Setting up the Database for RobustNode
The first thing to make sure is that the MySQL database has been installed. MySQL can be downloaded from [http://www.mysql.com](http://www.mysql.com), make sure that you download a stable version as recommended by the website and install it. NaradaBrokering’s RobustNode has been tested with version’s 3.23 through 4.1 of the MySQL database.

Creating the Database and Tables (Windows and Linux)
If you are using the Windows operating system, the database and tables can easily be created by using the `bat` files that have been provided in the distribution. These bat files are located in the “NB_Home/bin/mysqlCommands” directory. If your database access requires the specification of a user name and password, you need to modify “bat” files as instructed within these bat files to make sure that you specify the user name and password while running the mysql command viz. `mysql –u username –p`. The mysql program will then ask you for your password.

To create database and its tables, execute following bat files sequentially.

- CreateDatabase.bat
- CreateTables.bat

If you want to delete database and/or tables, you can use following files:

- DropTables.bat
- DropDatabase.bat

Note that the `sql` files that have provided are platform independent, and will work with both Windows and Unix environments.

For the Linux operating system, use the aforementioned SQL files to create and drop the database and/or its tables:

- create_database.sql
- create_tables.sql
- drop_database.sql
- drop_tables.sql

To simply management of your database, you can download the MySQL Control Center from its site. It provides a GUI interface to manage users, databases and tables. We suggest creating a new user account to access the database instead of using the “root” account.

Finally, using compatible JDBC driver is very important. Your driver must support your MySQL database to create JDBC connection. If you get an exception, please check your driver compatibility.
Using the Robust Node

Step 1: Double click `startBroker.bat`. This starts the broker.

Step 2: Next, double click `robustNode.bat`. This starts robust delivery service and the underlying stable storage. The GUI for this application is depicted below.

Specify the broker-**IP address** and the **Entity Id** (it could be anything e.g. 888) for the robust node. Proceed to press the **Start** button. If all goes well in the connection to the broker and the setup of the JDBC connections you will see the GUI depicted in Figure 2.
Figure 2: The GUI after the successful setup of the broker connection and the storage service
Proceed to click the **View Table** tab. If this is the first time that you are running this application everything will be empty and there will be no entries in the sub tabs that are available e.g. **Inventory**, **Template**, **Profile** and **EntityTemplate**.

![Image of a GUI interface with tabs and a table]

**Figure 3: Viewing previously registered templates**
The figure below depicts the scenario where there are no entities registered to any templates. In fact it is also possible (as can be seen by clicking the **Template** tab) that there are no registered templates. If this is the case proceed to add entries regarding the template, entity and register an entity to the template in question. To add information regarding the entities, templates etc. click on the **Edit Table** tab. The screen that is displayed is depicted below.

![Figure 4: Viewing the templates and entities registered to these templates.](image-url)
The screen that comes up when you click on the **Edit Table** tab is depicted below. First you need to add the right template in question. Proceed to click on the **Edit Template** tab.

![Edit Table Screen](image)

**Figure 5:** The Edit Table screen with sub tabs for registrations

**System response:**
The screen that is displayed when you click the Edit Template tab is depicted below. The default that is displayed is Movies/Casablanca with a templateId of 11111. Note that for the GridFTP demo you will have to remove the s from Movies and have the string as Movie/Casablanca iff you are setting up the GridFTP from scratch.

![Figure 6: Registering a new template - Initial screen](image-url)
Next proceed to click the **Edit Entity** Tab. The screen that is now displayed is depicted below. The display depicts the entries currently available. We are interested in adding entities with ID 4444 and 5555. If you don’t see the entries in the list proceed to register the entities. **Note that this is a one-time operation and you will not need to do this again until the database/file-system is cleared.**

![Figure 7: The screen for editing entity entries.](image-url)
The figure below depicts the process of adding entities 4444 and 5555. Next we need to register these entities to the templateId in question. For this you need to click on the Entity EntityTemplate tab.

Figure 8: The screen after adding entries for entity 4444 and 5555
Next, proceed to register entities to a template by clicking on the **Edit Entity Template** tab. The screen below shows the registering of an entry to a template. The highlighted items indicate the entity and templateId for which registration/deregistration would be performed when the appropriate buttons are pressed.

The figure below depicts entity 4444 being registered to templateId 11111

**Figure 9: The screen for registering an entity to a template**
The figure below depicts entity 5555 being registered to templateID 11111.

Figure 10: Another example depicting the registration of an entity to a template.
Note that the registration process involving entities, templates and entities-to-templates is a one time operation for the life of the application. You need not repeat the set of instructions detailed earlier if you are returning from a scheduled downtime or a failure. The operations need to be repeated ONLY if you have explicitly deregistered the entity, template or entities-from-the-template.

The figure below shows the screen, which allows one to see the templates that were registered.

![Figure 11: Viewing the registered templates](image)
The figure below depicts the entity and the templates that they are registered to.

Figure 12: Viewing entities and the templates that they are registered to
Now we proceed to running the robust subscriber. When you click on the RobustSub.bat file this is the GUI through which your actions are initiated. In the connection screen you need to enter the hostname and port number information.

Figure 13: The robust subscriber GUI -- Connect Tab

The figure below depicts the recovery screen. You need to specify the templateId (11111) on which you are going to recover. If you had previously subscribed, you will automatically be registered to those subscriptions. However, since the first time you need to specify your subscription.

Figure 14: The robust subscriber recovery screen
The subscription profile screen is depicted below. Here you need to specify both the \texttt{templateId} (11111) and the \texttt{subscription} (Movies/Casablanca).

Figure 15: Robust Subscriber - Subscription screen

The figure below depicts the scenario where, if you had previously registered a subscription, you will automatically be registered to that subscription. This obviates the need to subscribe using the \texttt{Profile} screen.

Figure 16: Robust Subscriber - Recovery screen depicting automatic subscriptions
The publisher publishing screen is similar to what’s available for the robust subscriber.

Specify the **templateId** (11111) and the **template** (Movies/Casablanca) of the events that the robust publisher will publish.
The figure below depicts the scenario where a publisher publishes a message and the robust subscriber receives it.

Figure 19: Publisher sending events and receiver receiving them