

Deployit Database Plugin Manual

Version 3.7.5

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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 and DB/2.
- Deploys and undeploys SQL files and folders.

Requirements

- **Deployit requirements**
 - **Deployit:** version 3.6+
 - **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 its 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
- 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

Deployable Configuration Items

CI	Description
sql.SqlScripts	Folder containing SQL scripts

Deployed Configuration Items

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

Topology Configuration Items

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

Virtual Topology Configuration Items

CI	Description
sql.SqlClient	Generic SQL client

Configuration Item Details

sql.Db2Client

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

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

IBM DB2 client

Public Properties	
databaseName	: STRING
The name of the DB2 database to connect to	

db2Home : **STRING**

The directory that contains the DB2 installation



host : **CI<overthere.Host>**

Host upon which the container resides

deploymentGroup : **INTEGER**

If the group-orchestrator is enabled, all containers with the same deployment group number will be deployed to at the same time. The groups are ordered by this number.

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

Hierarchy generic.ExecutedFolder >> generic.AbstractDeployed >> udm.BaseDeployed >> udm.BaseConfigurationItem

Interfaces udm.Artifact, udm.Deployed, udm.ConfigurationItem, udm.DerivedArtifact

SQL scripts executed on an SQL client

Public Properties



container : **CI<udm.Container>**

The container on which this deployed runs.

deployable : **CI<udm.Deployable>**

The deployable that this deployed is derived from.

password : **STRING**

If set, the password to use. Falls back to the optional default password set on the

sql.SqlClient container

placeholders : `MAP_STRING_STRING`

A key/value pair mapping of placeholders in the deployed artifact to their values. Special values are and

username : `STRING`

If set, the user name to use. Falls back to the optional default user name set on the sql.SqlClient container

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

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

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

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

Microsoft SQL Server client

Public Properties	
databaseName : STRING	
The name of the MS SQL database to connect to	
 host : CI<overthere.Host>	
Host upon which the container resides	
serverName : STRING	
The name of the MS SQL Server to connect to	
deploymentGroup : INTEGER	
If the group-orchestrator is enabled, all containers with the same deployment group number will be deployed to at the same time. The groups are ordered by this number.	
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/MsSqlClient	
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.MySqlClient

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

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

MySQL client

Public Properties	
databaseName : STRING	
The name of the MySQL database to connect to	

	host : <code>CI<overthere.Host></code>
Host upon which the container resides	
mysqlHome	: <code>STRING</code>
The directory that contains the MySQL installation	
deploymentGroup	: <code>INTEGER</code>
If the group-orchestrator is enabled, all containers with the same deployment group number will be deployed to at the same time. The groups are ordered by this number.	
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 = sql/MySqlClient</code>
Client Wrapper Script	
restartOrder	: <code>INTEGER = 90</code>
The order of the restart container step in the step list.	
startOrder	: <code>INTEGER = 90</code>
The order of the start container step in the step list.	
startWaitTime	: <code>INTEGER = 0</code>
The time to wait in seconds for a container start action.	
stopOrder	: <code>INTEGER = 10</code>
The order of the stop container step in the step list.	
stopWaitTime	: <code>INTEGER = 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 = 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.OracleClient

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

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

Oracle SQL*Plus client

Public Properties

	host : <code>CI<overthere.Host></code>
Host upon which the container resides	
oraHome	: <code>STRING</code>
The directory that contains the Oracle installation	
sid	: <code>STRING</code>


The Oracle SID to connect to
deploymentGroup : INTEGER
If the group-orchestrator is enabled, all containers with the same deployment group number will be deployed to at the same time. The groups are ordered by this number.
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

Hierarchy generic.Container >> udm.BaseContainer >> udm.BaseConfigurationItem
Interfaces udm.Taggable, udm.ConfigurationItem, generic.GenericContainer, udm.Container, overthere.HostContainer

Generic SQL client

Public Properties
 host : CI <overthere.Host>
Host upon which the container resides
clientWrapperScript : STRING
The OS-specific wrapper script that calls the SQL client
deploymentGroup : INTEGER
If the group-orchestrator is enabled, all containers with the same deployment group number will be deployed to at the same time. The groups are ordered by this number.
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

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

excludeFileNamesRegex : STRING

Regular expression that matches file names that must be excluded from scanning

placeholders : SET_OF_STRING

Placeholders detected in this artifact

scanPlaceholders : BOOLEAN = true

Scan Placeholders

tags : SET_OF_STRING

If set, this deployable will only be mapped automatically to containers with the same tag.

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