

SQL Adapter

PAS 23.1.1 The Designer supports relational databases via an SQL adapter. SQL support is native and you do not need to install any client tools or drivers for the supported databases.

Using the SQL adapter, you can

| Task | Adapter Action | Description | Documentation Reference |
|------------------------|--|--|--|
| Execute SQL statements | execute | Execute an SQL statement. | <ul style="list-style-type: none">Querying SQL Databases |
| Transaction handling | execute sql = commit or rollback | Commit or rollback an SQL transaction. | <ul style="list-style-type: none">SQL Transaction Handling |
| Bulk fetch data | getHandle | Get a connection handle for subsequent fetchNext actions. | <ul style="list-style-type: none">Handling Big Data Sets |
| | fetchNext | Fetch next record. | |
| | closeHandle | Close the connection handle. If all records have been fetched, the handle is closed automatically. | |



To use the SQL adapter it is helpful if you are familiar with the concepts of SQL.



The Designer also supports **MongoDB** as a document-oriented database with a dedicated adapter. See [MongoDB Adapter](#) for more details.

Supported Databases

The xUML Runtime uses a generic SQL Database Management System (DBMS) adapter that works with the following DBMSs:

| Database | Database Connection String | Example |
|----------------|---|---------|
| DB2 | Any valid DB2 connection string, which is either catalog database alias or the database name. The catalog database stores database location information in the system database directory. | |
| DBTypeVariable | For further information refer to SQL Adapter Reference . | |
| Informix |  This database has to be configured first. To use it, please contact our Scheer PAS support team . | |
| InterBase |  This database has to be configured first. To use it, please contact our Scheer PAS support team . | |

On this Page:

- [Supported Databases](#)
- [Adding an SQL Adapter Operation to a Diagram](#)
- [Configuring the SQL Adapter Operation](#)

SQLAdapter_CustomerData_Example



Click the icon to download a simple example model that shows the usage of the SQL adapter in **Scheer PAS Designer**.



Related Pages:

- [Querying SQL Databases](#)
- [Handling Big Data Sets](#)
- [SQL Transaction Handling](#)
- [Troubleshooting the SQL Adapter](#)
- [SQL Adapter Reference](#)
- [Aliases](#)

Related Documentation:

- [MongoDB Adapter](#)

| | | |
|--------------------------------------|---|---|
| MariaDB PAS 24.0 | <p>One of the following formats:</p> <div data-bbox="289 184 881 254"> <pre>[<server_name>@][<database_name>]</pre> </div> <ul style="list-style-type: none"> • " " or "@" Empty string or '@' character, connects to a local server. • <database_name> or @<database_name> Connects to a database with the specified name on local server. • <server_name>@ Connects to the specified server. It can have the following formats: <ul style="list-style-type: none"> ◦ host name[,port] ◦ path name of the Unix socket that is used to connect to the server • <server_name>@<database_name> Connects to a database with the specified name on the specified server. | mariadb. local@acme_db |
| MYSQL | <p>One of the following formats:</p> <div data-bbox="289 699 881 768"> <pre>[<server_name>@][<database_name>]</pre> </div> <ul style="list-style-type: none"> • " " or "@" Empty string or '@' character, connects to a local server. • <database_name> or @<database_name> Connects to a database with the specified name on local server. • <server_name>@ Connects to the specified server. It can have the following formats: <ul style="list-style-type: none"> ◦ host name[,port] ◦ path name of the Unix socket that is used to connect to the server • <server_name>@<database_name> Connects to a database with the specified name on the specified server. | mysql. local@acme_db |
| ODBC PAS 24.0 | Any valid ODBC connection string. | |
| Oracle | Any valid Oracle connection string, e.g. a database alias name as specified in TNSNAMES.ORA file or at <hostname>[:<port>][</service_name>] . | |
| PostgreSQL PAS 24.0 | <p>One of the following formats:</p> <div data-bbox="289 1398 881 1467"> <pre>[<server_name>@][<database_name>][;<options>]</pre> </div> <ul style="list-style-type: none"> • " " or "@" Empty string or '@' character: Connects to a local server. • <database_name> or @<database_name> Connects to a database with the specified name on local server. • <server_name>@ Connects to the specified server. It can have the following formats: <ul style="list-style-type: none"> ◦ host name[,port] ◦ path name of the Unix socket that is used to connect to the server • <server_name>@<database_name> Connects to a database with the specified name on the specified server. • <options> string used for PQsetdbLogin function pgoptions parameter (these are the server process parameters). | postgresql. local@acme_db; connect_timeou t=10 |

| | | |
|-----------|---|---|
| SQLBase | <div>  This database has to be configured first. To use it, please contact our Scheer PAS support team. </div> | |
| SQLite | A string containing a valid SQLite database file path. | |
| SQLServer | <p>One of the following formats:</p> <div>[<server_name>@][<database_name>]</div> <ul style="list-style-type: none"> • "" or "@" Empty string or '@' character: Connects to a default database on a local server. • <database_name> or @ <database_name> Connects to a database with the specified name on your local server. • <server_name>@ Connects to a default database on the specified server. • <server_name>@<database_name> Connects to a database with the specified name on the specified server. <p>To connect to a named instance of SQL Server 2000 use <server_name>\instance_name instead of <server_name>: <server_name>\instance_name@<database_name> .</p> | sqlserver. local@acme_db |
| Sybase | <div>  This database has to be configured first. To use it, please contact our Scheer PAS support team. </div> | |

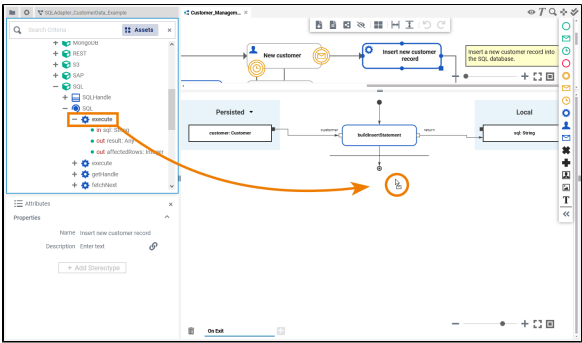


Database Interchangeability

In order to have the option to switch between DBMSs smoothly, it is strongly recommended to only use ANSI SQL in database queries. If using proper ANSI SQL, all databases served by the SQL adapter are able to communicate with your service. However, if you introduce special commands (like Oracle SQL dialects) into your queries, you are bound to the Oracle DBMS and cannot switch freely.

Adding an SQL Adapter Operation to a Diagram

| | | |
|--|--|---|
| <div><div><div><div><div></div><div>Search Criteria</div></div></div></div><div><div><div><div>–</div><div>Base Types</div></div><div><div>–</div><div>Bridge Base</div></div><div><div>–</div><div>Base Components</div></div><div><div>–</div><div>Add Ons</div></div><div><div>+ </div><div>FileSystem</div></div><div><div>+ </div><div>FlatFile</div></div><div><div>+ </div><div>HTTP</div></div><div><div>+ </div><div>JSON</div></div><div><div>+ </div><div>Kafka</div></div><div><div>+ </div><div>Logger</div></div><div><div>+ </div><div>Memory</div></div><div><div>+ </div><div>MongoDB</div></div><div><div>+ </div><div>REST</div></div><div><div>+ </div><div>S3</div></div><div><div>+ </div><div>SAP</div></div><div><div>–</div><div>SQL</div></div><div><div>+ </div><div>SQLHandle</div></div><div><div>–</div><div>SQL</div></div><div><div>+ </div><div>execute</div></div><div><div>+ </div><div>execute</div></div><div><div>+ </div><div>getHandle</div></div><div><div>+ </div><div>fetchNext</div></div><div><div>+ </div><div>closeHandle</div></div><div><div>+ </div><div>URL</div></div></div></div></div> | | <p>Expand the path to the SQL adapter in the service panel (Base Types /Bridge Base /Base Components /Add Ons /SQL).</p> |
|--|--|---|



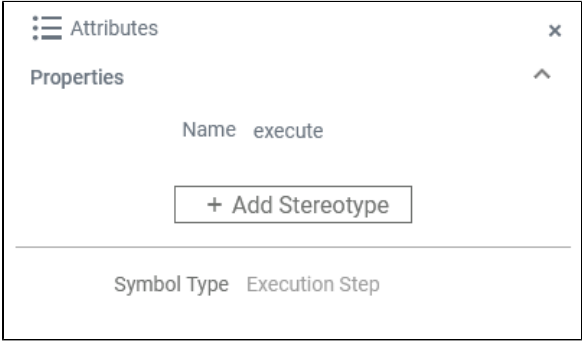
You can drag out operations from the data model to any diagram:

- BPMN execution diagram
- mapping diagram
- activity diagram

The example on the left shows how to add an SQL adapter operation to a BPMN execution diagram.

Configuring the SQL Adapter Operation

Once an operation has been added to a diagram, it needs to be configured as an SQL adapter.



Select the newly added SQL adapter operation and switch to the **Attributes** panel. Depending on the diagram type you can see the following information (example BPMN execution diagram):

| Attribute | Description | Allowed Values / Example |
|-------------|---|--------------------------|
| Name | The name of the SQL adapter operation. | getHandle |
| Symbol Type | Operations added to an execution diagram are execution steps. | Execution Step |

All this is predefined and cannot be changed.

Attributes

Properties

Name execute

+ Add Stereotype

Symbol Type Execution Step

Click **Add Stereotype** to define the selected operation as to be an SQL adapter.

Select Stereotype

- ☐ File System Adapter
- ☐ Flat File Adapter
- ☐ Kafka Producer Adapter
- ☐ Logger
- ☐ Memory Adapter
- ☐ MongoDB Adapter
- ☐ REST Adapter
- ☐ S3
- ☐ SAP IDoc Composer
- ☐ SAP IDoc Parser
- ☐ SAP IDoc Record Composer
- ☐ SAP IDoc Record Parser
- ☐ SAP RFC Adapter
- ☐ SAP TRFC Adapter
- ☐ SAP TRFC Confirm Transaction
- ☐ SAP TRFC Create Transaction
- ☐ SAP XML IDoc Composer
- ☐ SAP XML IDoc Parser
- ☒ SQL Adapter
- ☐ URL Adapter

Save Cancel

Select **SQL Adapter** from the list of available adapter stereotypes. Click **Save**.

Attributes

Properties

Name execute

SQL Adapter

+ Add Stereotype

Symbol Type Execution Step

The **Attributes** panel shows the added adapter stereotype. Now you still need to configure the adapter.

Expand the stereotype by clicking the arrow on the right.

Attributes

Properties

Name

execute

SQL Adapter

alias

+

sql

+

dbType

+

action

+

prefetchedRecords

10

+ Add Stereotype

Symbol Type

Execution Step

An SQL adapter is configured via its **alias** (see [Aliases](#) for more information on aliases).

Additionally, you can insert

- **sql**
- **dbType**

See further information [below](#) and on page [URL Adapter Reference](#). The adapter option **action** derives from the used operation. Do not configure this.

Attributes

Properties

Name

execute

SQL Adapter

alias

None

sql

Customers

dbType

Products

action

Orders

prefetchedRecords

10

+ Add Stereotype

Symbol Type

Execution Step

You can select an existing alias from a drop-down list by clicking the text **Select alias**.

If you want to remove an added alias, select **None** from the drop-down list:

None

Customers

Products

Orders

Attributes

Properties

Name

execute

SQL Adapter

alias

Products

sql

+

dbType

+

action

+

prefetchedRecords

10

+ Add Stereotype

Symbol Type

Execution Step

You can also create and add a new alias by clicking the corresponding **+** icon.

Refer to [Aliases](#) for more information on how to create a new alias.

Add Alias

Name:

Advanced ⌵

Pooling ⌵

Standard ⌵

A dialog opens where you can name and configure the new alias. Refer to [SQL Adapter Reference](#) for more information on the configuration options of this adapter.

Click **Save** to create and add the new alias.

Attributes ×

Properties ⌵

Name execute

SQL Adapter ⌵

alias +

sql −

dbType +

action +

prefetchedRecords 10 −

To add a static **sql** statement, click on the corresponding + icon and enter a valid statement.

Refer to [Querying SQL Databases](#) for more hints on SQL statements.

Attributes ×

Properties ⌵

Name execute

SQL Adapter ⌵

alias +

sql +

dbType +

action +

prefetchedRecords −

+ Add −

Symbol Type E

SQLBase

ODBC

DB2

Informix

Sybase

MySQL Ⓜ

PostgreSQL

SQLite

DBTypeVariable

The **dbType** is defined in the alias, but you can overwrite it if you select a different type here. To select a **dbType**, click icon + and select a database type from the list.

If the attribute **dbType** is set to **DBTypeValue**, the **dbTypeVariable** attribute is used to define the type of the database. The **dbType** then can be defined by a setting variable.

Refer to [SQL Adapter Reference](#) for more details.