ONESOURCE™ INDIRECT TAX REPORTING

INSTALLATION GUIDE

UNIX/LINUX: ORACLE DATABASE

6.8.X.X

Document Version 3

THOMSON REUTERS®

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DOCUMENT HISTORY

VERSION NUMBER	VERSION DATE	SUMMARY
V1	October 10, 2020	Created this Oracle-only version of the Unix/Linux installation guide for ONESOURCE Indirect Tax Reporting 6.8.0.x
V2	December 14, 2021	Updated to address newer platform version support.
V3	August 31, 2023	Updated with instructions for distributing SAP Crystal Reports 2020 Services to a Windows server.

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INTRODUCTION

ONESOURCE Indirect Tax Reporting provides fast, accurate, and flexible business intelligent reporting that is fully integrated with the ONESOURCE Indirect Tax Global Software Suite to support your global indirect tax compliance, reconciliation, and data analysis needs. It also allows you to create or customize reports, incorporating data from external sources to meet unique and complex business process needs.

Reporting is composed of several components that work together to give you a powerful, scalable enterprise-class reporting tool. This guide provides the steps you need to successfully install Reporting on the UNIX/Linux platforms with the Oracle database .

WHO SHOULD READ THIS GUIDE?

The installation requires the coordination of people in various roles. If you are responsible for overseeing the installation, make this guide available to the following contributors:

- Database administrator
- Application server administrator
- IT administrator
- Tax professional

CHECKLISTS

Print the following checklists and use them to mark your progress through the prerequisites and installation.

Prerequisites

PREREQUISITES	
Task	**Done?**
Download the Software (page 13)	
Sizing (page 14)	
Networking (page 14)	
Operating System (page 14)	
Java (page 17)	
Application Server (page 18)	
Database Preparation (page 18)	

Installation

Complete the tasks in the order shown in the tables below:

INSTALLATION CHECKLIST A	
Supporting Software: Business Intelligence	
Installing SAP BusinessObjects BI Platform (page 21)	
Editing the CRConfig File (page 46)	
Configuring Report Timeout and Recycle Bin (page 47)	
Setting Environment Variables (page 50)	
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Stopping Processes (page 68)	
Checking the LINK_DIR Variable (page 71)	

INSTALLATION CHECKLIST A	
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Configuring the Adapter (page 73)	
Starting Processes (page 75)	
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Configuring Automatic Start (page 83)	

INSTALLATION CHECKLIST B	
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Creating the Configuration File (page 85)	
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Reporting Deployment	
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WebLogic	
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Initial ETL	
The First Reporting Data ETL (page 153)	
User ETL (page 160)	
The basic installation is complete.	

RESOURCES

Several resources help you become familiar with ONESOURCE Indirect Tax Reporting and master its features. Help is installed with the application. All documents are posted on the ONESOURCE Customer Center. To locate documents specific to your application, enter the search term "Reporting documentation."

REPORTING RESOURCES	
Resource	**Description**
Help	This Help system gives assistance within Reporting. Use Help after Reporting is installed and configured.
Installation Guide	This guide is intended for technical users and contains complete details about how to install and configure Reporting.
Platform Support	This describes the combinations of operating systems, databases, and application servers on which Reporting operates.
Product Support Lifecycle	This lists the end-of-life dates for products in the ONESOURCE Indirect Tax Suite.
Upgrade Guide	This guide describes the procedures for upgrading an instance of Reporting and refers to configuration information in the Installation Guide.
Customization Guide	This guide is intended for technical users. It describes types of customization and shows examples.
Data Dictionary	This resource is intended for technical users. It contains a list of all the fields in the Reporting database.

Still can't find what you're looking for? Try these additional resources:

ONESOURCE RESOURCES	
Resource	**Description**
ONESOURCE Customer Center https://tax.thomsonreuters.com/support/onesource/customer-center/	Search for answers in the Knowledge Base, enter product support tickets, and track support ticket history for you and your organization.

ONESOURCE RESOURCES	
Resource	**Description**
Indirect Tax Customer Center https://customercenter.sabrix.com/	Download ONESOURCE Indirect Tax software.
Other ONESOURCE Indirect Tax Products and Services https://tax.thomsonreuters.com/products/brands/onesource/indirect-tax/	Browse descriptions of other ONESOURCE Indirect Tax products and services.
Documentation Feedback onesource.indirect.tax.fb@thomsonreuters.com	Send feedback about ONESOURCE Indirect Tax documentation.

DEFINITIONS

The following terms are used throughout this guide. Please take a moment to familiarize yourself with these before proceeding to the architectural details below.

TERM	DESCRIPTION
ONESOURCE Indirect Tax Determination (also called *Determination*)	This is the transaction tax processing engine (formerly the Sabrix Solution).
Tax database (also called *Tax*)	A database associated with the ONESOURCE Indirect Tax Determination instance that contains tax configuration data.
Audit database (also called *Audit*)	A database associated with the ONESOURCE Indirect Tax Determination instance that contains transaction tax results.
ONESOURCE Indirect Tax Reporting (also called *Reporting*)	This is the reporting tool that helps you gather data about your tax transactions (formerly SabrixReports).
Reporting database	A database associated with the ONESOURCE Indirect Tax Reporting instance. It contains transaction tax results that have been copied from the ONESOURCE Indirect Tax Determination database(s).

TERM	DESCRIPTION
ETL	This refers to the *Extract Transform Load* process by which data is copied from the Audit database to the Reporting database.
ETL repository	A database containing the definition of the ETL process that manages the transfer of transaction tax results into the Reporting database.
Reporting repository	A database containing report definitions.
SAP Supporting Software	Reporting relies on the following SAP software: • SAP BusinessObjects Business Intelligence Platform (abbreviated as SAP BusinessObjects BI Platform) • SAP BusinessObjects Data Services
<SAPBaseDirectory>	Replace this alias with the directory where you installed SAP BusinessObjects BI Platform
<UnzippedReportingDirectory>	Replace this alias with the directory where you unzipped the file *ONESOURCEIDTReporting_68xxx.zip*.

STYLE CONVENTIONS

We use the following special formatting throughout this guide:

Bold text indicates most user interface elements, such as:

- Data you are expected to enter, such as in a text field
- Pages, buttons, tabs, and field names
- Dialog boxes, drop-down lists, selections within lists, and check box titles
- Windows
- Menu items

Italic text indicates the following:

- File and folder names
- Java classes, PL/SQL objects and executable files
- Document titles

CAPITAL text indicates keyboard commands, such as ENTER, or database components.

`Courier` text indicates command-line input/output.

<brackets> indicate user entry. For example, <host> indicates you should replace the text and angle brackets with your server name.

Book titles are shown in italics and sections within a book are in quotation marks, such as “Starting the Installation” in the *ONESOURCE Indirect Tax Reporting Installation Guide*.

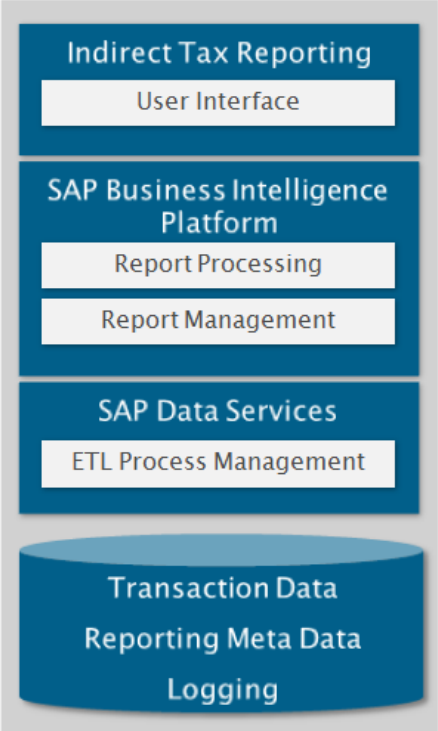
This pencil symbol indicates suggestions or additional information.

This warning symbol indicates important text that you should review before proceeding.

This carriage return symbol indicates that a single line of code is divided into multiple lines so you can read it. If you copy and paste code with these symbols, be sure to keep the code before and after the carriage return on the same line.

```
1    /* Code snippets have numbered lines with a gray background. */
2       /* Be cautious if you copy lines from the code snippets-the l
        ine numbers are included! */
```

ARCHITECTURE



The n-tier architecture of ONESOURCE Indirect Tax Reporting is designed for a flexible and scalable installation. It consists of several different components all cooperating to ensure that you have a robust tool that meets your reporting needs. Some of the features of this design include:

- Running reports has no impact on the transaction database.
- The Reporting database is optimized specifically for report efficiency.
- You can add your own data to the Reporting data for use by custom reports.

- Reporting database documentation enables you to create your own queries and reports.
- The database is designed to support large volumes of data and provide superior throughput.
- Additional hardware can be added to the installation to increase the Reporting bandwidth. Each server will be used to its fullest extent to maximize the available resources.

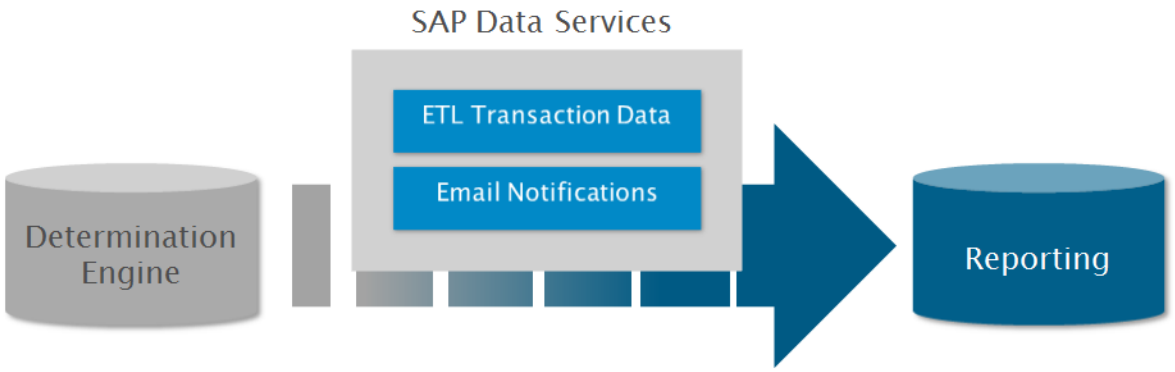
Reporting is an n-tier architecture that allows for both horizontal and vertical scaling. This allows it to be deployed on a single server for small companies with only a few users or in a multi-server clustered environment for customers with more advanced needs. This increase in scale can be highly tailored to each particular need. The diagram below shows the major components and how they can be scaled up using additional hardware.

Database Tier

The Database Tier for Reporting stores the report data and processes the queries that are used to build the reports. The database level consists of the schemas used to hold the Reporting data as well as metadata defining the ETL process and the report definitions.

Data Management Tier

ETL stands for *Extract Transform Load* and refers to the transfer of tax transaction results from the Audit database to the Reporting database. This tier is built using components of SAP BusinessObjects Data Services and consists of a Job Service that controls the ETL Job Server.



Report Processing Tier

The Report Processing Tier is responsible for the generation of the reports. It is built using components from SAP BusinessObjects BI Platform. This tier manages the input and output file requests to the disk storage, submits the report requests, sends the SQL to the database, and builds the reports. It takes requests from the User Interface Tier and sends the completed report back to the User Interface Tier.

This tier also manages a disk cache to hold report data. If you have extremely large data that will be included in your reports, you might consider using a Storage Area Network (SAN) or separate file storage.

This tier consists of several services that cooperate to generate each report. Each service can be tuned individually to best fit your requirements.

The following BI Platform services require additional file system disk space:

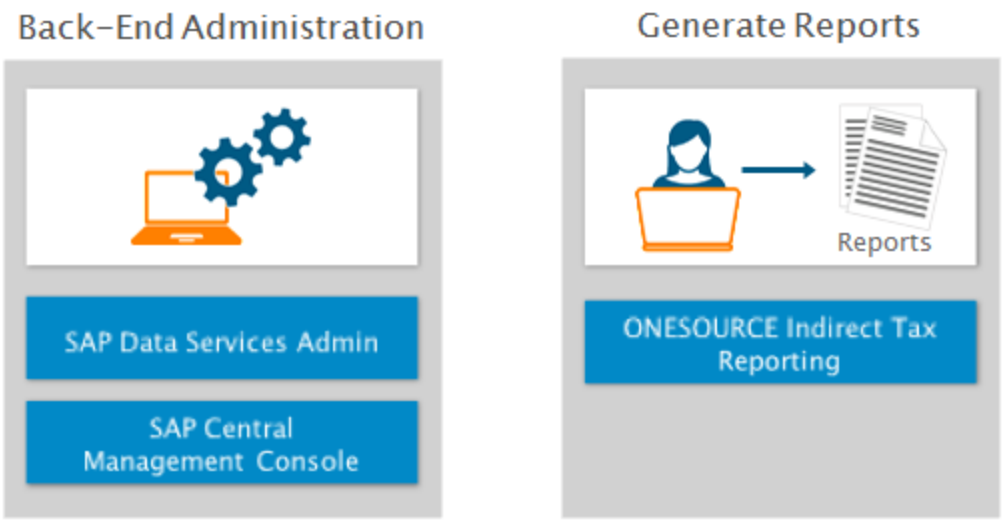
- Crystal Reports cache
- Input file repository
- Output tile repository

User Interface Tier

The User Interface Tier provides the user interface for ONESOURCE Indirect Tax Reporting as well as for two administrative consoles. This tier uses a web application server (for example, the Tomcat bundled with SAP BusinessObjects BI Platform). This is the simplest tier because it performs no report processing and makes only minimal database requests to verify user access.

The Reporting application will communicate with the Reporting Processing Tier to provide the user with a list of available reports and to request execution of specific reports. The Reporting application will then receive the finished report and display this for the user.

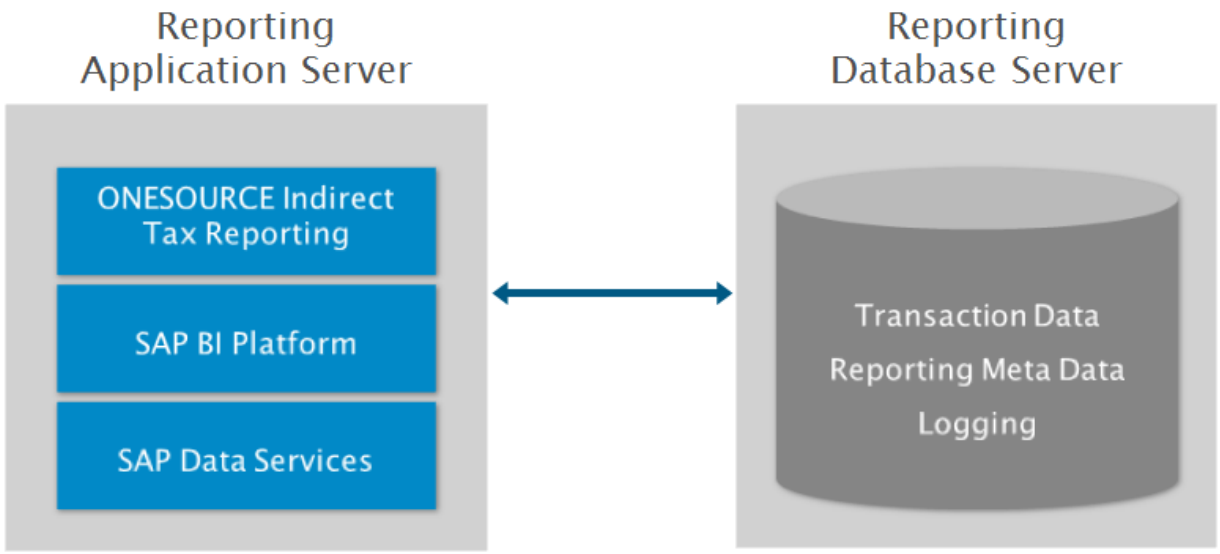
Two additional applications are part of the User Interface Tier. These are used to administer the ETL and Report Processing Tiers. These applications will not typically be visible to end users and will be used rarely after the initial installation and once your ETL processes are scheduled.



Potential Layouts

Because ONESOURCE Indirect Tax Reporting has a flexible architecture, there are many possible configurations. The configuration you choose will depend on your specific business needs. Please see the *ONESOURCE Reporting 6.8.x.x Documentation and Platform Support* knowledge base article in the ONESOURCE Customer Center for additional options and for help in determining your optimal configuration.

In this guide, we will assume a simple configuration that will meet the needs of two-to-five concurrent report users against moderate data volumes. This configuration uses two servers: one for the database and one for the User Interface, Reporting, and Data Management Tiers.



PREREQUISITES

Before you begin the installation, there are several prerequisites to review for your environment. Follow them in the sequence below.

REVIEW SYSTEM REQUIREMENTS

ONESOURCE Reporting has detailed requirements for the following:

- Computer hardware
- Operating system
- Database
- Application server/web container

To confirm you are using supported components, review platform support and product support lifecycle information listed in the ONESOURCE Customer Center.

DOWNLOAD THE SOFTWARE

To download and install the software, get the *ONESOURCEIDTReporting_68xx.zip* file from the Indirect Tax Customer Center:

1. Open the Indirect Tax Customer Center at https://customercenter.sabrix.com/.
2. Log on using the username and password provided by Customer Support.
3. Find Reporting in the **Available Products** list, and verify that **Installed Version** is set to **None**.

4. Select **Download** for Reporting.
5. Save the file.
6. Unzip the *ONESOURCEIDTReporting_68xx.zip* file.

SIZING

As noted in the architecture section, there are several tiers in Reporting. Each of these tiers has requirements (hardware, memory, etc.) you should consider to ensure that your Reporting instance meets your performance needs. Search the ONESOURCE Customer Center for the *ONESOURCE Reporting 6.8.x.x Documentation and Platform Support* for details.

NETWORKING

You must have a fixed IP address for the server that is hosting Reporting.

You also need access through your firewall to the servers hosting the ONESOURCE Indirect Tax Determination software. The specific port numbers can vary based on the options you choose during the installation. Typically they are 1521 for Oracle, 6400 and 6410 for the report processing services, and 3500 and 4001 for the ETL processing services.

OPERATING SYSTEM

Review the following operating system prerequisites:

Users

SAP Components require an operating system user dedicated for the Reporting project (for example, rpt_user). This user will install the supporting software: SAP BusinessObjects BI Platform and SAP BusinessObjects Data Services.

Libraries used with domain users within Linux can cause library conflicts that will prevent the RAS server in BI Platform from starting.

KORNShell

Installer actions require you to have KornShell (ksh) installed; however, you do not need to execute installations from within ksh.

Linux Libraries

The following libraries are required for Red Hat Linux:

- libstdc++.i686
- libstdc++.x86_64
- compat-libstdc++-33.i686
- compat-libstdc++-33.x86_64
- glibc.i686
- glibc.x86_64
- libX11.i686
- libX11.x86_64
- libXext.i686
- libXext.x86_64
- expat.i686
- expat.x86_64
- libgcc.i686
- libgcc.x86_64
- libXcursor.i686
- libXcursor.x86_64
- libXrender.i686

- libXrender.x86_64
- libXtst.x86_64
- libXfixes.i686
- libXfixes.x86_64
- libxcb.i686
- libxcb.x86_64
- libXau.i686
- libXau.x86_64

Ulimit

To build and deploy BI platform web applications, configure the host operating system or user account **ulimit** setting as **unlimited**.

Set the *ulimit* configuration with the **ulimit** command, or modify the system configuration file (*/etc/security/limits.conf*). If you need additional information about setting ulimit, see your operating system documentation.

Language Pack

Be sure that the operating system has an English UTF8 language pack installed. To verify that it is installed, run the following command, which provides a list of installed English US language packs:

```
locale -a | grep -i en_US
```

If there is not one in the list for English UTF8, then you need to install it. Once it is installed, add the LC_ALL environment variable to your profile, and then set its value as the English UTF8 language pack you found above. For example, the following bash shell command sets the locale to the United States English UTF-8 locale:

```
export LANG=en_US.utf8
export LC_ALL=en_US.utf8
```

TZ Environment Variable

Set the TZ environment variable for all BI platform servers to ensure the timestamps on future scheduled jobs are correct. If the TZ environment variable is not set correctly, the time zone rules default to US-standard which may cause problems in other locations. The TZ variable must be set in order to provide the start and end information about DST.

An example TZ setting is as follows: TZ='EST-10EDT-11,M10.1.0/02:00:00,M4.1.0/03:00:00'. For more details on the format, please refer to the following:

http://www.opengroup.org/onlinepubs/007908799/xbd/envvar.html

Operating System Scheduling for ETL Jobs

- Cron must be operational for scheduled ETL jobs to function.
- Solaris requires the scheduling control privilege. The user account running the BI platform installation program must have the **proc_priocntl** scheduling control privilege. This allows the installation processes, which run under that account, to change the threading priorities. To grant this privilege, log on to your Solaris machine as the root user and run the following command:

```
1    usermod -K defaultpriv+=basic,proc_priocntl <userID>
```

JAVA

Reporting requires an application server to host its various components, and the application server should use Java 1.7 or 1.8. For platform information, search the ONESOURCE Customer Center to find the *Platform Support Guide* for your product version. If your application server does not provide its own version of Java 1.7 or 1.8, you must install it separately.

You do not need to install Java separately if you are using Tomcat bundled with SAP Business Intelligence Platform.

APPLICATION SERVER

This guide is targeted to the following application servers for the three web-based components of ONESOURCE Indirect Tax Reporting:

- **Tomcat**: Central Management Console (SAP BusinessObjects BI Platform)
- **Tomcat**: Data Services Administration Console (SAP BusinessObjects BI Platform)
- **Tomcat, JBoss, WebLogic, or WebSphere** : ONESOURCE Indirect Tax Reporting user interface

To simplify the installation process, we recommend that you use the Tomcat software bundled with SAP Business Objects to host each component. If you prefer to use another supported application server to host the Central Management Console and the Data Services Administration Console, see Appendix: SAP Administrative Web Applications Deployment (page 183).

You may need to increase the Java heap memory settings if you have the Central Management Console, Data Services Administration Console, and Reporting user interface on the same application server. See the instructions from your application server vendor.

SAP BusinessObjects BI Platform and SAP BusinessObjects Data Services do not support JBoss or WebLogic. This software needs to be installed on an alternate application server such as Tomcat. The Reporting application, however, is supported on JBoss and WebLogic.

ONESOURCE Indirect Tax Reporting does not support application server clustering.

DATABASE PREPARATION

Oracle 12c / Oracle 19c supports pluggable databases (PDB). This does not impact your installation and you should continue to use your container database (CDB).

Complete each of the tasks below to prepare Oracle for the installation of Reporting:

Setting the Processes Parameter

The default value for the database initialization parameter called **processes** is 100. If you have not already increased this, raise it to at least 200 to accommodate the processes started by Reporting.

Installing the Client

Reporting requires 64-bit connectivity to the database. Install one of the following to set up communication between your database and Reporting:

- Oracle Instant Client
- Oracle Client
- Third-party Tool

Please refer to the installation instructions for the tool you choose.

For additional information about setting up Oracle database connectivity, see the ONESOURCE Customer Center.

Locating the JDBC Driver

A Java 1.8 compliant Oracle JDBC driver is required for this installation (for example, ojdbc8.jar for Oracle). Make a notation of the directory path and name of the JDBC driver because you will use this later in the installation process.

JDBC drivers are usually packaged with the database or database client software on your server. Please consult your DBA or download them from your database vendor's web site.

Ensuring Connectivity Across Servers

Confirm that your TNS entries are consistent across computers that will be hosting application servers and databases for Reporting.

Setting GLOBAL_NAMES

The Reporting software requires the Oracle database initialization parameter of GLOBAL_NAMES to be false. This is the default setting in Oracle.

Creating Users

The steps below explain how to use our database scripts, and we recommend these scripts for default installations; however, if you want to customize your environment, see Appendix: Creating Databases Without Scripts (page 195).

These scripts grant the CREATE DATABASE LINK system privilege. If your database policy does not allow this, see Appendix: Linking to Other Databases (page 193).

1. Go to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip* (shown as *<UnzippedReportingDirectory>* below).
2. Change to the *scripts* directory:

   <UnzippedReportingDirectory>/scripts
3. Start a SQL*Plus session and log on as *sys*.
4. Execute *CreateReportingTablespaces_Oracle.sql*.
5. Answer the prompts. If you want the default value listed in square brackets, press ENTER at each prompt.
6. Once the tablespace script is finished, execute *CreateReportingUsers_Oracle.sql.*
7. Answer the prompts. If you want the default value listed in square brackets, press ENTER at each prompt.

SUPPORTING SOFTWARE

ONESOURCE Indirect Tax Reporting relies on two products from SAP Business Objects: Business Intelligence and Data Services. Complete the following before installing the Reporting user interface.

This guide takes you through the recommended installation path with Tomcat, an application server that is included with the SAP software. If you prefer to use an alternative application server for the SAP software, see Appendix: SAP Administrative Web Applications Deployment (page 183).

SAP BUSINESSOBJECTS BI PLATFORM

This section describes how to install SAP BusinessObjects BI Platform. Reporting uses several components of this tool: server processes for generating/caching reports and a web application for administration and troubleshooting (Central Management Console). The following sections explain how to install the software and make some initial configurations.

- Installing SAP BusinessObjects BI Platform (page 21)
- Editing the CRConfig File (page 46)
- Configuring Report Timeout and Recycle Bin (page 47)
- Setting Environment Variables (page 50)

You must install the Thomson Reuters-provided SAP BusinessObjects components even if you have your own BusinessObjects deployment. Reporting uses a specific version and set of components that may not be compatible with your installed version.

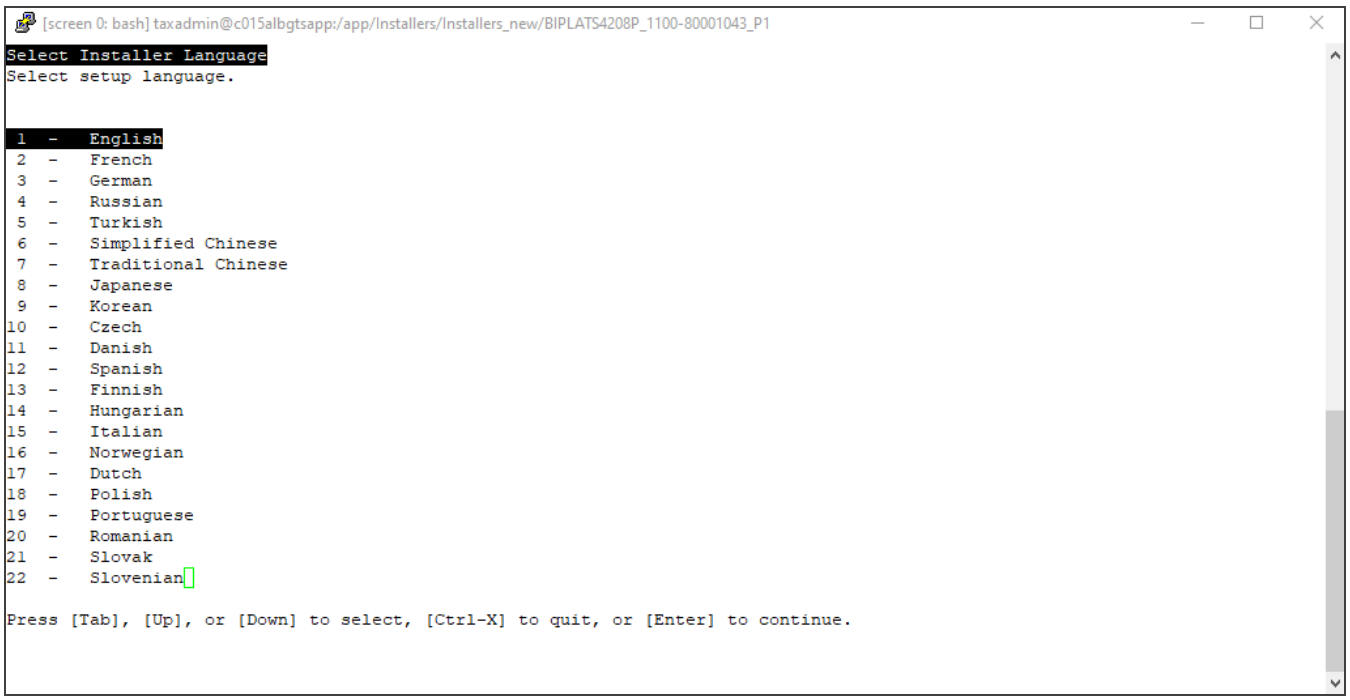
Installing SAP BusinessObjects BI Platform

The requirements in Prerequisites (page 13) are very important to a successful installation. Please confirm that you reviewed all the prerequisites before starting the installation of SAP BusinessObjects BI Platform.

Beginning with SAP 4.3, SAP Crystal Reports Services are depreciated by SAP. To install the components, you must use a separate Windows instance. See the following SAP Blog post for details: https://blogs.sap.com/2021/01/28/how-to-distribute-sap-crystal-reports-2020-services-to-a-windows-server/.

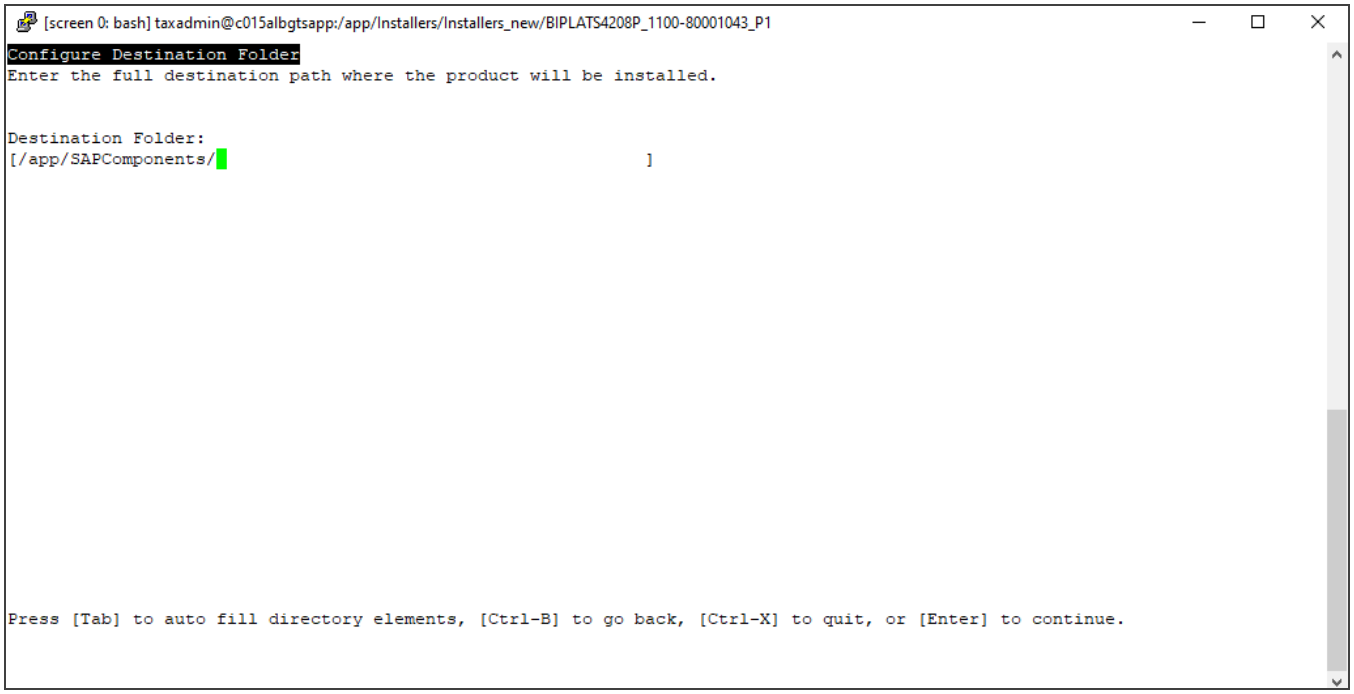
Complete the following to install SAP BusinessObjects BI Platform.

1. Locate *setup.sh* in the directory structure where you unzipped the file *SAPBusinessObjectsBIPlatform4_<YourOS>.tar.gz*.
2. Make *setup.sh* executable.
3. Execute *setup.sh*, and then follow the steps below.
4. Execute the setup.sh like setup.sh - InstallDir [Reporting installation path]
5. Use the following Syntax: ./setup.sh - InstallDir [install dir]
6. When the first screen appears, select **English**, and then press ENTER.

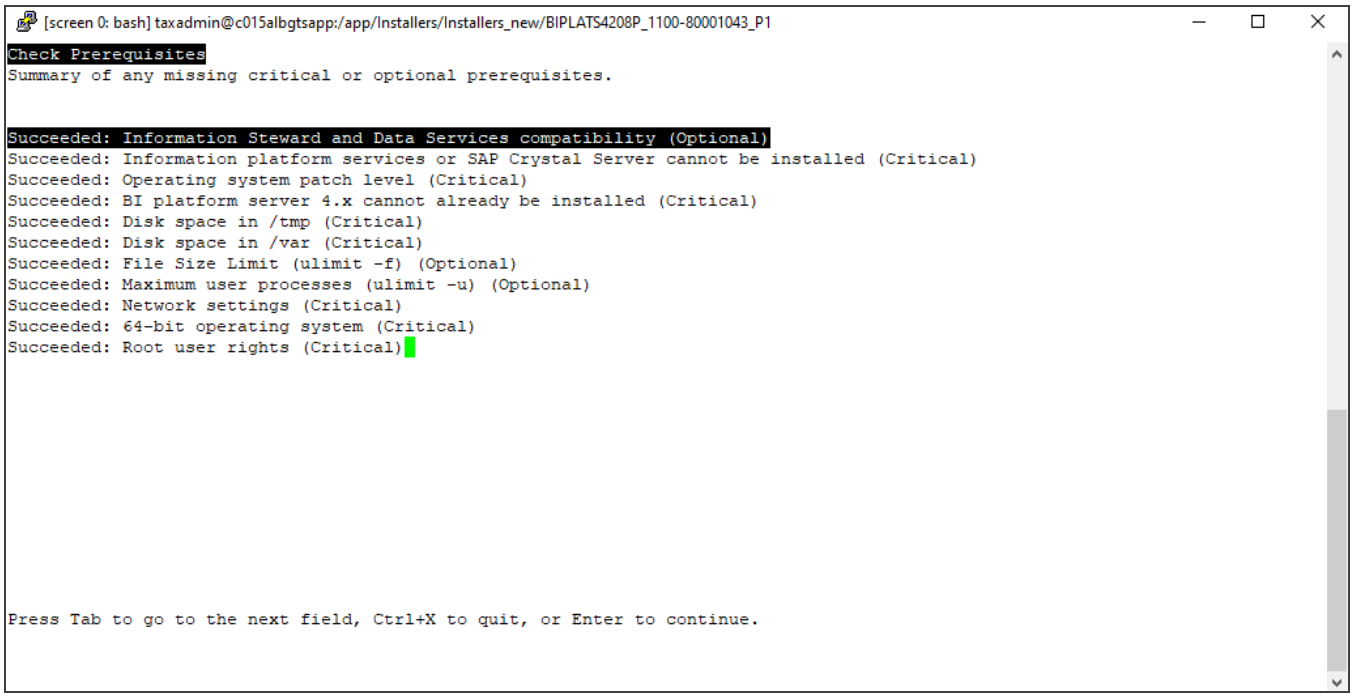


7. Enter the directory for **Destination Folder**.

> The path cannot include spaces and cannot exceed 27 characters. Install as close to the root as possible (for example, /home/u1/sap/<SAPBaseDirectory>).

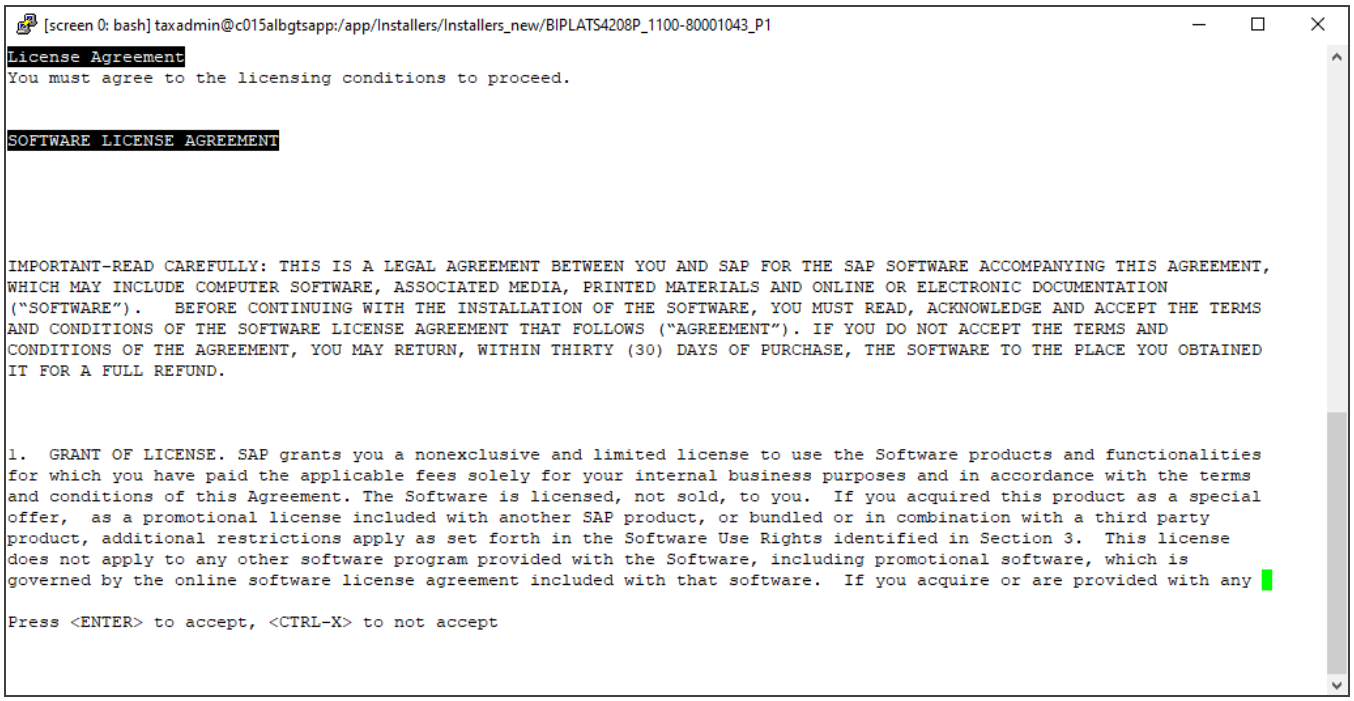


8. Review the summary of requirements, and if all the tests succeeded, press ENTER. If your system did not pass all of the requirements, press CTRL+X to exit the installer and correct the problems.

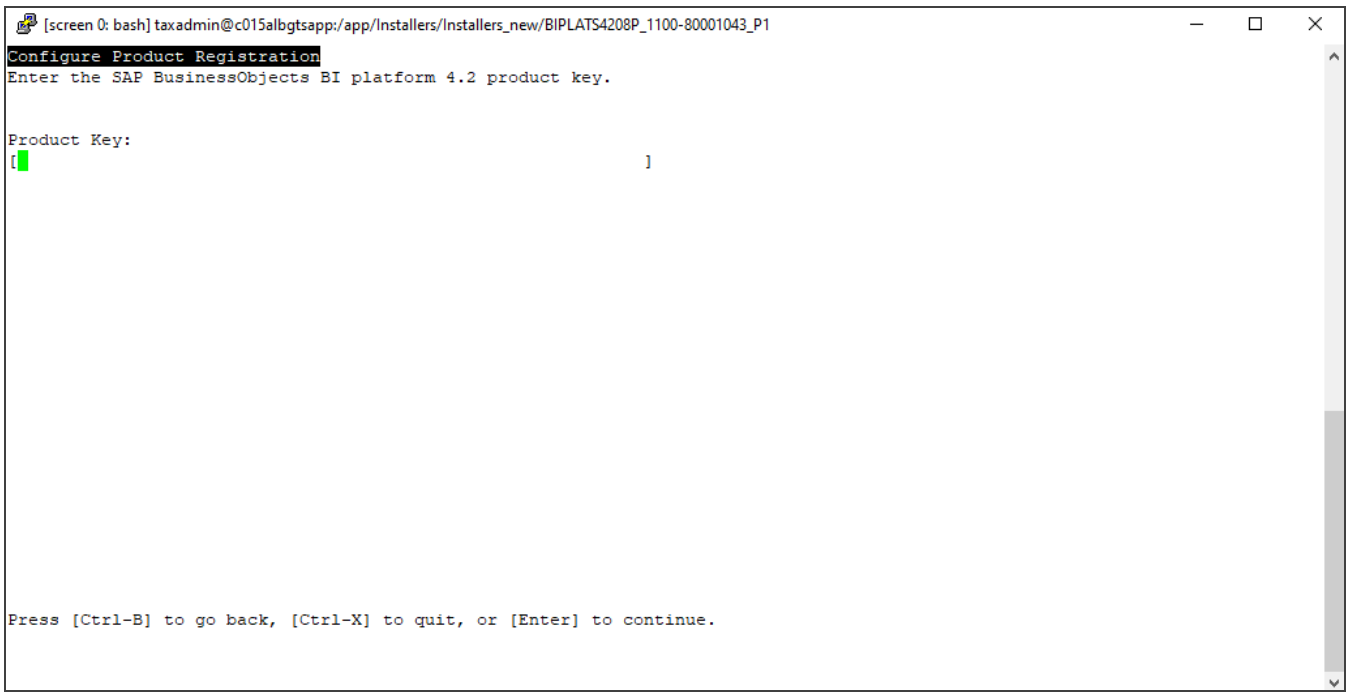


9. Press ENTER after reviewing the copyright notice.

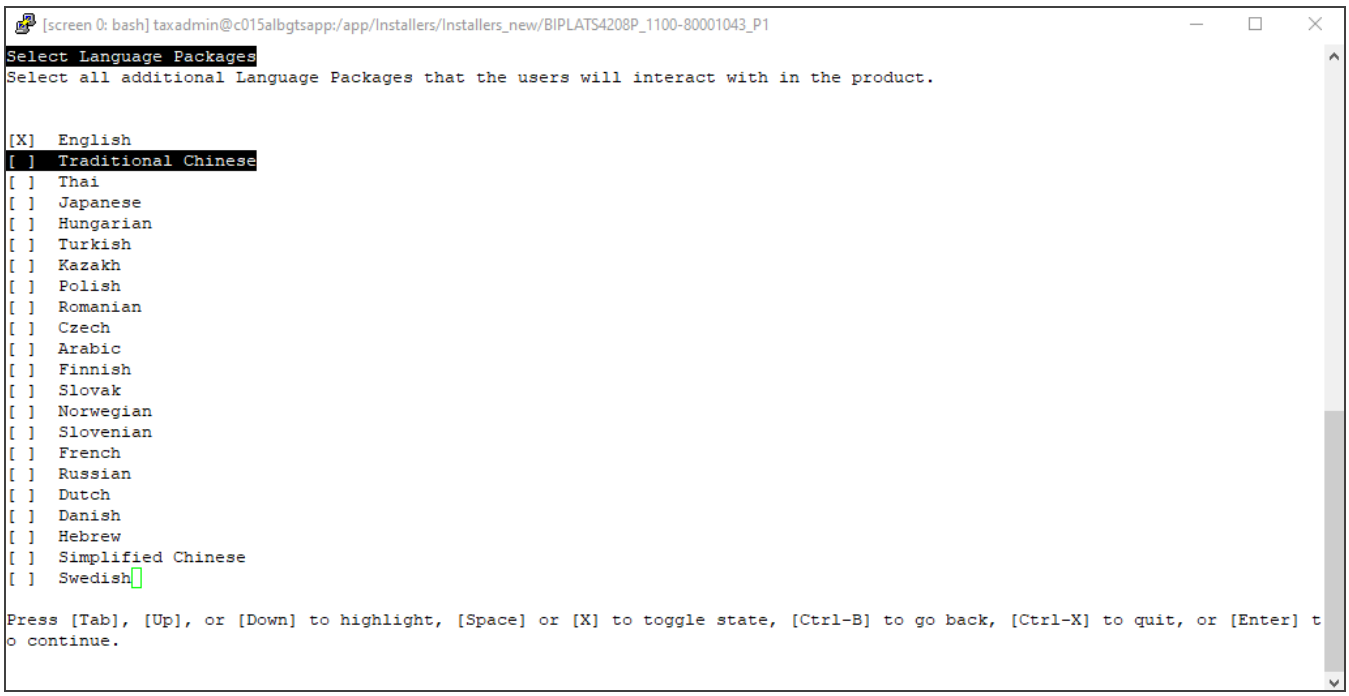
10. Press ENTER after reviewing the software license agreement.



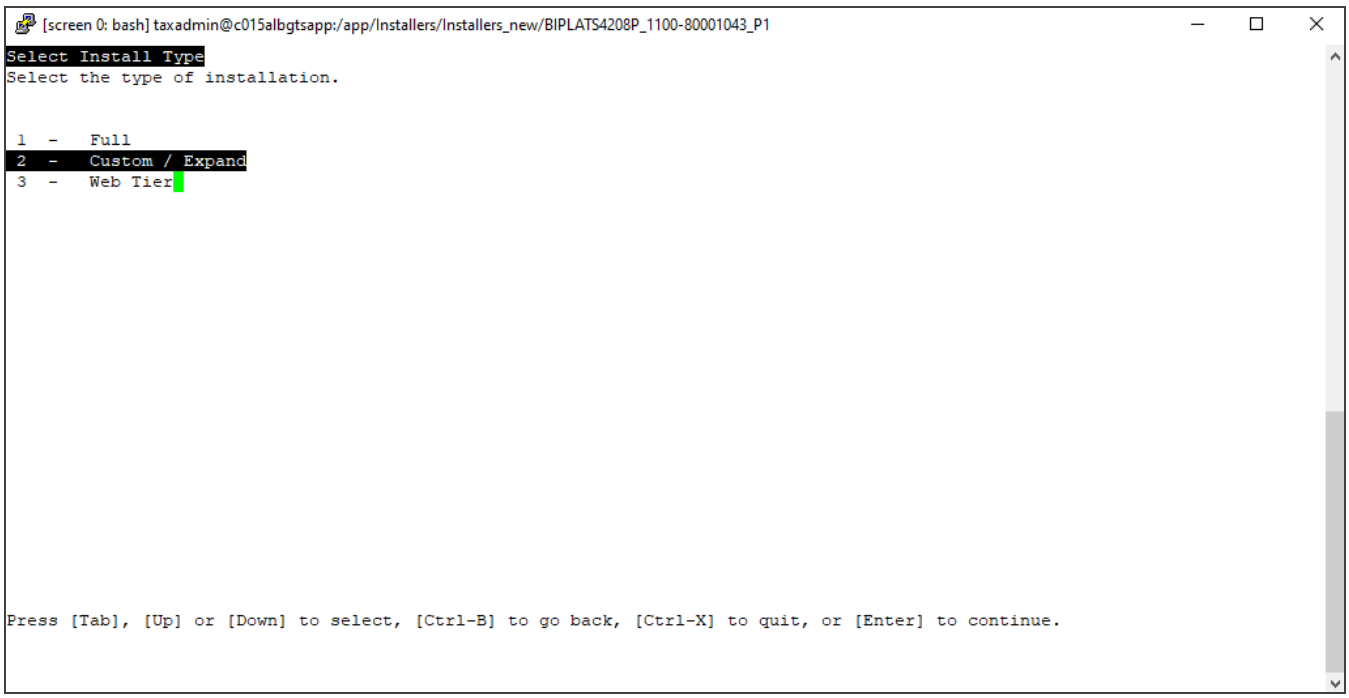
11. Enter your product key, and then press ENTER.



12. Ensure that English is selected, and then press ENTER.

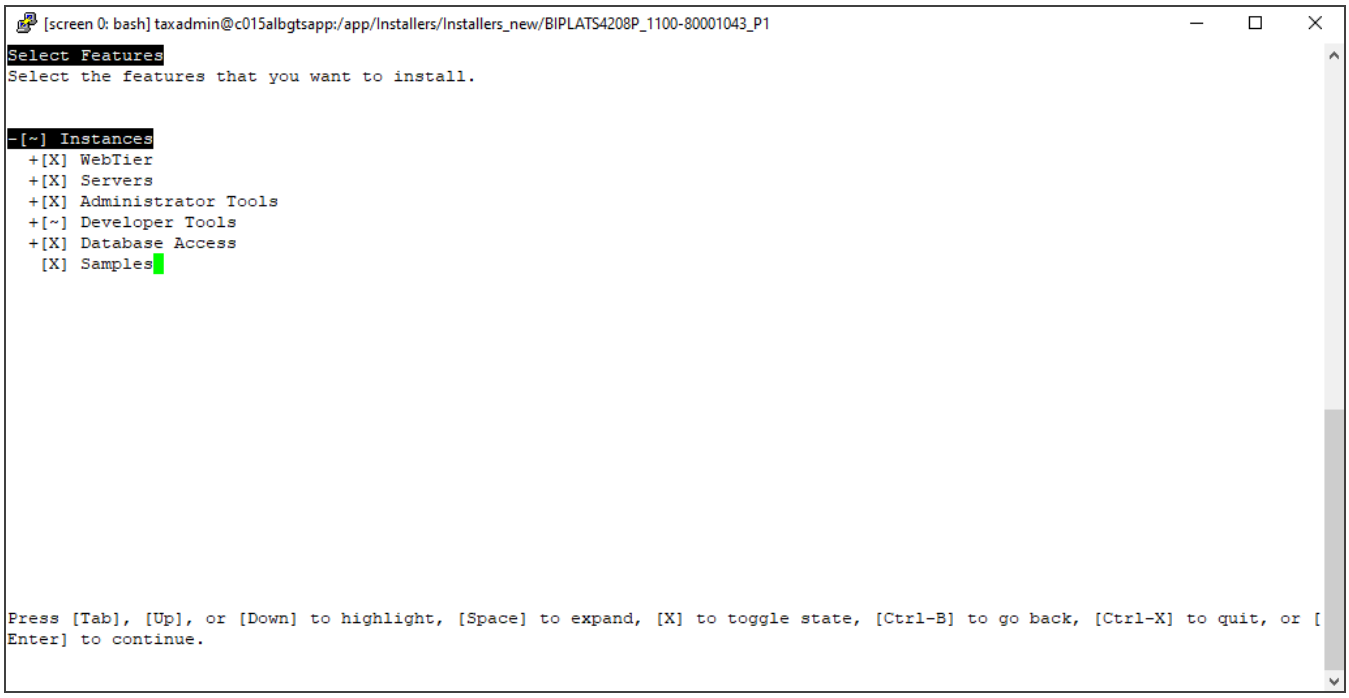


13. Select **2 - Custom / Expand**, and then press ENTER.



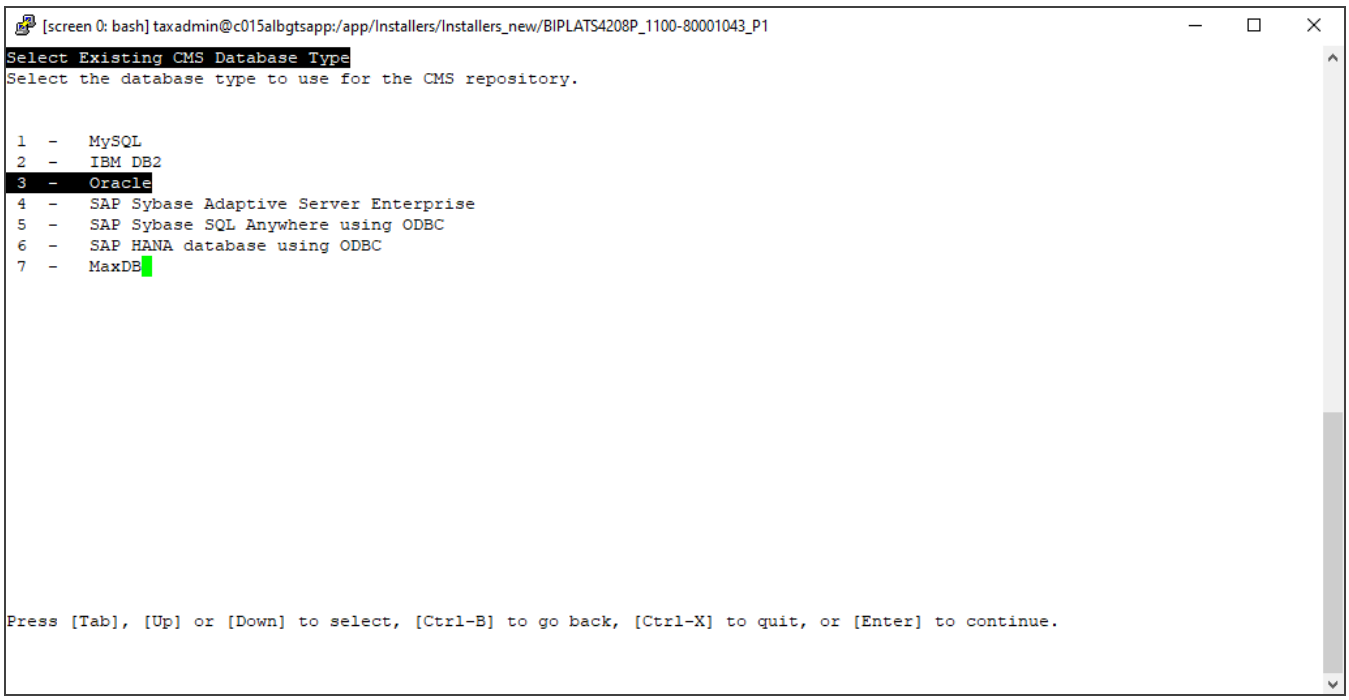
14. Select only the components in the list below. Use the navigation tips at the bottom of the screen. After you select the components, press ENTER.

    - Instances
        - Web Tier
            - Java Web Applications (only)
            - Tomcat (only)
        - Servers
            - Platform Services
                - Central Management Server (only)
                - File Repository Services (FRS) (only)
                - Platform Processing Services (only)
                - Platform Scheduling Services (only)
            - Connectivity Services (all)
            - SAP Crystal Reports Services (all)
        - Administrator Tools (all)
        - Database Access
            - Generic JDBC (only)
            - Oracle

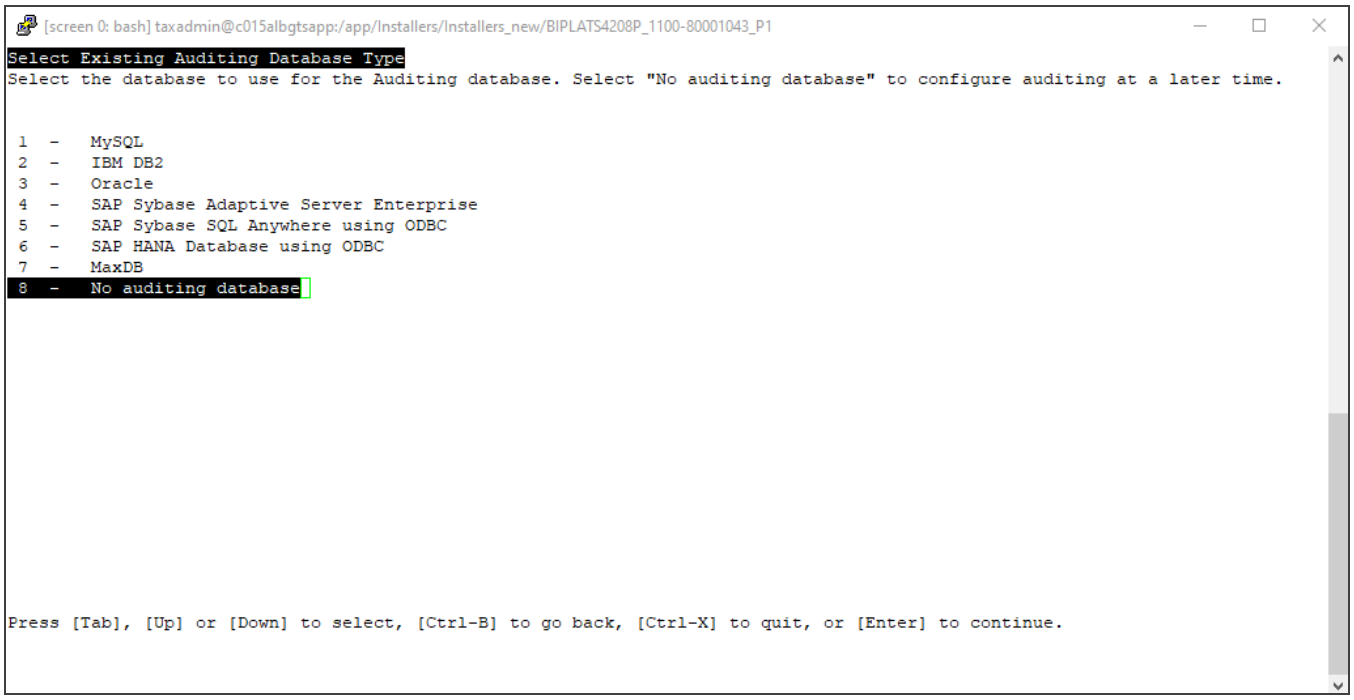


15. Select number **1 - Start a new SAP BusinessObjects BI platform deployment**, and then press ENTER.

16. Select Oracle, and then press ENTER.



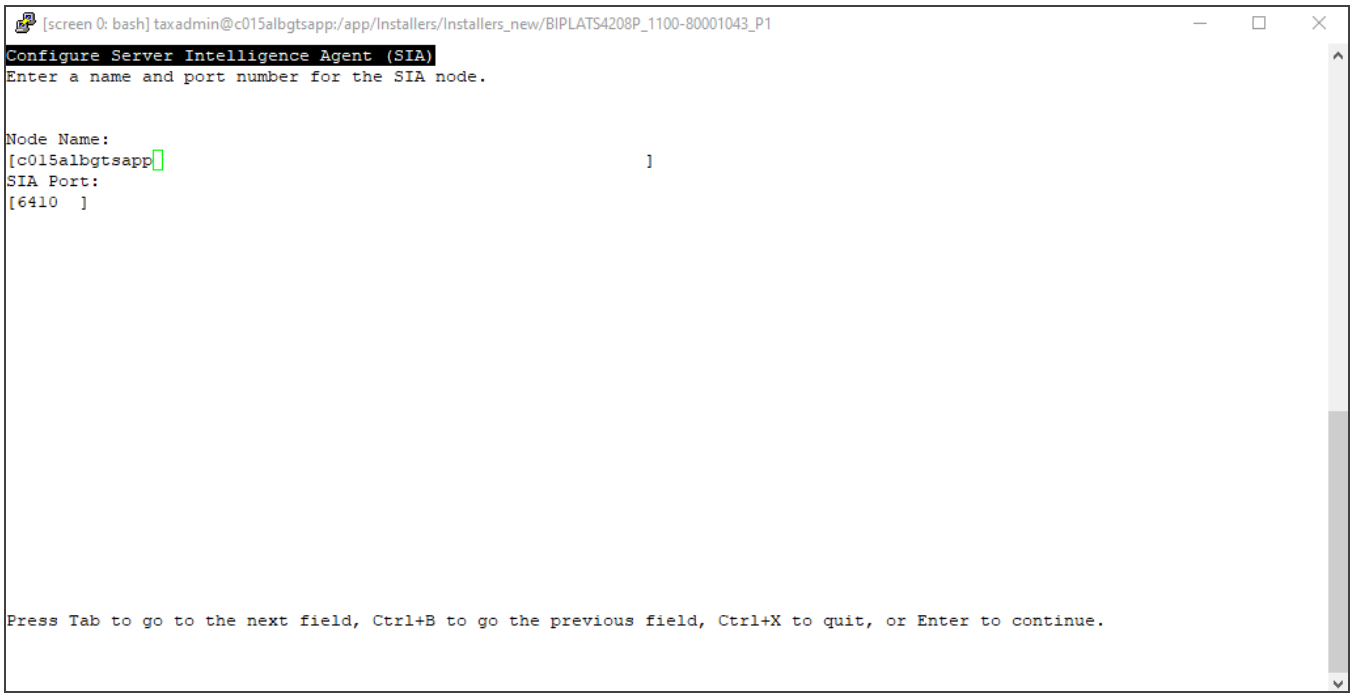
17. Select **No auditing database**, and then press ENTER.



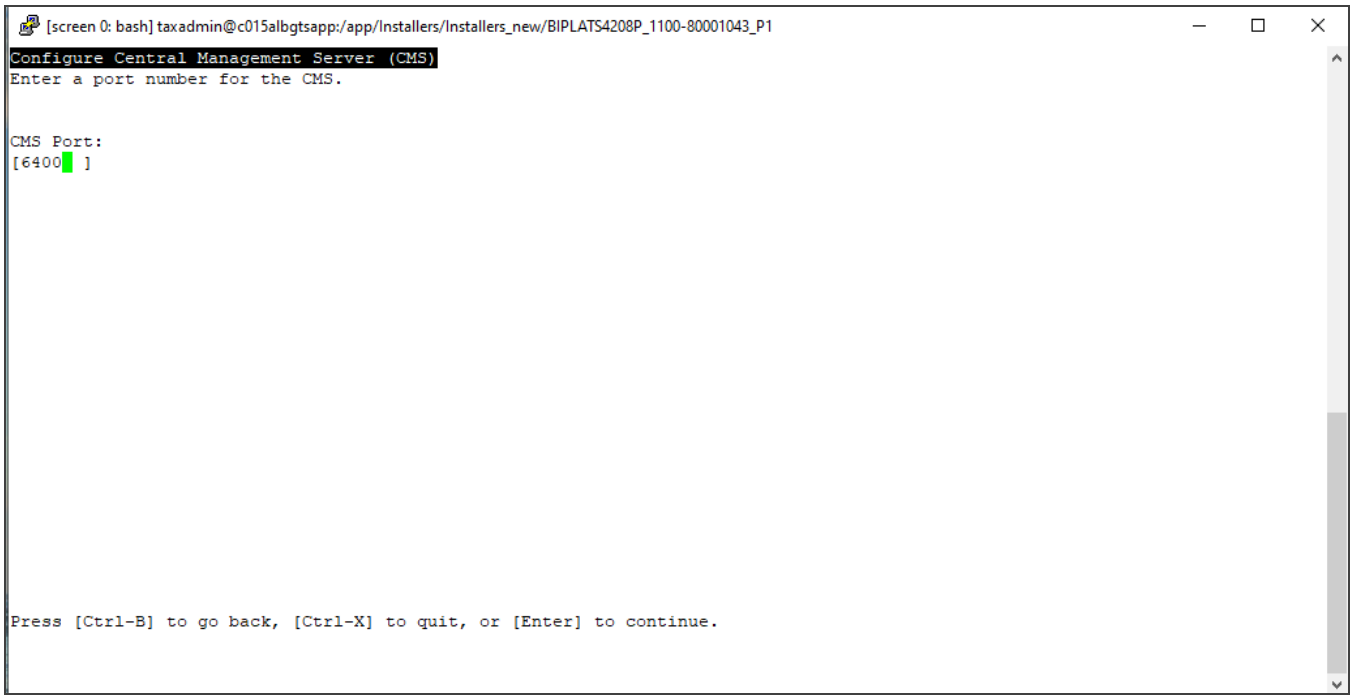
18. Enter a node name and port for the Server Intelligence Agent. The name is a value that helps you identify the node.

The name of the Server Intelligence Agent node must follow these guidelines:

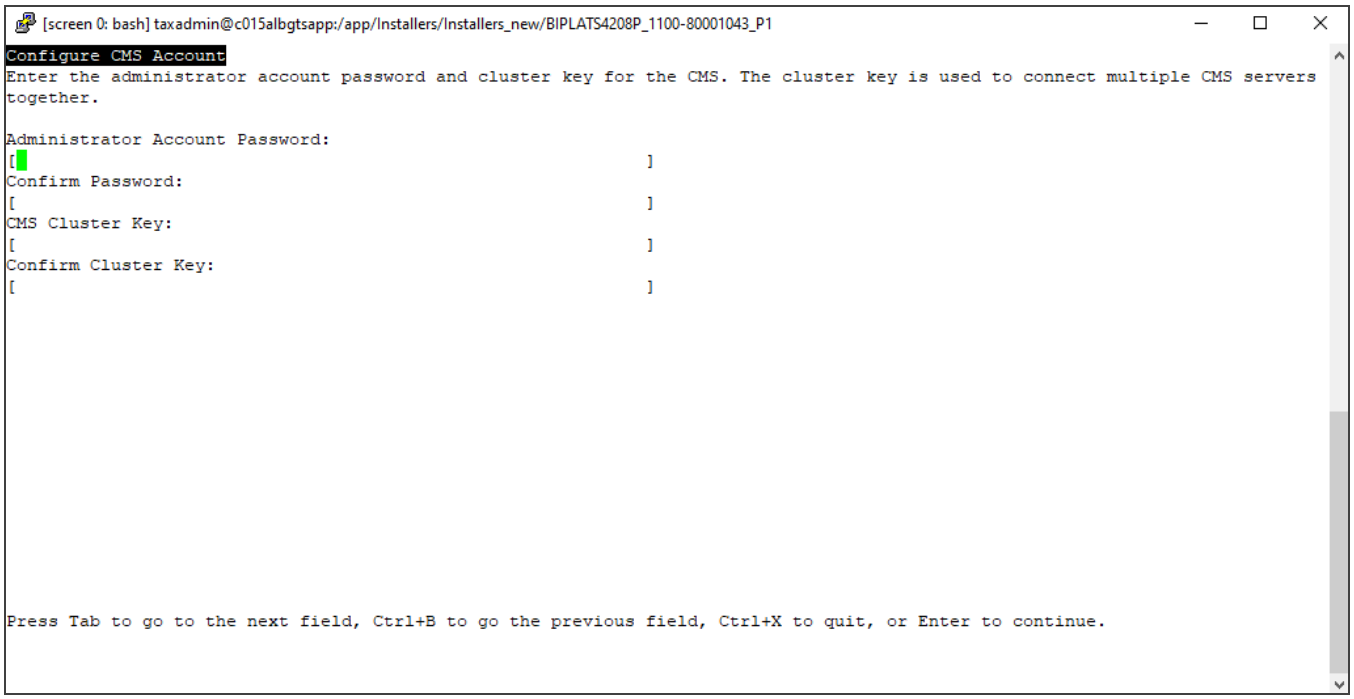
- The name can only consist of alpha-numeric characters (a-z, A-Z, 0-9).
- The name cannot begin with a number.



19. Accept the default CMS port number or enter your own value, and then press ENTER.

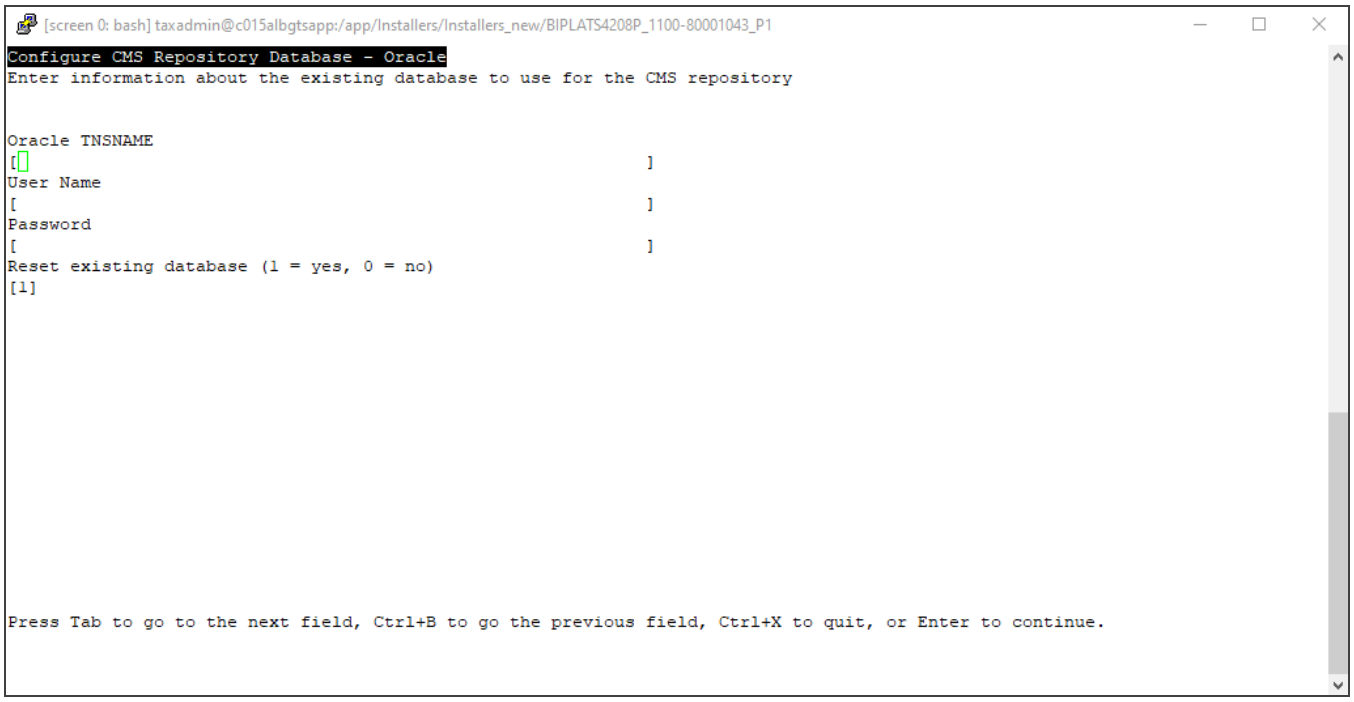


20. Enter passwords and password confirmations for the CMS administrator and cluster key, and then press ENTER.



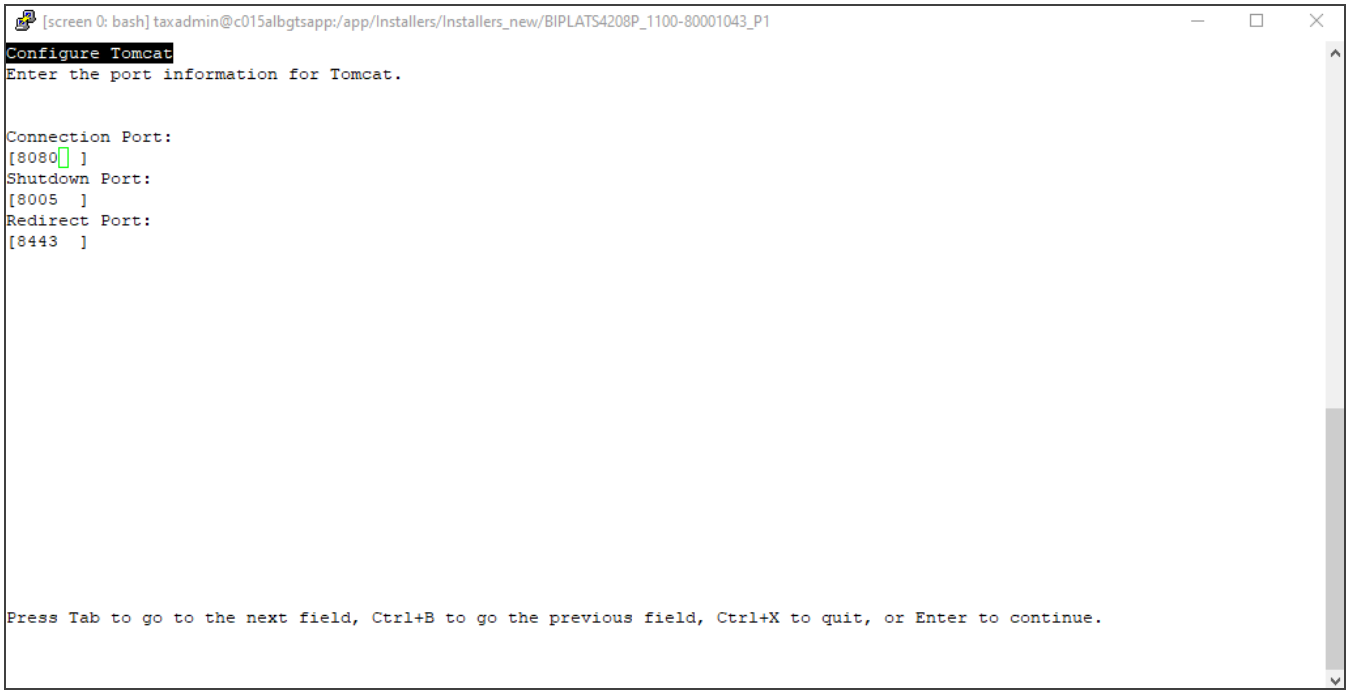
21. Add your database information in **Configure CMS Repository Database**.

ORACLE	
Oracle TNSNAME	Enter the value from your environment
User Name	The schema name for the Reporting repository (RPT_REPO)
Password	The password for the Reporting repository user The password must contain uppercase and lowercase characters.
Reset existing database	Accept the default value of 1

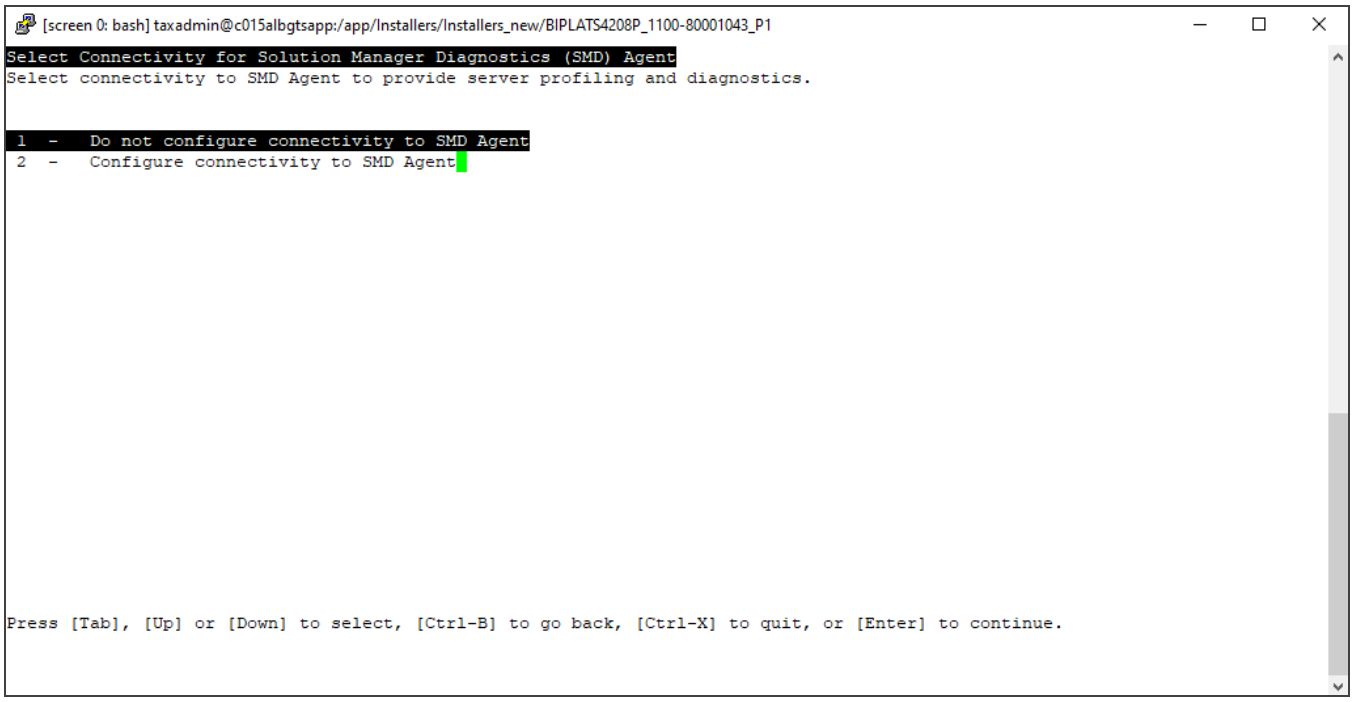

[screen 0: bash] taxadmin@c015albgtsapp:/app/Installers/Installers_new/BIPLATS4208P_1100-80001043_P1
Configure CMS Repository Database - Oracle
Enter information about the existing database to use for the CMS repository
Oracle TNSNAME
[ ]
User Name
[ ]
Password
[ ]
Reset existing database (1 = yes, 0 = no)
[1]
Press Tab to go to the next field, Ctrl+B to go the previous field, Ctrl+X to quit, or Enter to continue.

22. Accept the defaults, or enter your own port numbers for Tomcat, and then press ENTER.

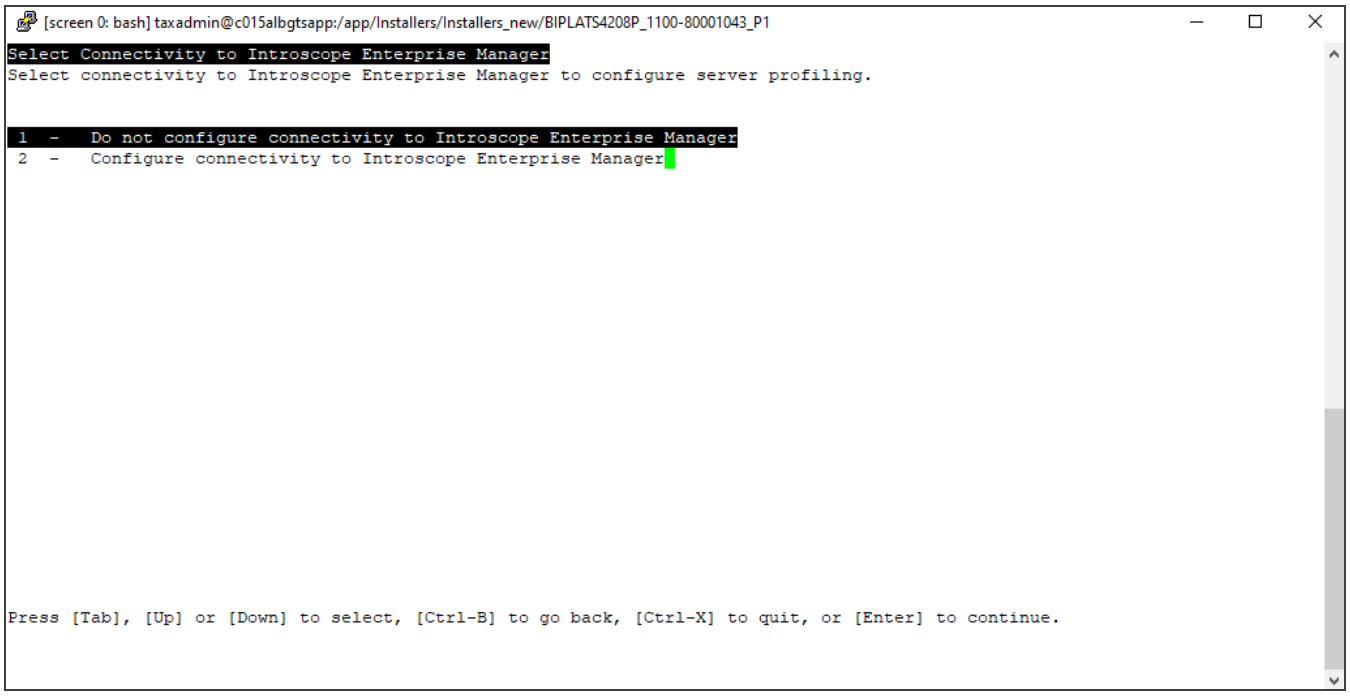
> Make a note of the Tomcat connection port. This screen only appears if you selected Tomcat previously.



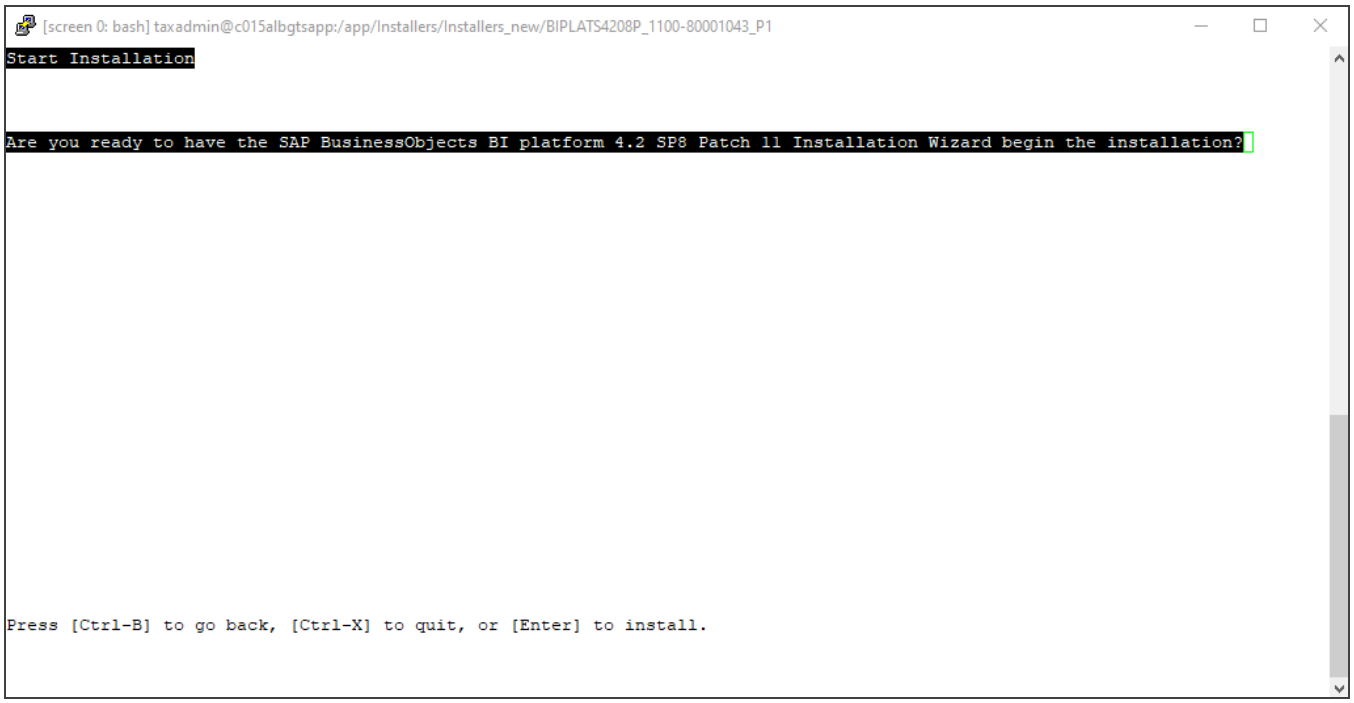
23. Select **1 - Do not configure connectivity to SMD Agent**, and then press ENTER.



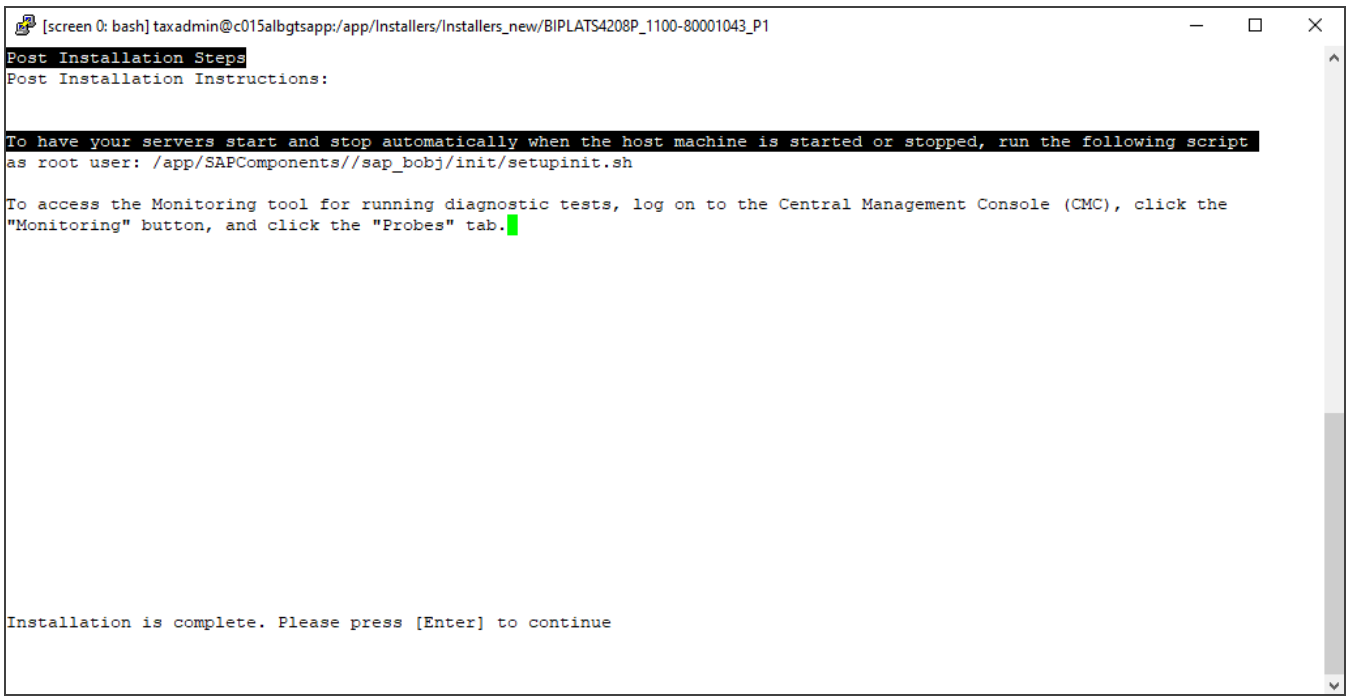
24. Select **1 - Do not configure connectivity to Introscope Enterprise Manager**, and then press ENTER.



25. On the **Start Installation** page, press ENTER to begin.

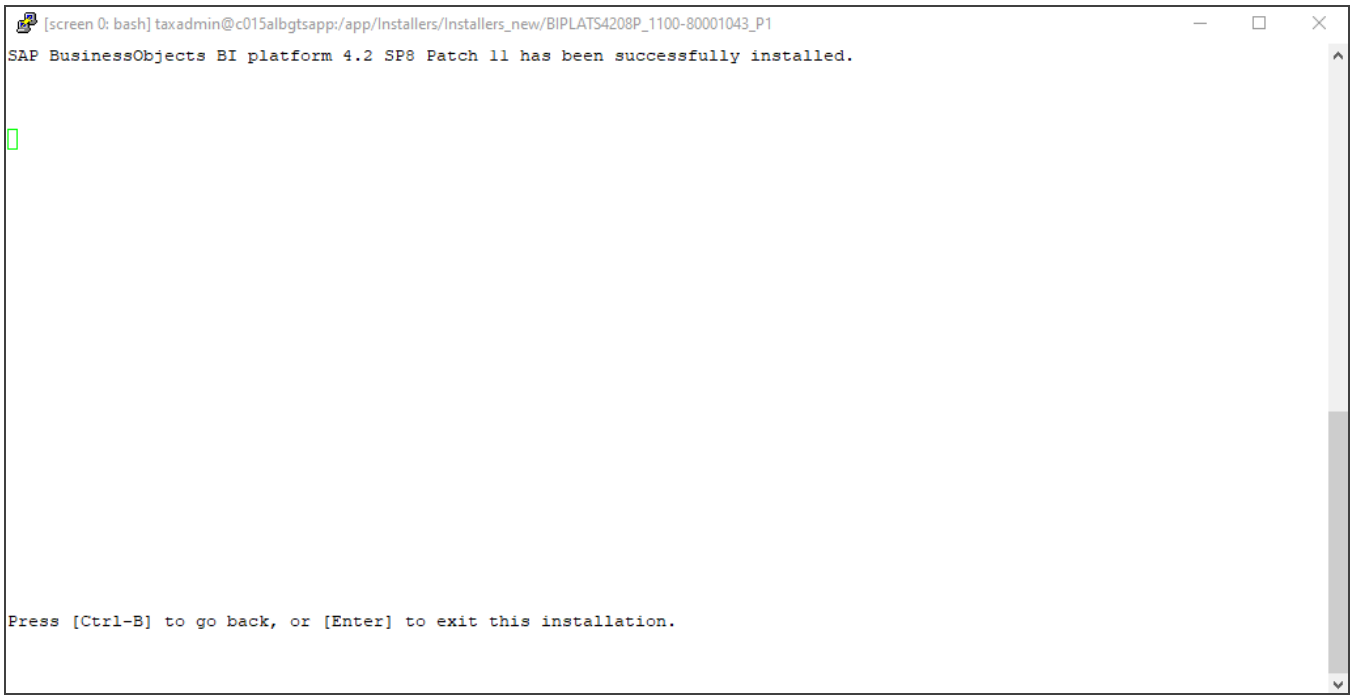


26. When the installer finishes, remain in the console session, and complete the next step.



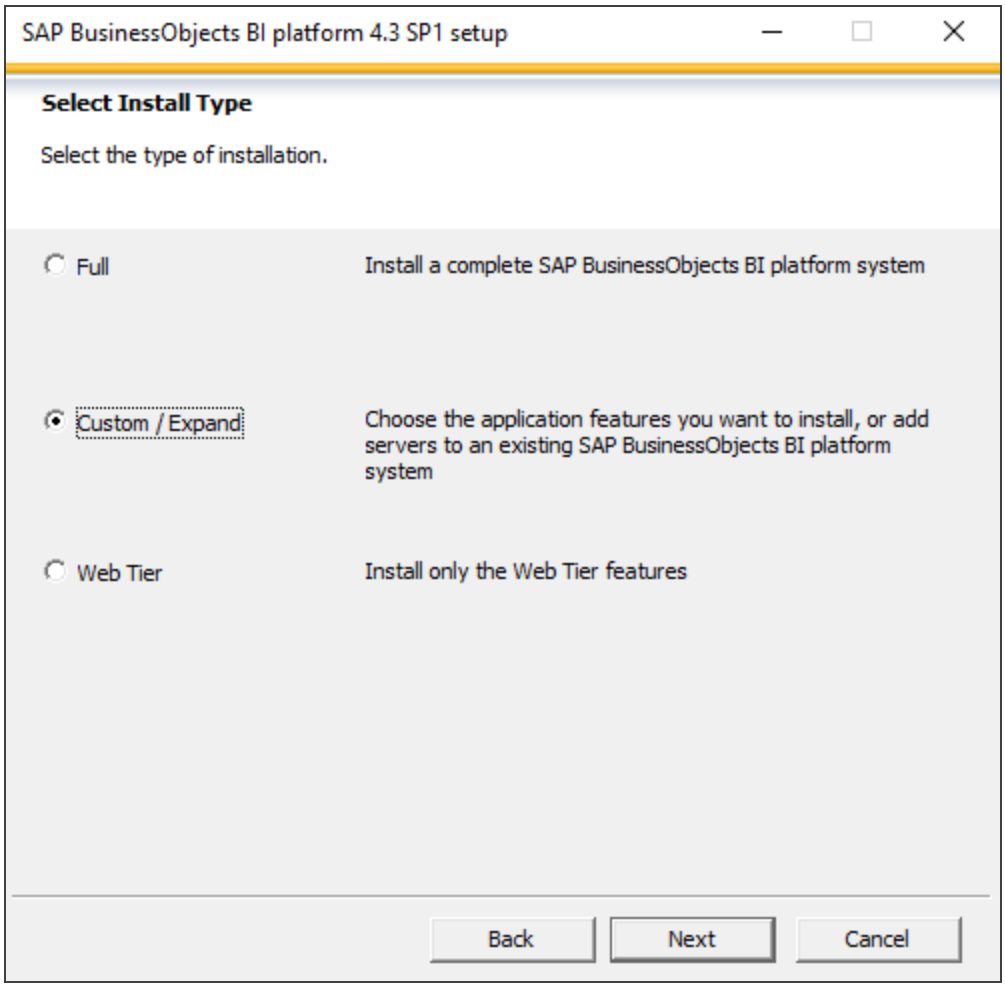
27. As described in the sample above, open another console, run the shell script *setupinit.sh* as root to finalize the installation of Business Intelligence.

28. After you execute *setupinit.sh* as root, return to the console where you were running the installation, and then press ENTER to exit the installer.

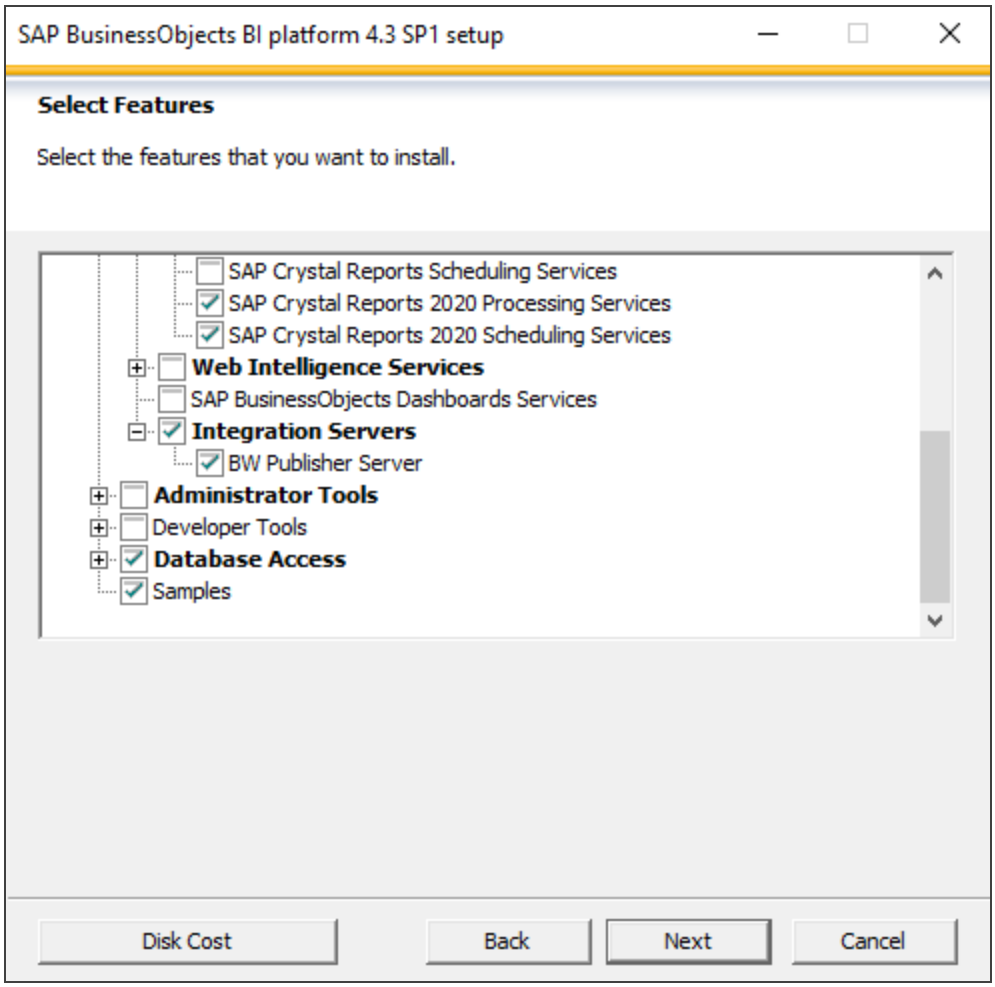


Complete the following in Windows after installing the SAP BI in Linux:

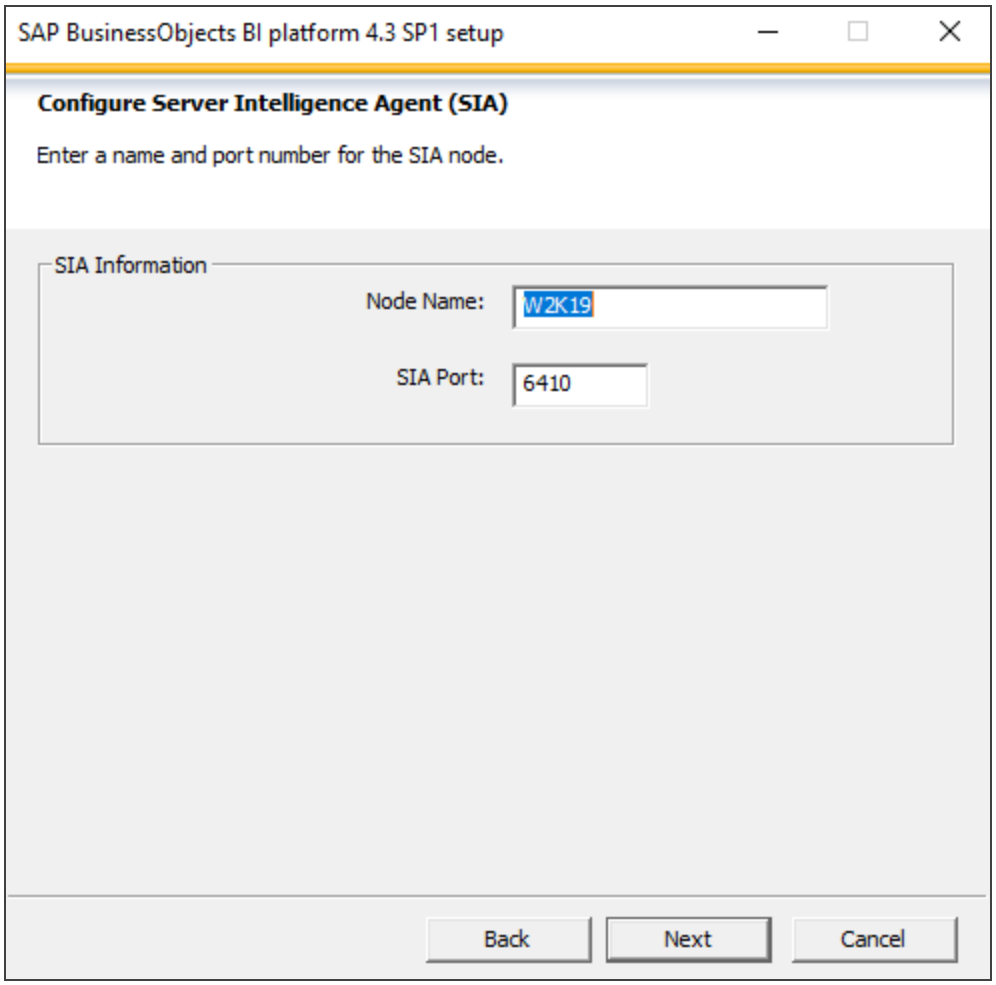
1. Download then run the BI platform installer on a clean Windows server.
2. Select the installation folder (or use the default installation folder).
3. Select the **Custom/Expand** install type.



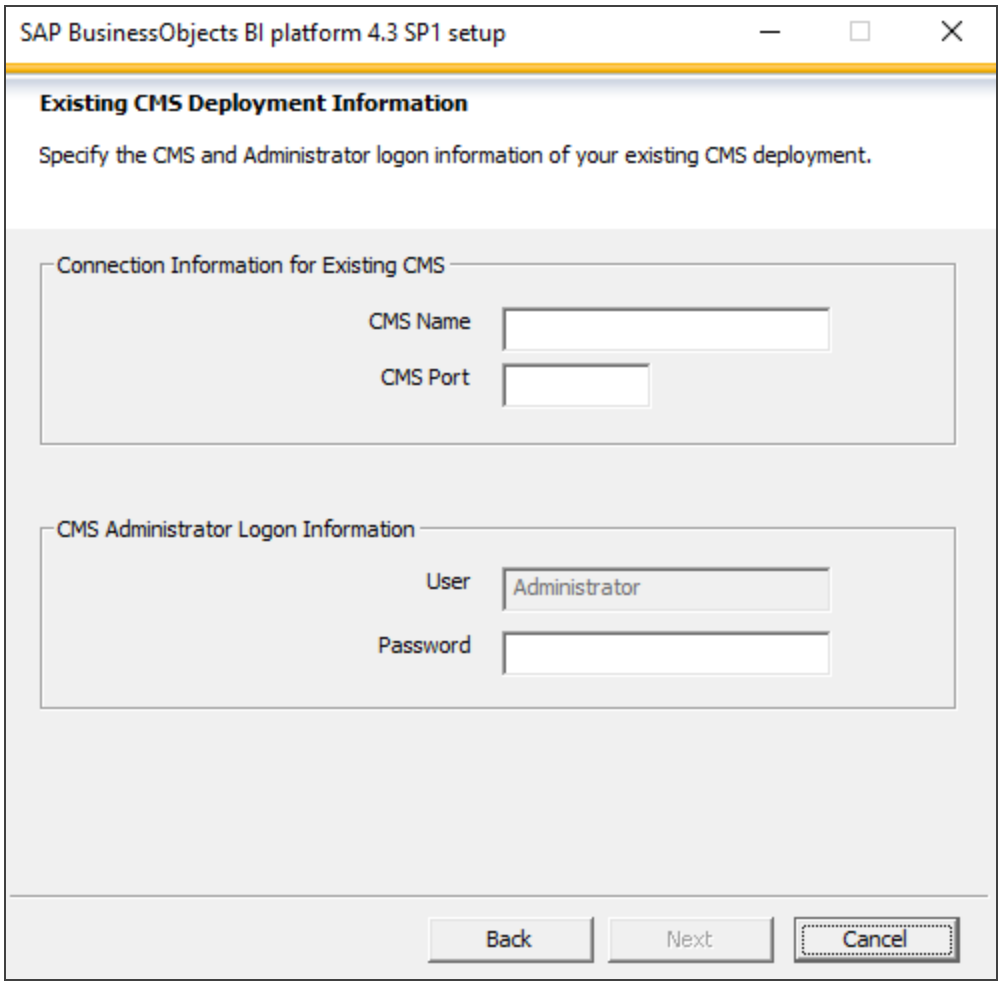
4. On the Select Features screen, select only the following CR 2020 related features:
    - Servers / SAP Crystal Reports Services / SAP Crystal Reports 2020 Processing Services
    - Servers / SAP Crystal Reports Services / SAP Crystal Reports 2020 Scheduling Services
    - Integration Server / BW Publisher Server
    - Database Access
    - Samples



5. Read the information on the Expand Installation screen then click **Next**.
6. Enter a Server Intelligence Agent (SIA) node name in the **Node Name** field (or use the default node name).



7. Enter your existing CMS name, port and logon information.

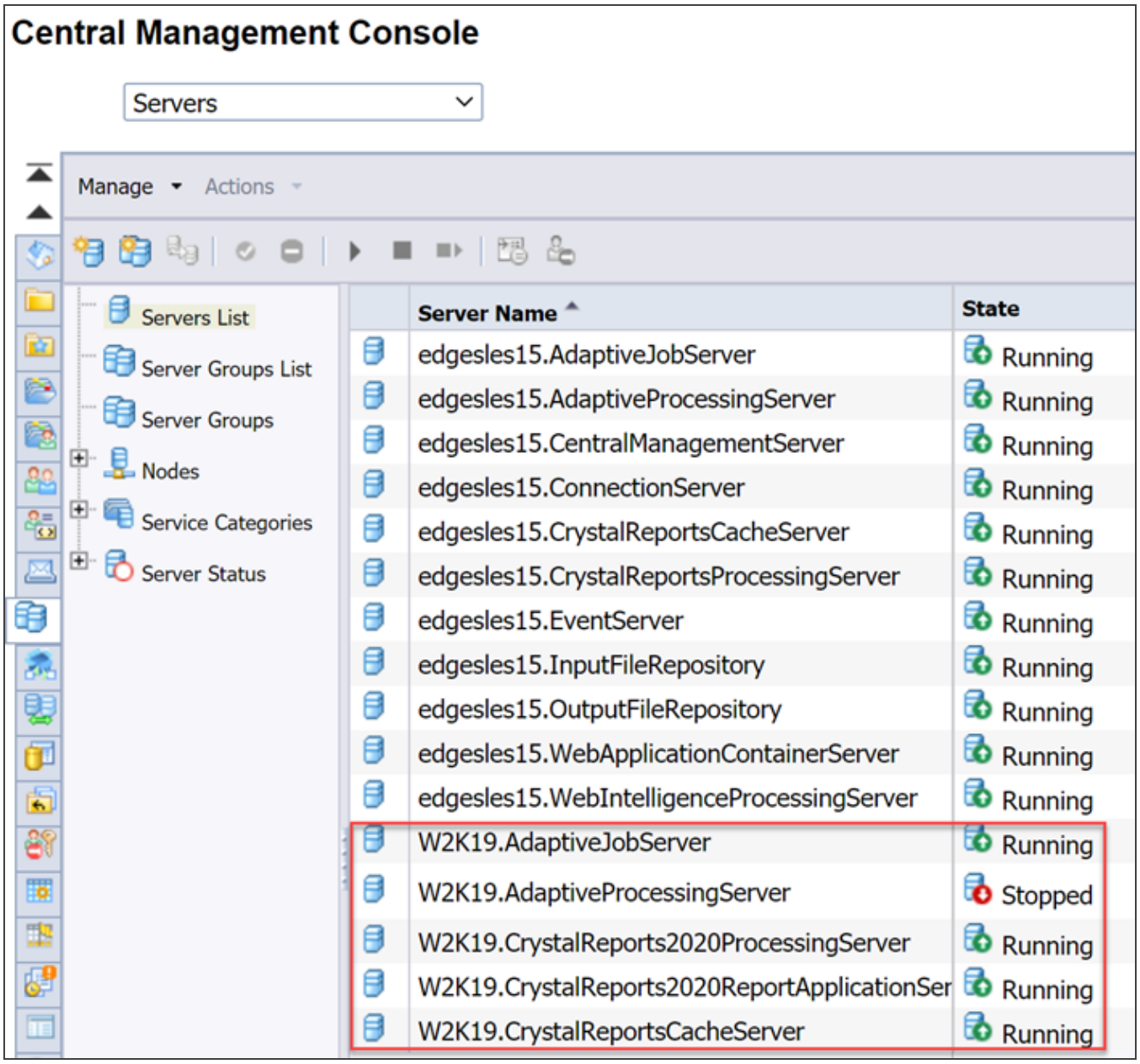


If your existing CMS has Corba SSL enabled, you may want to disable it during installation. Otherwise, the installer may have difficulty in connecting to your existing CMS. See SAP Note 2634052 for instructions on how to enable or disable Corba SSL.

8. Select **Automatic Server Start** (or use the default).
9. Finish the installation.

Complete the following after the installation is finished:

1. Perform necessary database configurations on the Windows server. For example:
    - Install the database drivers from vendor.
    - Configure ODBC DSN (with same name).
2. Login to Central Management Console (CMC) then ensure the newly added CR2020 Services exist and are running on Windows. See the graphic below for an example.
3. To prove the newly installed CR2020 services are working, stop the other CR2020 servers (for example, on Linux or Unix).
4. Ensure the CR2020 reports now processed on your Windows server can be viewed and scheduled.



Editing the CRConfig File

Insert the following information in the file *CRConfig.xml*:

1. Go to the directory where SAP Business Intelligence is installed (shown below as <*SAPBaseDirectory*>).
2. Change to the following directory:

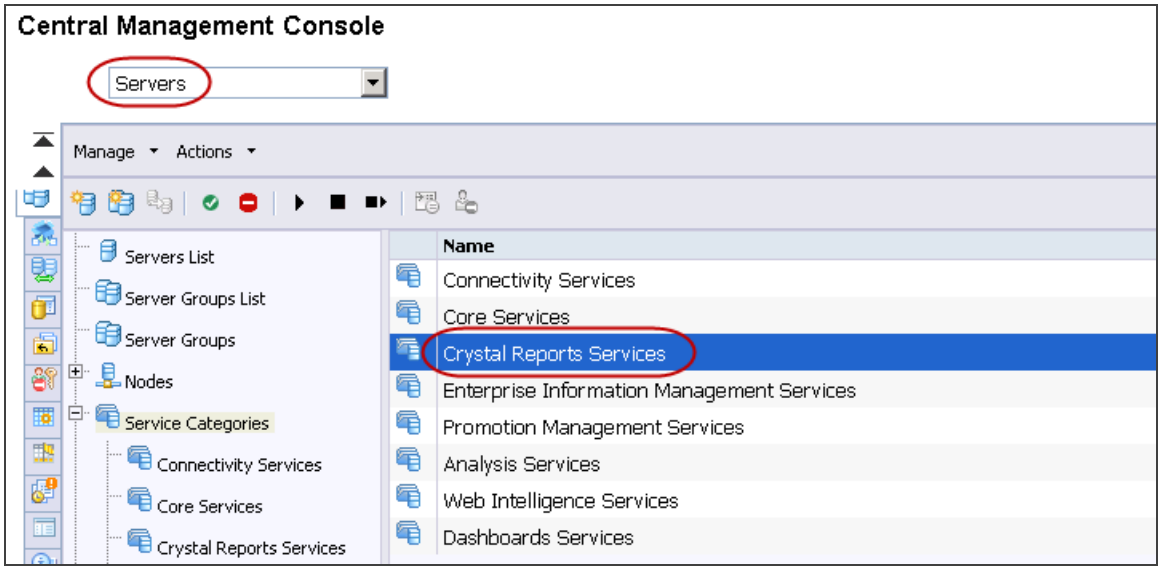
   <*SAPBaseDirectory*>/sap_bobj/enterprise_xi40/java
3. Open the file *CRConfig.xml* in a text editor and navigate to the <Classpath> tag under the <DataDriverCommon> tag.
4. Immediately following the <classpath> tag, insert the full path and file name of the JDBC driver you located for Database Preparation (page 18). Ensure that there is a colon separating your path from the next entry in the classpath (for example, */u01/app/oracle/product/11.2.0/db_1/jdbc/lib/ojdbc8.jar*.
5. Continuing under the <DataDriverCommon> tag, navigate to the <JavaServerTimeout> tag.
6. Change the default timeout value from **1800** to **7200**.
7. Save the file.
8. Go to <*SAPBaseDirectory*>/sap_bobj.
9. Stop Tomcat (./tomcatshutdown.sh).
10. Stop Business Intelligence (./stopservers).
11. Start Business Intelligence (./startservers).
12. Start Tomcat (./tomcatstartup.sh).

Configuring Report Timeout and Recycle Bin

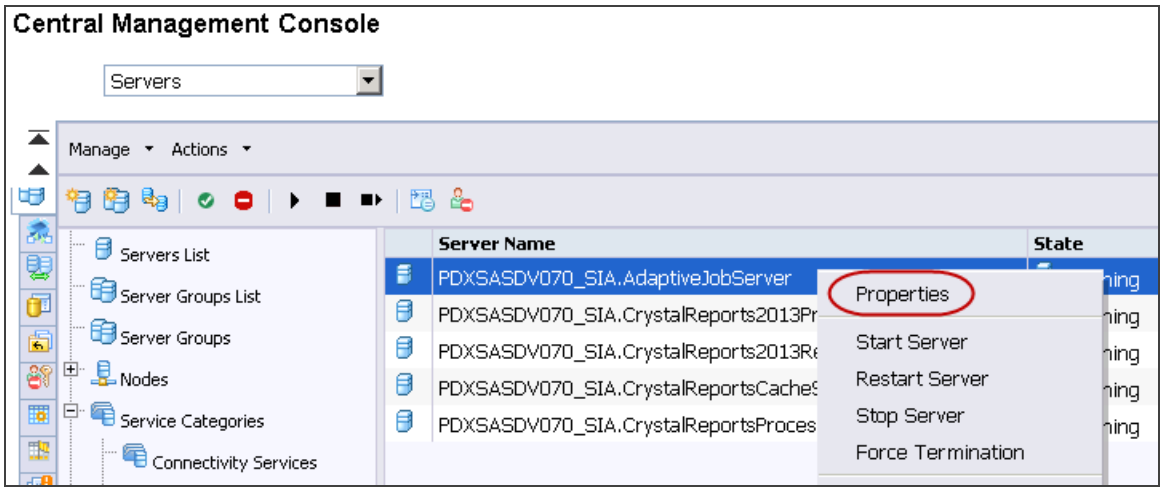
Set a parameter to control the length of time that reports may run before they time out. We recommend the setting below, but if your reports require more time to complete, you may need to increase this value.

1. Log on to the Central Management Console as **Administrator** (for example, http://<host>:8080/BOE/CMC).
2. If the System Configuration Wizard appears, click **Don't show this wizard when the CMC is started**, and then click **CLOSE**.
3. Click **Applications** in the drop-down box at the top.
4. Right-click **Recycle Bin Application** in the left pane, and then select **Properties**.
5. Clear the **Enable recycle bin** check box.

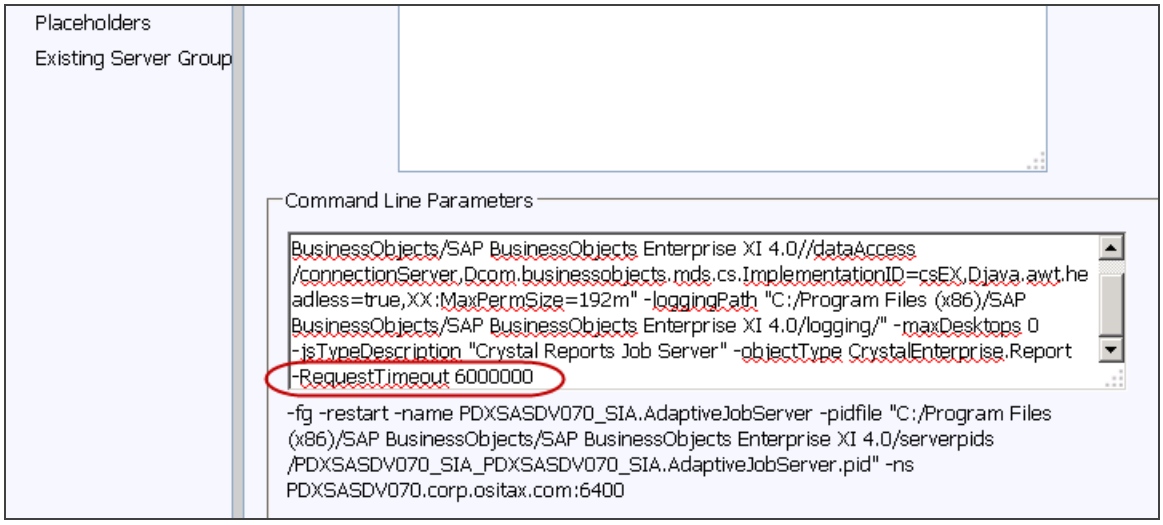
6. Click **Save**.
7. Click **Servers** in the drop-down box at the top, and then click **Crystal Reports Services** in the right pane.



8. Right-click **AdaptiveJobServer**, and then click **Properties**.

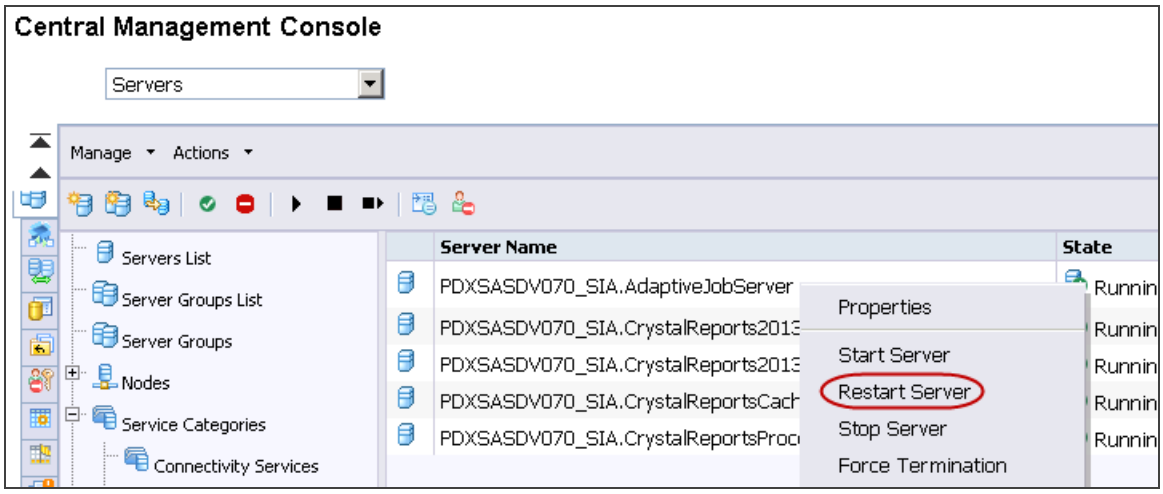


9. Add the following to the end of the **Command Line Parameters** field: **-RequestTimeout 6000000**. This adds the equivalent of 100 minutes for your reports to complete. If your reports are not completing within 100 minutes, you may need to increase this number.



10. Save and close the **Properties** window.

11. Right-click **AdaptiveJobServer**, and then select **Restart Server**.



12. Wait for your server to restart, and then log out of the Central Management Console.

Setting Environment Variables

To ensure that environment variables are set correctly when you start SAP BusinessObjects BI Platform, insert this source statement in the operating system profile of the user responsible for starting and stopping SAP BusinessObjects BI Platform. Replace <SAPBaseDirectory> with the value from your environment:

source <SAPBaseDirectory>/sap_bobj/setup/env.sh

SAP DATA SERVICES

Reporting uses SAP Data Services to transfer data from Determination to Reporting. This data transfer is called the ETL process (Extract, Transform, and Load). The ETL relies on two components of SAP BusinessObjects Data Services: a server process to run ETL jobs and a web application for administration (Data Services Management Console).

The following sections explain how to install SAP BusinessObjects Data Services and make initial configurations:

Installing SAP BusinessObjects Data Services

Complete the following to install SAP BusinessObjects Data Services.

1. Source the BusinessObjects Environment script *env.sh* located in the BI Platform installation directory under *setup*:

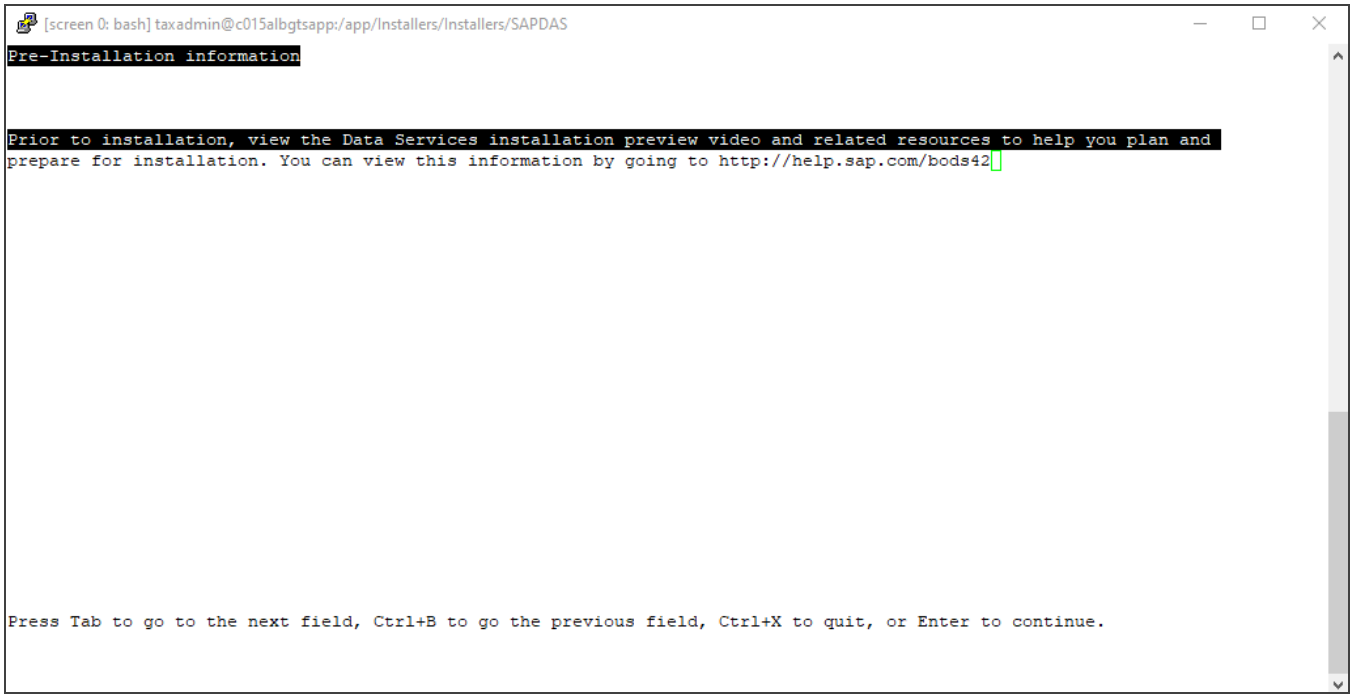
   source <SAPBaseDirectory>/sap_bobj/setup/env.sh

2. Locate *setup.sh* in the directory structure where you unzipped the file *SAPDataServices4_<YourOS>.tar.gz*.

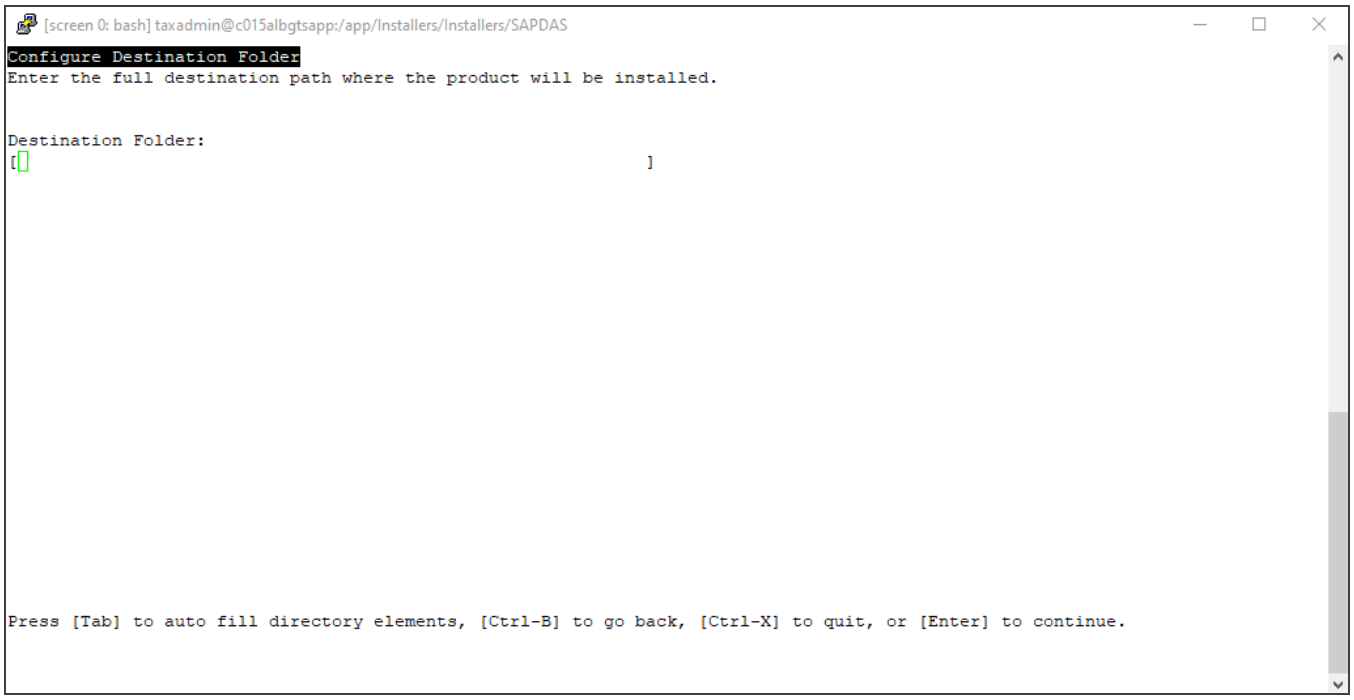
3. Make *setup.sh* executable.

4. Execute *setup.sh*, and then go to the following section.

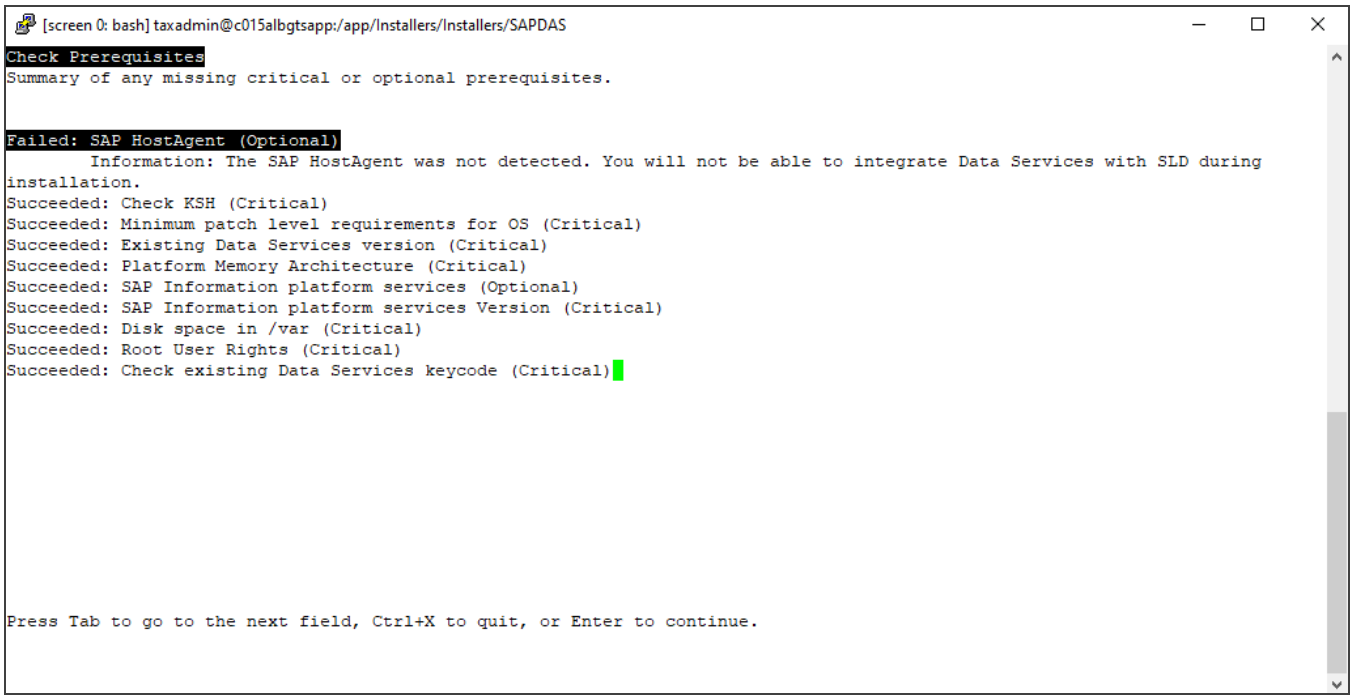
5. Press ENTER on the **Pre-Installation information** screen.



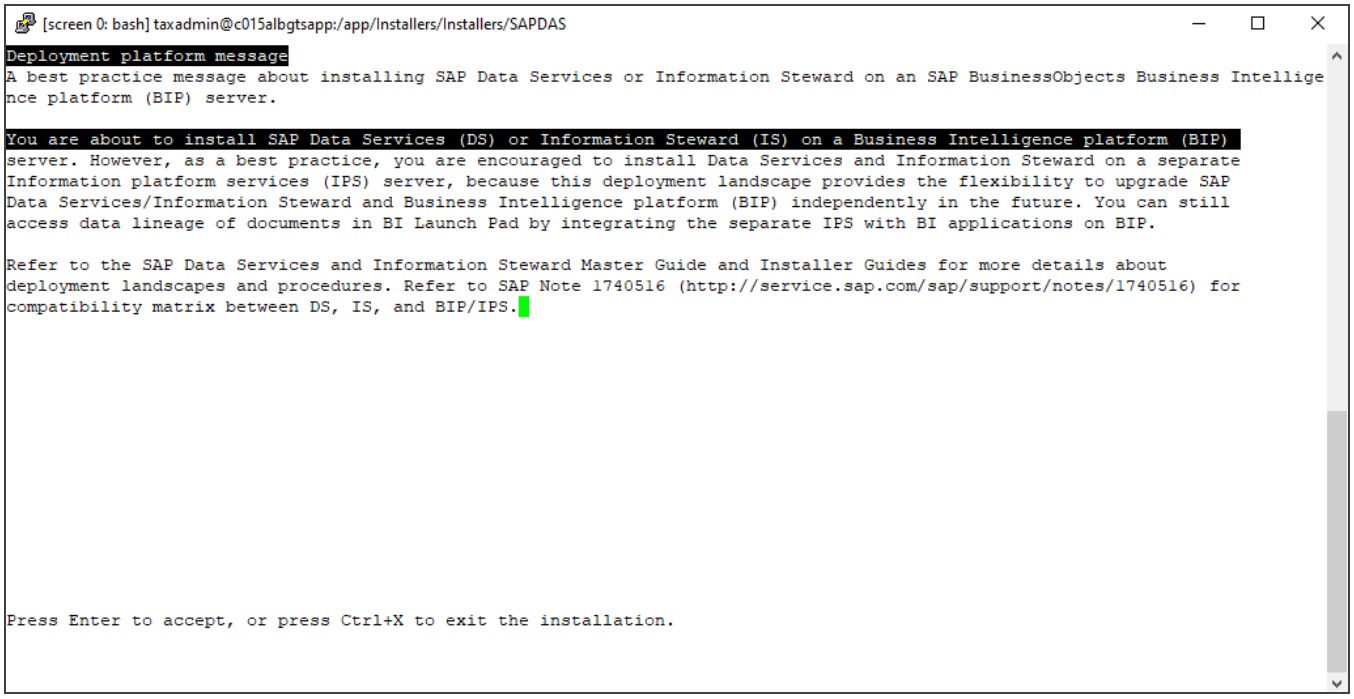
6. Enter the destination folder that matches the folder where you installed SAP Business Intelligence.



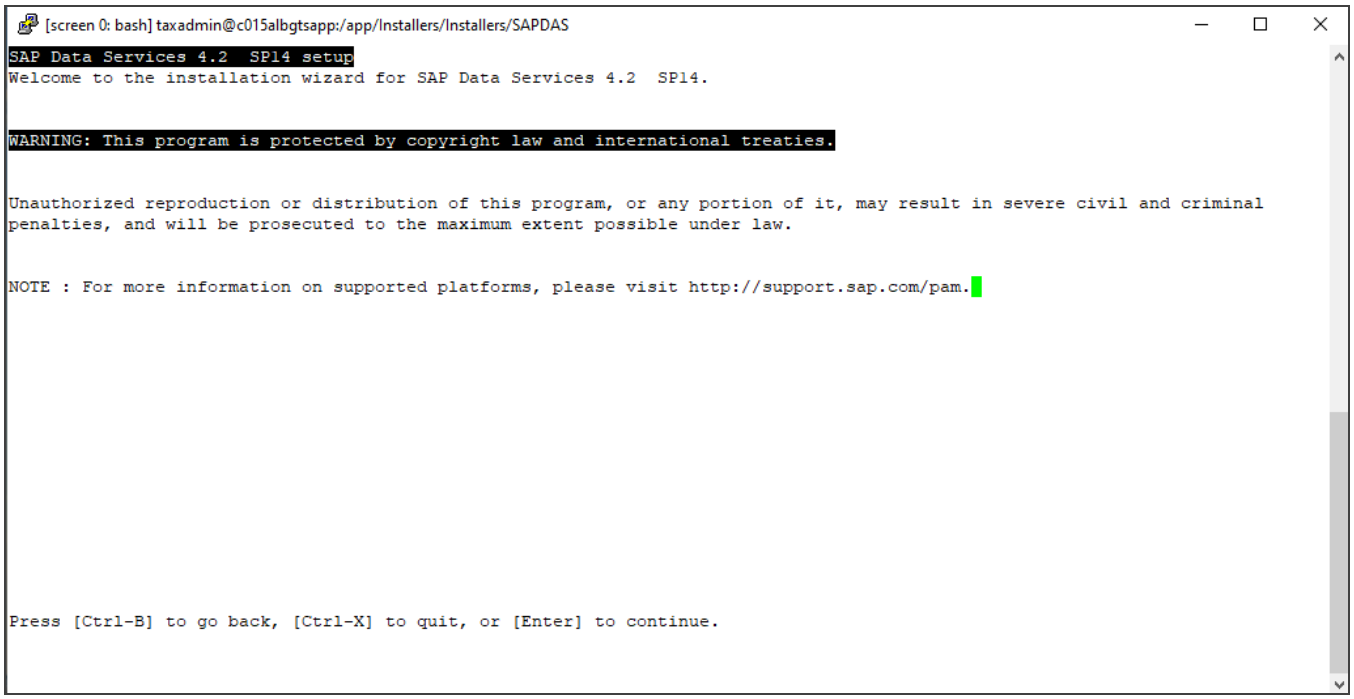
7. Review the summary of requirements, and if all the tests succeed except SAP HostAgent, press ENTER. If your system does not pass the other requirements, cancel the installation and correct the problems listed by the installer.



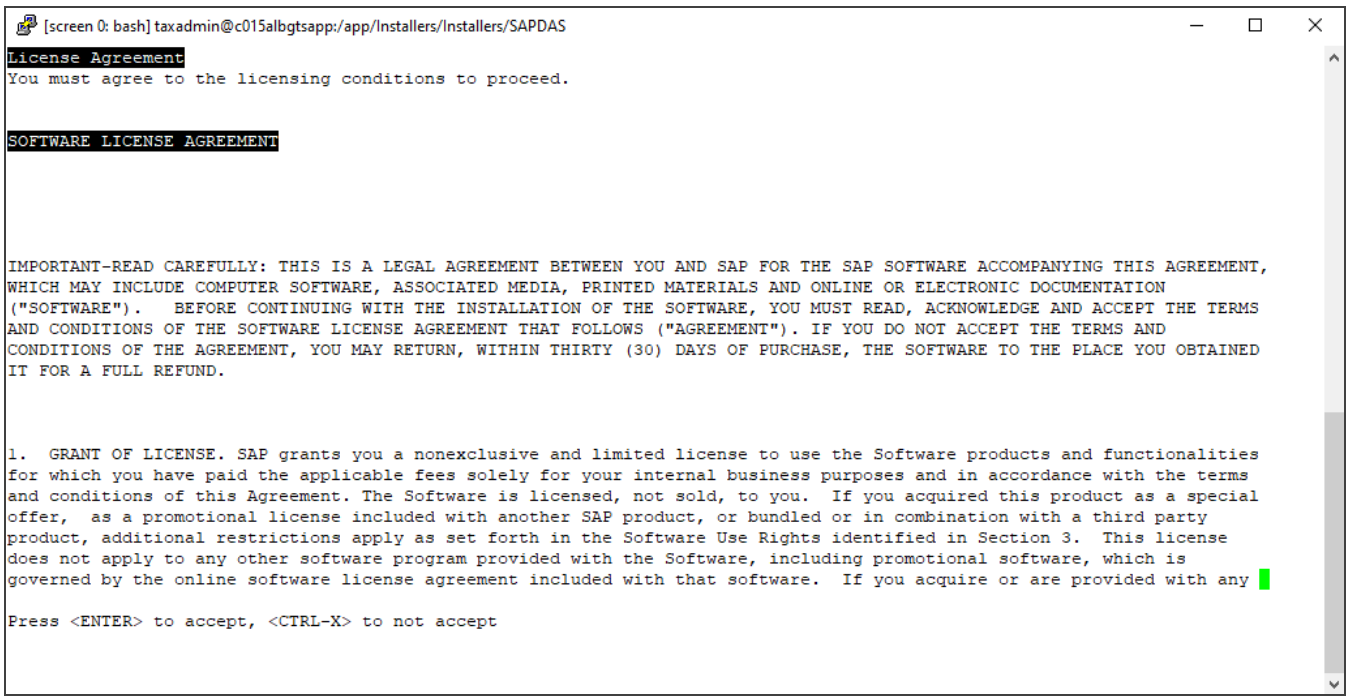
8. Press ENTER on **Deployment platform message**.



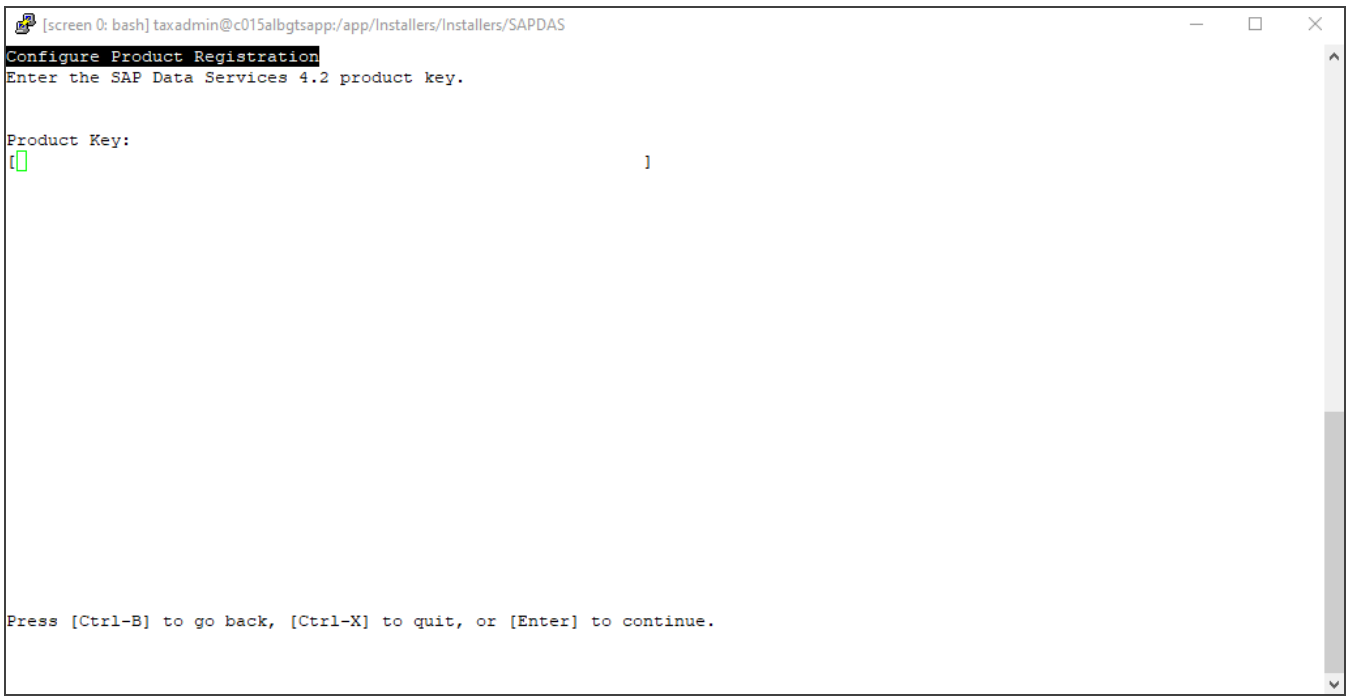
9. Press ENTER after reviewing the copyright notice.



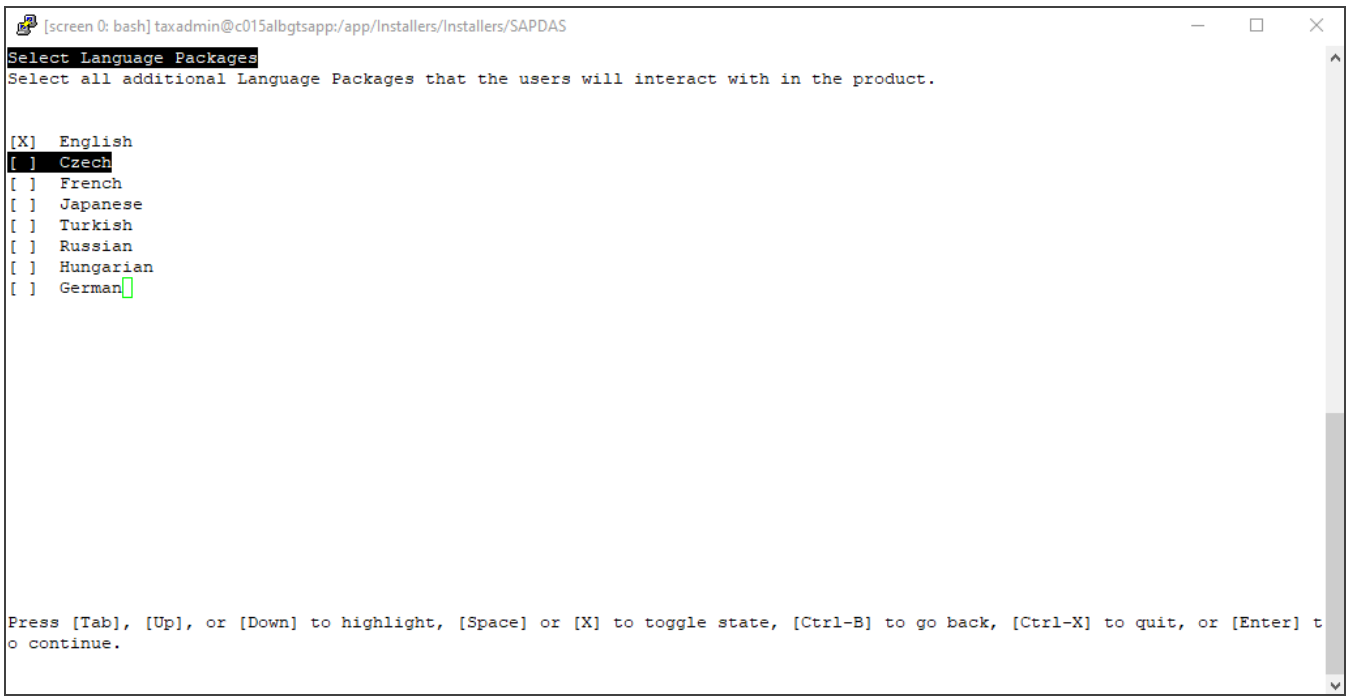
10. Press ENTER after reviewing the software license agreement.



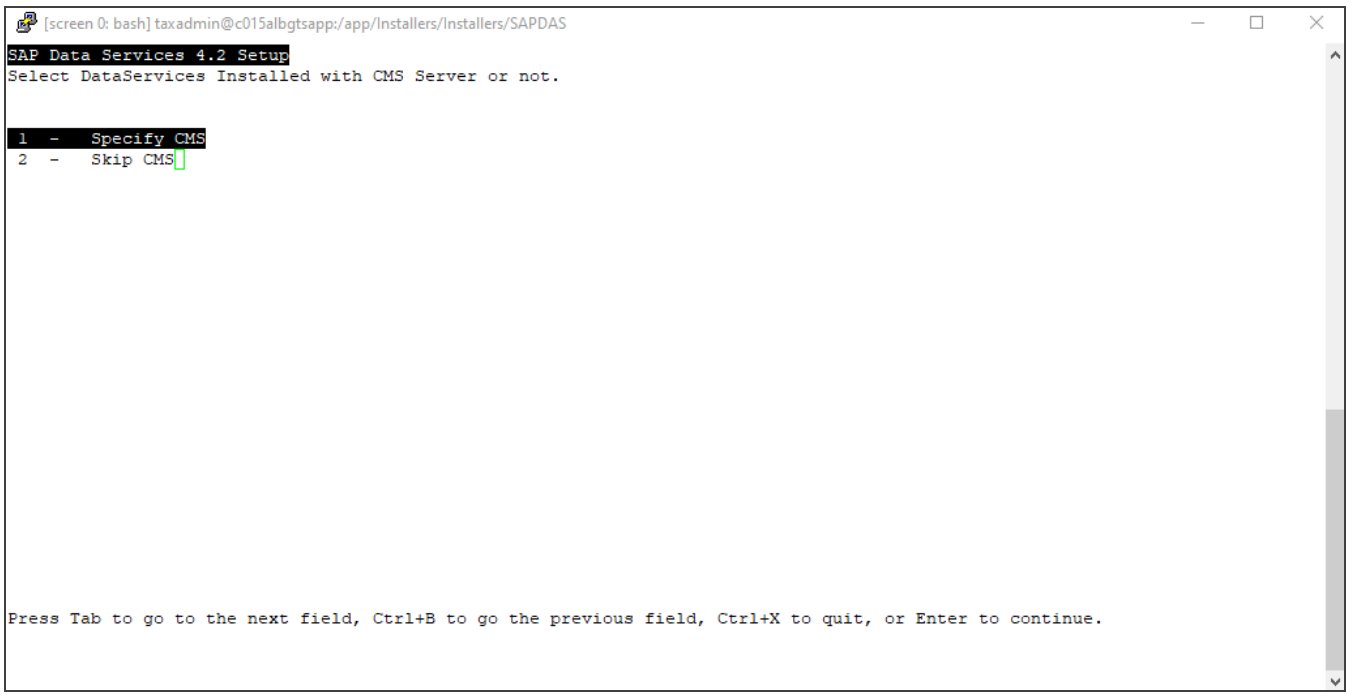
11. Enter the product key, and then press ENTER.



12. Ensure that English is selected, and then press ENTER.

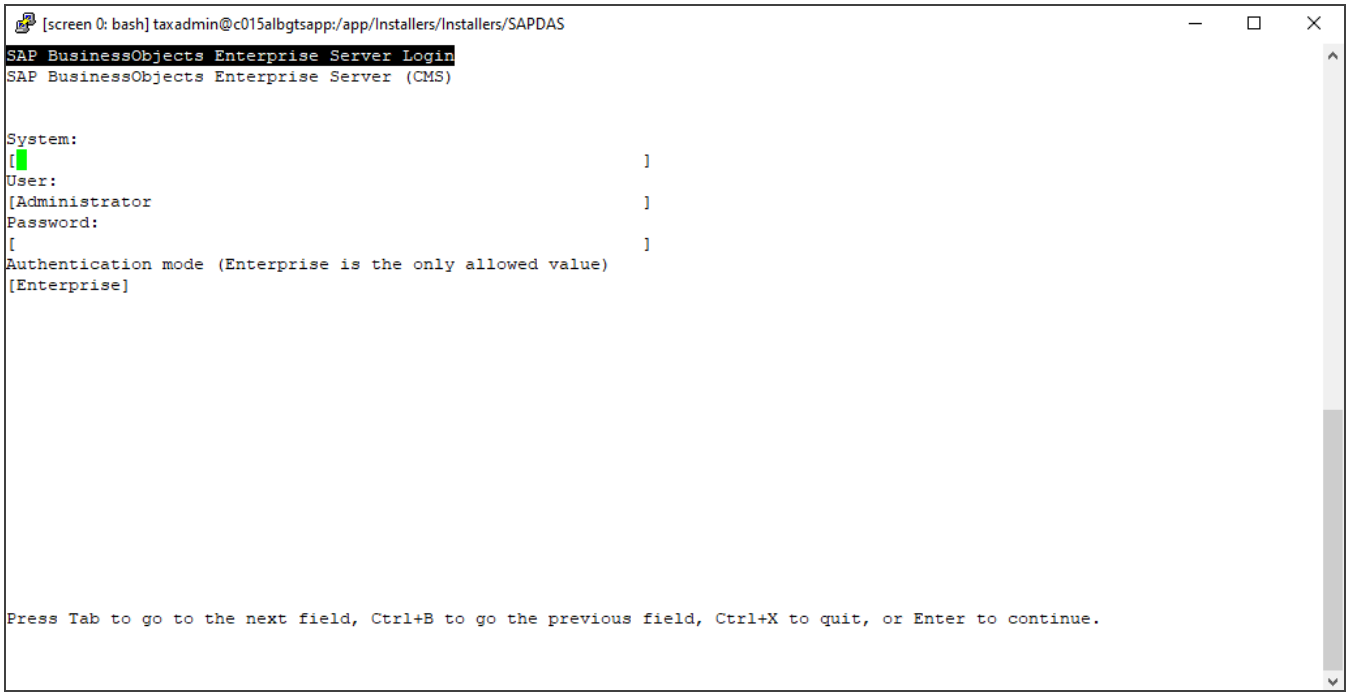


13. Select **1 - Specify CMS**, and then press ENTER.



14. Enter the SAP BusinessObjects Enterprise Server information, and then press ENTER.

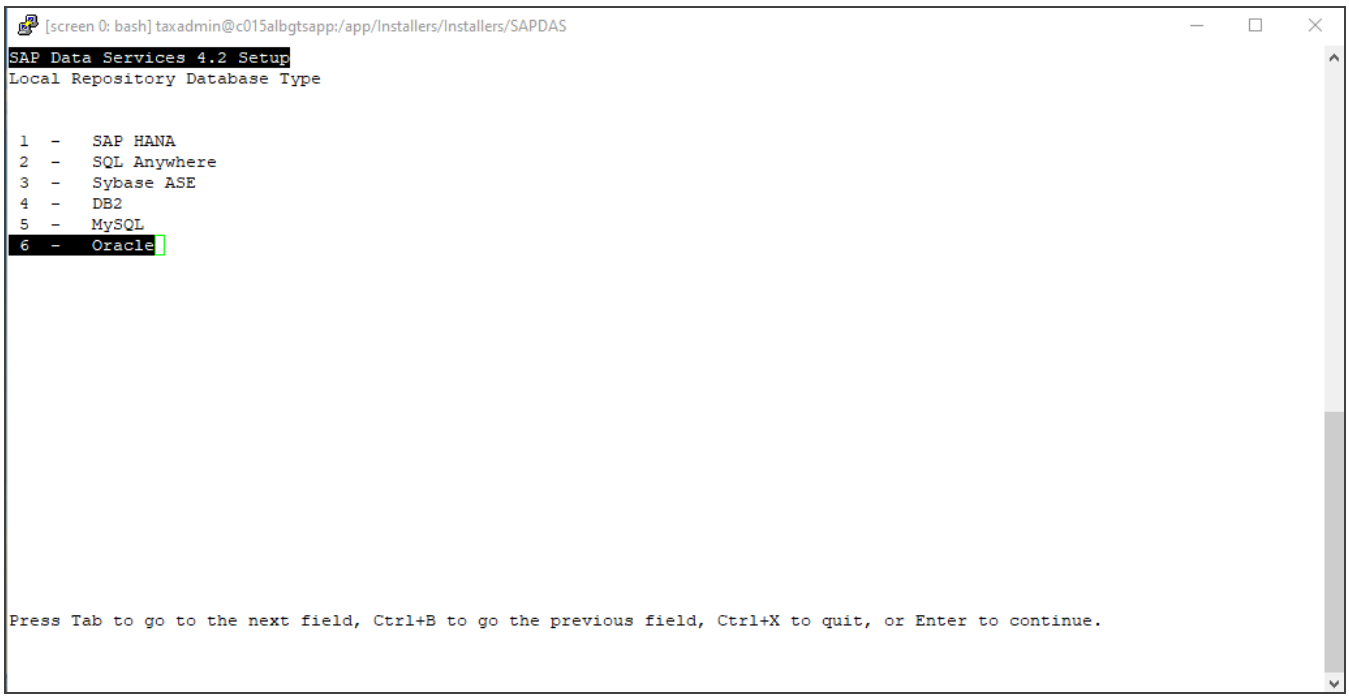
FIELD	DESCRIPTION
System	Enter the name of the server where you installed SAP Business Intelligence
User	Accept the default of *Administrator* if that is the administrative user name for SAP Business Intelligence
Password	Enter the password for the administrative user for SAP Business Intelligence



15. Select **1 - Install with default configuration**, and then press ENTER.

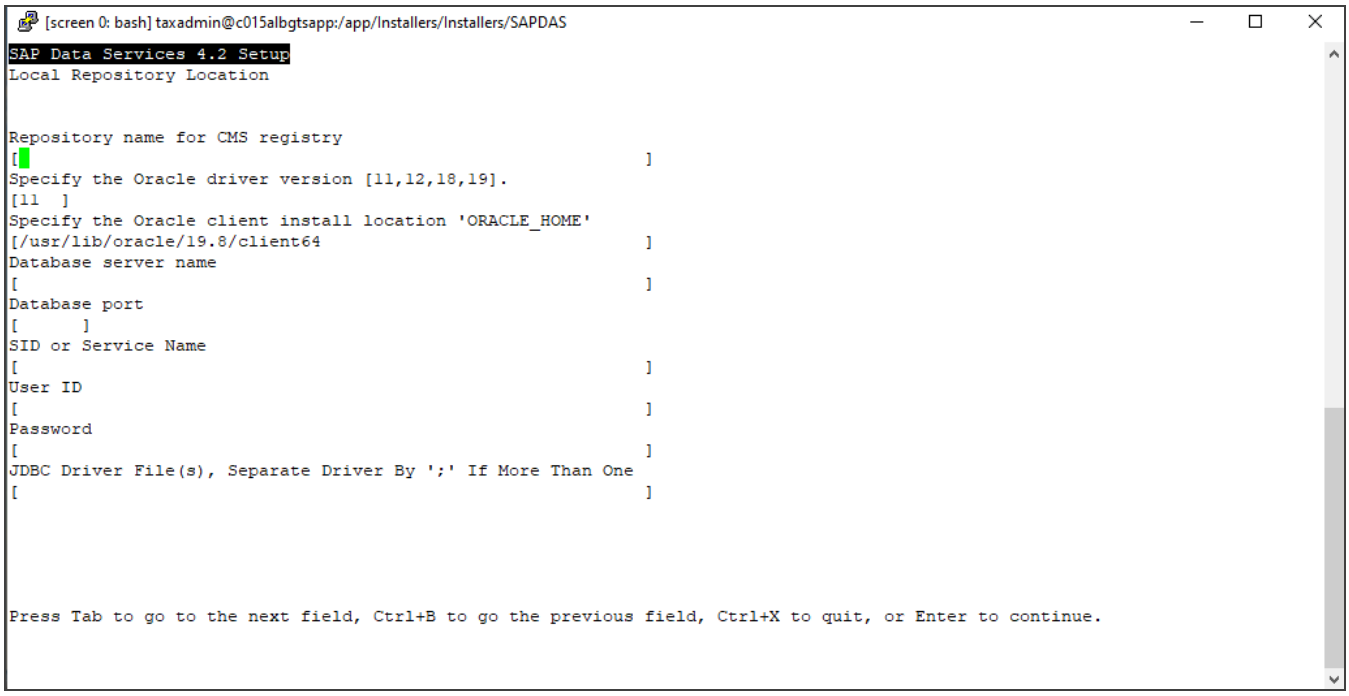
16. Accept the default features by pressing ENTER.

17. Select your repository database type.



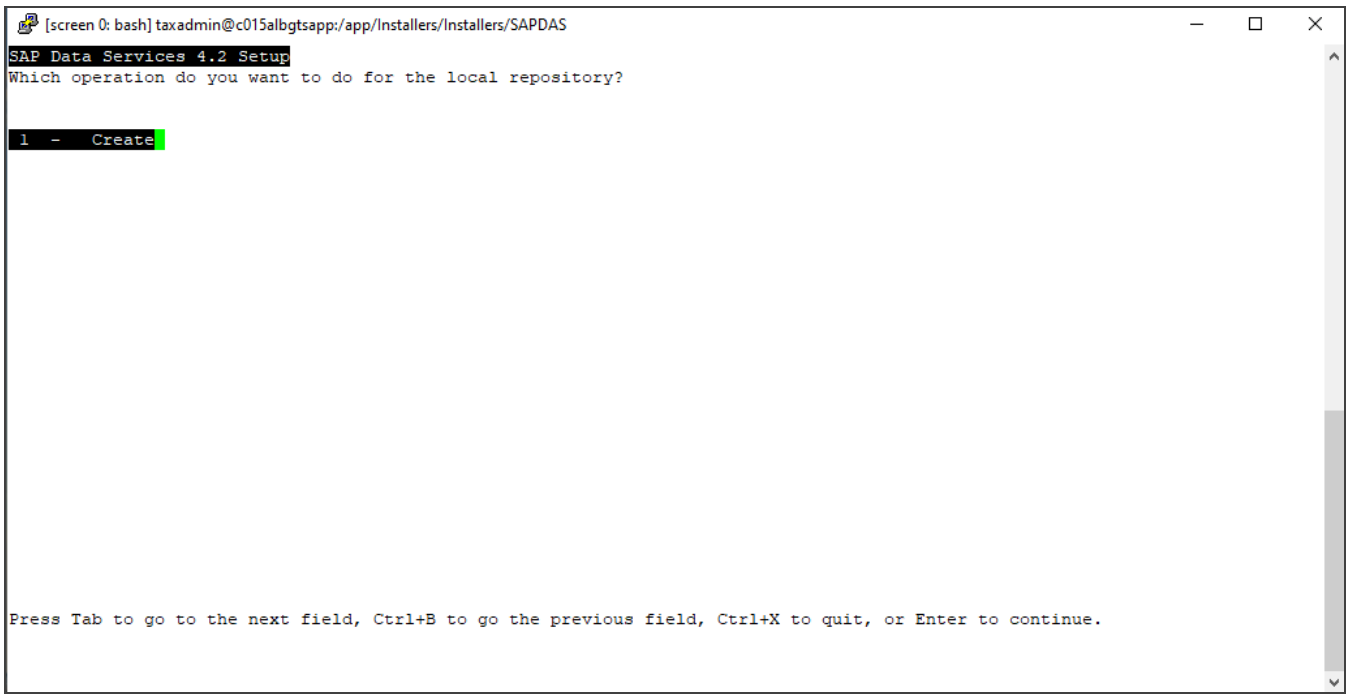
18. Add your database information in **Local Repository Location**.

ORACLE	
Repository name for CMS registry	Remove the default value and insert ETL_REPO  Make a note of ETL_REPO because it is required later for **Repository Name** in Creating the Configuration File (page 85)
Specify Oracle driver version	Enter the number **19**
Please specify the Oracle client installation location	The path to the Oracle client (for example, /usr/lib/oracle/19.8/client64)
Database server name	The name of the server hosting the ETL database schema
Database port	The database port (for example, 1521)
SID	The Oracle System ID
User ID	The schema name for the ETL repository (ETL_REPO if you used the database creation scripts)
Password	The password for the ETL repository user (for example, ETL_REPO)
JDBC Driver File	The path and name of the JDBC driver file (for example, /usr/lib/oracle/11.2/client64/lib/ojdbc8.jar) If the database is Oracle 19c, the driver file is: ojdbc8.jar If the database is SQL Server 2019, the driver file is: mssql-jdbc9.4.0 (See the Microsoft page for the compatibility matrix.)

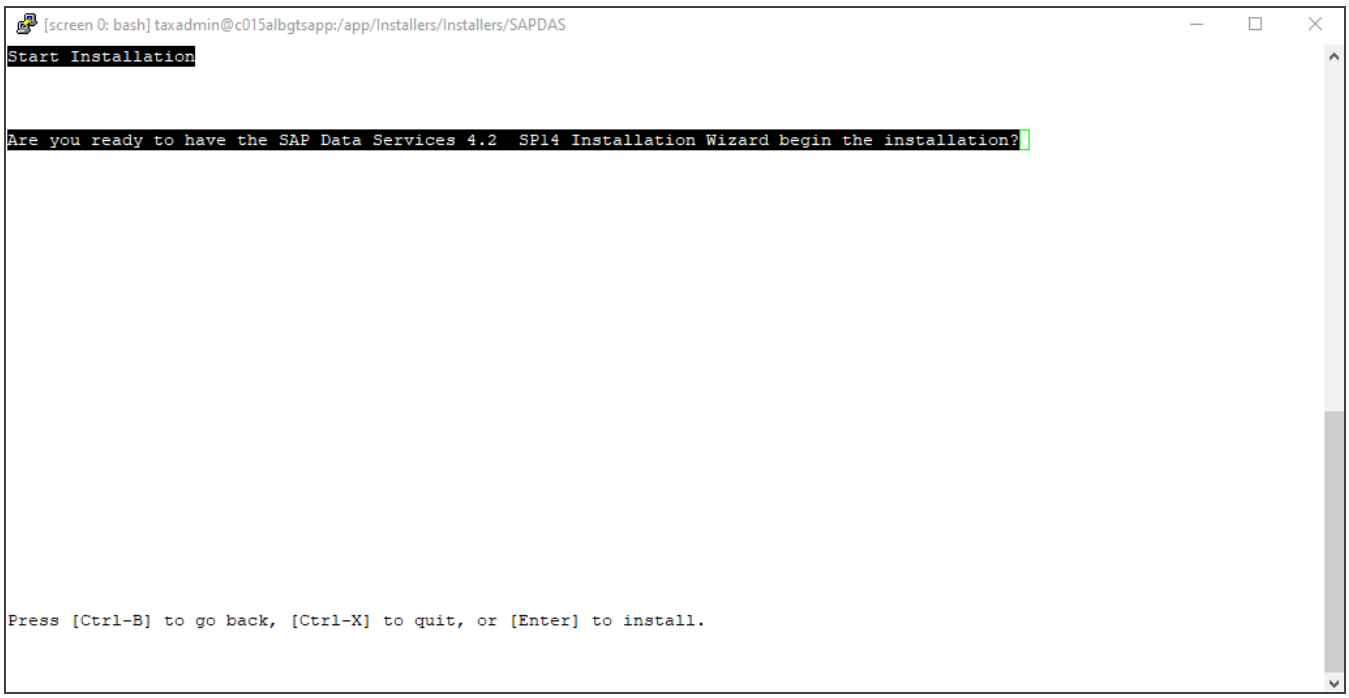


19. Press ENTER after you add the database information in **Local Repository Location**.

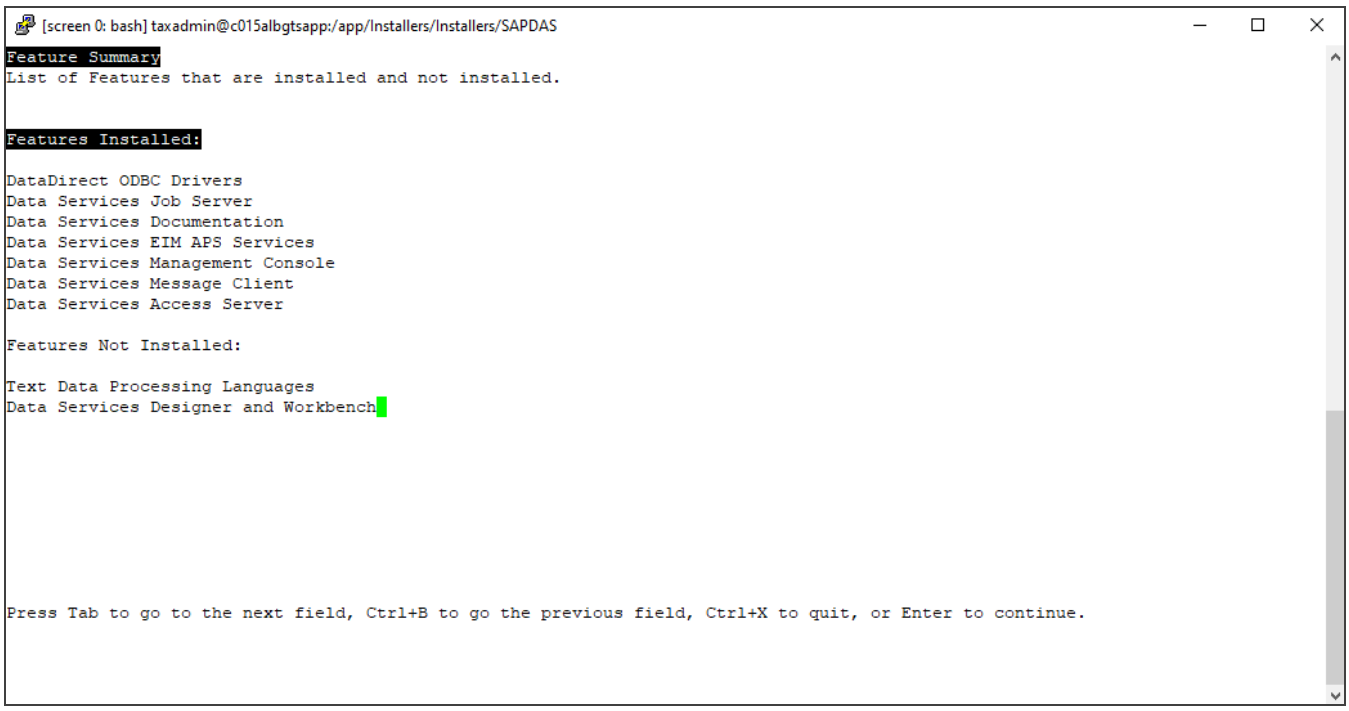
20. Select **1 - Create** to make the local repository, and then press ENTER.



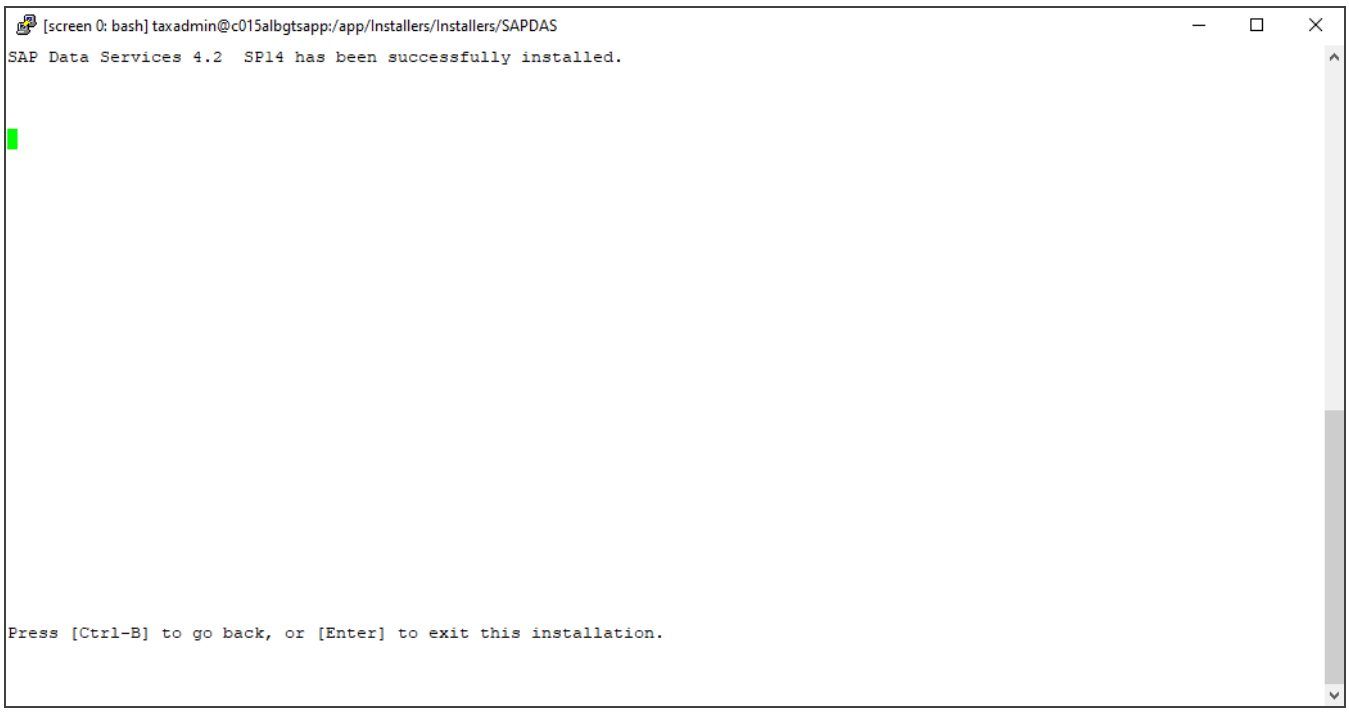
21. Pres ENTER to start the installation.



22. Press ENTER when you see the summary of features.



23. Press ENTER to exit the installer.



24. Continue to the next section for instructions about stopping processes.

Stopping Processes

To prepare for additional SAP BusinessObjects Data Services configurations, stop Tomcat and Data Services:

1. Go to the directory where SAP Business Intelligence is installed (shown below as *<SAPBaseDirectory>*).
2. Change to the directory *sap_bobj*:

   <SAPBaseDirectory>/sap_bobj
3. Execute *tomcatshutdown.sh*.
4. After Tomcat is stopped, go to the following directory:

   <SAPBaseDirectory>/dataservices/bin

5. Prepare to run the SAP BusinessObjects Data Services Server Manager Utility by executing the following command (include the leading dot-space-dot):

```
. ./al_env.sh
```

6. Start the SAP BusinessObjects Data Services Server Manager Utility by executing the following command:

```
./svrcfg
```

7. Enter option **1**, and then press ENTER.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
```

8. Enter option **o** to stop the Job Service, and then press ENTER.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
-------------------------------------------------------------------

               **  Control Job Service **

-------------------------------------------------------------------

 Job Service Executable Path                          Status
 ---------------------------------------------      ------------

 /home/reporting/BI/working/dataservices/bin/AL_JobService      Running

-------------------------------------------------------------------

s: Start Job Service       o: Stop Job Service       q: Quit


Enter Option: o
```

9. Enter option **q** to quit, and then press ENTER.

```
Enter Option: o
Waiting for Job Service to terminate. This will take several seconds.
Please Wait!!!
05-01-14 16:54:51 (29128:3726202656) JSERVICE: Shutting down AL_JobService ...
05-01-14 16:54:55 (29128:3726202656) JSERVICE: INFO: JobServer JobServer_1 on Port ANY:350
0 has been Stopped.
05-01-14 16:54:55 (29128:3726202656) JSERVICE: AL_JobService has been Stopped.
------------------------------------------------------------------

                **  Control Job Service **

------------------------------------------------------------------

 Job Service Executable Path                          Status
 -------------------------------------------      ------------

 /home/reporting/BI/working/dataservices/bin/AL_JobService      Not Running

------------------------------------------------------------------

s: Start Job Service       o: Stop Job Service       q: Quit


Enter Option: q
```

10. Enter option **x** to exit, and then press ENTER.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: x
```

Checking the LINK_DIR Variable

SAP BusinessObjects Data Services requires the environment variable LINK_DIR for the Reporting user. Confirm that the SAP BusinessObjects Data Services installer created this environment variable and that it points to the directory where you installed SAP Data Services (for example, *<SAPBaseDirectory>/dataservices/*). Add LINK_DIR if it is not in the profile.

If you are not using Tomcat to host SAP BusinessObjects Data Services, ensure your application server user has *write* permissions to the directory where SAP BusinessObjects Data Services is installed.

Changing Socket Timeout

SAP BusinessObjects Data Services requires a javascript socket timeout change.

1. Go to the *LINK_DIR* directory (see above).
2. Change to the *conf* directory.
3. Open *admin.xml* in a text editor.
4. Find the element *<js-socket-timeout>*.
5. Set the value to *900000*. The final text looks like this:

   <js-socket-timeout>900000</js-socket-timeout>
6. Save and close the file.

Modifying Max Return Size

Edit the *DSConfig.txt* file:

1. Continue in the *LINK_DIR/conf* directory.
2. Open *DSConfig.txt* in a text editor.
3. Go to the line with this setting:

   Replace_Substr_Max_Return_Size_Characters =
4. Change the value of the parameter to 500500:

   Replace_Substr_Max_Return_Size_Characters = 500500
5. Save and close the file.

Configuring the Adapter

Configure the adapter for the job server using the SAP BusinessObjects Data Services Server Manager Utility.

1. Return to the following directory:

   <SAPBaseDirectory>/dataservices/bin

2. Start SAP BusinessObjects Data Services Server Manager Utility by executing the following command:

```
./svrcfg
```

3. Enter option **2** to configure the job server, and then press ENTER.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 2
```

4. Enter option **e** to edit a job server entry, and then press ENTER.

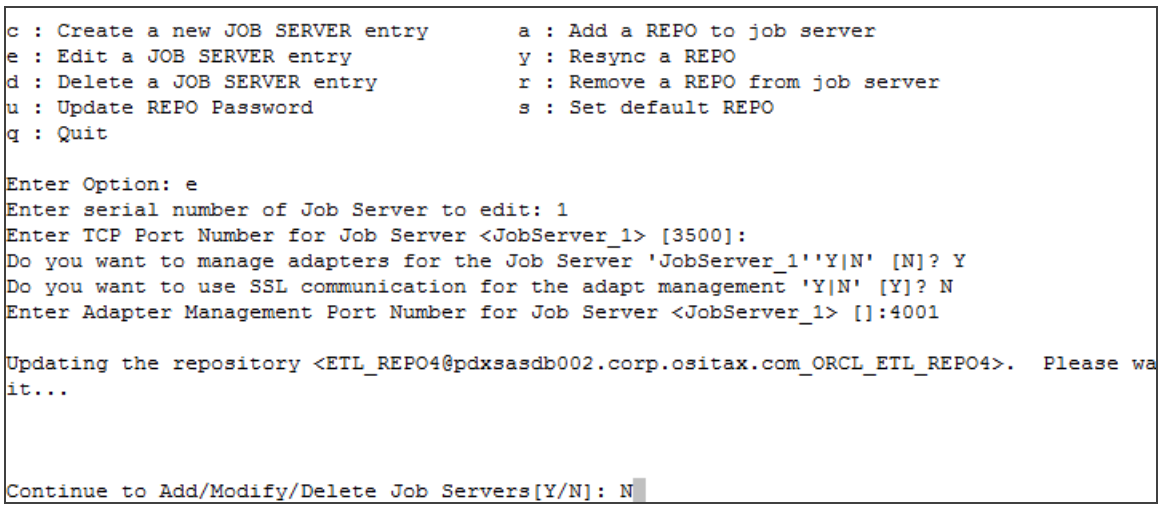
```
-------------------------------------------------------------------------

c : Create a new JOB SERVER entry       a : Add a REPO to job server
e : Edit a JOB SERVER entry             y : Resync a REPO
d : Delete a JOB SERVER entry           r : Remove a REPO from job server
u : Update REPO Password                s : Set default REPO
q : Quit

Enter Option: e
```

5. Enter the values for the next five parameters, using the table below as a guide (press ENTER between each entry).

```
                Current Job Server Information
-------------------------------------------------------------------------

S#  Job Server Name  TCP    Repository Information
                     Port
--  ---------------  ----   ---------------------

1*  JobServer_1      3500   ETL_REPO4@pdxsasdb002.corp.ositax.com_orcl_ETL_REPO4

*:JobServer <JobServer_1> supports AdapterCommunication
                        on port :4001(SSL)


-------------------------------------------------------------------------

c : Create a new JOB SERVER entry       a : Add a REPO to job server
e : Edit a JOB SERVER entry             y : Resync a REPO
d : Delete a JOB SERVER entry           r : Remove a REPO from job server
u : Update REPO Password                s : Set default REPO
q : Quit

Enter Option: e
Enter serial number of Job Server to edit: 1
Enter TCP Port Number for Job Server <JobServer_1> [3500]:
Do you want to manage adapters for the Job Server 'JobServer_1''Y|N' [Y]? Y
Do you want to use SSL communication for the adapt management 'Y|N' [Y]? N
Enter Adapter Management Port Number for Job Server <JobServer_1> [4001]:4001


Continue to Add/Modify/Delete Job Servers[Y/N]:
```

FIELD	DESCRIPTION
Enter serial number of Job Server to edit:	Enter the number under the S# column. In this example, the value is **1**.
Enter TCP Port Number for Job Server	Accept the default or enter the TCP port number.
Do you want to manage adapters for the Job Server?	Enter **Y**.
Do you want to use SSL communication for the adapter management?	Enter **N**.
Enter Adapter Management Port Number for Job Server	Accept the default (4001) or enter another adapter management port number.

6. Enter **N**, and then press ENTER.

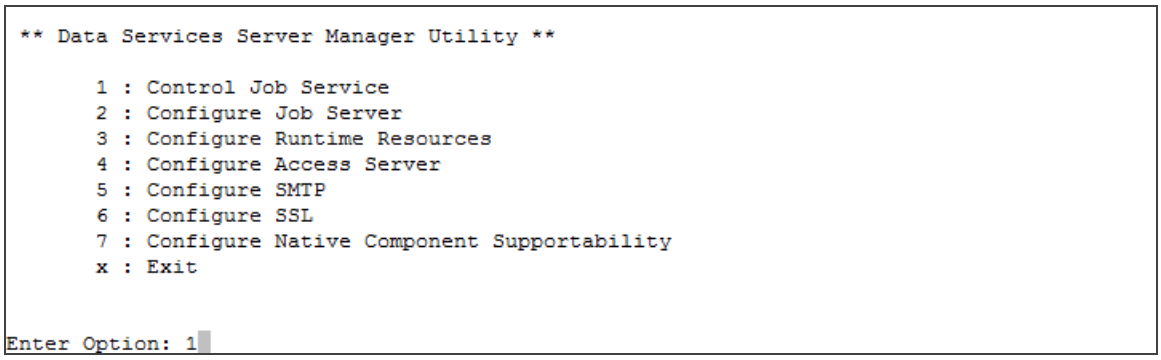


7. Remain in the SAP BusinessObjects Data Services Server Manager Utility session, and continue to the next section.

Starting Processes

In this section, you start the Job Service and then start Tomcat. To start the Job Service, continue in the SAP BusinessObjects Data Services Server Manager Utility.

1. Enter **1** to control the Job Service, and then press ENTER.



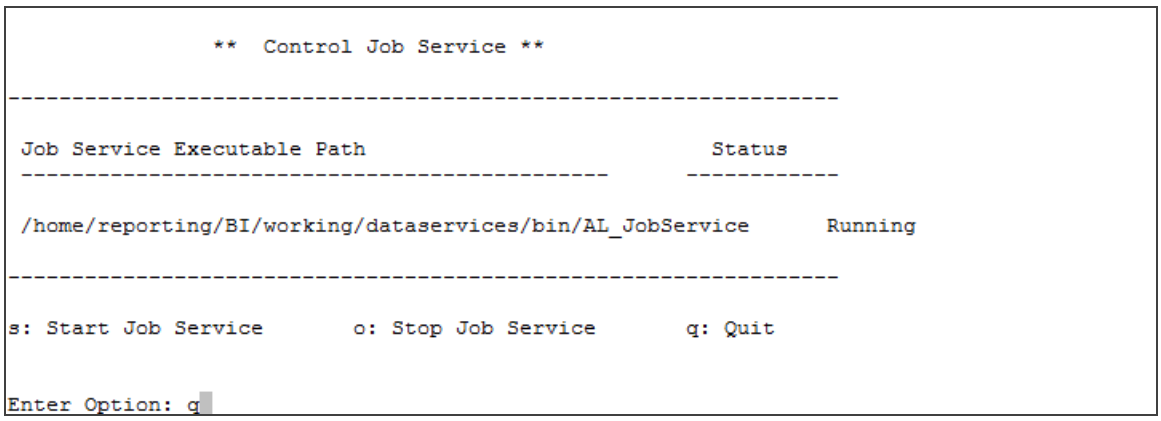
2. Enter **s** to start the Job Service, and then press ENTER.

```
------------------------------------------------------------------

                **  Control Job Service **

------------------------------------------------------------------

 Job Service Executable Path                          Status
 ---------------------------------------------      ------------

 /home/reporting/BI/working/dataservices/bin/AL_JobService      Not Running

------------------------------------------------------------------

s: Start Job Service       o: Stop Job Service       q: Quit


Enter Option: s
```

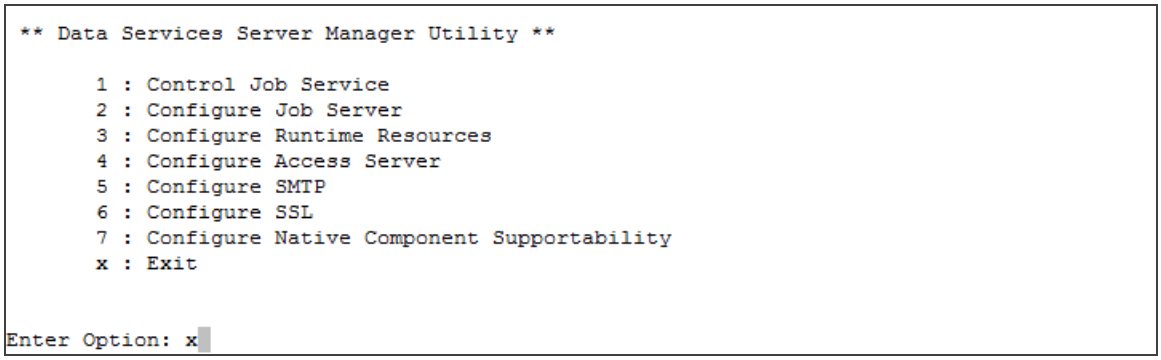
3. Press ENTER to return to the options menu.

```
Enter Option: s
Checking for existence of AL_JobService...
Starting AL_JobService. This may take several seconds.
 Please Wait!!!
05-01-14 17:28:13 (9780:134854432) JSERVICE: Attempting to Start JobServer(s)..
05-01-14 17:28:13 (9780:134854432) JSERVICE: Found 1 JobServer(s) configured.
05-01-14 17:28:13 (9780:134854432) JSERVICE: Using checkJobServer Version <1>
05-01-14 17:28:14 (9780:134854432) JSERVICE: INFO: JobServer JobServer_1 on Port ANY:3500
is up and running.
05-01-14 17:28:14 (9780:134854432) JSERVICE: Attempting to Start AccessServer(s)..
05-01-14 17:28:14 (9780:134854432) JSERVICE: Found 0 AccessServer(s) configured.
05-01-14 17:28:14 (9780:134854432) JSERVICE: Successfully started AL_JobService


Please exit this utility to start Job Server(s)/AccessServer(s).
Any changes to the configuration will be reflected ONLY after you EXIT this utility.
Press <Enter> to return to options menu.
```

4. Enter **q** to quit, and then press ENTER.



5. Enter **x** to exit, and then press ENTER.



6. After you exit the SAP BusinessObjects Data Services Server Manager Utility, start Tomcat by going to the following directory and executing *tomcatstartup.sh*:

   <BOEBaseDirectory>/sap_bobj

Configuring Session Security

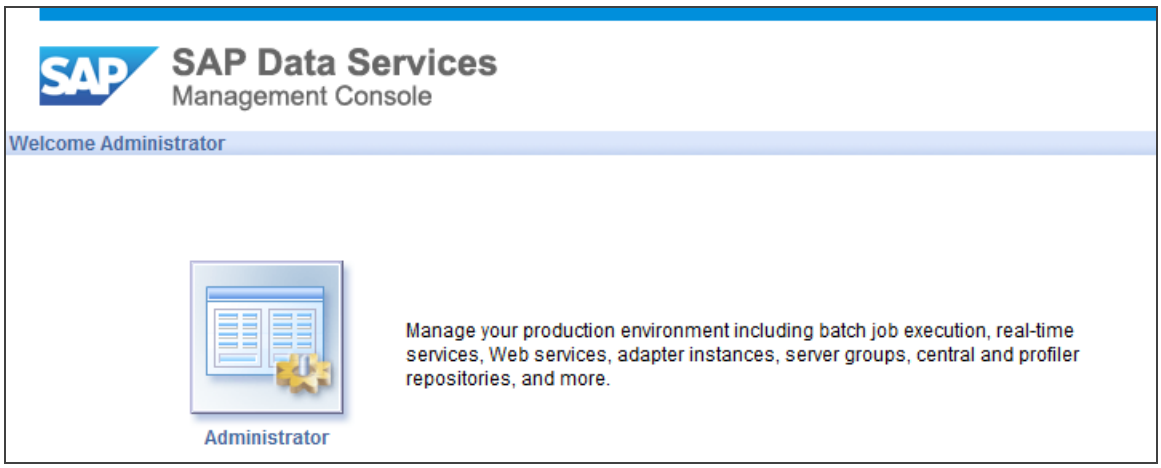
Configure session security in the SAP BusinessObjects Data Services Management Console.

1. Go to the URL for SAP BusinessObjects Data Services Management Console. The URL follows this format:

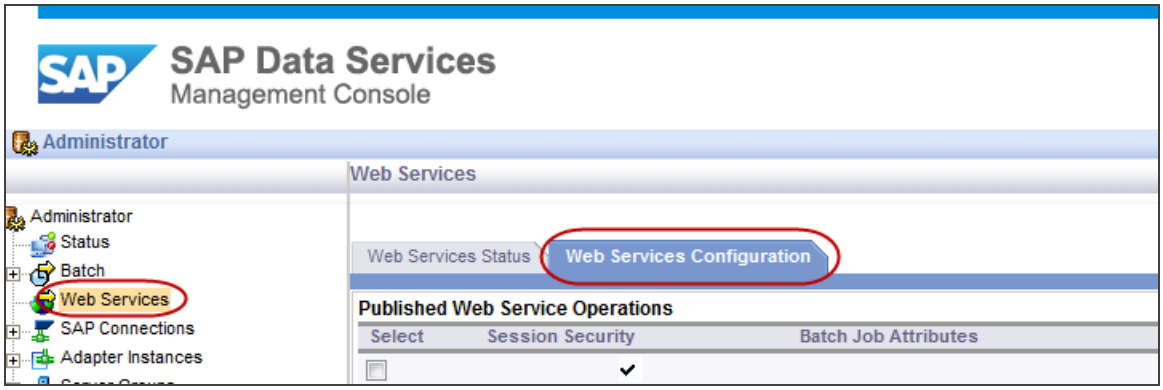
   http://<host>:8080/DataServices

2. Log on as **Administrator**, and use the password you created during the installation of SAP BusinessObjects BI Platform.

3. Click **Administrator**.



4. Click **Web Services** in the left pane, and then click **Web Services Configuration** in the right pane.



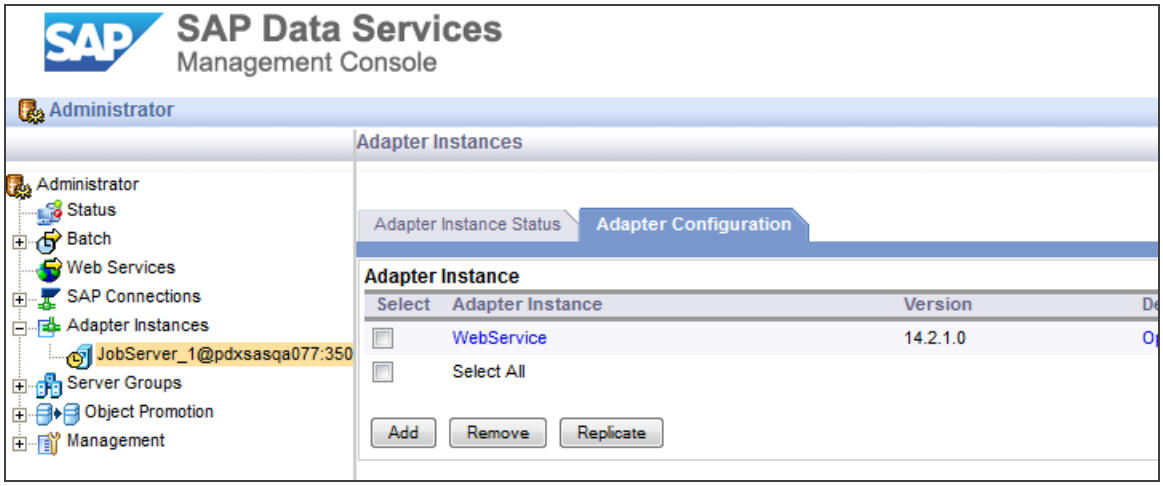
5. Click **Select All**, and then select **Disable Session Security** in the drop-down.

6. Click **Apply**.

Setting Web Service Adapter Parameters

Continue in the SAP BusinessObjects Data Services Management Console, and modify parameters for the Web Service Adapter.

1. Expand the **Adapter Instances** node in the left pane, select your **Job Server**
2. In the right pane, click the **Adapter Configuration** tab.

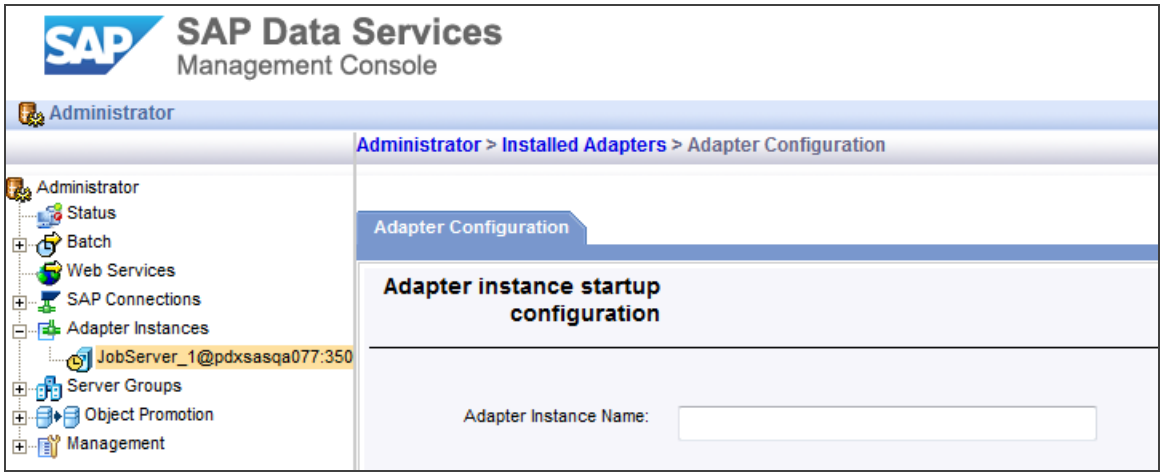


3. Click **WebService** if there is an adapter instance on the **Adapter Configuration** tab, and then go to step 5 to edit the parameters. If **WebService** is not in the list of adapter instances, click **Add**.

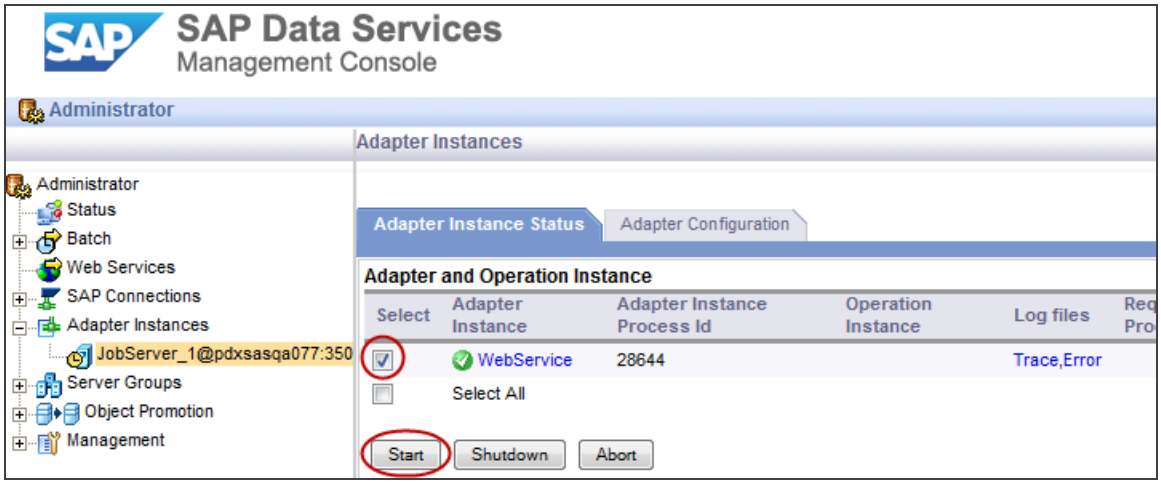
4. Click **WebServiceAdapter** on the **Installed Adapters** tab.

5. On the **Adapter Configuration** tab, enter the parameter values listed in the table below.

FIELD	VALUE
Adapter Instance Name	WebService (this is case sensitive)
Adapter Retry Count	5
Adapter Retry Interval	150000



6. Accept the defaults for the remaining fields, and then click **Apply**.
7. Click the **Adapter Instance Status** tab, select the **WebService** check box, and then click **Start**.



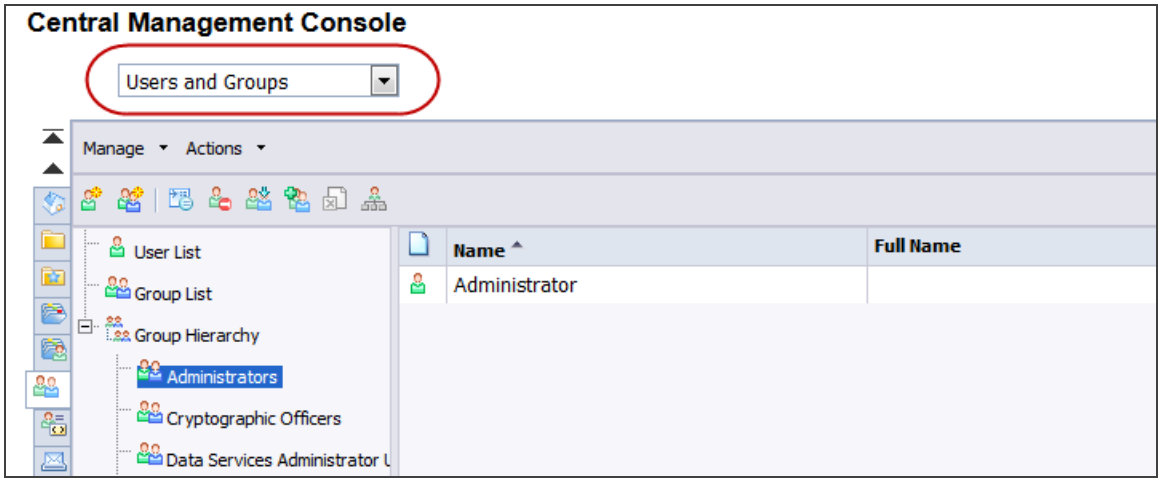
You will receive errors later in the Reporting installation if the WebService is not running.

If the WebService does not start, your installation path for SAP BusinessObjects BI Platform may have exceeded 27 characters. See the ONESOURCE Customer Center for solutions.

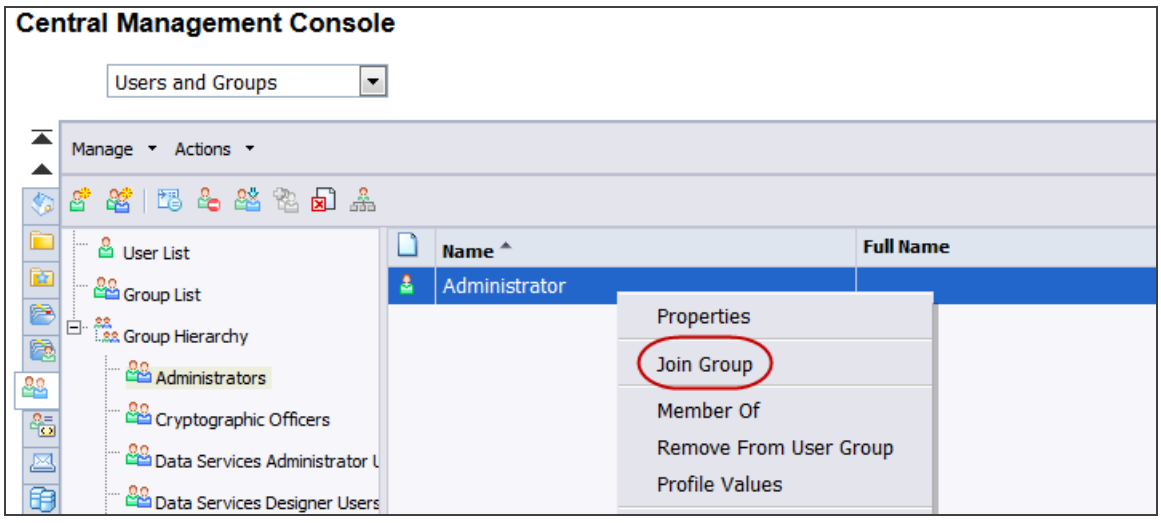
Adding Administrator to Data Services Groups

Complete the following to insert the SAP BusinessObjects BI Platform administrator user into the SAP BusinessObjects Data Services groups.

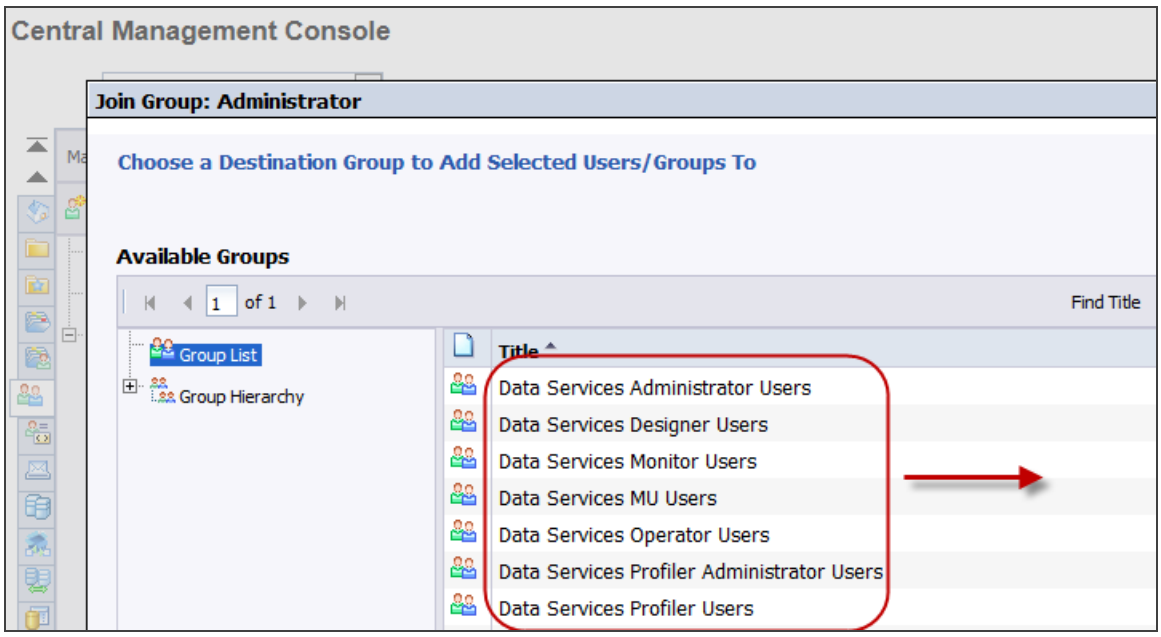
1. Log on to the Central Management Console (for example, http://<host>:8080/BOE/CMC).
2. Select **Users and Groups**, and then click **Administrators** in the left pane.



3. Right-click **Administrator** in the right pane, and then click **Join Group**.



4. Move each Data Services group to the **Destination Group(s)** pane using the **>** symbol.



5. Click **OK**.

Configuring Automatic Start

This optional step ensures SAP Data Services starts automatically when you reboot.

1. Open a command session as root.
2. Go to the *bin* directory under *dataservices* (for example, */<SAPBaseDirectory>/dataservices/bin*)
3. Execute the script *autostrt.sh* and pass the installed directory as a parameter for SAP BusinessObjects Data Services. Use this command format:

   ./autostrt.sh /<SAPBaseDirectory>/dataservices/

REPORTING INSTALLER

The installation of the Reporting user interface is composed of two parts: running the installer and deploying the web application. This section describes how to run the installer.

CREATING THE CONFIGURATION FILE

In this step of the Reporting installation, you use a utility to create a configuration file. The utility asks for information about your environment and inserts the data in the file *installation-config.xml*.

This utility requires a graphical user interface. Use either an X11 terminal session, or run this program in Microsoft Windows and copy the resulting file to your Unix location.

Begin by launching the program:

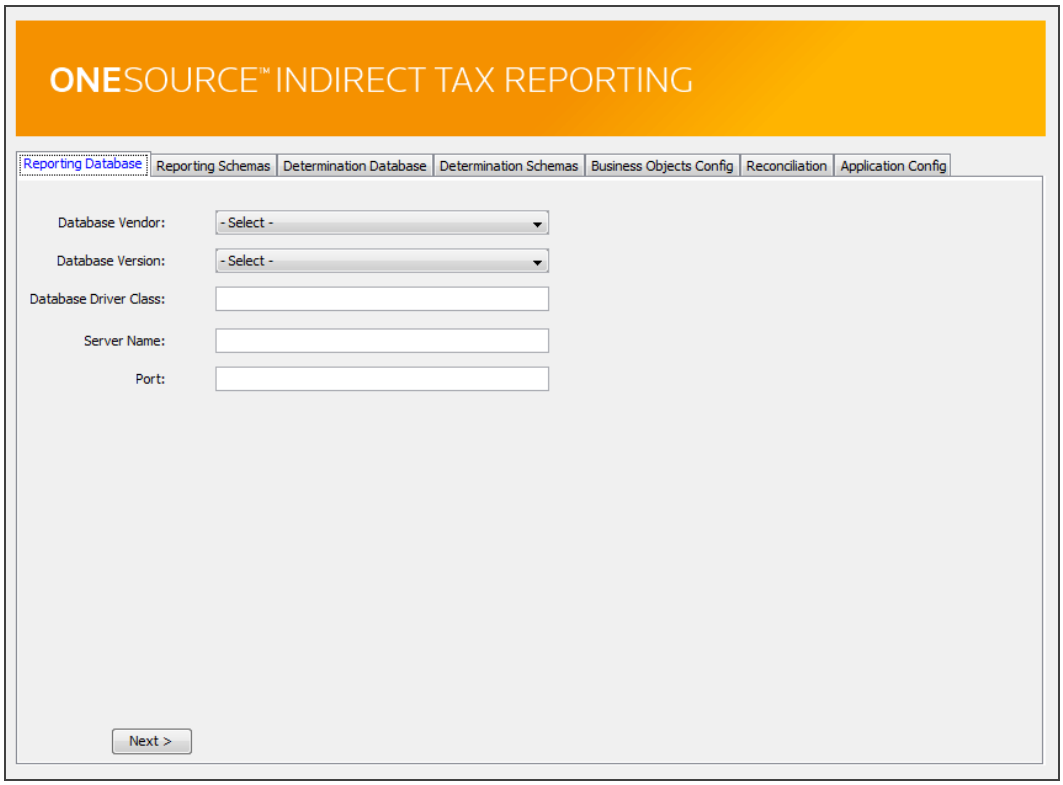
1. Go to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip* (shown as *<UnzippedReportingDirectory>* below).
2. Start a command-line session, and then change to the *install* directory of the Reporting software:

   <UnzippedReportingDirectory>/install
3. Type the following and then press ENTER:

   java -jar ONESOURCEInstallationConfigurator.jar

The utility is organized by tabs for each group of configuration data. Proceed from left to right through the tabs (see the screen example below). You can navigate either by clicking **Next** at the bottom-right of each tab or by clicking the next tab at the top.

All the fields are required, with the exception of **ONESOURCE CD Directory** on the final tab.



If you are interrupted and need to return to this configuration later, save your work by selecting **File > Save**. Enter the directory path and file name as follows:

<UnzippedReportingDirectory>/install/installation-config.xml

When you restart the utility to finish the configuration file, choose **File > Open** and select your file.

The tables in the following steps contain information about each tab. You can also hover over field names to see descriptions.

1. **Reporting Database** tab:

REPORTING DATABASE	
Database Vendor	Select the vendor of the database that is hosting Reporting: • Oracle
Database Version	Select 19c for Oracle 19
Database Driver Class	Accept the default, or enter a different class
Server Name	The server hosting the Reporting schemas
Port Number	The port number of the database server hosting the Reporting schemas

2. **Reporting Schemas** tab: First, complete the Reporting Control section followed by the Reporting Audit section. The tables may appear on adjacent pages.

REQUIRED REPORTING SCHEMAS (ORACLE)	
Reporting Control	
Username	The Reporting Control schema name (the default is SBXRPTCTRL)
Password	The Reporting Control schema password (the default is SBXRPTCTRL)
Database SID	The database SID (the default is ORCL)
TNS Name	The Reporting Control schema TNS name

REQUIRED REPORTING SCHEMAS (ORACLE)	
Reporting Control	

Create DB URL	If you are using SID Format should be as below.
	`jdbc:oracle:thin:@Acme_Server:1521:orcl`
	If you are using oracle service modify the format as below.
	`jdbc:oracle:thin:@Acme_Server:1521/orcl`

Test DB Connection	Click this button to test the database connection If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature

REQUIRED REPORTING SCHEMAS (ORACLE)	
Reporting Audit	
Username	The Reporting Audit schema name (the default is SBXRPTAUD)
Password	The Reporting Audit schema password (the default is SBXRPTAUD)
Database SID	The database SID (the default is ORCL)
TNS Name	The Reporting Audit schema TNS name

Create DB URL	If you are using SID Format should be as below.
	`jdbc:oracle:thin:@Acme_Server:1521:orcl`
	If you are using oracle service modify the format as below.
	`jdbc:oracle:thin:@Acme_Server:1521/orcl`

REQUIRED REPORTING SCHEMAS (ORACLE)	
Reporting Audit	
Test DB Connection	Click this button to test the database connection If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature

3. Skip **Optional Schemas** on the **Reporting Schemas** tab, unless you created optional Utility schemas. For more information see Appendix: Utility Schemas (page 201).

4. **Determination Database** tab: Complete the following:

   - If the Determination and Reporting databases are on the same database server, skip to the **Determination Schemas** tab.
   - If Determination is on a separate database server, then continue on the **Determination Database** tab and clear the **Use Reporting Database** check box. Complete the Determination database fields.

DETERMINATION DATABASE	
Database Vendor	Select the vendor of the database that is hosting Reporting: • Oracle
Database Version	Select the database version
Database Driver Class	Accept the default, or enter a different class
Server Name	The server hosting the Reporting schemas
Port Number	The port number of the server hosting the Reporting schemas

5. **Determination Schemas** tab: Complete the sections for the Audit and Tax schemas. The tables may appear on adjacent pages.

DETERMINATION SCHEMAS (ORACLE)	
Determination Audit Schema	
Username	The Determination Audit schema name (the default is SBXAUD)
Password	The Determination Audit schema password (the default is SBXAUD)
Database SID	The database SID (the default is ORCL)
TNS Name	The Determination Audit schema TNS name

Create DB URL	If you are using SID Format should be as below
	`jdbc:oracle:thin:@Acme_Server:1521:orcl`
	If you are using oracle service modify the format as below.
	`jdbc:oracle:thin:@Acme_Server:1521/orcl`

Test DB Connection	Click this button to test the database connection If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature

DETERMINATION SCHEMAS (ORACLE)	
Determination Tax Schema	
Username	The Determination Tax schema name (the default is SBXTAX)
Password	The Determination Tax schema password (the default is SBXAUD)
Database SID	The database SID (the default is ORCL)

DETERMINATION SCHEMAS (ORACLE)	
Determination Tax Schema	
TNS Name	The Determination Tax schema TNS name

Create DB URL	If you are using SID Format should be as below
	`jdbc:oracle:thin:@Acme_Server:1521:orcl`
	If you are using oracle service modify the format as below.
	`jdbc:oracle:thin:@Acme_Server:1521/orcl`

Test DB Connection	Click this button to test the database connection If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature

6. **Business Objects Config** tab: Complete the information for Configuration Management Server and Data Extract Transform Load (ETL). If you want a separate User ETL, complete User Extract Transform Load (ETL).

BUSINESS OBJECTS CONFIG	
Configuration Management Server	
Server Name	The host, domain, and top-level domain for the server where SAP BusinessObjects BI Platform is installed (for example, MyServer.acme.com)
User Name	Enter your CMS administrator user name or accept the default of Administrator
Password	Enter the password for the CMS administrator

BUSINESS OBJECTS CONFIG	
Data Extract Transform Load (ETL)	
Server Name	Enter the host, domain, and top-level domain of the server where SAP BusinessObjects Data Services is installed (for example, MyServer.acme.com)
Job Server Name	Accept the default value JobServer_1
Job Server Port	Accept the default value 3500
Web Services Port	Enter the SAP BusinessObjects Data ServicesTomcat port (the default is 8080) If you installed another application server instead of Tomcat, enter your port number
Repository Name	Enter ETL_REPO (the same value you entered during the installation of Data Services)
User Extract Transform Load (ETL)	
Use Data ETL	Uncheck this box if you want to configure a separate user ETL  Only configure this if you are advised by Thomson Reuters Professional Services
Server Name	Enter the host, domain, and top-level domain of the server where SAP BusinessObjects Data Services is installed (for example, MyServer.acme.com)
Job Server Name	Accept the default value JobServer_1
Job Server Port	Accept the default value 3500

BUSINESS OBJECTS CONFIG	
Web Services Port	Enter the SAP BusinessObjects Data ServicesTomcat port (the default is 8080) If you installed another application server instead of Tomcat, enter your port number
Repository Name	Enter ETL_REPO (the same value you entered during the installation of Data Services)

7. Continue on the **Business Objects Config** tab by clicking on **Test Web Services** to confirm that your settings are valid. If this test fails, double-check your entries.

You cannot use this test feature if you are running the utility on a machine that does not have network access to SAP BusinessObjects Data Services.

8. **Reconciliation** tab: Use the table below to complete the fields. If you do not plan to use the ERP Document Reconciliation report, accept the defaults even if they do not apply because there should be no null values:

RECONCILIATION	
Source Folder	Enter the Reporting server directory that contains the comma separated source file, for example, */home/Reporting*
Source File Name	Enter the name of the comma separated source file that contains transaction data from your business source system, for example, *ReconInputFile.csv*
Error Folder	Enter the Reporting server directory where the reconciliation error log should be written, for example */home/Reporting*
Error File Name	Enter the file name for the reconciliation error log, for example *ReconLoadErrors.log*

9. **Application Config** tab:

APPLICATION CONFIG	
Reporting Application Server Name	Enter the host, domain, and top-level domain for the server hosting Reporting (for example, MyServer.acme.com)
Use https	Check this box if you use https
Web Services Port	The application server port number for Reporting
Create URL	This concatenates your previous entries into a URL

10. When you finish, click **Save**. Choose the following directory and file name: *<InstallationBaseDirectory>/install/installation-config.xml*.

Do not save the file in either of the following directories:

- *<InstallationBaseDirectory>/install/distribution-config/*
- *<InstallationBaseDirectory>/install/template-config/*

MODIFYING THE INSTALLATION SCRIPT

Complete the following steps to prepare the Reporting installation scripts:

1. Go to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip* (shown below as *<UnzippedReportingDirectory>*).
2. Make install.sh executable.
3. Make reporting-install.sh executable in the following directory:

   <UnzippedReportingDirectory>/scripts

4. Open install.sh in a text editor and modify the sample entries for the following parameters.
    - -d: This is the location of the *install* folder.
    - -o: This is the full path to your Java compliant JDBC driver (see Database Preparation (page 18)).

      Spaces are not permitted in the JDBC directory path. Move the JDBC driver to another location if your path contains spaces.

    - -c: This is the path and name of the installation configuration file *installation-config.xml* in the *install* directory.
5. After you make these directory changes, save the file and exit.

The following is an example of this file. Note that the carriage returns are for clarity only—this command should be on one line.

```
scripts/reporting-install.sh
-d ./install
-o /home/reporting/jdbc/ojdbc8.jar
-c /home/reporting/reportsinstallfolder/install/installation-conf
ig.xml
```

RUNNING THE INSTALLER

Check the following before proceeding:

- **Oracle**: Check your TNS entries before executing the installer below. They should be consistent across the systems if more than one system is hosting Reporting.
- **SAP BusinessObjects Data Services**: Confirm that the WebService for Data Services is running.

Execute the Reporting installation script:

1. Return to <*UnzippedReportingDirectory*>.
2. Execute install.sh.
3. Look for a completion message at the bottom of the output.

4. When the installation script completes successfully, move these files with plain-text passwords to a secure location:

    - *<UnzippedReportingDirectory>/install/installation-config.xml*
    - *<UnzippedReportingDirectory>/reports-installer.log*

REPORTING DEPLOYMENT

After the Reporting installer finishes, deploy the Reporting user interface. Complete the steps below for your application server.

If you are installing Reporting 6.8.x.x, but you are using a version of Determination that is prior to 5.5.0.0, the Product Qualifiers, Reference List Usage, Reference Lists, and Tax Code Qualifiers reports are not available.

TOMCAT

The following instructions explain how to deploy the Reporting user interface with Tomcat. The setup is divided into two sections:

- Configuring the Data Source (page 97)
- Inserting Additional Files Into Tomcat (page 99)

Configuring the Data Source

Complete the following to set up the data source.

1. Stop Tomcat.
2. If present, delete the following items from the *<SAPBaseDirectory>/sap_bobj/tomcat/webapps* directory:
    - *reporting.war*
    - *reporting-private-ws.war*
    - *reporting* directory
    - *reporting-private-ws* directory

3. Go to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip* (shown as *<UnzippedReportingDirectory>* below).

4. Change to the *tomcat* directory under *deployments*.

   <UnzippedReportingDirectory>/deployments/tomcat

5. Open *reporting-combined-context.xml* in a text editor.

6. Copy the two <Resource> sections in preparation for pasting them into the Tomcat file *context.xml*. Some of your values will differ from the sample below:

   If you are using SID Format should be

   ```
   jdcbc:oracle:thin:@Acme_Server:1521:orcl
   ```

   If you are using oracle service modify the format as below

   ```
   jdbc:oracle:thin:@Acme_Server:1521/orcl
   ```

```
<Resource name="jdbc/ReportingCtrlDataSource"
auth="Container"
type="javax.sql.DataSource"
username="SBXRPTCTRL"
password="SBXRPTCTRL"
driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@Acme_Server:1521:orcl"

maxActive="25"
maxIdle="4"
testOnBorrow="true"
validationQuery="select 1 from dual"
/>
<Resource name="jdbc/ReportingOnesourceDataSource"
auth="Container"
type="javax.sql.DataSource"
username="SBXAUD"
password="SBXAUD"
driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@Acme_Server:1521:orcl"
maxActive="25"
maxIdle="4"
testOnBorrow="true"
validationQuery="select 1 from dual"
/>
```

7. Go to the following directory under SAP Business Intelligence:

   <SAPBaseDirectory>/sap_bobj/tomcat/conf

8. Open *context.xml* in a text editor.
9. Paste the <Resource> snippets between the <Context> tags in *context.xml*.
10. Save and close the file.

Inserting Additional Files Into Tomcat

Complete the following to finish the Tomcat deployment:

1. Copy the file *reporting-configuration.jar* from this directory:

   <UnzippedReportingDirectory>/deployments/tomcat

2. Paste *reporting-configuration.jar* into this directory:

   <SAPBaseDirectory>/sap_bobj/tomcat/lib

3. Copy the files *reporting.war* and *reporting-private-ws.war* from this directory:

   <UnzippedReportingDirectory>/deployments/tomcat

4. Paste *reporting.war* and *reporting-private-ws.war* into this directory:

   <SAPBaseDirectory>/sap_bobj/tomcat/webapps

5. Copy the Java 1.6 compliant JDBC Driver into this directory (see Database Preparation (page 18)):

   <SAPBaseDirectory>sap_bobj/tomcat/lib

6. Start Tomcat.
7. Open a browser and enter the Reporting URL (http://<host>:<port>/reporting). Reporting is running if the logon page loads. You will not be able to log on until you complete the ETLs later.
8. If you reach the Reporting logon page, continue to the section Initial ETL Configuration (page 153). If the logon page does not load, double check your previous settings.

JBOSS ENTERPRISE EDITION

The following instructions explain how to deploy the Reporting user interface with JBoss.

Configuring the Data Source

Complete the following to set up the data source.

1. Stop JBoss.
2. Go to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip* (shown as *<UnzippedReportingDirectory>* below).
3. Change to the *jboss-enterprise* directory under *deployments*:

   <UnzippedReportingDirectory>/deployments/jboss-enterprise
4. Open *reporting-combined-ds.xml* in a text editor.
5. Review the data source values in *reporting-combined-ds.xml* to confirm they are appropriate for your environment. The following tables list each data source. Change any values that are not correct.

<JNDI-NAME>JDBC/REPORTINGCTRLDATASOURCE</JNDI-NAME>	
<connection-url>	Confirm that the bold values shown below in the JDBC URL are appropriate for your environment: Oracle Example: jdbc:oracle:thin:@**host**:**port**:**service** • **host**: The name of the system hosting the database • **port**: The database port (for example, 1521) • **service**: The name of your Oracle service

<JNDI-NAME>JDBC/REPORTINGCTRLDATASOURCE</JNDI-NAME>	
<driver>	Replace *driver-jar-name.jar* with the value of the JDBC **Runtime Name** shown in the Red Hat JBoss Enterprise Application Platform console  This value might not be identical to the actual name of a driver such as *ojdbc6.jar*
<user-name>	The Reporting Control user (SBXRPTCTRL)
<password>	The password for the Reporting Control user

<JNDI-NAME>JDBC/REPORTINGONESOURCEDATASOURCE</JNDI-NAME>	
<connection-url>	Confirm that the bold values shown below in the JDBC URL are appropriate for your environment: Oracle Example: jdbc:oracle:thin:@**host**:**port**:**service** • **host**: The name of the system hosting the database • **port**: The database port (for example, 1521) • **service**: The name of your Oracle service
<driver>	Replace *driver-jar-name.jar* with the value of the JDBC **Runtime Name** shown in the Red Hat JBoss Enterprise Application Platform console  This value might not be identical to the actual name of a driver such as *ojdbc6.jar*
<user-name>	The Determination Audit user (SBXAUD)
<password>	Password for the Determination Audit user

6. Copy the two <datasource> sections in preparation for pasting them into the JBoss file *standalone.xml*. The example below shows an Oracle snippet:

```
1    <datasource jndi-name="java:/jdbc/ReportingCtrlDataSource" pool-na
     me="RptCtrlPool" enabled="true" use-java-context="true">
2    <connection-url>jdbc:oracle:thin:@ACME_Database:1521:O
     RCL</connection-url>
3    <!-- Replace the driver value with the name of the JDBC driver fil
     e deployed on the application server (for
     example ojdbc6.jar) -->
4    <driver>ojdbc6.jar</driver>
5    <pool>
6    <min-pool-size>10</min-pool-size>
7    <max-pool-size>50</max-pool-size>
8    <prefill>true</prefill>
9    </pool>
10   <security>
11   <user-name>SBXRPTCTRL</user-name>
12   <password>SBXRPTCTRL</password>
13   </security>
14   </datasource>
15   <datasource jndi-name="java:/jdbc/ReportingOnesourceDataSource" po
     ol-name="OnesourceAudPool" enabled="true" use-java-context="true">
16   <connection-url>jdbc:oracle:thin:@ACME_Database:1521:O
     RCL</connection-url>
17   <!-- Replace the driver value with the name of the JDBC driver fil
     e deployed on the application server (for
     example ojdbc6.jar) -->
18   <driver>ojdbc6.jar</driver>
19   <pool>
20   <min-pool-size>10</min-pool-size>
21   <max-pool-size>50</max-pool-size>
22   <prefill>true</prefill>
23   </pool>
24   <security>
25   <user-name>SBXAUD</user-name>
26   <password>SBXAUD</password>
27   </security>
28   </datasource>
```

7. Go to the location where you installed JBoss (shown below as *<JBossBaseDirectory>*).
8. Change to the *configuration* directory under *standalone*.

   <JBossBaseDirectory>/standalone/configuration

9. Open *standalone.xml* in a text editor.

10. Paste the two <datasource> sections into *standalone.xml* between the "<datasources>...</datasources>" elements.
11. If you are using a JBOSS version greater than 6.4 EAP, follow the steps below. Otherwise, skip to step 18.
12. Add "iiop-openjdk" extension, subsystem, and its dependencies in *standalone.xml* by referring to *standalone-full.xml*.

    <extension module="org.wildfly.iiop-openjdk"/>
13. Add the attributes for iiop.

    <iiop enable-by-default="false" use-qualified-name="false"/>
14. Add the subsystem.

    <subsystem xmlns="urn:jboss:domain:iiop-openjdk:2.1">

        <orb socket-binding="iiop"/>

        <initializers security="identity" transactions="spec"/>

        <security server-requires-ssl="false" client-requires-ssl="false"/>

    </subsystem>
15. Add Interface.

    <interface name="unsecure">

    <inet-address value="${jboss.bind.address.unsecure:127.0.0.1}"/>

    </interface>
16. Add socket-binding.

    <socket-binding name="iiop" interface="unsecure" port="3528"/>

    <socket-binding name="iiop-ssl" interface="unsecure"port="3529"/>
17. Configure Lock Striping and Timeout.

    Add the following attributes to the Cache container for the module:

        module="org.wildfly.clustering.web.infinispan”

striping="false" acquire-timeout="60000"

18. Save and close *standalone.xml*.

Inserting Additional Files into JBoss

Complete the following to finish the JBoss deployment:

1. Copy all of files, except *jboss-deployment-structure.xml*, from this directory:

   <SAP BO Install Dir>\SAP BusinessObjects Enterprise XI 4.0\wdeploy\rsa_module

2. On the JBoss application server, create an rsa\main directory structure under <JBOSS_INSTALL_DIR>\modules\com.

3. Paste all files copied at the beginning of this procedure to the new <JBOSS_INSTALL_DIR>\modules\com\rsa\main directory.

4. Copy the file *reporting.ear* from this directory:

   <UnzippedReportingDirectory>/deployments/jboss-enterprise

5. Paste *reporting.ear* into this directory.

   <JBossBaseDirectory>/standalone/deployments

6. Copy the Java 1.6 compliant JDBC Driver into this directory (see Database Preparation (page 18)).

   <JBossBaseDirectory>/standalone/deployments

7. Start JBoss.

8. Open a browser and enter the Reporting URL (http://host:port/reporting). Reporting is running if the logon page loads. You will not be able to log on until you complete the ETLs later.

9. If you reach the Reporting logon page, continue to the section Initial ETL Configuration (page 153). If the logon page does not load, double check your previous settings.

WEBSPHERE

Complete the following steps for deploying in WebSphere.

Complete each of these steps in the WebSphere Integrated Solutions Console.

Configuring the WebSphere Environment Variable

Set up the environment variable for the JDBC driver:

1. In the Console, go to **Environment > WebSphere Variables**.
2. Set the scope of the data sources for your environment.
3. Click the driver appropriate for your database version (your selection may be on the second page of driver options):
    - **ORACLE_JDBC_DRIVER_PATH**

4. On the **WebSphere Variables** page, enter the following.

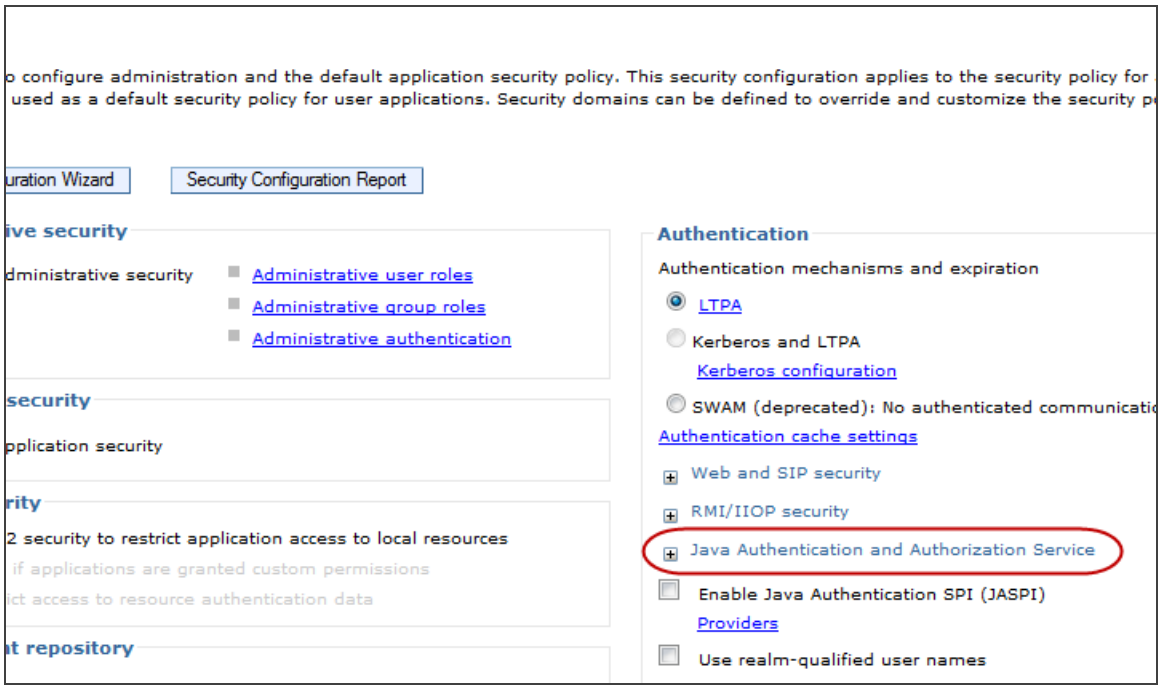
FIELD	DESCRIPTION
Name	Enter the value for your database: • ORACLE_JDBC_DRIVER_PATH
Value	Enter the path to the JDBC driver
Description	Enter **JDBC Driver Path**

5. Click **OK**, and then click **Save directly to the master configuration**.

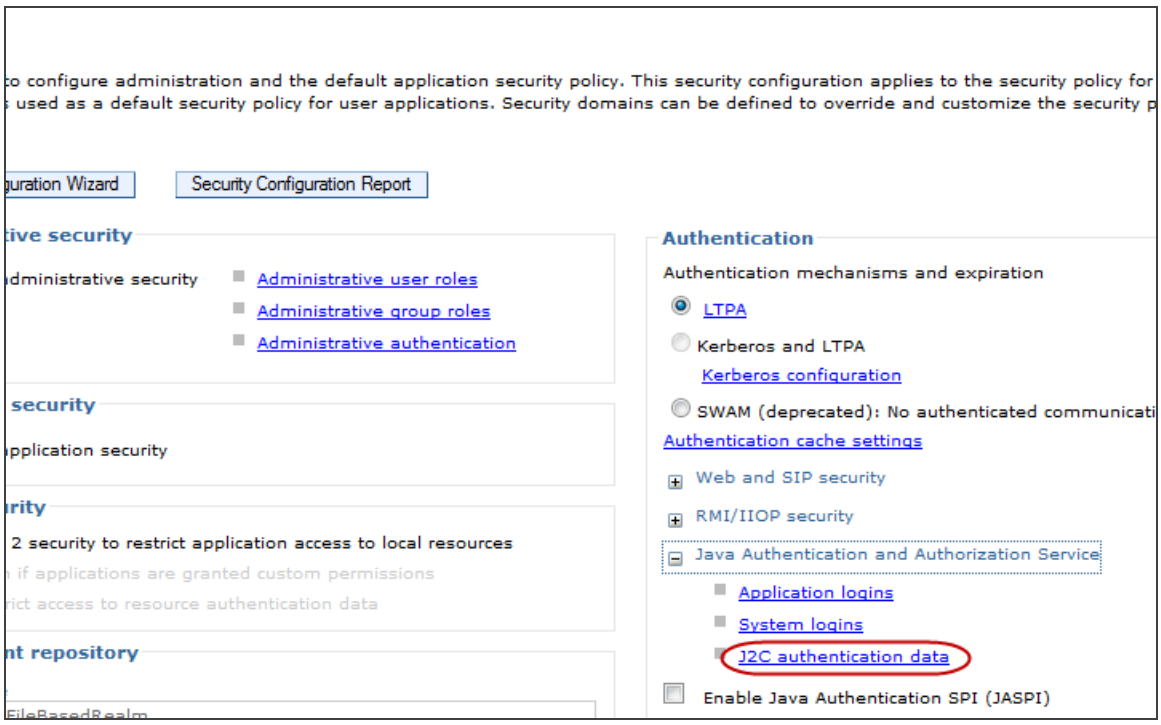
Reporting Control Authentication

Set up authentication for the Reporting control database user.

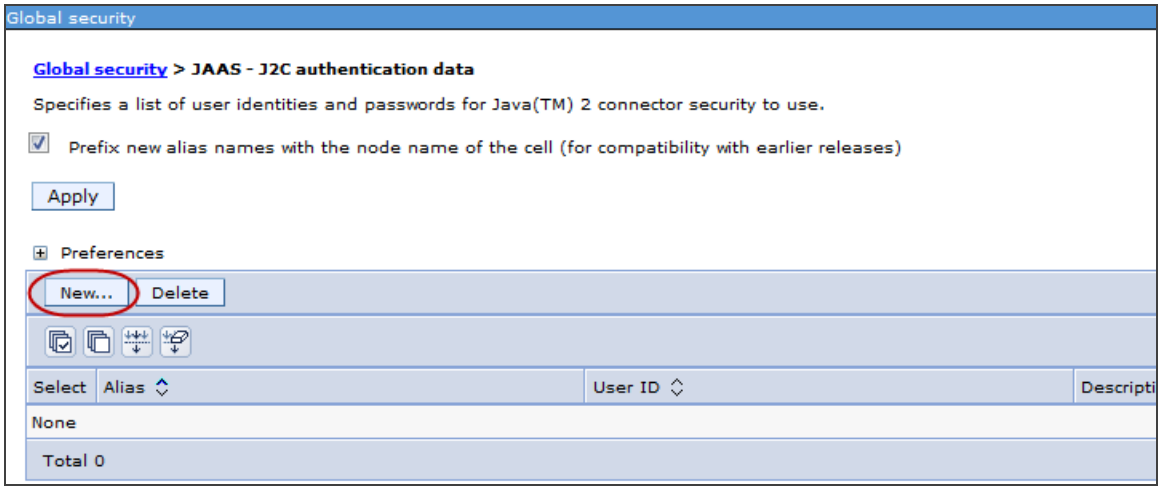
1. In the left pane, go to **Security > Global security**.
2. Expand the **Java Authentication and Authorization Service** in the **Authentication** section.



3. Click **J2C authentication data**.

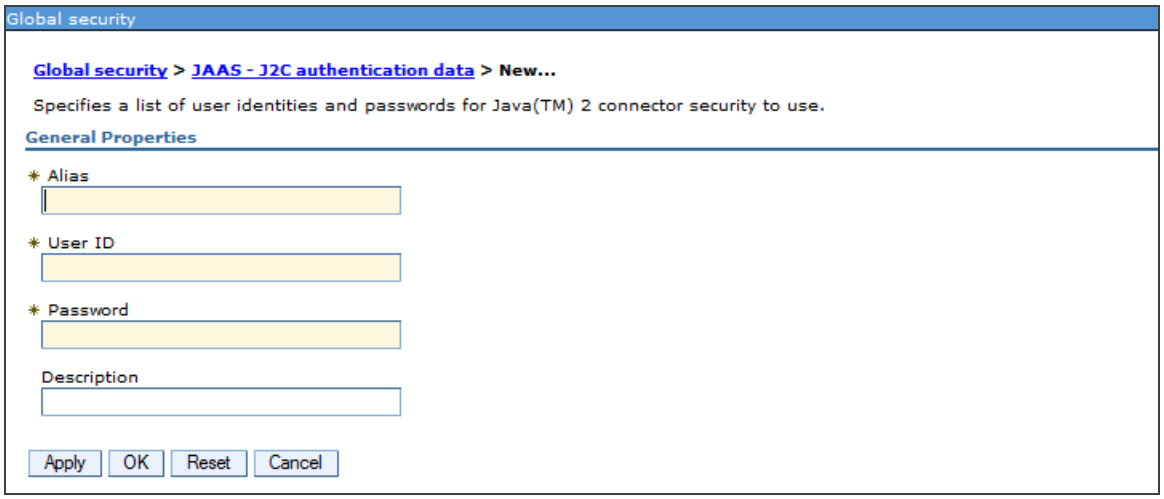


4. Click **New**.



5. Create the Reporting Control user as shown in the following table:

FIELD	VALUE
Alias	Enter **SBXRPTCTRL**
User ID	Enter **SBXRPTCTRL**
Password	Enter the password for **SBXRPTCTRL**
Description	Enter **Reporting Control User**



6. Click **OK**, and then click **Save directly to the master configuration**.
7. Remain in **Global Security** and continue to the next section.

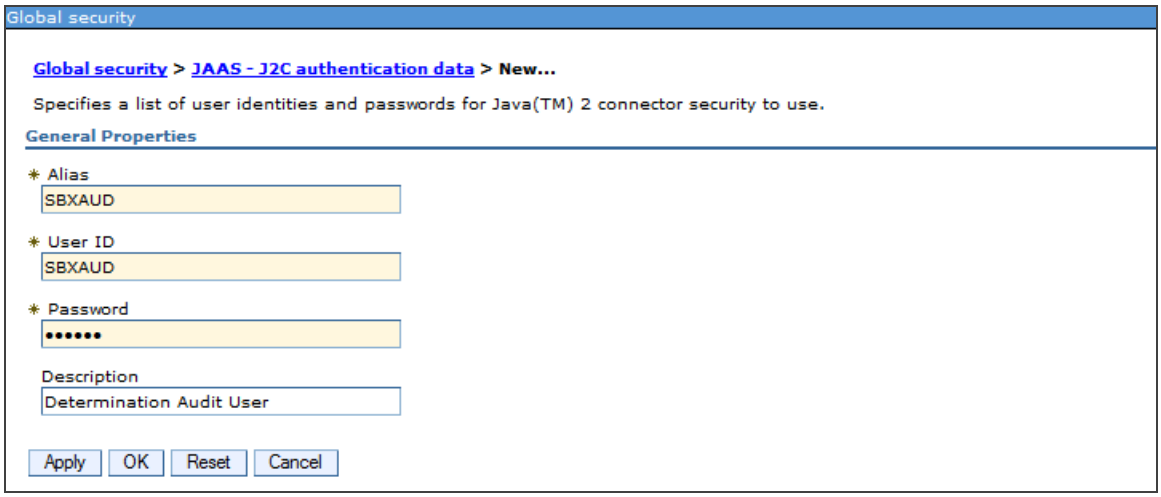
Audit User Security

Continue in **Global Security** to set up authentication for the Audit database user.

1. Click **New**.

2. Create the Audit user as shown in the following table:

FIELD	VALUE
Alias	Enter **SBXAUD**
User ID	Enter **SBXAUD**
Password	Enter the password for SBXAUD
Description	Enter **Determination Audit User**

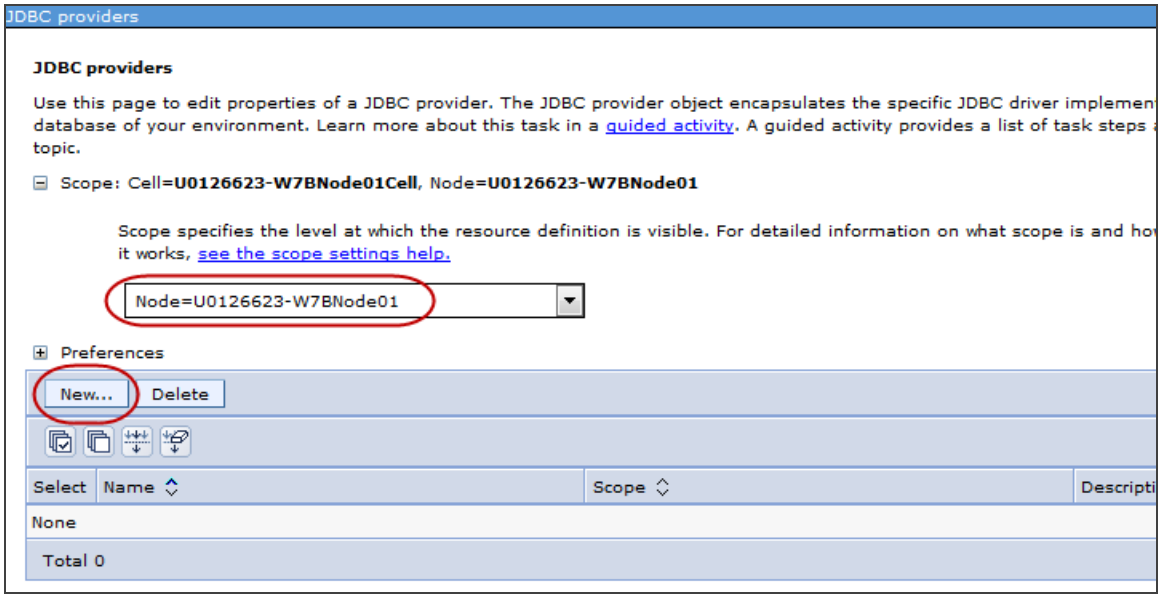


3. Click **OK**, and then click **Save directly to the master configuration**.

JDBC Provider

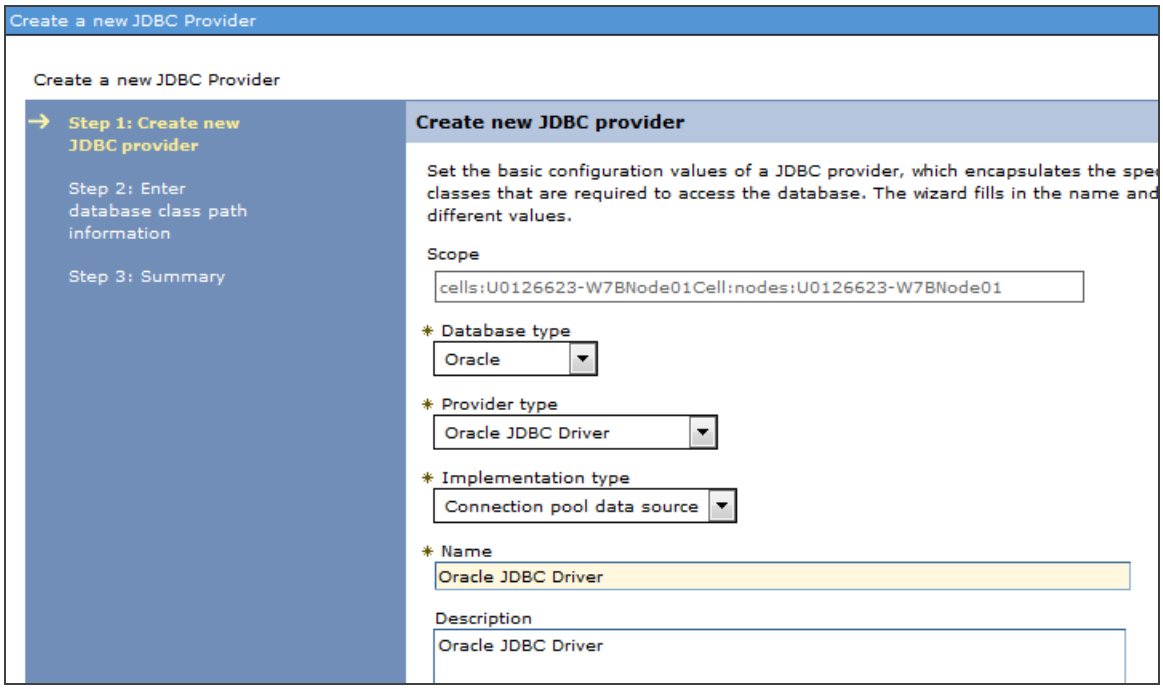
Complete the following to set up the JDBC Provider:

1. Go to **Resources > JDBC > JDBC Providers**.
2. Set the scope that is appropriate for your environment, and then click **New**.

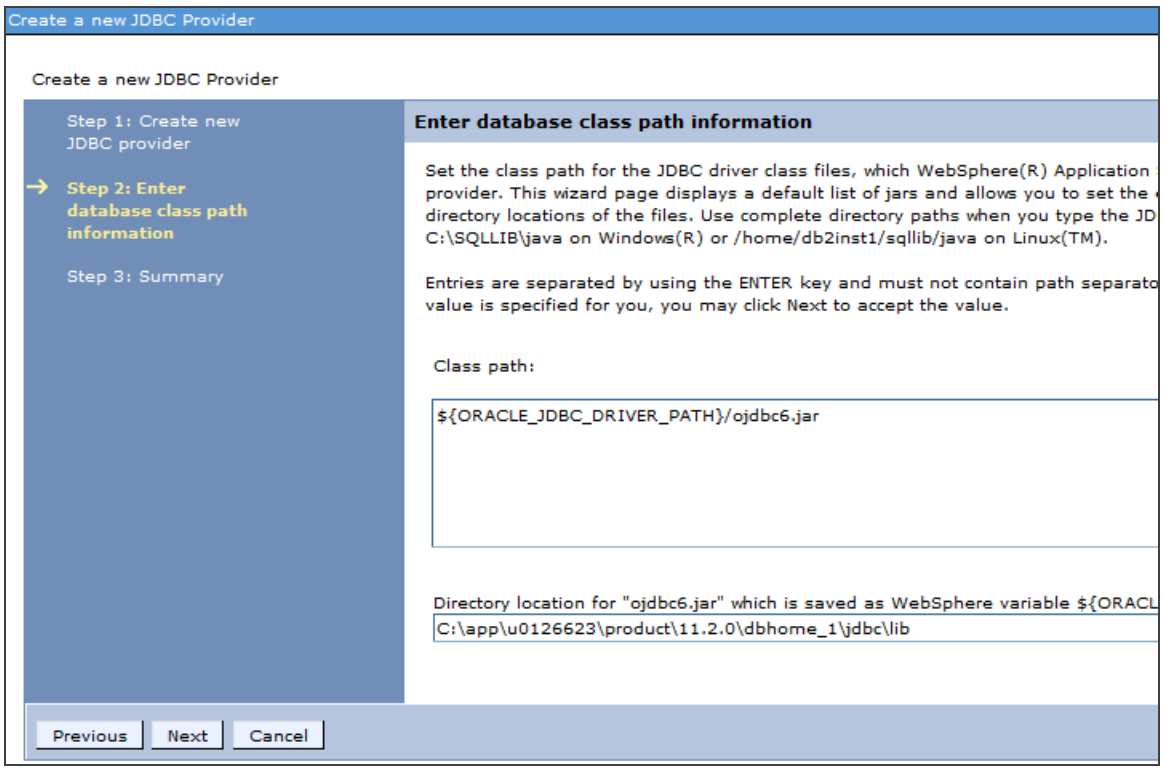


3. Add the following JDBC provider values, and then click **Next**.

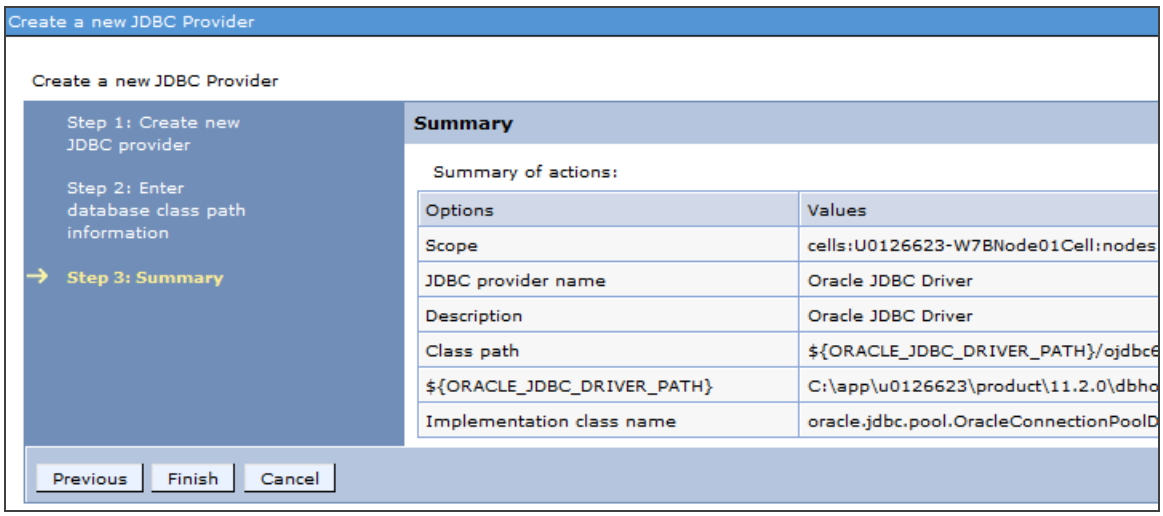
CREATE NEW JDBC PROVIDER		
Database Type	**Provider Type**	**Implementation Type**
Oracle	Oracle JDBC Driver	Connection pool data source



4. The fields in **Enter database class path information** are populated automatically from your previous setup of the WebSphere Environment Variable. click **Next**.



5. On the **Summary** page, click **Finish**.



6. Click **Save directly to the master configuration**.
7. Remain on the JDBC Provider screen to complete the steps in the next section.

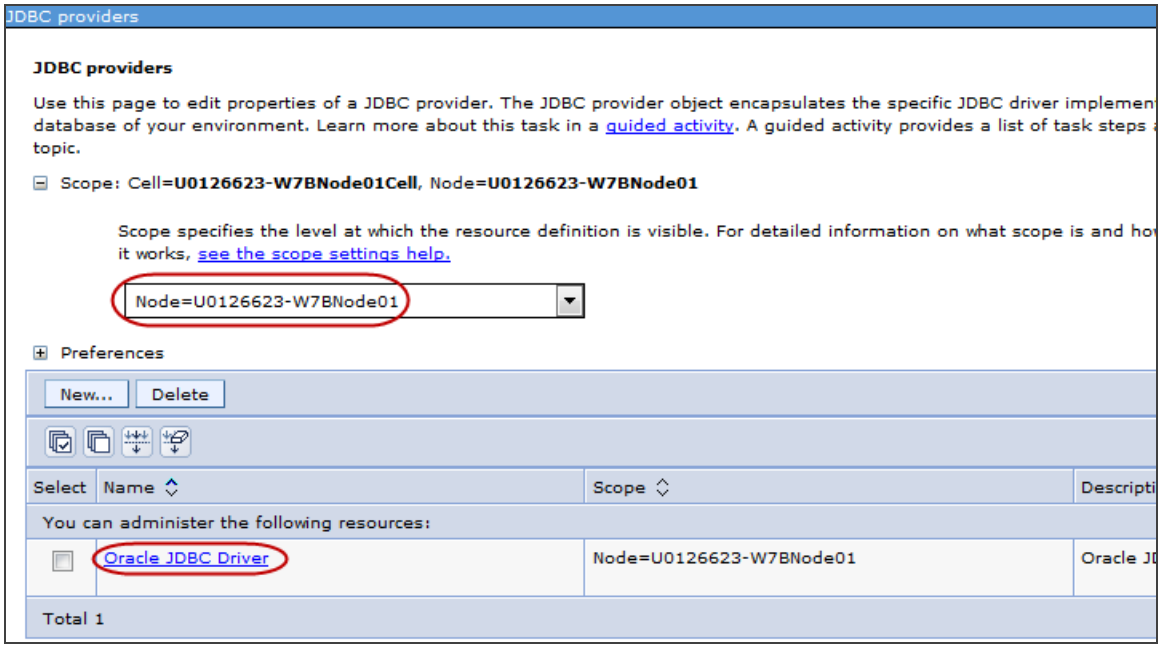
Reporting Control Data Source

The data source creation has many steps, and for your convenience, the descriptions of these screens are divided into the sections below. Remain in the console as you move between sections.

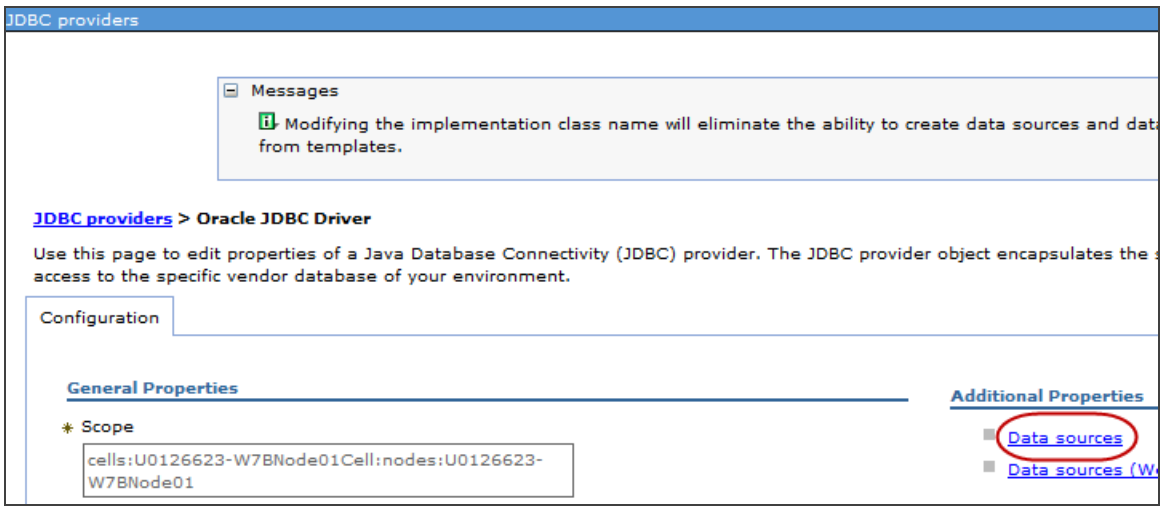
Creating the Data Source

Continue in JDBC Providers from the previous section.

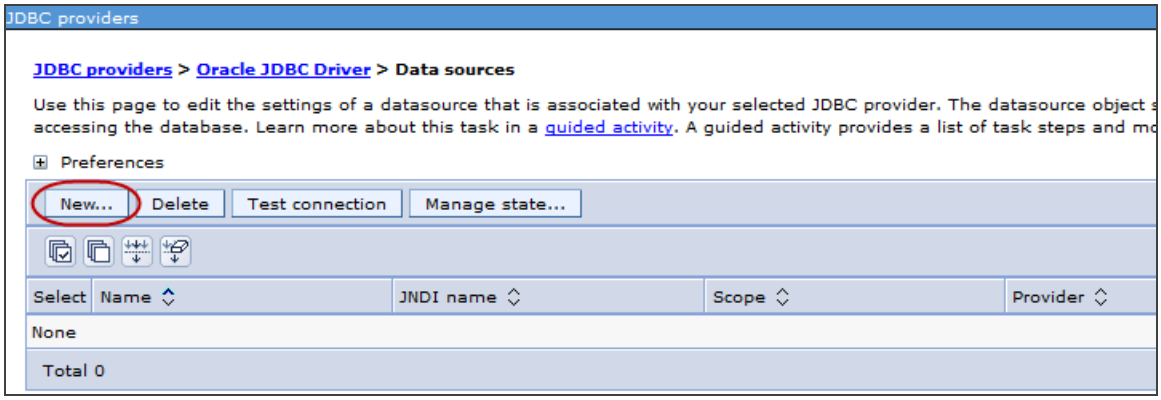
1. In **Resources > JDBC > JDBC providers** click the JDBC driver you created previously.



2. On the **Configuration** tab for your JDBC driver under **Additional Properties** section, click **Data Sources**.

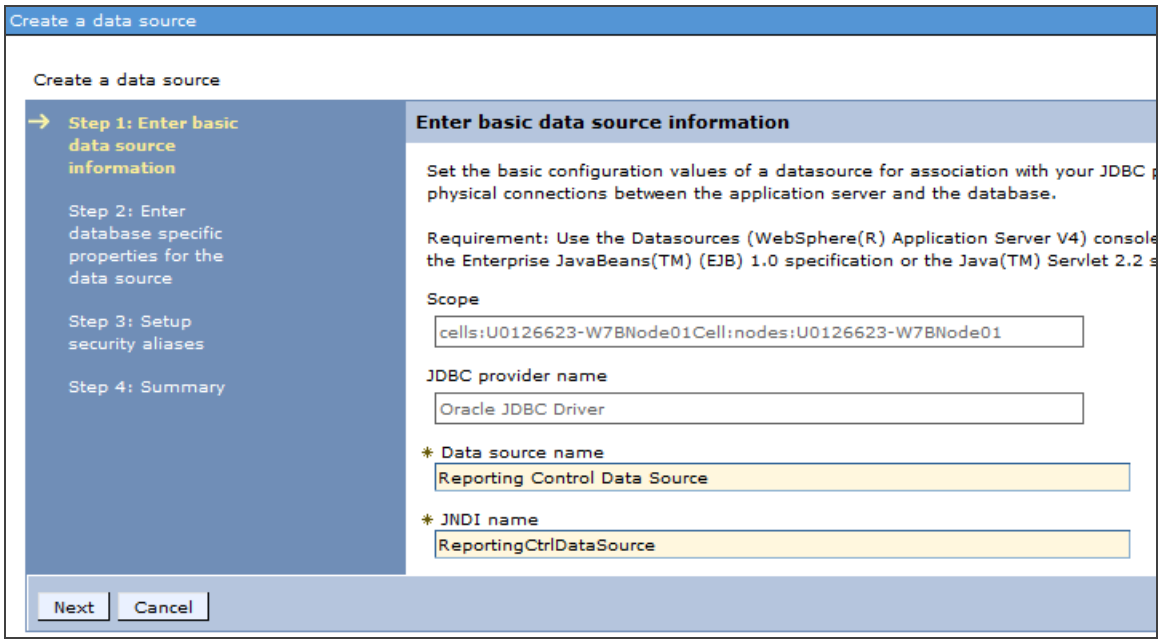


3. Click **New**.



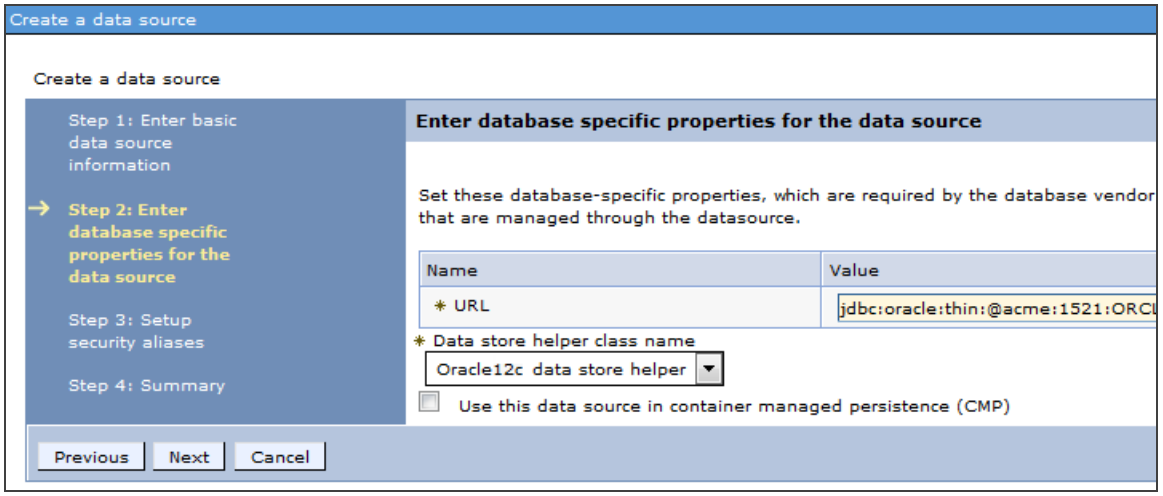
4. Enter basic data source information, and then click **Next**.

CREATE A DATA SOURCE	
Database source name	Enter **Reporting Control Data Source**
JNDI name	Enter **ReportingCtrlDataSource**



5. Set up the data source URL and additional properties.

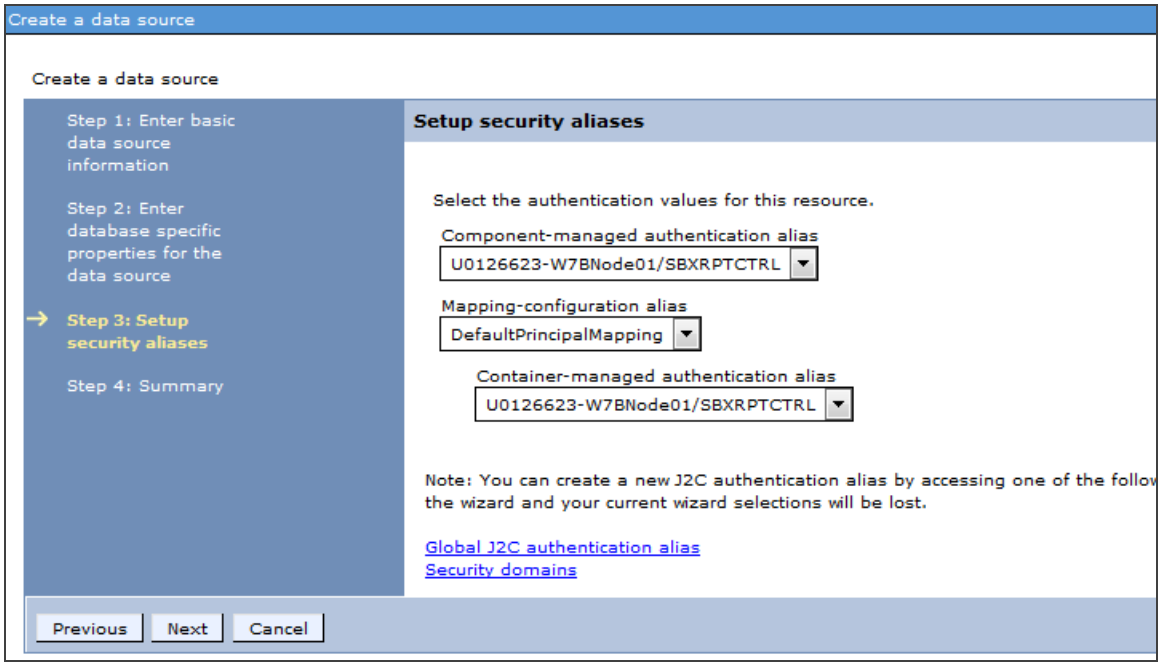
ORACLE	
URL	jdbc:oracle:thin:@**host**:**port**:**service** • Replace **host** with the name of the server running the Oracle database • Replace **port** with the database port number (for example, 1521) • Replace **service** with the name of your database service
Data store helper class name	Select **Oracle 12c data store helper**
Use this data source in container managed persistence (CMP)	Clear this box



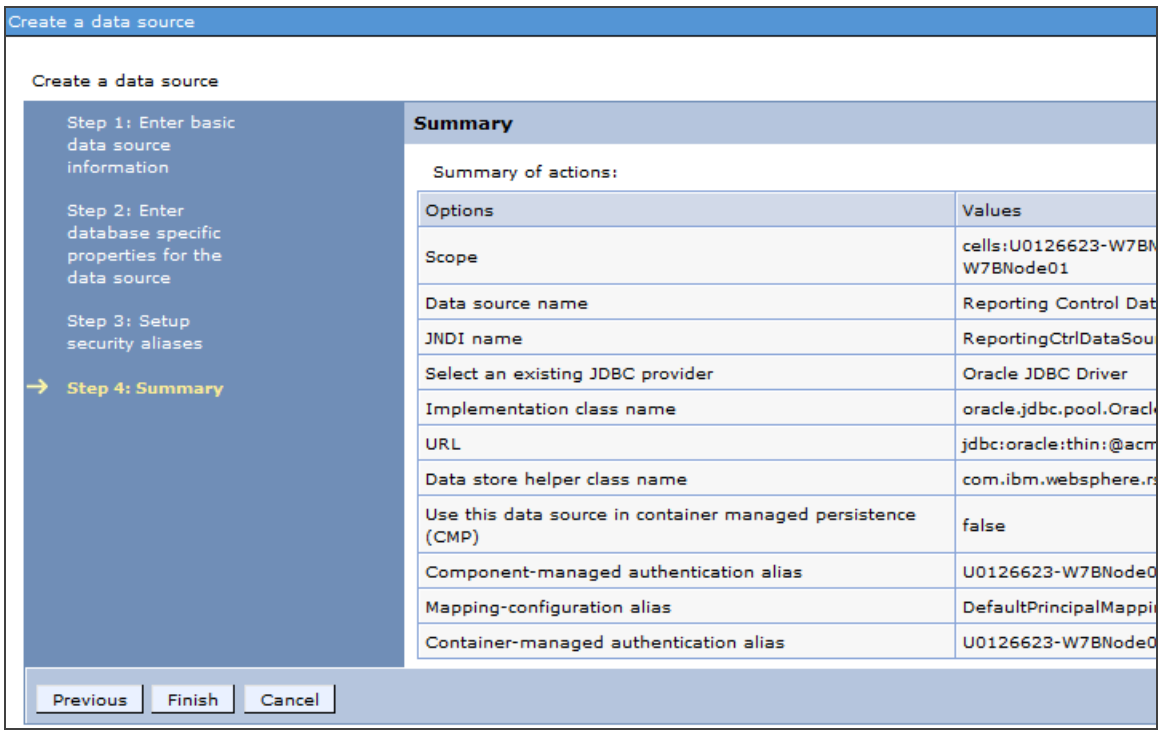
6. Click **Next**.

7. Complete the fields for security aliases, and then click **Next**.

FIELD	VALUE
Component-managed authentication alias	Choose the Reporting Control authentication alias you created previously (SBXRPTCTRL).
Mapping-configuration alias	Select **DefaultPrincipalMapping**
Container-managed authentication alias	Choose the Reporting Control authentication alias you created previously (SBXRPTCTRL) .



8. On the **Summary** screen, click **Finish**.



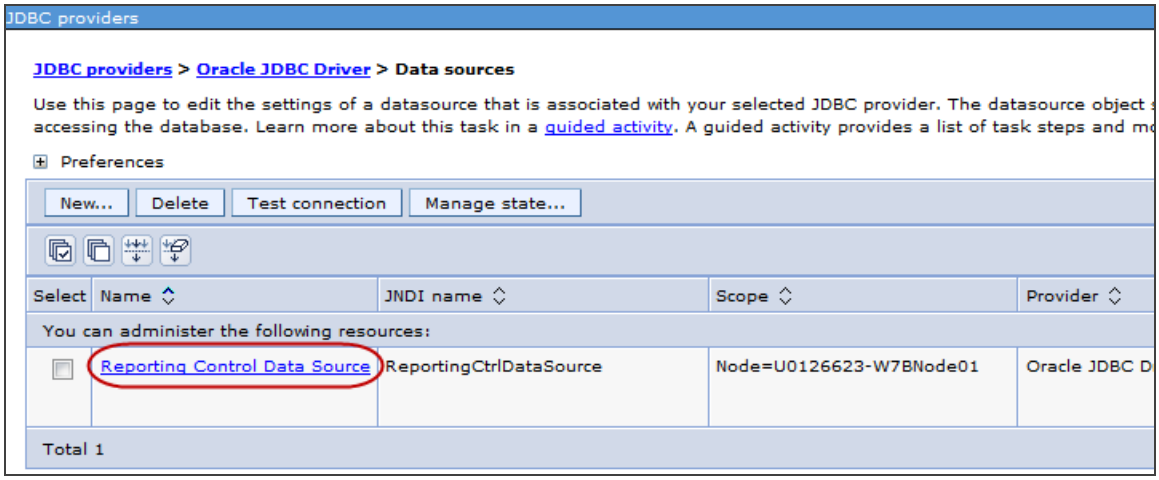
9. Click **Save directly to the master configuration**.

10. Remain on the **Data sources** screen, and continue to the section below.

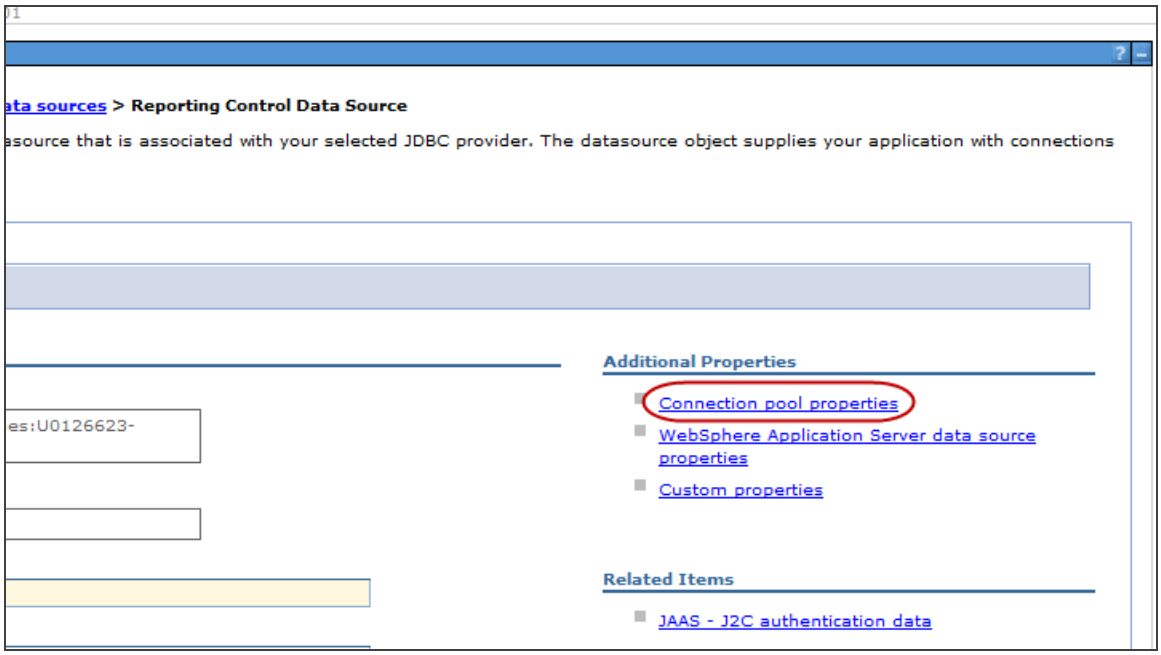
Setting Parameter Values

Set parameter values for the Reporting Control Data Source.

1. Click the new **Reporting Control Data Source**.

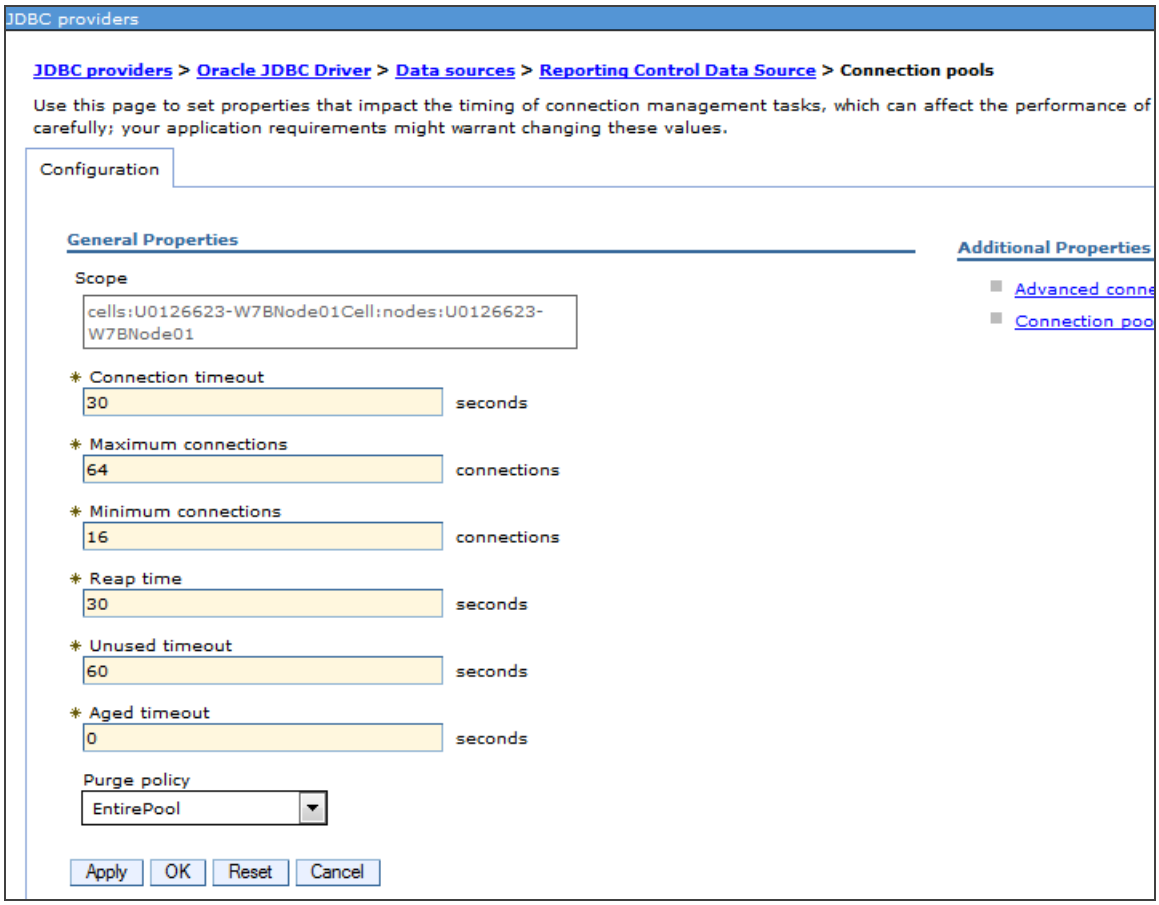


2. Under **Additional Properties**, click **Connection pool properties**.



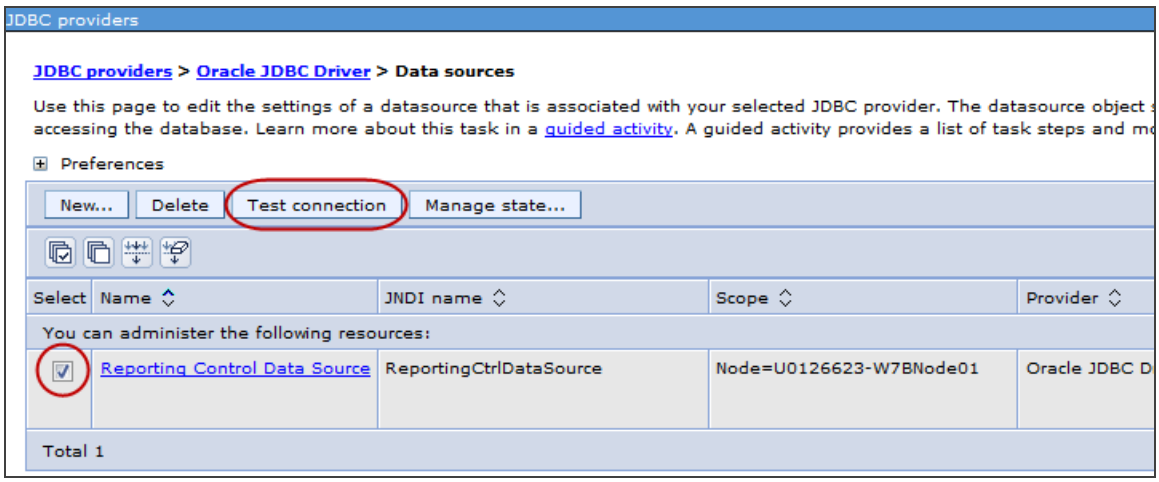
3. Modify the general properties, and then click **OK**.

FIELD	VALUE
Connection timeout	30
Maximum connections	64
Minimum connections	16
Reap time	30
Unused timeout	60
Aged timeout	0
Purge Policy	EntirePool



4. Click **Save directly to the master configuration**.

5. Select the **Reporting Control Data Source** check box, and then click **Test Connection**.



6. If you do not receive a success message, edit the data source, and run the test again.
7. Remain on the JDBC Providers page and continue to the next section.

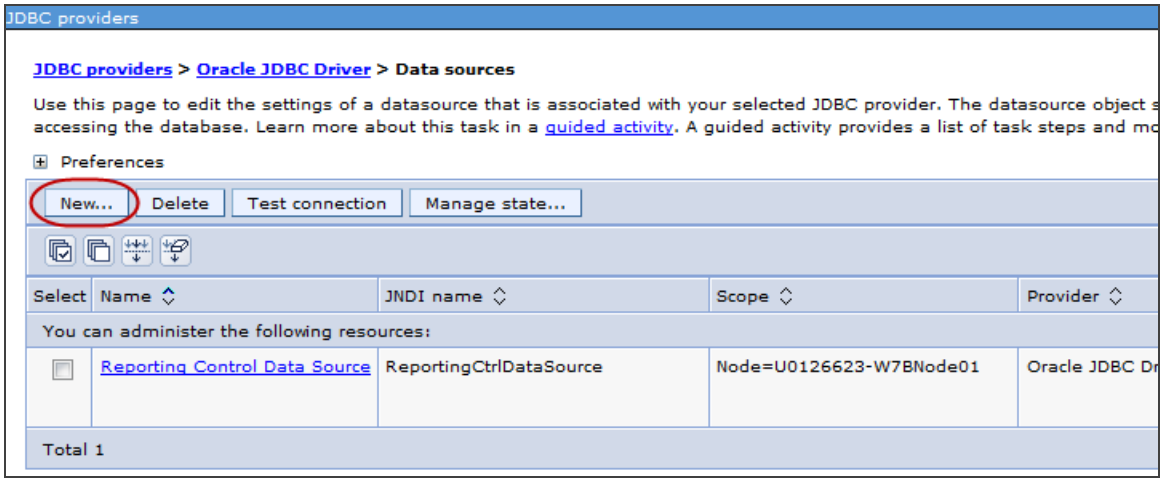
Reporting ONESOURCE Data Source

The data source creation has many steps, and for your convenience, the descriptions of these screens are divided into the sections below. Remain in the console as you move between sections.

Creating the Data Source

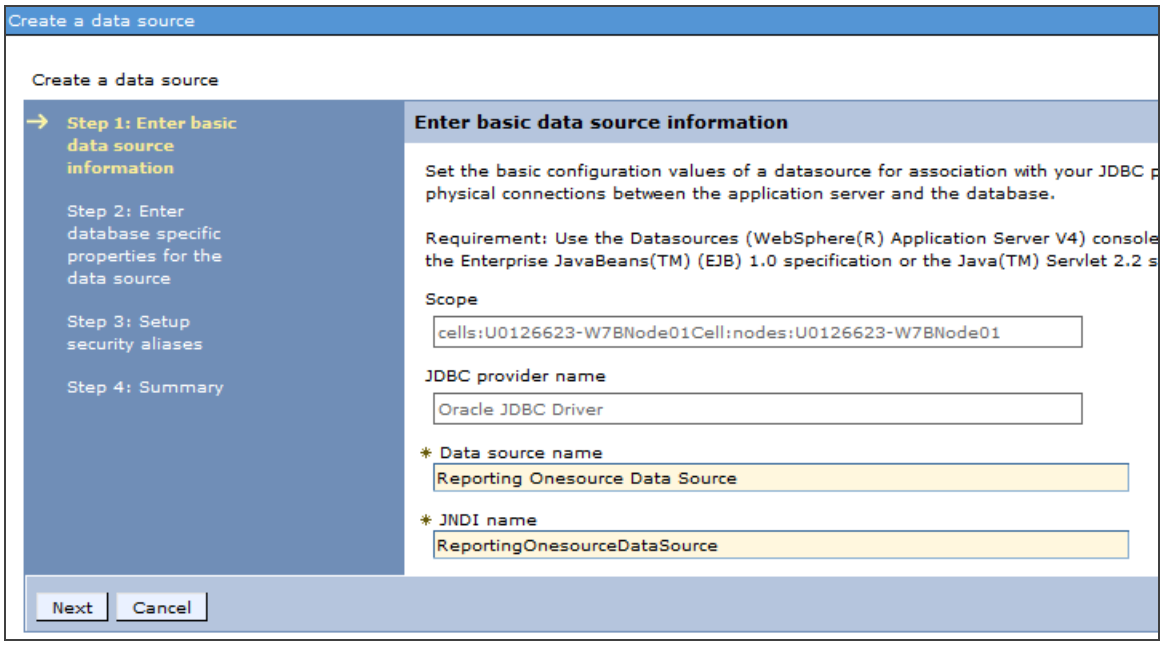
Continue in **Resources > JDBC > JDBC providers > Oracle JDBC Driver > Data sources**.

1. Click **New** to create the ONESOURCE data source.



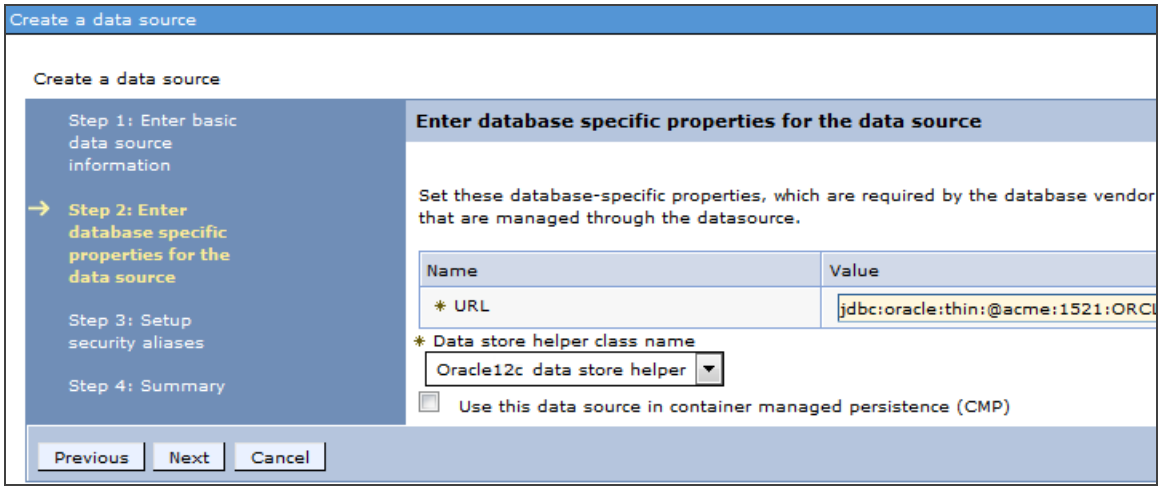
2. Enter the basic data source information, and then click **Next**.

CREATE A DATA SOURCE	
Database source name	Enter **Reporting Onesource Data Source**
JNDI name	Enter **ReportingOnesourceDataSource**



3. Set up the data source URL and additional properties.

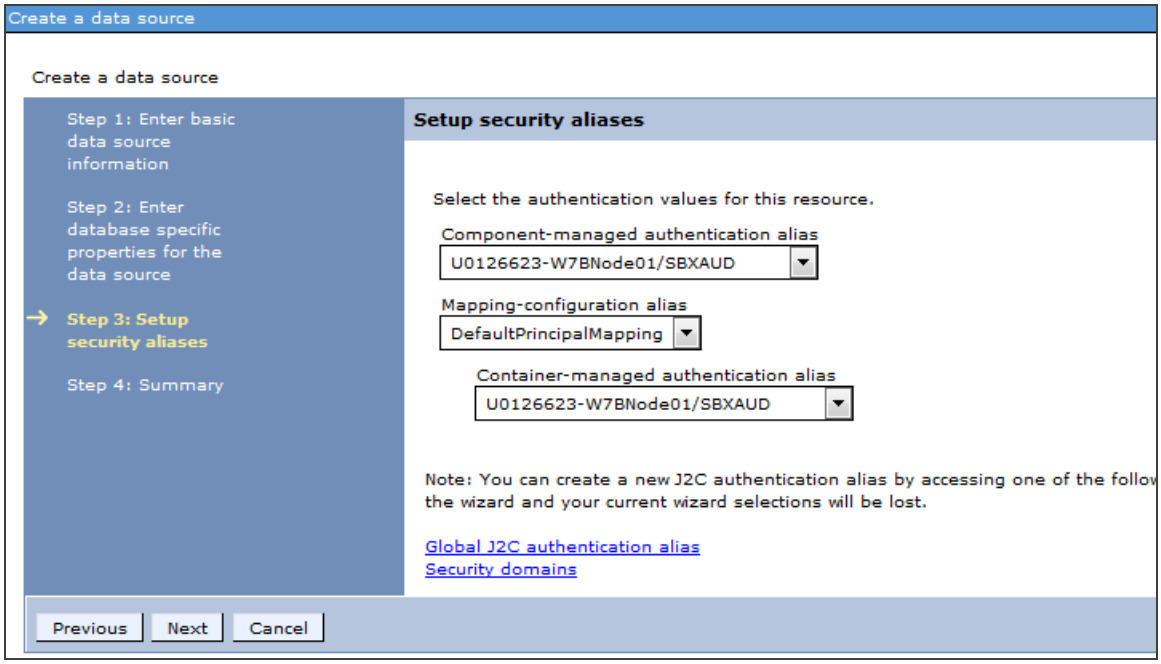
ORACLE	
URL	jdbc:oracle:thin:@**host**:**port**:**service** • Replace **host** with the name of the server running the Oracle database • Replace **port** with the database port number (for example, 1521) • Replace **service** with the name of your database service
Data store helper class name	Select **Oracle 12c data store helper**
Use this data source in container managed persistence (CMP)	Clear this check box



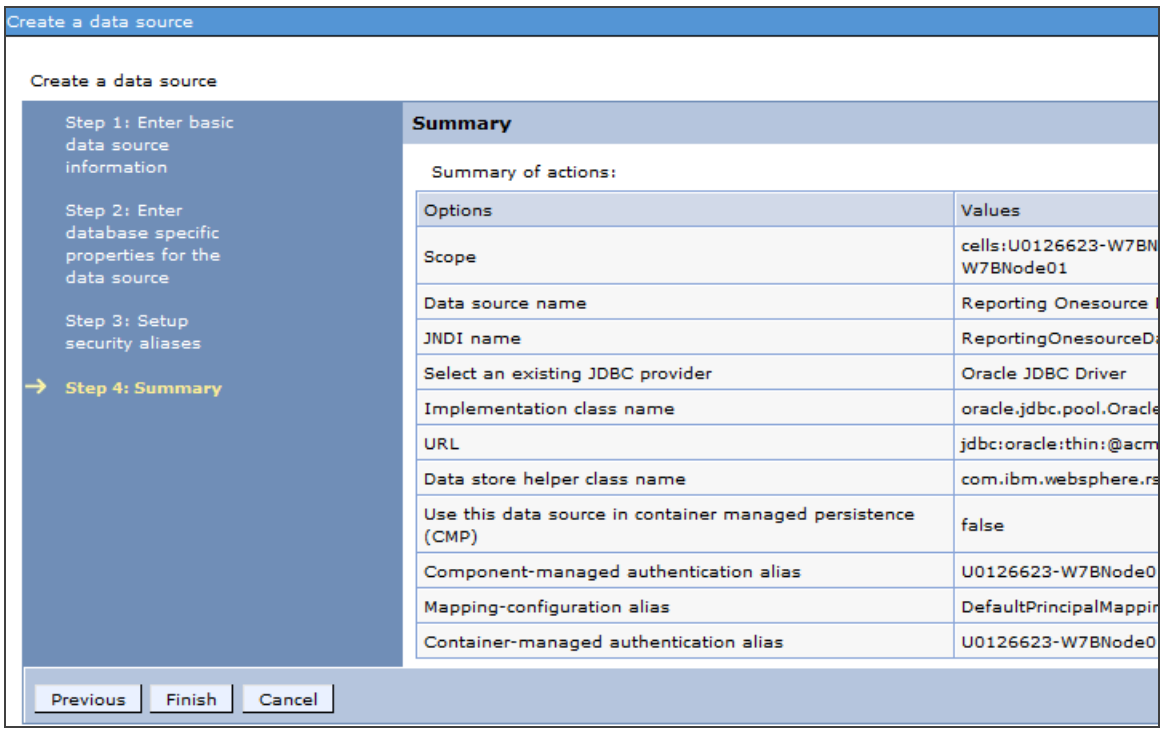
4. Click **Next**.

5. Complete the fields for security aliases, and then click **Next**.

FIELD	VALUE
Component-managed authentication alias	Choose the Audit authentication alias you created previously (SBXAUD).
Mapping-configuration alias	Select **DefaultPrincipalMapping**
Container-managed authentication alias	Choose the Audit authentication alias you created previously (SBXAUD).



6. On the **Summary** screen, click **Finish**.



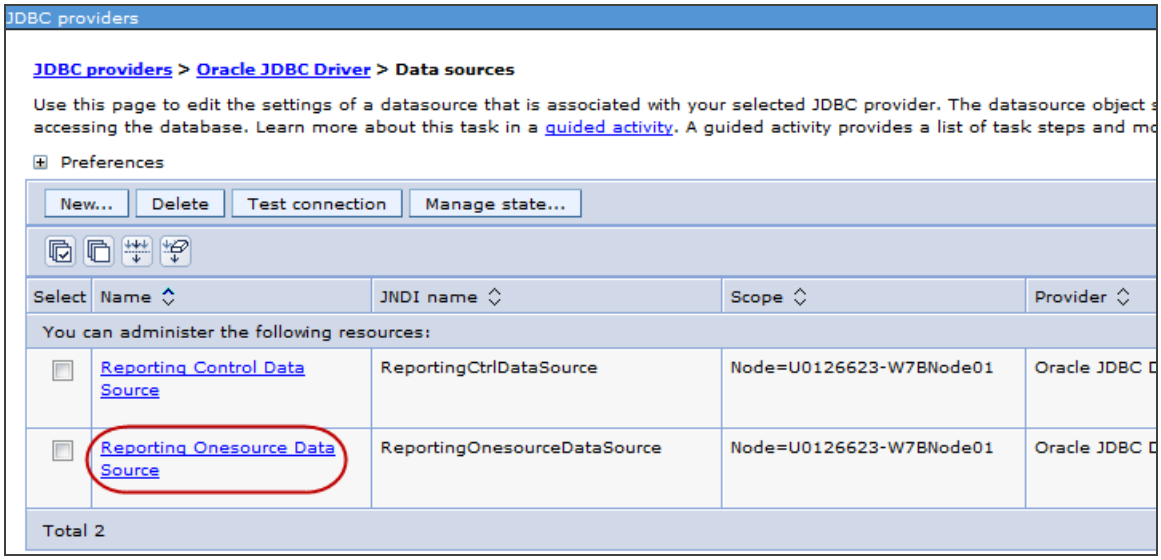
7. Click **Save directly to the master configuration**.

8. Remain on the **Data sources** screen, and continue to the section below.

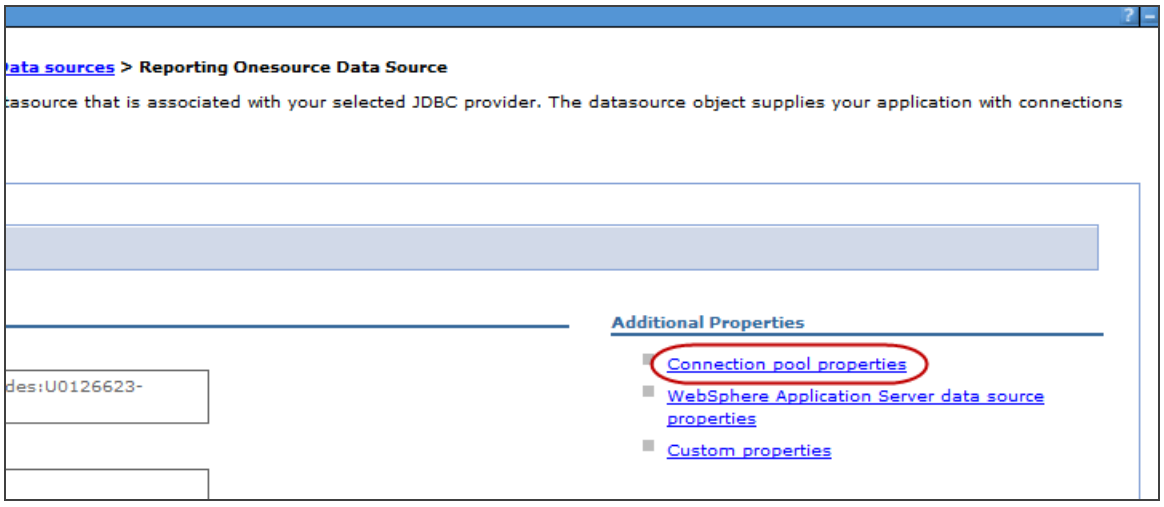
Setting Parameter Values

Set parameter values for the Reporting Onesource Data Source.

1. Click **Reporting Onesource Data Source**.

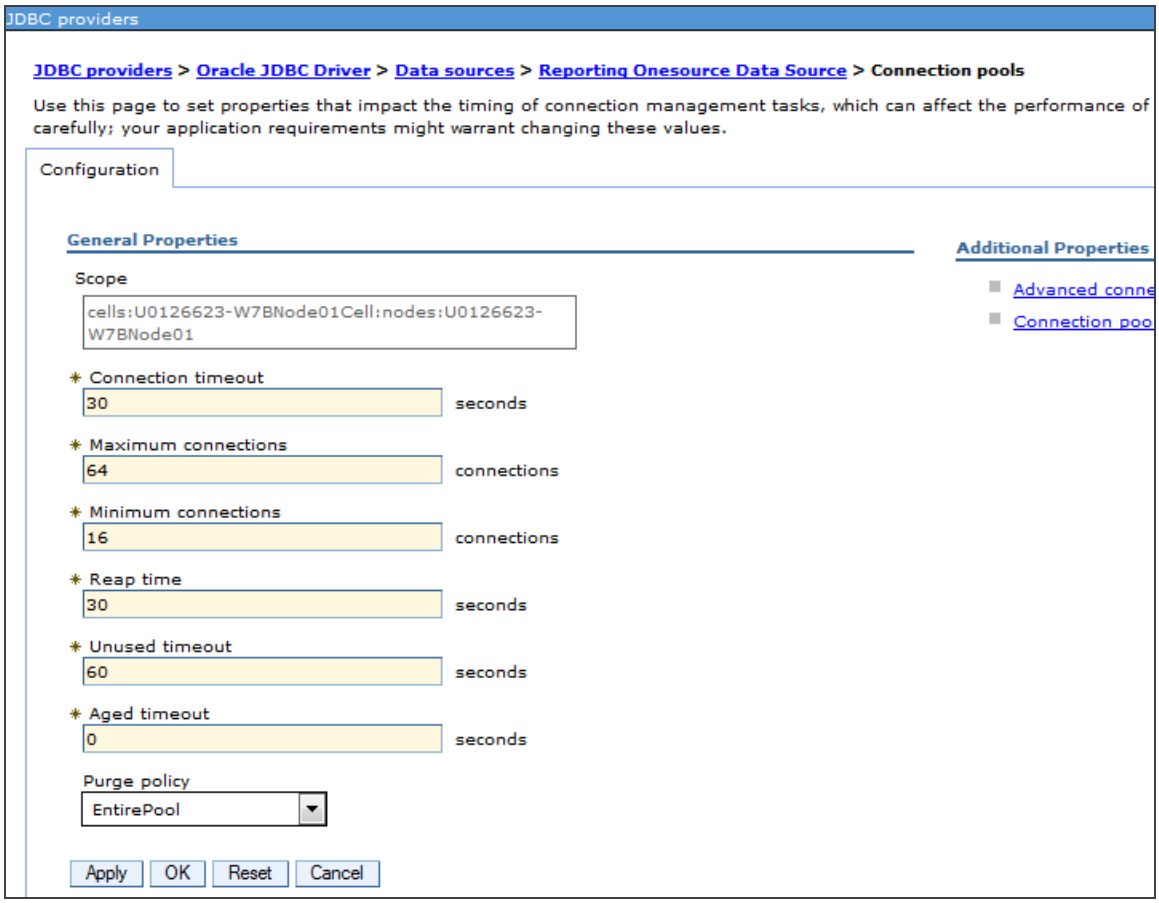


2. Under **Additional Properties**, click **Connection pool properties**.



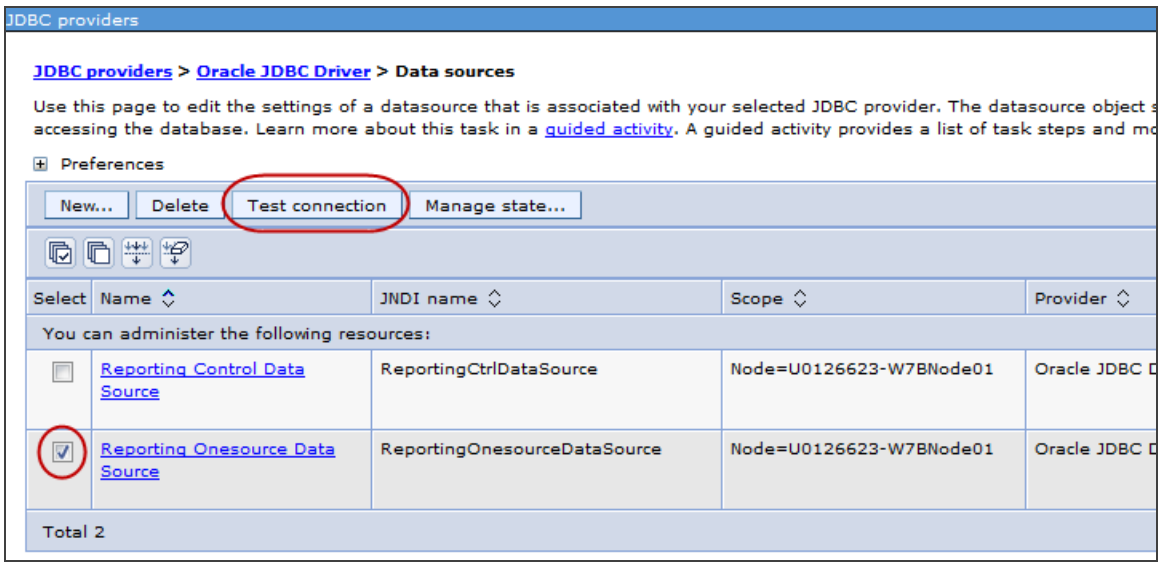
3. Modify the fields listed in the table below, and then click **OK**.

FIELD	VALUE
Connection timeout	30
Maximum connections	64
Minimum connections	16
Reap time	30
Unused timeout	60
Aged timeout	0
Purge Policy	EntirePool



4. Click **Save directly to the master configuration**.

5. Select the **Reporting Onesource User Service Data Source** check box, and then click **Test Connection**.

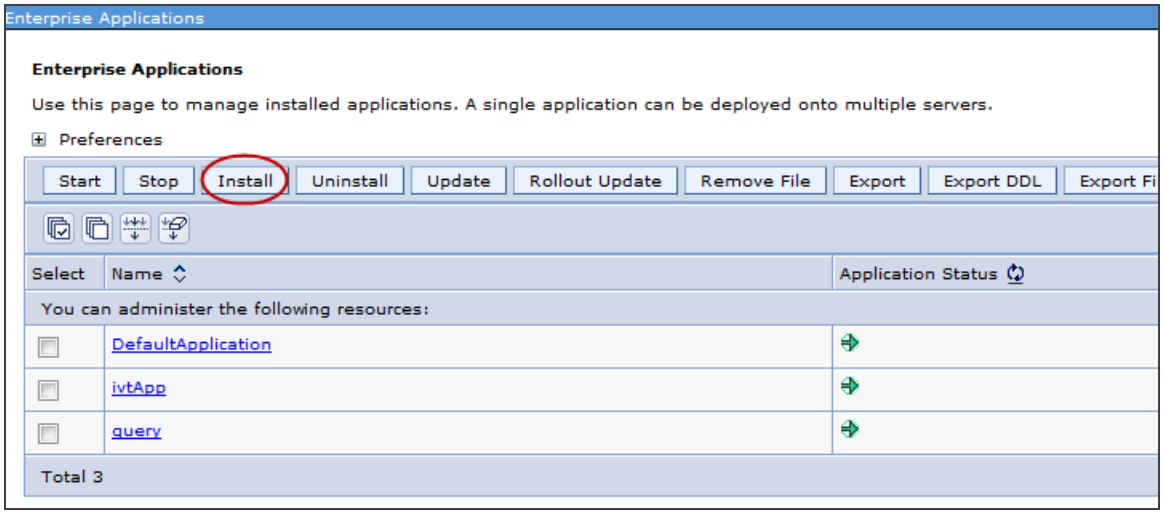


6. If you do not receive a success message, edit the data source, and run the test again.

Deploying the Application

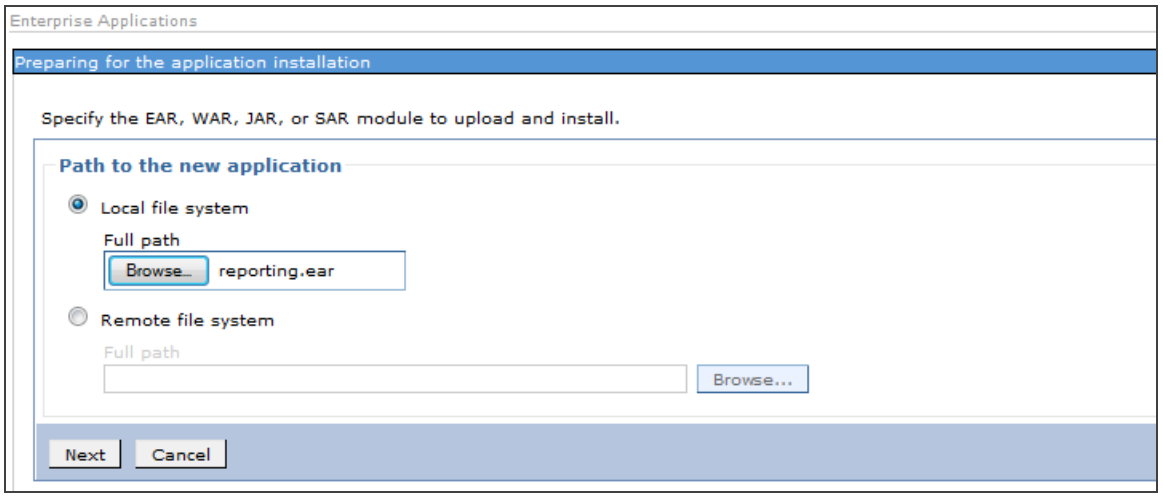
The following steps guide you through the Reporting application deployment.

1. From the console, go to **Applications > Application Types > WebSphere enterprise applications**.
2. Click **Install**.



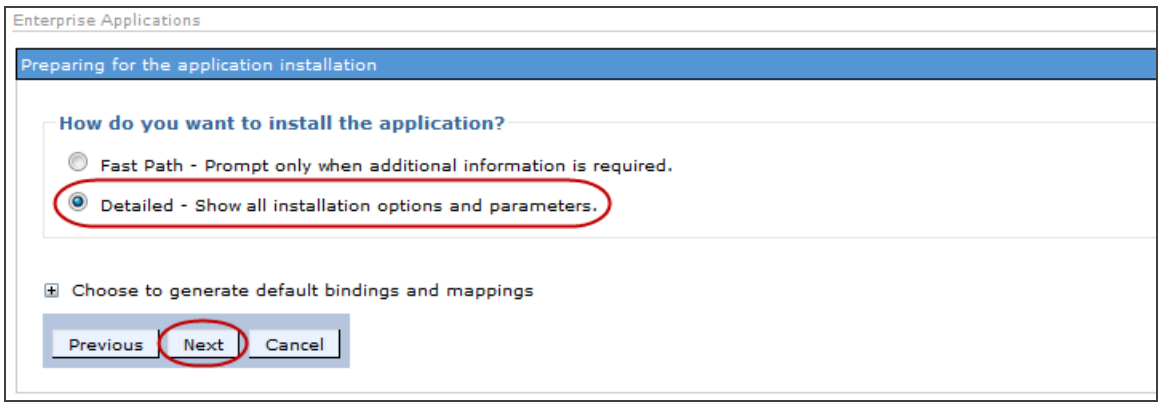
3. Enter the path to the *reporting.ear* file in the directory structure where you unzipped *ONESOURCEIDTReporting_68xxx.zip*:

   <UnzippedReportingDirectory>/deployments



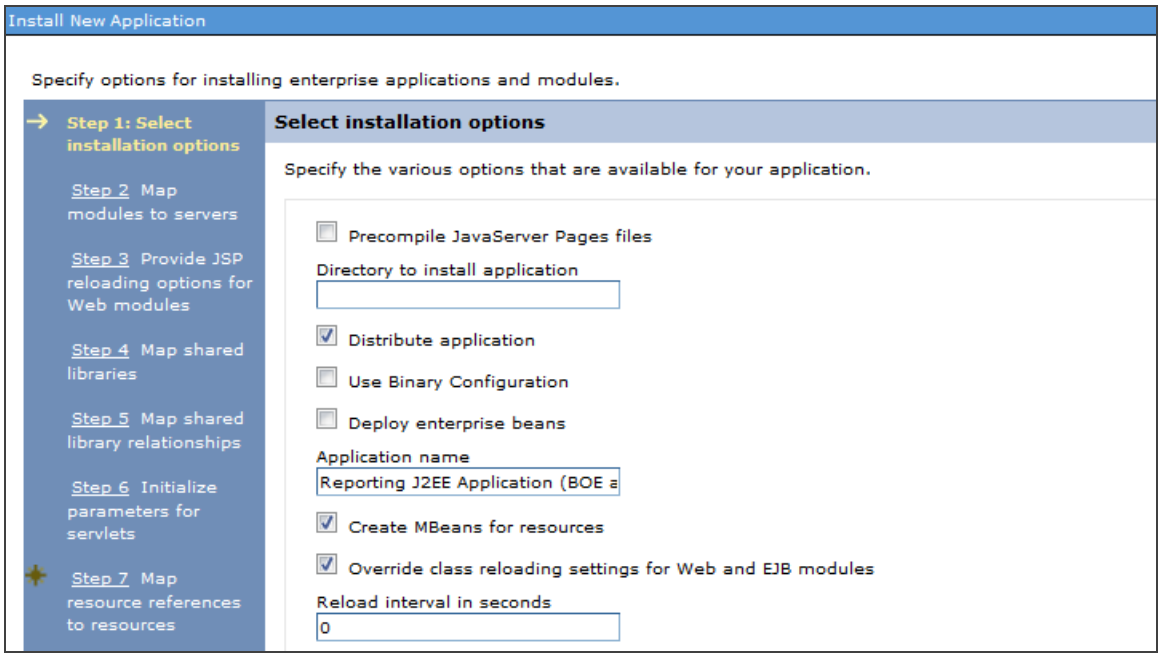
4. Click **Next**.

5. Select **Detailed - Show all installation options and parameters**, and then click **Next**.

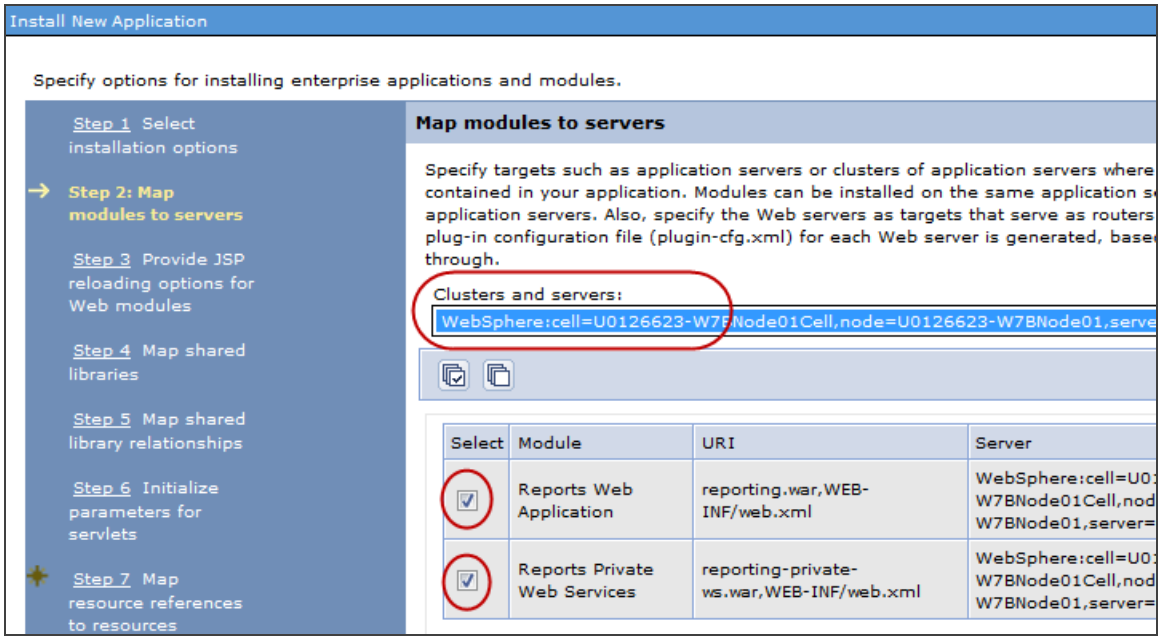


6. On **Step 1: Select installation options**, choose the following installation options, and then click **Next**.

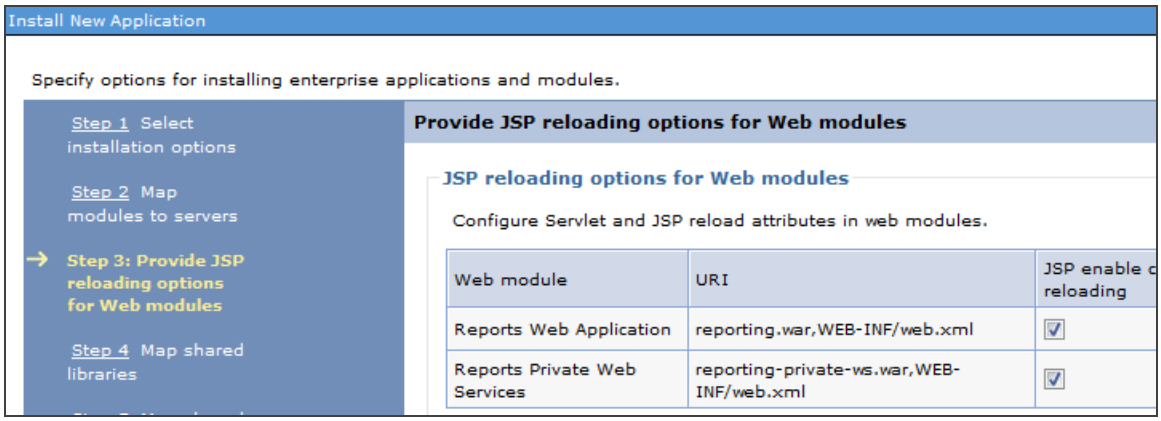
FIELD	VALUE
Distribute application	Check the box
Create MBeans for resources	Check the box
Override class reloading settings for Web and EJB modules	Check the box
Reload interval in seconds	Enter the number zero: **0**



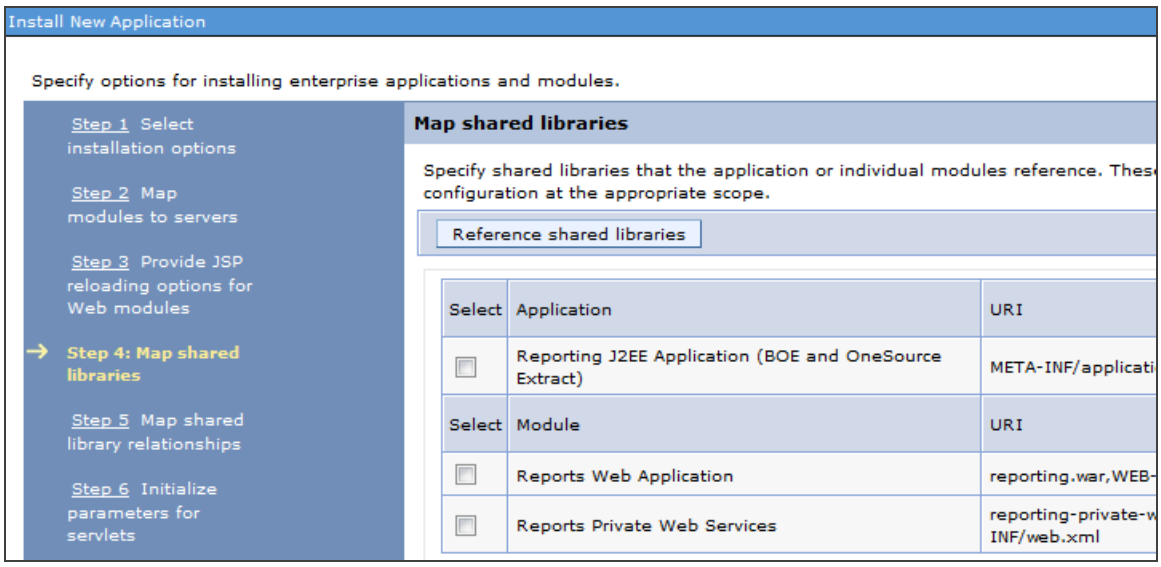
7. On **Step 2: Map modules to servers**, if there is just one entry in **Clusters and servers**, accept the defaults, and then click **Next**. If there are multiple entries in **Clusters and servers**, highlight the container (s) for deployment, select the two modules for Reporting, click **Apply**, and then click **Next**.



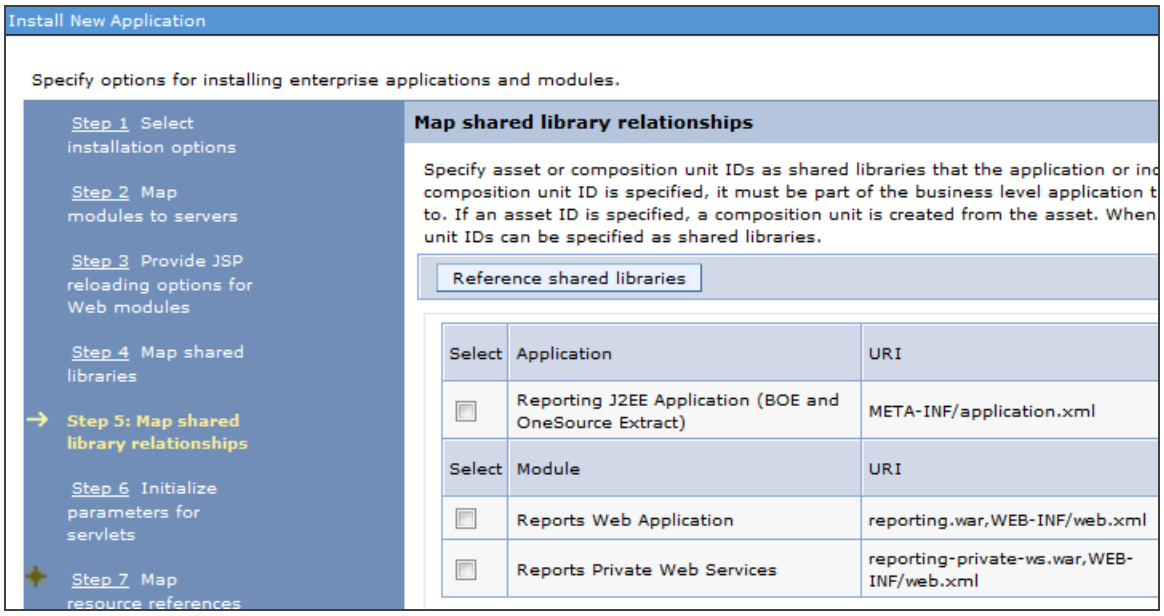
8. On **Step 3: Provide JSP reloading options for Web modules**, click **Next** to accept the defaults.



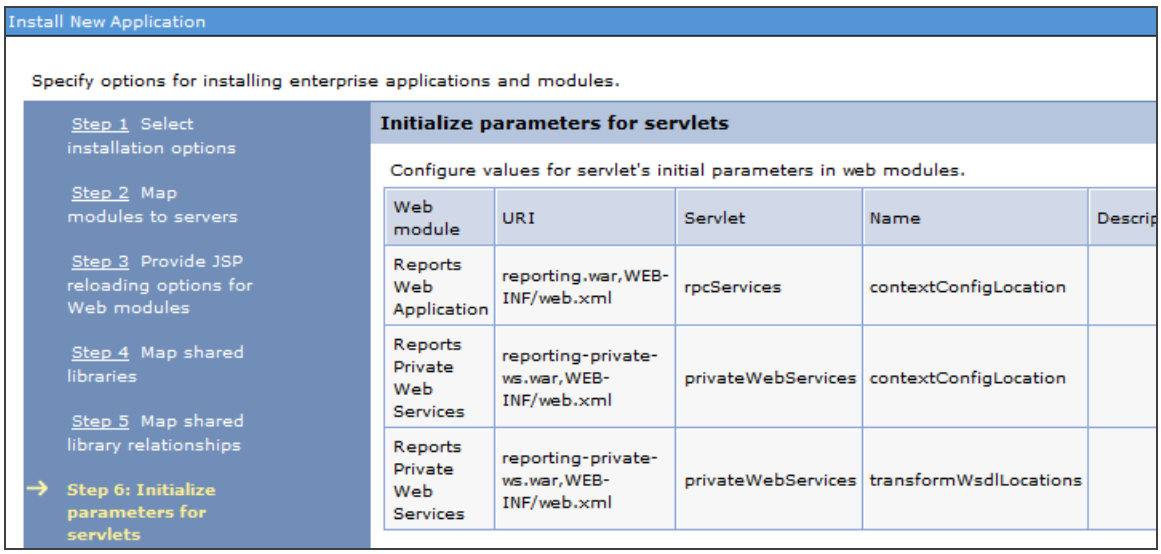
9. On **Step 4: Map shared libraries**, click **Next** to accept the defaults.



10. On **Step 5: Map shared library relationships**, click **Next** to accept the defaults.

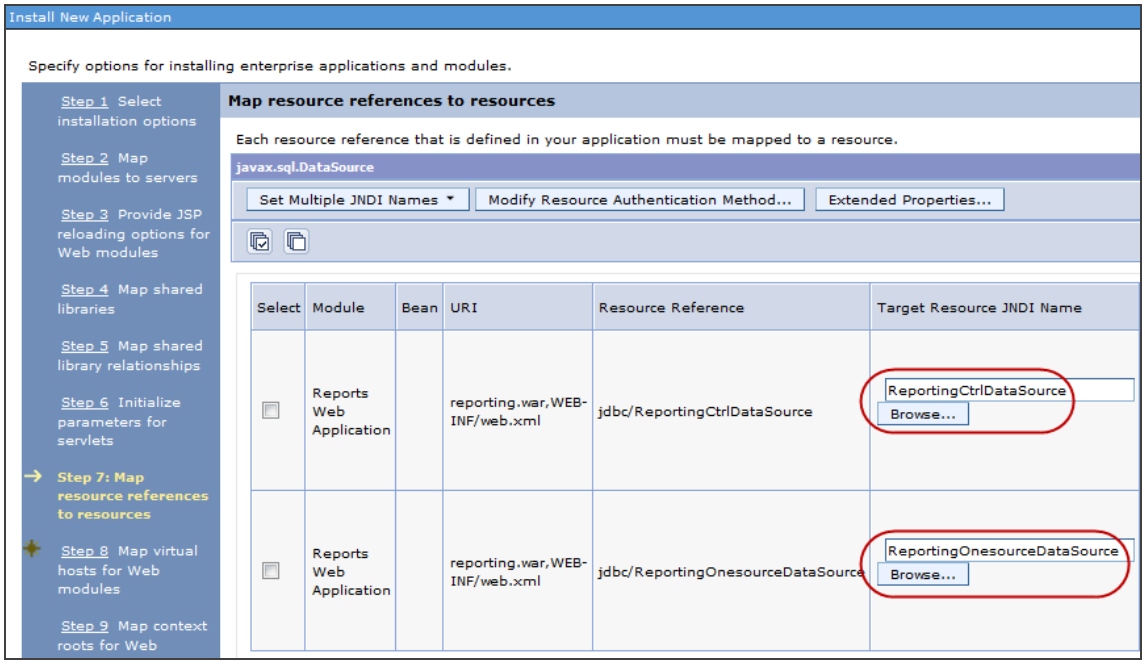


11. On **Step 6: Initialize parameters for servlets**, click **Next** to accept the defaults.

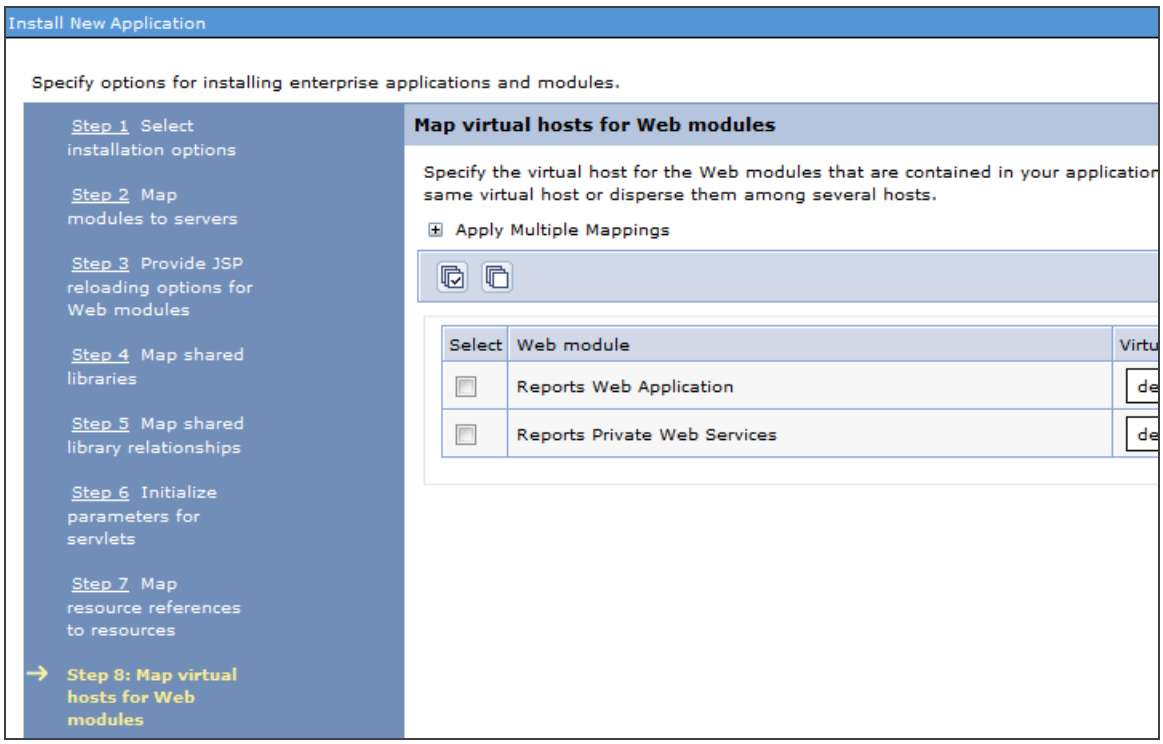


12. On **Step 7: Map resource references to resources**, browse to the JNDI name for each module, and then click **Next**.

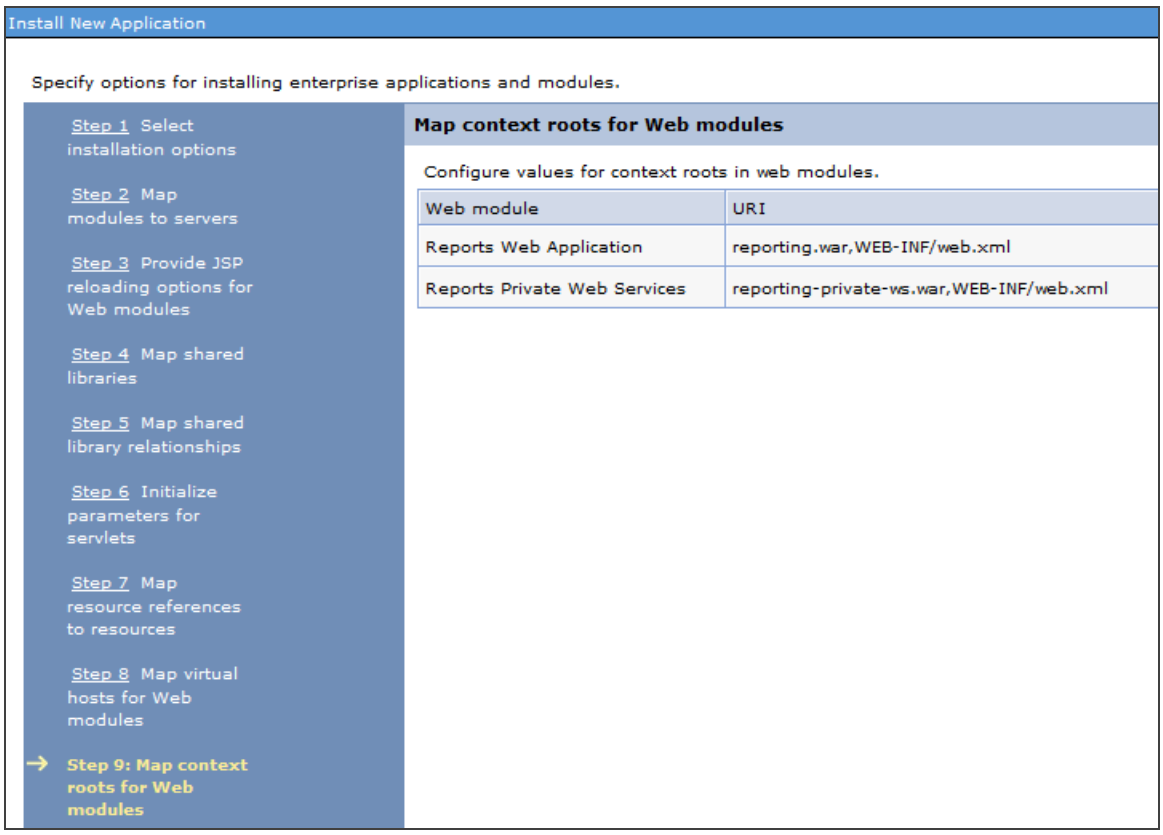
RESOURCE REFERENCE	TARGET RESOURCE JNDI NAME
jdbc/ReportingCtrlDataSource	ReportingCtrlDataSource
jdbc/ReportingOnesourceDataSource	ReportingOnesourceDataSource



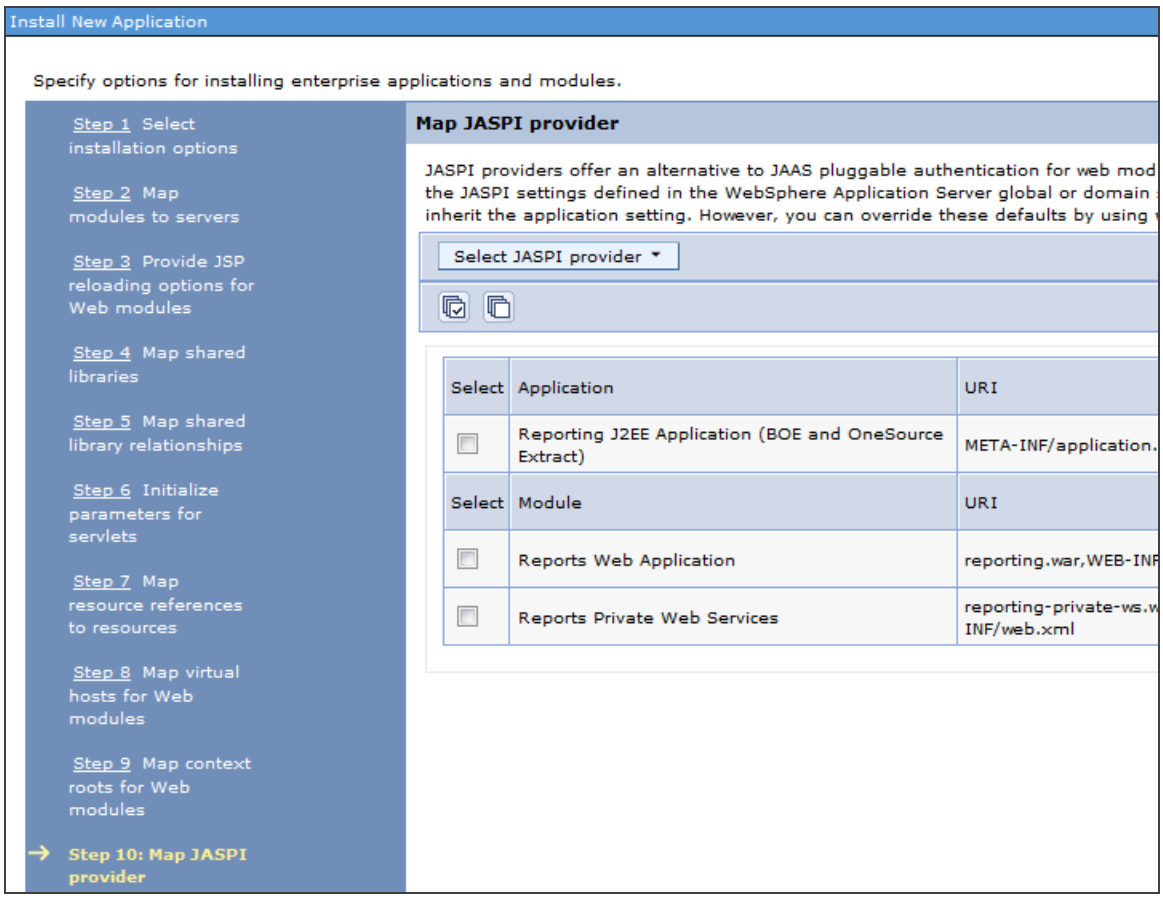
13. On **Step 8: Map virtual hosts for Web modules**, click **Next**, unless you want to specify the virtual host.



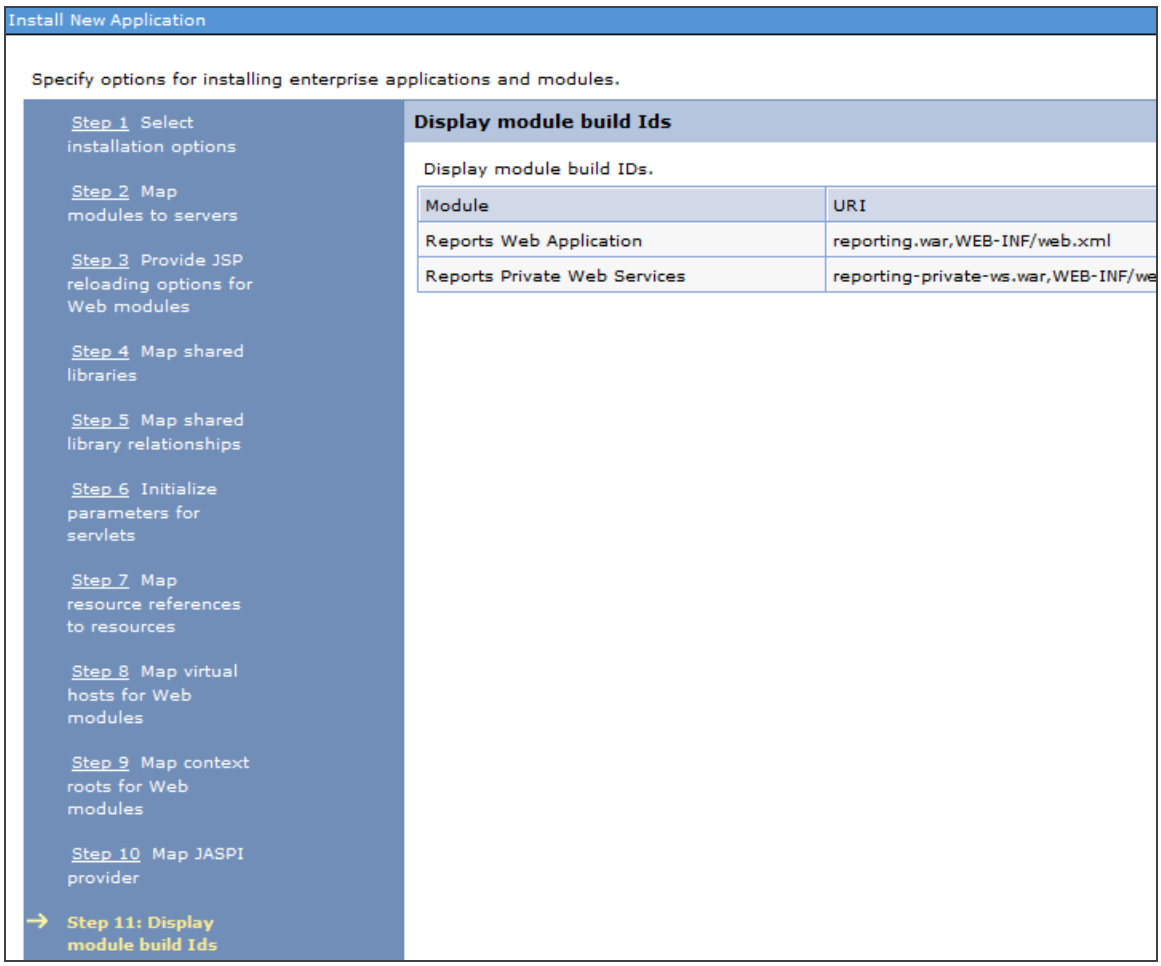
14. On **Step 9: Map context roots for Web modules**, click **Next** to accept the defaults.



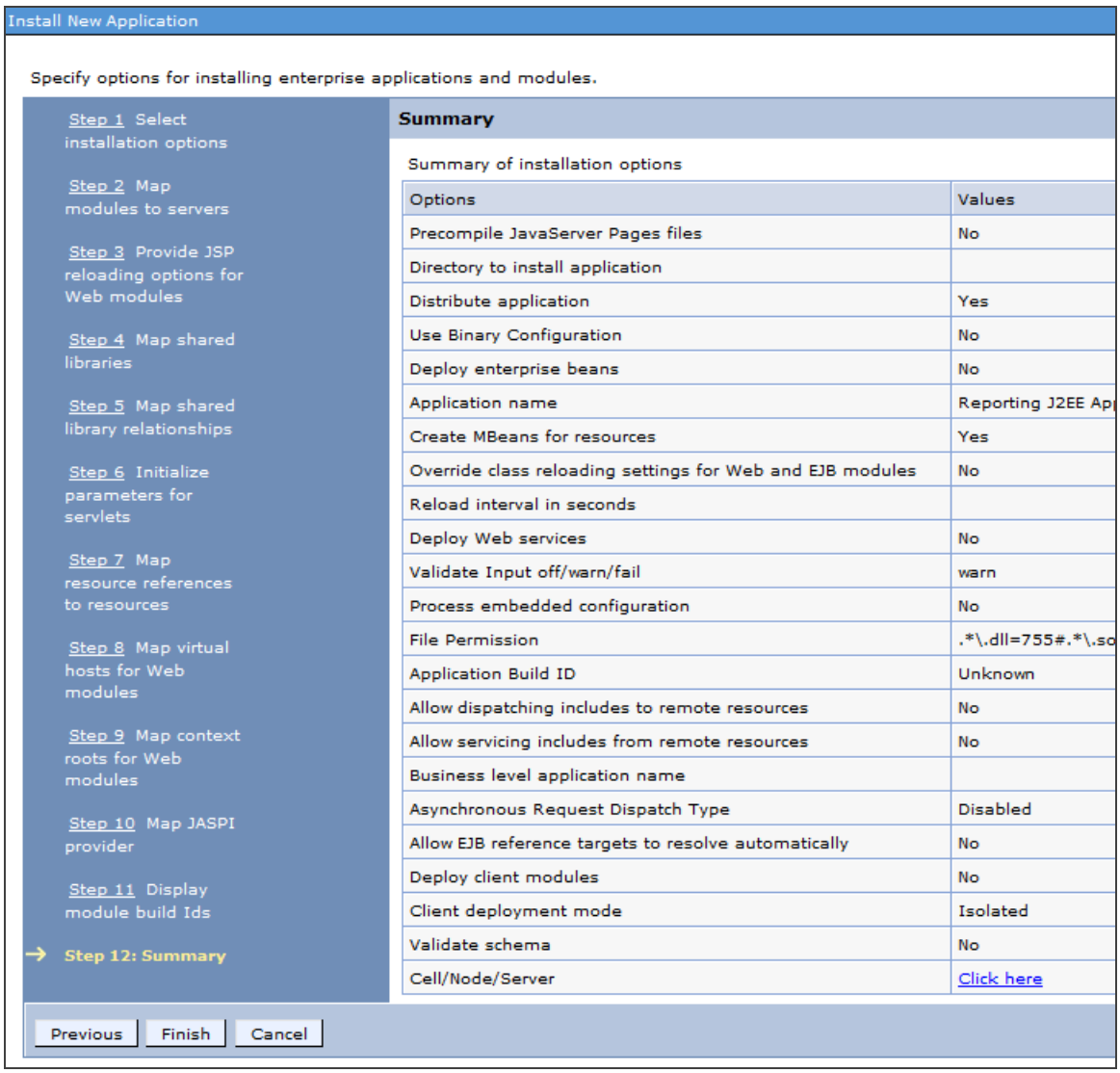
15. On **Step 10: Map JASPI provider**, click **Next** to accept the defaults.



16. On **Step 11: Display module build Ids**, click **Next** to accept the defaults.



17. On **Step 10: Summary**, click **Finish**, unless you need to return to the previous steps to make corrections.

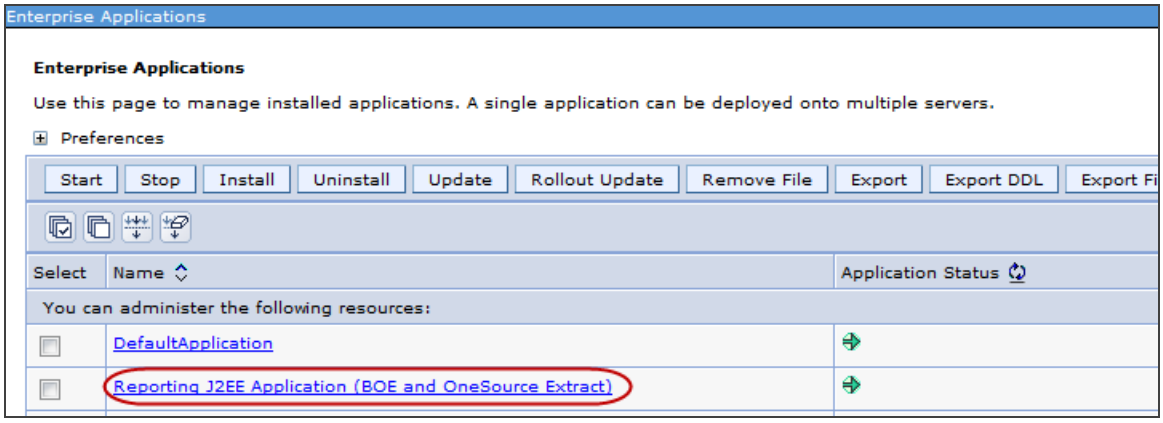


18. When the deployment finishes, click **Save directly to the master configuration**.

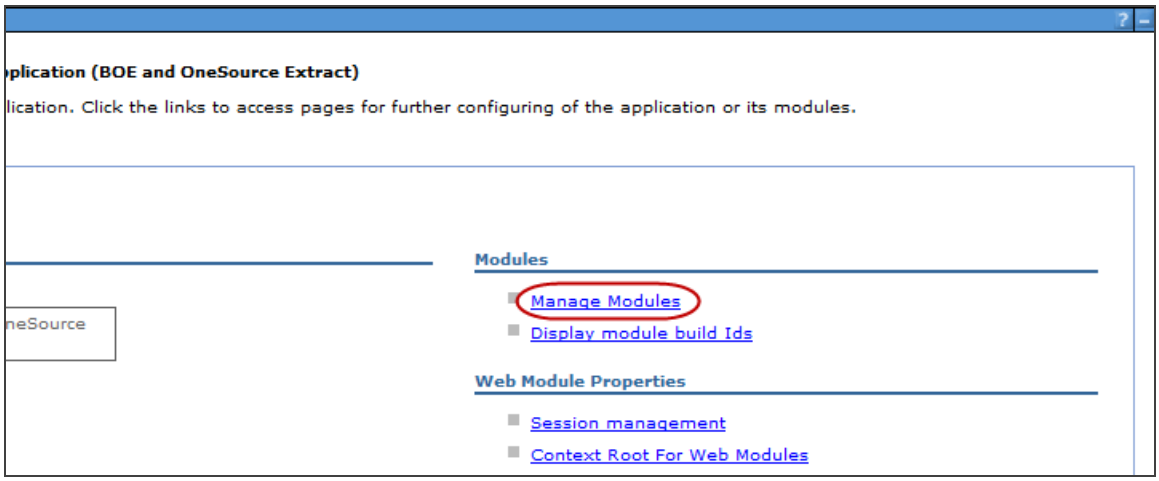
Configuring Class Loading

Set up class loading for the Reporting application.

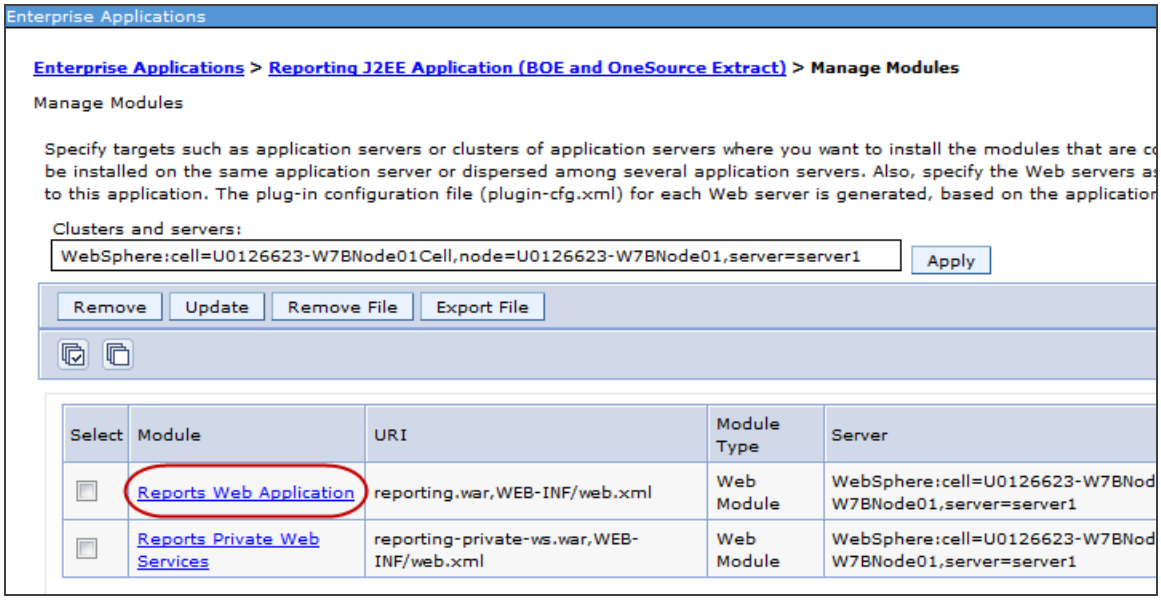
1. Go to **Applications > Application Types > WebSphere enterprise applications**.
2. Click **Reporting J2EE Application (BOE and OneSource Extract)**.



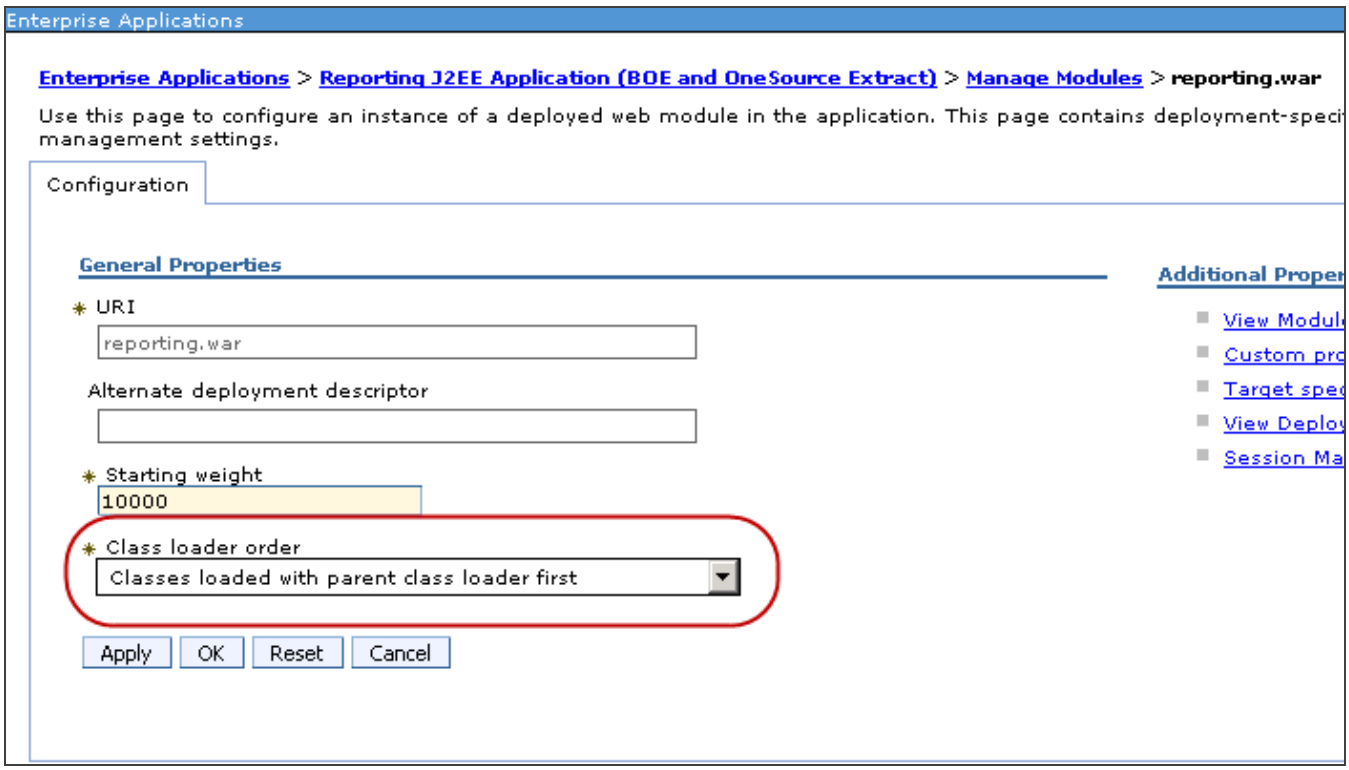
3. Under **Modules**, click **Manage Modules**.



4. Click **Reports Web Application**.

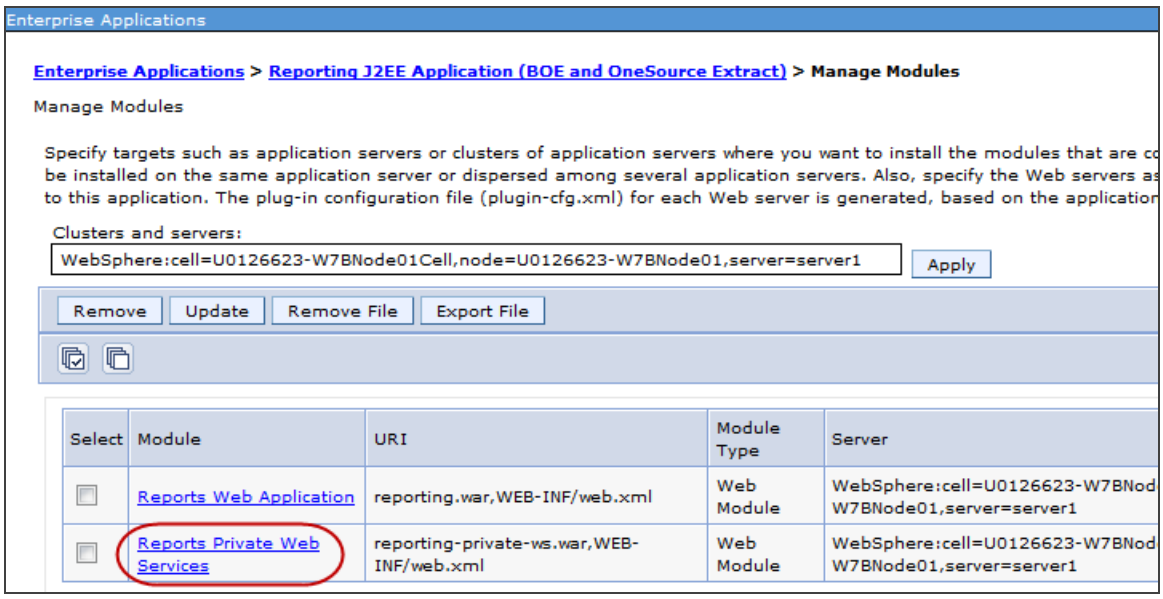


5. Confirm that **Classes loaded with parent class loader first** is selected for **Class loader order**.

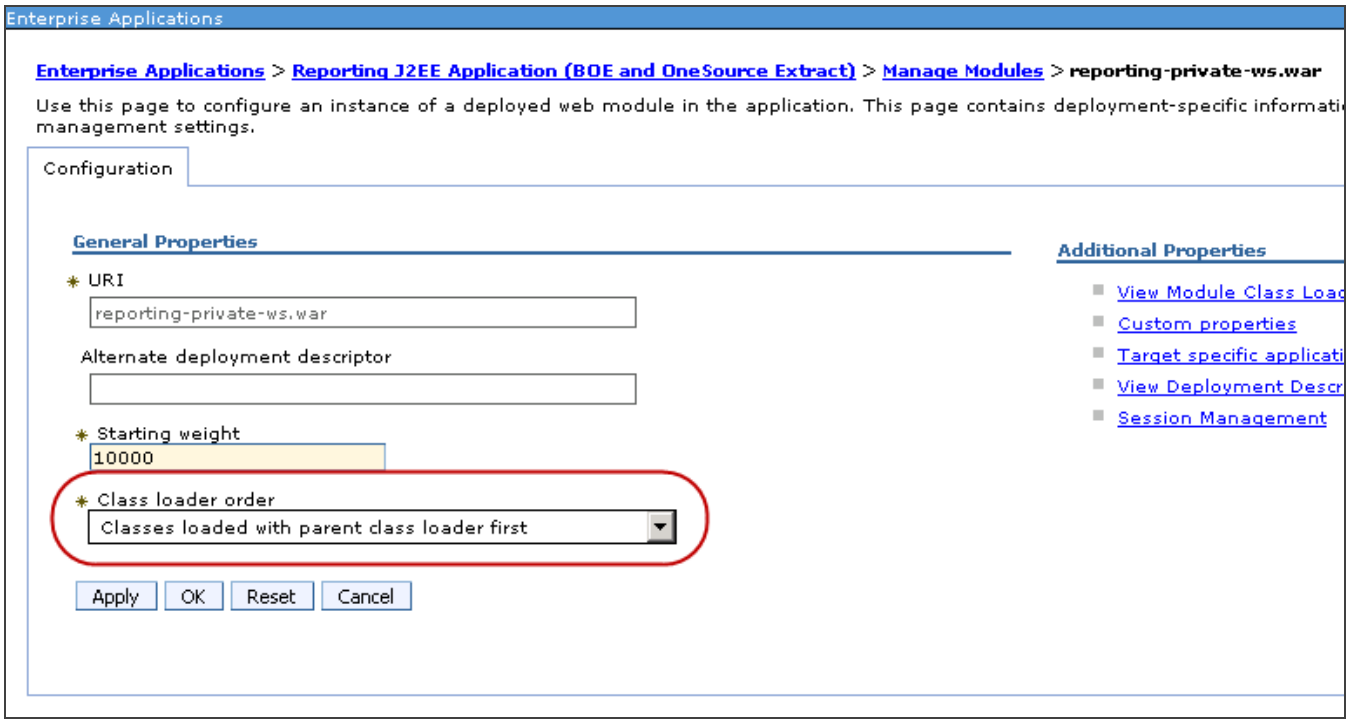


6. Click **Save directly to the master configuration**.

7. Click **Reports Private Web Services**.



8. Confirm that **Classes loaded with parent class loader first** is selected for **Class loader order**.

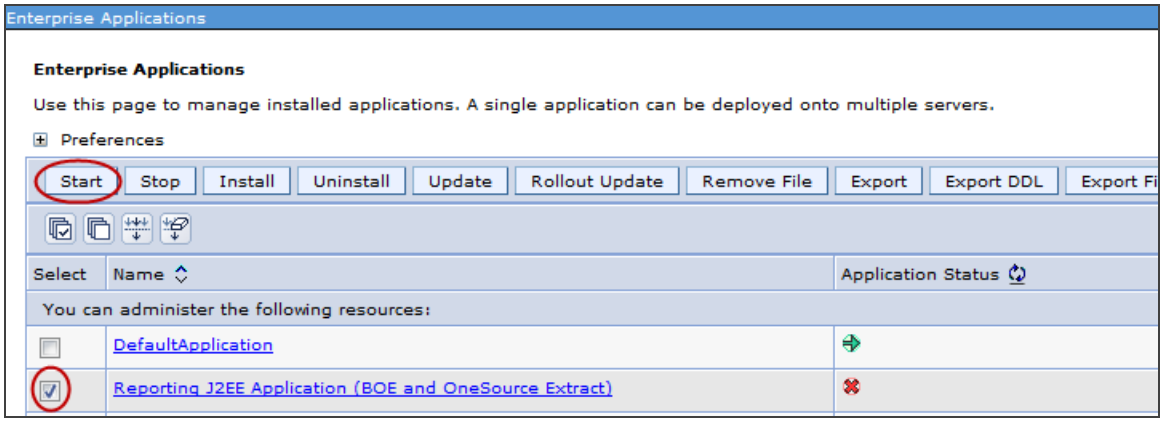


9. Click **Save directly to the master configuration**.

Restarting Server

When you finish the class loading configuration, restart the server.

1. Go to **Applications > Application Types > WebSphere enterprise applications**, select the Reporting application, and then click **Start**.



2. Wait a few minutes to allow the application to initialize.
3. Open a browser and enter the Reporting URL (http://<host>:<port>/reporting). Reporting is running if the logon page loads.

   You will not be able to log on until you complete the ETLs later.

4. If you reach the Reporting logon page, continue to the section Initial ETL Configuration (page 153). If the logon page does not load, double check your previous settings.

TRANSACTION EXTRACT REPORT CONFIGURATION

On the Transaction Extract Report, it is possible to configure the number of decimal places visible in the **Tax Rate** field for the .CSV format output.

Tax Rate is the only field that supports this functionality.

To modify the decimal places, you must change the value directly in the database. The table below shows the database table RC_COLUMN_ALIAS_OVERRIDE in the control schema that contains these defaults (this is usually SBXRPTCTRL). To change these, you must update the table, either using SQL or a database management tool.

COLUMN NAME	DEFAULT VALUE	DESCRIPTION
SCALE	6	Number of digits to the right of the decimal.  This value is rounded appropriately. For example, if setting the value to **6** results in 0.123456, then setting the value to **4** for the same number would result in 0.1235, and so on.

INITIAL ETL CONFIGURATION

After you install and deploy Reporting, load your Reporting data and users using the ETL process. The basic installation is complete after you complete these tasks.

You cannot log on to Reporting before you ETL audit data.

You must ETL your audit data prior to the user data because company data from the transactions is required for successful user setup.

There is an optional ETL called ERP_Recon_Load that is not discussed here. You can use it to transfer data related to financial system reconciliation. See Reporting Help for details.

THE FIRST REPORTING DATA ETL

The first time you transfer data from your Audit database to the Reporting database, you need to decide how much data to make available to the reports. This block of data is marked at the beginning by a starting date and at the close by an ending date. You can either ETL your data all at once or, if you have a lot of data, you can divide it into smaller blocks to ETL sequentially.

If you have a large amount of data and prefer to divide it into a series of ETLs, the recommended routine is to supply a starting date and ending date only for the first ETL. For the subsequent ETLs, you do not specify any dates; instead, you choose a load type (a pre-set block of time) of DAILY, WEEKLY, or MONTHLY. For subsequent transfers after that first ETL, the system knows when to start and stop if you specify one of these load types.

Determining the Start Date

Because the ETL process is designed to begin at a historical date and progress toward the current date, it is important that you carefully choose the date from which you want to begin loading data to the Reporting database.

The ETL process requires you to load data in chronological order, starting from a certain date. While you could insert date gaps between the data, you must follow a chronological pattern. For example, if you ETL data from July 2010, August 2010, and October 2010, you cannot go back and ETL data from September 2010.

If you decide later that you really wanted to start your ETL from an earlier date, you can remove data

We suggest that you pick a start date that is the first day of the first month for which you want to report on audit data. If you are interested in starting with the oldest creation date in your Audit database, you could use the following procedure to determine that date:

1. Using your database query tool, log on to your database to look at the Audit tables (in SBXAUD).
2. Enter the following command:

```
1    SELECT MIN(CREATION_DATE) FROM TB_INVOICES;
```

3. Note the creation date returned. Disregard the time portion of the date; your first ETL session will include all invoices audited on the given date. The ETL uses inclusive start dates (all the data including the start date) and exclusive end dates (all the data before the end date).

Determining the End Date

This is the end date of the first block of data you want to transfer. The ETL gathers records with dates less than this date; in other words, it does not include data from this day.

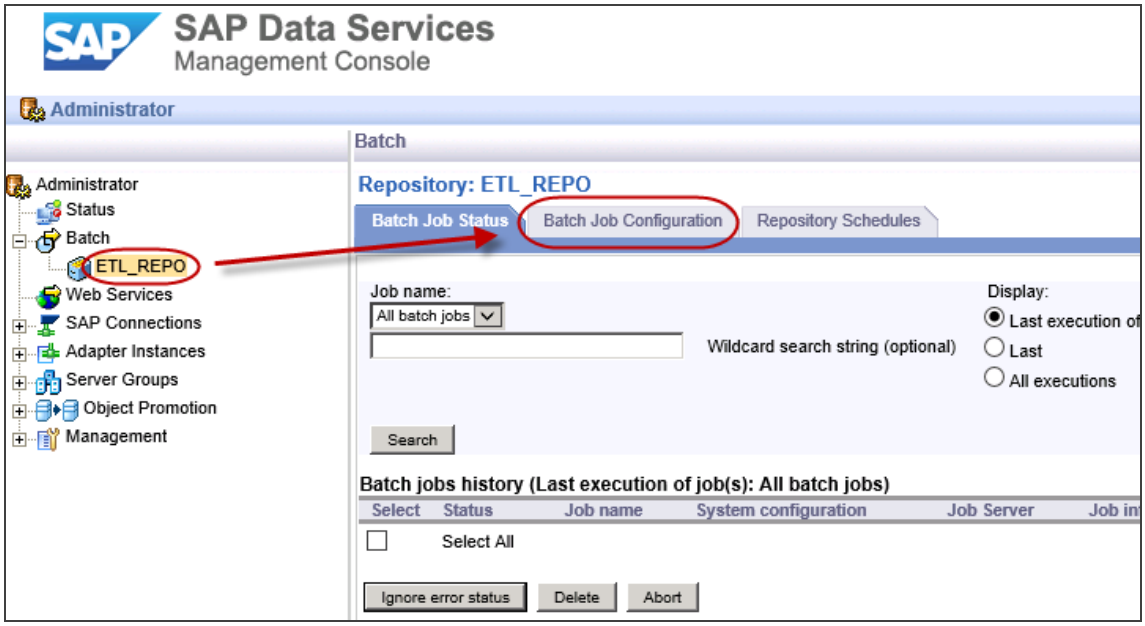
If you are transferring a small number of transactions, you could use today's date by leaving the field blank; however, if you need to transfer many transactions spanning many years, we recommend that you divide this into smaller blocks. If you need to ETL a large volume of data, use the end date of the first block.

Configuring and Running the First Data Load

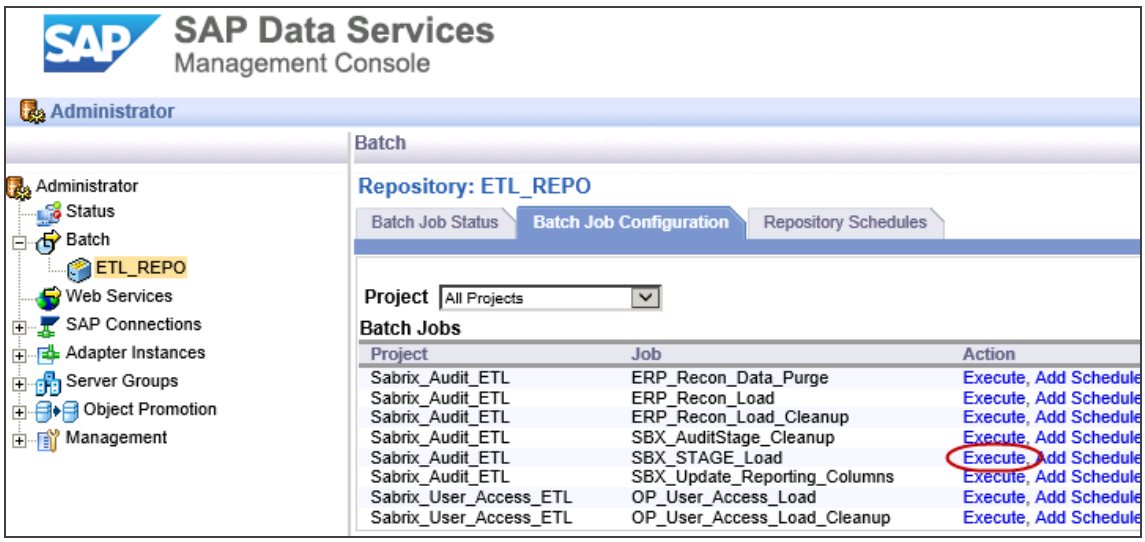
If you will be running the EC Sales list reports, you need to activate the EC Sales list process before transferring data. See Setting Default ETL Configurations (page 174) for details.

Once you have determined the start date for your reporting data, return to the SAP BusinessObjects Data Services Management Console to set up and run the ETL process.

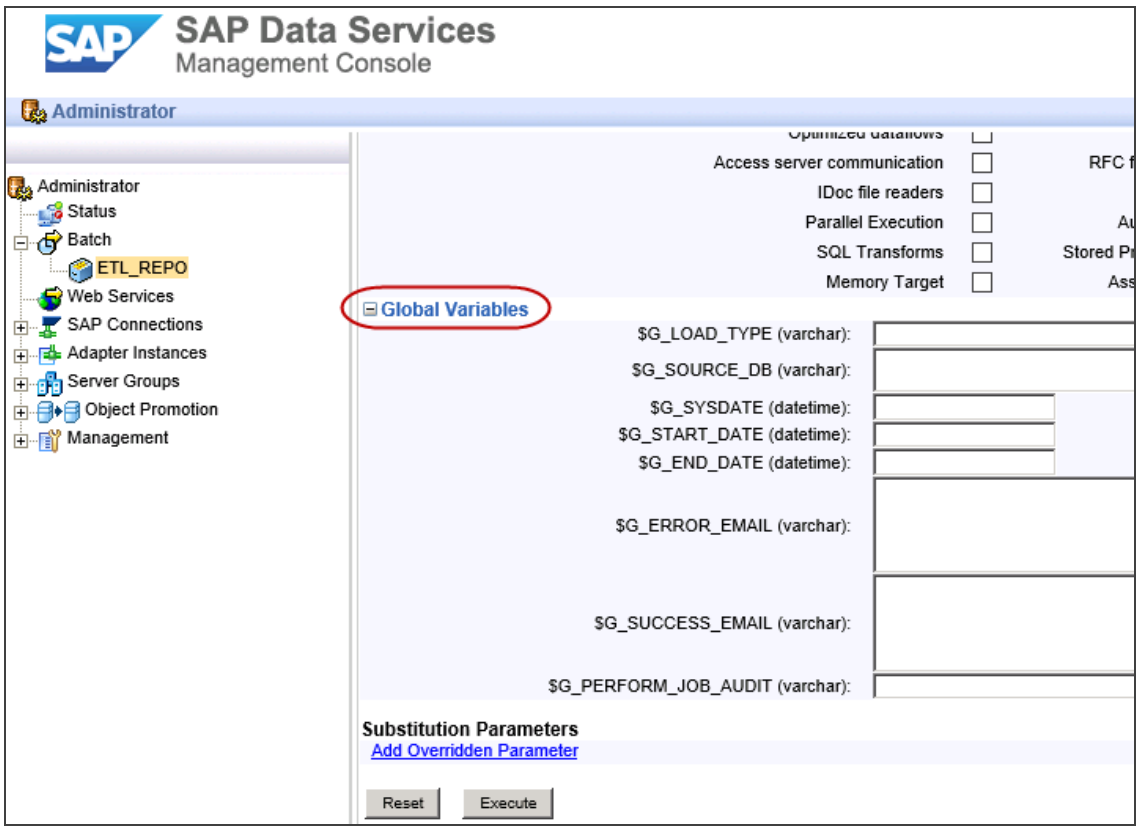
1. Click the ETL repository under the **Batch** node, and then click the **Batch Job Configuration** tab.



2. Find the job **SBX_STAGE_Load** and then click **Execute**.



3. Scroll down to the bottom of the page, and then expand the **Global Variables** node.

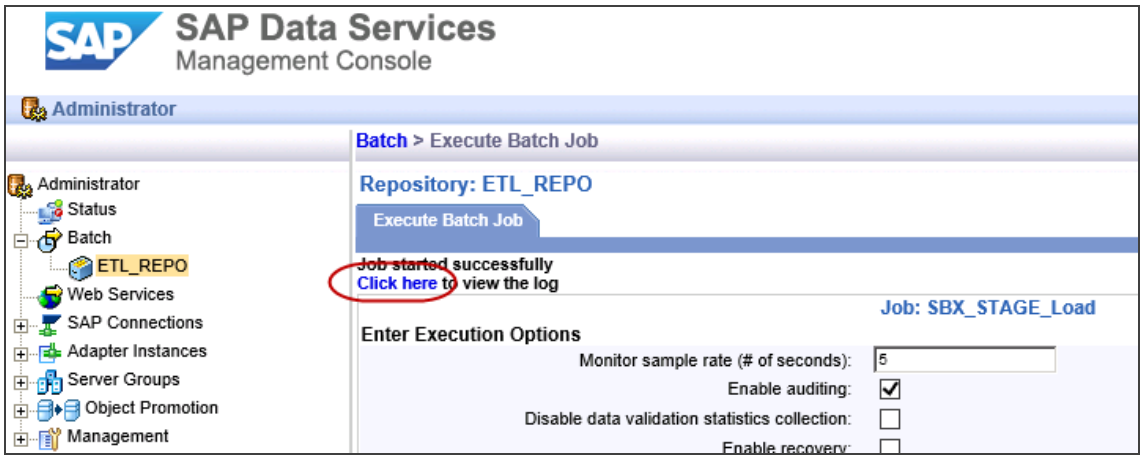


4. Enter the **Global Variables** in the table below:

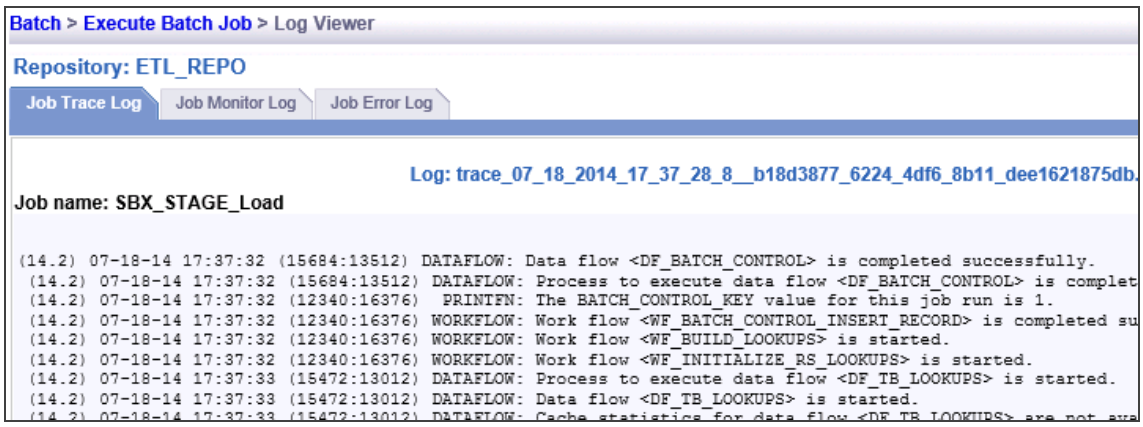
FIELD	VALUE
$G_LOAD_TYPE	Enter **'CUSTOM'** (The single quotes are required. Case does not matter.) If you will be transferring data in calendar units, you can use 'DAILY', 'WEEKLY', or 'MONTHLY'. 'CURRENT' is also a valid value, and this brings all your data from the start date to the current date (or 90 days if current date is beyond). Use caution with this if you have large amounts of data for your first ETL.  If you omit the start date for any of these load types, the ETL goes back to the shorter of 90 days or to the previously completed ETL.
$G_SOURCE_DB	Skip this configuration.
$G_SYSDATE	Skip this configuration.
$G_START_DATE	Enter the date you chose as the first day of your date range, using the format 'YYYY.MM.DD' (the single quotes are required). For example, if you want to perform an ETL starting from July 2008, your start date would be this: '2008.07.01' The ETL gathers records with dates either greater than or equal to this date.  If you omit the start date for any of these load types, the ETL goes back to the shorter of 90 days or to the previously completed ETL.

FIELD	VALUE
$G_END_DATE	This is the end date of the first block of data you want to transfer. The ETL gathers records with dates less than this date; in other words, it does not include data from this day. If you are transferring a small number of transactions, you could use today's date by leaving the field blank; however, if you need to transfer many transactions spanning many years, we recommend that you divide them into smaller pieces. In the case of large volumes to ETL, this would be the last date for the first piece. If you did not use 'CUSTOM' for your load type, leave this value blank.
$G_ERROR_EMAIL	Skip this configuration.
$G_SUCCESS_EMAIL	Skip this configuration.
$G_PERFORM_JOB_ AUDIT	Set this value to 'N' (single quotes are required).

5. Click **Execute** after you enter the global parameters.
6. At the top of the **Execute Batch Job** tab, click **Click here** to view the log.



7. In the **Job Trace Log** tab, click **View From End** in the upper right corner. When the job completes, a success message appears.



8. If you are performing many smaller ETLs (instead of one large one), repeat the previous steps, but choose a $G_LOAD_TYPE of DAILY, WEEKLY, or MONTHLY. You only need to specify a start date if you wish to leave gaps in your data; otherwise, the system will automatically start where the previous ETL ended. Repeat this process until your Reporting database is populated with data up to the current day. When this is complete, see the next section for details about scheduling ongoing ETLs to keep your data current.

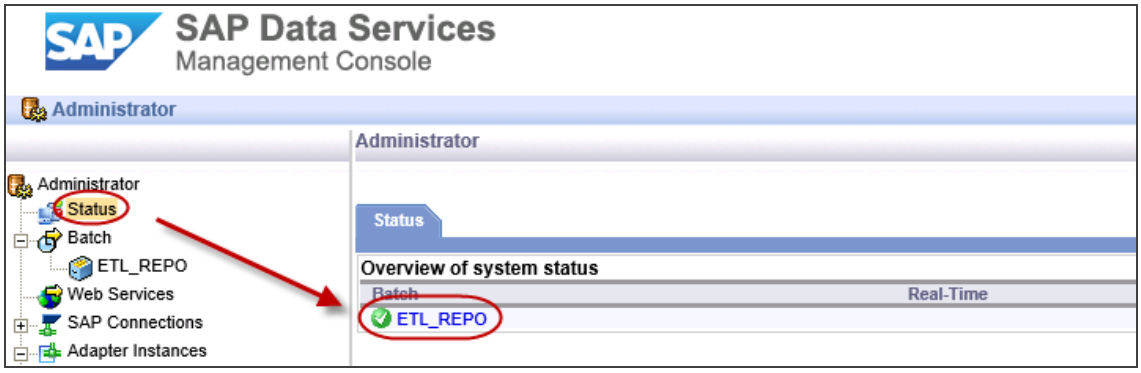
The ETL does not support concurrent processing. If an ETL process is already running when you invoke a second ETL session, you will receive an error on the second process.

Once you complete the ETL(s) for your initial load, we recommend that you run statistics in your database to ensure that you have the best possible performance when you begin running reports.

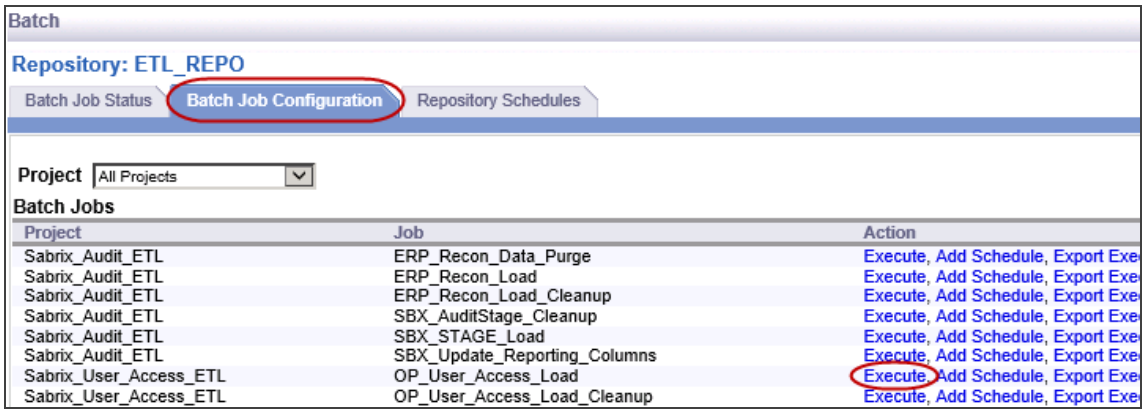
USER ETL

Now that you have loaded the Reporting data, add users to the system so they can begin running reports. Users are copied from the Tax database via an ETL process. Before you perform this user load, confirm that your users have the Report Console User role in ONESOURCE Indirect Tax Determination. If you need help with this, check the Determination Help.

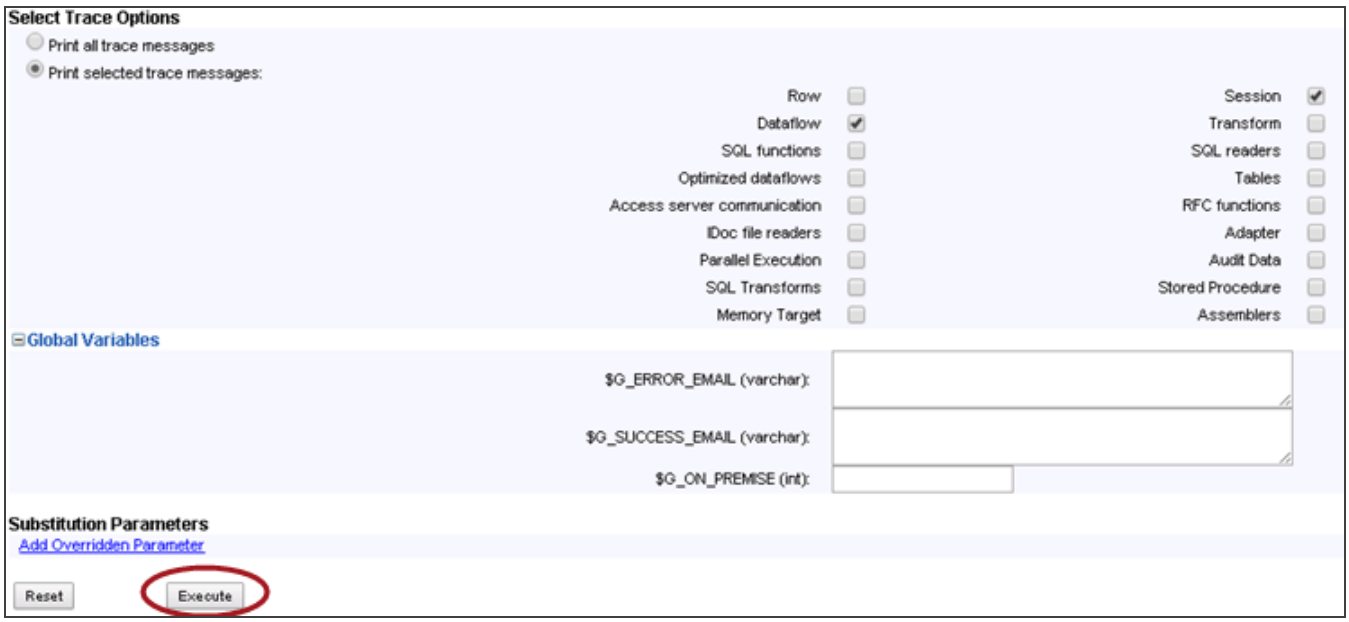
1. Click the **Status** node in the left pane, and then click your ETL repository in the right pane.



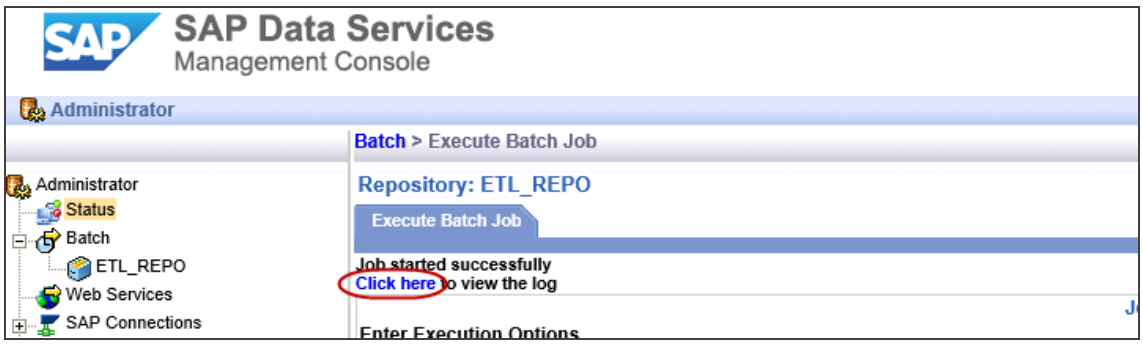
2. Click the **Batch Job Configuration** tab, and then click **Execute** for the job **OP_USER_Access_Load**.



3. Accept the default parameters, and then click **Execute** at the bottom of the page.



4. To view the log, click **Click here** at the top of the **Execute Batch Job** tab.



5. In the **Job Trace Log** tab, click **View From End** in the upper right corner. When the job completes, a success message appears.

After the User ETL successfully completes, you are finished with the installation. You can log on to Reporting (http://<host>:<port>/reporting/).

To access Reporting from the ONESOURCE Indirect Tax Determination menu, you must enable the Determination configuration parameter SABRIX_REPORTS_URL. The value for this configuration parameter is http://<host>:<port>/reporting/service/, which is different from the URL you use directly with a browser (http://<host>:<port>/reporting). For more information about setting configuration parameters, see Help for Determination.

SECURE YOUR INSTALLATION

Once you have completed the installation of Reporting and verified that it was successful, you must secure the installation package. The Reporting installation package includes XML and log files, which contain sensitive authentication information.

Complete the following steps to enhance security:

1. Navigate to the directory where you unzipped *ONESOURCEIDTReporting_68xxx.zip*.
2. Move the entire unzipped Reporting software package to a secure location off of the host server.

   You may need files contained in the installation package for future Reporting updates, such as when you change database credentials.

3. Encrypt the relocated Reporting installation package using your organization's standards.
4. Delete the unencrypted ZIP file from the original download directory and remove it from your temporary storage for deleted files.

ETL ADMINISTRATIVE TASKS

There are several optional tasks you can perform to refine the ETL processing.

SCHEDULING ETL PROCESSES

After you complete the initial ETL loads, schedule subsequent ETLs to keep your data current. First review the material below about the ETL load type and then proceed to the section about scheduling ETLs.

The ETL Load Type

Just as you set the start and end dates for your first series of ETLs, choose a time range for your ongoing ETLs. This is done by selecting the appropriate load type. Each time you run the ETL process, the date and time of your last run is automatically recorded. For example, if you completed your initial database load on April 30, 2011 and you set up a monthly load, the ETL automatically knows to start on May 1, 2011. The ETL tracks down to the millisecond, so you do not have to run only for complete days. Here are the load type options:

$G_LOAD_TYPE	DESCRIPTION
'MONTHLY'	Use this load type if you plan to run the ETL monthly. If your last ETL ended on the 15th of the month and you scheduled a monthly ETL, the process would move the data starting from the 16th to the last day of the month.
'WEEKLY'	Use this load type if you plan to run the ETL weekly. This type only moves up to a week of data. So, if your Reporting data were in a state where it had not been updated for three weeks, you would need to run this type three times to bring your Reporting data to the current date.
'DAILY'	Use this load type if you plan to run the ETL daily. This type only moves up to one day of data per ETL.

$G_LOAD_TYPE	DESCRIPTION
'CURRENT'	Use this load type if you plan to run the ETL several times per day. This load type always updates your Reporting data from the last ETL date to the current date and time.
'CUSTOM'	Use this load type to create special ETL date ranges. Custom is not recommended for ongoing ETL processes because it is possible to skip data when setting a start date.

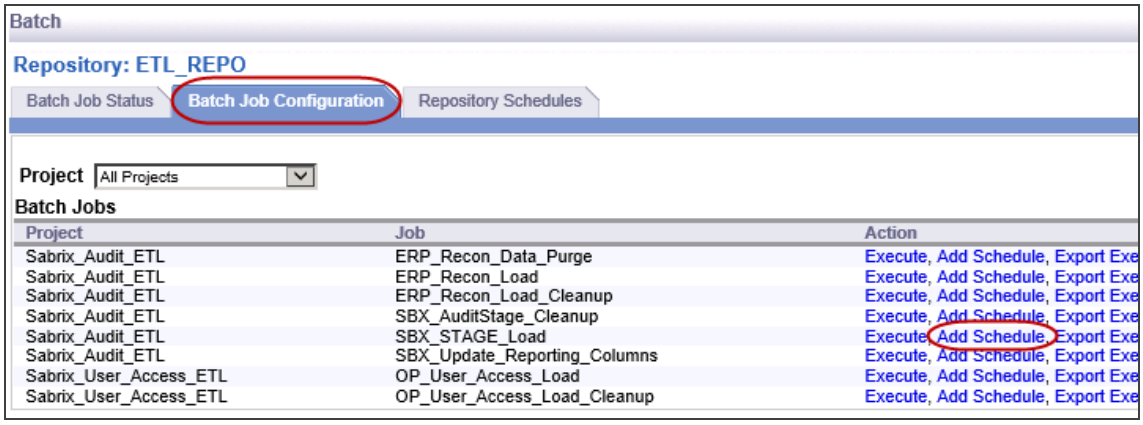
The load type 'CURRENT' is the recommended option for ongoing ETLs.

If you omit the start date for any of these load types, the ETL goes back to the shorter of 90 days or to the last completed ETL.

The ETL Schedule

Return to the SAP BusinessObjects Data Services Management Console.

1. In the left pane, expand the **Batch** node, and then click your ETL repository.
2. In the right pane, click the **Batch Job Configuration** tab, and then click **Add Schedule** for the job **SBX_STAGE_Load**.



3. Complete the **Schedule Batch Job** fields listed below:

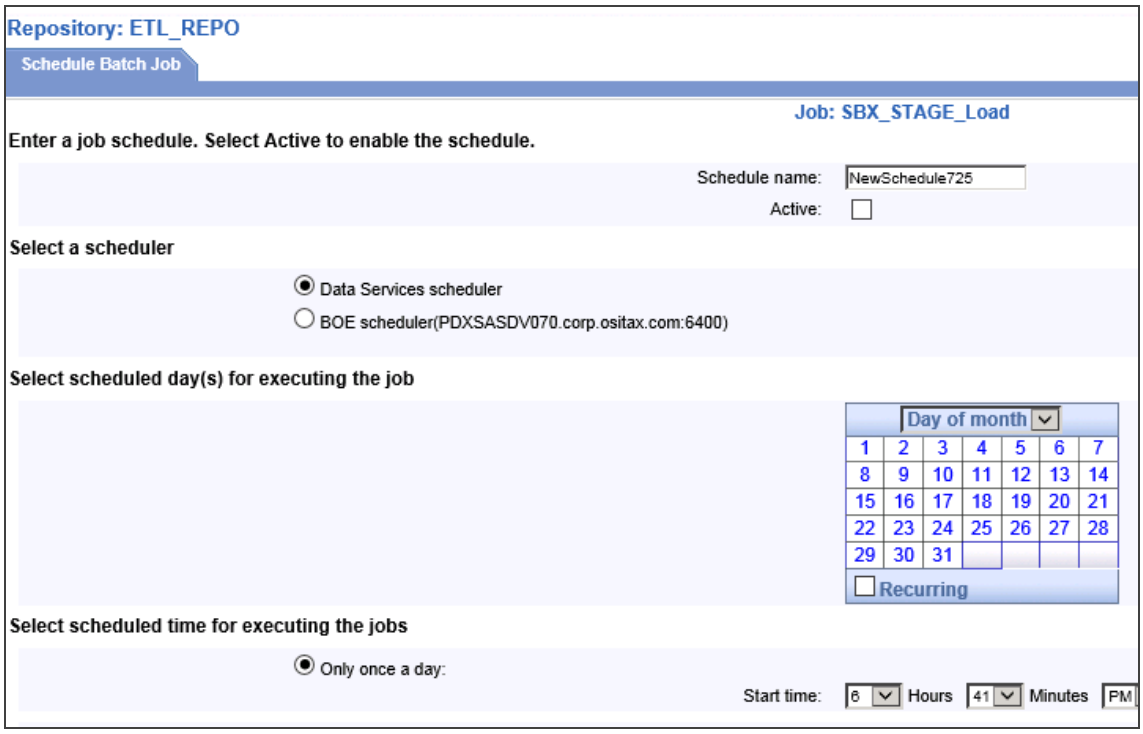
SECTION: ENTER A JOB SCHEDULE	
Field	**Value**
Schedule name	Enter a description to identify the schedule, such as "Daily."

SECTION: SELECT A SCHEDULER	
Field	**Value**
Data Services scheduler	Under **Select a scheduler**, ensure this is selected.
Select scheduled day(s) for executing the job	
Field	**Value**
Calendar	Select either **Day of Week** or **Day of Month** from the drop-down and click the days you want the ETL to run.
Select scheduled time for executing the jobs	
Field	**Value**
Only once a day	To run this only once per day, select the **Start time**, **hours**, and **minutes**.
Multiple times per day	To run this multiple times a day, complete these fields: • **Start time**, **Hours**, and **Minutes** at which the schedule becomes active each day. • **Duration**: This is the length of the time you want the scheduler to be active in minutes—not the duration of the ETL process. As an example, you might insert **1439** to keep the scheduler active for an entire day. • **Repeat interval (minutes)**: This is how often you want the ETL to run while the schedule is active. For example, to have the ETL run every 10 minutes every day starting at midnight, you would set the following: ◦ Start Time: 12:00:00 AM ◦ Duration: 1430 minutes ◦ Repeat Interval: 10 minutes

SECTION: ENTER A JOB SCHEDULE	
Field	**Value**
Schedule name	Enter a description to identify the schedule, such as "Daily."

SECTION: SELECT A SCHEDULER	
Field	**Value**
Data Services scheduler	Under **Select a scheduler**, ensure this is selected.
Select scheduled day(s) for executing the job	
Field	**Value**
Calendar	Select either **Day of Week** or **Day of Month** from the drop-down and click the days you want the ETL to run.
Select scheduled time for executing the jobs	
Field	**Value**
Only once a day	To run this only once per day, select the **Start time**, **hours**, and **minutes**.

SECTION: SELECT A SCHEDULER	
Multiple times per day	To run this multiple times a day, complete these fields: • **Start time**, **Hours**, and **Minutes** at which the schedule becomes active each day. • **Duration**: This is the length of the time you want the scheduler to be active in minutes—not the duration of the ETL process. As an example, you might insert **1439** to keep the scheduler active for an entire day. • **Repeat interval (minutes)**: This is how often you want the ETL to run while the schedule is active. For example, to have the ETL run every 10 minutes every day starting at midnight, you would set the following: ◦ Start Time: 12:00:00 AM ◦ Duration: 1430 minutes ◦ Repeat Interval: 10 minutes

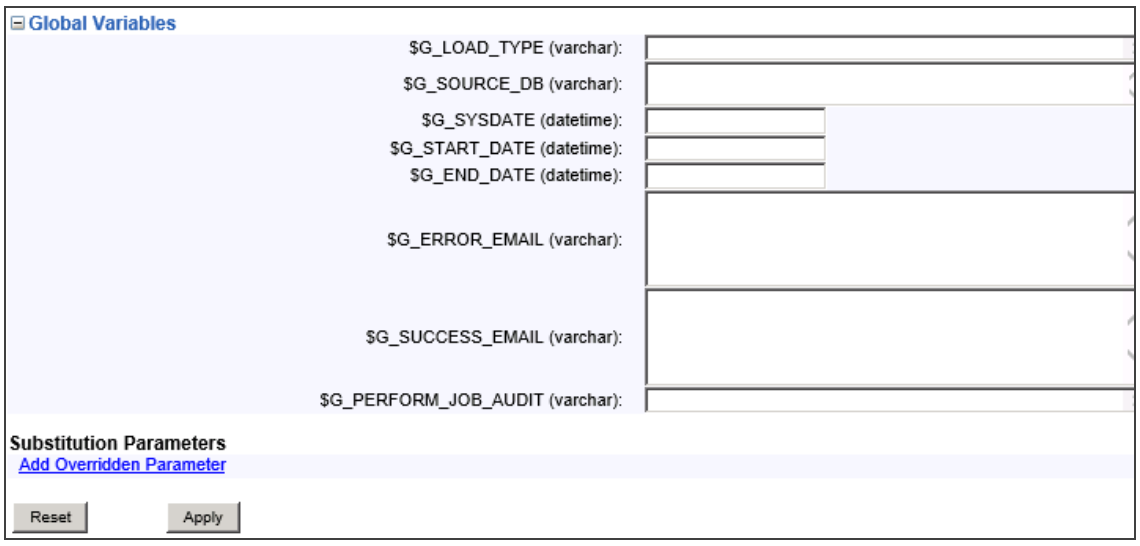


To prevent multiple ETLs from trying to start at the same time, keep the duration shorter than 24 hours (1440 minutes).

4. Expand the **Global Variables** node and scroll down so you can view all the parameters in that section. Complete the fields listed in the table below:

FIELD	VALUE
$G_LOAD_TYPE	Enter one of the following: • **'CURRENT'** • **'MONTHLY'** • **'WEEKLY'** • **'DAILY'** • **'CUSTOM'** (not recommended for ongoing ETLs)  The single quotes are required. Case does not matter.
$G_SOURCE_DB	Skip this configuration.
$G_SYSDATE	Skip this configuration.
$G_START_DATE	Leave blank unless you are using **'CUSTOM'**. Use this format: 'YYYY.MM.DD' (the single quotes are required).  The ETL gathers records with dates that are either greater than or equal to the start date.
$G_END_DATE	Leave blank unless you are using **'CUSTOM'**. Use this format: 'YYYY.MM.DD' (the single quotes are required).  The ETL gathers records with dates less than this date; in other words, it does not include data from this day.

FIELD	VALUE
$G_ERROR_EMAIL	To receive email notifications about errors, enter an email address in this format: 'name@domain.com' (the single quotes are required). Additionally, you need to configure your SMTP server. See Configuring ETL Email Notification (page 177). To send notifications to several recipients, create an email group and insert that address here.
$G_SUCCESS_EMAIL	To receive email notifications about completed jobs, enter an email address in this format: 'name@domain.com' (the single quotes are required). Additionally, you need to configure your SMTP server. See Configuring ETL Email Notification (page 177). To send notifications to several recipients, create an email group and insert that address here.
$G_PERFORM_JOB_ AUDIT	Set this value to 'Y' (single quotes are required) if you want the ETL to log the number of records processed for each company. See the section below for details about how to access this data.



5. Click **Apply** after you complete the global variables.
6. Check **Active** at the top of the page, and then click **Apply** at the bottom of the page.

SETTING DEFAULT ETL CONFIGURATIONS

The ETL process has a variety of default values. You can adjust these values by changing their values directly in the database. The table below shows the database table RS_NAME_VALUES in the control schema that contains these defaults (this is usually SBXRPTCTRL). To change these, you must update the table, either using SQL or a database management tool.

NAME	DEFAULT VALUE	DESCRIPTION
DEFAULT CURRENT TIME OFFSET	0.006944444444	This is the number of minutes subtracted from the end time of the ETL when the load type 'CURRENT' is selected. This offset helps you avoid loading incomplete transactions from Audit. It is expressed as the decimal of the time offset divided by the total number of minutes in a day (1440). The default value is 0.006944444444, which is “10 minutes”/”1440 minutes.” For example, if you were to specify an ETL range up to 1:00 PM, the actual ETL would stop gathering records stamped with 12:50 PM. If your Audit and Reporting databases are configured with different time zones (and they must remain in these time zones), you need to adjust the value of this offset to compensate for the time difference.
DEFAULT ESL PERSPECTIVE	X	This value is used by logic in the ETL while processing EC Sales audit data when no value is found for the Reporting VAT Number, Buyer Country, or Customer VAT Number. A value of **X** for Reporting VAT Number or Buyer Country eliminates that tax record from EC Sales reporting. If the DEFAULT ESL PERSPECTIVE value other than **X** is returned for one of these data elements and the tax record is identified for EC Sales reporting, then that value will display on the ESL report for that tax.
DEFAULT LOAD TYPE	CURRENT	Valid values are CURRENT, MONTHLY, WEEKLY, DAILY, and CUSTOM.

NAME	DEFAULT VALUE	DESCRIPTION
DEFAULT PERFORM JOB AUDIT	Y	This signals the ETL to record details about the data processed, such as the number of records transferred per company. The other valid value is **N**. If this is turned on, you can find the ETL details in the Job Monitor Log of the SAP BusinessObjects Data Services Management Console.  This option may affect performance, so we recommend you turn this off if you are not using this data.
ESL	Y	If you are not using the EC Sales Report, set this value to **N** (case sensitive). The default is **Y**. The value controls whether the ETL should perform the EC Sales Report processing.
JOB LOG	N	This flag controls whether an audit of your ETL is made. The other valid value is **Y**. This is typically used only for troubleshooting.

<table>
<tr><th>NAME</th><th>DEFAULT VALUE</th><th>DESCRIPTION</th></tr>
<tr><td>RUN TO CURRENT PERIOD FLAG</td><td>N</td><td>The value is used for ETL Load Type of DAILY, WEEKLY and MONTHLY to determine the End Date for the job. Values are Y and N (case insensitive). The default N is used if no record is found or if an unsupported value is found.
DAILY
If the value is Y then the ETL End Date will be midnight of Start Date.
If the value is N then the ETL End Date will be midnight of the day after Start Date.
WEEKLY
If the value is Y then the ETL End Date will be midnight of Sunday of the week for Start Date.
If the value is N then the ETL End Date will be midnight of Sunday of the next week for Start Date.
MONTHLY
If the value is Y then the ETL End Date will be midnight of the first day of the month for Start Date.
If the value is N then the ETL End Date will be midnight of the first day of the next month for Start Date.
If Start Date = 25-Feb-2011, the following table shows the DAILY, WEEKLY and MONTHLY End Dates.<table><tr><th>LOAD TYPE</th><th>VALUE = Y</th><th>VALUE = N</th></tr><tr><td>DAILY</td><td>25-Feb-2011</td><td>26-Feb-2011</td></tr><tr><td>WEEKLY</td><td>20-Feb-2011</td><td>27-Feb-2011</td></tr><tr><td>MONTHLY</td><td>1-Feb-2011</td><td>1-Mar-2011</td></tr></table></td></tr>
</table>

NAME	DEFAULT VALUE	DESCRIPTION
REPORTING ADDRESS VALIDATION STATUS	CORRECTED	Reserved for future use.
DEFAULT EMAIL		This is an optional default you could add using SQL. This is the email address to send messages if none is entered for the ETL.

CONFIGURING ETL EMAIL NOTIFICATION

To use the automatic email notifications during ETL processing, you must add your SMTP information to the system.

1. Sign in as the same user who installed Reporting.
2. Navigate to the <*SAPBaseDirectory/dataservices/bin* directory.
3. Start the SAP BusinessObjects Data Services Server Manager Utility by running the following command (you need the leading dot-space-dot):

```
. ./al_env.sh
```

4. Run the following the **svrcfg** command:

```
./svrcfg
```

5. Enter **5** for the menu option **5 : Configure SMTP**.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 5
```

6. Select **e** to edit the existing configuration.

```
------------------------------------------------------------------------

  ** current SMTP settings for smtp_to function **

------------------------------------------------------------------------

       Server                          Sender
 -------------------------    ----------------------------------------

          -                                 -

------------------------------------------------------------------------

e: Edit Configuration       q: Quit

Enter Option: e
```

7. For **SMTP Server**, enter the name or IP address of your SMTP server, and then press ENTER.
8. For **Sender**, enter the name of the sender of the notifications, for example, **ETL_ Notifications@yourcompany.com**. This account must include the @ symbol. When you are finished, press ENTER.
9. Your new settings appear. Press **q** to quit and return to the main menu.

GATHERING ETL STATISTICS

By default, the system does not gather ETL statistics because the default value of the JOB_LOG parameter is set to **N**. To record ETL statistics, set JOB_LOG to **Y** (see JOB_LOG under Setting Default ETL Configurations (page 174)). Note that a value of **Y** can affect ETL processing performance.

If the JOB_LOG parameter is set to **Y**, a record of the run details is written to the database each time you run the ETL process. Use a database query or management tool to view the results in the table SBXRPTAUD.RS_JOB_COMPANY_AUDITS. The columns available to query include:

- MERCHANT_ID
- NAME
- BATCH_CONTROL_KEY
- DOCUMENTS_LOADED
- LINES_LOADED
- INVOICE_RECORDS_LOADED
- LINE_RECORDS_LOADED
- TAX_RECORDS_LOADED
- TAXES_LOADED

STOPPING AND STARTING ETL PROCESSES

To see which ETL processes (SAP BusinessObjects Data Services) are running, execute the following:

```
ps | grep -i al_
```

Follow these steps to stop and restart the ETL Process:

1. Navigate to the <*SAPBaseDirectory*>*/dataservices/bin* directory.
2. Start the SAP BusinessObjects Data Services Server Manager Utility by running the following command (you need the leading dot-space-dot):

   ```
   . ./al_env.sh
   ```

3. Run the following command:

   ```
   ./svrcfg
   ```

4. On the menu, select **1 : Control Job Service**.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
```

5. Enter **o** to stop or **s** to start.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
------------------------------------------------------------------

               **  Control Job Service **

------------------------------------------------------------------

 Job Service Executable Path                          Status
 ---------------------------------------------      ------------

 /home/reporting/BI/working/dataservices/bin/AL_JobService      Running

------------------------------------------------------------------

s: Start Job Service       o: Stop Job Service       q: Quit


Enter Option: o
```

6. Once you have completed your start or stop, exit the utility by entering the **q** option followed by the **x** option.

CLEANING UP ETL JOBS

If you ever run the ETL process and decide you do not want that data, run an ETL cleanup to remove the data from the Reporting database. The following jobs help you manage data and user ETLs:

- SBX_AuditStage_Cleanup (Execute this to remove all the records for a particular audit data ETL).
- OP_User_Access_Load_Cleanup (Execute this to remove all the user records).

There are also cleanup and purge jobs related to the ERP_Recon_Load ETL. See Help for details.

Run each of these jobs in the SAP BusinessObjects Data Services Management Console.

1. Log on to the Console and click your repository on the opening **Status** tab.
2. Click **Batch Job Configuration** tab.
3. Click **Execute** for the particular cleanup job.
4. For SBX_AuditStage_Cleanup, expand the **Global Variables** node and enter into **$LOAD_NUMBER** the number of the ETL for the data you want to remove. There is no load number for OP_User_Access_Load_Cleanup.
5. Click **Execute**.
6. You can monitor the process by clicking on **Click here to view the log** at the top of the page.

APPENDIX: SAP ADMINISTRATIVE WEB APPLICATIONS DEPLOYMENT

The primary focus of the Installation Guide is the installation of the administrative consoles using Tomcat bundled with SAP. This appendix shows an alternative to Tomcat, explaining how to deploy the SAP Central Management Console and the SAP BusinessObjects Data Services Management Console in JBoss, WebLogic, and WebSphere.

The process requires a different installation sequence from the primary installation guide, so we provide an alternative checklist below. Please print this checklist and use it to install the SAP supporting software.

NON-TOMCAT CHECKLIST

INSTALLATION CHECKLIST (JBOSS, WEBLOGIC, OR WEBSPHERE)	
Installing Supporting Software	
Installing SAP BusinessObjects BI Platform (page 21)	
Installing SAP BusinessObjects Data Services (page 51)	
Return to Appendix: SAP Administrative Web Applications Deployment (page 183): • Complete the steps shown in Editing the Configuration File (page 184) • Complete the steps shown in Executing WDeploy (page 190) • Complete the following step in Configuring CMS Connection (page 190)	
Configuring SAP Business Intelligence	
Editing the CRConfig File (page 46): Complete these steps, but substitute your application server for "Tomcat"	
Configuring Report Timeout and Recycle Bin (page 47)	

INSTALLATION CHECKLIST (JBOSS, WEBLOGIC, OR WEBSPHERE)	
Configuring SAP Data Services	
Stopping Processes (page 68): Complete these steps, but substitute your application server for "Tomcat"	
Checking the LINK_DIR Variable (page 71)	
Changing Socket Timeout (page 72)	
Modifying Max Return Size (page 72)	
Configuring the Adapter (page 73)	
Starting Processes (page 75) Complete these steps, but substitute your application server for "Tomcat"	
Configuring Session Security (page 77)	
Setting Web Service Adapter Parameters (page 79)	
Adding Administrator to Data Services Groups (page 82)	
Configuring Automatic Start (page 83)	
Complete the remaining installation guide tasks starting with Creating the Configuration File (page 85)	

EDITING THE CONFIGURATION FILE

Enter your application server details into a configuration file:

1. Go to the directory where you installed SAP Business Intelligence (shown below as <SAPBaseDirectory>).
2. Change to the following directory:

   <SAPBaseDirectory>/sap_bobj/enterprise_xi40/wdeploy/conf

3. Find and edit the configuration file that corresponds to your application server (for example, edit *config.websphere8* for WebSphere 8.5).

The SAP administrative consoles do not support WebLogic 12.

APPLICATION SERVER	CONFIGURATION FILE
JBoss 6 EAP	config.jboss7
WebLogic 11	config.weblogic11
WebSphere 7	config.websphere7
WebSphere 8	config.websphere8

4. Find the table below that corresponds to your application server and use it as a guide to modify several parameters in the file. For each item, substitute your value to the right of the equals sign.

CONFIG.JBOSS7	
Field	**Value Description**
as_dir=	The installation directory of the application server.
as_instance=	The application server instance to deploy to (as_instance represents a folder in the ${as_dir}/server/ directory).

CONFIG.WEBLOGIC11	
Field	**Value Description**
as_domain_dir=	The home directory of the domain to deploy to (this is NOT WebLogic's installation directory). *as_domain_dir=*↵ *<WeblogicInstallDirectory>/Oracle/Middleware/*↵ *user_projects/domains/MyDomain.*
as_instance=	The application server instance to deploy to. In the Weblogic console under **Domain > Environment > Server**, there is a list of "instance names." For a default installation, this value is AdminServer.
as_admin_port=	The administration port of the application server.
as_admin_username=	The administration user name. The name must be the administration user that the domain was created with (for example, *as_admin_username=weblogic*).
as_admin_password=	The admin user password (mandatory).

CONFIG.WEBSPHERE7	
Field	**Value Description**
as_dir=	The installation directory of the application server.
as_instance=	The application server instance to deploy to. In the Integrated Solutions Console, this is listed in the **Name** column at **Servers > Server Types > Websphere application servers**.
as_profile_name=	The name of the profile created for Websphere application server. The default profile name is AppSrv01.
as_virtual_host=	The virtual host the application will be bound to.
as_soap_port=	The SOAP administration port to the administration server (SOAP_CONNECTOR_ADDRESS). This value should be the same as the scripting port. To confirm this, do the following: a. **Identify the Scripting Port**: Find your scripting port (com.ibm.ws.scripting.port): */usr/IBM/WebSphere/AppServer/profiles/AppSrv01/properties/wsadmin.properties)* b. **Identify the SOAP Port** i. In the Integrated Solutions Console, go to **Servers > Server Types > Websphere application servers**. ii. In the **Name** column, click on your AS_INSTANCE, and then select **Ports** under **Communications**. iii. Click **SOAP_CONNECTOR_ADDRESS**, and then confirm that this matches the scripting port. If it does not, modify the port number to match your scripting port.
as_admin_is_secure=	The default is **false**. This indicates whether security is activated in WebSphere.

CONFIG.WEBSPHERE7	
Field	**Value Description**
as_admin_username=	This is an authenticated WebSphere username. It is used only if 'as_admin_is_secure=true'; it can be commented out with a '#' if 'as_admin_is_secure=false.'
as_admin_password=	This is the password of the username listed above. It is used only if 'as_admin_is_secure=true'; it can be commented out with a '#' if 'as_admin_is_secure=false.'

CONFIG.WEBSPHERE8	
Field	**Value Description**
as_dir=	The installation directory of the application server.
as_instance=	The application server instance to deploy to. In the Integrated Solutions Console, this is listed in the **Name** column at **Servers > Server Types > Websphere application servers**.
as_profile_name=	The name of the profile created for Websphere application server. The default profile name is AppSrv01.
as_virtual_host=	The virtual host the application will be bound to.

CONFIG.WEBSPHERE8	
Field	**Value Description**
as_soap_port=	The SOAP administration port to the administration server (SOAP_CONNECTOR_ADDRESS). This value should be the same as the scripting port. To confirm this, do the following: a. **Identify the Scripting Port**: Find your scripting port (com.ibm.ws.scripting.port): */usr/IBM/WebSphere/AppServer/profiles/AppSrv01/properties/wsadmin.properties)* b. **Identify the SOAP Port** i. In the Integrated Solutions Console, go to **Servers > Server Types > Websphere application servers**. ii. In the **Name** column, click on your AS_INSTANCE, and then select **Ports** under **Communications**. iii. Click **SOAP_CONNECTOR_ADDRESS**, and then confirm that this matches the scripting port. If it does not, modify the port number to match your scripting port.
as_admin_is_secure=	The default is **false**. This indicates whether security is activated in WebSphere.
as_admin_username=	This is an authenticated WebSphere username. It is used only if 'as_admin_is_secure=true'; it can be commented out with a '#' if 'as_admin_is_secure=false.'
as_admin_password=	This is the password of the username listed above. It is used only if 'as_admin_is_secure=true'; it can be commented out with a '#' if 'as_admin_is_secure=false.'

5. Save the file when you are finished.

EXECUTING WDEPLOY

The script *wdeploy.sh* deploys the SAP administrative applications directly into the application server.

On WebSphere, we recommend you increase the SOAP timeout in the file *soap.client.props* (<profile>/properties):

com.ibm.SOAP.requestTimeout=1800

1. Change to the following directory:

   <SAPBaseDirectory>/sap_bobj/enterprise_xi40/wdeploy

2. Execute the following command as either the operating system user who installed the application server or as a user with administrative privileges. Insert the application server name as a parameter (this is the extension of the configuration file you edited above):

   a. ./wdeploy.sh <TheConfigurationFileExtension> deployall

   The example below shows the format for WebSphere 8:

```
./wdeploy.sh websphere8 deployall
```

On WebSphere, ignore the following harmless warning:

ADMA0080W: A template policy file without any permission set is included in the 1.2.x enterprise application. You can modify the Java 2 Security policy for the enterprise application by editing the was.policy file that is located in the ${user.install.root}/config/cells/(yourCellName)/applications/(yourAppName).ear/deployments/(yourAppName)/META-INF directory after the application is installed.

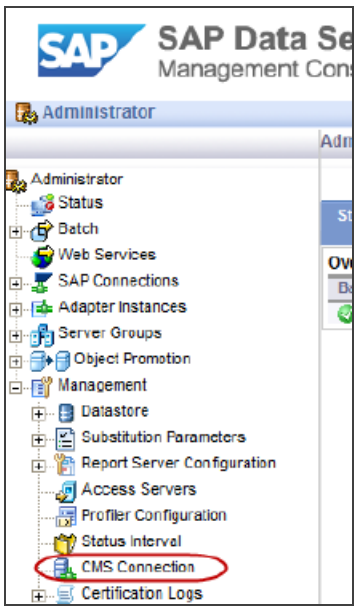
CONFIGURING CMS CONNECTION

Complete the following to set up the CMS connection:

1. Log on to the SAP BusinessObjects Data Services Management Console (http://<host>:<port>/DataServices/).

2. Click **Administrator**.

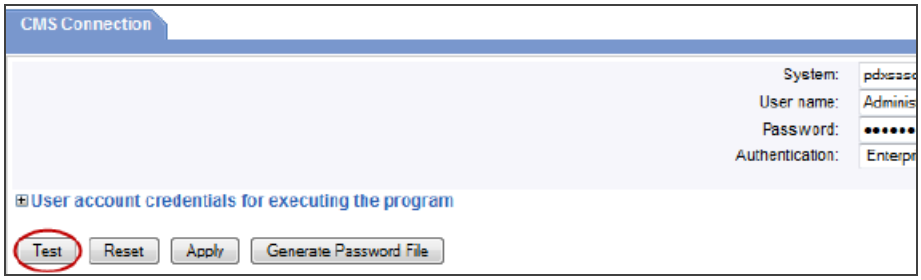
3. Expand the **Management** node, and then click **CMS Connection**.



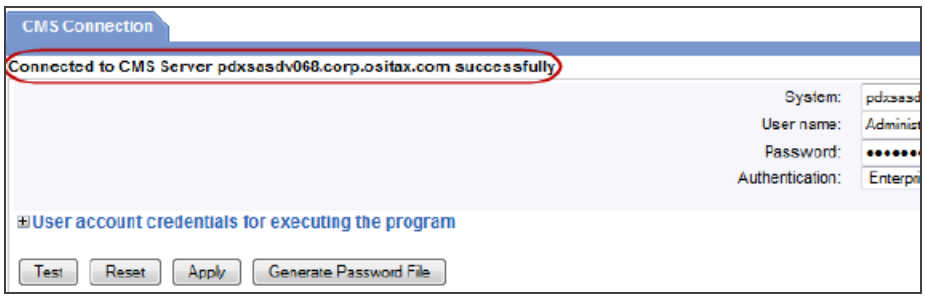
4. On the **CMS Connection** tab, complete the following fields:

FIELD	DESCRIPTION
System	The name of the server hosting SAP BusinessObjects BI Platform
User name	The administrator name for SAP BusinessObjects BI Platform
Password	The administrator password for SAP BusinessObjects BI Platform
Authentication	Select **Enterprise**

5. Click **Test**.



6. If you do not receive the following success message, correct your entries and try again.



7. Exit the Management Console when the test is successful.

APPENDIX: LINKING TO OTHER DATABASES

Use the information below if your database policy does not allow users to link to other databases. Since the installer for the Reporting User Interface expects the Reporting Control user to do this, the installer will not execute successfully if you either revoked what was granted by our creation script or did not grant this when you created the users yourself.

To ensure that the installer executes successfully, you must temporarily allow users to create links. Then, once you create the links following the steps below, you can revoke this privilege to stay in compliance with your database policy. The final step is to complete one additional configuration change to ensure that your installer finishes successfully.

There are two parts to this procedure:

1. Execute database commands to create the links
2. Modify an installation configuration file

Executing Database Commands

In the database commands below, substitute values from your environment for any of the strings highlighted in red. For example, you might insert SBXRPTCTRL for **Sabrix.ReportsControl.Schema.Username**. Be sure to keep the single quotes in all of the commands.

Log on to SQL*Plus as a user with administrative privileges and execute the following command:

```
grant create database link to Sabrix.ReportsControl.Schema.Userna
me;
```

Switch your SQL*Plus session to the Reporting Control User (typically SBXRPTCTRL) and execute the following commands (Be sure to insert values from your environment):

```
create database link SBXAUDSTG
connect to Sabrix.ReportsAudit.Schema.Username
identified by Sabrix.ReportsAudit.Schema.Password
using 'Sabrix.ReportsAudit.Schema.TNSName';
create database link SBXTAX
connect to Sabrix.TaxEngineTax.Schema.Username
identified by Sabrix.TaxEngineTax.Schema.Password
using 'Sabrix.TaxEngineTax.Schema.TNSName';
```

Switch your SQL*Plus session to a user with administrative privileges and execute the following:

```
revoke create database link from Sabrix.ReportsControl.Schema.Username;
```

Modifying the Configuration File

After you create the database links, you must perform an additional step later in the installation. When you complete the steps in Creating the Configuration File (page 85), open the configuration file *installation-config.xml* in a text editor.

Edit the file in *<InstallationBaseDirectory>/install/*—not the default versions of this file in either *<InstallationBaseDirectory>/install/distribution-config/ or <InstallationBaseDirectory>/install/template-config/*.

1. Find the line that looks like this:

   ```
   id="Sabrix.ReportsControl.Schema.Recreate.Database.Links" value="true"/>
   ```

2. Change "true" to "false" and then save and close the file.
3. Continue with the remainder of the installation in Modifying the Installation Script (page 94).

APPENDIX: CREATING DATABASES WITHOUT SCRIPTS

You may use our scripts for default installations; however, if you need to customize your environment, you can create the database objects yourself using the guidelines below.

We suggest that you follow the convention of creating four database users; however, if your architecture and performance needs require you to distribute the workload across additional schemas, you may do so. See the *ONESOURCE Reporting 6.8.x.x Documentation and Platform Support* knowledge base article in the ONESOURCE Customer Center for additional options.

USER NAME	PURPOSE
RPT_REPO	The Reports Repository containing report definitions and other meta data.
ETL_REPO	The ETL Repository containing meta data for the extract, transform, and load (ETL) process.
SBXRPTAUD	Contains the reporting data that is extracted from the ONESOURCE Indirect Tax Determination software (through the ETL process).
SBXRPTCTRL	Contains system control data.

The list below shows the required database roles and privileges for the schemas listed above. Use this as a guide if you are creating the users manually. If you run the user-creation scripts, these are automatically granted:

- CONNECT
- ALTER SESSION
- CREATE DATABASE LINK (only for SBXRPTCTRL)
- CREATE SEQUENCE
- CREATE SESSION
- CREATE PROCEDURE
- CREATE SYNONYM (only for SBXRPTCTRL)
- CREATE TABLE

- CREATE VIEW

If your database policy does not allow you to grant the CREATE DATABASE LINK system privilege, see Appendix: Linking to Other Databases (page 193).

APPENDIX: RE-INSTALLATION

The following instructions explain how to uninstall SAP BusinessObjects BI Platform and SAP BusinessObjects Data Services in preparation for a re-installation.

If you only need to remove SAP BusinessObjects Data Services, you can do so without removing SAP BusinessObjects BI Platform. However, if you need to re-install SAP BusinessObjects BI Platform, you must also remove SAP BusinessObjects Data Services.

REMOVING SAP BUSINESSOBJECTS DATA SERVICES

If you remove SAP BusinessObjects Data Services, your previous ETL information is retained in the database.

To remove and re-install an instance of SAP BusinessObjects Data Services, complete the following:

1. Go to the *<SAPBaseDirectory>/sap_bobj* directory.
2. Execute the following:

```
./tomcatshutdown.sh
```

3. Go to the *<SAPBaseDirectory>/dataservices/bin* directory.
4. Start the Data Services Server Manager Utility by running the following command (you need the leading dot-space-dot):

```
. ./al_env.sh
```

5. Run the following command:

```
./svrcfg
```

6. On the menu, select **1 : Control Job Service**.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
```

7. Enter **o** to stop.

```
** Data Services Server Manager Utility **

      1 : Control Job Service
      2 : Configure Job Server
      3 : Configure Runtime Resources
      4 : Configure Access Server
      5 : Configure SMTP
      6 : Configure SSL
      7 : Configure Native Component Supportability
      x : Exit


Enter Option: 1
------------------------------------------------------------------

               **  Control Job Service **

------------------------------------------------------------------

 Job Service Executable Path                          Status
 ---------------------------------------------      ------------

 /home/reporting/BI/working/dataservices/bin/AL_JobService      Running

------------------------------------------------------------------

s: Start Job Service       o: Stop Job Service       q: Quit


Enter Option: o
```

8. After you stop the job service, exit the utility by entering the **q** option followed by the **x** option.

9. Confirm that your ETL Repository processes (Data Services) are stopped by executing this:

```
ps -ef | grep -i al_
```

10. If your ETL repository processes are stopped, delete the directory *dataservices* in *<SAPBaseDirectory>/dataservices*.

REMOVING SAP BUSINESSOBJECTS BI PLATFORM

To remove and re-install an instance of SAP BusinessObjects BI Platform, complete the following:

1. Go to the following directory:

   <SAPBaseDirectory>/bobje

2. Stop SAP BusinessObjects BI Platform

   ```
   ./stopservers
   ```

3. Remove *<SAPBaseDirectory>*.

After you remove the software, re-install it by first completeing the steps in SAP BusinessObjects BI Platform (page 21), followed by the steps in SAP Data Services (page 50).

APPENDIX: UTILITY SCHEMAS

The following tables describe the fields for the optional utility schemas in the Configuration Utility (see Creating the Configuration File (page 85)). If you created optional utility schemas when you created your database objects in Database Preparation (page 18), complete the **Optional Schemas** section of the **Reporting Schemas** tab.

Go to the **Reporting Schemas** tab of the Configuration Utility, and then click **Optional Schemas**. Clear the **Use Reporting Control** checkbox for each of the optional utility schemas you created and complete all the fields.

OPTIONAL REPORTING SCHEMAS (ORACLE)	
Reporting Control Utility	
Username	The Reporting Control Utility schema name
Password	The Reporting Control Utility schema password
Database SID	The database SID
TNS Name	The Reporting Control Utility schema TNS name
Create DB URL	Click this button to create the database URL (the utility concatenates your previous entries)
Test DB Connection	Click this button to test the database connection  If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature

OPTIONAL REPORTING SCHEMAS (ORACLE)	
Reporting Audit Utility	
Username	The Reporting Audit Utility schema name
Password	The Reporting Audit Utility schema password
Database SID	The database SID
TNS Name	The Reporting Audit Utility schema TNS name

OPTIONAL REPORTING SCHEMAS (ORACLE)	
Reporting Audit Utility	
Create DB URL	Click this button to create the database URL (the utility concatenates your previous entries)
Test DB Connection	Click this button to test the database connection  If you are running the utility on a machine that does not have network access to the Reporting database, you cannot use this test feature