portal

The following instructions describe how you uninstall BI Portal from a single-machine implementation. These procedures remove BI Portal and all its components; they do not remove Business Objects from the server machine on which it is installed.

To uninstall BI Portal from a multiple-machine implementation, you run the Windows Add/Remove Programs utility as described below, on each separate server machine, to uninstall the BI Portal component that is installed on that machine.

Uninstalling BI Portal from a single server machine

Follow these procedures to uninstall BI Portal from your Windows system. This is a two-step process. You must first uninstall BI Portal, then delete the tables and documents.

Warning: These procedures remove all the components that you selected to install. If you chose the Typical installation option, uninstall removes BI Portal, Peregrine Tomcat, Apache, and JDK. If you chose the Custom installation option, then only those components that you selected to install are removed.

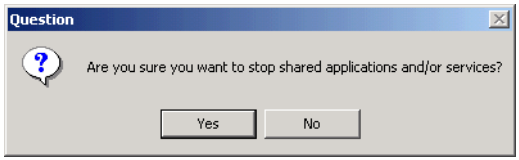
If the JDK was installed before you installed BI Portal, only portions of the JDK are uninstalled during this process. If you want to use JDK in the future, you need to re-install it. If not, you will need to run the JDK uninstaller to remove the remaining portions.

To uninstall BI Portal:

1. Access the Windows Add/Remove Programs utility on the server machine where the Web-based user interface component of BI Portal is installed.
2. Select **Peregrine Portal 4.1** and click **Change/Remove**.

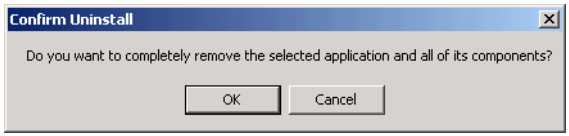
   A status message indicates that the setup program is preparing the InstallShield wizard to guide you through the process.
3. The Close Programs screen opens if any BI Portal services or applications are running. Click **Next** to continue.

4 The verification message box opens. Click **Yes** to continue.



Status messages indicate the termination of the services for Apache and Tomcat.

5 The Confirm Uninstall dialog box opens. Click **OK** to remove BI Portal.



Important: Back up any data you want to save before continuing.

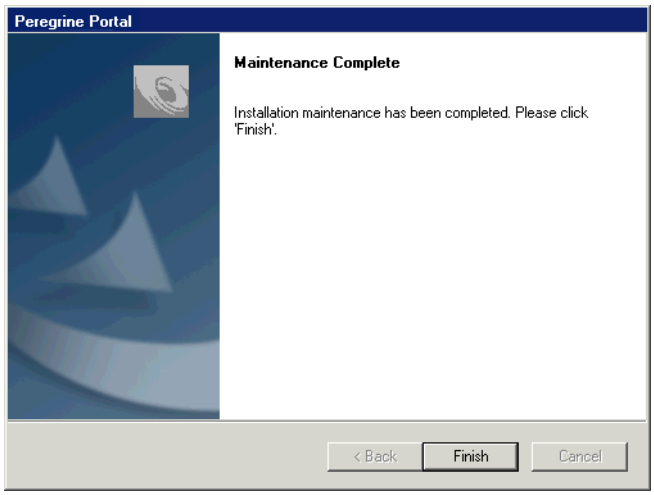
6 The Shared Files screen opens if there are any shared files to be removed during setup.

If WebSphere is installed on this computer, setup will prompt you to confirm the removal of six JAR files. Click **No** or **No to All** to retain these JAR files.

Warning: Do not remove the shared JAR files as the WebSphere Advanced Administrative Console requires these files to function.

If there are no shared files to remove, then a status message indicates that the uninstall program is removing files from your computer.

7 The Maintenance Complete screen opens. Click **Finish** to complete the uninstall of BI Portal.



To delete the tables and documents:

1 From your database server, delete the tables in bi_repo and rds.

2 From your reporting server, delete all the documents from the Peregrine_Designer directory.

The default path is:
C:\Program Files\Business Objects\BusinessObjects Enterprise 6\nodes\bo-srv3\bo_srv3_mycluster\storage\user\Peregrine_Designer

3 Remove all directories from the reporting server.

The default path is: C:\Program Files\Peregrine\bi

4 Remove all directories from the RDS server.

The default path is: C:\Program Files\Peregrine\rds

4 Installing on UNIX

CHAPTER

This chapter covers the following topics:

Choosing an installation environment

You can install BI Portal in one of two installation environments:

- Development environment
- Production environment

The BI Portal development environment is intended for you to evaluate product features and customize your installation prior to deployment in a production environment. In a development environment, you install all software required for BI Portal on one computer system.

You have two choices of development environment:

- Typical installation
  - Apache 2.0 Web server
  - BI Portal deployed on Tomcat 4.1.24 application server
- Custom installation
  - IBM HTTP Web server
  - WebSphere 4.0.2

The BI Portal production environment is intended to maximize server performance and scalability, and to deploy any customizations you have made. In a production environment, you install the various components of BI Portal on different servers to maximize performance.

You have two choices of production environment:

- Typical installation
  - Apache 2.0 Web server
  - BI Portal deployed on multiple instances of Tomcat 4.1.24 application server
- Custom installation
  - Choice of Web server
  - Choice of application server where you deploy BI Portal

Development Environment

The following procedures describe how to install BI Portal in a development environment.

To install BI Portal in a typical development environment:

Step 1 Acquire all necessary hardware and software.

Step 2 Install the back-end database required for BI Portal.

Step 3 Install and configure database client on each server machine.

Step 4 Install the RDS, BI Reporting Server/Publisher required for BI Portal.

Step 5 Run the BI Portal installer and select the Typical installation option. See *Typical Installation Option* on page 125.

To install BI Portal in a custom development environment:

Step 1 Acquire all necessary hardware and software.

Step 2 Install the back-end database required for BI Portal.

Step 3 Install and configure database client on each server machine.

Step 4 Install the RDS, BI Reporting Server/Publisher required for BI Portal.

Step 5 Install alternate application and Web servers.

Step 6 Configure the alternate application server for BI Portal. See *Configuring alternate application servers* on page 109.

Step 7 Run the BI Portal installer and select the Custom installation option. See *Custom Installation Option* on page 135.

Production Environment

The following procedures describe how to install BI Portal in a production environment.

To install BI Portal in a typical production environment:

Step 1 Acquire all necessary hardware and software.

Step 2 Install the back-end database required for BI Portal on a separate server.

Step 3 Install the database client on each server machine.

Step 4 Install the RDS, BI Reporting Server/Publisher required for BI Portal.

Step 5 Run the BI Portal installer and select the Typical installation option. See *Typical Installation Option* on page 125.

Step 6 Configure multiple instances of Tomcat for load balancing on the Apache Web server. See the *Load Balancing* chapter of this guide.

To install BI Portal in a custom production environment:

Step 1 Acquire all necessary hardware and software.

Step 2 Install the back-end database required for BI Portal.

Step 3 Install the database client on each server machine.

Step 4 Install the RDS, BI Reporting Server/Publisher required for BI Portal.

Step 5 Install the alternate application server and Web server on separate servers.

Step 6 Configure the alternate application server for BI Portal. See *Configuring alternate application servers* on page 109.

Step 7 Run the BI Portal installer and select the Custom installation option. See *Custom Installation Option* on page 135.

Step 8 Configure the Web servers and application servers for load balancing. See the *Load Balancing* chapter of this guide.

If your database is SQL Server, there is no database client to install on the UNIX machine where BI Portal component is installed. If your database is Oracle or DB2, you must install the database client on all the client machines including the UNIX machine where BI Portal component is installed.

On the UNIX machine where only the BI Portal component is being installed:

- If your database is Oracle, you must create a TNS name for the Oracle database server.
- If your database is DB2, you must create an alias for the BI_REPO and RDS databases and register them.

See *Install the database client on each server machine* in Chapter 2 of this guide, or contact your DBA.

Configuring alternate application servers

You must install a Java-enabled application server to support your Peregrine Web applications. Peregrine OAA supports the following alternate application servers:

- *Existing Tomcat and Apache servers*
- *WebSphere Application Server 4.0.2*

The BI Portal typical installation option installs Tomcat 4.1.24 and connects it to an Apache 2.0 web server. You can also install Tomcat 4.1.24 using the custom installation option.

Important: If you want to use an application server other than Tomcat 4.1.24, then you must configure your application and Web servers *prior* to running the BI Portal installer.

See the following sections for instructions configuring alternate application servers for BI Portal.

Existing Tomcat and Apache servers

If you use the typical installation option, the BI Portal installer configures Tomcat to connect to a new instance of the Apache Web server. If you have existing instances of Tomcat or Apache Web Server installed, you can configure BI Portal to use these existing instances by copying the necessary files from a typical installation.

To configure an existing Tomcat server to connect to an Apache server:

1 Copy the following files from the installation CD \SupportFiles… directory to the directories indicated below.

Copy this file	To the following location
■ mod_jk.conf	The /conf directory of your existing Tomcat installation. The default source file path is: /usr/local/peregrine/common/Tomcat 4/conf
■ workers.properties	The /conf directory of your existing Tomcat installation. The default source file path is: /usr/local/peregrine/common/Tomcat 4/conf
■ mod_jk.dll	The /modules directory of your existing Apache installation. The default source file path is: /usr/local/peregrine/common/apache2/modules

Note: The mod_jk.dll included with this release is compatible with Apache 2.0.43 and Tomcat 4.1.25. If you are using other versions, refer to the jakarta.apache.org/builds/jakarta-tomcat-connectors/jk/doc site to download the compatible version.

2 Using a text editor, open the files mod_jk.conf and workers.properties. These files are located in the /conf directory of your Tomcat installation.

   a Find all instances where the path to Tomcat appears and edit these to reflect your current Tomcat 4.1 installation path.

   b Find all instances where the path to JDK appears and edit these to reflect your current JDK installation path.

3 Using a text editor, open the httpd.conf file. This file is located in the /conf directory of your Apache installation.

   a Add the path to your existing Tomcat installation to the include statement in the Global Environment section:

```
### Section 1: Global Environment
...
include "<Tomcat_path>/conf/mod_jk.conf"
```

For <*Tomcat_path*>, enter the absolute path to your Tomcat installation.

b Add login.jsp to the list of files in the DirectoryIndex section:

```
# DirectoryIndex: Name of the file or files to use as a pre-written
# HTML directory index.  Separate multiple entries with spaces.
#
<IfModule mod_dir.c>
 DirectoryIndex index.html login.jsp
</IfModule>
```

c Add the following line to the end of the file:

Alias <Tomcat>/webapps/oaa

where <*Tomcat*> is the path to your Tomcat installation.

4 Install BI Portal using the **Custom** option. See *Custom Installation Option* on page 135.

5 Restart Tomcat and Apache.

6 Browse to the BI Portal login URL and verify that you can successfully connect.

Note: Depending on your Web server configuration, if you browse to http://servername/oaa, the Web server may display a list of all the OAA files instead of the login page.

If your server displays this behavior, follow these steps to configure your Web server to display the OAA login page instead of a directory listing.

To configure Apache to display login.jsp by default:

1 Open Apache's conf/httpd.conf file in a text editor.

2 Find the existing line that reads DirectoryIndex index.html.

3 Add login.jsp to the end:

DirectoryIndex index.html login.jsp

4 Save httpd.conf.

5 Restart the Apache Web server.

WebSphere Application Server 4.0.2

Use the following procedures to configure WebSphere to run BI Portal on AIX.

To configure WebSphere Application Server 4.02:

Step 1 Install WebSphere 4.02. Your version of WebSphere 4.0.2 includes the IBM HTTP Server. *Installing WebSphere 4.02* on page 112.

Step 2 Deploy the Portal WAR file to WebSphere to create the necessary folder structure for BI Portal. See *Deploying the Portal WAR file to WebSphere* on page 113.

Step 3 Run the BI Portal installer. See *Running the BI Portal installer* on page 115.

Step 4 Configure the JVM settings to your database classes. See *Configuring the JVM settings* on page 116.

Step 5 Set the JVM Java heap size for each WebSphere instance running BI Portal. See *Setting the Java heap size* on page 117.

Step 6 Create the local.xml file. See *Creating the local.xml file* on page 118.

Step 7 Configure the portal to connect to the report server. See *Configuring the portal to connect to the report server* on page 119.

Step 8 Copy the jar files. See *Copying jar files* on page 120.

Step 9 Create the virtual directory you want to use for BI Portal in your Web server. See *Configuring a virtual directory for IBM HTTP Server* on page 120.

Step 10 Regenerate and configure. See *Regenerating the plug-in configuration* on page 121.

Step 11 Modify the etc/hosts file. See *Modifying the etc/hosts file* on page 122.

Step 12 Start BI Portal. See *Starting Business Intelligence Application* on page 122.

Step 13 Optionally, add another wijsp Web application. See *Adding a wijsp Web application* on page 123.

Installing WebSphere 4.02

Purchase and install IBM WebSphere 4.0.2. Your version of WebSphere 4.0.2 includes the IBM HTTP Server.

Verify that you install fix pack 3. To check this, go to the default_server_Stdout.log file under /Websphere/AppServer/logs.

Deploying the Portal WAR file to WebSphere

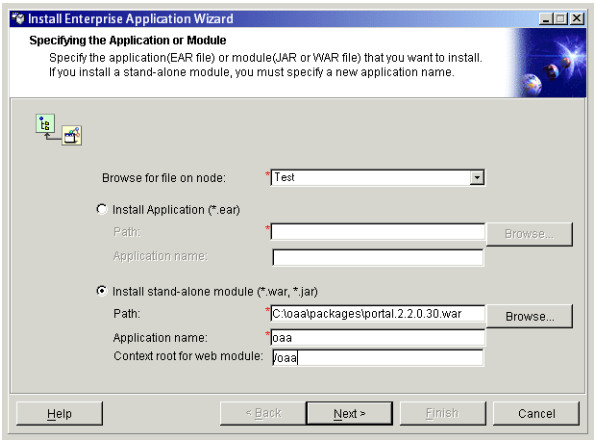
The Portal WAR file creates the folder structure necessary to deploy BI Portal in your application server.

To deploy the Portal WAR file to WebSphere:

1. Verify that the WebSphere Admin Server has been started.
2. Open the WebSphere Advanced Administrator's Console (/WebSphere/AppServer/bin/adminclient.sh).
3. On the menu at the left side of the console, right-click on **Enterprise Applications** and select **Install Enterprise Application**.
4. Update the web.xml file in portal.war to create the Enterprise Application in WebSphere.
   a. Type the command:
   Cd /usr/BI/peregrine/oaa/packages
   b. Using the jar command, extract WEB-INF/web.xml from the BI<version>.zip file, where *version* is version of BI Portal.
   For example, $JAVA_HOME/bin/jar –xvf BI.5.0.11.zip WEB–INF/web.xml
   c. Using the jar command, update the WEB-INF/web.xml file in portal<version>.war file, where version is the version number of the WAR file you installed.
   For example, $JAVA_HOME/bin/jar –uvf portal<version>.war WEB–INF/web.xml
5. On the screen displayed, do the following:
   a. Select **Install stand-alone module**.
   b. In the **Path** field, browse to the path to the portal<version #>.war file. The default is /usr/BI/peregrine/oaa/packages.
   For <version #>, select the most recent version available (4.0.0.44 or greater).
   c. In the **Application Name** field, type oaa.
   d. In the **Context Root** field, type the name of BI Portal virtual Web server directory you wish to use. Example: /oaa.

Important: You must create a Web server virtual directory matching the context root you enter here.

The following screen shows the completed form.

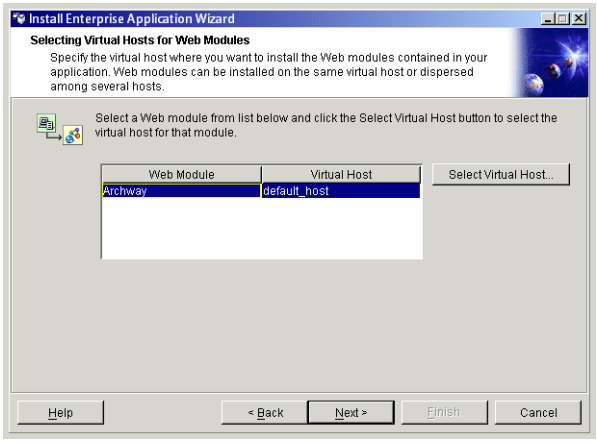


6 Click **Next**.

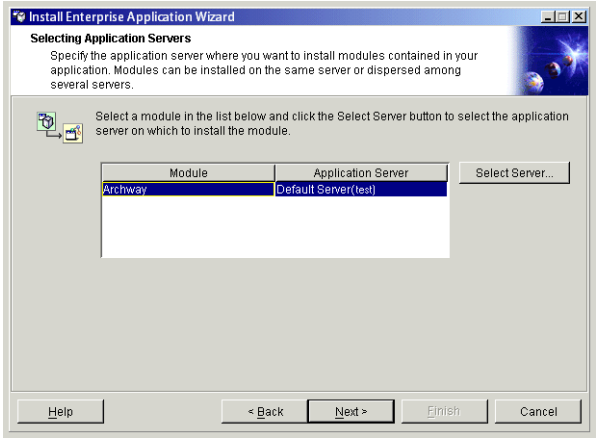
7 Click **Next** on the following dialog boxes. These screens will not be used.

- Mapping Users to Roles
- Mapping EJB Run As Roles to Users
- Binding Enterprise Beans to JNDI Names
- Mapping EJB References to Enterprise Beans
- Mapping Resource References to Resources
- Specifying the Default Datasource
- Specifying Data Sources for Individual CMP Beans

8 In the Selecting Virtual Hosts for Web Modules, select the WebSphere server instance you want to use, and then click **Next**.



9 In the Selecting Application Servers dialog box, select the WebSphere server instance you want to use, and then click **Next**.



10 On the dialog box displayed, click **Finish**.

Running the BI Portal installer

Run the BI Portal installer and select the Custom installation option. See *Custom Installation Option* on page 135.

If you choose /usr/BI as the installation location, the contents of this directory include:

- /usr/BI/peregrine/bi
- /usr/BI/peregrine/oaa/external/
- /usr/BI/peregrine/oaa/packages

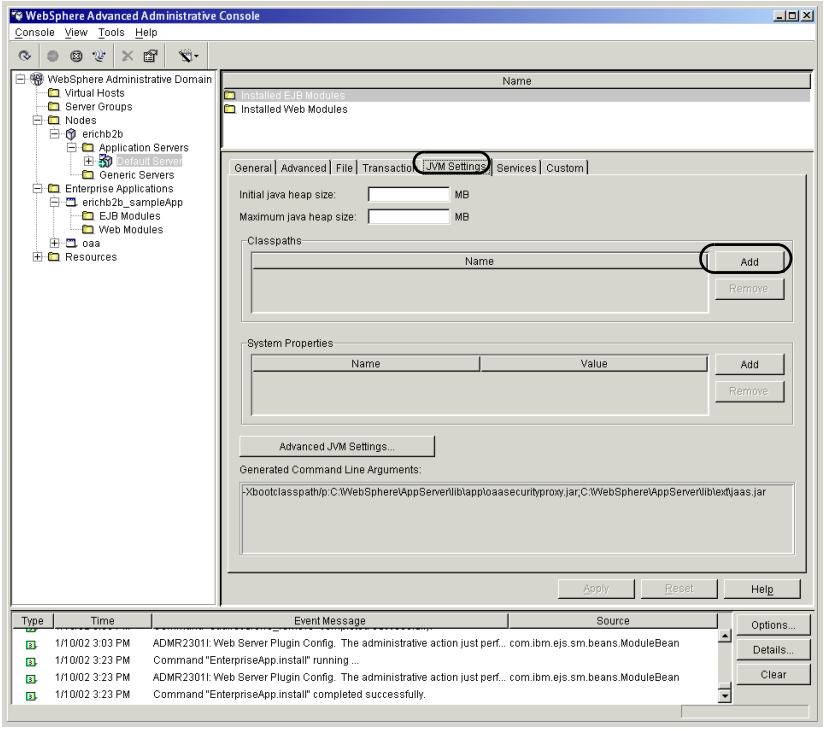
Configuring the JVM settings

BI Portal requires that you configure the JVM settings to your database classes.

To configure the JVM settings:

1. Verify that the WebSphere Admin Server has been started.
2. Open the WebSphere Advanced Administrator's Console (/WebSphere/AppServer/bin/adminclient.sh).
3. Click **Nodes** > <*System Name*> > **Application Servers** > <*Application server name*>.

   The server settings page opens.



4 Click the **JVM Settings** tab.

5 Under **Classpaths**, click **Add** to add the path to your application classes directory.

```
/usr/WebSphere/AppServer/InstalledApps/oaa.ear/portal.<version>.war
/WEB-INF/classes
```

6 Click **Add** again.

If you are using Oracle, provide the path to the classes12.jar file:

$ORACLE_HOME/jdbc/lib/classes12.jar

If you are using DB2, provide the path to db2java.zip file: <DB2_installationdir>/java/db2java.zip.

7 Under **System Properties**, click **Add**.

a In the **Name** field, type java.library.path.

b In the **Value** field, type /usr/WebSphere/AppServer/InstalledApps/oaa.ear/<version>.war/WEB-INF/lib/AIX/ServiceCenter4

where version is the version number of your WAR file.

8 Click **Advanced JVM Settings**.

a Add the following to the **command line argument** field:

```
-Dorg.omg.CORBA.ORBClass=com.iona.corba.art.artimpl.ORBImpl
-Dorg.omg.CORBA.ORBSingletonClass=com.iona.corba.art.artimpl.ORBSingleton
```

b Add the following to the **boot classpath prepend** field: /usr/BI/peregrine/bi/bo/wiapi/lib/bo_orb.jar

c Click **OK**, then click **Apply**.

Setting the Java heap size

You can configure how much memory is available for your application server instances. The following instructions assume you are only using one WebSphere instance. You will need to adjust the heap size accordingly if you are load balancing across several WebSphere instances.

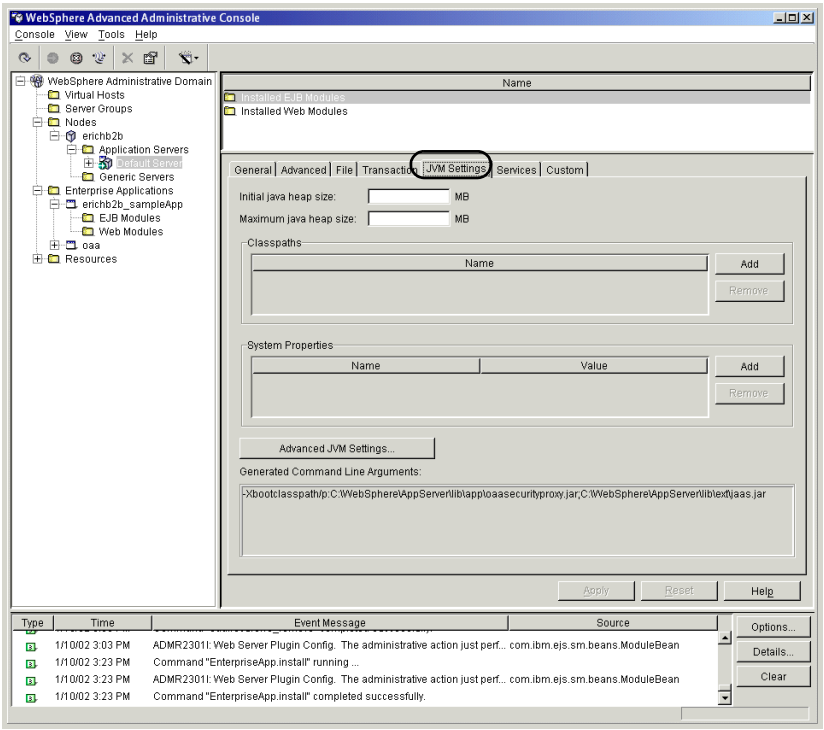
To set the Java heap size:

1 Verify that the WebSphere Admin Server has started.

2 Open the WebSphere Advanced Administrator's Console (**Start** > **Programs** > **IBM WebSphere** > **Application Server** > **Administrator's Console**).

3 Click **Nodes** > <*System Name*> > **Application Servers** > <*Application server name*>.

The server settings page opens.



4 Click the **JVM Settings** tab.

5 Set the following JVM settings:

a **Initial java heap size.** Type 60.

b **Maximum java heap size.** Type the value you want for heap memory. This setting should be at least 225 MB, but not more than 512 MB.

Note: Make sure that the setting for maximum heap size is less than the free RAM available to the application server(s). Exceeding the amount of available RAM causes the JVM processes to swap to disk, reducing overall performance. A setting of 256 MB should be sufficient for most systems.

Creating the local.xml file

After you deploy BI Portal, you must create a **local.xml** file.

To create the local.xml file:

- Copy the following six lines from the <settings> section of **<appserver>/WEB-INF/default\archway.xml** to the <settings> section in your **<appserver>/WEB-INF/local.xml** file, where <*appserver*> is the location of your application server:

```
<?xml version="1.0"?>
<settings>
  <SSLProvider>com.ibm.jsse.JSSEProvider</SSLProvider>
  <HTTPSHandlerPkg>com.ibm.net.ssl.internal.www.protocol</HTTPSHandlerPkg>
  <CryptoProvider>com.ibm.crypto.provider.IBMJCE</CryptoProvider>
</settings>
```

Configuring the portal to connect to the report server

After creating the **local.xml**, you must configure the portal to connect to the report server.

To configure the portal to connect to the report server:

1. Type the following commands:

```
cd /usr/WebSphere/AppServer/InstalledApps/oaa.ear
/portal.<version>.war/WEB-INF/classes
cp /usr/BI/peregrine/bi/shared/<clustername>.cfg .
```

where *version* is the version number of your WAR file and *clustername* is the name used when you configured the Business Objects server.

2. Using a text editor, create a **webi.properties** file in the classes directory in the path **/usr/WebSphere/AppServer/InstalledApps/oaa.ear/portal.<*version*>.war/WEB-INF/classes** (where *version* is the version number of your WAR file) with the following contents:

```
#
#Mon Sep 15 10:23:31 PDT 2003
default_HsalPath=/wijsp/servlet/com.bo.hsal.HSALServlet
XML_TRANSFORMER=org.apache.xalan.processor.TransformerFactoryImpl
TEMP_DIR=/usr/BI/peregrine/bi/tmp
ORBDomain=mycluster
BalanceAlgorithm=None
```

Note: Make sure that the **TEMP_DIR** entry in the file exists and that the user has write permissions to that **TEMP_DIR**. Modify the **ORBDOMAIN** value with the correct clustername.

Copying jar files

The following instructions describe where to find and copy the .jar files.

```
cd /usr/WebSphere/AppServer/InstalledApps/oaa.ear/portal.<version>.war
/WEB-INF/lib
cp /usr/BI/peregrine/oaa/external/xalan.jar .

cp /usr/BI/peregrine/oaa/external/xercesImpl.jar .
cp /usr/BI/peregrine/oaa/external/xmlParserAPIs.jar .
rm bo_orb.jar
```

You must also copy the database driver file to the **WEB-INF/lib** directory.

For the SqlServer Database using the Microsoft JDBC driver, copy the following files:

- **Msutil.jar**
- **MsSqlServer.jar**
- **Msbase.jar**

Note: You can download these files from the Microsoft Web site.

For SqlServer Database using Sprinta2000.jar, copy **Sprinta2000.jar**.

Configuring a virtual directory for IBM HTTP Server

You must configure a virtual directory for BI Portal in your Web server. The following instructions assume that you are using WebSphere's built-in Web server – IBM HTTP Server. See your Web server documentation to determine how to create a virtual directory if you are using another Web server.

To configure IBM HTTP Server for BI Portal:

1. Stop the IBM HTTP Server.
2. Open the file **httpd.conf** in any text editor. By default this file is located at:

   <root>/usr/HTTPServer/conf
3. Add the following line to the end of the file:

   ```
   Alias /oaa/ "<root>/WebSphere/AppServer/installedApps/oaa.ear/portal.
   <version>.war/"
   ```

   For *<root>*, enter the root directory of the system.

For <*version*>, enter the version number of the WAR file you installed.

Note: The name you define for the virtual directory here must match the context root you defined in WebSphere.

Note: The BI Portal installer creates duplicate alias entries in the IBM HTTP Server when you install more than one Peregrine OAA Platform application on WebSphere.

Duplicate entries can also occur if you reinstall BI Portal or install another Peregrine OAA Platform application on a system that formerly had BI Portal installed on it.

Remove any duplicate alias entries from the IBM HTTP Server **httpd.conf** file.

4 Save the file.

5 Start the IBM HTTP Server.

Regenerating the plug-in configuration

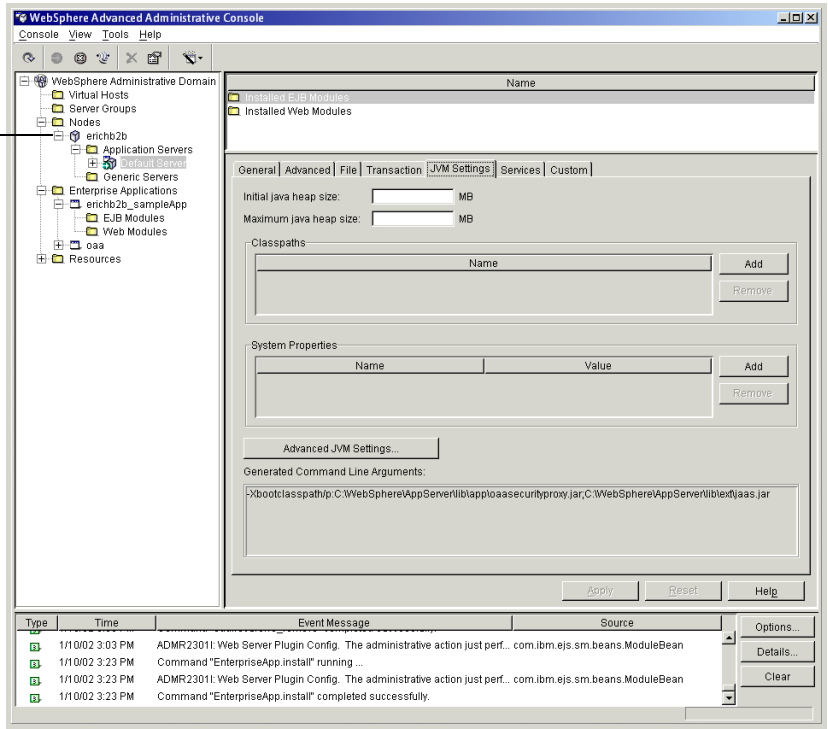
You must regenerate the plug-in configuration using the WebSphere Admin console after running the BI Portal installer.

To regenerate the plug-in configuration:

1 Open the WebSphere Advanced Administrator's Console (**Start** > **Programs** > **IBM WebSphere** > **Application Server** > **Administrator's Console**).

2 Click **Nodes** > <*System Name*> > **Application Servers** > <*Application server name*>.

The server settings page opens.



Right-click on your system name and select Regen Webserver Plugin.

3 Right-click on the <*System Name*>, then select **Regen Webserver Plugin**.

4 Restart your application server.

Modifying the etc/hosts file

Verify that your system can connect to the webintelligence server and the RDS database server. For example:

```
ping mywebintelligencehost
ping myrdsdatabasehost
ping schost
```

If you receive an error such as unknown host, you modify the **/etc/hosts** file. You can also contact your UNIX System Administrator for help.

Starting Business Intelligence Application

Using WebSphere Admin Console, start the oaa Web application. Restart the IBMHTTPServer on the server machine.

To modify the BI Portal Admin settings:

1 Type the following in the Address field:

http://<server name>/oaa/admin.jsp

For <server name>, enter the server name where the BI Portal Web server resides.

If everything is configured properly, the Administrator login page opens.

2 Log on as **System**, no password.

Note: See *Configuring the portal* in the *Installing on Windows* chapter of this guide.

3 From the Admin Home page, click **Settings**.

4 Configure the BI, Common, Portal, Portal DB, and ServiceCenter tabs.

Adding a wijsp Web application

For testing purposes, you can add additional wijsp Web applications.

To add a wijsp Web application:

1 Create the wijsp.war file from wi_tosca.zip, excluding the WEB-INF/lib/bo_orb.jar file, by typing the following commands:

```
cd /usr/BI/peregrine/bi/portal/setup
mkdir wijsp
cd wijsp/
$JAVA_HOME/bin/jar -xvf ../wi_tosca.zip
cd /usr/BI/peregrine/bi/portal/setup/wijsp/WEB-INF/lib
rm bo_orb.jar
cd /usr/BI/peregrine/bi/portal/setup/wijsp
$JAVA_HOME/bin/jar -cvf wijsp.war
```

2 Using WebSphere Admin Console (see *Configuring the JVM settings* on page 116), create a new Enterprise Application using the wijsp.war created in the $JAVA_HOME/bin/jar –cvf wijsp.war wijsp command.

Note: Before performing the following instructions, verify that the classes directory exists in the path
/usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war/WEB-INF/
If it does not exist, then create the directory with the following commands:
cd /usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war/WEB-INF
mkdir classes

a From the JVM Settings for wijsp Enterprise Application, update Classpath:

/usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war/WEB-INF/classes

b Update the **command line argument**:

-Dorg.omg.CORBA.ORBClass=com.iona.corba.art.artimpl.ORBImpl

-Dorg.omg.CORBA.ORBSingletonClass=com.iona.corba.art.artimpl.ORBSingleton

c Update the **boot classpath prepend**:

usr/BI/peregrine/bi/bo/wiapi/lib/bo_orb.jar

3 Perform the following commands:

```
cp /usr/WebSphere/AppServer/InstalledApps/oaa.ear/oaa.war/WEB-INF/classes
/usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war/WEB-INF/classes
cd /usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war/WEB-INF/lib
cp /usr/BI/peregrine/oaa/external/xalan.jar .
cp /usr/BI/peregrine/oaa/external/xercesImpl.jar .
cp /usr/BI/peregrine/oaa/external/xmlParserAPIs.jar .
```

4 Copy the resource files to wijsp web application.

```
cd /usr/WebSphere/AppServer/InstalledApps/wijsp.ear/wijsp.war
$JAVA_HOME/bin/jar -xvf
/usr/BI/peregrine/bi/portal/setup/wi_tosca_websphere.zip
```

5 Using WebSphere Admin Console, regenerate the plugin and start the Enterprise Application.

6 Restart IBMHTTPServer on the server machine.

7 Test the wisjp Web application.

a Go to the URL http://<server name>:<port>/wijsp/.

b Type the name (Peregrine_Supervisor) and password (pass) when prompted.

c Click **Search** under Corporate Documents.

d Click one of the document links.

e Click on the Edit link in the upper left corner of the page to complete the test.

Typical Installation Option

A typical installation of BI Portal installs the most commonly used components of the product and saves application files and data in default destination directories. Most users choose Typical installation.

Typical Installation Components

Following is a brief description of the components that are automatically installed with a Typical installation of BI Portal:

Applications and File Locations

BI Portal Component	Default Installation Directory
Apache Web Server	/usr/local/peregrine/common/apache2
Tomcat Application Server	/usr/local/peregrine/common/tomcat4
Java Development Kit	/usr/local/peregrine/common/jdk1.3.1
OAA Platform and BI Portal	/usr/local/peregrine/oaa

Communications Ports

BI Portal uses the following communications ports in a typical installation. After installation, you can configure BI Portal to use one or more of the alternate communications ports if your local network already uses these communications ports.

Default Port	Component used by	Alternate Port
80	Apache Web Server	8081
8005	Tomcat application server administration	8015
8009	Tomcat application server worker file	8019
8011	Tomcat application server worker file for load balancing (optional)	8021
8013	Tomcat application server worker file for load balancing (optional)	8023
8015	Tomcat application server worker file for load balancing (optional)	8025

Note: To change settings for these components or to use or install different components, use the Custom installation option for BI Portal.

Typical Installation Procedures

This section explains how to install BI Portal with a Tomcat application server and an Apache web server on an AIX or Solaris operating system.

Note: If you cancel the installation before completing all the steps, you must run Uninstall to remove all the files.

To perform a typical installation of BI Portal on AIX or Solaris:

1 Log into your server with an account that has root privileges.

Important: Verify that your temp directory has a minimum of 300 MB of available space. On Solaris, for example, the system-wide temp directory is /tmp.

2 Insert the BI Portal installation CD into your computer's CD ROM drive. Your computer should automatically launch the installation program.

Exit the automatic launch and mount your CD ROM drive. For example:

```
mount /cdrom
```

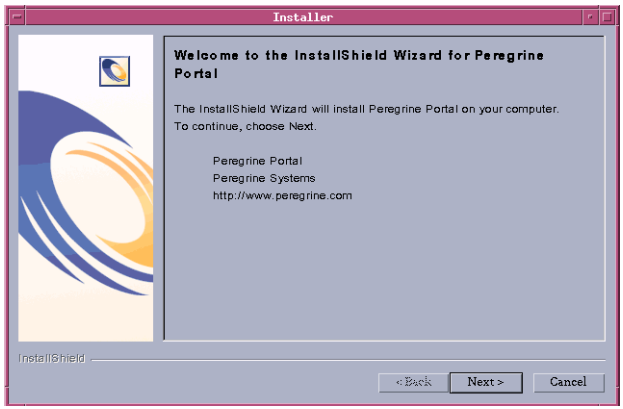
Change directories to your CD ROM. For example:

```
cd /cdrom
```

Enter the installer script specific for your operating system:

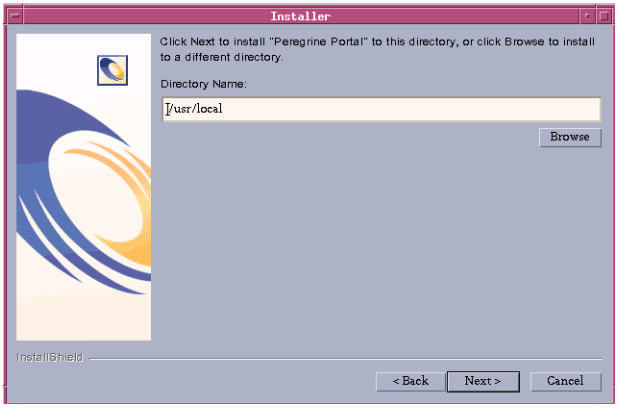
Operating system	Shell script to run
AIX 5.1	`./setupaix`
Solaris 2.6, 7, 8, 9	`./setupsolaris`

The installer welcome page opens.



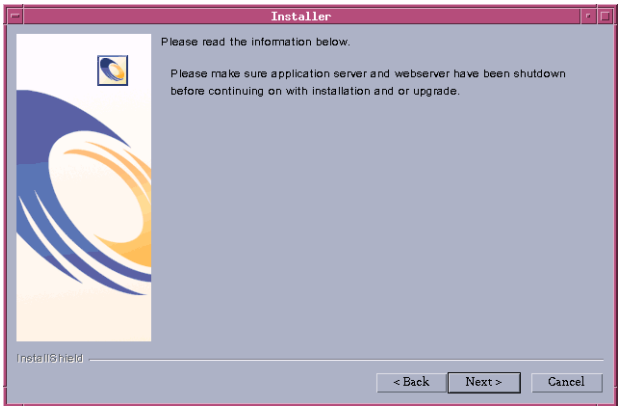
3 Click **Next** to continue to the next page of the wizard.

The installation location page opens.



4 Click **Browse** to change the default installation location of **/usr/local**.

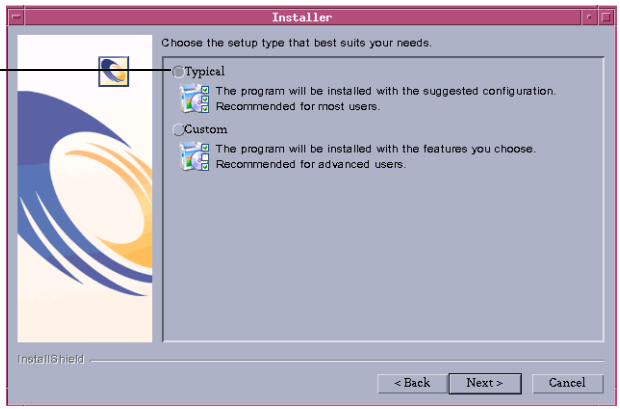
5 Click **Next** to open the next page of the wizard that instructs you to stop your application server and Web server.



6 Click **Next** to continue to the next page of the wizard.

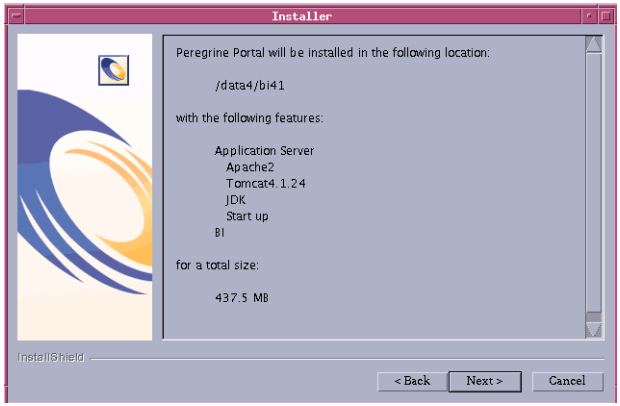
The setup type page opens.

Click **Typical**.



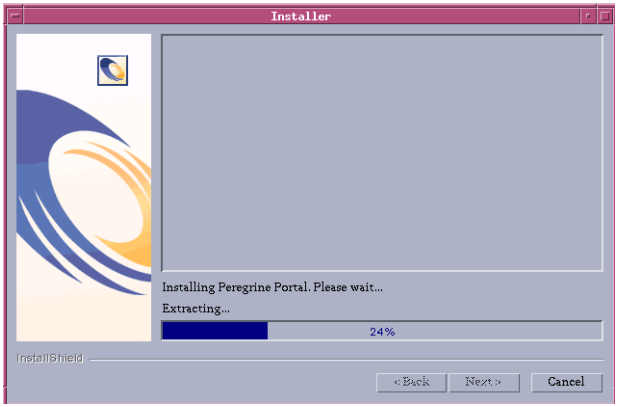
7 Select **Typical**.

8 Click **Next** to open the list of components that will be installed.

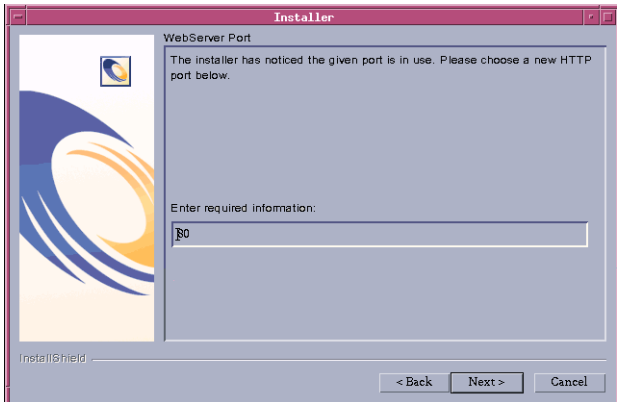


Note: The list depends on the application that you install.

9 Click **Next** to continue installing BI Portal components.
The installation progress page opens.

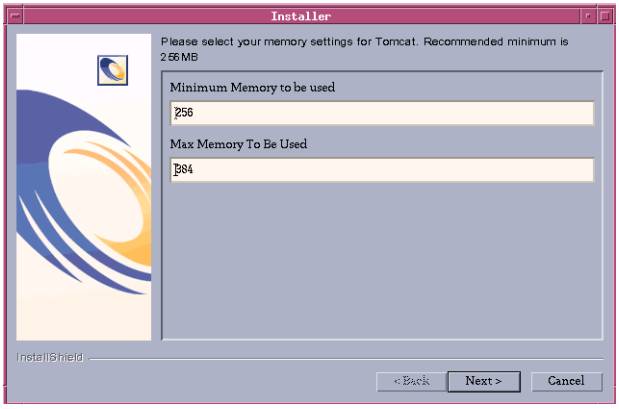


The installer verifies the availability of port 80 for the Apache Web server. If the installer finds a port conflict on port 80, the WebServer Port page opens.

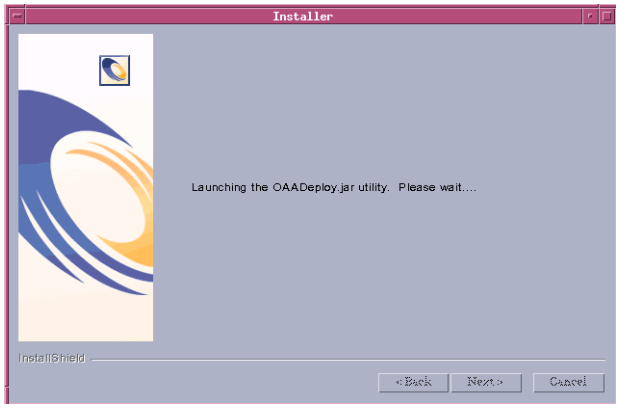


10 If required, enter the new Web server communications port, then click **Next**.

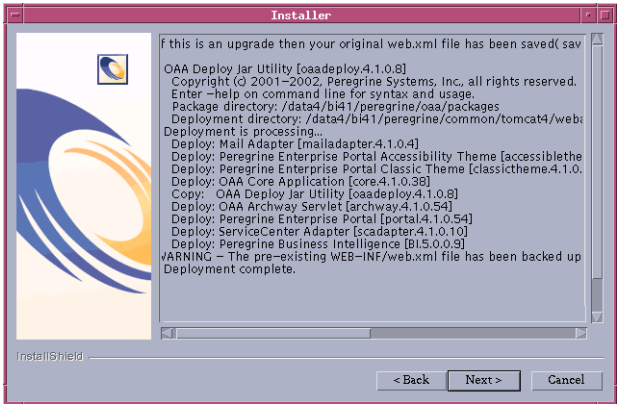
11 Change the Tomcat memory settings as needed, and click **Next**.



12 Click **Next** to open the deployment utility page that starts deploying BI Portal components.

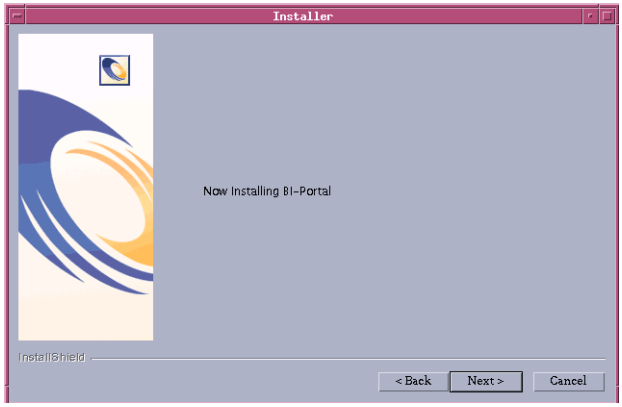


13 Click **Next** to view the list of all deployed packages.

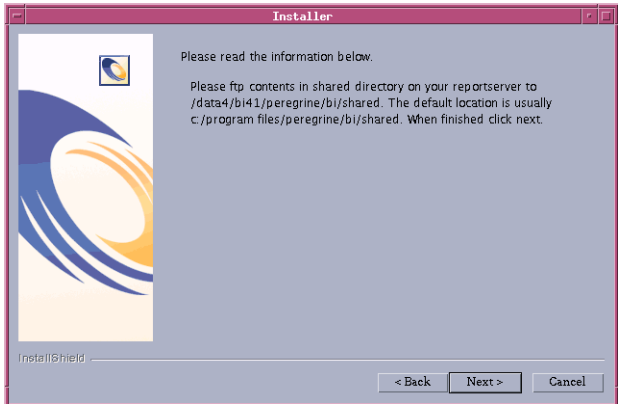


Note: The list of deployed packages depends on the application that you install.

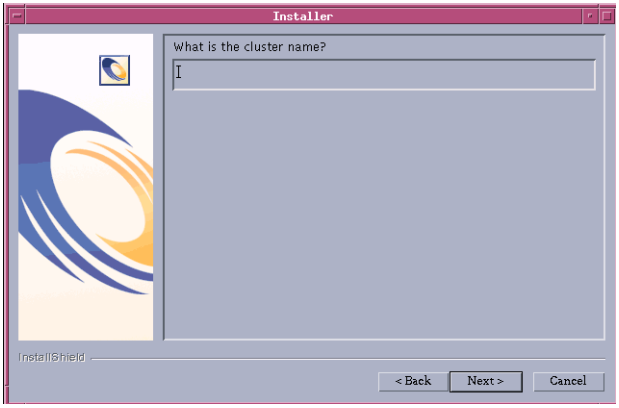
14 Click **Next** to continue installing BI Portal.



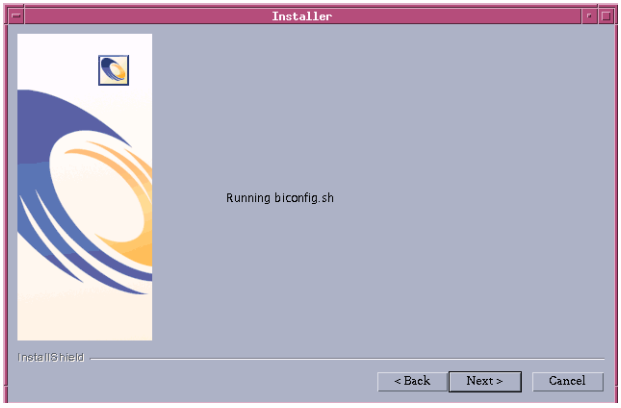
15 Using File Transfer Protocol (FTP), move the contents from your shared directory on your reportserver to the location of your BI Portal installation, then click **Next**.



16 Type the cluster name used when you configured the Business Objects server, then click **Next**.

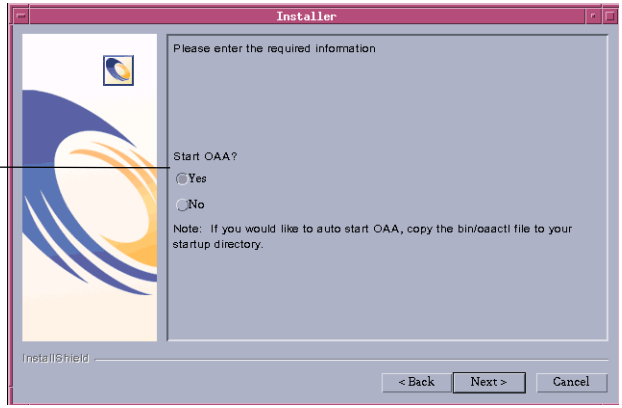


The installer runs the required shell scripts.



17 Click **Next**.

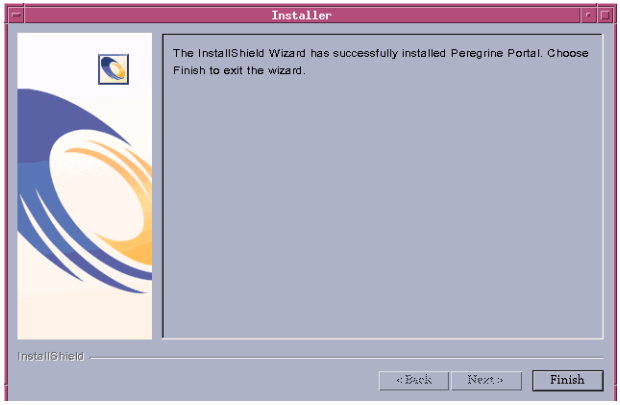
The start OAA page opens.



Select **Yes** to start BI Portal immediately.

18 Click **Yes** to start BI Portal immediately or select **No** to manually start BI Portal after installation is complete.

If you want BI Portal to start every time the server is started, then copy the file **oaactl** into your startup directory. The default file location is: /usr/local/peregrine/bin/.



19 Click **Finish** to complete the BI Portal installation.

If you have not already done so, you need to configure your system to connect to the database you are using. This is done on the Settings page of the Admin module. See *Configuring the portal* in the *Installing on Windows* chapter of this guide for more information about the BI tab settings.

Custom Installation Option

The following section describes how to perform a custom installation of BI Portal on a UNIX operating system server, including overview steps for a Development and Production environment.

Custom Installation Components

Following is a brief description of the components that are available for a custom installation of BI Portal:

Application options

BI Portal Component	Options
Web Server	■ Apache 2.0.43 ■ IBM HTTP Server 1.3.19 ■ Microsoft IIS 5.0 for Win 2000
Application Server	■ Tomcat 4.1.24 ■ WebSphere 4.02, 5.0
Java Development Kit	■ Java 2 SDK

Communications Ports

The communications ports used by a custom installation of BI Portal depend upon the application components that you select. Refer to your Web and application server documentation to determine what communications port they require. After installation, you can configure BI Portal to use alternate communications ports if your local network already uses particular communications ports.

BI Portal on servers running Oracle 9.2.0.1

If you are running BI Portal on a server using Oracle 9.2.0.1 you may experience a port conflict over communications ports 8009 and 8080. Consult your Web and application server documentation to see if they use either of these two ports.

If you are using Tomcat as your application server, then by default, there will be a port conflict over port 8009. It is recommended that you change Tomcat to use a different communications port on servers running Oracle 9.2.0.1.

Custom Installation Procedures

Note: If you cancel the installation before completing all the steps, you must run Uninstall to remove all the files.

To perform a custom installation of BI Portal on UNIX:

1 Log into your server with an account that has root privileges.

Important: Verify that your temp directory has a minimum of 300 MB of available space. On Solaris, for example, the system-wide temp directory is /tmp.

2 Insert the BI Portal installation CD into your computer's CD ROM drive. Your computer should automatically launch the installation program.

If the installation program does not automatically start, mount your CD ROM drive. For example:

```
mount /cdrom
```

Change directories to your CD ROM. For example:

```
cd /cdrom
```

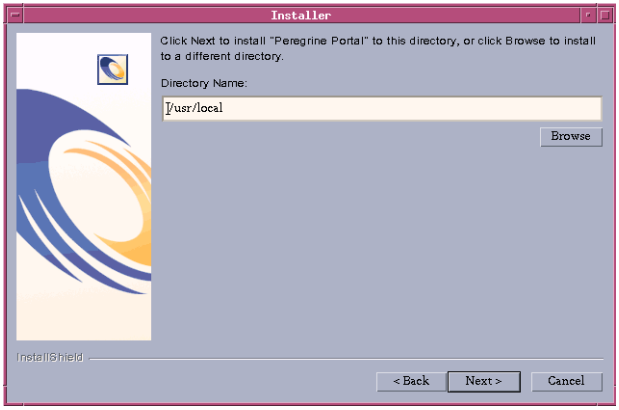
Enter the installer script specific for your operating system:

Operating system	Shell script to run
AIX 5.1	`./setupaix`
Solaris 2.7	`./setupsolaris`
Solaris 2.8	`./setupsolaris`

The installer welcome page opens.

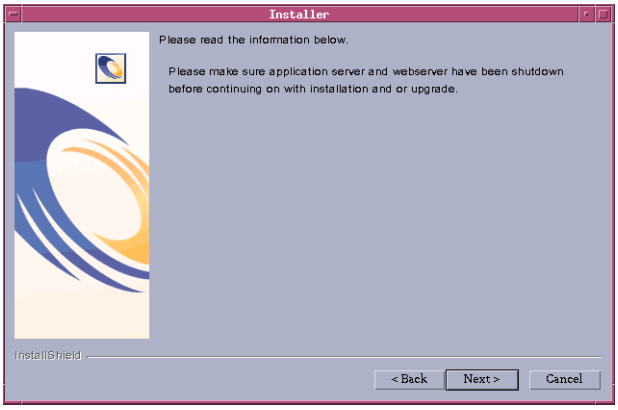
3 Click **Next** to continue.

The installation location page opens.



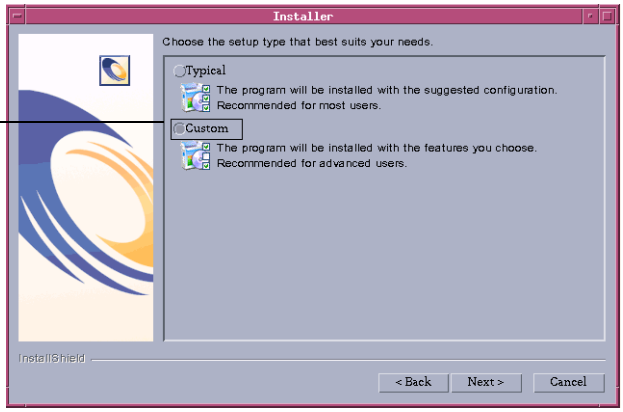
4 Click **Browse** to change the default installation location of /usr/local.

5 Click **Next** to read the information about closing the servers before continuing with the installation.



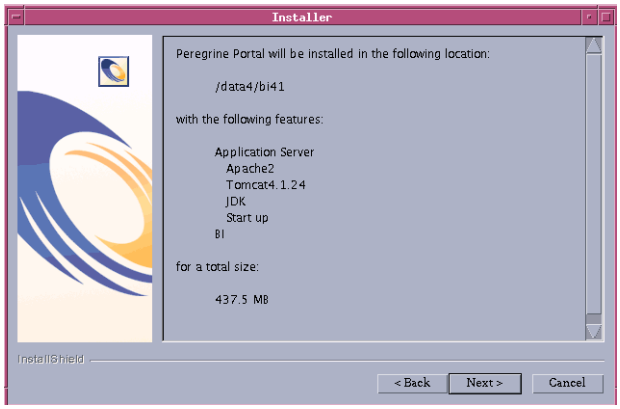
6 Click **Next** to open the setup type page.

Click **Custom**.



7 Select **Custom**.

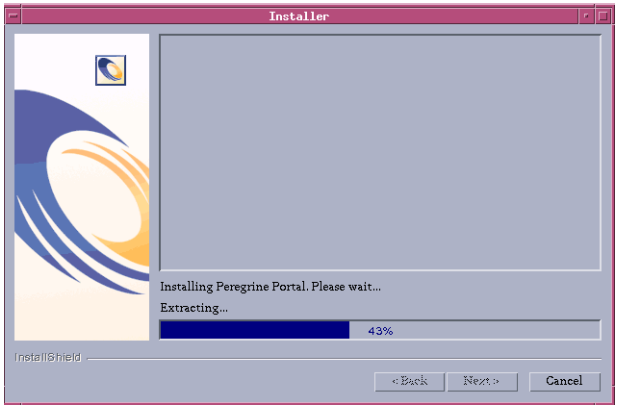
The review components page opens.



Note: The list of features on this page depends on what you actually install.

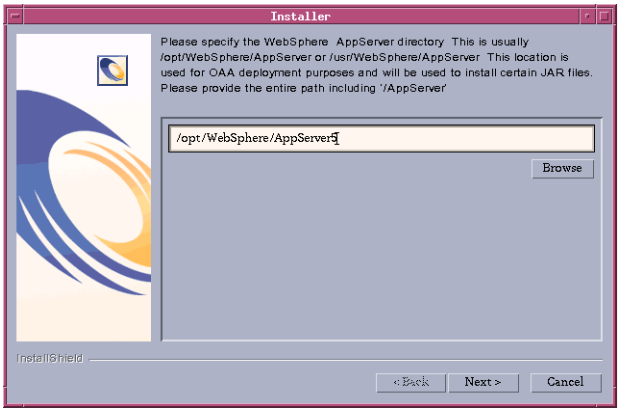
8 Click **Next** to start installing BI Portal components.

The installation progress page opens.

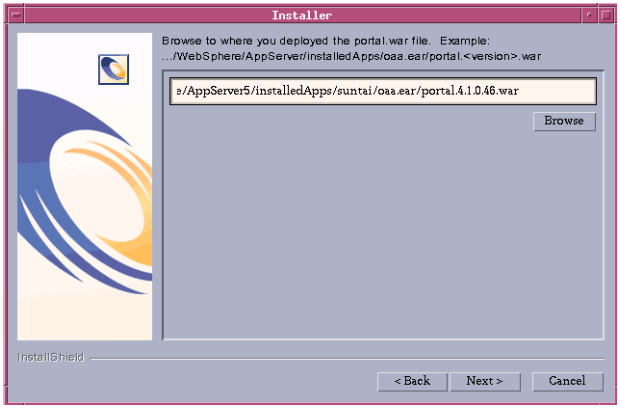


9 Click **Next** to configure a WebSphere application server.

The WebSphere AppServer installation location page opens.



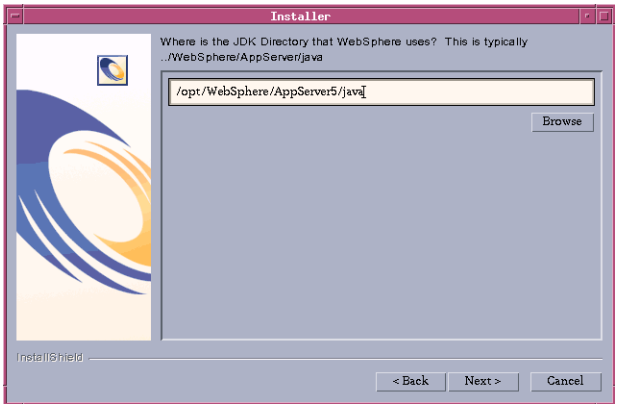
a Click **Browse** to locate the directory where you installed the WebSphere AppServer. Click **Next** to continue.



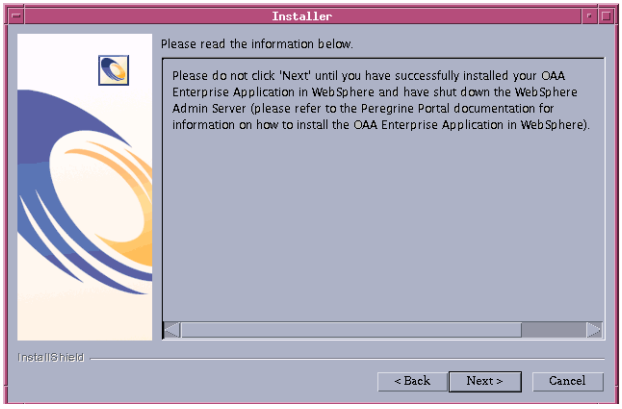
b Click **Browse** to locate the directory where you deployed the portal.war file. Click **Next** to continue.

WebSphere automatically created this directory when you deployed the BI Portal portal.war as an enterprise application. See *WebSphere Application Server 4.0.2* on page 111 for more information about deploying a WAR file.

The WebSphere JDK installation location page opens.

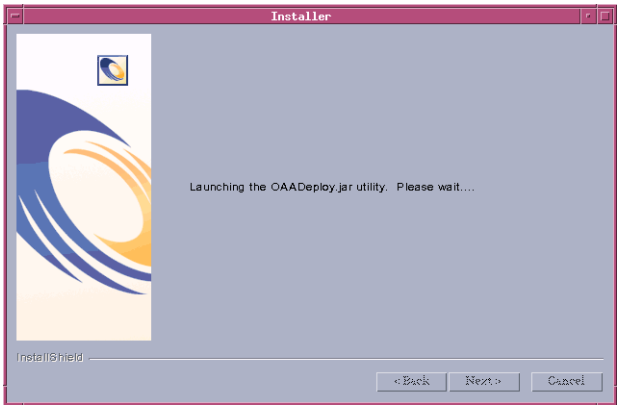


c Click **Browse** to locate the directory where you installed the Java development kit used by WebSphere. Click **Next** to read the information about the screen.

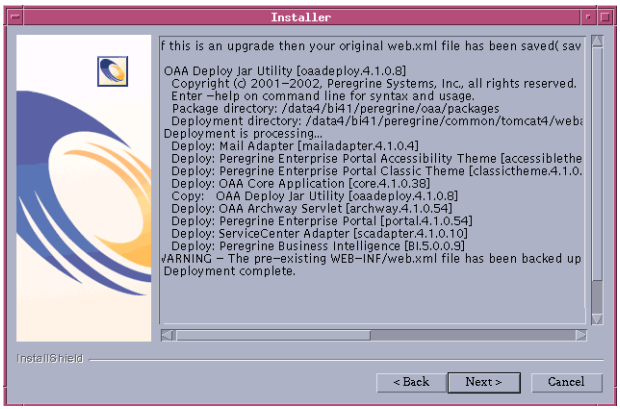


d Click **Next** to continue.

The BI Portal deployment utility page opens.

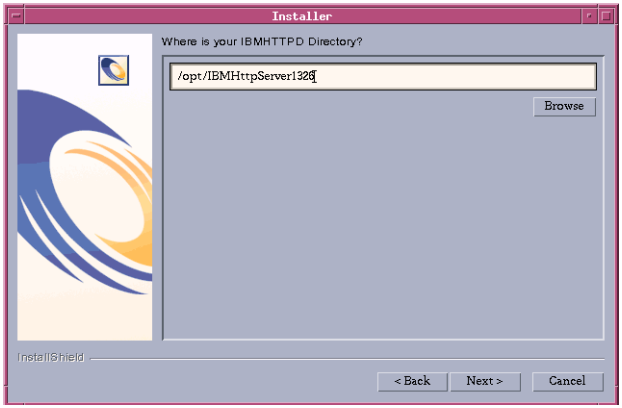


e Click **Next** to view the list of all deployed packages.



Note: The list of deployed packages depends on what you actually install.

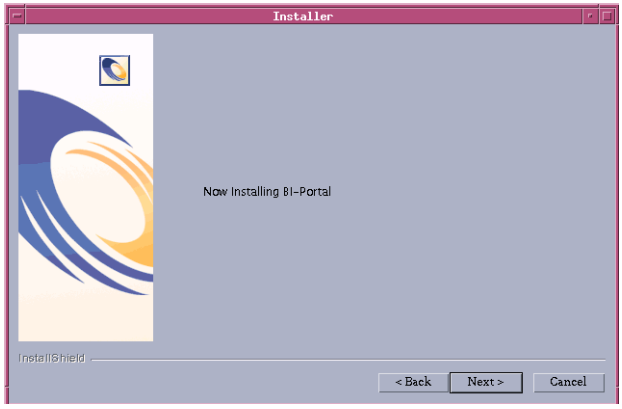
f Click **Next** to open the IBM HTTP Server location page.



g Click Browse to locate where you installed the IBM HTTP Server. Click **Next** to continue.

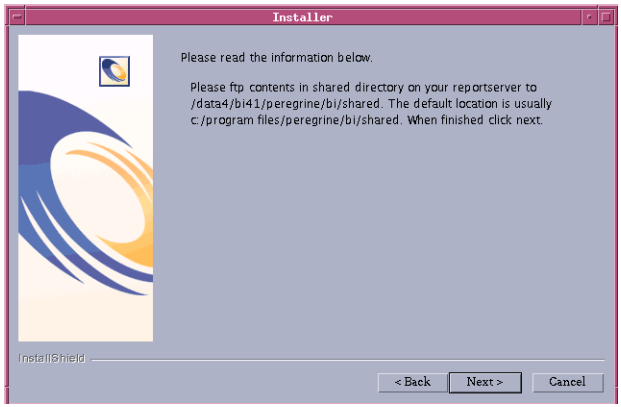
The BI Portal installer automatically configures a Web server virtual directory called **oaa**. If you want to define a different Web server virtual directory, see *WebSphere Application Server 4.0.2* on page 111 for a list of requirements.

The installer screen indicates what components are being installed.

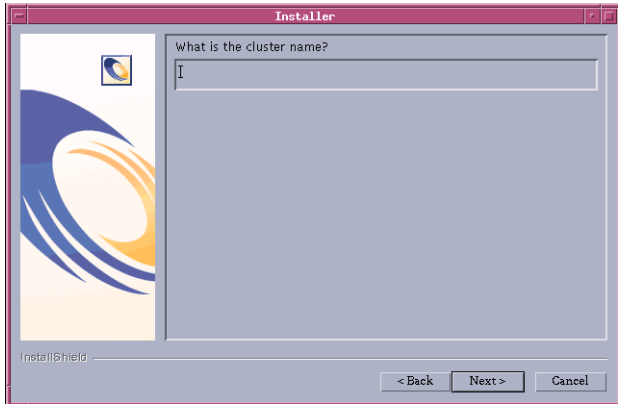


10 Click **Next** to continue.

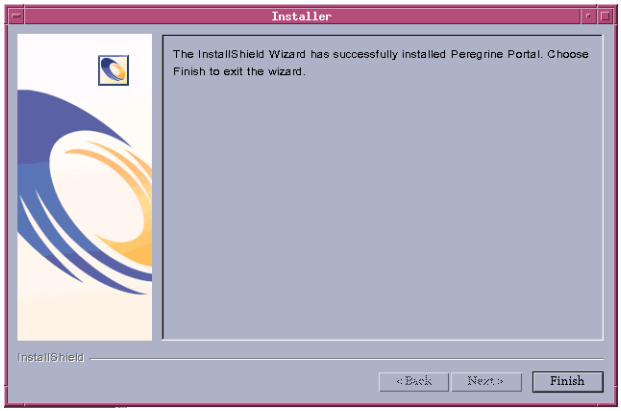
11 Using File Transfer Protocol (FTP), move the contents from your shared directory on your reportserver to the location of your BI Portal installation, then click **Next**.



12 Type the cluster name used when you configured the Business Objects server, then click **Next**.



13 Click **Finish** to close the installer.



If you have not already done so, you need to configure your system to connect to the database you are using. This is done on the Settings page of the Admin module. See *Configuring the portal* in the *Installing on Windows* chapter of this guide for more information about the BI tab settings.

Configuring the WebSphere startupServer.sh on AIX

If you are running on an AIX server, you must configure your WebSphere environment by editing the **startupServer.sh** script.

To configure the WebSphere environment on AIX:

1 Open **startupServer.sh** in any text editor.

2 Add an entry for LIBPATH and set it to the path values for AIX.

Example:

```
#!/bin/sh
LIBPATH=/usr/lib:/WebSphere/AppServer/installedApps/oaa.ear/portal.4.
0.0.55.war/WEB-INF/lib/AIX:/WebSphere/AppServer/installedApps/answer.
ear/portal.4.0.0.55.war/WEB-INF/lib/AIX/ServiceCenter4
export LIBPATH
```

3 Save the file.

Uninstall—AIX or Solaris

Use the following instructions to uninstall BI Portal. This is a two-step process. You must first uninstall BI Portal, then delete the tables and documents. See the Uninstall section of the *Installing on Windows* chapter in this guide for information about deleting the tables and documents.

Warning: These procedures remove all the components that you selected to install. If you chose the Typical installation option, uninstall removes BI Portal, Peregrine Tomcat, Apache, and JDK. If you chose the Custom installation option, then only those components that you selected to install are removed.

To uninstall BI Portal from AIX or Solaris:

1. Connect to your AIX or Solaris system.
2. Change directories to:

   <root>peregrine/_uninst

   where <root> is the path to your BI Portal installation.
3. Enter the following command to uninstall BI Portal:

   ```
   ./uninstall.bin
   ```

   Note: You must stop the servers before proceeding. From the <root>/peregrine/bin directory, type the command: ./ooactl stop.
4. Follow the on-screen instructions to complete the uninstall.

Testing your installation

Use the following steps to confirm that you have properly installed BI Portal on AIX or Solaris.

To test your BI Portal installation:

1. Verify that your application and Web servers are started.
2. Open a Web browser and type the following in the Address field:

   http://<server name>:<port>/oaa/admin.jsp

   For <*server name*>, enter the server name where the BI Portal Web server resides.

For <*port*>, enter one of the following communications port numbers:

Application Server used	Port Number
WebSphere	80, can be omitted from URL
Tomcat	80, can be omitted from URL

If everything is configured properly, the Administrator login page opens.

If the BI Portal administration login page does not open, see *Troubleshooting* for more information.

5 Load Balancing

CHAPTER

This chapter covers the following topics:

Load balancing application servers

A server running a Web application such as Peregrine's Get-Services or Get-Resources consumes approximately 256 MB of memory per application server instance. You should not set the maximum heap size of the JVM in excess of the free RAM available to the application server(s). Exceeding the amount of available RAM causes the JVM processes to swap to disk, reducing overall performance.

Unlike other Adapters, the AssetCenter and ServiceCenter Adapters each create a single connection to the respective back end. Therefore, the memory consumed on the AssetCenter database server is the same as that consumed by a single client connection. The memory consumed on the ServiceCenter server is also the same as that of a single ServiceCenter client process.

Note that memory usage does not increase significantly per session, because the architecture is based on the sharing of a set of resources and database connections among all sessions handled by the same application server instance. The small amount of memory consumed for session-specific information is released as the users log off or as their sessions expire. Note that server sessions do not expire unless the browser is closed or the user navigates to a different domain.

Because ServiceCenter and AssetCenter adapters maintain a single connection to the back end, adding extra application server instances brings the added benefit of concurrent access to the back-end data store.

The need for extra application server instances and therefore JVMs is directly related to three variables:

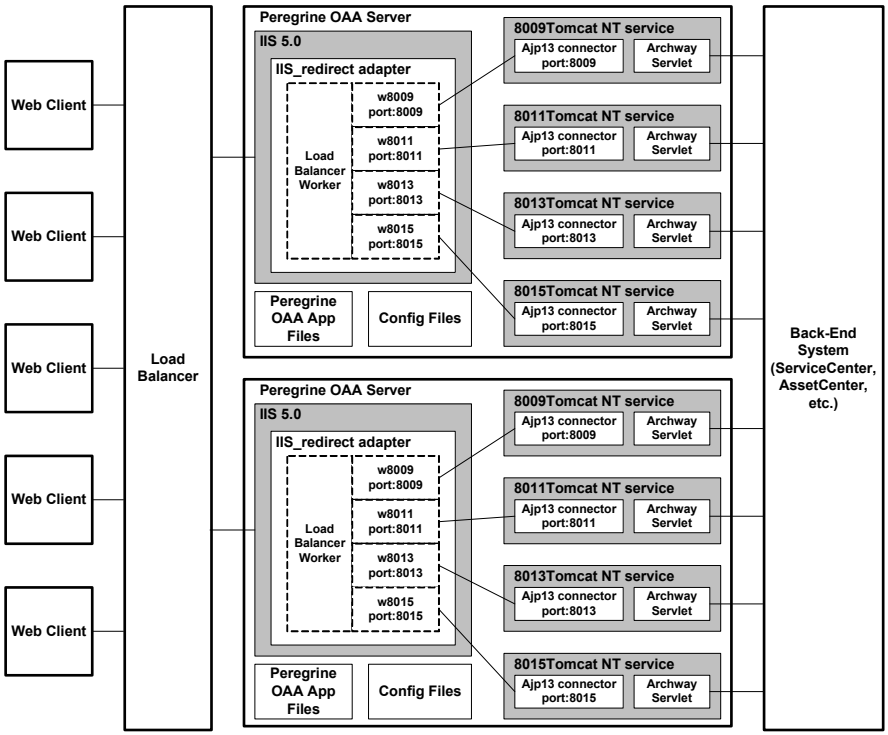
- The number of concurrent users.
- The processing power of the machine hosting the BI Portal Web server.
- The number of processors on the machine.

Each deployment may make different demands of the software and hardware, but, in any case, optimal back-end throughput for ServiceCenter and AssetCenter is achieved with the maximum number of application server instances that the server can handle without degraded performance due to lack of CPU headroom, file system swapping, and context switching.

Cache synchronization with Symmetric MultiProcessing (SMP) servers can, in most cases, be ignored as a performance tuning factor except in the case of the extremely large-scale systems.

To serve as a control guideline, low-end processors, such as a Pentium 450, should be capable of producing acceptable load handling for around 100 concurrent sessions on a single application server process. A dual Pentium 1000 with 2 gigabytes of RAM (a common data center configuration) should be capable of handling 400+ concurrent sessions using multiple application server instances. When using adapters capable of pooling, for example, the JDBCAdapter or BizDocAdapter, performance beyond the 400-concurrent-user benchmark can be achieved.

The following diagram illustrates the architecture of multiple JVMs:



Note: A white paper on Peregrine OAA architecture and optimization is available on the Customer Support Web site at http://support.peregrine.com.

Creating multiple instances of Tomcat for Apache

You can create multiple instance of Tomcat to load balance requests to BI Portal. You can configure each instance of Tomcat as a service. Although this is not required, it improves performance, makes the instances easier to manage, and provides extra functionality, including restarting the service if it fails or if the machine on which the instances are installed needs to be restarted.

Note: The following procedures assume that you have already installed BI Portal. Refer to either the Windows or UNIX installation chapter for more information on installing BI Portal.

For systems using IIS, see *Creating multiple instances of Tomcat for IIS* on page 163.

To create multiple Tomcat instance for Apache:

Step 1 Log in to the BI Portal admininstration page and disable the script pollers setting. See *Disabling script pollers on the primary Tomcat instance* on page 153.

Step 2 Create copies of the Tomcat directory, then delete the \webapps\oaa directory from the newly copied instances of Tomcat. See *Copying the Tomcat directory* on page 153.

Step 3 Edit the workers.properties file of the first or primary Tomcat instance to set the values for each additional Tomcat instance. See *Editing the workers.properties file* on page 154.

Step 4 Edit the mod_jk.conf file of the first or primary Tomcat instance to establish a connection between Tomcat and Apache. See *Editing the mod_jk.conf file* on page 156.

Step 5 Edit the httpd.conf file to define the Tomcat workers available for Apache. See *Editing the httpd.conf file* on page 157.

Step 6 Edit the server.xml files for each Tomcat instance. See *Editing the server.xml files for Apache* on page 157.

Step 7 Edit the jk2.properties files for each Tomcat instance. See *Editing the jk2.properties files for Apache* on page 159.

Step 8 Install multiple instances of Tomcat as a service using installservice.bat. This file can be found in the Tomcat\bin directory. See *Installing Tomcat instances as services for Apache* on page 160.

Step 9 Log in to the BI Portal admininstration page for the primary Tomcat instance and enable the script pollers setting. See *Enabling script pollers on the primary Tomcat instance* on page 161.

Step 10 Testing the configuration. See *Testing load balancing on Apache* on page 161.

Disabling script pollers on the primary Tomcat instance

You only need one Tomcat instance running script pollers. Before you copy your primary Tomcat instance, you should login to the BI Portal administration page and turn off script polling. This will disable script polling on all of the Tomcat instances you create by copying the primary Tomcat instance.

To disable script pollers on the primary Tomcat instance:

1. Log in to the BI Portal administration page. The default URL is:

   http://<*server_name*>/oaa/admin.jsp
2. Click Settings.

   BI Portal displays the common settings page.
3. Scroll down to the Server-Side Scripts section, and select No for the Enable scipt pollers option.
4. Scroll down to the bottom of the form and click Save.

   BI Portal displays the Control Panel page.
5. Click Reset Server to commit your changes.
6. Log out of the BI Portal administration page.
7. Stop the Peregrine Tomcat service to temporarily disable BI Portal.

Copying the Tomcat directory

You must create a separate folder for each instance of Tomcat you want to use for load balancing.

To copy the Tomcat directory:

1 Open Windows Explorer and copy the Tomcat install folder. The default file path is:

C:\Program Files\Peregrine\Common\Tomcat4

2 Paste a copy into the same root path. The default file path is:

C:\Program Files\Peregrine\Common

3 Rename the new folder to a unique name.

Tip: Include the port number to be used by the Tomcat instance in the folder name. For example, if you are going to use 4 instances of Tomcat listening on ports 8009, 8011, 8013, and 8015, then you can create 3 copies of the Tomcat folder called \Tomcat4_8011, \Tomcat4_8013, and \Tomcat4_8015. The primary instance uses port 8009.

Warning: If you are using more than four Tomcat instances, change the port numbers to avoid conflicts.

4 Delete the \webapps\oaa subdirectory from the newly copied instance of Tomcat.

The additional instances will use the same document root as the first or primary Tomcat instance.

5 Repeat step 1 through step 4 for each instance of Tomcat you want to use.

Editing the workers.properties file

For each server on which Tomcat instances are installed, there is only one workers.properties file. Tomcat installs the workers.properties file in the conf directory of your primary Tomcat instance. This file will be shared by all other Tomcat instances on that particular server.

The workers.properties file specifies the worker threads that the Web server connector will create in order to communicate with the Tomcat instances. Each Tomcat instance must communicate on a different port. The host should be set to the name of the server running the Tomcat instances or localhost if they are running on the same server as Apache.

Cache size is the maximum number of user sessions that Apache should direct to the Tomcat instance at one time.

Lbfactor is a number greater than or equal to 1 that Apache uses to load balance the workers. If all the workers are running on servers that have equal performance strengths, the lbfactor numbers should be equal. Workers with a lower lbfactor will be assigned fewer user sessions by the load balancer worker in Apache.

To edit the workers.properties file:

1 Open the workers.properties file in any text editor.

This file is located in the conf directory of your Tomcat installation.

2 Edit the following lines as shown. The paths for workers.tomcat_home and workers.java.home are the locations of your Tomcat installation and Java SDK installations.

Example:

```
workers.tomcat_home="c:\Program Files\Peregrine\common\Tomcat4"
workers.java.home="c:\Program Files\Peregrine\common\jdk1.3.1_05"
ps=\
worker.list=loadbalancer, ajp13, w8011, w8013, w8015
```

Find the worker.loadbalancer.type=lb code and make changes to the line that follows as shown below.

```
worker.loadbalancer.type=lb
worker.loadbalancer.balanced_workers=ajp13, w8011, w8013, w8015
```

Note: You can define the worker names any way you want as long as you continue the same naming convention throughout the procedure.

3 Add the following lines for each Tomcat instance you have installed, incrementing the port number for the values shown in step 2:

```
worker.w8011.port=8011
worker.w8011.host=localhost
worker.w8011.type=ajp13
worker.w8011.cachesize=40
worker.w8011.lbfactor=10
```

Note: All Tomcat instances share this workers.properties file; therefore, all additional lines must be in the file for the primary Tomcat instance.

4 Update the last two lines in the Default ajp13 Worker Definition section.

The first three lines are already in the file.

```
worker.ajp13.port=8009
worker.ajp13.host=localhost
worker.ajp13.type=ajp13
.
.
.
worker.ajp13.lbfactor=10
worker.ajp13.cachesize=40
```

Find the `worker.ajp13.lbfactor=10` code and make changes as shown below

Change lbfactor from =1 to =10
Change cachesize from =10 to =40

5 Save the file.

Editing the mod_jk.conf file

The mod_jk.conf file defines where the Worker files are available in Apache. This file is shared by all Tomcat instances on the server. It is important that you do this procedure after you have successfully deployed the necessary BI Portal files, otherwise the BI Portal mount points, file locations, and directories will not be included in the mod_jk.conf file, and you will have to manually add them.

To edit the mod_jk.conf file:

1 Make a copy of the mod_jk.conf file and rename the copy to mod_jk.conf-local.

The mod_jk.conf file is located in the Tomcat conf directory.

Note: This is done only on the primary Tomcat instance.

2 Open the mod_jk.conf-local file in any text editor.

3 Change JKWorkersFile to point to the worker.properties file of the primary Tomcat instance.

Example:

```
JkWorkersFile "C:\Program Files\Peregrine\Common\Tomcat4
\conf\worker.properties"
```

4 Change all JkMounts to use *loadbalancer* instead of *default worker ajp13*.

Usage: JkMount<file(s) or directory> <worker name>

Example:

```
JkMount/oaa/servlet/* loadbalancer
JkMount/oaa/*.jsp loadbalancer
```

5 Save the file.

Editing the httpd.conf file

The httpd.conf file must include mod_jk.conf-local.

To edit the httpd.conf file:

1 Open the httpd.conf file in any text editor.

The default location is:
C:\Program Files\Peregrine\Common\Apache2\conf.

2 Update the following line to include -local:

```
include "<Tomcat>/conf/mod_jk.conf-local"
```

For <*Tomcat*>, enter the path to your Tomcat installation. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4

3 Save the file.

Editing the server.xml files for Apache

You will need to modify the server.xml file for each Tomcat instance. The server.xml file contains the information Tomcat needs to connect to the Web server as well as to find the Peregrine OAA Platform Web application files.

Tip: Make a back up copy of the server.xml file before editing.

To edit the server.xml files:

1 Each Tomcat instance has a server.xml file located in the conf directory. Open this file in any text editor.

2 Verify that the port number attribute of the <Server> element is a unique value that does not conflict with other port numbers used by Tomcat. It is recommended that the port numbers 8005-8008 be used for the shutdown port when configuring four Tomcat instances.

Example:

```
<Server port="8005" shutdown="SHUTDOWN" debug="0">
```

Note: This is not the worker communications port number. The worker port number is defined in step 4 on page 158.

Warning: If you are using more than four Tomcat instances, change the port numbers to avoid conflicts.

3 Comment out a <Connector> tag with the className="org.apache.coyote.tomcat4.CoyoteConnector" using port 8080.

Tomcat uses this port to communicate with a browser for direct HTTP requests. Since Apache will be serving the static data, Tomcat does not need to listen on this connector. It will also prevent a user from directly accessing Tomcat instances.

Example:

```
<!-- Define a non-SSL Coyote HTTP/1.1 Connector on port 8080 -->
<!--
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
port="8080" minProcessors="5" maxProcessors="75"
enableLookups="true" redirectPort="8443" acceptCount="10" debug="0"
connectionTimeout="20000" useURIValidationHack="false" />
-->
```

4 Update the port number used by the Coyote Connector to a unique, non-conflicting value. If you are configuring four Tomcat instances, the values 8009 (as the primary port), 8011, 8013, and 8015 are recommended.

Example:

```
<!-- Define a Coyote/JK2 AJP 1.3 Connector on port 8009 -->
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
port="8009" minProcessors="5" maxProcessors="75"
enableLookups="true" redirectPort="8443" acceptCount="10" debug="0"
connectionTimeout="20000" useURIValidationHack="false"
protocolHandlerClassName="org.apache.jk.server.JkCoyoteHandler" />
```

5 Update the <Engine> element with the server name and communications port used by each Tomcat instance.

Example:

```
<!-- Define the top level container in our container hierarchy -->
<Engine jvmRoute="localhost:8009" name="Standalone"
defaultHost="localhost" debug="0">
```

The port number should follow the convention used elsewhere in the configuration (8009, 8011, and so on). These entries must be the same as the Tomcat ID entries you added to the **workers.properties** file in the primary Tomcat instance.

6 Update the **appBase** attribute of the <Host> element with the absolute path to the **webapps** directory of the primary Tomcat instance.

Example:

```
<!-- Define the default virtual host -->
<Host name="localhost" debug="0"
appBase="C:\Program Files\Peregrine\Common\Tomcat4\webapps"
unpackWARs="true" autoDeploy="true">
```

7 Create a <Context> element entry in the first or primary Tomcat instance and copy it to the other Tomcat instances, changing the OAA context so that it is not reloadable.

This prevents Tomcat from reloading the servlet without restarting the service. It improves performance and helps keep the JSP code that the Tomcat instances are serving in sync during an update.

Add the entry just above the "examples" Context entry.

Example:

```
<Context path="/oaa"
docBase="<First Tomcat install>/webapps/oaa"
crossContext="false"
debug="0"
reloadable="false" >
</Context>
```

For the **docBase** attribute, set *<First Tomcat install>* to the absolute path of the first or primary Tomcat instance.

8 Save the file.

9 Repeat step 2 through step 7 for each **server.xml** file in each Tomcat instance you made.

Editing the jk2.properties files for Apache

You will need to modify the **jk2.properties** file for each Tomcat instance. This file sets the jk2 communication port.

To edit the jk2.properties files:

1 Open the jk2.properties file for a Tomcat instance in a text editor.

This file is located in the Tomcat conf directory.

2 Insert a line for the channelSocket port. The port number must match the port number defined in workers.properties file for this Tomcat instance.

Example:

```
channelSocket.port=8009
```

3 Save the file.

4 Repeat step 1 through step 3 for each Tomcat instance.

Installing Tomcat instances as services for Apache

After you have edited the Tomcat files, you can install each instance of Tomcat as Windows services using installservice.bat.

To install Tomcat instances as services on Apache:

1 Open a DOS command prompt and change directories to your Tomcat bin directory.

2 Enter the following command to create each Tomcat instance:

```
installservice <service name> <tomcat_home> <jvm_dll_path>
```

Where <*service name*> is the name you assign to the Tomcat service, <*tomcat_home*> is the Tomcat install directory of the instance for which you are creating the service, and <*jvm_dll_path*> is the Java SDK install directory.

Note: The <service name> cannot have a space in it.

The second and third parameters are optional if you have already set the CATALINA_HOME and JAVA_HOME environment variables.

Warning: The command to create Tomcat instances cannot accept spaces in the file path.

Example:

```
installservice Tomcat8009 C:\Progra~1\Peregrine\Common\Tomcat4_8009
C:\Progra~!\Peregrine\Common\jdk1.3.1_05\jre\bin\server\jvm.dll
```

Note: Use the Windows naming convention to avoid problems of spaces in the file path name. For example, replace Program Files with Progra~1.

3 Repeat step 1 through step 2 for each Tomcat service you wish to create.

Tip: You can easily remove a service. From the DOS command prompt, change directories to your Tomcat bin directory, then enter the following command: Tomcat -uninstall <service name>. The command is case-sensitive.

4 Start each Tomcat service that you install.

Enabling script pollers on the primary Tomcat instance

You only need one Tomcat instance running script pollers. Before you test your load balancing configuration, you should login to the BI Portal administration page of the primary Tomcat instance and turn on script polling.

To enable script pollers on the primary Tomcat instance:

1 Log in to the BI Portal administration page of the Tomcat instance. The default URL is:

http://<*server_name*>:<*port_number*>/oaa/admin.jsp

For <*port_number*>, enter the port number you have defined for your primary Tomcat instance. This is typically port 8009.

2 Click Settings.

BI Portal displays the common settings page.

3 Scroll down to the Server-Side Scripts section, and select Yes for the Enable script pollers option.

4 Scroll down to the bottom of the form and click Save.

BI Portal displays the Control Panel page.

5 Click Reset Server to commit your changes.

6 Log out of the BI Portal administration page.

Testing load balancing on Apache

After you have created additional Tomcat instances, you can test if load balancing is occurring using the following steps.

To test load balancing:

1 Start all Tomcat instance services.

If you installed Tomcat as a service you can open the Windows Control Panel and start each instance from the Services dialog box.

2 Open a browser and log in to BI Portal.

3 Perform an action in BI Portal. For example, perform a search.

4 Logout of BI Portal.

5 Close your browser to clear the connection cache.

6 Repeat step 1 through step 5 one time for each Tomcat instance installed. For example, if you have 4 Tomcat instances, then you will need to login and logout a total of 4 times.

   The load balancing mechanism uses a Round-Robin algorithm. If load balancing is working successfully, each login attempt should use a different Tomcat instance.

7 Download the archway.log file.

   You can download the archway.log file from the **Administration** > **Server Log** page.

8 Open the archway.log file in a text editor.

9 Verify that connection details list a different Tomcat instance for each connection.

   If each connection uses a different Tomcat instance, then the system is load balancing properly.

   If each connection uses the same Tomcat instance, the system is not load balancing and needs troubleshooting.

Creating multiple instances of Tomcat for IIS

Multiple instances of Tomcat are installed as services. Although this is not required, it improves performance, makes the instances easier to manage, and provides extra functionality, including restarting the service if it fails or if the machine on which the instances are installed needs to be restarted.

To create multiple Tomcat instance for IIS:

Step 1 Log in to the BI Portal admininstration page and disable the script pollers setting. See *Disabling script pollers on the primary Tomcat instance* on page 164.

Step 2 Create copies of the Tomcat directory, then delete the **\webapps\oaa** directory from the newly copied instances of Tomcat. See *Copying the Tomcat directory* on page 164.

Step 3 Configure the ISAPI Plugin for IIS. See *Configuring the ISAPI Plugin for IIS* on page 165.

Step 4 Create and configure a **jakarta** virtual directory in IIS. See *Creating and configuring a jakarta virtual directory in IIS* on page 166.

Step 5 Configure IIS to use **isapi_redirector2.dll** as an ISAPI Filter. See *Configuring the isapi_redirector2.dll as an ISAPI filter* on page 166.

Step 6 Create and configure an **oaa** virtual directory in IIS. See *Creating and configuring an oaa virtual directory in IIS* on page 167.

Step 7 Edit the **workers2.properties** file of the first or master Tomcat instance to set the values for each additional Tomcat instance. See *Editing the workers2.properties file for IIS* on page 168.

Step 8 Edit the **server.xml** files for each Tomcat instance. See *Editing the server.xml files for IIS* on page 169.

Step 9 Edit the **jk2.properties** files for each Tomcat instance. See *Editing the jk2.properties files for IIS* on page 171.

Step 10 Install multiple instances of Tomcat as a service using **installservice.bat**. This file is in the **Tomcat\bin** directory. See *Installing Tomcat instances as services for IIS* on page 171.

Step 11 Log in to the BI Portal admininstration page for the primary Tomcat instance and enable the script pollers setting. See *Enabling script pollers on the primary Tomcat instance* on page 172.

Step 12 Testing the configuration. See *Testing load balancing on IIS* on page 173.

Disabling script pollers on the primary Tomcat instance

You only need one Tomcat instance runningscript pollers. Before you copy your primary Tomcat instance, you should login to the BI Portal administration page and turn off script polling. This will disable script polling on all of the Tomcat instances you create by copying the primary Tomcat instance.

To disable script pollers on the primary Tomcat instance:

1. Log in to the BI Portal administration page. The default URL is:

   http://<*server_name*>/oaa/admin.jsp
2. Click Settings.

   BI Portal displays the common settings page.
3. Scroll down to the Server-Side Scripts section, and select No for the Enable scipt pollers option.
4. Scroll down to the bottom of the form and click Save.

   BI Portal displays the Control Panel page.
5. Click Reset Server to commit your changes.
6. Log out of the BI Portal administration page.
7. Stop the Peregrine Tomcat service to temporarily disable BI Portal.

Copying the Tomcat directory

You must create a separate folder for each instance of Tomcat you want to use for load balancing.

To copy the Tomcat directory:

1. Open Windows Explorer and copy the Tomcat install folder. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4
2. Paste a copy into the same root path. The default file path is: C:\Program Files\Peregrine\Common
3. Rename the new folder to a unique name.

Tip: Include the port number to be used by the Tomcat instance in the folder name. For example, if you are going to use 4 instances of Tomcat listening on ports 8009, 8011, 8013, and 8015, then you could create 4 copies of the Tomcat folder called \Tomcat4_8009, \Tomcat4_8011, \Tomcat4_8013, and \Tomcat4_8015.

Warning: If you are using more than four Tomcat instances, change the port numbers to avoid conflicts.

4 Delete the \webapps\oaa subdirectory from the newly copied instance of Tomcat.

The additional instances will use the same document root as the first or primary Tomcat instance.

5 Repeat step 1 through step 4 for each instance of Tomcat you want to use.

Configuring the ISAPI Plugin for IIS

The BI Portal installer automatically places a copy of the ISAPI plugin for IIS in the following folder: c:\Program Files\Peregrine\Common\Tomcat4\bin

Use the following procedures to configure the plugin for your intranet environment.

To configure the ISAPI plugin for IIS:

1 Open the file jk2.reg in a text editor. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4\conf

2 Verify that the "serverRoot" and "workersFile" values list the proper installation path to Tomcat. By default, these values are:

```
"ServerRoot"="C:\\Program Files\\Peregrine\\Common\\Tomcat4"
"workersFile"="C:\\Program Files\\Peregrine\\Common\\Tomcat4\\conf
\\workers2.properties"
```

3 Save and close the jk2.reg file.

4 Double-click on the jk2.reg file from Windows Explorer.

Windows adds the registry settings to the Windows registry.

Creating and configuring a jakarta virtual directory in IIS

The ISAPI plugin for IIS requires a specific IIS virtual directory in order to run. Use the following guidelines to create the IIS virtual directory. For specific instructions about IIS, refer to Windows Help.

Requirements for jakarta virtual directory

Requirement	Setting
Create virtual directory	jakarta
Map to physical path	<Tomcat>\bin
Directory access rights	Read, Run scripts, Execute

For *<Tomcat>*, enter the path to your Tomcat installation. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4\bin. This path must contain the isapi_redirector2.dll file.

Configuring the isapi_redirector2.dll as an ISAPI filter

To establish a connection between Tomcat and IIS, you will need to install the file isapi_redirector2.dll as an ISAPI filter.

To install isapi_redirect2.dll as an ISAPI filter:

1. From Windows Control Panel > Administrative Tools, open the Internet Services management console.
2. Right-click the **Default Web Site** node and then click **Properties**.
3. Click the **ISAPI Filters** tab.
4. Click **Add**.
5. Enter the following information:
   a. **Filter Name:** jakarta. The filter name must match the name you defined the jk2.reg registry file. By default, the filter name is jakarta.
   b. **Executable:** isapi_redirector2.dll. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4\bin\isapi_redirector2.dll
6. Click **OK**.
7. From the Internet Services management console, right-click the **Default Web Site** node, then select **Properties**>**Isapi Filters** again.

The ISAPI filter in IIS displays a green status arrow to indicate that it is running.

8 Close the Internet Services management console.

Note: You must stop and then start the IIS service for changes to take effect. You must also restart Tomcat.

Creating and configuring an oaa virtual directory in IIS

To run BI Portal from IIS, you need to create a virtual directory that maps to your Tomcat deployment folder.

Requirements for oaa virtual directory

Requirement	Setting
Create virtual directory	<oaa>
Map to physical path	<Tomcat>\webapps\oaa
Directory access rights	Read, Run scripts

For *<oaa>*, enter the name of the virtual directory you want to use for BI Portal. The recommended virtual directory name is oaa. If you choose to use another virtual directory name, you must enter the new name in the following places:

- Rename the folder <Tomcat>\webapps\oaa to <Tomcat>\webapps\<new name>
- Rename the [uri] mappings in workers2.properties from oaa to the new virtual directory name.
- Rename all the oaa context entries in mod_jk2.conf from oaa to the new virtual directory name.
- Rename the <Context> path and docBase attributes in server.xml from oaa to the new virtual directory name.

Important: The virtual directory name you choose will become part of the URL users enter to connect to BI Portal. For example: http://server_name/<new name>/login.jsp

For <*Tomcat*>, enter the path to your Tomcat installation. The default file path is: C:\Program Files\Peregrine\Common\Tomcat4

Editing the workers2.properties file for IIS

For each server on which Tomcat instances are installed, there is only one workers2.properties file. Tomcat installs the workers.properties file in the conf directory of your primary Tomcat instance. This file is shared by all other Tomcat instances on that particular server.

The workers2.properties file specifies the worker threads that the Web server connector creates in order to communicate with the Tomcat instances. Each Tomcat instance must communicate on a different port. The host should be set to the name of the server running the Tomcat instances or localhost if they are running on the same server.

To edit the worker2.properties file:

1. Open the workers2.properties file, located in the conf directory of your primary Tomcat installation, in any text editor.
2. Create a channel.socket entry for each Tomcat instance (also known as a worker).

   Example:

   ```
   [channel.socket:<server>:<port>]
   info=Description of Tomcat instance
   debug=0
   tomcatId=<server>:<port>
   lb_factor=1
   disabled=0
   ```

   For <*server*>, enter the server name where the Tomcat instance is located.

   For <*port*>, enter the communications port on which the Tomcat instance is listening.

   The lb_factor is a number greater than or equal to 1 that IIS uses to load balance the workers. If all the workers are running on servers that have equal performance strengths, you should set the lb_factor numbers to equal values (typically 1). If you want to assign fewer user sessions to a given Worker, then assign it a lower lb_factor number relative to the other Workers.
3. Verify that the uri settings lists the proper IIS virtual directory. By default, the virtual directory is oaa.

If you defined a different virtual directory other than oaa to run BI Portal, you will need to change the uri values here.

Example:

```
uri:/oaa/servlet/*]
info=Prefix mapping

[uri:/oaa/*.jsp]
info=Extension mapping
```

4 Save the file.

Editing the server.xml files for IIS

You will need a separate server.xml file for each Tomcat instance that will be running concurrently. This file contains the information Tomcat needs to connect to the Web server as well as to find the Peregrine OAA Platform Web application files.

Tip: Make a back up copy of the server.xml file before editing.

To edit the server.xml files:

1 Each Tomcat instance has a server.xml file located in the conf directory. Open it in any text editor.

2 Update the port number attribute of the <Server> element to a unique value that will not conflict with other port numbers used by Tomcat.

Peregrine Systems recommends that you use the port numbers 8005-8008 when configuring four Tomcat instances.

Warning: If you are using more than four Tomcat instances, change the port numbers to avoid conflicts.

Example:

```
<Server port="8005" shutdown="SHUTDOWN" debug="0">
```

3 Update the port number attribute of the Coyote Connector <Connector> element to a unique value that will not conflict with other port numbers used by Tomcat.

Peregrine Systems recommends that you use port numbers 8009, 8011, 8013, and 8015 when configuring the Coyote Connector.

Example:

```
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
port="8009" minProcessors="5" maxProcessors="75" enableLookups="true"
redirectPort="8443" acceptCount="10" debug="0"
connectionTimeout="20000" useURIValidationHack="false"
protocolHandlerClassName=”org.apache.jk.server.JkCoyoteHandler” />
```

4 Create a <Context> element entry from the first or primary Tomcat instance and copy it to the other Tomcat instances.

Add the entry just above the “examples” Context entry.

Example:

```
<Context path="/oaa"
docBase="<First Tomcat install>/webapps/oaa"
crossContext="false"
debug="0"
reloadable="false" >
</Context>
```

For the docBase attribute, set *<First Tomcat install>* to the absolute path of the first or primary Tomcat instance.

5 Update the jvmRoute attribute of the <Engine> element with the server name and communications port used by each Tomcat instance.

Example:

```
<Engine jvmRoute=”localhost:8009” name=”Standalone”
defaultHost=”localhost” debug=”0”>
```

6 Update the <Host> element with the **webapps** directory used by the first or primary Tomcat instance.

List the server information in the appBase attribute.

Example:

```
<Host name=”localhost” debug=”0”
appBase=”<First Tomcat install>/webapps” unpackWARs=”true”
autoDeploy=”true”>
```

For the appBase attribute, set *<First Tomcat install>* to the absolute path of the first or master Tomcat instance.

7 Comment out port 8080 in the non-SSL Coyote HTTP... statement.

Example:

```
<!-- Define a non-SSL Coyote HTTP/1.1 Connector on port 8080 -->
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
port="8080" minProcessors="5" maxProcessors="75"
acceptCount="10" debug="0" connectionTimeout="20000"
useURIValidationHack="false" />
-->
```

8 Save the file server.xml.

9 Repeat step 2 through step 8 for each copy of the server.xml file you made.

Editing the jk2.properties files for IIS

You will need to modify the jk2.properties file for each Tomcat instance. This file sets the jk2 communication port.

To edit the jk2.properties files:

1 Open the jk2.properties file for a Tomcat instance in a text editor.

This file is located in the Tomcat conf directory.

2 Insert a line for the channelSocket port. The port number must match the port number defined in workers2.properties file for this Tomcat instance.

Example:

```
channelSocket.port=8009
```

3 Save the file.

4 Repeat step 1 through step 3 for each Tomcat instance.

Installing Tomcat instances as services for IIS

After you have edited the Tomcat files, you can install each instance of Tomcat as Windows services using installservice.bat.

To install Tomcat instances as services on IIS:

1 Open a DOS command prompt and change directories to the bin directory of your Tomcat instance.

2 Enter the following command to create each Tomcat instance:

```
installservice <service name> <tomcat_home> <jvm_dll_path>
```

Where <*service name*> is the name you assign to the Tomcat service, <*tomcat_home*> is the Tomcat install directory of the instance for which you are creating the service, and <*jvm_dll_path*> is the Java SDK install directory.

Note: The <service name> cannot have a space in it.

The second and third parameters are optional if you have already set the CATALINA_HOME and JAVA_HOME environment variables.

Warning: The command to create Tomcat instances cannot accept spaces in the file path.

Example:

```
installservice Tomcat8009 C:\Progra~1\Peregrine\Common\Tomcat4
C:\Progra~1\Peregrine\Common\jdk1.3.1_05\jre\bin\server\jvm.dll
```

Note: Use the Windows naming convention to avoid problems of spaces in the file path name. For example, replace Program Files with Progra~1.

3 Repeat step 1 through step 2 for each Tomcat service you wish to create.

Tip: You can easily remove a service. From the DOS command prompt, change directories to the bin directory of your Tomcat instance, then enter the following command: Tomcat -Uninstall <service name>.

4 Start each Tomcat instance that you install.

Enabling script pollers on the primary Tomcat instance

You only need one Tomcat instance running script pollers. Before you test your load balancing configuration, you should login to the BI Portal administration page of the primary Tomcat instance and turn on script polling.

To enable script pollers on the primary Tomcat instance:

1 Log in to the BI Portal administration page of the Tomcat instance. The default URL is:

http://<*server_name*>:<*port_number*>/oaa/admin.jsp

For <*port_number*>, enter the port number you have defined for your primary Tomcat instance. This is typically port 8009.

2 Click Settings.

BI Portal displays the common settings page.

3 Scroll down to the Server-Side Scripts section, and select Yes for the Enable scipt pollers option.

4 Scroll down to the bottom of the form and click Save.

BI Portal displays the Control Panel page.

5 Click Reset Server to commit your changes.

6 Log out of the BI Portal administration page.

Testing load balancing on IIS

After you have created additional Tomcat instances, you can test if load balancing is occurring using the following steps.

To test load balancing:

1 Start all Tomcat instance services.

If you installed Tomcat as a service, you can open the Windows Control Panel and start each instance from the Services dialog box.

2 Open a browser and log in to BI Portal.

3 Perform an action in BI Portal. For example, perform a search.

4 Logout of BI Portal.

5 Close your browser to clear the connection cache.

6 Repeat step 1 through step 5 one time for each Tomcat instance installed. For example, if you have 4 Tomcat instances, then you will need to login and logout a total of 4 times.

The load balancing mechanism uses a Round-Robin algorithm. If load balancing is working successfully, each login attempt should use a different Tomcat instance.

7 Download the archway.log file.

You can download the archway.log file from the **Administration** > **Server Log** page.

8 Open the archway.log file in a text editor.

9 Verify that connection details list a different Tomcat instance for each connection.

If each connection uses a different Tomcat instance, then the system is load balancing properly.

If each connection uses the same Tomcat instance, the system is not load balancing and needs troubleshooting.

CHAPTER 6

Configuring Software Components

After you install BI Portal, either a custom or typical install, whether on a single server machine or on multiple server machines, you need to configure additional software components so that BI Portal will function properly.

Topics in this section include:

Adding BI Portal Security Capabilities to ServiceCenter

After installing BI Portal, you need to add BI Portal security capabilities to ServiceCenter. Then ServiceCenter administrators can assign security roles to BI Portal users. Security roles control the reports that users can run and view.

To add BI Portal security capabilities to ServiceCenter:

1. Start the ServiceCenter client that resides on the same server machine as the RDS.
2. Click the **Toolkit** tab.
3. Click **Database Manager**.
4. Click the **Options** > **Import/Load** menu.
5. Click the Locate button .
6. Locate the file bi_caps.unl. The file is found in most installations at: C:\Program Files\Peregrine\RDS\conf.
7. Click **Open**.
8. In the ServiceCenter File Load/Import form click the **Load FG** button.

To assign a BI Portal user capability to a ServiceCenter Reporting user:

1. Click the **Utilities** tab.
2. Click **Administration**.
3. In the Security area click the **Operators** button.
4. Click the **Startup** tab.
5. In the User Capabilities drop-down, choose **BIRoles:BI_Access** for each user. This user capability is required for all users who need access to the BI Portal Reporting form.
6. In the User Capabilities drop-down, choose another user capability based on the level of access that the user should have.

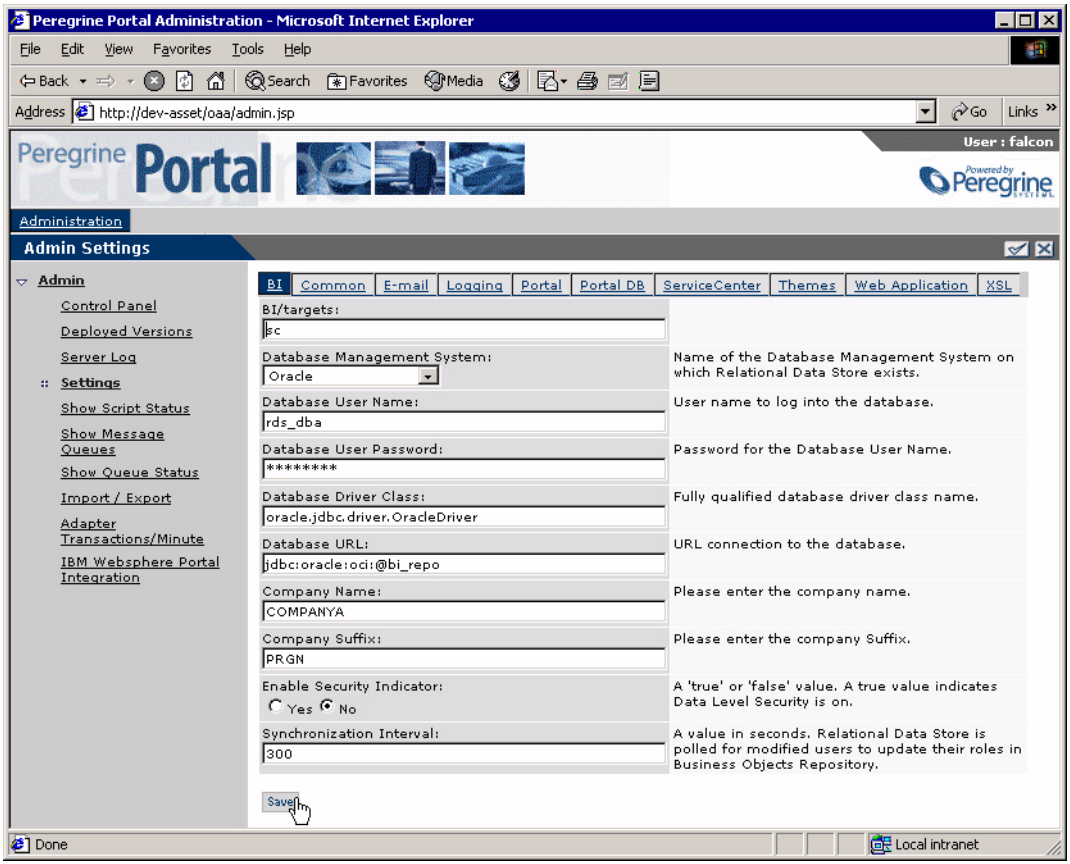
   For more information about user capabilities and the level of access that they grant, see the Security chapter in the *BI Portal Administration Guide*.

Configuring the BI Portal Administration page

After you install BI Portal, you log in to BI Portal as user name System, click **Settings**, and check the settings on the BI and Logging tabs.

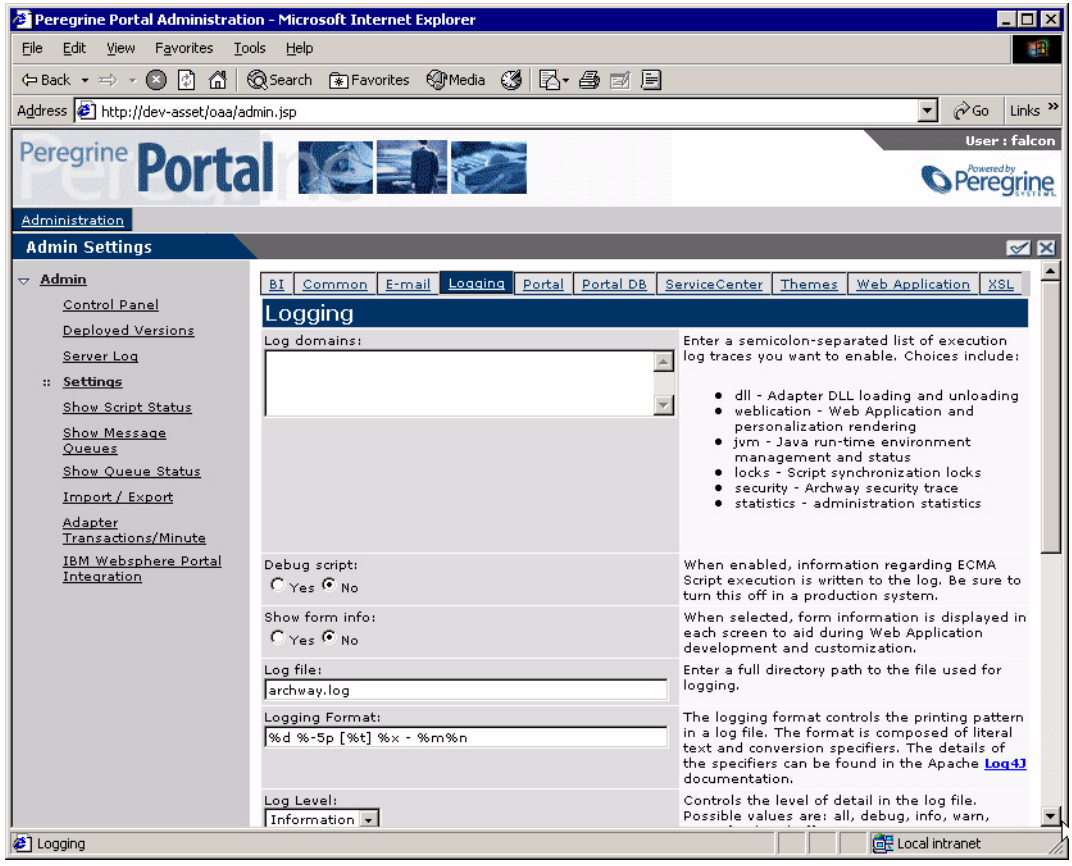
Settings on the BI tab

Click the **BI** tab and verify that all the settings are correct. The database settings shown on this tab pertain to the RDS database.



Settings on the Logging tab

Click the **Logging** tab and make sure that **Show form info** is set to **No**.



APPENDIX A

Troubleshooting the installation

This chapter covers the following topics:

Troubleshooting Apache Web server for Windows

If you are having trouble with the Apache Web server for Windows, follow these instructions.

The Web server is not responding

If the Web server is not responding:

Step 1 Verify that the network connections are enabled.

Step 2 Verify that the apache.exe program is running.

Step 3 Restart Apache service.

Step 4 Make sure the port that Apache uses is not in use by another network service (Apache uses port 80 by default).

To verify that the network connections are enabled:

1. Click Start.
2. Point to Settings.
3. Click Network and Dial-up connection.
4. Click Local area connection.
5. In the dialog box, verify that under Connection, Status is listed as Connected.

To verify that the apache.exe program is running:

1. Press Ctrl+Alt+Del.
2. Click Task Manager.
3. On the Processes tab, verify that the Apache.exe program is listed in the Image Name column.

To restart Apache service:

1. Click Start.
2. Click Programs.
3. Click Administrative Tools.
4. Click Services.
5. Locate the Apache service in the list and restart it.

To make sure the port that Apache uses is not in use by another network service (Apache uses port 80 by default):

1. Stop Apache.
   a. Click Start.
   b. Click Programs.
   c. Click Administrative Tools.
   d. Click Services.
   e. Locate the Apache service in the list and stop it.
2. Click Start.
3. Click Run.
4. Enter **cmd** and click OK.
5. In the command line window, enter **netstat -a** and press return.
6. Make sure that an entry with Proto=TCP, Local Address=<host>:http does not exist.

   Note: This ensures that when Apache is not running, no other service is listening on the http port (80).

7. Correct the problem by either changing Apache's default port (refer to customization documentation) or disabling/changing the conflicting service.

Users cannot access the Web server even though the server is running, and the network and Internet connections are enabled

If users cannot access the Web server, follow these instructions:

Step 1 Verify that the WINS server is installed.

Step 2 Verify that the DNS server is installed.

Step 3 Check Apache log files for additional errors.

To verify that the WINS server is installed:

1. Click Start.
2. Point to Settings.
3. Click Control Panel.
4. Click Add/Remove program.
5. Click Add/Remove Windows Components.

6 Click Networking Services.

7 Click Details.

8 Verify that the WINS Server check box is selected and properly configured on the network. Also verify that it is functioning.

To verify that the DNS server is installed:

1 Click Start.

2 Point to Settings.

3 Click Control Panel.

4 Click Add/Remove program.

5 Click Add/Remove Windows Components.

6 Click Networking Services.

7 Click Details.

8 Verify that DNS is installed, and that the DNS servers (or server) are connected and working on the network.

To view Apache log files for additional errors:

▶ From a text editor, open the Apache log files.

The default files are in c:\Program Files\Peregrine\Common\Apache2\logs.

Troubleshooting Apache Web server for UNIX

If you are having trouble with the Apache Web server for UNIX, follow these instructions.

The Web server is not responding

If the Apache Web server is not responding, check the network setup.

To check the network setup:

1 Make sure the port that Apache uses is not in use by another network service.

Note: Apache uses port 80 by default. You can change this by using the **Port** directive in the **httpd.conf** file. Use the **netstat** command to list all ports being listened to after shutting down Apache.

```
$ /etc/init.d/oaactl stop
$ netstat -a | grep 80
```

2 Make sure the IP address and hostname of the server are configured correctly. If so,

- The Ping command successfully gets a response from the server.
- The **nslookup hostname** displays the correct mapping from the hostname to the IP address.
- The **telnet hostname 80** successfully connects to the server.

```
$ /usr/sbin/ping hostname -n 5

$ telnet hostname 80
Trying...
Connected to hostname
Escape character is '^]'.
```

View Apache log files for advanced errors

If you are having trouble with the Apache Web server, view the log files.

To view Apache log files for advanced errors:

▶ From a text editor, open the Apache log files.

The default Apache log files are in:
<base install directory>/peregrine/common/apache2/logs.

Troubleshooting the IBM HTTP Server

The BI Portal installer creates duplicate alias entries in the IBM HTTP Server when you install more than one Peregrine OAA Platform application on WebSphere.

Duplicate entries can also occur if you reinstall BI Portal or install another Peregrine OAA Platform application on a system that formerly had BI Portal installed on it.

Remove any duplicate alias entries from the IBM HTTP Server **httpd.conf** file.

Troubleshooting Tomcat

Before you can troubleshoot problems on Tomcat, you must become familiar with starting and stopping Tomcat on your operating system. You also need know where the Tomcat log files are located.

To start/stop Tomcat on Windows

1. Click Start.
2. Click Programs.
3. Click Administrative Tools.
4. Click Services.
5. Locate the PeregrineTomcat service in the list and start/stop/restart it.

To start/stop Tomcat on UNIX

- $ /etc/init.d/oaactl <start/stop/restart>

The following table contains the default Tomcat log file locations.

Operating system	Default Tomcat log files location
Windows	C:\Program Files\Peregrine\Common\Tomcat4\logs
UNIX	/<installed base directory>/peregrine/common/tomcat4/logs

Check for Tomcat port conflicts

The following table displays the default Tomcat port usage.

Port number	Tomcat service
8005	Tomcat Administration
8009	Tomcat AJP13 Worker Port

In the Tomcat log file **stderr.log**, the following line indicates the currently succeeded AJP13 port being used:

[INFO] ChannelSocket - -JK2: ajp13 listening on tcp port 8009

To check for Tomcat port conflicts:

1. Stop the Tomcat service.
2. Use **netstat -a** to list ports being listened on. Check for port conflicts.
3. Make necessary modifications to Tomcat port configuration or disable (or modify) the conflicting service. Additional information about Tomcat is available at **http://jakarta.apache.org/tomcat/**.

Checking for Port Conflicts: an example

Check for entries where the Proto value is "TCP" and the State is "Listening." For example, the following output from the **netstat -an** command shows that ports 80, 8009, 8025, 12670, and 1585 are in use:

```
Active Connections

Proto   Local Address    Foreign Address  State
TCP     0.0.0.0:8        0 0.0.0.0:0      LISTENING
TCP     0.0.0.0:8009     0.0.0.0:0        LISTENING
TCP     0.0.0.0:8025     0.0.0.0:0        LISTENING
TCP     0.0.0.0:12670    0.0.0.0:0        LISTENING
TCP1    0.2.3.154:1032   66.163.173.77:80 ESTABLISHED
TCP1    0.2.3.154:1342   10.2.3.154:12670 ESTABLISHED
TCP1    0.2.3.154:1585   0.0.0.0:0        LISTENING
TCP1    0.2.3.154:1585   10.2.0.112:139   ESTABLISHED
```

Check for Tomcat errors

Make sure that you are working with clean files.

To ensure a clean environment for troubleshooting:

1. Shutdown the Apache and Tomcat services.
2. Remove all log files.
3. Restart the Apache and Tomcat services.
4. Use a browser to connect to the Web server.

File mod_jk.log

This file contains log information regarding the out-of-process TCP connection between the Apache Web server and Tomcat.

This file is empty when there are no errors. It contain hints about connection failures when the AJP13 port is in conflict with another service, or when the Tomcat mod_jk connector is configured incorrectly.

File stdout.log

The following is a normal output of this log file:

```
Bootstrap: Create Catalina server
Bootstrap: Starting service
Starting service Tomcat-Standalone
Apache Tomcat/4.1.12
Instantiating Archway Servlet...
2002-12-10 12:22:13,079 INFO  [main]  - Using application preferences in
/C:/Program Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/local.xml
2002-12-10 12:22:13,119 INFO  [main]  - Using default preferences in /C:/Program
Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/default/archway.xml
2002-12-10 12:22:13,200 INFO  [main]  - Using default preferences in /C:/Program
Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/default/common.xml
2002-12-10 12:22:13,240 INFO  [main]  - Using default preferences in /C:/Program
Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/default/logging.xml
2002-12-10 12:22:13,270 INFO  [main]  - Using default preferences in /C:/Program
Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/default/themes.xml
2002-12-10 12:22:13,280 INFO  [main]  - Using default preferences in /C:/Program
Files/Peregrine/Common/Tomcat4/webapps/oaa/WEB-INF/default/xsl.xml
Bootstrap: Service started
```

Look for the following in this file during an error:

- Archway Servlet is not instantiated.

- The webapps location is incorrect.
- Bootstrap service failed to start.

File stderr.log

The following is a normal output of this file:

```
Created catalinaLoader in: C:\Program Files\Peregrine\Common\Tomcat4\server\lib
[INFO] Registry - -Loading registry information
[INFO] Registry - -Creating new Registry instance
[INFO] Registry - -Creating MBeanServer
 [INFO] ChannelSocket - -JK2: ajp13 listening on tcp port 8009
[INFO] JkMain - -Jk running ID=0 time=0/120  config=C:\Program
Files\Peregrine\Common\Tomcat4\conf\jk2.properties
```

Look for the following problems in this file during an error:

- catalinaLoader was not created or is pointing to an incorrect location.
- ChannelSocket - JK2: ajp13 failed to connect or is connecting on an incorrect port number.
- JkMain is not using the right jk2.properties.

File localhost_log.<date>.txt

There should not be any Java errors in this log file. This file logs application manager activity in deploying Peregrine OAA Web applications.

Troubleshooting OAA

If you are having trouble with your Peregrine OAA Web application, verify your application's back-end server and view the OAA logs.

OAA back-end configuration

Make sure that the Peregrine OAA application is connecting to the right back-end server and that it is currently functional.

To check back-end configuration:

1. Browse to http://hostname/oaa/admin.jsp.
2. Login as **System** and no password (providing this has not changed after installation).
3. From the Administration module, verify the connection status of the listed adapters.

4 Click on the target for the back-end server, for example, **sc**.

5 Verify that the host and port for the back-end server are correct.

OAA log files

The following table lists the default file locations of the Peregrine OAA log files.

Operating system	Default Peregrine OAA log files location
Windows	C:\Program Files\Peregrine\Common\Tomcat4\bin\archway.log
UNIX	/<installed base directory>/peregrine/common/tomcat4/archway.log

Make sure that the log files contain:

- A listing of installed OAA components and their version numbers.
- A correct listing of registered packages.
- An **Archway initialization complete** statement.

If the file contains Java ClassNotFound exceptions, check to see if all the required jar files are found.

Troubleshooting WebSphere

Duplicate alias entries can occur from the IBM HTTP Server **httpd.conf** file during a WebSphere installation. If this happens, the Admin form at **http://hostname/oaa/login.jsp** does not render.

Remove duplicate **Alias /oaa** lines from the **httpd.conf** file under the **conf** directory of the IBM HTTP or Apache web server. You want only one of the following:

```
Alias /oaa "C:\WebSphere\AppServer\installedApps\oaa.ear\portal.war"
Alias /oaa "C:/WebSphere/AppServer/installedApps/oaa.ear/portal.war"
```

Troubleshooting ServiceCenter server

If you are having trouble with the ServiceCenter server:

Step 1 Check the ServiceCenter Auth code and port setting.

Step 2 Check the ServiceCenter log.

Before you troubleshoot problems, you must become familiar with starting and stopping the ServiceCenter server on your operating system. You also need to know where the ServiceCenter log files are located.

To start/stop ServiceCenter on Windows:

1. Click Start.
2. Click Programs.
3. Click Administrative Tools.
4. Click Services.
5. Locate the PeregrineServiceCenter service in the list and start/stop/restart it.

To start/stop ServiceCenter on UNIX:

▶ $ /etc/init.d/oaactl <start/stop/restart>

The following table contains the default ServiceCenter log file locations.

Operating system	Default ServiceCenter log files location
Windows	C:\Program Files\Peregrine\ServiceCenter\sc.log
UNIX	/<installed base directory>/peregrine/servicecenter/sc.log

Check ServiceCenter Auth code and port setting

The following table contains the ServiceCenter setting file location.

Operating system	ServiceCenter setting file location
Windows	C:\Program Files\Peregrine\ServiceCenter\RUN\sc.ini
UNIX	/<installed base directory>/peregrine/servicecenter/RUN//sc.ini

To check the ServiceCenter Auth code and port setting:

1. Make sure the auth code set by the **auth:** tag is correct.
2. Make sure the port setting for **system:** matches the setting for the OAA back-end.

View ServiceCenter log

To view the ServiceCenter log:

1. View the log file for auth code expiration errors.
2. View the log for resource attachment errors.
3. Refer to *ServiceCenter Administration Guide* for further troubleshooting if required.

Using ServiceCenter on Oracle

When using ServiceCenter on Oracle as the back-end database, personalization does not display pages correctly. From ServiceCenter, you must map the giComponentUsers table to Oracle.

To map the giComponentUsers table to Oracle:

1. Open the ServiceCenter client.
2. Log in as Administrator.
3. Add a sqlsystemtables record.
   a. Click the Toolkit tab to open the Database Manager dialog box.
   b. Type **sqlsystemtables** in the File field and click Search.
   c. Check the **Map as Blob** flag.
4. Go to the sqlmapping table and delete all records for giComponentUsers table.
5. Map the giComponentUsers table to Oracle.

   Contact your ServiceCenter Administrator for more information on updating ServiceCenter table definitions.

Troubleshooting BI Portal

Error messages contain a dash: "(-*error_number*)"

Error messages that contain a dash (-*error_number*), such as -2006 and -52, may appear in the Connect.it RDS logs. To correct the problem, follow these steps on the RDS server:

1. Reboot the RDS server.
2. Make sure the valid Connect-It license file, license.txt, resides in the Connect-It root directory.
3. Make sure that tnsname bi_repo has been created in Oracle environment. If using DB2 or SQL Server, make sure that the bi_repo system DSN has been defined for the ODBC data source.
4. Reconfigure the RDS scenario from the Connect.It service console. Test all the connections by pressing the **Test** button when displayed.

No valid synchronized records

No valid records have been synchronized between ServiceCenter and the RDS database through Connect.It.

To synchronize, follow these steps on the RDS server:

1. Stop the rds scenario from the Connect-It Service Console.
2. Verify these are no errors that contain a dash (-) in the ConnectIt\bin32\CIT_RDS.log file, as described in the section *Error messages contain a dash: "(-error_number)"* on page 190. If such errors have occurred, follow the steps in that section to correct the problem.
3. Delete the .ini file in the rds\cit directory.
4. In Windows click **Start** -> **Run** and enter cmd to open the DOS command prompt.
5. If the RDS is installed in the C:\Program Files\Peregrine\rds directory, enter the command:
   cd c:\program files\peregrine\rds\common\bin
6. Enter the command rds_init.
7. Restart the RDS scenario from the Connect-It Service Console.

The BI Portal "Application Session has a timed out" or "Invalid user account" error

1. Verify that all the reporting users are populated in the operator_d table in the RDS database: Log in to the RDS_DBA user account and run the following SQL statement in the proper RDBMS client program:
   select name,z_rdsoperator_d from operator_d order by name
2. If there are no valid reporting user names in operator_d, follow the steps to correct the RDS initial synchronization error in the section *No valid synchronized records* on page 191.
3. Make sure the database connection is established as bi_repo tnsname or as a system DSN ODBC data source.
4. Log in to the RDBMS as user RDS_DBA and run the following SQL statement in the proper RDMS client program:
   delete * from rds_sec_sync
5. Click **Reset Server** in the BI Portal Admin page.
6. Open the Administration Console 6.0 program from the Business Objects program folder on the Reporting Server machine.
7. Click **WILoginServer** and click **Refresh**.

No Business Objects documents or reports are viewable from BI Portal

1. On the BI Reporting Server, make sure there are files with the extension .wid in the following directory:
   C:\Program Files\Business Objects\BusinessObjects Enterprise 6 \nodes\BO_Server_Host_Name_XXX\Cluster_Name_XXX\storage \user\Peregrine_Designer (where Business Objects is installed on the C drive).
2. On the BI Portal server, modify the file
   C:\Program Files\Peregrine\common\Tomcat 4.1.24\webapps\oaa\WEB-INF\etc\BI\rds\docstatus.properties as follows:
   change the line
   published=true
   to
   published=false
3. Click the Reset Server button on the BI Portal Admin page.

Error on BI portal: "The Reporting Server cannot be accessed at this time. Please contact your Reporting Server Administrator."

There are two possible causes:

Cause 1:

You have not started the Business Objects system and you need to start the Business Objects system. Perform one of the following:

- Use WebIntelligence Notify, a utility that can be used to start and stop WebIntelligence and check its status. Right-click the **Notify** icon on the Task Bar and select the Start WebIntelligence command from the pop-up menu. Or..
- Click Start -> Setings -> Control Panel

Cause 2

WebIntelligence is started but you have an internal CORBA error. In this case, stop and re-start both the Web server and the entire Business Objects system.

BI portal error: "Unable to access the document. Please contact your Reporting Server Administrator"

There are three possible causes.

Cause 1

An error occurred while requesting document from Business Objects storage.

Cause 2

Either the connection to the specified universe domain, or the universe domain itself, is invalid.

Perform the following steps:

1. Launch Supervisor.
2. Click **Tools** -> **Repository**.

   The Repository Management dialog box is displayed.
3. Click the document domain.

4 Click the **Test** button to check if the connection to the document domain is valid.

5 Click the **Integrity** button to check if the document domain itself is valid. To identify or repair errors, click **Scan** to display the Scan and Repair dialog box. Also, you can click **Scan** to report the errors, or you can click **Repair** to fix them.

Cause 3

You cannot make a connection to the universe domain, either because there is no network connection, or because the server on which the universe domain is located is down. To correct this problem verify the network connection by "pinging" the server. If the network is running properly, the database administrator should then use database middleware (such as Net8 for Oracle) to check if there is any response from the repository database.

BI portal Errors: "Error: View does not exist. Please contact your Reporting Server Administrator"

The problem is access to the application database. The connection you selected is unavailable or no longer valid in the repository. The server cannot open the connection and activate the database mode system through it.

To correct this proble make sure your application database is still working.

BI Portal Log Files

BI Portal creates the following log files that can assist yoiu in troubleshooting:

Business Objects log file:

C:\Program Files\Peregrine\BI\logs biconfig.log

RDS log file:

C:\Program Files\Peregrine\RDS\logs

Connect-It log file:

C:\Program Files\Peregrine\ConnectIt\bin32

BI Portal log file:

C:\Program Files\Peregrine\BI\logs biconfig.log

BI Portal log file created after configuration:

C:\Program Files\Peregrine\Common\Tomcat4\bin \archway.log

Index

O

P

S

T

U

W


Peregrine
SYSTEMS