

ONESOURCE™ INDIRECT TAX DETERMINATION

INSTALLATION GUIDE

IBM DB2 UNIVERSAL DATABASE AND WEBSPHERE

5.13.X.X

Document Version 1

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INTRODUCTION

The ONESOURCE Indirect Tax Determination software is a highly scalable and reliable taxing service for all business applications needing consolidated tax determination, calculation, and recording. A three-tier application built on industry standard Java technology and state-of-the-art design principles, the Determination software is designed to optimize performance, reliability, interoperability, manageability, and security.

This guide explains how to install Determination version 5.13.x.x.

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

RESOURCES

Several resources help you become familiar with ONESOURCE Indirect Tax Determination 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 "Determination documentation."

DETERMINATION RESOURCES	
Resource	Description
Help	This Help system gives assistance within Determination. Use Help after Determination is installed and configured.
Installation Guide	This guide is intended for technical users and contains complete details about how to install and configure Determination.

DETERMINATION RESOURCES	
Resource	Description
Platform Support	This describes the combinations of operating systems, databases, and application servers on which Determination 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 Determination and refers to configuration information in the <i>Installation Guide</i> .
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 Determination database.
Sizing Guide	This guide is intended for technical users. It contains an architectural overview and discusses components, database, and server sizing.

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.
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.

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 Determination 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-t  
   he line numbers are included! */
```

PREREQUISITES

Complete the following tasks before you attempt to install and configure ONESOURCE Indirect Tax Determination.

Review System Requirements	5
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Download the Software	6

REVIEW SYSTEM REQUIREMENTS

ONESOURCE Determination 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](#).

JAVA

Determination requires an application server to host its various components, and the application server must use IBM Java. Search the ONESOURCE Customer Center to find the platform support information specific to your product version. If your application server does not provide its own version of Java, you must install it separately.

GATHERING ADMINISTRATIVE INFORMATION

To install the Determination software, you need to gather certain administrative information. Before you begin the installation, add your values to the table below:

RESOURCES		
Type	Where to Find	Your Values(s)
Customer Center credentials	Thomson Reuters Customer Support	
IBM DB2 RDBMS server name	DB2 DBA	
Administration credentials for DB2 database	DB2 DBA	
Administration console URL of the IBM WebSphere Application Server	Application Server Administrator	
Administration credentials for the IBM WebSphere Application Server	Application Server Administrator	
Name of the server hosting IBM WebSphere and the Port for the Determination software	Application Server Administrator	

DOWNLOAD THE SOFTWARE

To download and install the software, get the *ONESOURCEIDTDetermination_5130x.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 Determination in the **Available Products** list, and verify that **Installed Version** is set to **None**.
4. Select **Download** for Determination.

5. Save the file.
6. Unzip the *ONESOURCEIDTDetermination_5130x.zip* file.

CONFIGURING YOUR DATABASE

This guide covers the installation of the Determination software in the IBM DB2 Universal Database. Once you have confirmed that you are using the correct database version, review the following:

DATABASE CHARACTER SET

The database must be configured to use the UTF8 character set. You need to either install or upgrade the database to meet these requirements. After you do so, ONESOURCE Indirect Tax Consulting Services will assist you in performing the database and operating system configuration necessary for the Determination software to run in your environment.

CREATING AIX USERS

Two AIX users, SBXTAX and SBXAUD, need to be created to enable the creation of equivalent users in DB2. These users will be associated with the Tax and Audit database users created below. Use the standard AIX commands to create these users.

DATABASE SCRIPTS

The preferred Determination configuration separates tax configuration data from audit data in the database. We provide scripts to either configure a new database or a pre-existing database. In either case, the following tablespaces are configured:

- A 4K Data Tablespace (DMS)
- A 4K Temp Tablespace (DMS)
- A 32K Data Tablespace (DMS)
- A 32K Temp Tablespace (DMS)
- A 4K System Catalog Tablespace (SMS)

Creating a New Database

To configure a new database, you can use the `createDb2Database.sh` shell script found in the .zip file you downloaded earlier. This script creates the database, tablespaces, and database users, and sets the appropriate configuration parameters (as shown in [Tuning Database Performance \(page 10\)](#)). To create a new database:

1. Log on to AIX as the DB2 administrator.
2. Ensure that a directory has been created to contain the Determination datafile (such as `/opt/db2/sabrix`). Create the directory using `mkdir` if necessary.
3. Change to the directory containing the downloaded files.
4. Execute `createDb2Database.sh`. You are prompted to enter the following:
 - The directory path for the Determination datafile (as shown in step 2).
 - The name of the new database to create.
 - The name of an existing tax user (SBXTAX; see Creating AIX Users above).
 - The name of an existing audit user (SBXAUD; see Creating AIX Users above).

Configuring an Existing Database

You can use the `createDb2Tablespaces.sh` and `CreateDb2Users.sh` scripts to add the desired tablespaces and database users to a pre-existing database. These scripts do not set configuration parameters; you will need to do so manually after running the scripts.

1. Log on to AIX as the DB2 administrator.
2. Change to the directory containing the downloaded scripts.
3. Execute `createDb2Tablespaces.sh`. You are prompted to enter the following:
 - The directory path for the Determination datafile.
 - The name of the existing database.

4. Execute *assignDb2Users.sh*. You are prompted to enter the following:

- The name of the existing database.
- The name of an existing tax user (SBXTAX; see Creating AIX Users above).
- The name of an existing audit user (SBXAUD; see Creating AIX Users above).

Tuning Database Performance

Database performance tuning is an extensive process that is highly dependent on your company's usage, transaction volumes, and response requirements; however, we have tested the following configurations and found that they improve the performance of the Determination software in the DB2/WebSphere environment.



If you used our script to create a new database as shown on the previous page, the parameters in the first table below were set automatically.

PARAMETER	VALUE
CHNGPGS_THRESH	30
LOCKTIMEOUT	30
LOGFILSIZ	4096
MAXAPPLS	80

Here are some optional settings if you have difficulty with long-running transactions (for example, importing tax content, importing company files, or processing large invoices):

PARAMETER	VALUE
LOGFILSIZ	10000
LOGPRIMARY	66
LOGSECOND	188
RESYNC_INTERVAL	600

CONFIGURING IBM WEBSPHERE

Before you proceed to the following tasks, ensure that you have a supported version of WebSphere by reviewing platform support information listed in the [ONESOURCE Customer Center](#).

When WebSphere is installed and ready for Determination configuration, complete the following:

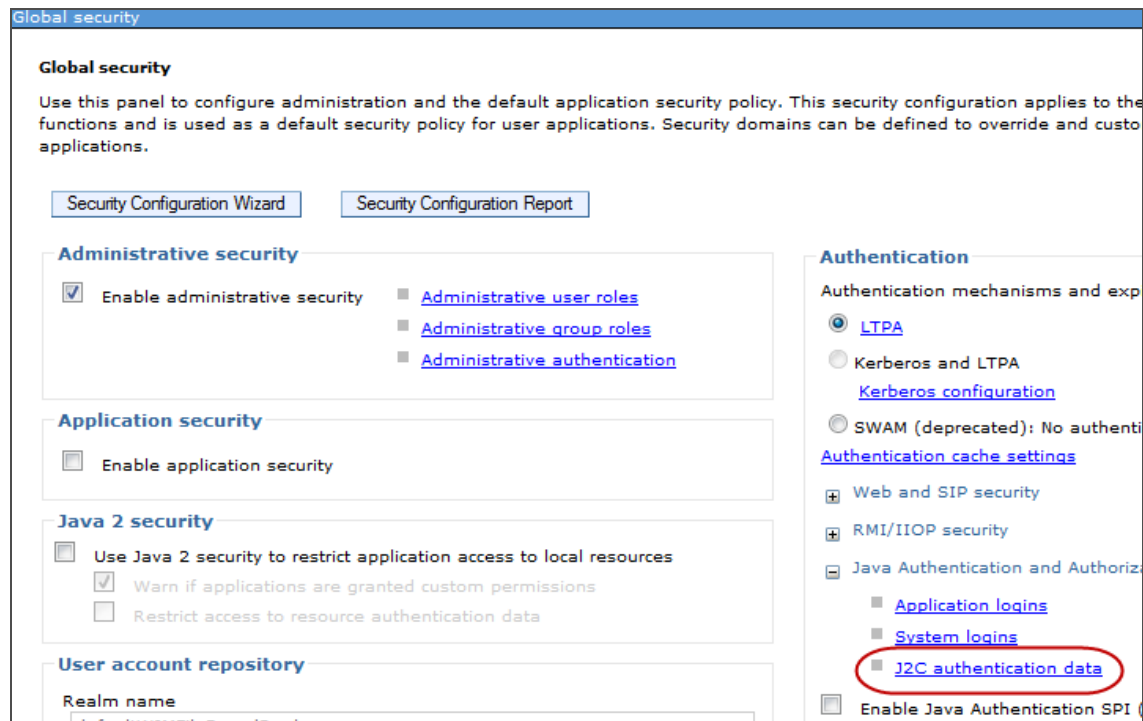
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Configuring The WebSphere Environment Variable	15
Modifying the Log Level	19
Modifying Transaction Timeouts	21
Creating the DB2 JDBC Provider	24
Creating the Tax Data Source	28
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Modifying the Audit Data Source	42
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Exporting the Customer Center Certificate	48
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Loading the Application	53
Selecting Installation Options	54
Configuring Class Loading	64
Setting a Custom Property	66

CONFIGURING AUTHENTICATION

Configure user name and password combinations that will be referenced by the JDBC data sources you create. Configure both SBXTAX and SBXAUD, which are described in [Oracle Tablespaces and Users \(page 1\)](#).

To configure authentication:

1. Log on to the IBM WebSphere Integrated Solutions Console.
2. Using the list on the left side of the console, go to **Security > Global security**.
3. Expand the **Java Authentication and Authorization Service** in the **Authentication** section.
4. Click **J2C authentication data**.



5. Click **New**.

6. Enter data to create the Tax user as shown in the following table:

Global security

[Global security](#) > [JAAS - J2C authentication data](#)

Specifies a list of user identities and passwords for Java(TM) 2 connector security to use.

☒ Prefix new alias names with the node name of the cell (for compatibility with earlier releases)

Apply

Preferences

New... Delete

Select Alias User ID Description

None

Total 0

Global security

[Global security](#) > [JAAS - J2C authentication data](#) > New...

Specifies a list of user identities and passwords for Java(TM) 2 connector security to use.

General Properties

* Alias
SBXTAX

* User ID
SBXTAX

* Password

Description
User associated with the Tax Data Source

Apply OK Reset Cancel

PROMPT	VALUE
Alias	SBXTAX
User ID	SBXTAX
Password	Enter the password for SBXTAX
Description	Enter this description: User associated with the Tax Data Source

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

8. Click **New** to create the Audit user.
9. Create the Audit user by entering the following data:

Global security

[Global security](#) > **JAAS - J2C authentication data**

Specifies a list of user identities and passwords for Java(TM) 2 connector security to use.

☒ Prefix new alias names with the node name of the cell (for compatibility with earlier releases)

Apply

+ Preferences

New... Delete

Select Alias User ID Description

You can administer the following resources:

<input type="checkbox"/>	U0126623-W7BNode01/SBXTAX	SBXTAX	User ass
--------------------------	---	--------	----------

Total 1

Global security

[Global security](#) > [JAAS - J2C authentication data](#) > **New...**

Specifies a list of user identities and passwords for Java(TM) 2 connector security to use.

General Properties

* Alias
SBXAUD

* User ID
SBXAUD

* Password

Description
User associated with the Audit Data Sou

Apply OK Reset Cancel

PROMPT	VALUE
Alias	SBXAUD
User ID	SBXAUD

PROMPT	VALUE
Password	Enter the password for SBXAUD
Description	Enter this description: User associated with the Audit Data Source

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

CONFIGURING THE WEBSPHERE ENVIRONMENT VARIABLE

Configure an environment variable by completing the following:

1. In the console, go to **Environment > WebSphere variables**.
2. Set the scope of the data sources as desired.



Select the same scope throughout installation.

- Click **DB2UNIVERSAL_JDBC_DRIVER_PATH** in the name column. If you do not see **DB2UNIVERSAL_JDBC_DRIVER_PATH** for your scope, click **New**.

WebSphere Variables

Use this page to define substitution variables. Variables specify a level of indirection for some system-defined values, such as have a scope level, which is either server, node, cluster, or cell. Values at one scope level can differ from values at other level values, the more granular scope value overrides values at greater scope levels. Therefore, server variables override node variables which override cell variables.

Scope: Cell=U0126623-W7ANode01Cell, Node=U0126623-W7ANode01

Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, [see the scope settings help](#).

Node=U0126623-W7ANode01

Preferences

New... Delete

Select Name Value Scope

You can administer the following resources:

<input type="checkbox"/>	APP_INSTALL_ROOT	\${USER_INSTALL_ROOT}/installedApps	Node=U
<input type="checkbox"/>	CONNECTJDBC JDBC DRIVER PATH		Node=U
<input type="checkbox"/>	CONNECTOR_INSTALL_ROOT	\${USER_INSTALL_ROOT}/installedConnectors	Node=U
<input type="checkbox"/>	DB2390 JDBC DRIVER PATH		Node=U
<input type="checkbox"/>	DB2UNIVERSAL JDBC DRIVER NATIVEPATH		Node=U
<input type="checkbox"/>	DB2UNIVERSAL JDBC DRIVER PATH		Node=U

4. Add **DB2UNIVERSAL_JDBC_DRIVER_PATH** if it is not already in the **Name** field.

WebSphere Variables

[WebSphere Variables](#) > **DB2UNIVERSAL_JDBC_DRIVER_PATH**

Use this page to define substitution variables. Variables specify a level of indirection for some system-defined values, such as a scope level, which is either server, node, cluster, or cell. Values at one scope level can differ from values at other levels. When the more granular scope value overrides values at greater scope levels. Therefore, server variables override node variables, and node variables override cell variables.

Configuration

General Properties

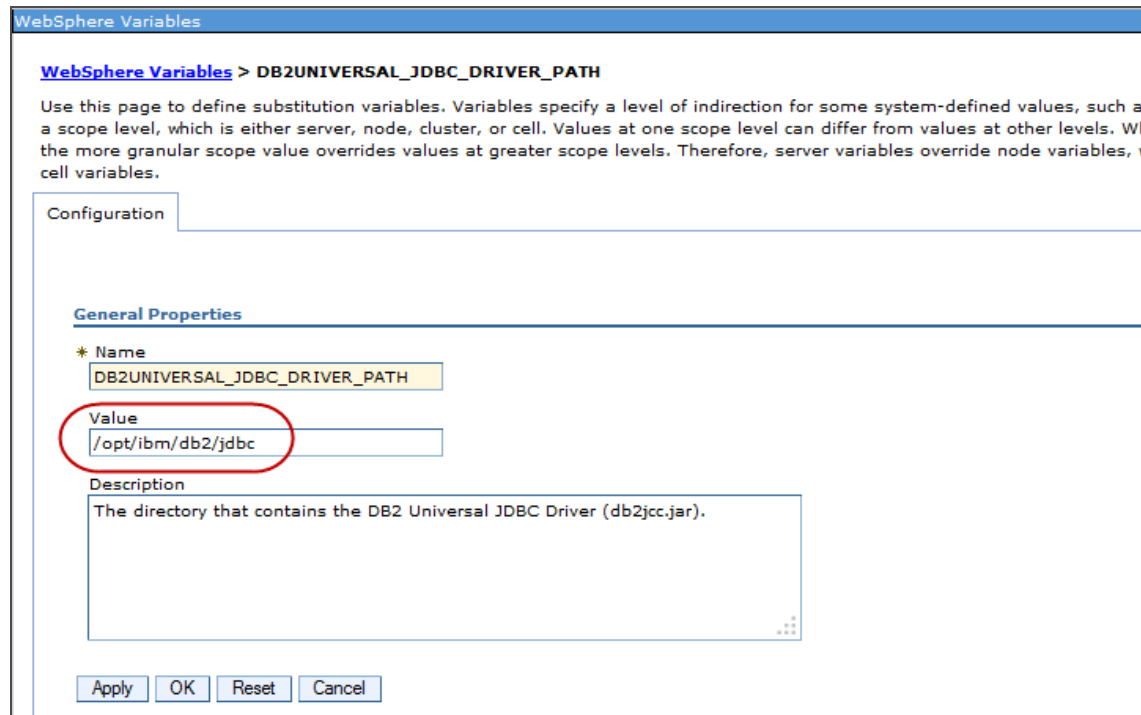
* Name
DB2UNIVERSAL_JDBC_DRIVER_PATH

Value

Description
The directory that contains the DB2 Universal JDBC Driver (db2jcc.jar).

Apply OK Reset Cancel

5. Enter the path to your JDBC driver *jar* file in the **Value** field. The directory shown below is an example and would be different for your environment.



The screenshot shows the 'WebSphere Variables' configuration window. The title bar reads 'WebSphere Variables'. Inside, the breadcrumb is 'WebSphere Variables > DB2UNIVERSAL_JDBC_DRIVER_PATH'. A paragraph explains that variables specify a level of indirection for system-defined values, with scope levels being server, node, cluster, or cell, and that more granular scope values override less granular ones. Below this is a 'Configuration' tab. Under 'General Properties', the 'Name' field is 'DB2UNIVERSAL_JDBC_DRIVER_PATH'. The 'Value' field, which is circled in red, contains '/opt/ibm/db2/jdbc'. The 'Description' field contains 'The directory that contains the DB2 Universal JDBC Driver (db2jcc.jar)'. At the bottom are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'.

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

MODIFYING THE LOG LEVEL

By default, the log level for JGroups is set at a level that fills Determination log files and the console with extraneous data. You can change the level to avoid this situation:

1. In the console, go to **Troubleshooting > Logs and Trace**.
2. Click on your server.

Logging and tracing

Logging and tracing

Use this page to specify how the server handles log records. You can select an application server to enable or disable a system log, and choose a format for log content. You can also specify a log detail level for components and groups of components.

⊕ Preferences

⏴ ⏵ ⏶ ⏷

Server ⚙	Node ⚙	Host Name ⚙	Version ⚙
You can administer the following resources:			
server1	U0126623-W7ANode01	U0126623-W7A.TLR.Thomson.com	Base 8.5.0.1
Total 1			

3. Click **Change Log Detail Levels**.

Logging and tracing

[Logging and tracing](#) > **server1**

It is recommended that you switch to High Performance Extensible Logging (HPEL) if you have no existing procedures that process log events.

[Switch to HPEL Mode](#)

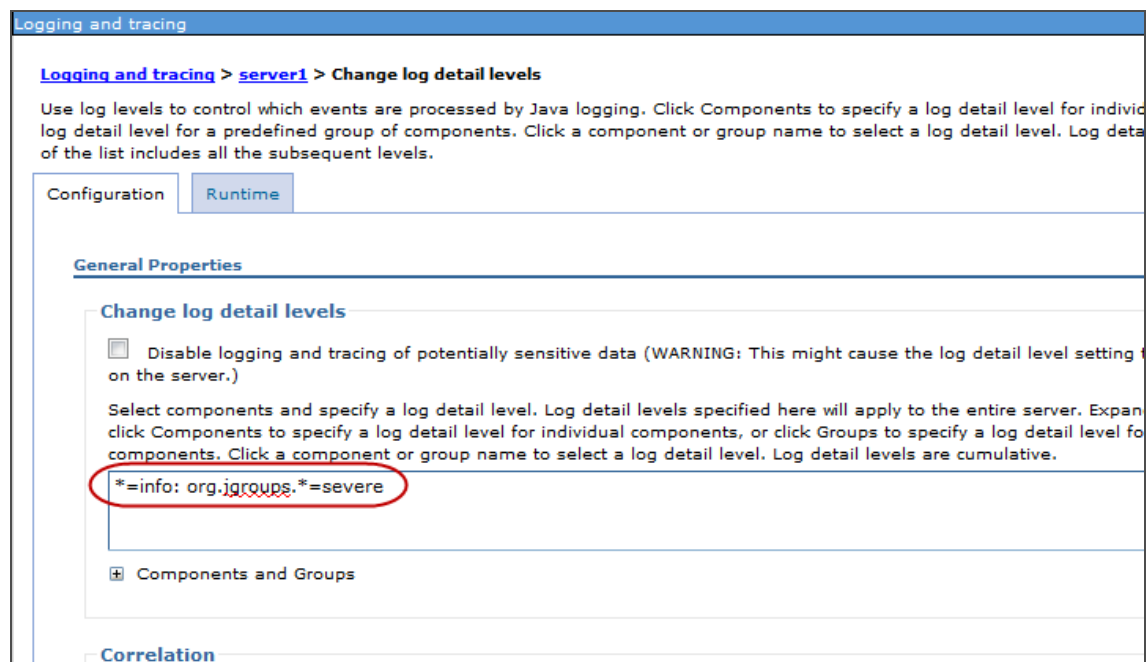
Use this page to select a system log to configure, or to specify a log detail level for components and groups of components. Log events are processed by Java logging.

General Properties

- [Diagnostic Trace](#)
- [JVM Logs](#)
- [Process Logs](#)
- [IBM Service Logs](#)
- [Change log detail levels](#)
- [NCSA access and HTTP error logging](#)

4. In the **Configuration** tab, add the following line in the text entry field above the listed log contexts:

`*=info: org.jgroups.*=severe`



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

Repeat this procedure for each server in the cluster because the change will not be automatically propagated to other cluster nodes.

MODIFYING TRANSACTION TIMEOUTS

Increase the transaction timeouts by completing the following:

- 1. Go to **Servers > Server Types > WebSphere application servers**.
- 2. Click your server.

Application servers

Application servers

Use this page to view a list of the application servers in your environment and the status of each of these servers. You can also click on a specific application server.

+

 Preferences

↕

↕

↕

↕

↕

↕

Name ↕	Node ↕	Host Name ↕
You can administer the following resources:		
server1	U0126623-W7BNode01	U0126623-W7B.TLR.Thomson.com
Total 1		

3. Under **Container Settings > Container Services**, click **Transaction service**.

The screenshot displays the 'Application servers' configuration page for 'server1'. The 'Configuration' tab is active. On the left, the 'General Properties' section includes fields for 'Name' (server1) and 'Node name' (U0126623-W7BNode01), along with checkboxes for 'Run in development mode', 'Parallel start' (checked), and 'Start components as needed'. Below these is the 'Access to internal server classes' dropdown set to 'Allow'. The 'Server-specific Application Settings' section shows 'Classloader policy' as 'Multiple' and 'Class loading mode' as 'Classes loaded with parent class loader first'. On the right, the 'Container Settings' section lists various services. Under the 'Container Services' category, the 'Transaction service' link is highlighted with a red circle. Other visible links include 'Session management', 'SIP Container Settings', 'Web Container Settings', 'Portlet Container Settings', 'EJB Container Settings', 'Application profiling service', 'Dynamic cache service', 'Compensation service', 'Internationalization service', 'Default Java Persistence', 'Object pool service', 'ORB service', 'Startup beans service', and 'Business Process Services'.

4. Change the timeouts as shown in the following table:

Application servers

[Application servers](#) > [server1](#) > Transaction service

Use this page to specify settings for the transaction service. The transaction service is a server runtime component that can coordinate managers to ensure atomic updates of data. Transactions are started and ended by applications or the container in which the

Runtime Configuration

General Properties

Transaction log directory

* Total transaction lifetime timeout 600 seconds

* Async response timeout 30 seconds

* Client inactivity timeout 60 seconds

* Maximum transaction timeout 3600 seconds

Heuristic retry limit 0 retries

Heuristic retry wait 0 seconds

☐ Enable logging for heuristic reporting

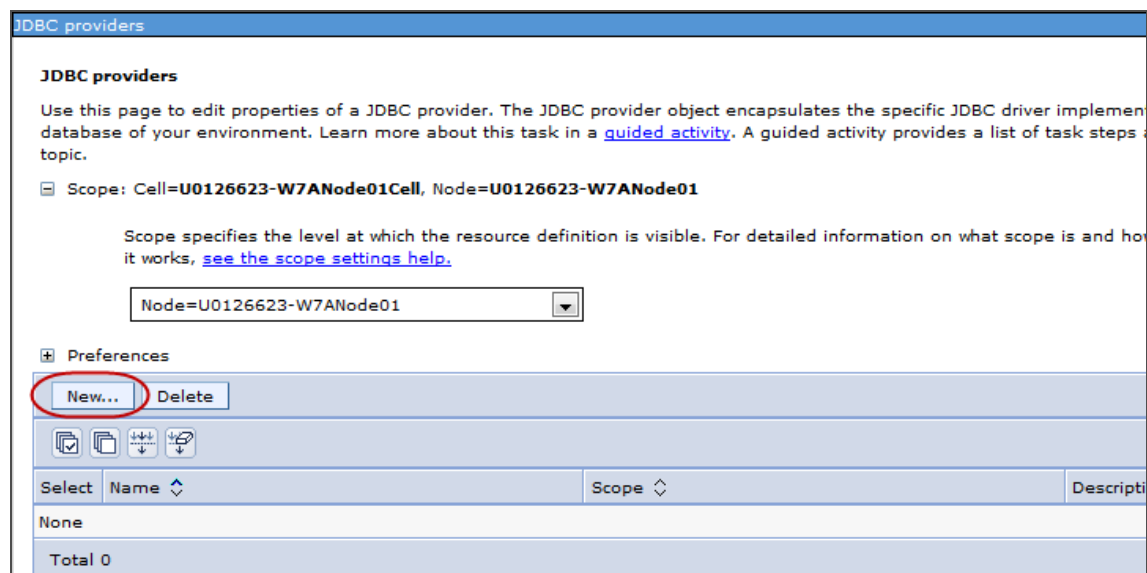
PROMPT	VALUE
Total transaction lifetime timeout	600
Maximum transaction timeout	3600

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

CREATING THE DB2 JDBC PROVIDER

Create the DB2 JDBC Provider by completing the following.

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



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

Create a new JDBC Provider

Create a new JDBC Provider

→ Step 1: Create new JDBC provider

Step 2: Enter database class path information

Step 3: Summary

Create new JDBC provider

Set the basic configuration values of a JDBC provider, which encapsulates the spec classes that are required to access the database. The wizard fills in the name and different values.

Scope

cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01

* Database type

DB2

* Provider type

DB2 Using IBM JCC Driver

* Implementation type

XA data source

* Name

DB2 Using IBM JCC Driver (XA)

Description

Two-phase commit DB2 JCC provider that supports JDBC 4.0 using the IBM Data Server Driver for JDBC and SQLJ. IBM Data Server Driver is the next generation of the DB2 Universal JCC driver. Data sources created under this provider support the use of XA to perform 2-phase commit processing. Use of JDBC driver type 2 on WebSphere Application Server for Z/OS is not supported for data sources created under this provider. This provider is configurable in version 7.0 and later nodes.

Next

Cancel

FIELD	VALUE
Database type	DB2
Provider type	DB2 using IBM JCC Driver
Implementation type	XA data source

4. Specify the directory locations for the following .jar files. Your directories may vary from the examples below:

- *db2jcc4.jar*
- *pdq.jar* and *pdqmgmt.jar*

Create a new JDBC Provider

Step 1: Create new JDBC provider

→ **Step 2: Enter database class path information**

Step 3: Summary

Enter database class path information

Set the class path for the JDBC driver class files, which WebSphere(R) Application provider. This wizard page displays a default list of jars and allows you to set the directory locations of the files. Use complete directory paths when you type the JD C:\SQLLIB\java on Windows(R) or /home/db2inst1/sqllib/java on Linux(TM).

Entries are separated by using the ENTER key and must not contain path separate value is specified for you, you may click Next to accept the value.

Class path:

```

${DB2_JCC_DRIVER_PATH}/db2jcc4.jar
${UNIVERSAL_JDBC_DRIVER_PATH}/db2jcc_license_cu.jar
${DB2_JCC_DRIVER_PATH}/db2jcc_license_cisuz.jar
${PUREQUERY_PATH}/pdq.jar
${PUREQUERY_PATH}/pdqmgmt.jar

```

Apply

Directory location for "db2jcc4.jar, db2jcc_license_cisuz.jar" which is saved as WebSphere variable `${DB2_JCC_DRIVER_PATH}`

/opt/ibm/db2/v10.1/java

Directory location for "pdq.jar, pdqmgmt.jar" which is saved as WebSphere variable `${PUREQUERY_PATH}`

/opt/IBM/DS3.1.1/dsdev/jar

Native library path

Directory location which is saved as WebSphere variable `${DB2_JCC_DRIVER_NATIVE_LIB_PATH}`

Previous Next Cancel

5. Click **Next**.

6. If the summary is correct, click **Finish**.

Create a new JDBC Provider

Step 1: Create new JDBC provider

Step 2: Enter database class path information

→ Step 3: Summary

Summary

Summary of actions:

Options	Values
Scope	cells:U0126623-W7BNode01Cell:nodes:U012
JDBC provider name	DB2 Using IBM JCC Driver (XA)
Description	Two-phase commit DB2 JCC provider that sup Server Driver for JDBC and SQLJ. IBM Data Se DB2 Universal JCC driver. Data sources create XA to perform 2-phase commit processing. U Application Server for Z/OS is not supported f provider. This provider is configurable in vers
Class path	 \${DB2_JCC_DRIVER_PATH}/db2jcc4.jar \${UNIVERSAL_JDBC_DRIVER_PATH}/db2jcc_lic \${DB2_JCC_DRIVER_PATH}/db2jcc_license_cis \${PUREQUERY_PATH}/pdqmgmt.jar
\${DB2_JCC_DRIVER_PATH}	/opt/ibm/db2/jdbc
\${UNIVERSAL_JDBC_DRIVER_PATH}	\${WAS_INSTALL_ROOT}/universalDriver/lib
\${PUREQUERY_PATH}	
Native path	\${DB2_JCC_DRIVER_NATIVEPATH}
\${DB2_JCC_DRIVER_NATIVEPATH}	
Implementation class name	com.ibm.db2.jcc.DB2XADataSource

Previous

Finish

Cancel

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

CREATING THE TAX DATA SOURCE

Create the Tax data source by completing the following.

- Go to **Resources > JDBC > JDBC providers** and click **DB2 Using IBM JCC Driver (XA)**.

JDBC providers

JDBC providers

Use this page to edit properties of a JDBC provider. The JDBC provider object encapsulates the specific JDBC driver implementation of your environment. Learn more about this task in a [guided activity](#). A guided activity provides a list of task steps and a topic.

Scope: Cell=**U0126623-W7BNode01Cell**, Node=**U0126623-W7BNode01**

Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, [see the scope settings help](#).

Node=U0126623-W7BNode01

Preferences

New...Delete

Select	Name	Scope	Description
You can administer the following resources:			
<input type="checkbox"/>	DB2 Using IBM JCC Driver (XA)	Node=U0126623-W7BNode01	Two-phase JDBC 4.0 and SQL generation sources of XA to JDBC driver for Z/OS under the version 7

Total 1

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INSTALLATION GUIDE V1

2. Click **Data Sources** in the **Additional Properties** section.

JDBC providers

Messages

Modifying the implementation class name will eliminate the ability to create data sources and data from templates.

[JDBC providers](#) > [DB2 Using IBM JCC Driver \(XA\)](#)

Use this page to edit properties of a Java Database Connectivity (JDBC) provider. The JDBC provider object encapsulates the for access to the specific vendor database of your environment.

Configuration

General Properties

* Scope

cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01

* Name

DB2 Using IBM JCC Driver (XA)

Additional Properties

[Data sources](#)

[Data sources \(Web\)](#)

3. Click **New**.

JDBC providers

[JDBC providers](#) > [DB2 Using IBM JCC Driver \(XA\)](#) > [Data sources](#)

Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The datasource object s accessing the database. Learn more about this task in a [guided activity](#). A guided activity provides a list of task steps and mo

Preferences

[New...](#) [Delete](#) [Test connection](#) [Manage state...](#)

☒ ☐ ☐ ☐

Select	Name	JNDI name	Scope	Provider
None				
Total 0				

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

Create a data source

Create a data source

→ Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

Step 4: Summary

Enter basic data source information

Set the basic configuration values of a datasource for association with your JDBC p
physical connections between the application server and the database.

Requirement: Use the Datasources (WebSphere(R) Application Server V4) console
the Enterprise JavaBeans(TM) (EJB) 1.0 specification or the Java(TM) Servlet 2.2 s

Scope
cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01

JDBC provider name
DB2 Using IBM JCC Driver (XA)

* Data source name
Sabrix Tax Data Source

* JNDI name
sabrix.TaxDataSource

Next

Cancel

FIELD	VALUE
Data source name	Sabrix Tax Data Source
JNDI name	sabrix.TaxDataSource

5. Add the database properties, and then click **Next**.

Create a data source

Step 1: Enter basic data source information

→ Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

Step 4: Summary

Enter database specific properties for the data source

Set these database-specific properties, which are required by the database vendor that are managed through the datasource.

Name	Value
* Driver type	4
* Database name	OSITAX
* Server name	MY_SERVER
* Port number	50000

☐ Use this data source in container managed persistence (CMP)

Previous

Next

Cancel

FIELD	VALUE
Driver type	Select the number 4.
Database name	Enter the name of your DB2 database (for example, OSITAX).
Server name	Enter the name of the server hosting DB2.
Port Number	Enter the database port number (for example, 50000).
Container Managed Persistence	Clear this check box.

6. Set up your security aliases, and then click **Next**.

Create a data source

Create a data source

Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

→ Step 3: Setup security aliases

Step 4: Summary

Setup security aliases

Select the authentication values for this resource.

Authentication alias for XA recovery
U0126623-W7BNode01/SBXTAX

Component-managed authentication alias
U0126623-W7BNode01/SBXTAX

Mapping-configuration alias
DefaultPrincipalMapping

Container-managed authentication alias
U0126623-W7BNode01/SBXTAX

Note: You can create a new J2C authentication alias by accessing one of the follow the wizard and your current wizard selections will be lost.

[Global J2C authentication alias](#)
[Security domains](#)

Previous Next Cancel

FIELD	VALUE
Authentication alias for XA recovery	Choose the Tax user you created in Configuring Authentication .
Component-managed authentication alias	Choose the Tax user you created in Configuring Authentication .
Mapping-configuration alias	Choose DefaultPrincipalMapping.
Container-managed authentication alias	Choose the Tax user you created in Configuring Authentication .

7. If the summary is correct, click **Finish**; otherwise, click **Previous** to correct your entries.

Create a data source

Create a data source

Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

→ Step 4: Summary

Summary

Summary of actions:

Options	Values
Scope	cells:U0126623-W7B W7BNode01
Data source name	Sabrix Tax Data Sou
JNDI name	sabrix.TaxDataSouce
Select an existing JDBC provider	DB2 Using IBM JCC D
Implementation class name	com.ibm.db2.jcc.DB2
Driver type	4
Database name	sabrixdb
Server name	U026623-XPA
Port number	50000
Use this data source in container managed persistence (CMP)	false
Authentication alias for XA recovery	U0126623-W7BNode
Component-managed authentication alias	U0126623-W7BNode
Mapping-configuration alias	DefaultPrincipalMapp
Container-managed authentication alias	U0126623-W7BNode

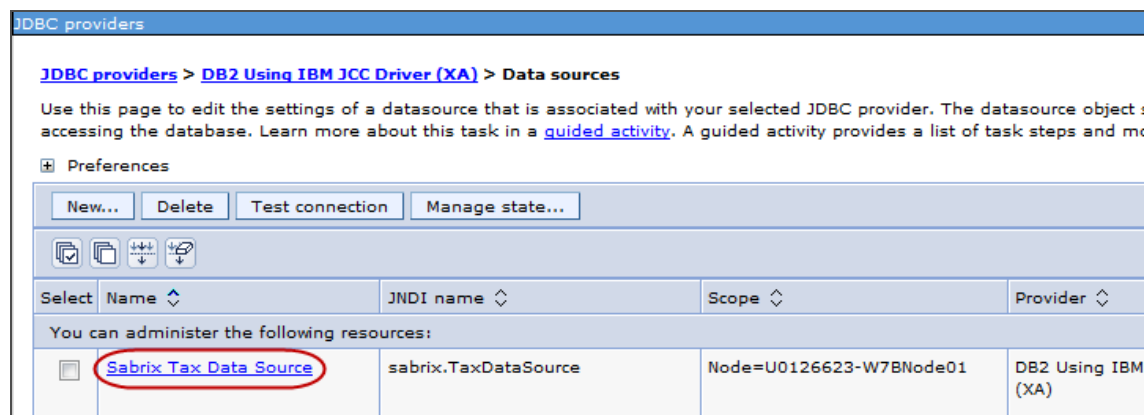
Previous **Finish** Cancel

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

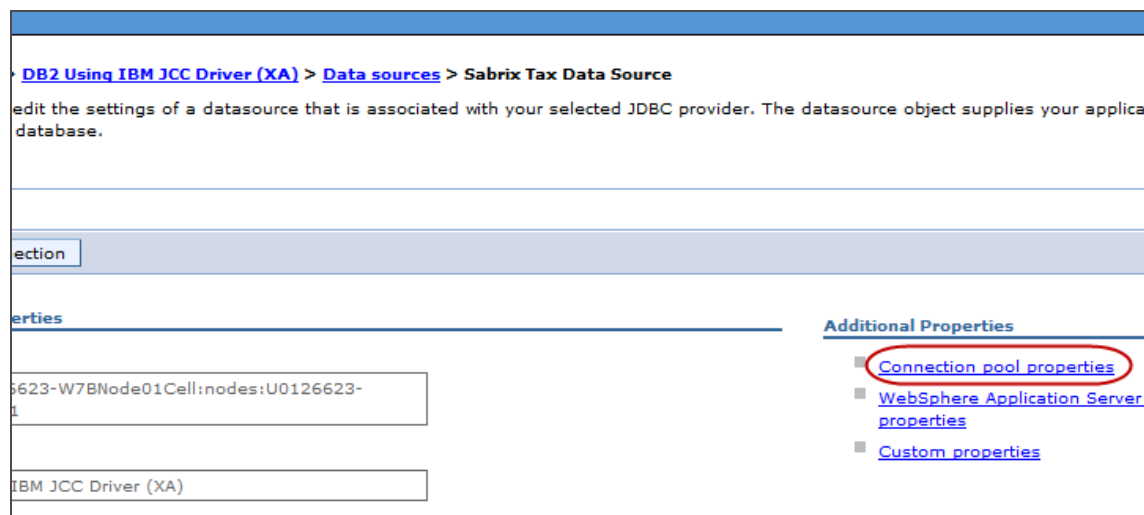
MODIFYING THE TAX DATA SOURCE

Modify the Tax data source by continuing in **Resources > JDBC > JDBC providers > DB2 Using IBM JCC Driver (XA) > Data sources**.

1. Click **Sabrix Tax Data Source**.



2. Click **Connection pool properties** in the **Additional Properties** section.



3. Add the following general properties, and then click **OK**.

JDBC providers

[JDBC providers](#) > [DB2 Using IBM JCC Driver \(XA\)](#) > [Data sources](#) > [Sabrix Tax Data Source](#) > [Connection pools](#)

Use this page to set properties that impact the timing of connection management tasks, which can affect the performance of your application; your application requirements might warrant changing these values.

Configuration

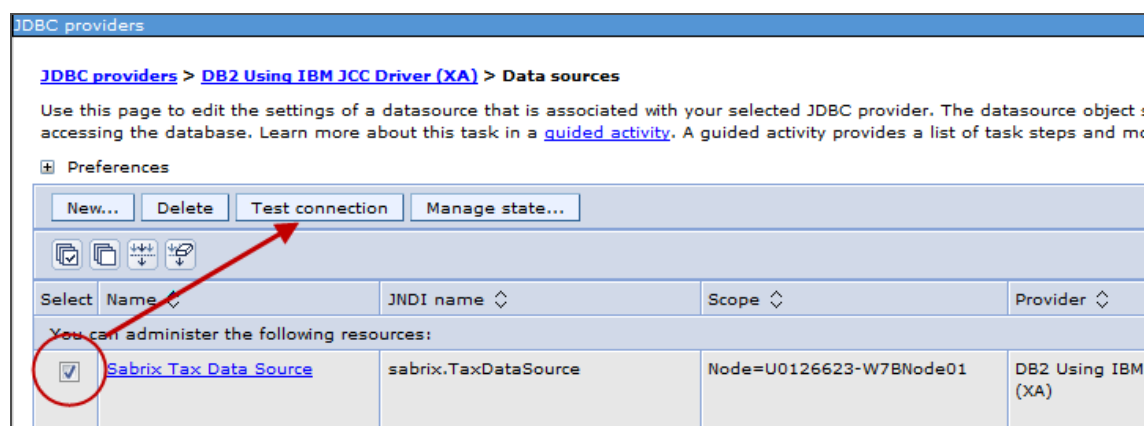
General Properties	Additional Properties
<p>Scope</p> <p>cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01</p> <p>* Connection timeout 30 seconds</p> <p>* Maximum connections 64 connections</p> <p>* Minimum connections 16 connections</p> <p>* Reap time 30 seconds</p> <p>* Unused timeout 60 seconds</p> <p>* Aged timeout 0 seconds</p> <p>Purge policy EntirePool</p>	<p>■ Advanced connection pool</p> <p>■ Connection pool</p>

Apply OK Reset Cancel

FIELD	VALUE
Connection timeout	30
Max connections	64
Min connections	16
Reap time	30
Unused timeout	60

FIELD	VALUE
Aged timeout	0
Purge policy	EntirePool

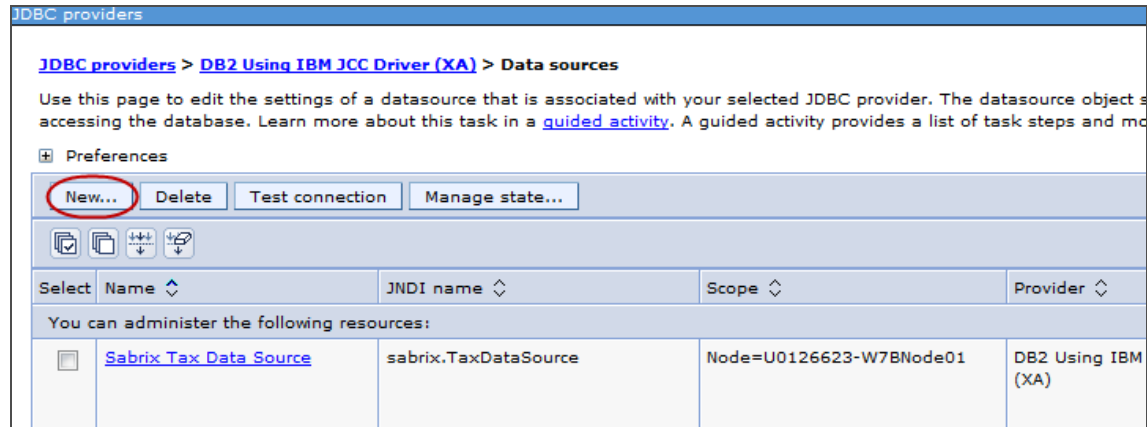
- Click **Save directly to the master configuration**.
- Select **Sabrix Tax Data Source**, and then click **Test connection**. If your test is successful, continue to the next section; otherwise, revise your tax data source entries until you pass the test.



CREATING THE AUDIT DATA SOURCE

Create the Audit data source by continuing in **Resources > JDBC providers > DB2 Using IBM JCC Driver (XA) > Data sources**.

1. Click **New**.



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

Create a data source

Create a data source

→ Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

Step 4: Summary

Enter basic data source information

Set the basic configuration values of a datasource for association with your JDBC physical connections between the application server and the database.

Requirement: Use the Datasources (WebSphere(R) Application Server V4) console the Enterprise JavaBeans(TM) (EJB) 1.0 specification or the Java(TM) Servlet 2.2 s

Scope

cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01

JDBC provider name

DB2 Using IBM JCC Driver (XA)

* Data source name

Sabrix Audit Data Source

* JNDI name

sabrix.AuditDataSource

Next

Cancel

FIELD	VALUE
Data source name	Sabrix Audit Data Source
JNDI name	sabrix.AuditDataSource

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INSTALLATION GUIDE V1

3. Add the database properties, and then click **Next**.

Create a data source

Create a data source

Step 1: Enter basic data source information

→ Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

Step 4: Summary

Enter database specific properties for the data source

Set these database-specific properties, which are required by the database vendor that are managed through the datasource.

Name	Value
* Driver type	4 ▼
* Database name	OSITAX
* Server name	MY_SERVER
* Port number	50000

☐ Use this data source in container managed persistence (CMP)

Previous

Next

Cancel

FIELD	VALUE
Driver type	Choose the number 4.
Database name	Name of your DB2 database (for example, OSITAX).
Server name	Name of the computer hosting DB2.
Port Number	By default, 50000. This guide uses the default value.
Container Managed Persistence	Clear this check box.

4. Set up your security aliases, and then click **Next**.

Create a data source

Create a data source

Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

→ Step 3: Setup security aliases

Step 4: Summary

Setup security aliases

Select the authentication values for this resource.

Authentication alias for XA recovery
U0126623-W7BNode01/SBXAUD

Component-managed authentication alias
U0126623-W7BNode01/SBXAUD

Mapping-configuration alias
DefaultPrincipalMapping

Container-managed authentication alias
U0126623-W7BNode01/SBXAUD

Note: You can create a new J2C authentication alias by accessing one of the following the wizard and your current wizard selections will be lost.

[Global J2C authentication alias](#)
[Security domains](#)

Previous Next Cancel

FIELD	VALUE
Authentication alias for XA recovery	Choose the Audit user you created in Configuring Authentication .
Component-managed authentication alias	Choose the Audit user you created in Configuring Authentication .
Mapping-configuration alias	Choose DefaultPrincipalMapping.
Container-managed authentication alias	Choose the Audit user you created in Configuring Authentication .

- If the summary is correct, click **Finish**; otherwise, click **Previous** to correct your previous entries.

Create a data source

Create a data source

Step 1: Enter basic data source information

Step 2: Enter database specific properties for the data source

Step 3: Setup security aliases

→ Step 4: Summary

Summary

Summary of actions:

Options	Values
Scope	cells:U0126623-W7BW7BNode01
Data source name	Sabrix Audit Data So
JNDI name	sabrix.AuditDataSour
Select an existing JDBC provider	DB2 Using IBM JCC D
Implementation class name	com.ibm.db2.jcc.DB2
Driver type	4
Database name	sabrixdb
Server name	U026623-XPA
Port number	50000
Use this data source in container managed persistence (CMP)	false
Authentication alias for XA recovery	U0126623-W7BNode
Component-managed authentication alias	U0126623-W7BNode
Mapping-configuration alias	DefaultPrincipalMapp
Container-managed authentication alias	U0126623-W7BNode

Previous

Finish

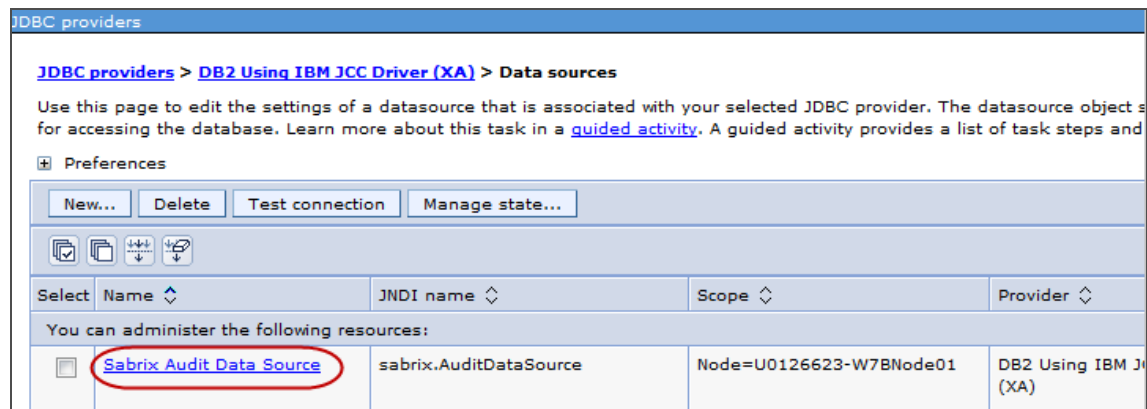
Cancel

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

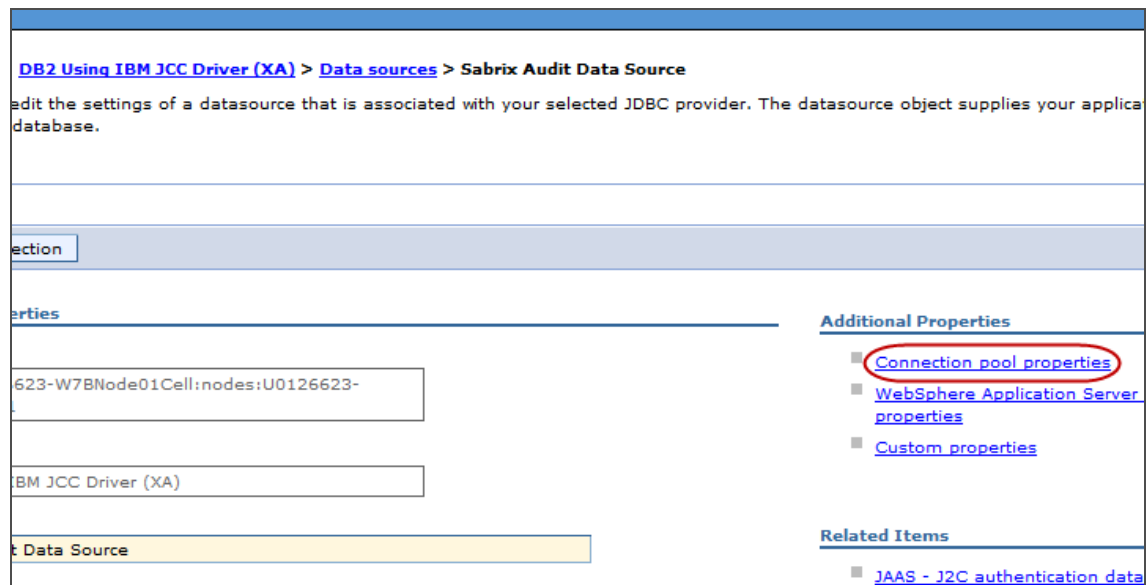
MODIFYING THE AUDIT DATA SOURCE

Modify the Audit data source by continuing in **Resources > JDBC > JDBC providers > DB2 Using IBM JCC Driver (XA) > Data sources**.

1. Click **Sabrix Audit Data Source**.



2. Click **Connection pool properties** in the **Additional Properties** section.



3. Add the following general properties, and then click **OK**.

JDBC providers

[JDBC providers](#) > [DB2 Using IBM JCC Driver \(XA\)](#) > [Data sources](#) > [Sabrix Audit Data Source](#) > **Connection pools**

Use this page to set properties that impact the timing of connection management tasks, which can affect the performance of carefully; your application requirements might warrant changing these values.

Configuration

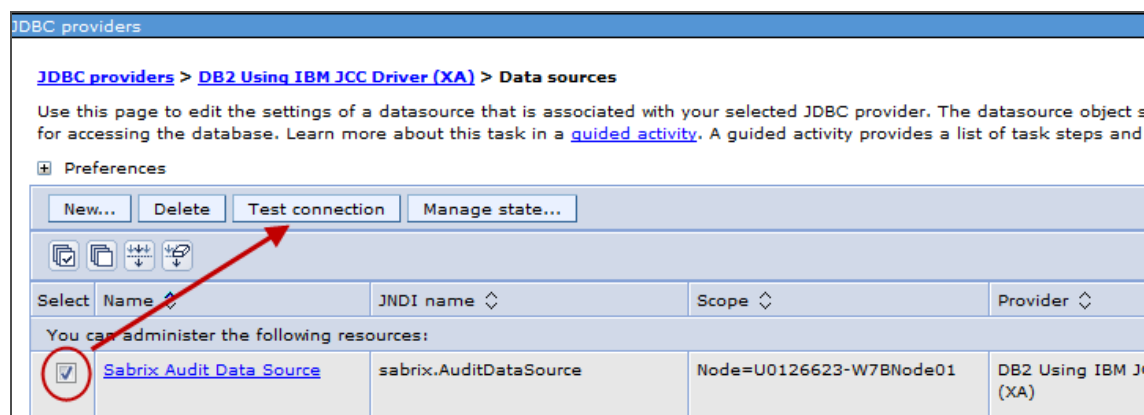
General Properties	Additional Properties
<p>Scope</p> <p>cells:U0126623-W7BNode01Cell:nodes:U0126623-W7BNode01</p> <p>* Connection timeout 30 seconds</p> <p>* Maximum connections 64 connections</p> <p>* Minimum connections 16 connections</p> <p>* Reap time 30 seconds</p> <p>* Unused timeout 60 seconds</p> <p>* Aged timeout 0 seconds</p> <p>Purge policy EntirePool</p>	<p>■ Advanced connection pool</p> <p>■ Connection pool</p>

Apply OK Reset Cancel

FIELD	VALUE
Connection timeout	30
Max connections	64
Min connections	16
Reap time	30
Unused timeout	60

FIELD	VALUE
Aged timeout	0
Purge policy	EntirePool

- Click **Save directly to the master configuration**.
- Select **Sabrix Audit Data Source**, and then click **Test connection**. If your test is successful, continue to the next section; otherwise, revise your audit data source entries until you pass the test.



CONFIGURING THE JAVA VIRTUAL MACHINE

The default heap sizes for the Java Virtual Machine are too low to deploy the Determination software successfully. Change the sizes by completing the following.

1. Go to **Servers > Server Types > WebSphere application servers**.
2. Click on your server.

Application servers		
Application servers Use this page to view a list of the application servers in your environment and the status of each of these servers. You can also click on a specific application server.		
Preferences		
<div> <div> <div></div> <div></div> </div> <div></div> </div>		
Name	Node	Host Name
You can administer the following resources:		
server1	U0126623-W7ANode01	U0126623-W7A.TLR.Thomson.com
Total 1		

3. Expand **Java and Process Management** in the **Server Infrastructure** list, and then click **Process Definition**.

General Properties

Name:

Node name:

☐ Run in development mode

☒ Parallel start

☐ Start components as needed

Access to internal server classes:

Server-specific Application Settings

Classloader policy:

Class loading mode:

Container Settings

- [Session management](#)
- ☒ SIP Container Settings
- ☒ Web Container Settings
- ☒ Portlet Container Settings
- ☒ EJB Container Settings
- ☒ Container Services
- ☒ Business Process Services

Applications

- [Installed applications](#)

Server messaging

- [Messaging engines](#)
- [Messaging engine inbound](#)
- [WebSphere MQ link inbound](#)
- [SIB service](#)

Server Infrastructure

- ☒ Java and Process Management
 - [Class loader](#)
 - [Process definition](#)
 - [Process execution](#)

4. Click **Java Virtual Machine** in the **Additional Properties** list.



Initialize a process.

Additional Properties

- [Java Virtual Machine](#)
- [Environment Entries](#)
- [Process execution](#)
- [Process Logs](#)
- [Logging and tracing](#)

5. Complete the following fields using the table below as a guide.

Initial heap size	<input type="text" value="2048"/> MB
Maximum heap size	<input type="text" value="2048"/> MB
<input type="checkbox"/> Run HProf	
HProf Arguments	<input type="text"/>
<input type="checkbox"/> Debug Mode	
Debug arguments	<input type="text" value="-agentlib:jdwp=transport=dt_socket,server=y,suspend=n,address=7777"/>
Generic JVM arguments	<input type="text" value="-Djava.awt.headless=true -Djava.net.preferIPv4Stack=true"/>

FIELD	VALUE
Initial Heap Size	2048 (minimum) <div>  We recommend allocating at least 6144m. </div>
Maximum Heap Size	2048 (minimum) <div>  We recommend allocating at least 6144m. </div>
Generic JVM arguments	-Djava.awt.headless=true -Djava.net.preferIPv4Stack=true
Generic JVM arguments	-DBASE_SABRIX_DIRECTORY=<logging_directory> (If you plan to run Determination in several instances of the application server on the same host, add this parameter to ensure that each instance logs to its own directory. Replace <logging_directory> with your logging directory. If you are only running one instance of the application server, you can skip this step and set the parameter in Determination on the Configuration page. See the Help for further details.)

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

ENABLING AUTOMATIC TAX DATA DOWNLOADS (OPTIONAL)

If you plan to use the tax data automatic download feature, you need to complete both a WebSphere configuration and a configuration inside Determination. The following explains the WebSphere configuration, and you should consult Help for details about Determination configuration. If you do not plan to use this feature, then skip to [Deploying the Application](#).

There are two parts for the WebSphere configuration of this feature:

- Exporting the Customer Center certificate.
- Configuring the certificate in WebSphere.

Exporting the Customer Center Certificate

The following is an example using Internet Explorer:

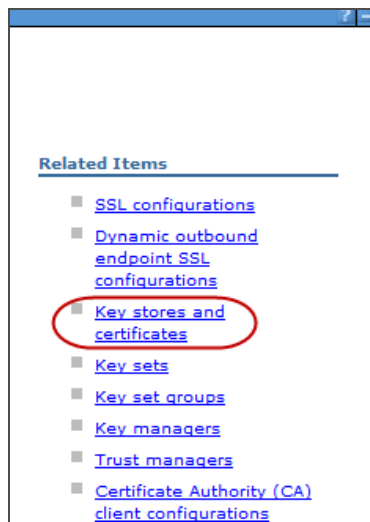
1. Go to the following: <https://customercenter.sabrix.com/sabrixcc/>
2. Click the lock icon, which brings up the **Website Identification** window.
3. Click **View certificates**.
4. Click the **Details** tab, and then click **Copy to File**.
5. Click **Next** in the **Certificate Export Wizard**.
6. Accept the default for the **Export File Format (DER encoded binary)**, and then click **Next**.
7. Specify a name and directory path, and then click **Next**.
8. Click **Finish**, and then **OK**.
9. Upload the certificate to the server hosting WebSphere.

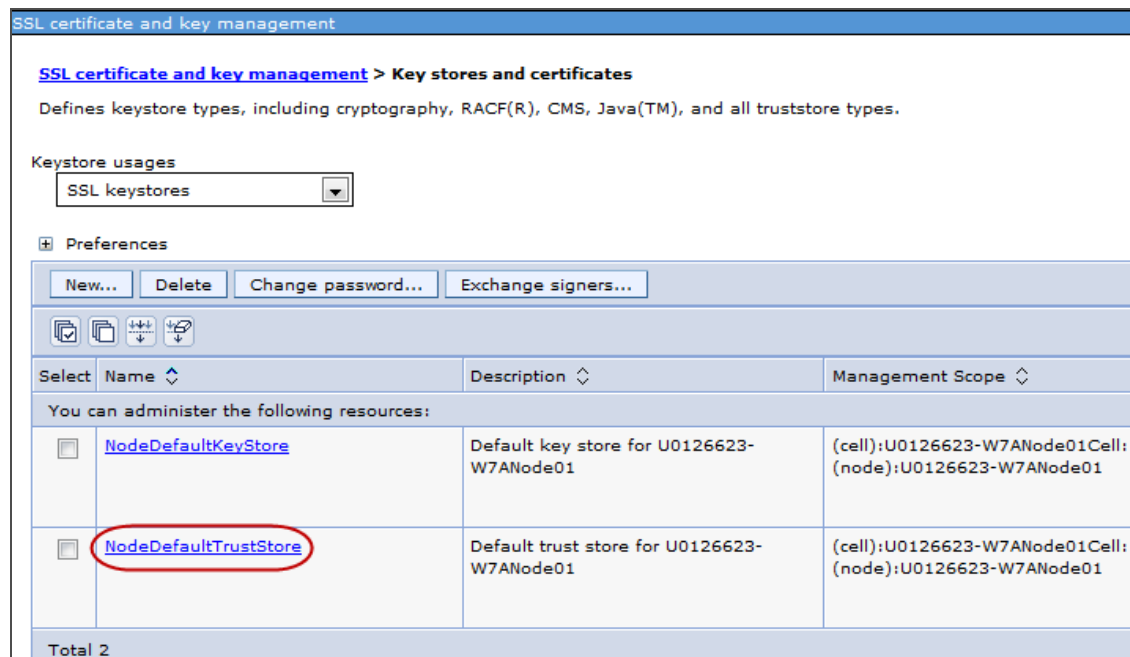
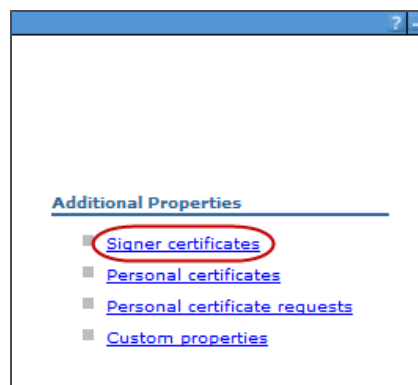
You will use this certificate file in the following section.

Configuring the Certificate in WebSphere

Using the Integrated Solution Console, complete the following:

1. Under **Security** in the left pane, click **SSL certificate and key management**.
2. Under **Related Items**, click **Key stores and certificates**.



3. Click **NodeDefaultTrustStore**.4. Under **Additional Properties**, click **Signer certificates**.

5. Click **Add**.

SSL certificate and key management

[SSL certificate and key management](#) > [Key stores and certificates](#) > [NodeDefaultTrustStore](#) > **Signer certificates**

Manages signer certificates in key stores.

Preferences

Add Delete Extract Retrieve from port

Select Alias Issued to Fingerprint (SHA Digest)

You can administer the following resources:

<input type="checkbox"/>	root	CN=U0126623-W7A.TLR.Thomson.com, OU=Root Certificate, OU=U0126623-W7ANode01Cell, OU=U0126623-W7ANode01, O=IBM, C=US	60:99:5D:05:01:77:53:18:AF:F0:5E:49:E4:12:06:96
--------------------------	----------------------	---	---

Total 1

6. Complete the following general properties.

SSL certificate and key management

[SSL certificate and key management](#) > [Key stores and certificates](#) > [NodeDefaultTrustStore](#) > [Signer certificates](#) > **Add signer certificate**

Adds a signer certificate to a key store.

General Properties

* Alias
My_Cert

* File name
C:\TEMP\My_Cert.cer

Data type
Binary DER data

Apply OK Reset Cancel

FIELD	VALUE
Alias	Enter a label of your choice.
File name	Insert the name and directory path where you stored your exported certificate.
Data type	Select Binary DER data .

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

After you finish your WebSphere configurations and you begin your Determination configurations, consult Help for directions about configuring the automatic download feature.

CONFIGURING CSRFGUARD

When enabled, CSRFGuard provides security against cross-site request forgery security attacks. By default, CSRFGuard is disabled. To enable this feature, contact Customer Support or visit the Knowledge Base.

Complete the following:

1. Stop WebSphere.
2. Navigate to the following directory in WebSphere:

`<WebSphereBaseDirectory>/AppServer/lib/`

3. In the directory, create a file called *Owasp.CsrfGuard.overlay.properties*, and then insert the following lines:

```
1  org.owasp.csrfguard.configuration.provider.factory=org.owasp.c  
   srfguard.config.overlay.ConfigurationOverlayProviderFactory  
2  org.owasp.csrfguard.Enabled=false  
3  org.owasp.csrfguard.PRNG=IBMSecureRandom  
4  org.owasp.csrfguard.PRNG.Provider=IBMJCE
```

4. Save and close *Owasp.CsrfGuard.overlay.properties*.
5. Restart WebSphere.

DEPLOYING THE APPLICATION

The Determination application is contained in the *sabrix.ear* file, which is in the root directory of the installation .zip file you downloaded and extracted earlier. Complete the following steps to deploy the application.



These deployment steps are for a default installation. If your environment requires advanced settings for deployment, choose those as you complete the steps below.

The deployment steps are grouped into four sections:

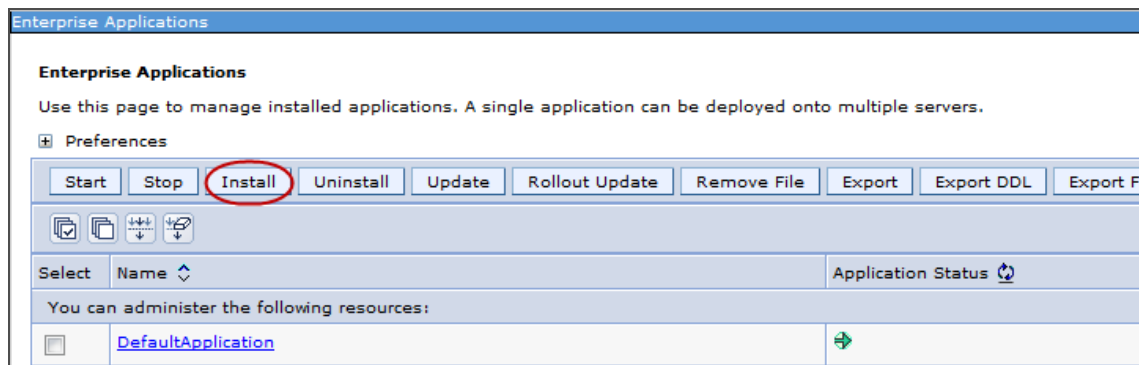
- Loading the Application
- Selecting Installation Options

- Configuring Class Loading
- Setting a Custom Property

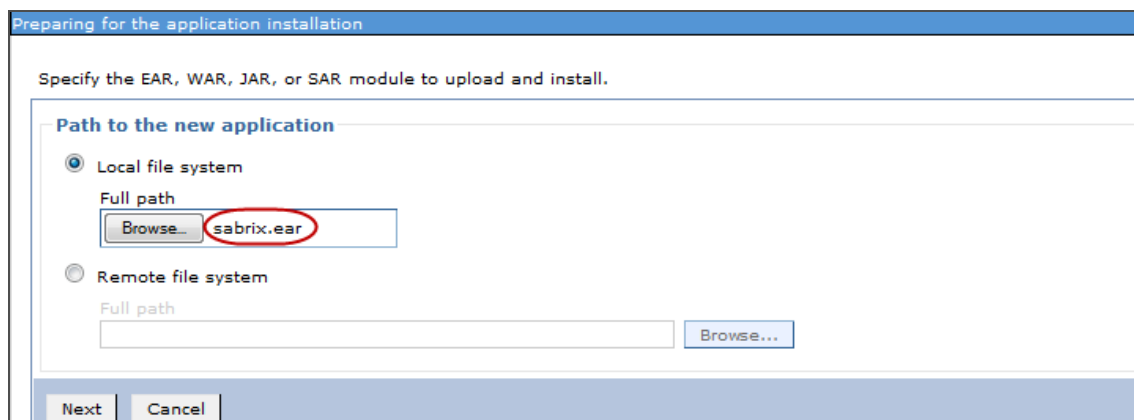
Loading the Application

The following steps guide you through the process of loading the Determination application.

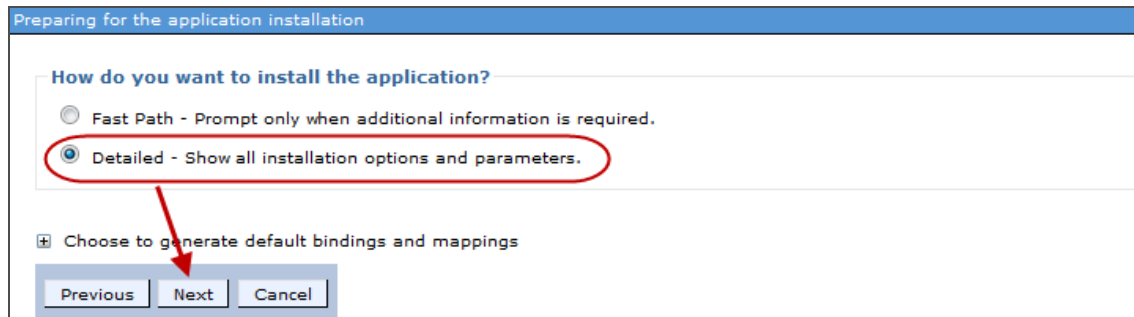
1. From the console, go to **Applications > Application Types > Websphere enterprise applications**.
2. Click **Install**.



3. Enter or browse to the location of the *sabrix.ear* file, and then click **Next**.



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



Preparing for the application installation

How do you want to install the application?

☐ Fast Path - Prompt only when additional information is required.

☒ Detailed - Show all installation options and parameters.

☐ Choose to generate default bindings and mappings

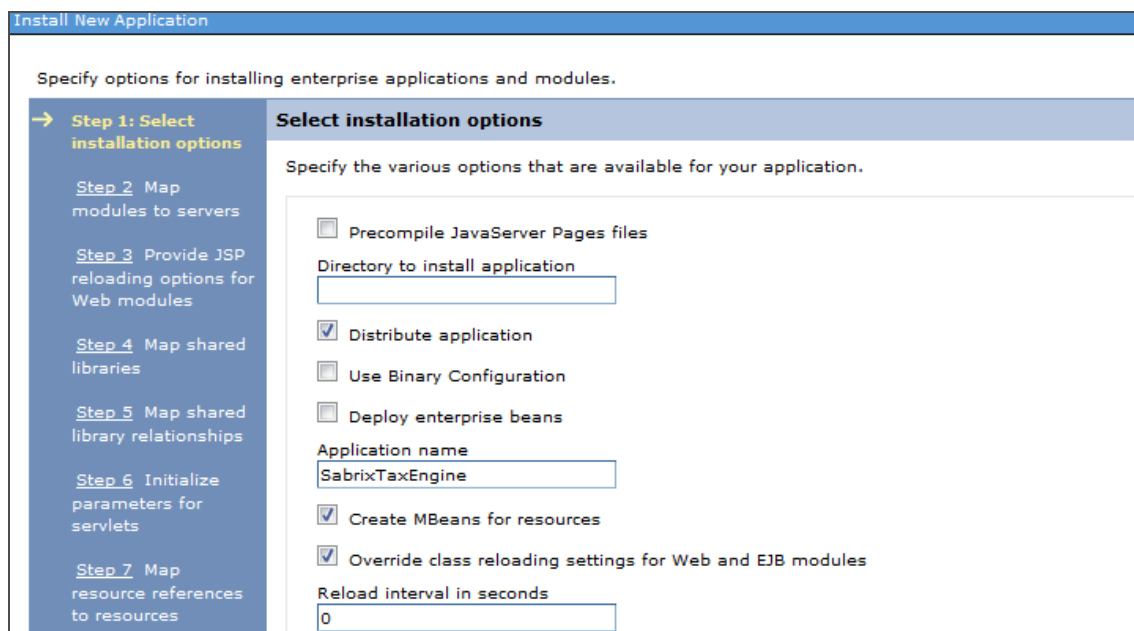
Previous Next Cancel

Remain on the screen, and continue with the steps in the following section.

Selecting Installation Options

Complete each step below to select the installation options.

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



Install New Application

Specify options for installing enterprise applications and modules.

→ **Step 1: Select installation options**

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

Select installation options

Specify the various options that are available for your application.

☐ Precompile JavaServer Pages files

Directory to install application

☒ Distribute application

☐ Use Binary Configuration

☐ Deploy enterprise beans

Application name

SabrixTaxEngine

☒ Create MBeans for resources

☒ Override class reloading settings for Web and EJB modules

Reload interval in seconds

0

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 zero: 0

- 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) you want to deploy to, select the three check boxes below, and click **Apply**. When you are done, click **Next**.

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

→ Step 2: Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

✱ Step 8 Map virtual hosts for Web modules

Map modules to servers

Specify targets such as application servers or clusters of application servers where you want to install your application. Modules can be installed on the same application server or dispersed among several Web servers as targets that serve as routers for requests to this application. The plug-in configuration Web server is generated, based on the applications that are routed through.

Clusters and servers:

WebSphere:cell=PDXSASDV062Node01Cell,node=PDXSASDV062Node01,server=server1

☒ ☐

Select	Module	URI	Server
<input type="checkbox"/>	Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	WebSphere:cell=PDXSASDV062Node01Cell,node=PDXSASDV062Node01,server=server1
<input type="checkbox"/>	Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml	WebSphere:cell=PDXSASDV062Node01Cell,node=PDXSASDV062Node01,server=server1
<input type="checkbox"/>	determination-help.war	determination-help.war,WEB-INF/web.xml	WebSphere:cell=PDXSASDV062Node01Cell,node=PDXSASDV062Node01,server=server1

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

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options

[Step 2](#) Map modules to servers

→ **[Step 3: Provide JSP reloading options for Web modules](#)**

[Step 4](#) Map shared libraries

[Step 5](#) Map shared library relationships

[Step 6](#) Initialize parameters for servlets

Provide JSP reloading options for Web modules

JSP reloading options for Web modules

Configure Servlet and JSP reload attributes in web modules.

Web module	URI	JSP enable class reloading	JSP reload in seconds
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	<input checked="" type="checkbox"/>	10
Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml	<input checked="" type="checkbox"/>	10
determination-help.war	determination-help.war,WEB-INF/web.xml	<input checked="" type="checkbox"/>	10

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

Install New Application

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options

[Step 2](#) Map modules to servers

[Step 3](#) Provide JSP reloading options for Web modules

→ **[Step 4: Map shared libraries](#)**

[Step 5](#) Map shared library relationships

[Step 6](#) Initialize parameters for servlets

Map shared libraries

Specify shared libraries that the application or individual modules reference. These configuration at the appropriate scope.

Reference shared libraries

Select	Application	URI
<input type="checkbox"/>	SabrixTaxEngine	META-INF/application.xml

Select	Module	URI
<input type="checkbox"/>	Sabrix System Web Application	sabrix.war,WEB-INF/web.xml
<input type="checkbox"/>	Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml

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

Install New Application

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options
[Step 2](#) Map modules to servers
[Step 3](#) Provide JSP reloading options for Web modules
[Step 4](#) Map shared libraries
→ [Step 5: Map shared library relationships](#)
[Step 6](#) Initialize parameters for servlets
[Step 7](#) Map resource references

Map shared library relationships

Specify asset or composition unit IDs as shared libraries that the application or module uses. If an asset ID is specified, it must be part of the business level application to which the application or module is deployed. If a composition unit ID is specified, a composition unit is created from the asset. When unit IDs can be specified as shared libraries.

Reference shared libraries

Select	Application	URI
<input type="checkbox"/>	SabrixTaxEngine	META-INF/application.xml
Select	Module	URI
<input type="checkbox"/>	Sabrix System Web Application	sabrix.war,WEB-INF/web.xml
<input type="checkbox"/>	Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml

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

Install New Application

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options
[Step 2](#) Map modules to servers
[Step 3](#) Provide JSP reloading options for Web modules
[Step 4](#) Map shared libraries
[Step 5](#) Map shared library relationships
→ [Step 6: Initialize parameters for servlets](#)

Initialize parameters for servlets

Configure values for servlet's initial parameters in web modules.

Web module	URI	Servlet	Name	Description
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	CXFServlet	service-list-title	
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	XMLInvoiceServlet	debug	
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	XMLInvoiceServlet	retries	
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	SOAPInvoiceServlet	debug	

7. On **Step 7: Map resource references to resources**, click **Next** to accept the defaults.

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

→ Step 7: Map resource references to resources

★ Step 8 Map virtual hosts for Web modules

Map resource references to resources

Each resource reference that is defined in your application must be mapped to a resource.

javax.sql.DataSource

Set Multiple JNDI Names Modify Resource Authentication Method... Export

☒ ☐

Select	Module	Bean	URI	Resource Reference	Target Resource
<input type="checkbox"/>	Sabrix System Web Application		sabrix.war,WEB-INF/web.xml	jdbc/TaxDataSource	<div>sabrix.TaxD</div> <div>Browse...</div>
<input type="checkbox"/>	Sabrix System Web Application		sabrix.war,WEB-INF/web.xml	jdbc/AuditDataSource	<div>sabrix.Audit</div> <div>Browse...</div>

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

Specify options for installing enterprise applications and modules.

[Step 1 Select installation options](#)

[Step 2 Map modules to servers](#)

[Step 3 Provide JSP reloading options for Web modules](#)

[Step 4 Map shared libraries](#)

[Step 5 Map shared library relationships](#)

[Step 6 Initialize parameters for servlets](#)

[Step 7 Map resource references to resources](#)

→ **Step 8: Map virtual hosts for Web modules**

Map virtual hosts for Web modules

Specify the virtual host for the Web modules that are contained in your application. You can map modules on the same virtual host or disperse them among several hosts.

☒ Apply Multiple Mappings

Select	Web module	Virtual host
<input type="checkbox"/>	Sabrix System Web Application	default_host ▼
<input type="checkbox"/>	Sabrix Registration Web Application	default_host ▼
<input type="checkbox"/>	determination-help.war	default_host ▼

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

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

Step 8 Map virtual hosts for Web modules

→ Step 9: Map context roots for Web modules

Map context roots for Web modules

Configure values for context roots in web modules.

Web module	URI	Context Root
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	/sabrix
Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml	/sabrix-extension
determination-help.war	determination-help.war,WEB-INF/web.xml	/determination-h

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

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

Step 8 Map virtual hosts for Web modules

Step 9 Map context roots for Web modules

→ Step 10: Map JASPI provider

Map JASPI provider

JASPI providers offer an alternative to JAAS pluggable authentication for web modules. If application inherits the JASPI settings defined in the WebSphere Application Server global security configuration and web modules inherit the application setting. However, you can set defaults by using wsadmin or the administrative console.

Select JASPI provider ▾

☒ ☐

Select	Application	URI	JASPI name
<input type="checkbox"/>	SabrixTaxEngine	META-INF/application.xml	
Select	Module	URI	JASPI name
<input type="checkbox"/>	Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	
<input type="checkbox"/>	Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml	
<input type="checkbox"/>	determination-help.war	determination-help.war,WEB-INF/web.xml	

11. On **Step 11: Display module build Ids**, click **Next**.

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

Step 8 Map virtual hosts for Web modules

Step 9 Map context roots for Web modules

Step 10 Map JASPI provider

→ **Step 11: Display module build Ids**

Display module build Ids

Display module build IDs.

Module	URI
Sabrix System Web Application	sabrix.war,WEB-INF/web.xml
Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml
determination-help.war	determination-help.war,WEB-INF/web.xml

12. Review the summary, and if the values are not correct, return to the previous steps to make corrections; otherwise, click **Finish**.

Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Initialize parameters for servlets

Step 7 Map resource references to resources

Step 8 Map virtual hosts for Web modules

Step 9 Map context roots for Web modules

Step 10 Map JASPI provider

Step 11 Display module build Ids

→ Step 12: Summary

Summary

Summary of installation options

Options	Values
Precompile JavaServer Pages files	No
Directory to install application	
Distribute application	Yes
Use Binary Configuration	No
Deploy enterprise beans	No
Application name	SabrixTaxEng
Create MBeans for resources	Yes
Override class reloading settings for Web and EJB modules	Yes
Reload interval in seconds	0
Deploy Web services	No
Validate Input off/warn/fail	warn
Process embedded configuration	No
File Permission	.*\..dll=755#
Application Build ID	Unknown
Allow dispatching includes to remote resources	No
Allow servicing includes from remote resources	No
Business level application name	
Asynchronous Request Dispatch Type	Disabled
Allow EJB reference targets to resolve automatically	No
Deploy client modules	No
Client deployment mode	Isolated
Validate schema	No
Cell/Node/Server	Click here

Previous

Finish

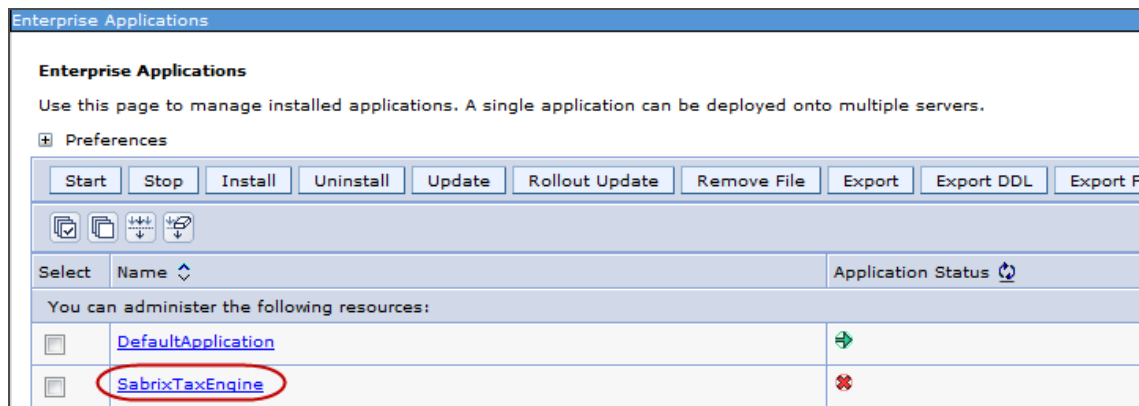
Cancel

13. Once the deployment is finished, click **Save directly to the master configuration**.

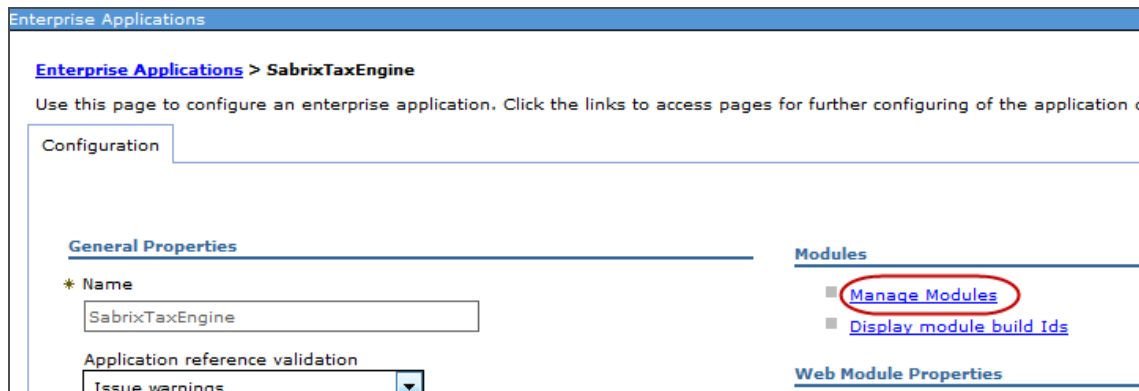
Configuring Class Loading

After the deployment, complete the following steps to set class loading.

1. Go to **Applications > Application Types > WebSphere enterprise applications**.
2. Click **SabrixTaxEngine**.



3. Click on **Manage Modules**.



- Click **Sabrix System Web Application**.

Enterprise Applications

[Enterprise Applications](#) > [SabrixTaxEngine](#) > **Manage Modules**

Manage Modules

Specify targets such as application servers or clusters of application servers where you want to install the modules that are co be installed on the same application server or dispersed among several application servers. Also, specify the Web servers as to this application. The plug-in configuration file (plugin-cfg.xml) for each Web server is generated, based on the application

Clusters and servers:

WebSphere:cell=U0126623-W7BNode01Cell,node=U0126623-W7BNode01,server=server1

☒ ☐

Select	Module	URI	Module Type	Server
<input checked="" type="checkbox"/>	Sabrix System Web Application	sabrix.war,WEB-INF/web.xml	Web Module	WebSphere:cell=U0126623-W7BNode01,server=server1
<input type="checkbox"/>	Sabrix Registration Web Application	registration-validation.war,WEB-INF/web.xml	Web Module	WebSphere:cell=U0126623-W7BNode01,server=server1

- Select the **Class loader order** value **Class loaded with local class loader first (parent last)**.

Enterprise Applications

[Enterprise Applications](#) > [SabrixTaxEngine](#) > [Manage Modules](#) > **sabrix.war**

Use this page to configure an instance of a deployed web module in the application. This page contains deployment-specific management settings.

Configuration

General Properties

* URI
sabrix.war

Alternate deployment descriptor

* Starting weight
10000

* **Class loader order**
Classes loaded with local class loader first (parent last) ▼

Additional Properties

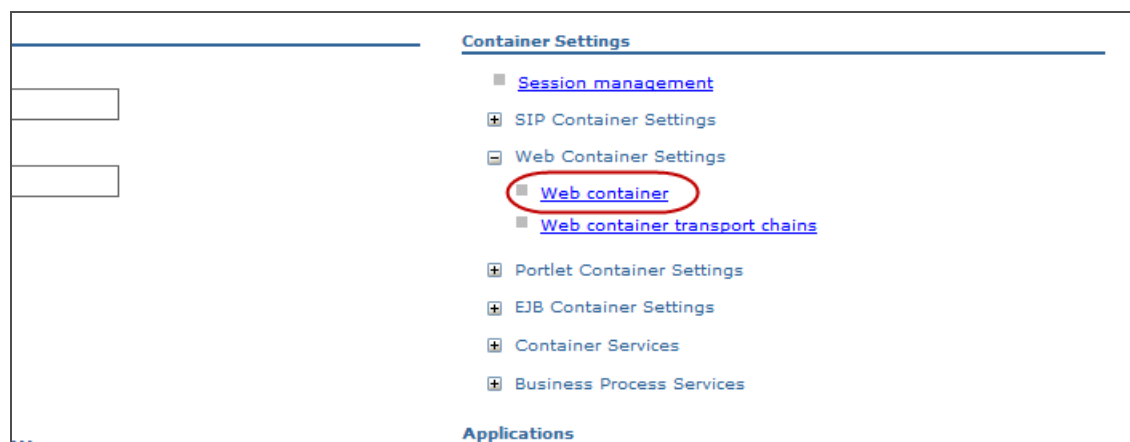
- ☐ [View Module Cl](#)
- ☐ [Custom proper](#)
- ☐ [Target specific](#)
- ☐ [View Deployme](#)
- ☐ [Session Manag](#)

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

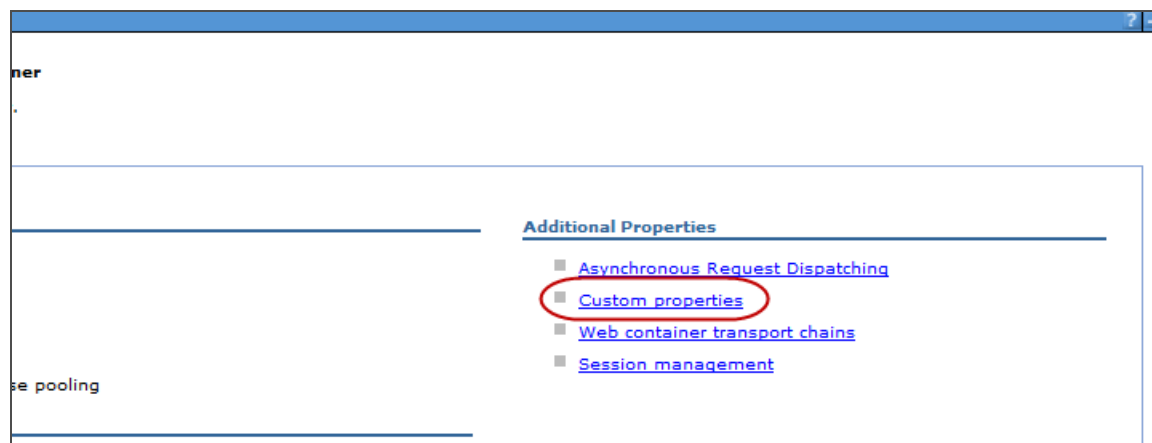
Setting a Custom Property

Complete the following to ensure the trailing forward slash is removed from your URL:

1. Go to **Servers > Server Types > WebSphere Application Servers**, and then click on the server (for example, **server1**).
2. Under **Container Settings**, expand **Web Container Settings** and then click **Web container**.



3. Select **Custom properties** under **Additional Properties**.



4. Click **New**.

Application servers

[Application servers](#) > [server1](#) > [Web container](#) > **Custom properties**

Use this page to specify an arbitrary name and value pair. The value that is specified for the name and value pair is a string properties.

⊕ Preferences

New... Delete

⊞ ⊞ ⊞ ⊞

Select	Name	Value	Description
<input type="checkbox"/>	com.ibm.ws.webcontainer.HTTPOnlyCookies	JSESSIONID	Cookie

Total 1

5. Enter the values listed in the table below:

NAME	VALUE
com.ibm.ws.webcontainer.remove trailing servlet path slash	true

Application servers

[Application servers](#) > [server1](#) > [Web container](#) > [Custom properties](#) > **New...**

Use this page to specify an arbitrary name and value pair. The value that is specified for the name and value pair is a string properties.

Configuration

General Properties

* Name
com.ibm.ws.webcontainer.remove trailing servlet path slash

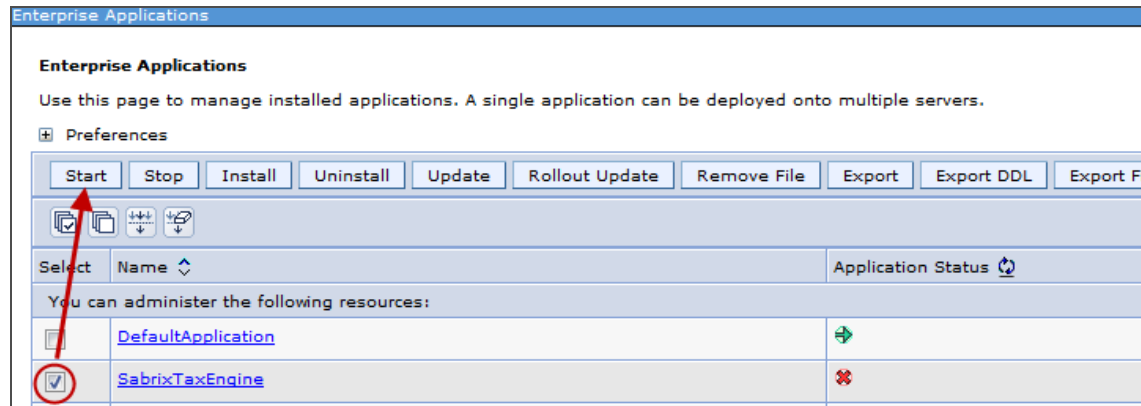
* Value
true

Description

Apply OK Reset Cancel

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

7. Return to **Applications > Application Types > WebSphere enterprise applications**, select **SabrixTaxEngine**, and then click **Start**.



DUPLICATE USERS

Determination does not support duplicate user name entries in the database. During the installation process, the installer checks for duplicate user names. When duplicate users are found, the installer appends "_DET513x_[Sequential Number]" to those entries. For example, two entries for SMITH become SMITH_DET513x_1 and SMITH_DET513x_2.

If found, the installer displays a list of duplicate user names and the new replacement names.

```
5 duplicate user names found. Renamed the inactive duplicate data. | User
Name | Renamed User Name | | BobSmith | BobSmith_DET513x_1 | | BobSmith |
BobSmith_DET513x_2 | | BobSmith | BobSmith_DET513x_3 | | MaryClark |
MaryClark_DET513x_4 | | MaryClark | MaryClark_DET513x_5 |
```

If the installer cannot append a user name, the installation fails. Duplicate user names that cannot be resolved are left in the database and must be modified manually before completing the installation. A message similar to the following displays:

```
Aborting installation. 11 duplicate user names found with more than 60
characters after appending DET513x and maximum duplicate user count. Please
remove or rename these inactive duplicate user manually. | User Name | |
MarkHam | |MarkHam | |MarkHam | |MarkHam | |MarkHam | |MaryHart | |MaryHart
| |MaryHart | |TomSmith123456 | |TomSmith123456 | |TomSmith123456 |
```

RUNNING THE IMPLEMENTER

The Implementer is the installation program for Determination and is the process you run after configuring your application server.




Set the Oracle parameter OPEN_CURSORS to 3000 to ensure the Determination installation completes successfully.

Starting the Installation

Open a browser and complete the following steps:

1. Go to the Determination installation URL (<http://<host>:<port>/sabrix/install>).
2. Enter the following user name and password: **dba/password**.

3. The Implementer page displays a summary of your environment.

Determination Implementer		
Database Vendor:	Tax Data Oracle - Oracle Database 12c Enterprise Edition Release 12...	Audit Data Oracle - Oracle Database 12c Enterprise Edition Release 12...
Driver Version:	12.1.0.1.0	12.1.0.1.0
Database Connection:	jdbc:oracle:thin:@pdxsasqa145.corp.ositax.com:152...	jdbc:oracle:thin:@pdxsasqa145.corp.ositax.com:152...
Database User:	TE9628	TE9628A
Sabrix Version Installed		
Sabrix Version To Be Installed		5.11.0.0.33.33
Click to start the installation:		

4. Click **Run** to start the installation.

Checking the Installation Results

When the process runs, it records the results in your browser window and in a log file:

- **Browser Window:** You should see the following message at the end of the screen output:
"Implementation completed successfully!" If you receive this message, you can continue with the remaining sections in this guide; however, if you see the following message, you should contact Customer Support : "Problem(s) encountered during implementation! Check the installation messages for more information."
- **Log File:** If you want more detailed information about installation messages, review the *sabrix.log* file. See "Log Files" in the *ONESOURCE Indirect Tax Determination User Guide* for instructions about finding the log.



If you review the log immediately after installing Determination, you can ignore any errors that appear from the beginning of the log until the entry that ends with "CleanUpRolesForCoreUsers." Any errors that appear after this log entry may be significant, and you should contact Customer Support.

INSTALLING TAX CONTENT

This is a two-step process that is composed of importing the content and associating that content with a Determination company.

IMPORTING CONTENT INTO DETERMINATION

You downloaded the Content file(s) at the beginning of this installation process. Now you will import the files into Determination using the Import/Export feature.



Do not unzip your Content files. You will load these into Determination as zipped files.

1. Go to the Determination URL (<http://<host>:<port>/sabrix/>).
2. Enter the following user name and password: **dba/password**.



To protect your system, be sure to change the password for the dba user once you have completed the initial installation. See Help for details about how to change the password.

3. Go to **Menu > System > Import/Export**.
4. Click the **Import** tab.
5. Browse to the directory containing the first downloaded file.
6. Enter the path and file name, or browse to it, and then click **OK**.
7. Click **Import**.
8. The **Import/Export Wizard** displays information about the file to be imported. Click **Next**.
9. Click **Next** on each page until the import starts.
10. Once the import has started, close this status window—even though the import is not finished. The import will continue, and you can go to the **History** tab periodically to check the status. Click **Refresh** on the **History** tab to update the display.
11. Repeat steps 3-9 for the other Tax Data Provider(s), as appropriate.



Once you install master Content, you will need to perform monthly Content updates to keep your data current. You can automate all or part of the update process. For more information, see the "Import/Export" topic in Help.

CREATING AND CONFIGURING A COMPANY

To use the new Content, you need to associate it with a company in the Determination software.

1. Log on to Determination as the dba user.
2. Go to **Menu > System > Companies**.
3. Select **Add** from the **Actions** menu to create a company.
4. On the **Edit** tab, enter basic company information, and then click **Submit**.
5. Click the **Tax Preferences** tab.
6. In the **Data Providers** section, select values for your **Tax Data Provider**, and then click **Submit**.

You now have a basic Determination company to use when you test the installation in the following section. Once you successfully complete the testing, you can make additional company configurations (see the Help topic "Working with Companies").

TUNING ESTABLISHED AUTHORITIES PERFORMANCE

Due to the large amount of data which may be maintained on the Established Authorities page at your implementation, we suggest this tuning procedure to enhance performance in this area.



This task should be managed by an experienced database administrator. Contact ONESOURCE Indirect Tax Consulting Services for assistance.

1. Create the following three clustering indexes:

SBXTAX.TB_ZONES_N4

```
CREATE UNIQUE INDEX SBXTAX.TB_ZONES_N4 ON SBXTAX.TB_ZONES  
(TAX_PARENT_ZONE_ID ASC,  
PARENT_ZONE_ID ASC,  
ZONE_ID ASC)  
PCTFREE 10 CLUSTER MINPCTUSED 10;
```

SBXTAX.TB_ZONE_AUTH_U3

```
CREATE UNIQUE INDEX SBXTAX.TB_ZONE_AUTH_U3 ON SBXTAX.TB_ZONE_  
AUTHORITIES  
(AUTHORITY_ID ASC,  
ZONE_ID ASC)  
PCTFREE 10 CLUSTER MINPCTUSED 10;
```

SBXTAX.TB_AUTHORITIES_N2

```
CREATE UNIQUE INDEX SBXTAX.TB_AUTHORITIES_N2 ON SBXTAX.TB_AUTHORITIES  
(MERCHANT_ID ASC,  
AUTHORITY_TYPE_ID ASC,
```

```
AUTHORITY_ID ASC)
```

```
PCTFREE 10 CLUSTER MINPCTUSED 10;
```

2. Reorganize the three related tables using the REORG command.
3. Run the RUNSTATS command on all tables and indexes.

TESTING YOUR INSTALLATION

After installing Determination and creating a basic company, test the installation by creating a test transaction.

1. Log on to Determination as the **dba** user.
2. Select the company you previously created from the **Company** selector in the upper right corner of the page.
3. Select **Menu > Workbench**.
4. Enter scenario information for a test transaction on the **Main** tab of the workbench. For example, enter the following:
 - **Scenario:** 1
 - **Invoice Number:** 1
 - **Company Role:** Seller
 - **Currency:** United States Dollar
 - **Quantity:** 1
 - **Gross Amt:** 1000
5. Click the **Locations** tab.
6. Click **Ship From**, and then enter the following:
 - **Ship From Country:** US
 - **Ship From State:** WA
 - **Ship From County:** KING
 - **Ship From City:** SEATTLE
 - **Ship From Zip:** 98101
7. Click **Ship To**, and then enter the following:

- **Ship To Country:** US
 - **Ship To State:** CA
 - **Ship To County:** ALAMEDA
 - **Ship To City:** OAKLAND
 - **Ship To Zip:** 94601
8. Click **Submit**. You should see an effective rate and tax amount for your transaction. Click **Results** to review the processing of the invoice including tax breakdowns per jurisdiction.
 9. Select **Input XML** or **Output XML** from the **Actions** menu to view the XML that was sent to and returned by the Determination software. These tools can be helpful if you need to debug the integration software that connects your financial system with Determination. See the *Programmer Guide* for more details.

CLUSTERING



Skip this section if you are not installing in a clustered environment.

Determination supports TCP and UDP cluster communication to establish initial cluster membership, as well as to keep membership information current. Review the following sections to set up clustering:

- [Prerequisites \(page 77\)](#)
- [Determination Parameters \(page 78\)](#)
- [Properties File \(page 79\)](#)
- [Cluster XML File \(page 83\)](#)
- [Cluster Test \(page 84\)](#)

PREREQUISITES

Review the following before you begin configuring the cluster.

- **Tax Content:** Make sure your tax content is loaded into Determination before you set up the cluster.
- **JDBC URLs:** All cluster members must have identical JDBC URLs. For example, although the following two URLs point to the same host and database, clustering would not work because one JDBC URL uses the IP address and the other uses the fully qualified domain name for the host of the database:

```
jdbc:oracle:thin:@pdxsasdv062.corp.acme.com:1521:sabrixdb
```

```
jdbc:oracle:thin:@10.198.221.48:1521:sabrixdb
```

- **Internet Protocol Versions:** Some application servers default to the IPv6 stack while others use the IPv4 stack. When you enter IP addresses during the cluster configuration, be sure to adhere to the format appropriate for the internet protocol version. If your cluster involves communication between an IPv4 and an IPv6 node, set the following property in the start-up file of the application server:

```
1 -Djava.net.preferIPv4Stack=true
```

- **Firewalls:** Make sure firewalls are not blocking communications between Determination nodes.
- **Multicast:** If you are using multicast, confirm that the Determination nodes are on the same subnet, and that the network allows multicast packets to be transmitted.

- **Multihomed Host:** If there is a multihomed Ethernet configuration, force the use of a particular IP by setting the **jgroups.bind_address** system property to the appropriate NIC IP address. For example if the desired interface has an IP of 10.198.221.48, set the following Java system variable: `-Djgroups.bind_address=10.198.221.48`.



You can set **jgroups.bind_address** where the JVM parameters are set. Here is a configuration file example:








```
1 -Xms4096m -Xmx4096m -XX:MaxPermSize=256m -  
  Djava.awt.headless=true -Djgroups.bind_  
  address=10.198.221.48
```

DETERMINATION PARAMETERS

Clustering requires certain parameters in Determination.

1. Log on to Determination.
2. Go to **Menu > System > Configuration**.
3. Click **Actions > Add**.
4. Enter the parameters and values according to the table below.
5. Click **Submit**.

PARAMETER	VALUE	DESCRIPTION
ENABLE_SERVER_  COMMUNICATION	Y	This parameter is required to enable all types of clustering.

PARAMETER	VALUE	DESCRIPTION
CLUSTER_CHANNEL_PROPERTIES_FILE 	udp-cluster.xml or tcp-tcping-cluster.xml 	 This parameter is not allowed if you are using UDP with default ports and IP addresses. If you are using UDP with non-default settings, insert the value udp-cluster.xml . If you are using TCP, insert the value tcp-tcping-cluster.xml . This parameter must match the parameter <i>determination.infinispan.jgroups.configuration_file</i> in the <i>determination_application</i>  <i>overrides.properties</i> file. See Clustering (page 77)
SABRIX_MASTER_NODE		 If this parameter exists, remove it to set up clustering.
MULTICAST_ADDRESS		 If this parameter exists, remove it to set up clustering.
MULTICAST_PORT		 If this parameter exists, remove it to set up clustering.

PROPERTIES FILE

Determination requires a properties file for clustering, and the contents of the file depends on whether you are using UDP or TCP. Based on your network environment, follow the steps in one of the next three sections:

UDP Multicast with Default Settings

This section explains how to set up UDP multicast with the following defaults:

- Multicast Address = 224.0.0.1
- Multicast Port = 5665



If you have multiple clusters of Determination on the same subnet (for example, Production, Development, and QA), skip to the next section UDP Multicast with Non-Default IP and Port Number. That approach prevents the clusters from interfering with each other.

Complete the following:

1. Stop WebSphere.
2. Create a new directory in WebSphere:

```
<WebSphereBaseDirectory>/AppServer/lib/ext
```

3. In the new directory, create a file called *determination_application_overrides.properties*, and then insert the following lines:

```
1 determination.infinispan.cache.configuration=infinispan.xml
2 determination.infinispan.jgroups.cluster_name=ClusterName
```

4. Replace **ClusterName** in the second line of the snippet with a unique name for your cache cluster.



Be sure to use the same cluster name in the *determination_application_overrides.properties* file on each node, and do not include any spaces in your cluster name.

5. Save and close *determination_application_overrides.properties*.
6. Restart WebSphere.
7. Repeat these steps on each WebSphere node.



To simplify the process, you can copy the file *determination_application_overrides.properties* to each node.

8. Skip to [Cluster Test \(page 84\)](#)

UDP Multicast with Non-Default IP and Port Number

This configuration changes the default UDP multicast address and port in cases when default values are not appropriate.



Ensure that you created the Determination parameter `CLUSTER_CHANNEL_PROPERTIES_FILE` before completing these steps. See [Determination Parameters \(page 78\)](#).

Complete the following:

1. Stop WebSphere.
2. Create a new directory in WebSphere:

```
<WebSphereBaseDirectory>/AppServer/lib/ext
```

3. In the new directory, create a file called *determination_application_overrides.properties*, and then insert the following lines:

```
1 determination.infinispan.cache.configuration=infinispan.xml
2 determination.infinispan.jgroups.cluster_name=ClusterName
3 determination.infinispan.jgroups.configuration_file= udp-clus
  ter.xml
4 determination.infinispan.jgroups.udp.mcast_addr=224.1.2.3
5 determination.infinispan.jgroups.udp.mcast_port=16655
```

4. Replace **ClusterName** in the second line of the snippet with a unique name for your cache cluster.



Be sure to use the same cluster name in the *determination_application_overrides.properties* file on each node, and do not include any spaces in your cluster name.

5. Change the numbers for **mcast_addr** and **mcast_port** to match your multicast address and port. Be sure to use valid ranges (Addr: 224.0.1.0 to 238.255.255.255).
6. Save and close *determination_application_overrides.properties*.
7. Repeat these steps on each WebSphere node.



To simplify the process, you can copy the file *determination_application_overrides.properties* to each node.

8. Skip to [Cluster XML File \(page 83\)](#)

TCP Transport with Static List of Nodes (TCPPING)

In this configuration, a static list of cluster member addresses is set on each node so each member knows where the other cluster members are located.



Ensure that you created the Determination parameter `CLUSTER_CHANNEL_PROPERTIES_FILE` before completing these steps. See [Determination Parameters \(page 78\)](#).

Complete the following:

1. Stop WebSphere.
2. Create a new directory in WebSphere:

```
<WebSphereBaseDirectory>/AppServer/lib/ext
```

3. In the new directory, create a file called *determination_application_overrides.properties*, and then insert the following lines:

```
1 determination.infinispan.cache.configuration=infinispan.xml
2 determination.infinispan.jgroups.cluster_name=ClusterName
3 determination.infinispan.jgroups.configuration_file=tcp-tcpping-cluster.xml
4 determination.infinispan.jgroups.tcp.address=10.198.221.48
5 determination.infinispan.jgroups.tcpping.initial_hosts=10.198.221.50[7800],10.198.221.48[7800]
6 determination.infinispan.jgroups.tcp.port=7800
```

4. Replace **ClusterName** in the second line of the snippet with a unique name for your cache cluster.



Be sure to use the same cluster name in the *determination_application_overrides.properties* file on each node, and do not include any spaces in your cluster name.

5. Set **tcp.address** to match the node's IP address.
6. Set **tcpping.initial_hosts** to list the addresses of all nodes in the cluster. The value of **tcpping.initial_hosts** is the same on each node, but **tcp.address** is unique for each node.



[7800] refers to the port on which each cluster instance will start the initial membership lookup. If necessary, you can change the port ranges by editing *tcp-tcpping-cluster.xml* (see [Cluster XML File \(page 83\)](#)). Change the two values of 7800 specified in the file to some other valid and available port to complete this change.

- To change the default port from 7800, set **tcp.port** to the new port value.



If you use the default port of 7800, do not include this entry in the properties file.

If you specify the **tcp.port** property, the port number used for this property should match the port number used in the **tcpping.initial_hosts** property.

- Save and close *determination_application_overrides.properties*.
- Repeat the process for all nodes in the cluster, making all specified values identical except **tcp.address** which should be unique per node.



In this configuration, when a new cluster member is introduced or an existing one is removed, the list must be updated on each node. An update requires cluster nodes to be restarted so new changes are picked up. You add to the list or subtract from the list by adding or removing additional IP addresses in *determination_application_overrides.properties* at this line:

```
1 determination.infinispan.jgroups.tcpping.initial_hosts=
  10.198.221.50[7800],10.198.221.48[7800]
```

CLUSTER XML FILE



This step does not apply to UDP clusters that use default ports and IP addresses.

Complete the following to set up the cluster XML file:

- Go to the *clustering* directory where you unzipped 513xx (see [Download the Software \(page 6\)](#)).
- Use the table below to determine which XML file from the *clustering* directory is appropriate for your environment.

FILE NAME	CLUSTER TYPE
udp-cluster.xml	UDP  This is only for UDP clusters that use custom ports and IP addresses.
tcp-tcpping-cluster.xml	TCP

3. Copy the appropriate XML file to the same directory as *determination_application_overrides.properties*.

<WebSphereBaseDirectory>/AppServer/lib/ext

4. Restart WebSphere.
5. Repeat these steps on each WebSphere node.

CLUSTER TEST

Complete the following tests to confirm that clustering is configured correctly.



If the tests fail, please double-check your settings before contacting Customer Support.

Verify that cluster members can send and receive messages:

1. After all cluster nodes are started, log on to Determination on one node and go to **Menu > System > Diagnostics > Cluster View**. The page should list all nodes in the cluster.
2. Click **Actions > Send Test Message**.
3. Log on to each of the other cluster members and go to **Menu > System > Diagnostics > Cluster View**. Confirm that each node received the message (you may need to click **Actions > Refresh**).
4. Repeat these steps from each node to ensure each node is able to send and receive messages.

Verify that resetting the cache on one node resets all caches in the cluster:

1. Populate the Determination cache by clicking **Menu > System > Companies** on each node.
2. On each of the cluster nodes, go to **Menu > System > Diagnostics > Cache View**.
3. Enter **ALL** in the field **Table Name or 'ALL'** and then click **Search**. The cache content is displayed on each node.
4. On any cluster node, click **Actions > Reset Cache**, and then perform another search for **ALL** on the other nodes. If you have not accessed any other pages, the list should be empty (no entity has been cached).

PERFORMING ADDITIONAL CONFIGURATIONS

Once you verify that ONESOURCE Indirect Tax Determination is running, you may need to complete some post-installation tasks:

- Connecting your Determination instance to your business source system using integration software. Contact your implementation partner for assistance.
- Securing your Determination installation. See the Determination Help topic "Security Measures."
- Modifying Configuration parameters to reflect your hardware, network, and security environment. You can also modify those parameters that affect auditing, tax calculations, and reporting. See the Help topic "Configuration."
- Setting up users to access Determination. This might include tax professionals, tax clerks, and Determination administrators. See the Help topic "Edit Users."
- Completing the Company configuration you began in the section "Creating and Configuring a Determination Company." See the Help topic "Working With Companies."
- Installing and configuring ONESOURCE Indirect Tax Reporting. See the Help topic "Running Reports."