

CREATING ORACLE DATA SOURCES

This document describes how to create and configure WAS (WebSphere Application Server) JDBC (Java Database Connectivity) data sources for a Standardization Rules Designer installation that uses an Oracle repository.

Two data sources are required:

1. An XA (distributed transaction) data source.
2. A non-transactional connection pool data source.

Complete the steps listed below to create each data source.

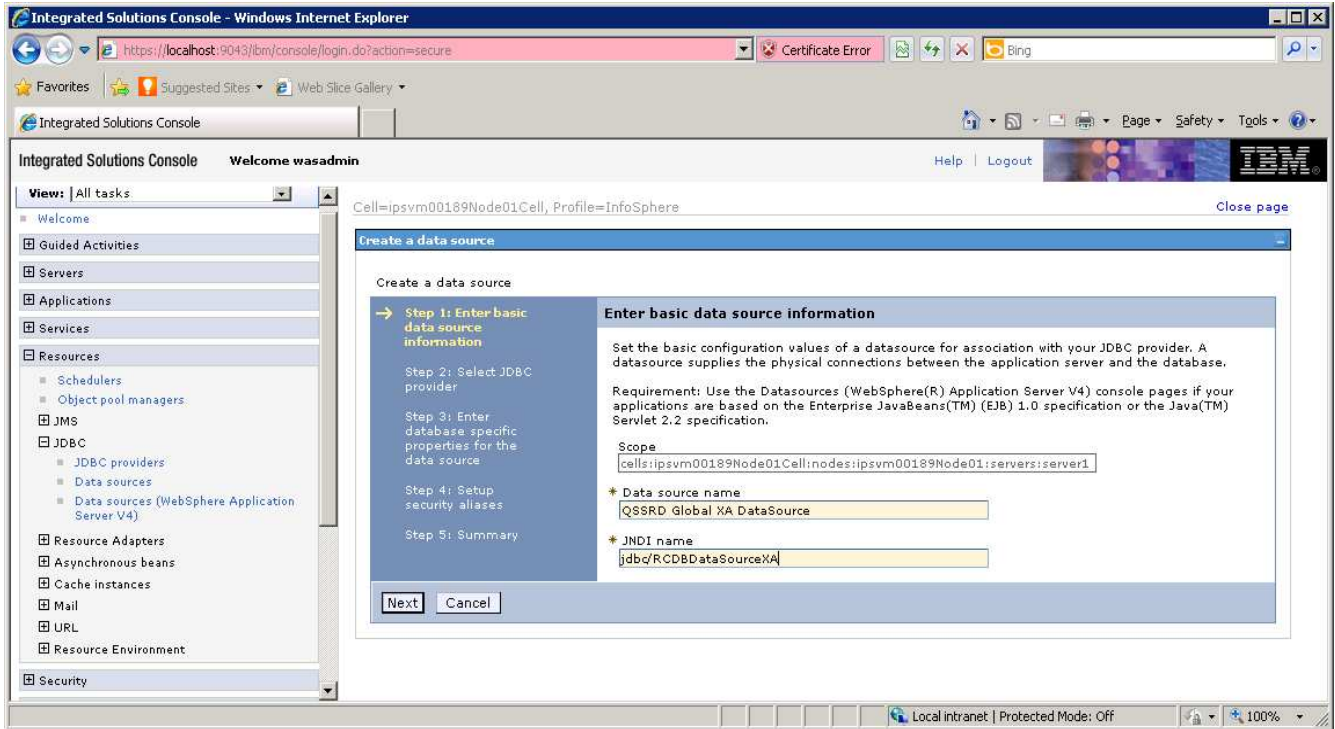
Create the distributed transaction data source:

1. Login to the WebSphere Application Server Administrative Console.
2. Expand the **Resources** node in the left pane.
3. Expand the **JDBC** node.
4. Click **Data sources**.
5. Select the **Scope** for the data source from the drop down list in the right pane.
6. Click **New**.

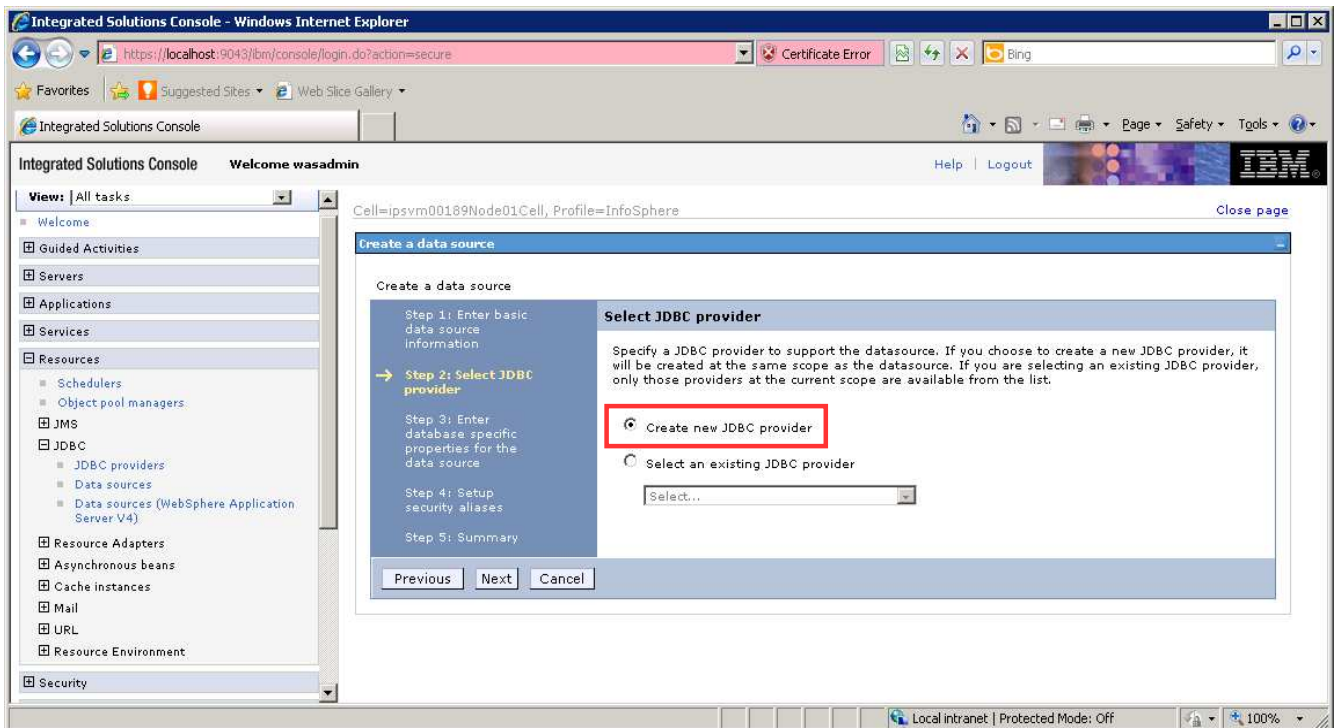
The screenshot shows the WebSphere Application Server Administrative Console. The left navigation pane has 'Resources' and 'JDBC' expanded. The main content area shows the 'Data sources' configuration page. A dropdown menu for 'Scope' is open, showing 'Node=ipsvm00189Node01, Server=server1' selected. The 'New' button in the 'Preferences' section is highlighted with a red box. Below the 'New' button is a table of existing data sources.

Select	Name	JNDI name	Scope	Provider	Description	Category
<input type="checkbox"/>	ASB JDBC DataSource	jdbcf/ASBDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input type="checkbox"/>	ASB JDBC XA DataSource	jdbcf/ASBDataSourceXA	Node=ipsvm00189Node01,Server=server1	ASB XA JDBC Provider	Data source template	
<input type="checkbox"/>	ASB Staging Repository JDBC DS	jdbcf/StagingDataSource	Node=ipsvm00189Node01,Server=server1	ASB Staging Repository JDBC Provider	Data source template	
<input type="checkbox"/>	Default DataSource	DefaultDataSource	Node=ipsvm00189Node01,Server=server1	Derby JDBC Provider	Datasource for the WebSphere Default Application	
<input type="checkbox"/>	JReport JDBC DataSource	jdbcf/JReportDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	

7. Enter *QSSRD Global XA DataSource* in the **Data source name** field.
8. Enter *jdbc/RCDBDataSourceXA* in the **JNDI name** field.
9. Click **Next**.



10. Select **Create new JDBC provider**.
11. Click **Next**.



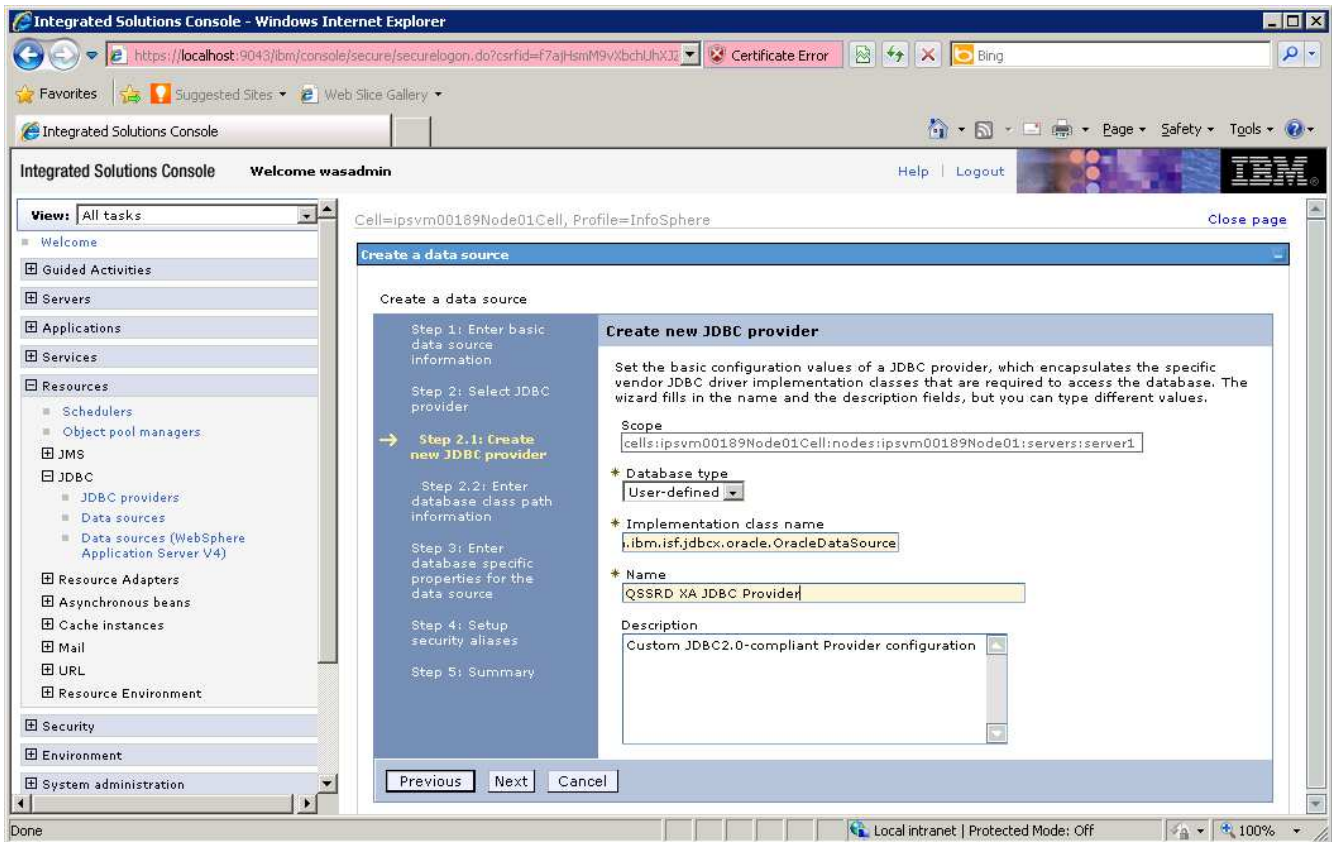
12. Enter the information for the JDBC provider:

Database type: *User-defined*

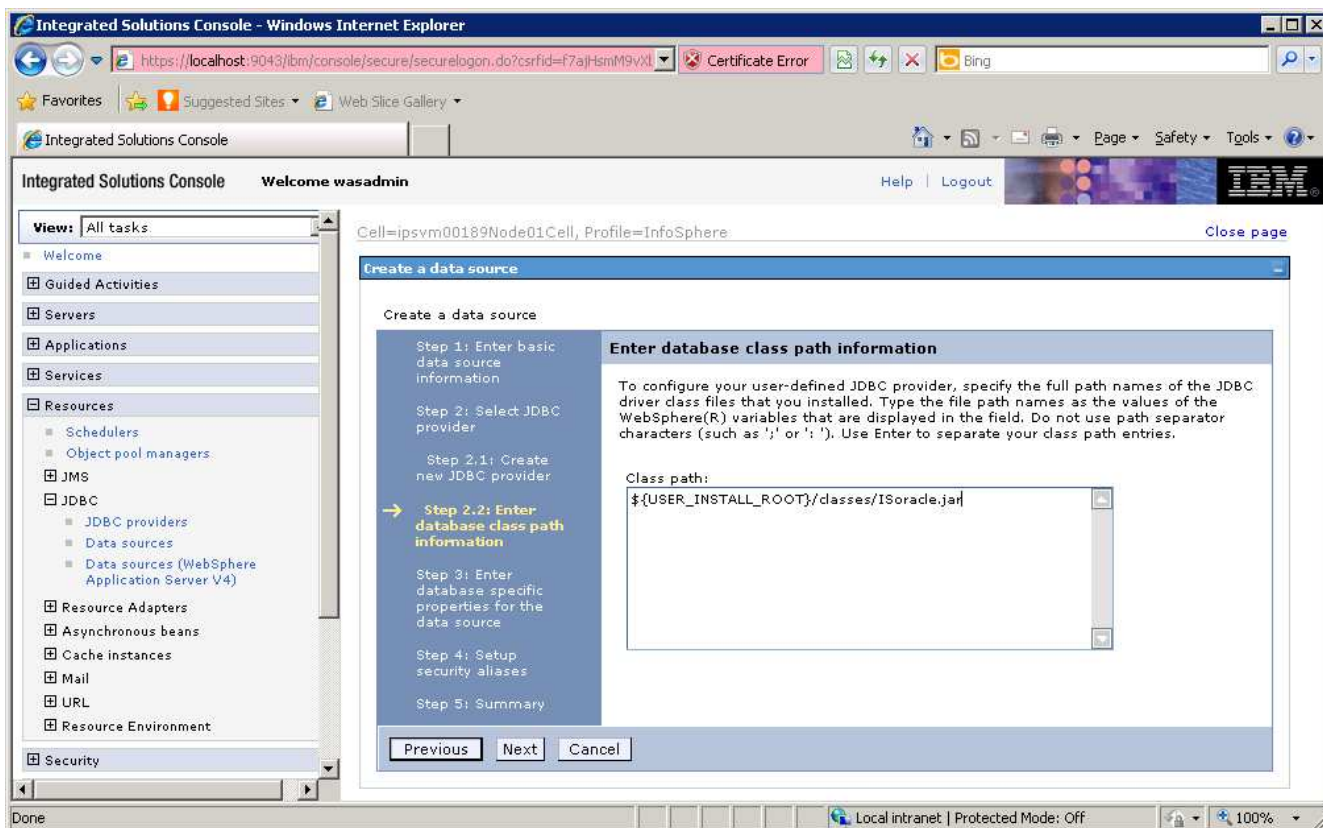
Implementation class name: *com.ibm.isf.jdbcx.oracle.OracleDataSource*

Name: *QSSRD XA JDBC Provider*

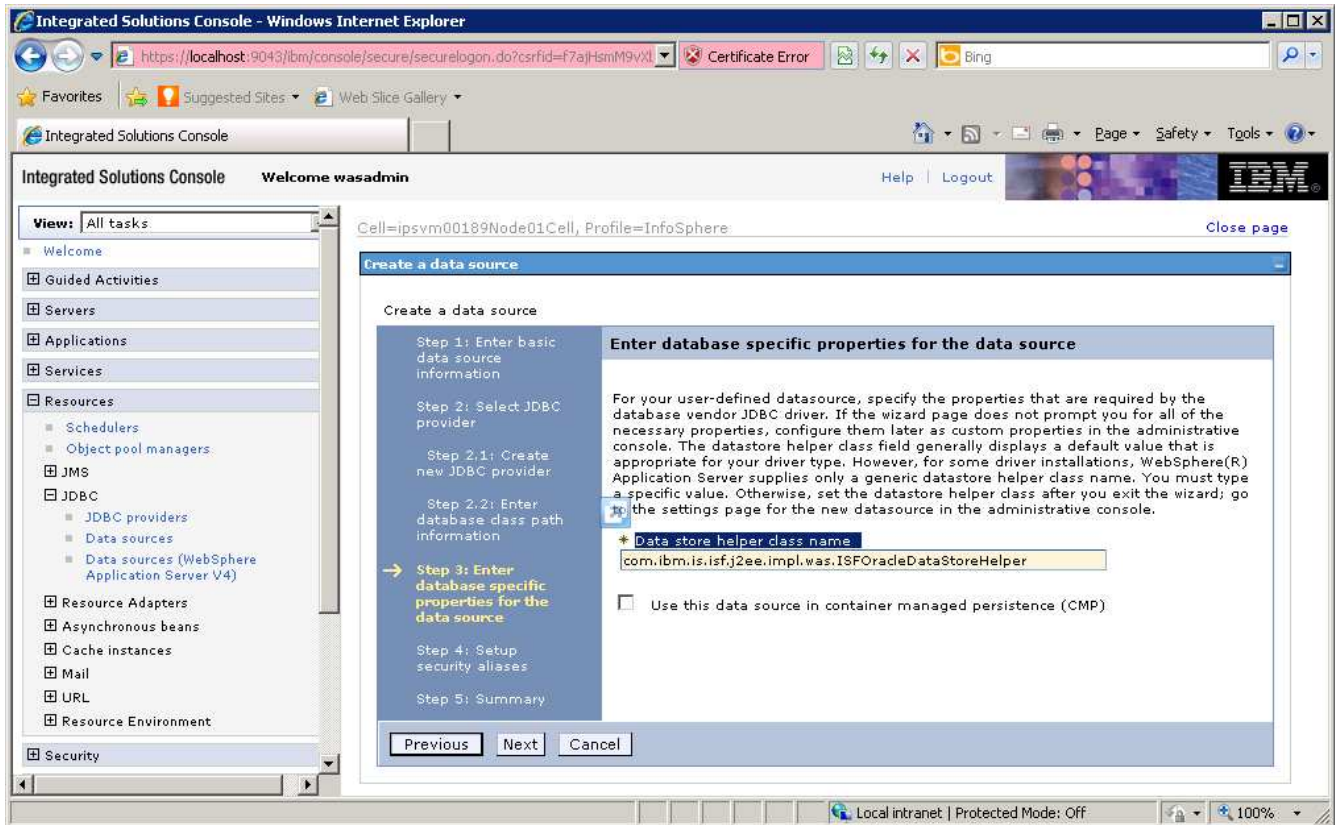
13. Click **Next**.



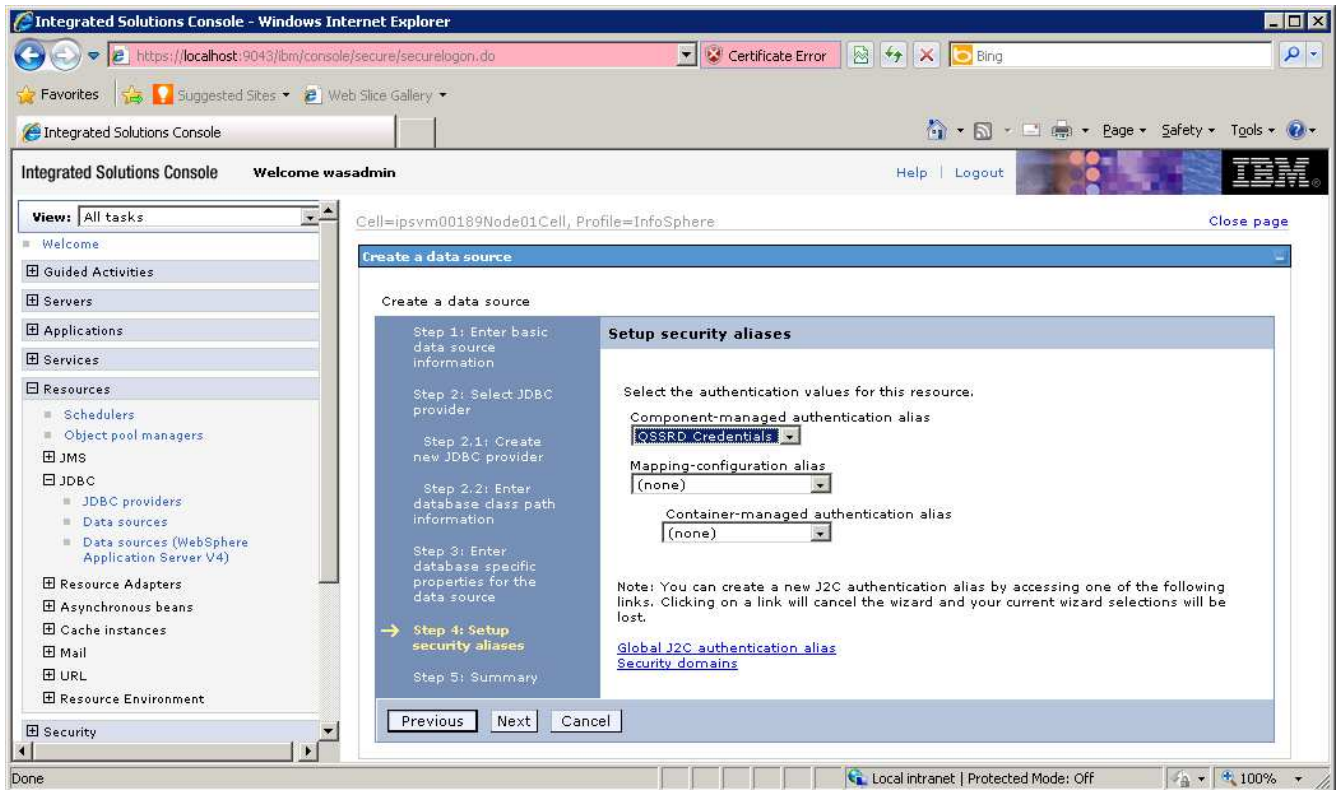
- 14. Enter `${USER_INSTALL_ROOT}/classes/ISoracle.jar` in the **Class path** field.
- 15. Click **Next**.



16. Enter `com.ibm.is.isf.j2ee.impl.was.ISFOracleDataStoreHelper` in the **Data store helper class name** field.
17. Uncheck **Use this data source in container managed persistence (CMP)**.
18. Click **Next**.



19. Select *QSSRD Credentials* from the **Component-managed authentication alias** drop down list.
20. Click **Next**.
21. Click **Finish**.
22. Click **Save**.



Create the non-transactional connection pool data source:

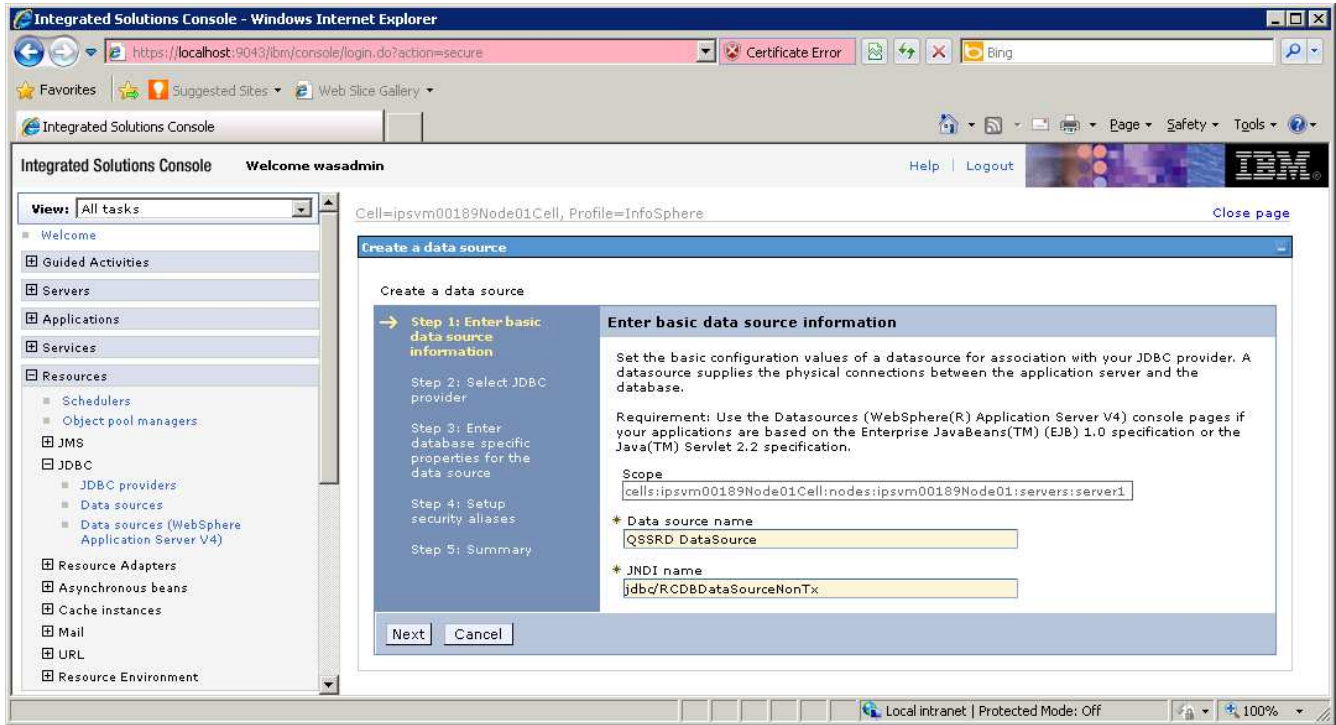
1. If you have not already done so, login to the WebSphere Application Server Administrative Console.
2. Expand the **Resources** node in the left pane.
3. Expand the **JDBC** node.
4. Click **Data sources**.
5. Select the **Scope** for the data source from the drop down list in the right pane.
6. Click **New**.

The screenshot shows the WebSphere Application Server Administrative Console interface. The left navigation pane is expanded to show the path: Resources > JDBC > Data sources. The main content area displays the 'Data sources' configuration page for the scope: Cell=ipsvm00189Node01Cell, Node=ipsvm00189Node01, Server=server1. A dropdown menu for the scope is set to 'Node=ipsvm00189Node01, Server=server1'. Below this, there are buttons for 'New', 'Delete', 'Test connection', and 'Manage state...'. The 'New' button is highlighted with a red box. A table below lists existing data sources:

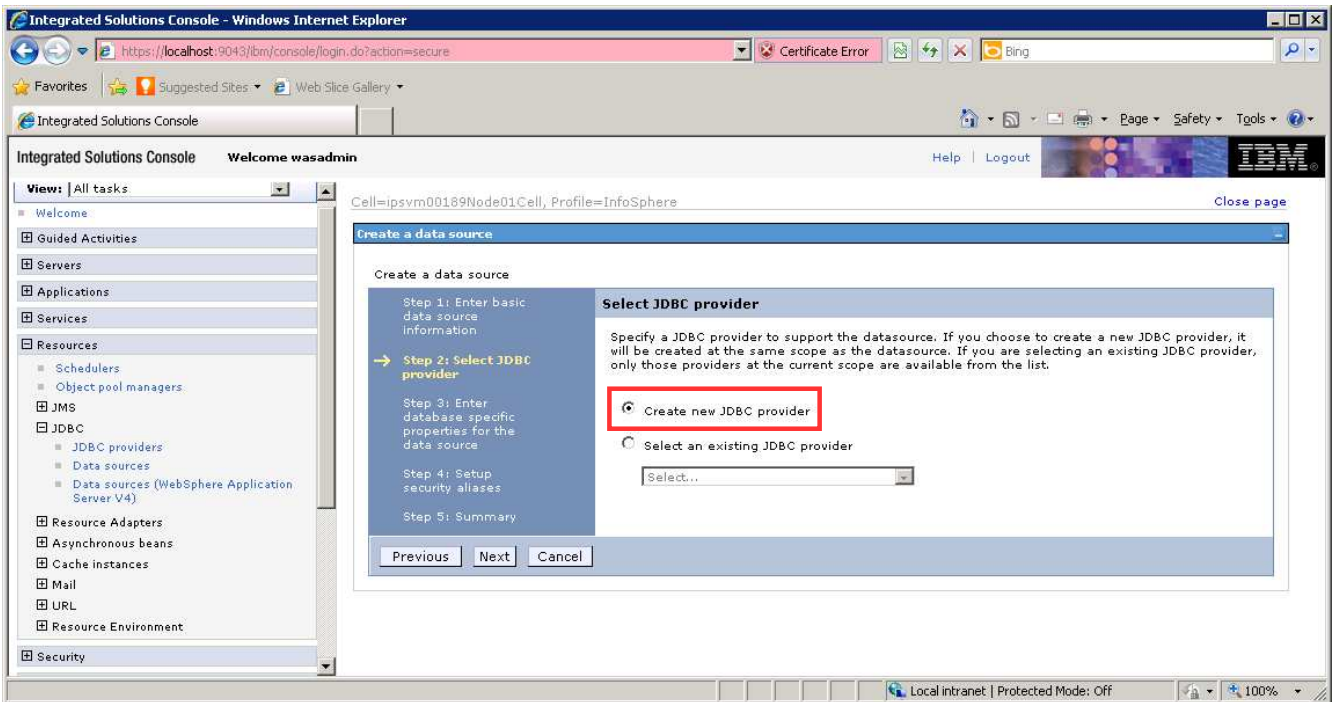
Select	Name	JNDI name	Scope	Provider	Description	Category
<input type="checkbox"/>	ASB JDBC DataSource	jdbc/ASBDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input type="checkbox"/>	ASB JDBC XA DataSource	jdbc/ASBDataSourceXA	Node=ipsvm00189Node01,Server=server1	ASB XA JDBC Provider	Data source template	
<input type="checkbox"/>	ASB Staging Repository JDBC DS	jdbc/StagingDataSource	Node=ipsvm00189Node01,Server=server1	ASB Staging Repository JDBC Provider	Data source template	
<input type="checkbox"/>	Default DataSource	DefaultDataSource	Node=ipsvm00189Node01,Server=server1	Derby JDBC Provider	Datasource for the WebSphere Default Application	
<input type="checkbox"/>	JReport JDBC DataSource	jdbc/JReportDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	

Total 5

7. Enter *QSSRD DataSource* in the **Data source name** field.
8. Enter *jdbc/RCDBDataSourceNonTx* in the **JNDI name** field.
9. Click **Next**.



10. Select **Create new JDBC provider**.
11. Click **Next**.



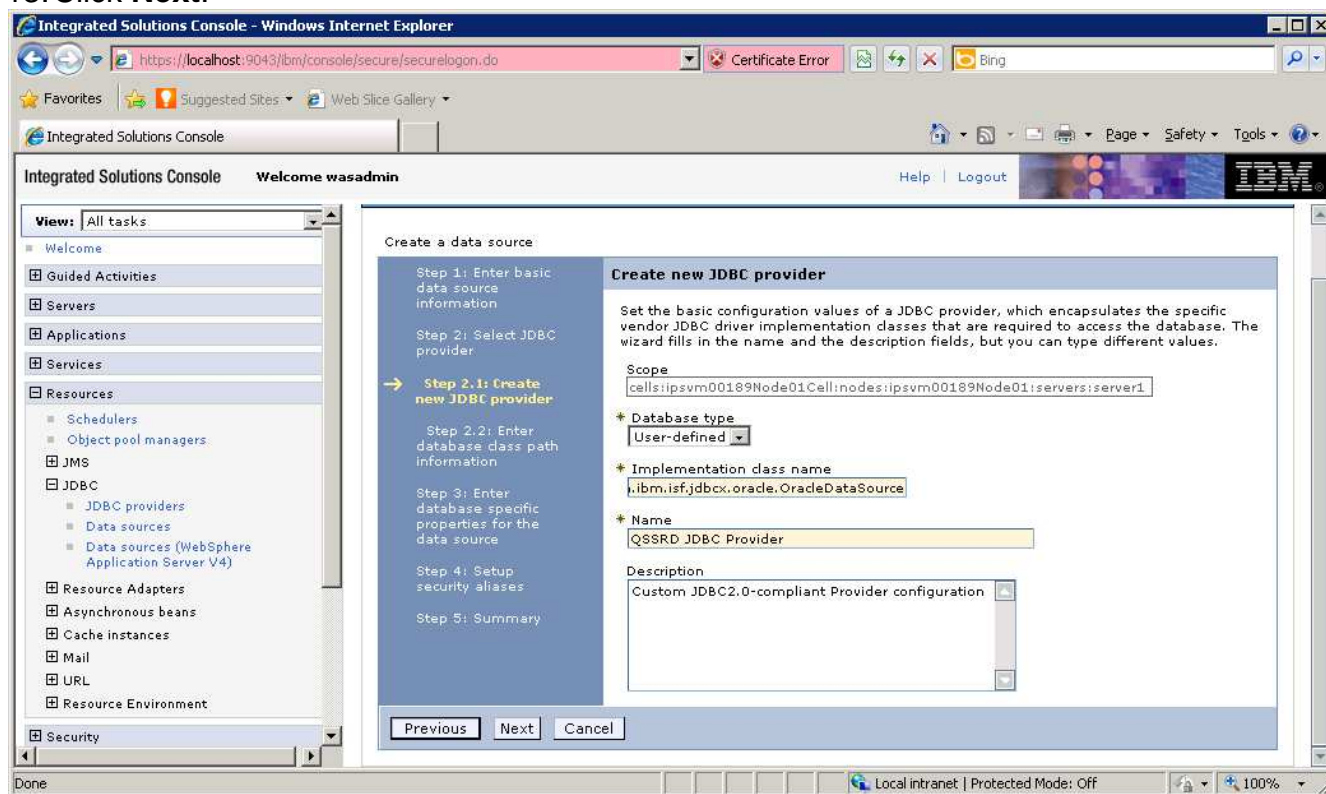
12. Enter the information for the JDBC provider:

Database type: *User-defined*

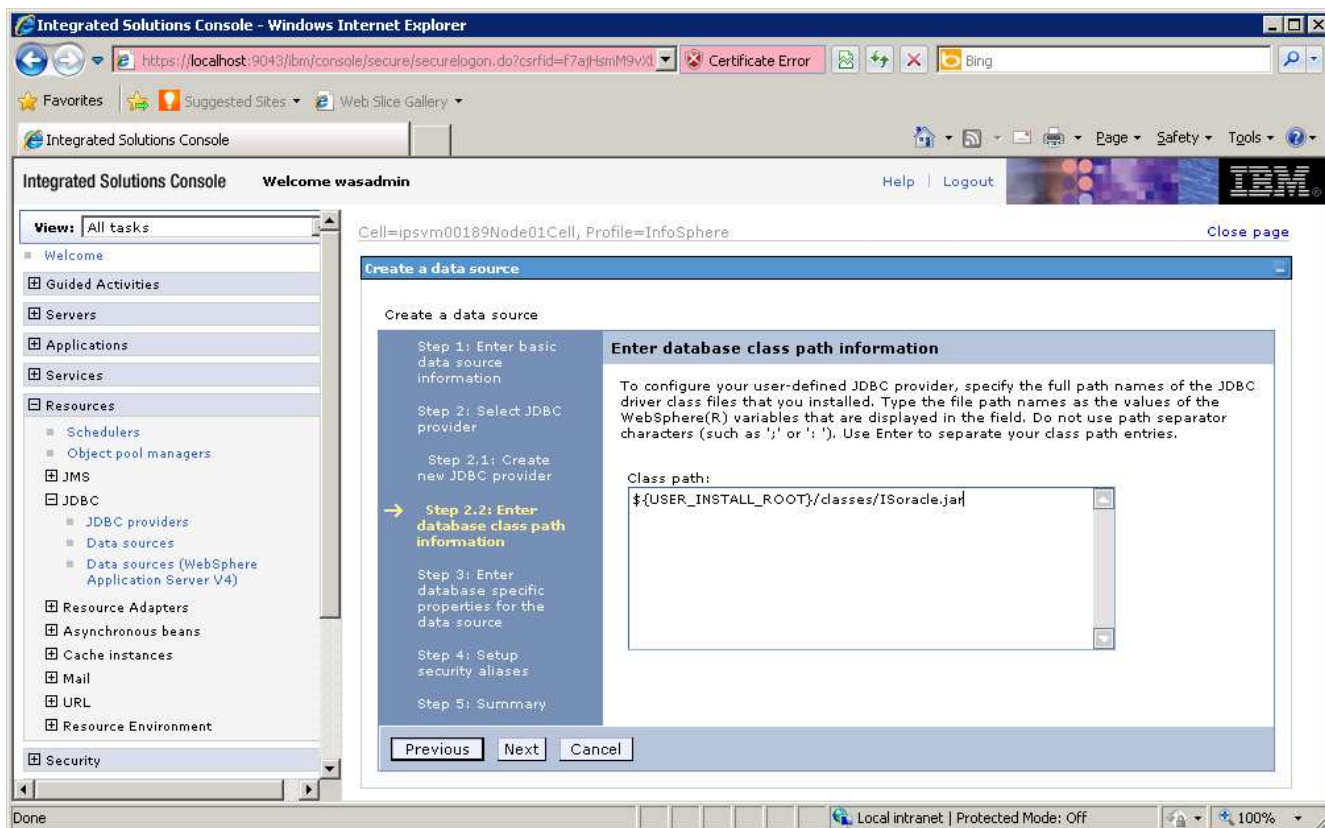
Implementation class name: *com.ibm.isf.jdbcx.oracle.OracleDataSource*

Name: *QSSRD JDBC Provider*

13. Click **Next**.



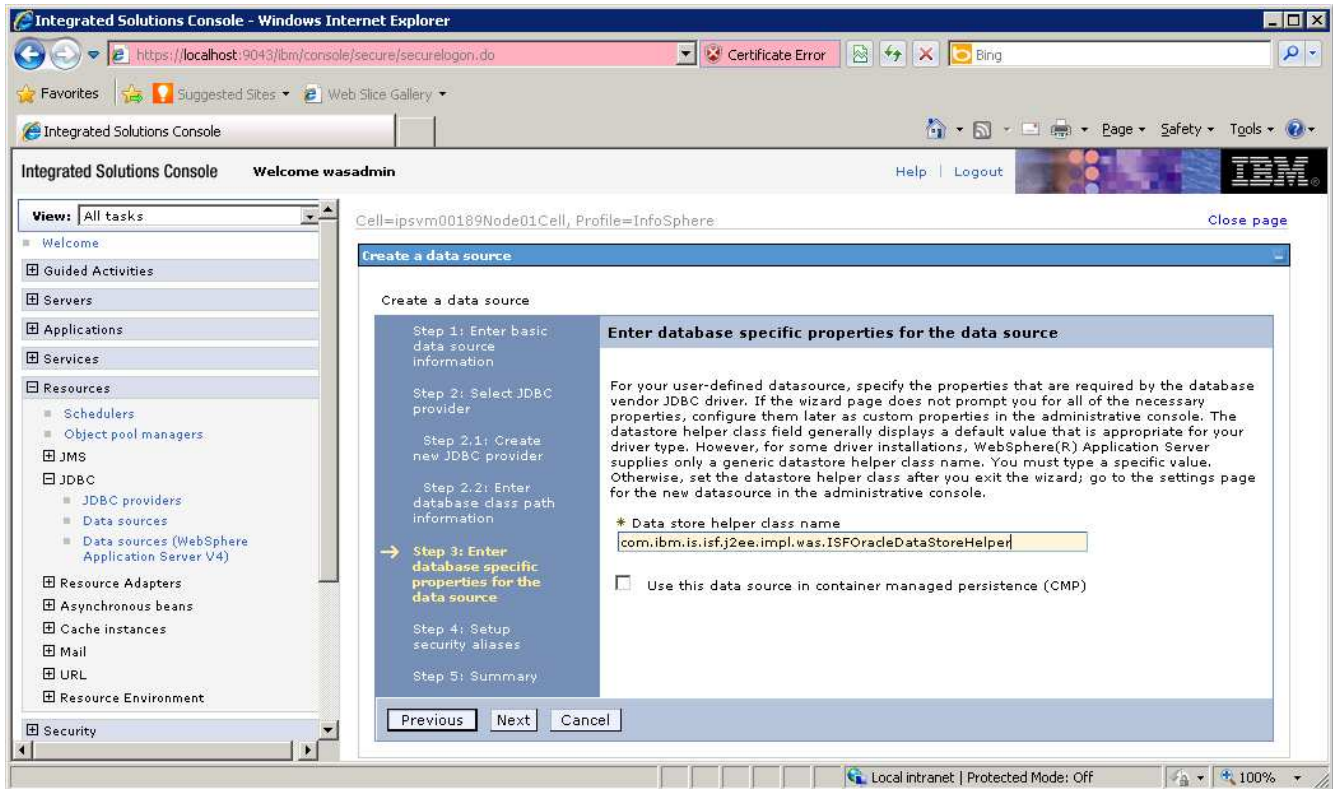
- 14. Enter `${USER_INSTALL_ROOT}/classes/ISoracle.jar` in the **Class path** field.
- 15. Click **Next**.



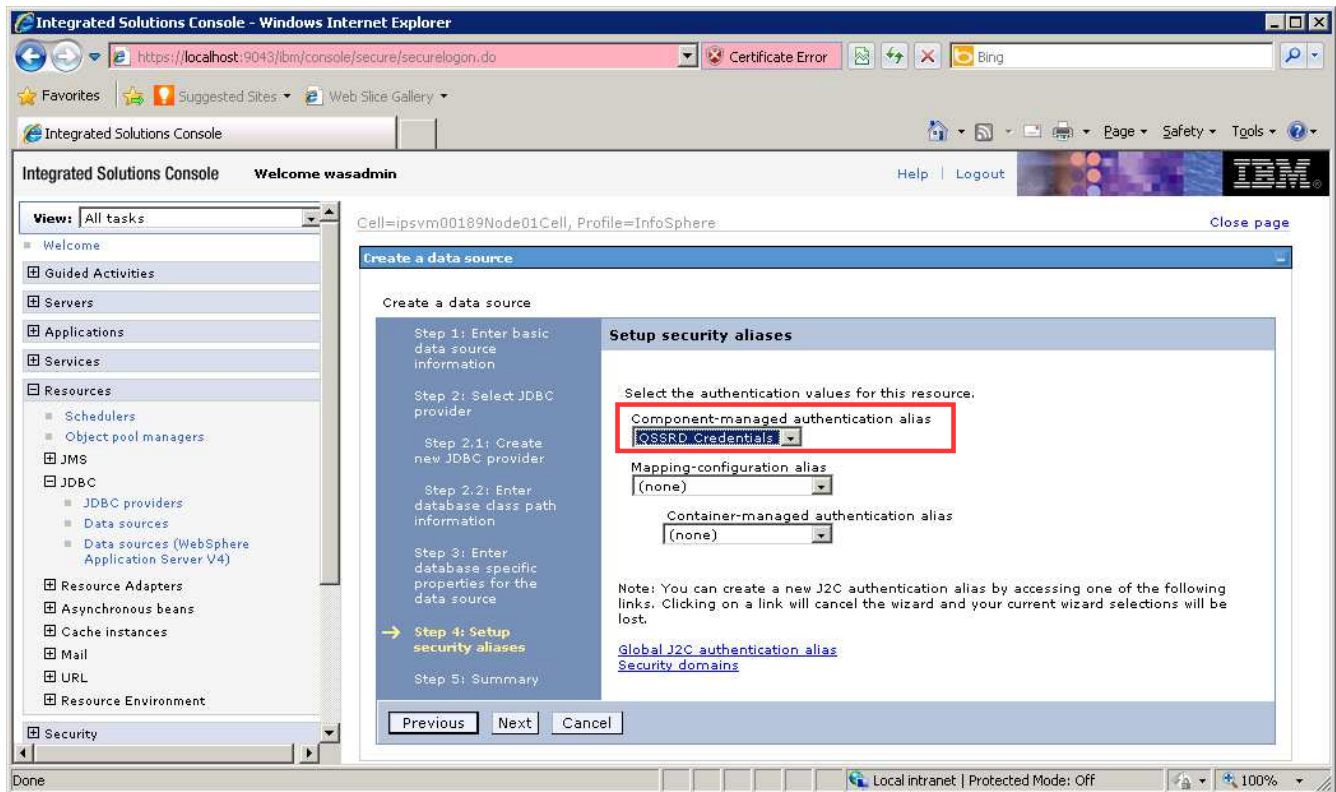
16. Enter `com.ibm.is.isf.j2ee.impl.was.ISFOracleDataStoreHelper` in the **Data store helper class name** field.

17. Uncheck **Use this data source in container managed persistence (CMP)**.

18. Click **Next**.



19. Select *QSSRD Credentials* from the **Component-managed authentication alias** drop down list.
20. Click **Next**.
21. Click **Finish**.
22. Click **Save**.



Modify the QSSRD DataSource to set the non-transactional data source properties:

1. If you have not already done so, login to the WebSphere Application Server Administrative Console.
2. Expand the **Resources** node in the left pane.
3. Expand the **JDBC** node.
4. Click **Data sources**.
5. Click **QSSRD DataSource**.

The screenshot shows the WebSphere Application Server Administrative Console interface. The left navigation pane is expanded to show the path: Resources > JDBC > Data sources. The main content area displays a table of data sources, with the QSSRD DataSource selected and highlighted in red. The table has the following columns: Select, Name, JNDI name, Scope, Provider, Description, and Category.

Select	Name	JNDI name	Scope	Provider	Description	Category
<input type="checkbox"/>	ASB JDBC DataSource	jdbcf/ASBDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input type="checkbox"/>	ASB JDBC XA DataSource	jdbcf/ASBDataSourceXA	Node=ipsvm00189Node01,Server=server1	ASB XA JDBC Provider	Data source template	
<input type="checkbox"/>	ASB Staging Repository JDBC DS	jdbcf/StagingDataSource	Node=ipsvm00189Node01,Server=server1	ASB Staging Repository JDBC Provider	Data source template	
<input type="checkbox"/>	Default DataSource	DefaultDataSource	Node=ipsvm00189Node01,Server=server1	Derby JDBC Provider	DataSource for the WebSphere Default Application	
<input type="checkbox"/>	JReport JDBC DataSource	jdbcf/JReportDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input checked="" type="checkbox"/>	QSSRD DataSource	jdbcf/RCDBDataSourceNonTx	Node=ipsvm00189Node01,Server=server1	QSSRD JDBC Provider	New JDBC DataSource	
<input type="checkbox"/>	QSSRD Global XA DataSource	jdbcf/RCDBDataSourceXA	Node=ipsvm00189Node01,Server=server1	QSSRD XA JDBC Provider	New JDBC DataSource	

6. Click **WebSphere Application Server** data source properties.

The screenshot shows the Integrated Solutions Console interface in a Windows Internet Explorer browser. The browser address bar displays `https://localhost:9043/ibm/console/login.do?action=secure`. The console page title is "Integrated Solutions Console" and the user is logged in as "wasadmin". The left navigation pane shows a tree view with "Data sources" selected under "JDBC". The main content area displays the configuration for a "QSSRD DataSource".

Data sources > QSSRD DataSource

Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The datasource object supplies your application with connections for accessing the database.

Configuration

General Properties

- Scope**: `cells:ipsvm00189Node01Cell:nodes:ipsvm00189Node01:servers:server1`
- Provider**: `QSSRD JDBC Provider`
- Name**: `QSSRD DataSource`
- JNDI name**: `jbc/RCDBDataSourceNonTx`
- Use this data source in container managed persistence (CMP)
- Description**: `New JDBC Datasource`
- Category**:

Data store helper class name

- Select a data store helper class
Data store helper classes provided by WebSphere Application Server
`Generic data store helper (com.ibm.websphere.rsadapter.GenericDataStoreHelper)`
- Specify a user-defined data store helper
Enter a package-qualified data store helper class name
`com.ibm.is.isf.j2ee.impl.was.ISFOracleDataStoreHelper`

Additional Properties

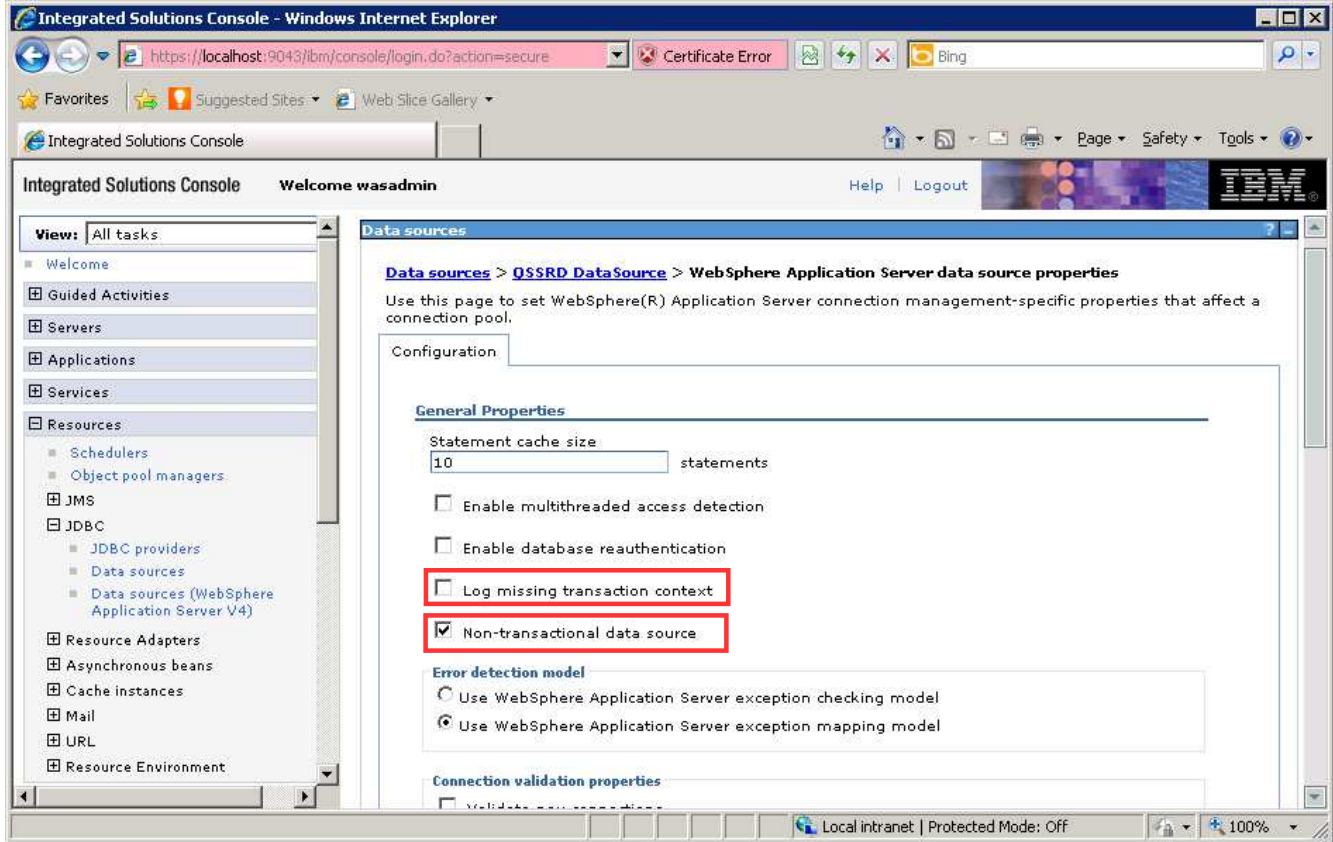
- [Connection pool properties](#)
- WebSphere Application Server data source properties** (highlighted in red)
- [Custom properties](#)

Related Items

- [JAAS - J2C authentication data](#)

The browser status bar at the bottom shows "Local intranet | Protected Mode: Off" and "100%" zoom level.

7. Uncheck **Log missing transaction context**.
8. Check **Non-transactional data source**.
9. Click **OK** at the bottom of the page. Do not click **Save** at this time.



10. Click Custom properties.

The screenshot shows the IBM Integrated Solutions Console interface. The main content area displays the configuration for a 'QSSRD Data Source'. The 'Additional Properties' section on the right contains several links, with 'Custom properties' highlighted in a red box. Other visible links include 'Connection pool properties', 'WebSphere Application Server data source properties', and 'JAAS - J2C authentication data'. The 'General Properties' section includes fields for Scope, Provider, Name, JNDI name, and Description.

11. Find and modify the following properties as indicated:

Name	Value
webSphereDefaultIsolationLevel	2
SID	Unique system identifier for the Oracle database
batchPerformanceWorkaround	TRUE
serverName	Database system host name
portNumber	Database system port
queryTimeout	Delete this property

Add the enable2Phase property:

1. Click New.

Integrated Solutions Console - Windows Internet Explorer

https://localhost:9043/ibm/console/login.do?action=secure

Integrated Solutions Console Welcome wasadmin

View: All tasks

- Welcome
- Guided Activities
- Servers
- Applications
- Services
- Resources
 - Schedulers
 - Object pool managers
 - JMS
 - JDBC
 - JDBC providers
 - Data sources
 - Data sources (WebSphere Application Server V4)
 - Resource Adapters
 - Asynchronous beans
 - Cache instances
 - Mail
 - URL
 - Resource Environment
- Security
- Environment
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Changes have been made to your local configuration. You can:

- Save directly to the master configuration.
- Review changes before saving or discarding.

The server may need to be restarted for these changes to take effect.

Data sources > QSSRD DataSource > Custom properties

Use this page to specify custom properties that your enterprise information system (EIS) requires for the resource providers and resource vendors require additional custom properties for data sources that access the database.

Preferences

New Delete

Select	Name	Value	Description
<input type="checkbox"/>	freeResourcesOnClose	false	Controls whether or not the application server automatically frees Arrays, Blobs, Clob Readers when the object that created them is closed. The ability to free resources the free (or close) method.
<input type="checkbox"/>	userDefinedErrorMap		Overlays existing entries in the error map by invoking DataStoreHelper.setUserDef used to add, change, or remove entries from the error map. Entries are delimited and value, where the key is an error code (numeric value) or SQLState (text and are separated by = (equals sign). For example, to remove the mapping of SQLState to DuplicateKeyException, and add a mapping of SQLState 08004 to StaleConnect userDefinedErrorMap: "81000"=;1062=com.ibm.websphere.ce.cm.DuplicateKeyException;"08004"=com.ibm
<input type="checkbox"/>	beginTranForResultSetScrollingAPIs	false	If beginTranForResultSetScrollingAPIs is enabled, the application server attempts when the connection is not currently enlisted in a transaction and a result set scroll
<input type="checkbox"/>	beginTranForVendorAPIs	false	If beginTranForVendorAPIs is enabled, the application server attempts to begin a connection is not currently enlisted in a transaction and a vendor API is invoked with WSCallHelper.jdbcCall or WSCallHelper.jdbcPass.
<input type="checkbox"/>	connectionSharing	1	Determines whether connections are shared based on the current state of the connection (D). To specify with greater granularity which connection properties are matched by the following constants by adding them together: 1=transaction isolation level, 2=16=catalog.
<input type="checkbox"/>	webSphereDefaultIsolationLevel	2	Specifies a default transaction isolation level for new connections. Resource Refers To configure a default transaction isolation level, use the constants defined by JDBC COMMITTED), 4 (REPEATABLE READ), 8 (SERIALIZABLE).
<input type="checkbox"/>	JDBCBehavior		
<input type="checkbox"/>	SDUSize		
<input type="checkbox"/>	SID	xmeta	

Done Local intranet | Protected Mode: Off 100%

2. Enter *enable2Phase* in the **Name** field.
3. Enter *false* in the **Value** field.
4. Select *java.lang.boolean* in the **Type** field.
5. Click **OK**.
6. Click **Save**.

The screenshot shows the IBM Integrated Solutions Console interface in a Windows Internet Explorer browser. The browser address bar shows the URL `https://localhost:9043/ibm/console/login.do?action=secure`. The console page title is "Integrated Solutions Console" and the user is logged in as "wasadmin".

The left-hand navigation pane shows a tree view of the console's structure, including sections like "Guided Activities", "Servers", "Applications", "Services", "Resources", "JMS", "JDBC", "Resource Adapters", "Asynchronous beans", "Cache instances", "Mail", "URL", "Resource Environment", "Security", "Environment", "System administration", "Users and Groups", "Monitoring and Tuning", "Troubleshooting", "Service integration", and "UDDI".

The main content area is titled "Data sources" and shows a message box with the following text:

Messages

- Changes have been made to your local configuration. You can:
 - Save directly to the master configuration.
 - Review changes before saving or discarding.
- The server may need to be restarted for these changes to take effect.

Below the message box, the breadcrumb navigation is "Data sources > QSSRD DataSource > Custom properties > New". A descriptive paragraph states: "Use this page to specify custom properties that your enterprise information system (EIS) requires for the resource providers and resource factories that you configure. For example, most database vendors require additional custom properties for data sources that access the database."

The "Configuration" section is active, showing the "General Properties" tab. The fields are filled as follows:

- Scope: `cells:ipsvm00189Node01Cell:nodes:ipsvm00189Node01:servers:server1`
- Name: `enable2Phase`
- Value: `false`
- Description: (Empty text area)
- Type: `java.lang.Boolean` (selected from a dropdown menu)

At the bottom of the configuration section, there are four buttons: "Apply", "OK", "Reset", and "Cancel".

Modify the QSSRD Global XA DataSource to set the connection properties:

1. If you have not already done so, login to the WebSphere Application Server Administrative Console.
2. Expand the **Resources** node in the left pane.
3. Expand the **JDBC** node.
4. Click **Data sources**.
5. Click **QSSRD Global XA DataSource**.

The screenshot shows the WebSphere Application Server Administrative Console. The left navigation pane is expanded to show 'Resources' and 'JDBC', with 'Data sources' selected. The main content area displays the 'Data sources' configuration page. The page includes a 'Scope' dropdown menu set to 'Node=ipsvm00189Node01, Server=server1'. Below this is a 'Preferences' section with buttons for 'New', 'Delete', 'Test connection', and 'Manage state...'. A table lists the following resources:

Select	Name	JNDI name	Scope	Provider	Description	Category
<input type="checkbox"/>	ASB JDBC DataSource	jdbc/ASBDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input type="checkbox"/>	ASB JDBC XA DataSource	jdbc/ASBDataSourceXA	Node=ipsvm00189Node01,Server=server1	ASB XA JDBC Provider	Data source template	
<input type="checkbox"/>	ASB Staging Repository JDBC DS	jdbc/StagingDataSource	Node=ipsvm00189Node01,Server=server1	ASB Staging Repository JDBC Provider	Data source template	
<input type="checkbox"/>	Default DataSource	DefaultDataSource	Node=ipsvm00189Node01,Server=server1	Derby JDBC Provider	Datasource for the WebSphere Default Application	
<input type="checkbox"/>	JReport JDBC DataSource	jdbc/JReportDataSource	Node=ipsvm00189Node01,Server=server1	ASB JDBC Provider	Data source template	
<input type="checkbox"/>	QSSRD DataSource	jdbc/RCD&DataSourceNonTx	Node=ipsvm00189Node01,Server=server1	QSSRD JDBC Provider	New JDBC DataSource	
<input type="checkbox"/>	QSSRD Global XA DataSource	jdbc/RCD&DataSourceXA	Node=ipsvm00189Node01,Server=server1	QSSRD XA JDBC Provider	New JDBC DataSource	

Total 7

6. Click Custom properties.

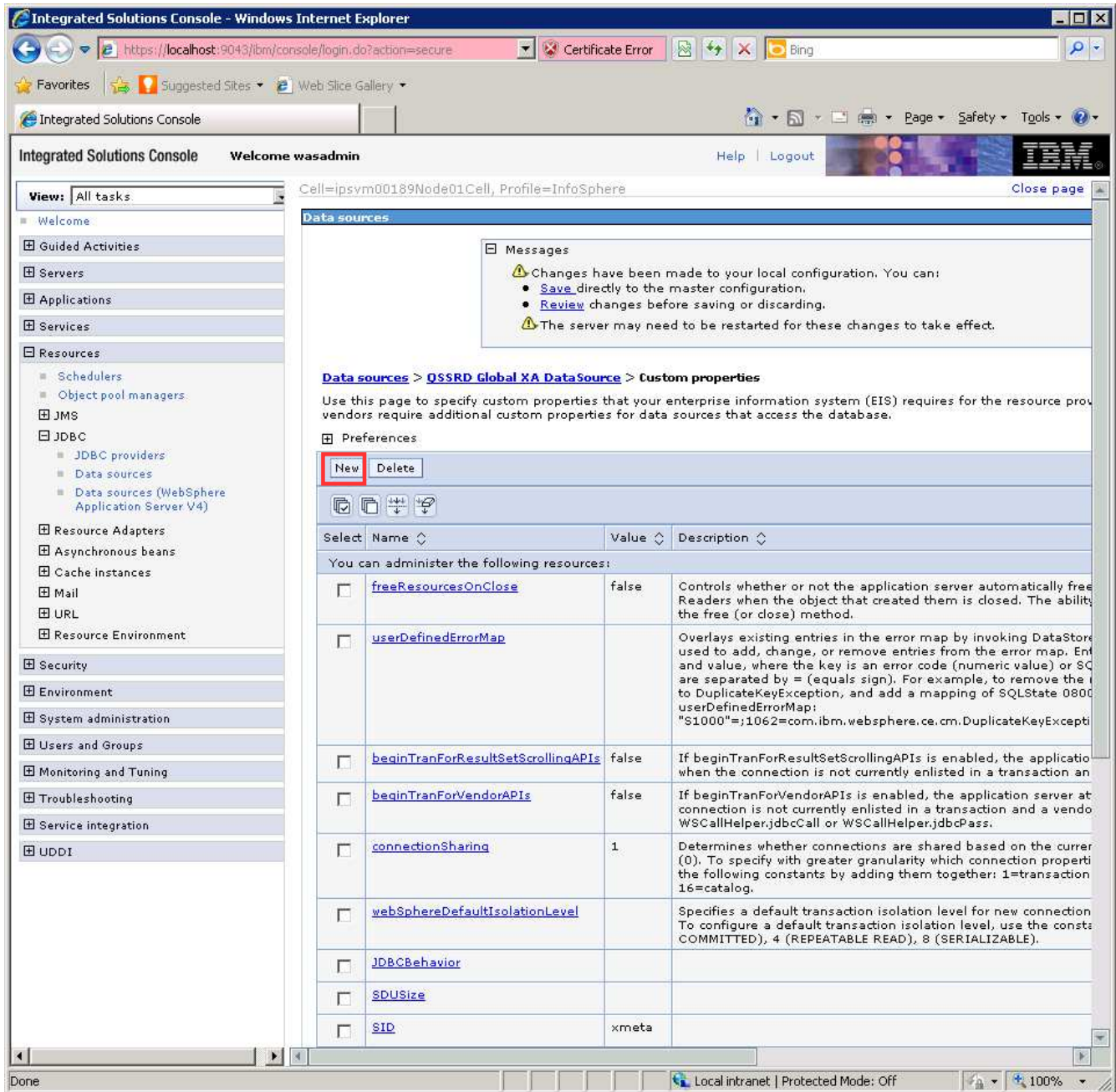
The screenshot shows the Integrated Solutions Console interface. On the left is a navigation tree with categories like Welcome, Guided Activities, Servers, Applications, Services, Resources, Security, Environment, System administration, Users and Groups, Monitoring and Tuning, Troubleshooting, Service integration, and UDDI. The main content area is titled 'Data sources > QSSRD Global XA DataSource'. It includes a 'Test connection' button, a 'Configuration' section with fields for Scope, Provider, Name, JNDI name, and Description, and a 'Data store helper class name' section with radio buttons for 'Select a data store helper class' and 'Specify a user-defined data store helper'. The 'Additional Properties' section on the right contains links for 'Connection pool properties', 'WebSphere Application Server data source properties', and 'Custom properties', which is highlighted with a red box. Below it is a 'Related Items' section with a link for 'JAAS - J2C authentication data'.

7. Find and modify the following properties as indicated:

Name	Value
webSphereDefaultIsolationLevel	2
SID	Unique system identifier for the Oracle database
batchPerformanceWorkaround	TRUE
serverName	Database system host name
portNumber	Database system port
queryTimeout	Delete this property

Add the enable2Phase property:

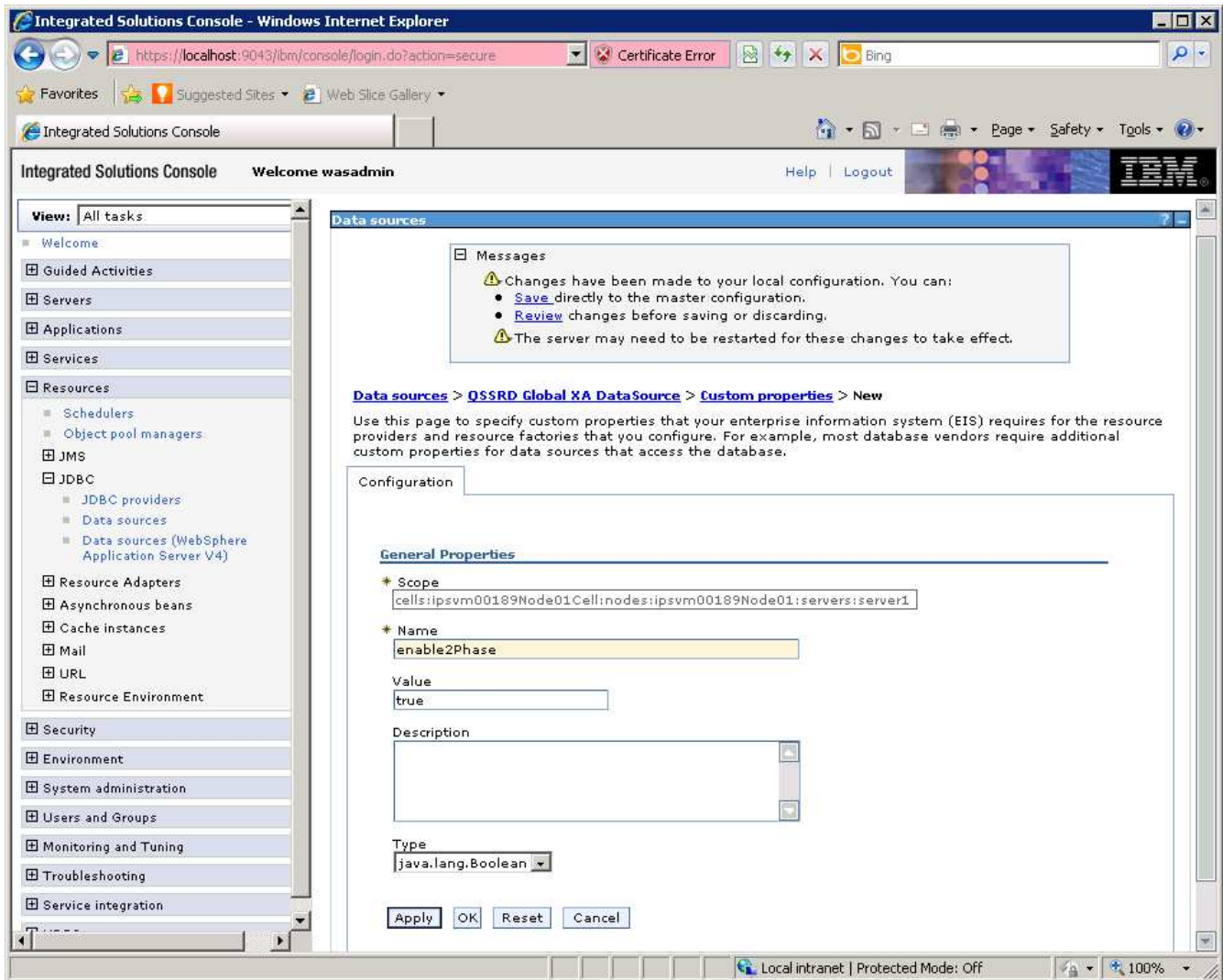
1. Click New.



The screenshot shows the Integrated Solutions Console interface. The left sidebar contains a navigation tree with categories like Welcome, Guided Activities, Servers, Applications, Services, Resources, Security, Environment, System administration, Users and Groups, Monitoring and Tuning, Troubleshooting, Service integration, and UDDI. The main content area is titled 'Data sources' and shows a message box at the top indicating configuration changes. Below the message, there is a breadcrumb trail: 'Data sources > QSSRD Global XA DataSource > Custom properties'. A 'Preferences' section contains a 'New' button (highlighted with a red box) and a 'Delete' button. Below these buttons is a table of resources that can be administered.

Select	Name	Value	Description
<input type="checkbox"/>	freeResourcesOnClose	false	Controls whether or not the application server automatically free Readers when the object that created them is closed. The ability the free (or close) method.
<input type="checkbox"/>	userDefinedErrorMap		Overlays existing entries in the error map by invoking DataSource used to add, change, or remove entries from the error map. Key and value, where the key is an error code (numeric value) or SQLState, and the value is an error message. For example, to remove the mapping for DuplicateKeyException, and add a mapping of SQLState 08000 to userDefinedErrorMap: "S1000";1062=com.ibm.websphere.ce.cm.DuplicateKeyExcepti
<input type="checkbox"/>	beginTranForResultSetScrollingAPIs	false	If beginTranForResultSetScrollingAPIs is enabled, the application when the connection is not currently enlisted in a transaction an
<input type="checkbox"/>	beginTranForVendorAPIs	false	If beginTranForVendorAPIs is enabled, the application server at connection is not currently enlisted in a transaction and a vendor WSCallHelper.jdbcCall or WSCallHelper.jdbcPass.
<input type="checkbox"/>	connectionSharing	1	Determines whether connections are shared based on the current (0). To specify with greater granularity which connection property the following constants by adding them together: 1=transaction 16=catalog.
<input type="checkbox"/>	webSphereDefaultIsolationLevel		Specifies a default transaction isolation level for new connection. To configure a default transaction isolation level, use the constants COMMITTED), 4 (REPEATABLE READ), 8 (SERIALIZABLE).
<input type="checkbox"/>	JDBCbehavior		
<input type="checkbox"/>	SDUSize		
<input type="checkbox"/>	SID	xmeta	

2. Enter *enable2Phase* in the **Name** field.
3. Enter *true* in the **Value** field.
4. Select *java.lang.boolean* in the **Type** field.
5. Click **OK**.
6. Click **Save**.



The Standardization Rules Designer data source creation step for Oracle is now complete.