Guided Exercise: Configuring a Data Source

In this lab assignment, you will create and configure a MySQL data source, and implement a Java application to test the data source.

Resources	
Files:	/home/student/JB248/labs/standalone /tmp/
App URL:	http://localhost:8080/dstest
Resources	dstest.war

Results

You should be able to create and test a data source based on the MySQL driver installed in the previous exercise.

Before you begin

Before beginning the guided exercise, run the following command to verify that EAP was installed in /opt/jboss-eap-7.0, that no EAP instance is running, to verify that the above guided exercise completed successfully , and to download the dstest.war application:

```
[student@workstation ~]$ lab datasource-configure setup
```

1. Start the standalone EAP instance.

Use the following command to start an EAP instance to access the management console:

```
[student@workstation ~]$ cd /opt/jboss-eap-7.0/bin
[student@workstation bin]$ ./standalone.sh \
-Djboss.server.base.dir=/home/student/JB248/labs/standalone/
```

Before proceeding, wait for the server to finish starting up.

2. Access the MySQL database.

Create a data source to connect to an instance of MySQL running locally on the workstation as a service. This database contains information used by the applications, which will be used throughout this course.

2.1. In a new terminal window, run the following command to verify that the database started and is running:

```
[student@workstation ~]$ sudo systemctl status mariadb
```

The result should be similar to the following:

```
mariadb.service - MariaDB database server
```

```
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor
preset: disabled)
   Active: active (running) since Mon 2016-04-11 08:40:09 EDT; 11h ago
```

2.2. MySQL has the following credentials for the application database bookstore:

- **Username: bookstore**
- **Password: redhat**

Use the following command to connect to the server running locally with the mysql client:

```
[student@workstation ~]$ mysql -ubookstore -shells
```

23. To verify that the databases are available, use the following command:

```
MariaDB [(none)]> show databases;
```

The result should appear as follows:

```
+--------------------+
| Database
+--------------------+
| information_schema | |
bookstore  | | test  |

+--------------------+
3 rows in set (0.00 sec)
```

2.4. Use the following command to select the bookstore database:

```
MariaDB [(none)]> use bookstore;
```

2.5. To list the tables in the bookstore database, run the following command:

```
MariaDB [bookstore]> show tables;
```

The result should appear as follows:

```
+---------------------+
| Tables_in_bookstore |
+---------------------+
| Address
| CatalogItem
| Contact
| Customer
| OrderItem
| Payment
| Promotion
| UserToken
| WishList
| WishListItem
```

```
| hibernate_sequence | | order_
|
+---------------------+
12 rows in set (0.00 sec)
```

2.6. To quit the client, run the following command:

```
MariaDB [bookstore]> exit;
```

3. Set up the data source.

3.1. Navigate to the management console at 127.0.0.1:9990. Go to the Settings page.

use

The administrator username is jbossadm and the password is JBoss@RedHat123.

3.2. Navigate to the database subsystem by clicking Subsystems and then Data Sources.

3.3. Select the Non-XA data source type and click Add.

3.4. In the first window, select MySQL Data Source and click Next.

- Enter bookstore for the Name.
- Enter java:jboss/datasources/bookstore for the JNDI Name.

Click Next.

3.5. In step 2 of the selection menu, click Detected Driver and select the driver named mysql. This is the driver that was installed in the previous exercise.

Click Next.

3.6. JDBC uses a standard format to connect to a database. provided by the driver documentation. For a Java application to connect to a MySQL instance, the address format is: *jdbc:mysql:// <IP>:<port>/ <databaseName>*

- The connection URL is jdbc:mysql://localhost:3306/bookstore.
- Enter bookstore as Username and redhat as Password.

When you click Finish, the bookstore data source should appear in the fourth column.

4. Check the data source settings.

4.1. In the terminal window where the server is running, look for the following log event:

```
09:44:10,769 INFO [org.jboss.as.connector.subsystems.datasources] (MSC service thread 1-4) WFLYJCA0001:
  Bound data source [java:jboss/datasources/bookstore]
```

4.2. Launch the EAP CLI in a new terminal window:

```
[student@workstation ~]$ cd /opt/jboss-eap-7.0/bin
[student@workstation bin]$ ./jboss-cli.sh
```

4.3. Use the following command to view the recently added data source, like so as well as the other fields that can be modified:

```
[disconnected /] connect
[standalone@localhost:9990] /subsystem=datasources/data-source=\ bookstore:read-
resource
```

The result should be similar to the following:

```
...
  "connection-properties" => undefined, "connection-
                url" => "jdbc:mysql://localhost:3306/bookstore", "datasource-class" => undefined,
                "driver-class" => "com.mysql.jdbc.Driver",
                "driver-name" => "mysql", "enabled" => true, "enlistment-
                trace" => true, "exception-sorter-
                class-name" =>


  "org.jboss.jca.adapters.jdbc.extensions.mysql.MySQLExceptionSorter", "exception-sorter-
                properties" => undefined, "flush-strategy" => undefined,
                "idle-timeout-minutes" => undefined,
                "initial-pool-size" => undefined, "jndi-name" =>
                "java:jboss/datasources/bookstore", "jta" =>
                true, "max-pool-size" => undefined, "mcp" =>

                "org.jboss.jca.core.connectionmanager.pool.mcp.
                \ SemaphoreConcurrentLinkedDequeManagedConnectionPool", "min-pool-size"
                => undefined,

...
```

5. Test the data source.

5.1. Deploy the dstest.war file located in the /tmp/ directory using the already open EAP CLI window.

```
[standalone@localhost:9990] deploy
\ /tmp/
dstest.war
```

5.2. Use your browser to go to http://127.0.0.1:8080/dstest/ and access the dtest app.

5.3. • Enter java:jboss/datasources/bookstore for the JNDI name.

• Enter bookstore.CatalogItem for the name of the table.

Click List to test the data source.

use

No credentials are required to access the data source, as they were already set up during data source setup. Developers only need to know the JNDI name for the particular data source in order to access the database.

5.4. Read the results page and verify that the data source search has been correct. You should see the contents of the CatalogItem table in the bookstore database.

6. Modify the data source.

In this step, you will configure some of the connection pool settings available through the CLI and the management console to improve database performance.

6.1. Enter the following commands to view the current values of the data source bookstore:

```
[standalone@localhost:9990] cd /subsystem=datasources/data-source=bookstore
[standalone@localhost:9990 data-source=bookstore] :read-resource(recursive=true)
```

Notice that several of the bookstore data source attributes are undefined.

6.2. Enter the following command, which sets the minimum pool size of the bookstore data source to 5:

```
[standalone@localhost:9990 data-source=bookstore] :write-attribute\ (name=min-pool-
size,value=5)
```

6.3. Verify that the change has been made:

```
[standalone@localhost:9990 data-source=bookstore] :read-resource(recursive=true)
```

Now the result should have the following:

```
...
"min-pool-size" => 5,
...
```

6.4. Return to the Administration Console Settings page.

6.5. Select the bookstore data source by clicking Subsystem; to Next, click Data Sources, and then Non-XA. Click View next to bookstore.

6.6. Click Disable to be able to make changes to the data source and to dismiss the notification regarding server startup.

6.7. Click on the Pool tab. You should see that the Minimum Pool Size value is 5.

6.8. Click Edit and set the Maximum Pool Size to 20.

6.9. Click Save to save your changes, and then click Enable to enable the bookstore data source again.

6.10. Verify that the changes you made with the CLI and with the management console appear in the configuration file /home/student/JB248/labs/standalone/configuration/standalone.xml.

7. Perform cleaning.

7.1. Undeploy the dstest.war application:

```
[standalone@localhost:9990 data-source=bookstore] undeploy dstest.war
```

7.2. Exit the EAP CLI:

```
[standalone@localhost:9990 data-source=bookstore] exit
```

7.3. Stop the EAP instance by pressing Ctrl+C in the terminal window that is running EAP.

This concludes the guided exercise.