# Rdb

## A relational database service

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## 1. Overview

**Rdb**: *A relational database service*

## 1.1. Intent

An abstract representation of a database server and its dependencies. Often it is desirable to model a database server and expose its resources to referring entities such as an Application Server or other "upstream" deployments. The most common use case is to auto-generate the datasource configurations that an application server (e.g. Tomcat, JBoss, etc) may require for the database application requirements.

Additional support exists for the importing and exporting of dependent database schemas in order to automate the buliding and deploying of versioned data packages.

## 1.2. Discussion

The combination of Rdb and RdbSchema objects can provide a sufficient data model for automated datasource generation. Datasource configurations, which typically require the same information provided by database server(s) and its dependent schema(s), are platform specific (e.g. Tomcat and JBoss both support datasource configurations but are not in common format). It is therefore the requirement of referring objects such as of type JBossServer or TomcatServer to implement the data driven configuration.

## 2. Design

### Super Type
SystemService

| Role | **Concrete**. (Objects can be created.) |
|---|---|
| Instance Names | **Unique** |
| Notification | **false** |
| Template Directory | |
| Data View | Children, proximity: **1** |
| Logger Name | |

## 3. Constraints

## 3.1. Allowed Child Dependencies

- [RdbConnection](#) 1
- RdbData
- [RdbDriver](#) 1
- [RdbInstanceName](#) 1
- [RdbPassword](#) 1
- [RdbPort](#) 1
- [RdbSchema](#) 1
- [RdbType](#) 1
- [RdbUserName](#) 1

1: These types have a *Singleton* constraint. Only one instance may be added as a resource.

## 3.2. Allowed Parent Dependencies

- [JBossServer](#)
- Node
- Site
- [TomcatServer](#)

Limit rdb referrers to JBoss and Tomcat servers along with typical site and node objects.

## 4. Attributes

## 4.1. Defaults for Imported Attributes

| Name | Default | Description |
| --- | --- | --- |
| rdbConnection | jdbc:hsqldb:hsql://localhost:1701 | the rdbConnection string representing a locally accessible hsql jdbc connection. |
| rdbDriver | org.hsqldb.jdbcDriver | set the rdbDriver default to the hsql database driver. |
| rdbInstanceName | default | set the default rdbInstanceName to "default" |
| rdbPassword | | by default, unset the rdbPassword |
| rdbPort | 1701 | set the rdbPort to the default 1701 port. |

| rdbType | hsqldb | set the default rdbType to the hsql database server. |
|---|---|---|
| rdbUserName | sa | set the default rdbUserName to "sa" |

## 5. Commands

> **Note:**
> Commandline options displayed in square brackets "[]" are optional. If an option expects arguments, then angle brackets are shown after the option "<>". Any default value is shown within the brackets.

## 5.1. Schemas-ExportDmp

*Calls each RdbSchema resource to export its database schema to a dump package*

Automates the schema export process useful for a data build from a reference database server.

### Usage

```
Schemas-ExportDmp -buildstamp <> [-command <ExportDmp>]
[-resourcetype <.*RdbSchema>]
```

### 5.1.1. Workflow

1. dispatchCmd

### Options

| Option | Description |
|---|---|
| buildstamp | *Unique build identifier*<br>identifies the buildstamp for exported schema as a versioned package. |
| command | *Command to execute*<br>default command to dispatch to the dependent schema for export. |
| resourcetype | *Type of resource to dispatch*<br>regular expression matching dependent schema object when dispatching the export command. |

## 5.2. assertServiceIsUp

*checks if the service is up*

### Usage
```
assertServiceIsUp [-count <3>] [-rdbinstance
<${entity.attribute.rdbInstanceName}>] [-rdbpassword
<${entity.attribute.rdbPassword}>] [-rdbusername
<${entity.attribute.rdbUserName}>]
```

**Options**

| Option | Description |
| --- | --- |
| count | *number of times to ping* |
| rdbinstance | *Instance name* |
| rdbpassword | *Database user's password* |
| rdbusername | *Database user name* |

## 5.3. Schemas-ImportDmp

*Calls each RdbSchema resource to import its dump file package*

Automates the schema import of a versioned data packaged.

### Usage
```
Schemas-ImportDmp [-command <ImportDmp>] [-resourcetype
<.*RdbSchema>]
```

### 5.3.1. Workflow

1. dispatchCmd

**Options**

| Option | Description |
| --- | --- |
| command | *Command to execute* |
| resourcetype | *Resource type to dispatch* |

## 5.4. Deploy

*Runs the Rdb update process*

Automates the package download and schema import process.

### Usage

```
Deploy
```

### 5.4.1. Workflow

1. Packages-Install
2. [Schemas-ImportDmp](#)

## 6. Related Types

The following types are defined for use with Rdb.

## 6.1. RdbSetting

### 6.1.1. Overview

**RdbSetting**: *an Rdb setting*

#### 6.1.1.1. Intent

Supertype to encapsulate related subtypes to support Rdb service.

### 6.1.2. Design

**Super Type**
Setting

| | |
|---|---|
| Role | **Abstract**. (Objects cannot be created.) |
| Instance Names | **Unique** |

### 6.1.3. Constraints

Limit RdbSetting's referrers to the Rdb service objects.

#### 6.1.3.1. Allowed Parent Dependencies

- [Rdb](#)

## 6.2. RdbDriver

### 6.2.1. Overview

**RdbDriver**: *Specifies the Database Driver*

### 6.2.1.1. Intent

Specifies the database driver implementation such as a jdbc class implementation. Typically accessed by a referring application server for datasource generation.

### 6.2.2. Design

**Super Type**
RdbSetting

| Role | **Concrete**. (Objects can be created.) |
|---|---|
| Instance Names | **Unique** |

### 6.2.3. Attributes

### 6.2.3.1. Exported Attributes

| Name | Property | Description |
|---|---|---|
| rdbDriver | settingValue | attribute setting containing the database driver implementation. |

## 6.3. RdbConnection

### 6.3.1. Overview

**RdbConnection**: *Specifies the Database Connection*

### 6.3.1.1. Intent

Specifies the database connection string, such as a jdbc connection-url. Typically accessed by a referring application server for datasource generation.

### 6.3.2. Design

**Super Type**
RdbSetting

| Role | **Concrete**. (Objects can be created.) |
|---|---|
| Instance Names | **Unique** |

### 6.3.3. Attributes

#### 6.3.3.1. Exported Attributes

| Name | Property | Description |
| --- | --- | --- |
| rdbConnection | settingValue | attribute setting containing the database connection string. |

## 6.4. RdbPort

### 6.4.1. Overview

**RdbPort**: *Specifies the Database Connection Port*

Optionally exposes the listen port of the database server.

### 6.4.2. Design

**Super Type**
[RdbSetting](#)

| Role | **Concrete**. (Objects can be created.) |
| --- | --- |
| Instance Names | **Unique** |

### 6.4.3. Attributes

#### 6.4.3.1. Exported Attributes

| Name | Property |
| --- | --- |
| rdbPort | settingValue |

## 6.5. RdbType

### 6.5.1. Overview

**RdbType**: *Specifies the unique key value identifying which type database type is in use (e.g. "mssql" or "oracle", etc)*

Optionally exposes the type of database implementation.

**6.5.2. Design**

### Super Type
[RdbSetting](RdbSetting)

| Role | **Concrete**. (Objects can be created.) |
|------|------------------------------------------|
| Instance Names | **Unique** |

**6.5.3. Attributes**

**6.5.3.1. Exported Attributes**

| Name | Property |
|------|----------|
| `rdbType` | settingValue |

## 6.6. RdbUserName

**6.6.1. Overview**

**RdbUserName**: *A user for a schema*

Optionally exposes the administrative user of the database server.

**6.6.2. Design**

### Super Type
[RdbSetting](RdbSetting)

| Role | **Concrete**. (Objects can be created.) |
|------|------------------------------------------|
| Instance Names | **Unique** |

**6.6.3. Attributes**

**6.6.3.1. Exported Attributes**

| Name | Property |
|------|----------|
| `rdbUserName` | settingValue |

## 6.7. RdbPassword

### 6.7.1. Overview

**RdbPassword**: *A schema user's password*

Optionally exposes the administrative password of the database server.

### 6.7.2. Design

**Super Type**
[RdbSetting](RdbSetting)

| Role | **Concrete**. (Objects can be created.) |
|------|------------------------------------------|
| Instance Names | **Unique** |

### 6.7.3. Constraints

### 6.7.4. Attributes

#### 6.7.4.1. Exported Attributes

| Name | Property |
|------|----------|
| rdbPassword | settingValue |

## 6.8. RdbInstanceName

### 6.8.1. Overview

**RdbInstanceName**: *Stores the value of the database instance name*

Optionally exposes the instance name of the database server.

### 6.8.2. Design

**Super Type**
[RdbSetting](RdbSetting)

| Role | **Concrete**. (Objects can be created.) |
|------|------------------------------------------|
| Instance Names | **Unique** |

### 6.8.3. Attributes

### 6.8.3.1. Exported Attributes

| Name | Property |
|------|----------|
| `rdbInstanceName` | settingValue |