

Deployit Database Plugin Manual

Version 3.9.0

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Preface

This document describes the functionality provided by the database plugin.

See the **Deployit Reference Manual** for background information on Deployit and deployment concepts.

Overview

The database plugin is a Deployit plugin that supports deployment of SQL files and folders to a database client.

Features

- Runs on Deployit 3.6 and up.
- Supports deployment to MySQL, Oracle, MS SQL and DB/2.
- Deploys and undeploys SQL files and folders.

Requirements

- **Deployit requirements**
 - **Deployit:** version 3.9+
 - **Other Deployit Plugins:** None
- **Infrastructural requirements**
 - **User credentials** for accessing the database client executables on the host running the database.

Plugin Concepts

SQL Scripts

The [SqlScripts](#) CI encompasses a folder containing SQL scripts that are to be executed on a database. SQL scripts come in two flavors, namely installation scripts and rollback scripts. Installation scripts are used to execute changes on the database, such as creation of a table or inserting data. Each installation script is associated with a rollback script which undoes the actions performed by it's companion installation script. Rollback scripts **must** have the exact same name as the installation script they are associated with and have the moniker – `rollback` attached to it. Executing an installation script followed by the accompanying rollback script should leave the database in an unchanged state.

SQL scripts are ordered alphabetically based on their filename. This is an example of ordering of several installation scripts:

- 1-create-user-table.sql
- 1-create-user-table-rollback.sql
- 10-drop-user-index.sql
- 10-drop-user-index-rollback.sql
- 2-insert-user.sql
- 2-insert-user-rollback.sql
- ...
- 9-create-user-index.sql
- 9-create-user-index-rollback.sql

Note that in this example, the tenth script, *10-drop-user-index.sql* would be incorrectly executed after the first script, *1-create-user-table.sql*.

When upgrading a SqlScripts CI, only those scripts that were not present in the previous package version are executed. For example, if the previous SqlScripts folder contained script1.sql and script2.sql, and the new version of SqlScripts folder contains script2.sql and script3.sql, then only script3.sql will be executed as part of the upgrade.

When undeploying a SqlScripts CI, all rollback scripts are executed in reverse alphabetical order.

Dependencies

It is also possible to include dependencies together with the SQL scripts. Dependencies are included in the package using sub-folders. Sub-folders that have the same name as the script (without the file extension) are uploaded with the scripts in the sub-folder along with the main script to the target machine. The main script can then execute the dependent scripts in the same connection.

Common dependencies can be included in a sub-folder called `common` and will be available to all scripts.

Take this folder with Oracle scripts as an example:

```
mysqlfolder
|
|__ 01-CreateTable.sql
|
|__ 02-CreateUser.sql
|
|__ 02-CreateUser
|
|__ create_admin_users.sql
|
|__ create_power_users.sql
|
|__ common
|
|__ some_other_util.sql
|
|__ some_resource.properties
```

The `02-CreateUser.sql` script can use its dependencies or common dependencies as follows:

```
--
-- 02-CreateUser.sql
--

INSERT INTO person2 (id, firstname, lastname) VALUES (1, 'xebialabs1', 'user1');
-- Execute a common dependency
@some_other_util.sql
-- Execute script-specific dependency: Create Admin Users
@create_admin_users.sql
-- Execute script-specific dependency: Create Power Users
@create_power_users.sql
COMMIT;
```

SQL Client

The `SqlClient` CIs are containers to which `SqlScripts` can be deployed. The plugin ships with `SqlClient` for the following databases:

- MySQL
- Oracle
- MS SQL
- DB/2

When SQL scripts are deployed to an SQL client, each script to be executed is run against the SQL client in turn. The SQL client can be configured with a username and password that is used to connect to the database. The credentials can be overridden on each SQL script if required.

Usage in Deployment Packages

The following is a manifest snippet that shows how SQL file and folder CIs can be included in a deployment package. The SQL scripts CI refers to a folder, `sql/`, in the deployment package.

```
Manifest-Version: 1.0
Deployit-Package-Format-Version: 1.3
CI-Application: PetClinic-ear
CI-Version: 2.0

Name: PetClinic-2.0.ear
```

| |
|-------------------------|
| CI-Type: jee.Ear |
| CI-Name: PetClinic |
| Name: sql |
| CI-Type: sql.SqlScripts |
| CI-Name: sql |

Using the deployables and deployed

The following table describes which deployable/container combinations are possible.

Deployable vs. Container table

| Deployable | Container | Generated deployed |
|----------------|--|------------------------|
| sql.SqlScripts | sql.OracleClient, sql.MySqlClient, sql.Db2Client | sql.ExecutedSqlScripts |

The following table describes the effect a deployed has on it's container.

Deployed Actions Table

| Deployed | Actions performed for operations | | |
|------------------------|---|---|--|
| | Create | Destroy | Modify |
| sql.ExecutedSqlScripts | For each installation script in the folder (ordered alphabetically by name, ascending): <ul style="list-style-type: none"> Run script through template engine Copy create script to container Execute script | For each rollback script in the folder (ordered alphabetically by name, descending): <ul style="list-style-type: none"> Run script through template engine Copy destroy script to container Execute script | For each installation script in the folder that was not part of the deployment being upgraded (ordered alphabetically by name, ascending): <ul style="list-style-type: none"> Run script through template engine Copy modify script to container Execute script |

CI Reference

Configuration Item Overview

Deployables

| CI | Description |
|--------------------------------|-------------------------------|
| sql.SqlScripts | Folder containing SQL scripts |

Deployeds

| CI | Description |
|--|---------------------------------------|
| sql.ExecutedSqlScripts | SQL scripts executed on an SQL client |

Containers

| CI | Description |
|----------------------------------|-----------------------------|
| sql.Db2Client | IBM DB2 client |
| sql.MsSqlClient | Microsoft SQL Server client |
| sql.MySqlClient | MySQL client |
| sql.OracleClient | Oracle SQL*Plus client |
| sql.SqlClient | Generic SQL client |

Other Configuration Items

| CI | Description |
|--|---------------------------------------|
| sql.Db2Client | IBM DB2 client |
| sql.ExecutedSqlScripts | SQL scripts executed on an SQL client |
| sql.MsSqlClient | Microsoft SQL Server client |
| sql.MySqlClient | MySQL client |
| sql.OracleClient | Oracle SQL*Plus client |
| sql.SqlClient | Generic SQL client |
| sql.SqlScripts | Folder containing SQL scripts |

Configuration Item Details

sql.Db2Client

Type Hierarchy [sql.SqlClient](#) >> [generic.Container](#) >> [udm.BaseContainer](#) >> [udm.BaseConfigurationItem](#)

Interfaces [udm.Taggable](#), [udm.ConfigurationItem](#), [udm.Container](#), [generic.GenericContainer](#), [overthere.HostContainer](#)

IBM DB2 client

| Parent | |
|---|---|
| * host : CI<overthere.Host> | Host upon which the container resides |
| Public Properties | |
| * databaseName : STRING | The name of the DB2 database to connect to |
| * db2Home : STRING | The directory that contains the DB2 installation |
| envVars : MAP_STRING_STRING | Environment variables for container |
| tags : SET_OF_STRING | If set, only deployables with the same tag will be automatically mapped to this container. |
| Hidden Properties | |
| * clientWrapperScript : STRING = sql/Db2Client | Client Wrapper Script |
| * restartOrder : INTEGER = 90 | The order of the restart container step in the step list. |
| * startOrder : INTEGER = 90 | The order of the start container step in the step list. |
| * startWaitTime : INTEGER = 0 | The time to wait in seconds for a container start action. |
| * stopOrder : INTEGER = 10 | The order of the stop container step in the step list. |
| * stopWaitTime : INTEGER = 0 | The time to wait in seconds for a container stop action. |
| inspectClasspathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : STRING | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script. The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| password : STRING | Password |
| restartScript : STRING | Classpath to the script used to restart the generic container. |
| restartWaitTime : INTEGER = 0 | The time to wait in seconds for a container restart action. |
| startScript : STRING | Classpath to the script used to start the generic container. |
| stopScript : STRING | Classpath to the script used to stop the generic container. |
| username : STRING | Username |

sql.ExecutedSqlScripts

Type Hierarchy [generic.ExecutedFolder](#) >> [generic.AbstractDeployed](#) >> [udm.BaseDeployed](#) >> [udm.BaseConfigurationItem](#)

Interfaces [udm.EmbeddedDeployedContainer](#), [udm.Artifact](#), [udm.Deployed](#), [udm.ConfigurationItem](#), [udm.DerivedArtifact](#)

SQL scripts executed on an SQL client

Parent

* **container** : `Cl<udm.Container>`
The container on which this deployed runs.

| Hidden Properties | |
|---|--|
| * commonScriptFolderName : STRING = common | Common folder that should be uploaded to the working directory. |
| * createOrder : INTEGER = 50 | The order of the step in the step list for the create operation. |
| * createVerb : STRING = Run | Create Verb |
| * destroyOrder : INTEGER = 40 | The order of the step in the step list for the destroy operation. |
| * destroyVerb : STRING = Rollback | Destroy Verb |
| * executorScript : STRING = \${deployed.container.clientWrapperScript} | Executor Script |
| * modifyOrder : INTEGER = 50 | The order of the step in the step list for the modify operation. |
| * modifyVerb : STRING = Modify | Modify Verb |
| * noopOptions : SET_OF_STRING = [none] | Options for the noop step (1 or more of: none,uploadArtifactData,uploadClasspathResources,uploadTemplateClasspathResources). |
| * noopOrder : INTEGER = 50 | The order of the step in the step list for the noop operation. |
| * noopVerb : STRING = Modify | Noop Verb |
| * rollbackScriptPostfix : STRING = -rollback.sql | Rollback Script Postfix |
| * rollbackScriptRecognitionRegex : STRING = [0-9]*-(.*)-rollback\sql | Rollback Script Recognition Regex |
| * scriptRecognitionRegex : STRING = (?!.*-rollback\sql)([0-9]*-.*)\sql | Script Recognition Regex |
| classpathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the script. |
| inspectClasspathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : STRING | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script.The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| restartRequired : BOOLEAN = false | The generic container requires a restart for the action performed by this deployed. |
| restartRequiredForNoop : BOOLEAN = false | The generic container requires a restart for the NOOP action performed by this deployed. |
| templateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the script.The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |

sql.MsSqlClient

Type Hierarchy [sql.SqlClient](#) >> [generic.Container](#) >> [udm.BaseContainer](#) >> [udm.BaseConfigurationItem](#)

Interfaces [udm.Taggable](#), [udm.ConfigurationItem](#), [udm.Container](#), [generic.GenericContainer](#), [overthere.HostContainer](#)

Microsoft SQL Server client

| Parent | |
|---|---|
| * host : <code>CI<overthere.Host></code> | Host upon which the container resides |
| Public Properties | |
| * serverName : <code>STRING</code> | The name of the MS SQL Server to connect to |
| additionalOptions : <code>STRING</code> | Any additional options that need to be passed when connecting to the MS SQL Server. |
| databaseName : <code>STRING</code> | The name of the MS SQL database to connect to |
| envVars : <code>MAP_STRING_STRING</code> | Environment variables for container |
| password : <code>STRING</code> | If set, the password to use if none is set on the deployed sql.ExecutedSqlScripts |
| tags : <code>SET_OF_STRING</code> | If set, only deployables with the same tag will be automatically mapped to this container. |
| username : <code>STRING</code> | If set, the user name to use if none is set on the deployed sql.ExecutedSqlScripts |
| Hidden Properties | |
| * clientWrapperScript : <code>STRING</code> = <code>sql/MsSqlClient</code> | Client Wrapper Script |
| * restartOrder : <code>INTEGER</code> = <code>90</code> | The order of the restart container step in the step list. |
| * startOrder : <code>INTEGER</code> = <code>90</code> | The order of the start container step in the step list. |
| * startWaitTime : <code>INTEGER</code> = <code>0</code> | The time to wait in seconds for a container start action. |
| * stopOrder : <code>INTEGER</code> = <code>10</code> | The order of the stop container step in the step list. |
| * stopWaitTime : <code>INTEGER</code> = <code>0</code> | The time to wait in seconds for a container stop action. |
| inspectClasspathResources : <code>SET_OF_STRING</code> | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : <code>STRING</code> | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : <code>SET_OF_STRING</code> | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script. The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| restartScript : <code>STRING</code> | Classpath to the script used to restart the generic container. |
| restartWaitTime : <code>INTEGER</code> = <code>0</code> | The time to wait in seconds for a container restart action. |
| startScript : <code>STRING</code> | Classpath to the script used to start the generic container. |
| stopScript : <code>STRING</code> | Classpath to the script used to stop the generic container. |

sql.MySqlClient

Type Hierarchy `sql.SqlClient` >> `generic.Container` >> `udm.BaseContainer` >> `udm.BaseConfigurationItem`

Interfaces `udm.Taggable`, `udm.ConfigurationItem`, `udm.Container`, `generic.GenericContainer`, `overthere.HostContainer`

MySQL client

| Parent | |
|---|---------------------------------------|
| * host : <code>CI<overthere.Host></code> | Host upon which the container resides |

| Public Properties | |
|---|---|
| * databaseName : STRING | The name of the MySQL database to connect to |
| * mySqlHome : STRING | The directory that contains the MySQL installation |
| envVars : MAP_STRING_STRING | Environment variables for container |
| password : STRING | If set, the password to use if none is set on the deployed sql.ExecutedSqlScripts |
| tags : SET_OF_STRING | If set, only deployables with the same tag will be automatically mapped to this container. |
| username : STRING | If set, the user name to use if none is set on the deployed sql.ExecutedSqlScripts |
| Hidden Properties | |
| * clientWrapperScript : STRING = sql/MySqlClient | Client Wrapper Script |
| * restartOrder : INTEGER = 90 | The order of the restart container step in the step list. |
| * startOrder : INTEGER = 90 | The order of the start container step in the step list. |
| * startWaitTime : INTEGER = 0 | The time to wait in seconds for a container start action. |
| * stopOrder : INTEGER = 10 | The order of the stop container step in the step list. |
| * stopWaitTime : INTEGER = 0 | The time to wait in seconds for a container stop action. |
| inspectClasspathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : STRING | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script. The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| restartScript : STRING | Classpath to the script used to restart the generic container. |
| restartWaitTime : INTEGER = 0 | The time to wait in seconds for a container restart action. |
| startScript : STRING | Classpath to the script used to start the generic container. |
| stopScript : STRING | Classpath to the script used to stop the generic container. |

sql.OracleClient

Type Hierarchy [sql.SqlClient](#) >> [generic.Container](#) >> [udm.BaseContainer](#) >> [udm.BaseConfigurationItem](#)

Interfaces [udm.Taggable](#), [udm.ConfigurationItem](#), [udm.Container](#), [generic.GenericContainer](#), [overthere.HostContainer](#)

Oracle SQL*Plus client

| Parent | |
|---|---------------------------------------|
| * host : Cl<overthere.Host> | Host upon which the container resides |

| Public Properties | |
|---|---|
| * oraHome : STRING | The directory that contains the Oracle installation |
| * sid : STRING | The Oracle SID to connect to |
| envVars : MAP_STRING_STRING | Environment variables for container |
| password : STRING | If set, the password to use if none is set on the deployed sql.ExecutedSqlScripts |
| tags : SET_OF_STRING | If set, only deployables with the same tag will be automatically mapped to this container. |
| username : STRING | If set, the user name to use if none is set on the deployed sql.ExecutedSqlScripts |
| Hidden Properties | |
| * clientWrapperScript : STRING = sql/OracleClient | Client Wrapper Script |
| * restartOrder : INTEGER = 90 | The order of the restart container step in the step list. |
| * startOrder : INTEGER = 90 | The order of the start container step in the step list. |
| * startWaitTime : INTEGER = 0 | The time to wait in seconds for a container start action. |
| * stopOrder : INTEGER = 10 | The order of the stop container step in the step list. |
| * stopWaitTime : INTEGER = 0 | The time to wait in seconds for a container stop action. |
| inspectClasspathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : STRING | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script. The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| restartScript : STRING | Classpath to the script used to restart the generic container. |
| restartWaitTime : INTEGER = 0 | The time to wait in seconds for a container restart action. |
| startScript : STRING | Classpath to the script used to start the generic container. |
| stopScript : STRING | Classpath to the script used to stop the generic container. |

sql.SqlClient

Virtual Type

Type Hierarchy generic.Container >> udm.BaseContainer >> udm.BaseConfigurationItem

Interfaces udm.Taggable, udm.ConfigurationItem, generic.GenericContainer, udm.Container, overthere.HostContainer

Generic SQL client

| Parent | |
|---|---------------------------------------|
| * host : Cl<overthere.Host> | Host upon which the container resides |

| Public Properties | |
|---|---|
| clientWrapperScript : STRING | The OS-specific wrapper script that calls the SQL client |
| envVars : MAP_STRING_STRING | Environment variables for container |
| password : STRING | If set, the password to use if none is set on the deployed sql.ExecutedSqlScripts |
| tags : SET_OF_STRING | If set, only deployables with the same tag will be automatically mapped to this container. |
| username : STRING | If set, the user name to use if none is set on the deployed sql.ExecutedSqlScripts |
| Hidden Properties | |
| * restartOrder : INTEGER = 90 | The order of the restart container step in the step list. |
| * startOrder : INTEGER = 90 | The order of the start container step in the step list. |
| * startWaitTime : INTEGER = 0 | The time to wait in seconds for a container start action. |
| * stopOrder : INTEGER = 10 | The order of the stop container step in the step list. |
| * stopWaitTime : INTEGER = 0 | The time to wait in seconds for a container stop action. |
| inspectClasspathResources : SET_OF_STRING | Additional classpath resources that should be uploaded to the working directory before executing the inspect script. |
| inspectScript : STRING | Classpath to the script used to inspect the generic container. |
| inspectTemplateClasspathResources : SET_OF_STRING | Additional template classpath resources that should be uploaded to the working directory before executing the inspect script. The template is first rendered and the rendered content copied to a file, with the same name as the template, in the working directory. |
| restartScript : STRING | Classpath to the script used to restart the generic container. |
| restartWaitTime : INTEGER = 0 | The time to wait in seconds for a container restart action. |
| startScript : STRING | Classpath to the script used to start the generic container. |
| stopScript : STRING | Classpath to the script used to stop the generic container. |

sql.SqlScripts

| | |
|-----------------------|---|
| Type Hierarchy | generic.Folder >> udm.BaseDeployableFolderArtifact >> udm.BaseDeployableArtifact >> udm.BaseDeployable >> udm.BaseConfigurationItem |
| Interfaces | udm.Taggable, udm.Deployable, udm.SourceArtifact, udm.Artifact, udm.DeployableArtifact, udm.ConfigurationItem, udm.FolderArtifact |

Folder containing SQL scripts

| Public Properties |
|---|
| checksum : STRING The checksum used to detect differences on the artifact. If not provided, it will be calculated by Deployit. |
| excludeFileNamesRegex : STRING Regular expression that matches file names that must be excluded from scanning |
| password : STRING The password to connect to the database |
| placeholders : SET_OF_STRING Placeholders detected in this artifact |
| scanPlaceholders : BOOLEAN = true Whether to scan this artifact for placeholders when it is imported |
| tags : SET_OF_STRING If set, this deployable will only be mapped automatically to containers with the same tag. |
| username : STRING The username to connect to the database |
| Hidden Properties |
| * textFileNamesRegex : STRING = .\.(cfg conf config ini properties props txt asp aspx htm html jsf jsp xht xhtml sql xml xsd xsl xslt) Regular expression that matches file names of text files |