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1 Invantive Business Server

Invantive Business Server is an FTP-bridge between data contained in your cloud- and on-premise business platforms and an FTP client such as Windows Explorer. It facilitates mass upload and download of files. Your business platform can be any of the supported platforms of Invantive SQL, such as:

- Exact Online
- Teamleader
- Salesforce
- Visma.net
- Flat files
- Oracle
- PostgreSQL
- MySQL
- Teradata
- IBM DB2
- PayPal
- and logic coded in Invantive Procedural SQL and/or native database logic.

1.1 Installation

The installation of Invantive Business Server requires a .NET Framework 4.7.2 or .NET Core 2.x supported Windows device. Execute the following the following steps:

- Download Invantive Business Server from [https://download.invantive.com](https://download.invantive.com).
- Execute the MSI file.
- Click 'Next'.
- Click 'Next'.
- Click 'Install'.
- Click 'Finish'.

1.2 License

Invantive Business Server requires an applicable subscription of Invantive. The existence of such a subscription is verified using a license key file. Perform the following steps to make the license key available:

- Copy the full contents of the license text in your license mail to the clipboard using Ctrl-A or Select All and then Copy.
- Run notepad from the start menu.
- Paste the license text into notepad.
• Save the file as 'invantive.lic' in the folder `%USERPROFILE%\invantive', which typically evaluates to the invantive subfolder of your user profile folder such as c: \users\my-name\invantive.

• The file can also be saved to a different folder, when the folder name is specified as the value of the environment variable INVANTIVE_LICENSE_FILE_PATH.

1.3 Configuration
Invantive Business Server is configured using two JSON files whose location is specified at Start.

The first JSON file specifies the members: the user accounts and their credentials.

The second JSON file specifies per folder the associated Invantive SQL statements. The file system structure is fully dynamic and can reflect the company's business data, such as a folder per customer, each customer's folder filled with the customer's documents and a document with a historical overview of it's sales.

1.3.1 Members
The members file specifies in JSON format a list of user accounts, their passwords and their definition of the backing data container. Each member consists of four elements:

• Username: user name for FTP access.
• Password: password of the FTP user.
• Provider: code name of an available provider.
• ConnectionString: data required to establish the connection to the data container, including authentication.

The provider and connection string are identical to the definition of a data container in an Invantive SQL database definition in a settings*.xml file. The provider code can be found in the data model documentation as 'Code for use in settings.xml'. The connection string consists of key/value pairs. The available key names can be found also in the data model documentation under the heading 'Connector Attributes'.

Example Exact Online
The following members JSON file specifies two user accounts, each connecting to another Exact Online environment using the Code Grant flow:

```json
{ "Members":
  [ { "Username": "ftp-user-code-1",
      "Password": "something-secret",
      "Provider": "ExactOnlineAll",
      "ConnectionString": "api-url=https://start.exactonline.nl;api-client-id=abc-def-ghi;api-redirect-url=https://exactonlineclientredirect.invantive.com;api-secret=secret;api-refresh-token=abcdefghijklmnopqrstuvwxyz"
    }
    , { "Username": "ftp-user-code-2",
        "Password": "more-secret-stuff",
        "Provider": "ExactOnlineAll"
    }
  ]
}
```
1.3.2 File System Structure

The file system structure of the FTP server is dynamically established using Invantive SQL queries. For the folder structure, a hierarchical structure of JSON specifies the structure in which values from an enclosing folder can be used on deeper levels to limit the folders and files to those applicable to the parent folder. For the file structure, an Invantive SQL statement specifies the contents of the file and another SQL statement specifies the action to execute on upload.

Each folder can contain:

- **SupportsListing**: a boolean indicating whether a user can list the contents of the folder (default: false).
- **SupportsDownloading**: a boolean indicating whether a user can download files (default: false).
- **SupportsCreating**: a boolean indicating whether a user can create files (default: false).
- **ListSqlStatement**: an Invantive SQL query to define the folders and files listed with at least a column named `name` and `type` (being either `DIR` or `FILE`). Additionally, a value can be used to uniquely identify the row with a column name `code`. Files can have file size and creation and modification date/time using the column names `FILE_SIZE`, `DATE_CREATED` and `DATE_MODIFIED`. Each entry is tagged with tuples of name and values of all columns returned by the query.
- **CreateSqlStatement**: an Invantive SQL statement run upon FTP upload which at least accepts bind parameter names `FILE_NAME` and `FILE_CONTENTS`. All tag names and values from the parent levels are also provided as bind parameters.
- **DownloadSqlStatement**: an Invantive SQL statement run upon FTP download which at least accepts bind parameter names `FILE_NAME` and `FILE_CONTENTS`. All tag names and values from the parent levels are also provided as bind parameters.
- Nested folders with the same possibilities.

The root level in the JSON can contain also:

- **SystemName**: the name of the system to display upon connect.
- **Version**: the version of the system to display upon connect.

1.3.3 File System Stub

The following sample specifies a folder structure on the Invantive Dummy connector, which contains project stubs:
Each folder contains a number of tasks on each project:

The levels are:

- Root folder
- Containing projects.
- Each containing tasks on the project.
The root folder with projects is defined using the following query:

```sql
select to_char(pjt.pjt_id) code,
       pjt.pjt_naam name,
       'DIR' type
from projects pjt
```

Each project folder with individual tasks is defined using the following query:

```sql
select to_char(tak.tak_id) code,
       tak.tak_omschrijving name,
       'DIR' TYPE
from tasks tak
where tak.pjt_id = to_number(:code)
```

1.3.4 File System Stub (JSON)

Contents of the JSON file setup.config:

```json
{ "SystemName": "Dummy",
  "Version": "1.0",
  "SupportsListing": "true",
  "ListSqlStatement": "select to_char(pjt.pjt_id) code,
                       pjt.pjt_naam name, 'DIR' type from projects pjt"
  "Folder":
    { "SupportsListing": "true",
      "ListSqlStatement": "select to_char(tak.tak_id) code,
                         tak.tak_omschrijving name, 'DIR' TYPE from tasks tak
                         where tak.pjt_id = to_number(:code)"
    }
}
```

1.3.5 File System Exact Online

The following sample specifies a folder structure for Exact Online consisting of a number of levels as shown in the picture:
The levels are:

- Root folder
- Containing Exact Online companies.
- Each containing a folder 'Accounts'.
- Each containing all document attachment files of that account.

In more detail, the root folder has the following structure:

- The root folder allows the user to get a list of files and folders contained as specified by `SupportsListing`.
- The root folder contains solely directories as specified by the type 'DIR' in the query.
- One folder exists per Exact Online company listed in the table `SystemDivisions` using the query in `ListSqlStatement`:

```sql
SELECT sdn.Code code, sdn.Label name, 'DIR' type, sdn.code division
FROM SystemDivisions sdn
```

Each Exact Online company folder has a query that specifies a folder named 'Accounts':

```sql
SELECT :code CODE, 'Accounts' name, 'DIR' type
```

The Accounts folder contains all customers and suppliers using:

```bash
-- Switch to Exact Online company of the parent parent folder.
-- use :code;
-- Get a list of account folders, irrespective whether they have
```
The Accounts folder contains all available documents on an account using the (annotated) query:

```sql
-- any associated documents.
--
select to_char(id) code ,
       name ,
       'DIR' type ,
       Division
from   ExactOnlineREST..Accounts
```

When a user downloads a document, the following code is executed:

```sql
use :division;
--
select coalesce(dae.Attachment, dae.AttachmentFromUrl) file_contents
from   ExactOnlineREST.Documents.DocumentAttachmentFiles dae
where  dae.id = :code
```

When a user uploads a document, the following code is executed to upload the document into Exact Online:

```sql
use :division;
--
declare
   l_dct_subject       varchar2;
   l_dct_type          pls_integer := 183; /* Attachment. */
   l_dct_category_name varchar2    := 'General';
   l_dct_date          date;
```
l_account           varchar2    := :code;
begin
--
-- Generate unique subject for the document. The file
-- is added as an attachment to the document.
--
l_dct_subject := :file_name || ' ' || to_char(sysdate,
'YYYYMMDDHH24MISS') || '-' || newid();
l_dct_date    := trunc(sysdate);
--
-- Create document.
--
insert into exactonlinerest..documents
(division
 , account
 , body
 , category
 , contact
 , documentdate
 , financialtransactionentryid
 , opportunity
 , project
 , salesinvoicenumber
 , salesordernumber
 , shopordernumber
 , subject
 , type
 )
select :division
 , l_account
 , 'Invantive Business Server' body
 , dcy.id
 , null
 , l_dct_date
 , null
 , null
 , null
 , null
 , null
 , l_dct_subject subject
 , l_dct_type type
from   DocumentCategories dcy
where  dcy.division    = :division
and    dcy.description = l_dct_category_name
;
--
-- Attach a file to the document in Exact Online.
--
-- Contents of the file will match the value of the bind
-- parameter :file_contents, whereas :file_name is filled
-- with the name of the file uploaded to the FTP server.
--
-- The document previously created in Exact Online is matched
-- using the unique subject.
```
--
insert into exactonlinerest..documentattachmentfiles
( division
, document
, attachment
, filename
)
select :division
,      dct.id
,      :file_contents
,      :file_name
from   exactonlinerest..documents dct
where  dct.division     = :division
and    dct.subject      = l_dct_subject
and    dct.documentdate = l_dct_date

end;
```

### 1.3.6 File System Exact Online (JSON)

Contents of the JSON file setup.config:
```json
{
  "SystemName": "ExactOnline",
  "Version": "1.0",
  "SupportsListing": "true",
  "ListSqlStatement": "select sdn.Code code, sdn.Label name, 'DIR' type from SystemDivisions sdn",
  "Folder":
  {
    "SupportsListing": "true",
    "ListSqlStatement": "select :code code, 'Accounts' name, 'DIR' type"
  },
  "SupportsCreating": "true",
  "DownloadSqlStatement": "use :division; select to_char(id) code, name, 'DIR' type, Division from ExactOnlineREST..Accounts"
}
```

```sql
use :division; select to_char(id) code, name, 'DIR' type, Division from ExactOnlineREST..Accounts
```

```
use :division; select to_char(id) code, name, 'DIR' type, Division from ExactOnlineREST..Accounts
```

```
use :division; select to_char(id) code, name, 'DIR' type, Division from ExactOnlineREST..Accounts
```
```
, "CreateSqlStatement": "use :division;

l_dct_subject       varchar2 := :file_name || to_char(sysdate, 'YYYYMMDDHH24MISS') || '-' || newid();
l_dct_date          date := trunc(sysdate);

l_account           varchar2 := :code;

l_dct_subject       varchar2 := :General';
l_dct_type          pls_integer := 183; /* Attachment. */
l_dct_category_name varchar2    := 'General';
l_dct_date          date := trunc(sysdate);

begin
  l_dct_subject := :file_name || ' ' || to_char(sysdate, 'YYYYMMDDHH24MISS') || '-' || newid();
l_dct_date := trunc(sysdate);

  insert into exactonlinerest..documents
  ( division, account, body, category, contact, documentdate, financialtrans-
    actionentryid, opportunity, project, salesinvoicenumber, shopordernumber,
    subject, type )
  select :division, :code,      'Invantive Business Server' body, null, dcy.id, null, null, null, null, null, null, null, null, l_dct_subject subject,
          l_dct_type type
  from   DocumentCategories dcy
  where  dcy.division    = :division
       and    dcy.description = l_dct_category_name
       and    dcy.division    = :division
       and    dcy.description = l_dct_category_name
       and    dcy.division    = :division

end;"
```

1.4 Start

Start Invantive Business Server by running it either from a command-line or from an unattended executable starter. The following command-line arguments are supported:

- **members**: name of file containing pre-defined users, their password and the associated Invantive database connection string (see Members). Defaults to members.config in the installation folder.
- **setup**: name of file containing the dynamic FTP folder and file structures, defined using Invantive SQL statements for retrieval and uploads (see File System Structure). Defaults to setup.config in the installation folder.
- **usage**: print the command-line arguments and their meaning.

The command-line arguments are shown when the program is run without arguments:
When the program is provided with the locations of existing files, the server process will start such as:

```
C:\Program Files (x86)\Invantive Software BV\Invantive Business Server 17.31}\Invantive.Business.Server.exe

*** Invantive Business Server (Unofficial) on 2/20/2019 8:35:38 PM ***
(C) Copyright 2004-2019 Invantive Software BV, the Netherlands. All rights reserved.

Beta program ends on 7/1/2019 12:00:00 AM.
PROGRAM --members FILE --setup FILE --usage

--member: specifies the file containing pre-defined users, their passwords and the associated connection string.
--setup: specifies the file containing the dynamic FTP folder and file structure using Invantive SQL statement for retrieval and uploads.
--usage: displays this text.
An unhandled error occurred.
Invantive.Basics.InvantiveSystemException: buuser001: Unknown command line argument 's'.
at IBS.Z.FC\(string1\)
```

When the program is provided with the locations of existing files, the server process will start such as:

```
1.5 Download Files

To download files from the Invantive Business Server, just enter the FTP protocol name followed by the host name in Windows Explorer.
```
1.6 Upload Files

To upload files to Invantive Business, triggering the specified actions, just drag & drop files into the FTP server using Windows Explorer or another FTP client.

2 Invantive Business for Outlook

Invantive Business for Outlook is an add-on on top of Microsoft Outlook. It provides access to business data contained in one or more environments of:

- Exact Online
- Visma.net
- XML audit files
- business data stub.

3 Invantive Business for Windows

Invantive Business for Windows is an application running outside of Microsoft Office. It provides access to business data contained in one or more environments of:

- Exact Online
- Visma.net
- XML audit files
- business data stub.
4 Invantive Basics
4.1 Configuration

4.1.1 Customer Service

All Invantive products exchange messages with a central Customer Service node. These messages include:

- error messages for analysis,
- usage statistics for billing.

On Invantive-internal development workstations only, a non-standard Customer Service node can be selected by specifying a deviating URL in the environment variable `INVANTIVE_CS_BASE_URL`.

4.1.2 OS Platform

A variety of Invantive products is available on Windows, Linux and Mac OSX. The list of supported platforms varies per product, depending on the availability of the libraries such as Microsoft .NET Core.

The OS platform is automatically determined by Invantive software, but sometimes can raise bugs given the bleeding edge nature of Microsoft .NET Core. It is possible to overrule the automatic detection of the OS platform by assigning a value to the environment variable `INVANTIVE_FORCED_OS`. The following values are supported:

- windows: Microsoft Windows,
- linux: Linux,
- osx: Mac OSX.

4.1.3 Startup Checks

The Invantive products execute a number of checks at application start to ensure that the environment running the software meets a number of pre-conditions as established by Invantive. These checks can be disabled for analysis purposes and out-of-the-ordinary deployment scenarios.

Support on products is only available when checks are not manually configured.

The following environment variables allow manual configuration of the checks by setting them to 'true' or 'false':

- `INVANTIVE_CHECK_SYSTEM_COMPATIBILITY`: validate system compatibility.
- `INVANTIVE_MAINTAIN_VSTO`: re-activate Invantive VSTO add-ins when disabled.
- `INVANTIVE_CHECK_OS_UPDATES`: validate OS updates have been applied sufficiently recent.

Configuration of checks is solely available on the Windows OS platform.

4.1.4 Cryptography

The Invantive products use cryptographic operations to protect:

- License key
- Invantive Keychain
By default, a key pair is used and stored in the profile of the user for encryption and decryption.

**Windows**

On Windows, the encryption is normally done using Windows-managed encryption protocols. The key elements are stored in the roaming profile of the current user.

In some deployment scenarios, a user has only a temporary Windows profile. In that case it is not possible to store a key pair. This is typically signaled by an itgenlic510 error code.

As an alternative, you can configure the environment variable `INVANTIVE_CRYPTOGRAPHY` to the value "MACHINE" to use a key pair that is stored solely on the device.

By setting the environment variable `INVANTIVE_RSA` to `INVANTIVE`, encryption on Windows is also managed as on other platforms by custom Invantive code at the expense of loss of some security features. Often Windows patches break the functionality of previously Windows-managed encryption keys, typically signaled by an error like "Key not valid for use in specified state". Switching to custom Invantive code will solve this problem.

**Linux, Mac OSX, Android, iPhone, Windows on Parallels**

On all other platforms, Invantive offers solely encryption using key elements stored in files in the RSA folder.

**4.1.5 UI Language**

The Invantive products supported approximately ten languages. On first startup, the language of the Windows version will be used when supported. Otherwise US-English is used.

The license decides which from the languages are supported.

Additionally, the user interface language chosen can further be restricted by setting the environment variable `INVANTIVE_ALLOWED_LANGUAGE_CODES` to a comma-separated list of two characters ISO 639-1 codes.

**4.1.6 Folders**

The Invantive products store configuration and runtime information in a folder hierarchy. This hierarchy is located within the Invantive folder of the user profile. It can be opened in Windows Explorer by entering `%USERPROFILE%\Invantive` in the location bar.

The location of the folder hierarchy can be changed using environment variables. The central location can be changed by setting the environment variable `INVANTIVE_CONFIGURATION_FOLDER` to a different folder.

A number of subfolders can be relocated too:

- `INVANTIVE_CONFIGURATION_BACKUP_FOLDER`: the folder with backups of settings files. Defaults to the master folder plus "Backup".
- `INVANTIVE_CONFIGURATION_CACHE_FOLDER`: the folder with disk cache files. Defaults to the master folder plus "Cache".
- `INVANTIVE_CONFIGURATION_HTTP_CACHE_FOLDER`: the folder with HTTP disk cache files. Defaults to the root cache folder plus "http" and the OS-user and front-end user.
- `INVANTIVE_CONFIGURATION_DATA_CACHE_CACHE_FOLDER`: the folder with Data Cache disk cache files. Defaults to the root cache folder plus "datacache". Disk cache files improve performance of HTTP downloads, but when necessary can be purged.

- `INVANTIVE_CONFIGURATION_LOG_FOLDER`: the folder with log files. Defaults to the master folder plus "Log".

- `INVANTIVE_CONFIGURATION_DATABASES_FOLDER`: the folder with databases files. Defaults to the master folder.

- `INVANTIVE_CONFIGURATION_PLUGINS_FOLDER`: the folder with plugin files. Defaults to the master folder plus "Plugins".

- `INVANTIVE_CONFIGURATION_PROVIDERS_FOLDER`: the folder with provider files. Defaults to the master folder plus "Providers".

- `INVANTIVE_CONFIGURATION_RSA_FOLDER`: the folder with RSA configuration files. Defaults to the master folder plus "RSA".

- `INVANTIVE_CONFIGURATIONTEMPLATES_FOLDER`: the folder with template files. Defaults to the master folder plus "Templates".

- `INVANTIVE_CONFIGURATION_TRACE_FOLDER`: the folder with trace files. Defaults to the master folder plus "Trace".

The values may contain any combination of the following placeholders which will be expanded:

- `iid`: Invantive Installation ID.
- `sessionid`: Invantive session ID.
- `frontenduser`: name of front-end user (when available).
- `osuser`: name of operating system user.

A folder can be configured for custom translations which overrule all default translations using the environment variable `INVANTIVE_I18N_FOLDER`.

**5 Invantive SQL**

One of the most familiar questions at our support desk is "what functions are available" in Invantive SQL to query data in Exact Online.

This second-generation SQL parser is an extensive implementation of many commonly found SQL constructs from the ANSI SQL standard.

It includes in addition to the features of the first-generation SQL parser also:

- joins,
- outer joins,
- cross joins,
- group functions such as stddev, avg and listagg,
- value functions such as xmlescape and round.
There are two flavors shipped:

- Free version: second-generation SQL parser without joins and some upcoming non-ANSI standard advanced mapping functions for large volume financial analysis and reporting.
- Paid version: identical to the free version but with joins and advanced mapping functions.

The EBNF-grammar in Grammar depicts the possibilities.

### 5.1 Language

#### 5.1.1 Compatibility

The Invantive implementation of SQL is based upon ANSI SQL, extended by aspects from popular SQL implementations such as PostgreSQL, MySQL, Oracle, Teradata and Microsoft SQL Server. It is topped off with Invantive-specific extensions, especially for procedural SQL, distributed SQL and distributed transactions. The basis is to implement functions such that as little as possible changes are necessary to run a SQL statement originating from another SQL implementation on Invantive SQL. For instance, to retrieve the current time you can use 'sysdate', 'now', 'getdate()' and 'sysdatetime' to name a few. The same holds for the procedural extension Invantive Procedural SQL, which reflects SQL/PSM and makes it easy to port Oracle PL/SQL or PostgreSQL PL/pgSQL statements.

#### 5.1.2 Distributed SQL, Databases and Data Containers

It is easy to exchange and/or combine data across the supported platforms with data. To each platform (such as Salesforce or Exact Online Belgium) multiple connections can be active with the same or different platform-specific connection settings. Each open connection to a platform is named a 'data container'.

All opened connections together are named a 'database'.

When multiple data containers have been opened, each one has an alias to refer it by in Invantive SQL statements. For instance, a connection can be open for two different customer accounts on Exact Online Netherlands aliased as 'eolnl_comp1' and 'eolnl_comp55') and one for an Exact Online Belgium custom, aliased as 'eolbe_my_new_company'. The aliases can be freely chosen as long as they are valid identifiers and defined in the databases configuration file 'settings.xml'.

#### 5.1.3 Service Providers

A number of special connections are always made, each of which can occur at most once. These are the 'service providers' such as:

- 'datadictionary': metadata of the current database, such as list of tables and executed SQL statements performance.
- 'os': information on the operating system running the SQL engine, such as reading file contents.
- 'smtp': synchronously send mails through SMTP.

#### 5.1.4 Partitioning

Especially online platforms have a multi-tenant structure, in which the data is partitioned per customer, company or person. When the data model is identical across tenants, Invantive SQL considers them 'partitions'. SQL statements can run across multiple or one partitions, often in parallel. This enables consolidation scenarios across partitions (such as Exact Online or Nmbrs companies) as well as high-performance in MPP environments.
The partitions to be used can be specified with the 'use' statement, either through an explicit list of partitions to be selected across data containers, or through a SQL select statement returning the list of partitions to use. Please note that although the 'use' statement resembles the 'use DATABASE' statement on Microsoft SQL Server or PostgreSQL you can on Invantive SQL have multiple partitions active at the same time in one user session.

5.1.5 Identifiers

For identifiers, the regular conventions hold for the set of allowed characters. Depending on the platform, the identifiers are case sensitive or not. In general, it is best to assume that the identifier are case insensitive. There is no length limit on an identifier imposed by Invantive SQL.

5.1.6 Procedural SQL

Invantive Procedural SQL (or "PSQL" for short) is a procedural extension on top of Invantive SQL. It is based on the ISO-standard 9075-4:2016 (SQL/PSM) and extends Invantive SQL with procedural options like blocks, variables, conditional execution and loops. The procedural code is - together with the Invantive SQL contained - as a whole into pseudo-code and then executed.

The procedural code does not lean on the procedural options of the platforms being used, so it is easy to retrieve and change data in all supported cloud, file and database platforms. The pre-compiled procedural code does not perform context switches between procedural and SQL logic.

5.1.7 Licensing

The available functionality of Invantive SQL features is based upon the license features. For instance the free implementation of Invantive SQL is limited to 1.000 rows and no access to group functions. Please consult the data dictionary contents for your license features.

5.1.8 Settings.xml

The file settings.xml defines for a user or program the list of defined databases. Databases are grouped in 'database groups' for visual display. Database groups have no further functionality. Each database consists of one or multiple data containers.

The file 'settings.xml' is most often found on Microsoft Windows in your '%USERPROFILE%\invantive' folder, such as 'c:\users\john.doe\invantive\settings.xml'. It is shared across all Invantive SQL product installations for the user.

There are many scenarios to share database specifications across a user community, such as WAN-scenarios with Invantive Web Service, large corporate scenarios using DNS-entries as well as file shares, included files as well as single user solutions. Please involve a consultant when you want to deploy across thousands of users or more.

For user communities of up to 10 users, we recommend that company-specific settings are grouped per role in a separate file named 'settings-ROLE.xml' and placed in the default folder. Invantive SQL will automatically merge these files in the main settings.xml file.

5.1.9 Group Functions

The Invantive implementation of SQL is based upon ANSI SQL, extended by aspects from popular SQL implementations such as PostgreSQL, MySQL, Oracle, Teradata and Microsoft SQL Server. It is topped of with Invantive-specific extensions, especially for distributed SQL and distributed transactions. The basis is to implement functions such that as little as possible changes are necessary to run a SQL statement originating from another SQL implementation on Invantive SQL. For instance, to retrieve the current time you can use 'sysdate', 'now', 'getdate()' and 'sysdatetime' to name a few.
Popular group functions such as 'stddev' are available. However, currently you can not combine in one unnested SQL statement both group functions as well as expressions on the variables. In that case use an inner (nested) SQL statement to apply the expressions on the data, and execute the group functions in the outer SQL statement with the syntax 'select group() from ( select ... from ... )'.

5.1.10 Locking

An Invantive SQL statement can work with many traditional and online platforms. There are no locking features on data and objects, since few online and traditional platforms connected provide these and the typical use of distributed transactions leave even less opportunity for data and object locking.

5.1.11 Transactions

Invantive SQL has limited support for transactions. DML is forwarded to a platform and depending on the platform an error can cause part of the work to be registered or everything to be rolled back. Within the SQL engine, multiple changes can be collected and forwarded to the platform at once. For instance, when creating an EDIFACT message you need to combine an invoice header with invoice lines into one EDIFACT message. Collection of multiple changes is done using the 'identified by' and 'attach to' syntax, optionally preceded by 'begin transaction'.

5.1.12 Grammar

sqlBatch:

sqlOrPSqlStatement BATCHSEPARATOR BATCHSEPARATOR
sqlBatch := sqlOrPSqlStatement ( BATCHSEPARATOR sqlOrPSqlStatement ) * BATCHSEPARATOR?

no references

sqlOrPSqlStatement:

sqlStatement pSqlStatement
sqlOrPSqlStatement := sqlStatement | pSqlStatement

referenced by:
- sqlBatch

sqlStatement:

An Invantive SQL can retrieve data from many traditional and online platforms. Many platforms also support the use of DML (Data Manipulation Language) statements to change the data contained. On a few platforms you can execute DDL (Data Definition Language) statements to create new data structure or objects such as tables, procedures or sequences.

sqlStatement::= selectStatement
| insertStatement
| updateStatement
| deleteStatement
| ddlStatement
| setStatement
| useStatement
| transactionStatement
| executeFileStatement

referenced by:
- pSqlStatement
- sqlOrPSqlStatement

selectStatement:
A SQL select statement retrieves data from one or multiple data containers. A select statement can be composed of multiple data sets retrieved from many platforms, combined by set operators such as 'union'.

Often the performance of cloud platforms is less than traditional database platforms. With the 'limit' clause a limited number of rows can be retrieved quickly from a table or view after applying sorting as specified by the possibly present 'order by'. An alternative for a 'limit' clause is to use the 'top' clause.

A sequence of Invantive SQL statements, separated by the semi-colon separator character.

Each statement in the SQL batch will be executed consecutively. Execution will be stopped when an error occurs during execution of a statement.

uniqueSelectStatement setOperatorSelectStatement orderBy limitClause

selectStatement::= uniqueSelectStatement
| setOperatorSelectStatement
| orderBy
| limitClause

referenced by:
- arithmeticExpression
- createTableStatement
- embeddedSelect
- inSelectStatement
- insertStatement
- pSqlForRecordLoopStatement
- sqlStatement
- useStatement

inSelectStatement:
A SQL select statement retrieves data from one or multiple data containers. This variant makes this data available to a containing SQL select statement. This feature is also known as an 'inline view'.

selectStatement
**setOperatorSelectStatement**:  
SQL is based upon a solid mathematical foundation named 'set theory' with some exceptions. The set operators of Invantive SQL enable you to combine sets of data sets such as merging two sets of data. Please note that SQL actually uses 'bags', which opposed to 'sets', allow duplicates. To change bags of data into sets, either use 'distinct' or the 'union' set operator without 'all'. In general, the extensive use of 'distinct' signals bad database design.

The 'union' set operator returns the union of the data on the left and right side of the union while removing duplicate rows. The 'union all' set operator returns the union of the data on the left and right side of the union without removing duplicate rows. The 'minus' set operator returns all rows from the left side which do not occur in the right side. The 'intersect' set operator returns all rows that occur both in the left and right side.

```
UNION ALL MINUS_C INTERSECT uniqueSelectStatement
```

**uniqueSelectStatement**:  
Retrieves a data set from one or more data containers.

```
uniqueSelectStatement ::= select executionHints distinct topClause selectList INTO variableList FROM dataSource joinStatements whereClause groupBy
```

**dataSource**:  
A data source can be a table, a table with parameters or a nested select (an 'inline view').
select:

SELECT

executionHints:

Execution hints allow you to control individually the execution of SQL statements. Whenever possible, the hints will be used. In contrary to other platforms, Invantive SQL requires a hint to be valid according to the grammar when specified. This reduces the engineering risk that hints become invalid by accident.

EXECUTION_HINT_START joinSet noJoinSet ods resultSetName lowCost httpDiskCache httpMemoryCache EXECUTION_HINT_END

httpDiskCache:

The http_disk_cache-hint specifies whether messages may be cached on disk when the provider uses HTTP to exchange data with the backing platform. This typically holds only for cloud-based platforms such as Exact Online, Teamleader or Salesforce. The default setting is false. The first parameter is a boolean whether data may be taken from the disk cache, the second parameter is a boolean whether data retrieved must be stored also in the disk cache and the third parameter is an integer that specifies the number of seconds before a disk cache hit found is to considered stale.

The use of the http_disk-cache-hint is recommended for data which is known to change seldom such as seeded or reference data. The contents of the disk cache are persistent across Invantive SQL sessions.

The disk cache is located in the Cache folder of the Invantive configuration folder.
httpMemoryCache:

The http_memory_cache-hint specifies whether messages may be cached in memory when
the provider uses HTTP to exchange data with the backing platform. This typically holds only
for cloud-based platforms such as Exact Online, Teamleader or Salesforce. The default set-
ing is false. The first parameter is a boolean whether data may be taken from the memory
 cache, the second parameter is a boolean whether data retrieved must be stored also in the
memory cache and the third parameter is an integer that specifies the number of seconds
before a memory cache hit found is to considered stale.

The use of the http_memory-cache-hint is recommended for data which is known to change
seldom such as seeded or reference data. The contents in the memory cache are forgotten
across Invantive SQL sessions.

The memory cache is located in the Cache folder of the Invantive configuration folder.

HTTP_MEMORY_CACHE PARENTHESIS_OPEN booleanConstant COMMA booleanConstant
COMMA intervalConstant PARENTHESIS_CLOSE

httpMemoryCache
::= HTTP_MEMORY_CACHE ( PARENTHESIS_OPEN booleanConstant ( COMMA booleanConstant ( COMMA intervalConstant )? )? ) PARENTHESIS_CLOSE

referenced by:
• executionHints

ods:

The ods-hint controls the use of the Invantive Data Cache stored in a relational database.
The Invantive Data Cache is also the basis of the Operational Data Store managed by In-
vantive Data Replicator and the data warehouses managed by Invantive Data Vault. The ods-
hint specifies the maximum age data from the data cache eligible for use.

The boolean specifies whether the Data Cache may be used to answer a query. Set it to
false to disable use of Data Cache for the duration of the query. Keep it on the default true to
use Data Cache.

The interval specifies the period of time during which cached results are considered suffi-
ciently fresh for use, such as ’30 minutes’.

When no interval is present, the actual platform is consulted. The default with Invantive Data
Cache enabled is to always use the data cache contents when not stale according to the
metadata of the data cache. In general, that defaults to a maximum age of 7 days.

ODS PARENTHESIS_OPEN booleanConstant COMMA intervalConstant
PARENTHESIS_CLOSE

ods
::= ODS ( PARENTHESIS_OPEN booleanConstant ( COMMA intervalConstant )? ) PARENTHESIS_CLOSE

referenced by:
• executionHints

resultSetName:
RESULT_SET_NAME PARENTHESIS_OPEN stringConstant PARENTHESIS_CLOSE

resultSetName ::= RESULT_SET_NAME ( PARENTHESIS_OPEN stringConstant PARENTHESIS_CLOSE )?

referenced by:
  - executionHints

joinSet:
Control join approach between two data sources. A column-indexed lookup will be used instead of a full table scan when the number of rows on the left-hand side does not exceed the maximum number of rows specified in the hint. When not specified, a hash lookup will only be used when the number of rows on the left-side does not exceed 5.000.

The actual implementation of a hash lookup depends on the platform on which the data container runs. For instance with OData, a number of requests will be made using an in-construct with a limited number of in-values. With a relation database platform, a native SQL 'in' will be used.

The first identifier is the alias of the table on the right-hand side of the join. The second identifier is the name of the column used to join upon in the right-hand side. The numeric constant specifies up to what number of rows on the left-hand side of the join will allow the join set hint to be used. When the number of rows exceeds the numeric constant, a full table join is made.

The following example takes for instances 5,000 sales invoices from an Exact Online environment with 100,000 sales invoices. Each sales invoice has 4..10 lines. The join does not retrieve all sales invoices nor all invoice lines, but instead fetches the 5,000 sales invoices using the where-clause, and then retrieves the related invoice lines using a column-indexed lookup by invoiceid. Since Exact Online is an OData source, the approximately 30,000 invoice lines will be retrieves in 300 session I/Os each having an in-construct for 100 lines on invoiceid.

```sql
select /*+ join_set(sil, invoiceid, 10000) */ * from ExactOnlineREST..SalesInvoices sik join ExactOnlineREST..SalesInvoiceLines sil on sil.invoiceid = sik.invoiceid where sik.status = 50 and sik.InvoiceDate between to_date( :P_RECEIPT_DATE_FROM , 'yyyymmdd') and to_date( :P_RECEIPT_DATE_TO, 'yyyymmdd')
```

JOIN_SET PARENTHESIS_OPEN identifier COMMA identifier COMMA numericConstant PARENTHESIS_CLOSE

joinSet ::= JOIN_SET PARENTHESIS_OPEN identifier COMMA identifier COMMA numericConstant PARENTHESIS_CLOSE

referenced by:
  - executionHints

noJoinSet:
The no_join_set hint disables the use of hash-joins. It can be enabled using the join_set hint.

NO_JOIN_SET PARENTHESIS_OPEN identifier COMMA identifier PARENTHESIS_CLOSE

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noJoinSet::= NO_JOIN_SET PARENTHESIS_OPEN identifier ( COMMA identifier )? PARENTHESIS_CLOSE

referenced by:
- executionHints

variableList:
variableName COMMA variableName
variableList::= variableName ( COMMA variableName )?

referenced by:
- uniqueSelectStatement

lowCost:
The low_cost-hint specifies that the select with the hint must be considered a select with low execution costs. Low execution costs trigger early evaluation during parsing. By default, select statements using solely in memory storage, dummy and data dictionary are considered low cost and evaluated early. The evaluation of all others is delayed as long as possible.

The use of the low_cost-hint is recommended when the select is used with a 'in ( select ... )' syntax and the developer knows beforehand that it will evaluate fast to values and that the use of these values will allow the use of server-side filtering for the outer select.

LOW_COST
lowCost::= LOW_COST

referenced by:
- executionHints

distinct:
Addition of the 'distinct' keyword to a SQL select statement de-duplicates the rows returned. Rows are considered duplicates when the values in all selected columns are identical, with two null-values considered equal.

DISTINCT
distinct::= DISTINCT

referenced by:
- aggregateFunction
- uniqueSelectStatement

topClause:
With the 'top' clause a limited number of rows can be retrieved quickly from a table or view after applying sorting as specified by the possibly present 'order by'.

TOP numericConstant
Invantive SQL

```

topClause ::= TOP numericConstant

limitClause:
With the ‘limit’ clause a limited number of rows can be retrieved quickly from a table or view after applying sorting as specified by the possibly present ‘order by’.

LIMIT numericConstant

embeddedSelect:
An embedded select, also known as an 'inline view', retrieves rows using the specified select statement. These rows are consumed by the outer select as were it the results of retrieving the rows from a table.

Invantive SQL does not allow grouping rows with expressions as columns. An embedded select is typically used to evaluate expressions to rows with solely constants. After applying the embedded select the group operators can be applied.

dataSource:
A table specification without parameters. The optional alias after the at-sign specifies a specific data source to be used, such as 'exactonlinerest..journals@eolbe' specifying the use of Exact Online Belgium when 'eolbe' is associated by the database definitions in settings.xml with Exact Online Belgium.

A number of special so-called 'service providers' are always present, such as 'datadictionary' for use by an alias.

```

- `createTableStatement`
- `deleteStatement`
- `dropTableStatement`
- `insertStatement`
- `updateStatement`

**tableOrFunctionSpec:**

A table specification requiring a comma-separated list of parameters to determine the rows to be retrieved.

Traditional SQL syntax did not provide for parameterized queries, matching set theory. Modern variants such as pipelined table functions allow a stored procedure or other imperative language-based approaches to generate rows based upon parameter values. Many data containers support queries that return rows based upon parameter values. This holds especially for SOAP web services. Table specifications with parameters ease queries on such data containers.

The optional alias after the at-sign specifies a specific data source to be used, such as 'exactonlinerest.journals@eolbe' specifying the use of Exact Online Belgium when 'eolbe' is associated by the database definitions in settings.xml with Exact Online Belgium.

```
fullTableIdentifier tableFunctionSpec distributedAliasDirective
  tableOrFunctionSpec ::= fullTableIdentifier tableFunctionSpec distributedAliasDirective
referenced by:
  - `dataSource`  
```

**tableFunctionSpec:**

A comma-separated list of parameters to determine the rows to be retrieved by a tableOrFunctionSpec.

```
tableFunctionSpec ::= parenthesisOpen ( expression ( COMMA expression )* )? parenthesisClose
referenced by:
  - `tableOrFunctionSpec`  
```

**distributedAliasDirective:**

The distributed alias after the at-sign specifies a specific data source to be used, such as 'exactonlinerest.journals@eolbe' specifying the use of Exact Online Belgium when 'eolbe' is associated by the database definitions in settings.xml with Exact Online Belgium.

A number of special so-called 'service providers' are always present, such as 'datadictionary' for use by an alias.

```
AT dataContainerAlias
```
distributedAliasDirective \[^{26}\]  
::= AT \[^{18}\] dataContainerAlias \[^{27}\]

referenced by:
- partitionIdentifierWithAlias \[^{47}\]
- setIdentifier \[^{45}\]
- tableOrFunctionSpec \[^{26}\]
- tableSpec \[^{25}\]

dataContainerAlias:

When multiple data containers have been defined in settings.xml for a database, each one is assigned an alias. An alias typically takes the form of a limited number of characters. The presence of an alias allows Invantive SQL to precisely determine to what data container forward a request for data.

identifier

dataContainerAlias \[^{27}\]  
::= identifier \[^{94}\]

referenced by:
- alterPersistentCacheRefreshStatement \[^{42}\]
- distributedAliasDirective \[^{26}\]

xmlTableSpec:

XMLTABLE parenthesisOpen stringConstant null xmlTablePassing xmlTableLiteral xmlTableColumns parenthesisClose

xmlTableSpec \[^{27}\]  
::= XMLTABLE \[^{18}\] parenthesisOpen \[^{52}\] ( stringConstant \[^{101}\] | null \[^{107}\] ) ( xmlTablePassing \[^{27}\] | xmlTableLiteral \[^{27}\] ) xmlTableColumns \[^{28}\] parenthesisClose \[^{52}\]

referenced by:
- dataSource \[^{20}\]

xmlTablePassing:

PASSING expression

xmlTablePassing \[^{27}\]  
::= PASSING \[^{18}\] expression \[^{51}\]

referenced by:
- xmlTableSpec \[^{27}\]

xmlTableLiteral:

LITERAL expression

xmlTableLiteral \[^{27}\]  
::= LITERAL \[^{18}\] expression \[^{51}\]

referenced by:
xmlTableColumns:

COLUMNS xmlTableColumSpec COMMA

xmlTableColumSpec ::=

xmlTableColumns referenced by:

• xmlTableSpec

xmlTableColumSpec:

identifier dataType PATH stringConstant

xmlTableColumSpec ::=

xmlTableColumns referenced by:

• xmlTableColumns

jsonTableSpec:

JSONTABLE parenthesisOpen stringConstant null jsonTablePassing jsonTableLiteral jsonTableColumns parenthesisClose

jsonTableSpec ::=

jsonTablePassing referenced by:

• jsonTableSpec

jsonTablePassing:

PASSING expression

jsonTablePassing ::=

jsonTableSpec referenced by:

• jsonTableSpec

jsonTableLiteral:

LITERAL expression

jsonTableLiteral ::=

jsonTableSpec referenced by:

• jsonTableSpec
jsonTableColumns:

COLUMNS jsonTableColumnSpec COMMA

jsonTableColumns

::= COLUMNS| jsonTableColumnSpec ( COMMA| jsonTableColumnSpec )*

referenced by:
  • jsonTableSpec

jsonTableColumnSpec:

identifier dataType PATH stringConstant

jsonTableColumnSpec

::= identifier| dataType| PATH| stringConstant

referenced by:
  • jsonTableColumns

csvTableSpec:

CSVTABLE parenthesisOpen csvTablePassing csvTableLiteral csvTableOptions csvTableColumns parenthesisClose

csvTableSpec

::= CCSVTABLE| parenthesisOpen| ( csvTablePassing| csvTableLiteral| ) csvTableOptions| csvTableColumns| parenthesisClose

referenced by:
  • dataSource

csvTableOptions:

ROW DELIMITER stringConstant COLUMN DELIMITER stringConstant SKIP_LINES numericConstant

csvTableOptions

::= ( ROW| DELIMITER| stringConstant| )? ( COLUMN| DELIMITER| stringConstant| )? ( SKIP| LINES| numericConstant| )?

referenced by:
  • csvTableSpec

csvTableLiteral:

LITERAL expression

csvTableLiteral

::= LITERAL| expression

referenced by:

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• csvTableSpec

csvTablePassing:
PASSING expression

::= PASSING \text{ expression}

referenced by:
• csvTableSpec

csvTableColumns:
COLUMNS csvTableColSpec COMMA

::= COLUMNS \text{ csvTableColSpec} ( COMMA \text{ csvTableColSpec} )*

referenced by:
• csvTableSpec

csvTableColSpec:
identifier dataType POSITION numericConstant

::= identifier \text{ dataType} \text{ POSITION} \text{ numericConstant}

referenced by:
• csvTableColumns

dataType:
BFILE BIGINT BIGSERIAL BIT BLOB BOOL BOOLEAN BPCCHAR BYTE BYTEA CHAR CHARACTER CLOB DATE DATETIME DATETIMEOFFSET DEC DECIMAL DOUBLE FLOAT FLOAT4 FLOAT8 GUID IMAGE INT INT16 INT2 INT32 INT4 INT8 INTEGER INTERVAL LONGBLOB LONGTEXT MEDIUMBLOB MEDIUMINT MEDIUMTEXT MONEY NAME NCHAR NUMBER NUMERIC NVARCHAR OID RAW REAL SERIAL SMALLBLOB SMALLINT SMALLMONEY SMALLSERIAL TEXT TIME TIMESTAMP TIMESTAMPTZ TIME TZTIME TINYBLOB TINYINT TINYTEXT UINT16 UINT32 UINT64 UNIQUEIDENTIFIER UUID VARBINARY VARCHAR VARCHAR2 XML XMLTYPE YEAR
dataType ::= BFILE | BIGINT | BIGSERIAL | BIT | BLOB | BOOL | BOOLEAN | BFCHAR | BYTE | BYTEA | CHAR | CHARACTER | CLOB | DATE | DATETIME | DATETIMEOFFSET | DEC | DECIMAL | DOUBLE | FLOAT | FLOAT4 | FLOAT8 | GUID | IMAGE | INT | INT16 | INT2 | INT32 | INT4 | INT64 | INT8 | INTEGER | INTERVAL | LONGBLOB | LONGTEXT | MEDIUMBLOB | MEDIUMINT | MEDIUMTEXT | MONEY | NAME | NCHAR | NUMBER | NUMERIC | NVARCHAR | OID | RAW | REAL | SERIAL | SMALLDATETIME | SMALLINT | SMALLMONEY | SMALLSERIAL
groupBy:

Grouping of multiple rows into groups is specified by the groupBy. A group will be introduced for each distinct combination of column values for the columns listed. The values of grouped columns can be used in the select clause. Columns not being grouped upon can only be used within the context of a group function listed as 'aggregateFunction'.

GROUP BY columnList

groupBy ::= GROUP BY columnList

referenced by:
  • csvTableColumnSpec
  • jsonTableColumnSpec
  • pSqlItemDeclaration
  • xmlTableColumnSpec

orderBy:

Sort the rows returned as specified by the list of columns. Values are either sorted ascending (the default) or descending.

ORDER BY column sortDirection COMMA

orderBy ::= ORDER BY column sortDirection? ( COMMA column sortDirection? )*
sortDirection:
A sort direction can be either 'asc' for 'ascending' (the default) or 'desc' for 'descending'.

```
asc desc
   sortDirection ::= asc | desc
```

referenced by:
- orderBy

columnList:
A comma-separated list of columns.

```
column COMMA columnList ::= column ( COMMA column )*  
```

referenced by:
- groupBy
- insertFieldList

column:
A column is identified by an identifier, possibly prefixed by the name of the table or the alias of the table from which the column is to be taken.

```
identifier DOT identifier
   column ::= identifier ( DOT identifier )?
```

referenced by:
- columnList
- orderBy
- updateValue

whereClause:
The where-clause restricts the number of rows in a result set by applying one or more boolean conditions which rows must satisfy.

```
WHERE booleanExpression
   whereClause ::= WHERE booleanExpression
```

referenced by:
- deleteStatement
- uniqueSelectStatement
- updateStatement

joinStatements:
A list of join statement.

```plaintext
joinStatement joinStatements::= joinStatement+
```

referred by:
- `uniqueSelectStatement`[20]

### joinStatement:

A join statement combines two result sets. Only combinations of rows taken from both result sets are returned when they meet the join conditions.

```plaintext
joinStatement join dataSource joinConditions::= joinCategory join dataSource joinConditions?
```

referred by:
- `joinStatements`[33]

### joinCategory:

The join category specifies what combinations of rows are considered. The following variants can be used:

- **inner join**, as indicated by 'join' or 'inner join': an inner join returns all combinations of rows from both result sets that meet the join conditions.
- **left outer**, as indicated by 'left outer join': a left outer join returns the same rows as an inner join, extended by one row for each row in the left result set having no matching rows in the right result set. Each column that originates from the right result set is assigned a null value.
- **right outer**, as indicated by 'right outer join': a right outer join returns the same rows as an inner join, extended by one row for each row in the right result set having no matching rows in the left result set. Each column that originates from the left result set is assigned a null value.
- **full outer**, as indicated by 'full outer join': a full outer join returns the same rows as an inner join, extended by one row for each row in the right result set having no matching rows in the left result set. The results are also extended by one row for each row in the left result set having no matching rows in the right result set. Each column that originates from the right result set is assigned a null value.
- **cross join**, as indicated by 'cross join': a cross join returns a Cartesian product of the rows from both result sets. A 'Cartesian product' is a term from set theory, which indicates that all combinations are returned.

```plaintext
inner joinSubCategory outer cross
joinCategory::= ( inner | joinSubCategory outer? | cross )?
```

referred by:
- `joinStatement`[34]
joinSubCategory:
The join sub-category refines the join category. Please see 'joinCategory' for an explanation.

left right full
joinSubCategory ::= left | right | full

referenced by:
- joinCategory

join:
JOIN
join ::= JOIN

referenced by:
- joinStatement

inner:
INNER
inner ::= INNER

referenced by:
- joinCategory

outer:
OUTER
outer ::= OUTER

referenced by:
- joinCategory

left:
LEFT
left ::= LEFT

referenced by:
- functionExpression
- joinSubCategory

right:
Extracts a substring from a value with the given length from the right side.
Parameters:
- Input: Text to extract substring from.
- Length: Maximum length of the substring.

Returns: Substring from the right side of the input. RIGHT

\[ \text{right} ::= \text{RIGHT} \]

referenced by:
- functionExpression
- joinSubCategory

full:

\[ \text{FULL} ::= \text{FULL} \]

referenced by:
- joinSubCategory

cross:

\[ \text{CROSS} ::= \text{CROSS} \]

referenced by:
- joinCategory

sum:

Group function to sum together individual numerical values. Occurrences of null are considered 0, unless there are only null values. In that case the outcome is null.

\[ \text{SUM} ::= \text{SUM} \]

referenced by:
- aggregateFunction

product:

Group function to multiply together individual numerical values. Multiplying large values can quickly exceed the range of the resulting Decimal data type. The product group function is typically used in financial and probability calculations with values near 1.

\[ \text{PRODUCT} ::= \text{PRODUCT} \]

referenced by:
- aggregateFunction

min:
Group function to find the minimum value from a group of numerical values.

\[
\text{MIN} \quad \text{min} \quad ::= \text{MIN}
\]

referenced by:
- \text{aggregateFunction}

\text{max}:

Group function to find the maximum value from a group of numerical values.

\[
\text{MAX} \quad \text{max} \quad ::= \text{MAX}
\]

referenced by:
- \text{aggregateFunction}

\text{avg}:

Group function to find the average value from a group of numerical values.

\[
\text{AVG} \quad \text{avg} \quad ::= \text{AVG}
\]

referenced by:
- \text{aggregateFunction}

\text{stddev}:

Group function to find the standard deviation from a group of numerical values.

\[
\text{STDDEV} \quad \text{stddev} \quad ::= \text{STDDEV}
\]

referenced by:
- \text{aggregateFunction}

\text{count}:

Group function to find the number of values from a group of values.

\[
\text{COUNT} \quad \text{count} \quad ::= \text{COUNT}
\]

referenced by:
- \text{aggregateFunction}

\text{listagg}:

Group function which concatenates all individual values, separated by the separator when provided and comma plus space otherwise.
LISTAGG

listagg ::= LISTAGG

referenced by:
- aggregateFunction

asc:

ASC

asc ::= ASC

referenced by:
- sortDirection

desc:

DESC
desc ::= DESC

referenced by:
- sortDirection

joinConditions:

ON booleanExpression

joinConditions ::= ON booleanExpression

referenced by:
- joinStatement

selectList:

selectPart COMMA

selectList ::= selectPart ( COMMA selectPart ) *

referenced by:
- uniqueSelectStatement

selectPart:

part aliased labeled

selectPart ::= part aliased labeled

referenced by:
- selectList

aliased:
AS alias
   aliased ::= AS alias

referred by:
   · dataSource
   · selectPart

labeled:
LABEL stringConstant
   labeled ::= LABEL stringConstant

referred by:
   · selectPart

part:
expression aggregateFunction allColumnsSpec
   part ::= expression | aggregateFunction | allColumnsSpec

referred by:
   · aggregateFunction
   · selectPart

aggregateFunction:
sum product avg stddev parenthesisOpen distinct min max parenthesisOpen arithmeticExpression count parenthesisOpen parenthesisClose parenthesisOpen distinct arithmeticExpressionList parenthesisClose WITHIN GROUP parenthesisOpen parenthesisClose orderBy parenthesisClose
   aggregateFunction ::= ( ( sum | product | avg | stddev ) parenthesisOpen distinct? | ( min | max ) parenthesisOpen distinct? ) arithmeticExpressionList parenthesisClose WITHIN GROUP? parenthesisClose? orderBy? parenthesisClose?

referred by:
   · part

allColumnsSpec:
allColumnsSpecId allColumnsSpecColumnNamePrefix allColumnsSpecColumnNamePostfix allColumnsSpecLabelPrefix allColumnsSpecLabelPostfix
   allColumnsSpec ::= allColumnsSpecId allColumnsSpecColumnNamePrefix? allColumnsSpecColumnNamePostfix? allColumnsSpecLabelPrefix? allColumnsSpecLabelPostfix?
referenced by:
  - **part**

**allColumnsSpecId:**

alias DOT ASTERIX

```
allColumnsSpecId ::= ( alias DOT )? ASTERIX
```

referenced by:
  - **allColumnsSpec**

**allColumnsSpecColumnNamePrefix:**

PREFIX WITH stringConstant

```
allColumnsSpecColumnNamePrefix ::= PREFIX WITH stringConstant
```

referenced by:
  - **allColumnsSpec**

**allColumnsSpecColumnNamePostfix:**

POSTFIX WITH stringConstant

```
allColumnsSpecColumnNamePostfix ::= POSTFIX WITH stringConstant
```

referenced by:
  - **allColumnsSpec**

**allColumnsSpecLabelPrefix:**

LABEL PREFIX WITH stringConstant

```
allColumnsSpecLabelPrefix ::= LABEL PREFIX WITH stringConstant
```

referenced by:
  - **allColumnsSpec**

**allColumnsSpecLabelPostfix:**

LABEL POSTFIX WITH stringConstant

```
allColumnsSpecLabelPostfix ::= LABEL POSTFIX WITH stringConstant
```

referenced by:
  - **allColumnsSpec**

**ddlStatement:**
Invantive SQL offers an integrated cache storing data persistently using an on-premise or cloud relation database such as SQL Server or PostgreSQL. When configured, Invantive SQL first tries to find sufficiently fresh data in the cache. This reduces the number of data loads from slow data containers such as some cloud platforms. In general, the performance increase when the rows can be fully retrieved from a cache is between a factor 25 and 2,500.

Invantive SQL itself manages the table structure and table contents in the relation database used as a data cache. On initial use just provide an empty database. Invantive SQL installs a repository consisting of a few tables. The repository tables have names starting with 'dc_'. For each table partition version, a so-called facts table is created. A facts table contains a full copy of the rows retrieved from the data container. Facts tables have names starting with 'dcd_', followed by a unique hash signaling the table partition version. When necessary, additional database objects are maintained such as indexes to improve performance. As with facts table names, all column names are also hashed based upon an algorithm including the original column name. These facts tables are not intended for direct use using native SQL.

Each facts table has a unique state from the following state, with Ready state signaling the now current version:

- Initializing (‘I’): the facts table will be created.
- View creation (‘V’): logical views will be created.
- Prepared (‘P’): the facts table has been created, but contains yet no rows.
- Seeding (‘S’): the facts table is being seeded with the contents of the previously current version.
- Loading (‘L’): loading new facts from data container using water shed or another algorithm.
- Ready (‘R’): the facts table is available and the current one to be used.
- Obsoleted (‘O’): the facts table still exists, but the data has passed it’s conservation period.
  Often a newer version is now current.
- Dropped (‘D’): the facts table now longer exist, but the metadata is still present in the repository tables.

The persistent cache in the database can be used with native SQL when extended by Invantive Data Replicator. Invantive Data Replicator can create and maintain a database view (a so-called ‘partition view’) for the now current version of table partition. Similarly, it can create an ‘overall view’, showing the rows across all partitions of the now current versions per partition.

The overall views are typically used for consolidation purposes, bringing together data across multiple companies or persons.
alterPersistentCacheLoadStatement alterPersistentCacheTableRefreshStatement alterPersistentCachePartitionRefreshStatement alterPersistentCacheDropStatement

```
alterPersistentCacheStatement ::= alterPersistentCacheSetStatement | alterPersistentCacheDownloadStatement | alterPersistentCachePurgeStatement | alterPersistentCacheRefreshStatement | alterPersistentCacheLoadStatement | alterPersistentCacheTableRefreshStatement | alterPersistentCachePartitionRefreshStatement | alterPersistentCacheDropStatement
```

referred by:

- `ddlStatement`

**alterPersistentCachePurgeStatement:**

```
ALTER PERSISTENT CACHE PURGE UNKNOWN OBSOLETE READY DROPPABLE ALL TABLE PARTITION VERSIONS
```

```
alterPersistentCachePurgeStatement ::= ALTER PERSISTENT CACHE PURGE ( UNKNOWN | OBSOLETE | READY | DROPPABLE | ALL ) TABLE PARTITION VERSIONS
```

referred by:

- `alterPersistentCacheStatement`

**alterPersistentCacheDownloadStatement:**

```
ALTER PERSISTENT CACHE DOWNLOAD FEED LICENSE CONTRACT CODE stringConstant DATA_CONTAINER stringConstant PARTITION partitionSimpleIdentifier LIMIT numericConstant
```

```
alterPersistentCacheDownloadStatement ::= ALTER PERSISTENT CACHE DOWNLOAD FEED LICENSE CONTRACT CODE stringConstant DATA_CONTAINER stringConstant PARTITION partitionSimpleIdentifier LIMIT numericConstant
```

referred by:

- `alterPersistentCacheStatement`

**alterPersistentCacheRefreshStatement:**

```
ALTER PERSISTENT CACHE FORCE REFRESH DATA_CONTAINER dataContainerAlias PARALLEL numericConstant
```

```
alterPersistentCacheRefreshStatement ::= ALTER PERSISTENT CACHE FORCE REFRESH DATA_CONTAINER dataContainerAlias PARALLEL numericConstant
```

referred by:
alterPersistentCacheLoadStatement:

ALTER PERSISTENT CACHE LOAD

::= ALTER PERSISTENT CACHE LOAD

referenced by:

- alterPersistentCacheStatement

alterPersistentCacheTableRefreshStatement:

ALTER PERSISTENT CACHE TABLE tableSpec FORCE REFRESH PARTITION partitionIdentifier PARALLEL numericConstant

::= ALTER PERSISTENT CACHE TABLE tableSpec FORCE REFRESH ( PARTITION partitionIdentifier )? ( PARALLEL numericConstant )?

referenced by:

- alterPersistentCacheStatement

alterPersistentCachePartitionRefreshStatement:

ALTER PERSISTENT CACHE PARTITION partitionIdentifier FORCE REFRESH PARALLEL numericConstant

::= ALTER PERSISTENT CACHE PARTITION partitionIdentifier FORCE REFRESH ( PARALLEL numericConstant )?

referenced by:

- alterPersistentCacheStatement

alterPersistentCacheDropStatement:

ALTER PERSISTENT CACHE DROP TABLE tableSpec PARTITION partitionIdentifier PARTITION partitionIdentifier DATA_CONTAINER stringConstant

::= ALTER PERSISTENT CACHE DROP TABLE tableSpec ( PARTITION partitionIdentifier )? | PARTITION partitionIdentifier | DATA_CONTAINER stringConstant

referenced by:

- alterPersistentCacheStatement

alterPersistentCacheSetStatement:
ALTER PERSISTENT CACHE SET FRESH RETENTION FORWARDED INCOMING MESSAGES METADATA RECYCLEBIN DATA MODEL VERSION numericConstant TOKEN stringConstant LOGICAL OVERALL PARTITION VIEW NAME PREFIX POSTFIX stringConstant MAINTAIN booleanConstant LOAD MY MESSAGES booleanConstant AUTO UPGRADE ONCE alterPersistentCacheSetTableOptions

```sql
alterPersistentCacheSetStatement ::= ALTER PERSISTENT CACHE SET ( ( FRESH | RETENTION | FORWARDED | INCOMING | MESSAGES | METADATA | RECYCLEBIN | DATA | MODEL | VERSION ) numericConstant | TOKEN | stringConstant | LOGICAL ( OVERALL | PARTITION ) VIEW | MAINTAIN booleanConstant | NAME | PREFIX | POSTFIX | stringConstant | MAINTAIN booleanConstant | LOAD MY MESSAGES booleanConstant | AUTO | UPGRADE | ONCE | alterPersistentCacheSetTableOptions )
```

referenced by:
- `alterPersistentCacheStatement`[41]

**alterPersistentCacheSetTableOptions:**

TABLE tableSpec LOGICAL OVERALL VIEW MAINTAIN booleanConstant NAME stringConstant PARTITION VIEW MAINTAIN booleanConstant NAME PREFIX POSTFIX stringConstant STATE OBSOLETE DROPPED PARTITION partitionIdentifier APPROACH COPY TRICKLE SAMPLE

```sql
alterPersistentCacheSetTableOptions ::= TABLE tableSpec ( LOGICAL VIEW | MAINTAIN booleanConstant | NAME stringConstant | PARTITION VIEW | MAINTAIN booleanConstant | NAME | PREFIX | POSTFIX | stringConstant | MAINTAIN booleanConstant | LOAD MY MESSAGES booleanConstant | AUTO | UPGRADE | ONCE | alterPersistentCacheSetTableOptions )
```

referenced by:
- `alterPersistentCacheSetStatement`[43]

**createTableStatement:**

CREATE orReplace TABLE tableSpec AS selectStatement

```sql
createTableStatement ::= CREATE orReplace TABLE tableSpec AS selectStatement
```

referenced by:
- `ddlStatement`[48]

**dropTableStatement:**

DROP TABLE tableSpec

```sql
dropTableStatement ::= DROP TABLE tableSpec
```

referenced by:

---

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orReplace:

OR REPLACE

::= OR | REPLACE

referenced by:

setStatement:

Replaces the value of a provider attribute by a new value.

SET setIdentifier expression

::= SET | setIdentifier | expression

referenced by:

setIdentifier:

attributeIdentifier distributedAliasDirective

::= attributeIdentifier | distributedAliasDirective

referenced by:

transactionStatement:

beginTransactionStatement rollbackTransactionStatement commitTransactionStatement

::= beginTransactionStatement | rollbackTransactionStatement | commitTransactionStatement

referenced by:

executeFileStatement:

FILE_PATH

::= FILE_PATH

referenced by:
beginTransactionStatement:

A begin transaction statement initiates a transaction. Invantive SQL typically provides no transaction logic given the distributed nature and the limitations of the possible platforms. Some platforms enable collection of transaction data, which are to be handed over to the backing platform all together.

```
BEGIN TRANSACTION
beginTransactionStatement ::= BEGIN TRANSACTION?
```

referenced by:
- `transactionStatement`

rollbackTransactionStatement:

Forgets all collected transaction data not yet handed over to the backing platform.

```
ROLLBACK TRANSACTION
rollbackTransactionStatement ::= ROLLBACK TRANSACTION?
```

referenced by:
- `transactionStatement`

commitTransactionStatement:

Hand over all collected transaction to the backing platform for registration.

```
COMMIT TRANSACTION
commitTransactionStatement ::= COMMIT TRANSACTION?
```

referenced by:
- `transactionStatement`

useStatement:

The use statement enables you to specify which partitions should be accessed by subsequent select, insert, update and delete statements. You can specify one or multiple partitions as a comma-separated list, possibly for a specific data container by appending an at-sign plus data container alias to the partition code. The value 'default' has a special meaning; it specifies to use the partition(s) originally selected when you logged on. The value 'all' also has a special meaning: it selects all partitions available.

For instance, to select partition '35' in the data container with alias 'eolnl' and partition '57345' in the data container with alias 'nmbrsnl', you can execute: 'use 35@eolnl, 57345@nmbrsnl'.

For complex scenarios, you can specify any valid Invantive SQL select statement which returns one or two columns. Each row from the query specifies one partition to select. The first column specifies the partition code, whereas the optional second column specifies a specific data container alias.
For instance, to select partition '35' in the data container with alias 'eolnl' and partition '57345' in the data container with alias 'nmbrsnl', you can execute: 'use select '35', 'eolnl' from dual@datadictionary union all select '57345', 'nmbrsnl' from dual@datadictionary'.

USE partitionIdentifiersList selectStatement
useStatement ::= USE ( partitionIdentifiersList | selectStatement )
referenced by:
  • sqlStatement

partitionIdentifiersList:
partitionIdentifierWithAlias COMMA
partitionIdentifiersList ::= partitionIdentifierWithAlias ( COMMA partitionIdentifierWithAlias )*
referenced by:
  • useStatement

partitionIdentifier:
parameterExpression numericConstant identifier ALL DEFAULT
partitionIdentifier ::= parameterExpression | numericConstant | identifier | ALL | DEFAULT
referenced by:
  • alterPersistentCacheDropStatement
  • alterPersistentCachePartitionRefreshStatement
  • alterPersistentCacheSetTableOptions
  • alterPersistentCacheTableRefreshStatement
  • partitionIdentifierWithAlias

partitionIdentifierWithAlias:
partitionIdentifier distributedAliasDirective
partitionIdentifierWithAlias ::= partitionIdentifier distributedAliasDirective
referenced by:
  • partitionIdentifiersList

partitionSimpleIdentifier:
numericConstant identifier
partitionSimpleIdentifier::= numericConstant | identifier

referenced by:

- alterPersistentCacheDownloadStatement

insertStatement:

bulk insert into tableSpec insertFieldList valuesExpression insertFieldList selectStatement identifiedByClause attachToClause

insertStatement::= bulk? insert into tableSpec ( insertFieldList valuesExpression | insertFieldList selectStatement ) identifiedByClause? attachToClause?

referenced by:

- sqlStatement

valuesExpression:

values_insertValues

valuesExpression::= values insertValues

referenced by:

- insertStatement

bulk:

BULK

bulk::= BULK

referenced by:

- insertStatement

into:

INTO

into::= INTO

referenced by:

- insertStatement

insert:

INSERT

insert::= INSERT

referenced by:

- insertStatement
values_:
VALUES

values_ [49] ::= VALUES [18]

referenced by:
  • valuesExpression [48]

insertFieldList:
parenthesisOpen columnList parenthesisClose
insertFieldList [49] ::= parenthesisOpen [52] columnList [33] parenthesisClose [82]

referenced by:
  • insertStatement [48]

insertValues:
parenthesisOpen insertValuesList parenthesisClose

referenced by:
  • valuesExpression [48]

insertValuesList:
arithmeticExpression COMMA
insertValuesList [49] ::= arithmeticExpression [58] ( COMMA [18] arithmeticExpression [58] ) *

referenced by:
  • insertValues [49]

identifiedByClause:
IDENTIFIED BY arithmeticExpression
identifiedByClause [49] ::= IDENTIFIED [18] BY [18] arithmeticExpression [58]

referenced by:
  • insertStatement [48]

attachToClause:
ATTACH TO arithmeticExpression
attachToClause ::= ATTACH TO arithmeticExpression

updateStatement:

UPDATE FROM tableSpec SET updateValuesList whereClause

updateValuesList ::= updateValue COMMA (COMMA updateValue) *

updateValue ::= column EQ arithmeticExpression

deleteStatement:

delete FROM tableSpec whereClause

delete ::= DELETE
expression:

booleanExpression arithmeticExpression

  expression ::= booleanExpression | arithmeticExpression

referenced by:

- caseElseExpression
- caseWhenThenExpression
- csvTableLiteral
- csvTablePassing
- jsonTableLiteral
- jsonTablePassing
- pSqlAssignmentStatement
- pSqlExecuteImmediateStatement
- part
- setStatement
- tableFunctionSpec
- xmlTableLiteral
- xmlTablePassing

booleanExpression:

not booleanExpression and or booleanExpression parenthesisOpen booleanExpression parenthesisClose predicateExpression true false

  booleanExpression ::= ( not | booleanExpression ( and | or ) )

referenced by:

- booleanExpression
- expression
- joinConditions
- pSqlIfElseExpression
- pSqlIfStatement
- pSqlWhileLoopStatement
- whereClause

caseExpression:

case caseWhenThenExpression caseElseExpression end
caseExpression

::= case caseWhenThenExpression+ caseElseExpression? end

referenced by:

- arithmeticExpression


caseWhenThenExpression:

when expression then arithmeticExpression

caseWhenThenExpression

::= when expression then arithmeticExpression

referenced by:

- caseExpression


caseElseExpression:

derelative expression

caseElseExpression

::= else expression

referenced by:

- caseExpression

parenthesisOpen:

PARENTHESIS_OPEN

parenthesisOpen

::= PARENTHESIS_OPEN

referenced by:

- aggregateFunction
- arithmeticExpression
- booleanExpression
- csvTableSpec
- embeddedSelect
- functionExpression
- insertFieldList
- insertValues
- jsonTableSpec
- now
- predicateExpression
- tableFunctionSpec
- utc
- xmlTableSpec

parenthesisClose:

PARENTHESIS_CLOSE
parenthesisClose ::= PARENTHESIS_CLOSE

referenced by:
- aggregateFunction
- arithmeticExpression
- booleanExpression
- csvTableSpec
- embeddedSelect
- functionExpression
- insertFieldList
- insertValues
- jsonTableSpec
- now
- predicateExpression
- tableFunctionSpec
- utc
- xmlTableSpec

case:
CASE
  case ::= CASE

referenced by:
- caseExpression

when:
WHEN
  when ::= WHEN

referenced by:
- caseWhenThenExpression

then:
THEN
  then ::= THEN

referenced by:
- caseWhenThenExpression

else:
ELSE
  else ::= ELSE

referenced by:
- caseElseExpression
end:
END

        end ::= END

referenced by:
• caseExpression

not:
NOT

        not ::= NOT

referenced by:
• booleanExpression
• isLikeComparingExpression
• isNullComparingExpression
• predicateExpression

is:
IS

        is ::= IS

referenced by:
• isNullComparingExpression

are:
ARE

        are ::= ARE

referenced by:
• isEqualComparingExpression

and:
AND

        and ::= AND

referenced by:
• booleanExpression
• predicateExpression

or:
OR

        or ::= OR
true:

\[
\text{TRUE} \quad \text{true} \quad ::= \text{TRUE}
\]

false:

\[
\text{FALSE} \quad \text{false} \quad ::= \text{FALSE}
\]

predicateExpression:

\[
\text{arithmeticExpression} \ \text{not} \ \text{in\_parenthesisOpen} \ \text{arithmeticExpression} \ \text{COMMA} \ \text{inSelectStatement}\ \\
\text{parenthesisClose} \ \text{between} \ \text{arithmeticExpression} \ \text{and} \ \text{arithmeticExpression} \ \text{gt} \ \text{ge} \ \text{lt} \ \text{le} \ \text{eq} \ \text{neq} \ \text{arithmeticExpression} \ \text{isNullComparingExpression} \ \text{isLikeComparingExpression} \ \text{isEqualComparingExpression} \ \\
\text{not} \ \text{between} \ \text{arithmeticExpression} \ \text{and} \ \text{arithmeticExpression} \ \text{in\_parenthesisOpen} \ \text{arithmeticExpression} \ \text{COMMA} \ \text{arithmeticExpression} \ \text{inSelectStatement} \ \text{parenthesisClose} \ \\
\text{isNullComparingExpression} \ \text{isLikeComparingExpression} \ \text{isEqualComparingExpression}
\]

parameterExpression:

\[
\text{parameterExpression} \quad ::= \text{COLON} \ \text{identifier}
\]
gt:
Greater than is a binary operator which returns true when the left value is greater than the right value. When one of both values is null, the outcome is null. Otherwise it is false.

\[ \text{GT} \quad \text{gt} : = \text{GT} \]

referenced by:
- \text{predicateExpression}

ge:
Greater or equal is a binary operator which returns true when the left value is greater than or equal to the right value. When one of both values is null, the outcome is null. Otherwise it is false.

\[ \text{GE} \quad \text{ge} : = \text{GE} \]

referenced by:
- \text{predicateExpression}

lt:
Less than is a binary operator which returns true when the left value is less than the right value. When one of both values is null, the outcome is null. Otherwise it is false.

\[ \text{LT} \quad \text{lt} : = \text{LT} \]

referenced by:
- \text{predicateExpression}

le:
Less or equal is a binary operator which returns true when the left value is less than or equal to the right value. When one of both values is null, the outcome is null. Otherwise it is false.

\[ \text{LE} \quad \text{le} : = \text{LE} \]

referenced by:
- \text{predicateExpression}

eq:
Equal is a binary operator which returns true when both values are equal. When one of both values is null, the outcome is null. Otherwise it is false.

\[ \text{EQ} \quad \text{eq} : = \text{EQ} \]

referenced by:
- \text{predicateExpression}
neq:

\texttt{NEQ} \quad \texttt{NEQ} \quad ::= \texttt{NEQ}

referenced by:
  \begin{itemize}
  \item \texttt{predicateExpression}
  \end{itemize}

like:

\texttt{LIKE} \quad \texttt{LIKE} \quad ::= \texttt{LIKE}

referenced by:
  \begin{itemize}
  \item \texttt{isLikeComparingExpression}
  \end{itemize}

between:

\texttt{BETWEEN} \quad \texttt{BETWEEN} \quad ::= \texttt{BETWEEN}

referenced by:
  \begin{itemize}
  \item \texttt{predicateExpression}
  \end{itemize}

in_:

\texttt{IN} \quad \texttt{IN} \quad ::= \texttt{IN}

referenced by:
  \begin{itemize}
  \item \texttt{predicateExpression}
  \end{itemize}

\texttt{isNullComparingExpression}:

is not NULL \quad \texttt{isNullComparingExpression} \quad ::= \texttt{is} \texttt{not} \texttt{NULL}

referenced by:
  \begin{itemize}
  \item \texttt{predicateExpression}
  \end{itemize}

\texttt{isEqualComparingExpression}:

are EQUAL \quad \texttt{isEqualComparingExpression} \quad ::= \texttt{are} \texttt{EQUAL}

referenced by:
  \begin{itemize}
  \item \texttt{predicateExpression}
  \end{itemize}
isLikeComparingExpression:

not like arithmeticExpression

\[
\text{isLikeComparingExpression} ::= \text{not} \ like \ arithmeticExpression
\]

referenced by:
- predicateExpression

arithmeticExpression:

minus plus arithmeticExpression times divide plus minus concat arithmeticExpression parenthesisOpen arithmeticExpression selectStatement parenthesisClose functionExpression caseExpression fieldIdentifier constant

\[
\text{arithmeticExpression} ::= ( \text{minus} | \text{plus} | \text{arithmeticExpression} )\text{list} \ (	ext{times} | \text{divide} | \text{plus} | \text{minus} | \text{concat}) \text{list} \text{arithmeticExpression} \\
\text{parenthesisOpen} ( \text{arithmeticExpression} | \text{selectStatement} ) \text{parenthesisClose} \text{list} \text{functionExpression} \text{list} \text{parameterExpression} \text{list} \text{caseExpression} \text{list} \text{fieldIdentifier} \text{list} \text{constant}
\]

referenced by:
- aggregateFunction
- arithmeticExpression
- arithmeticExpressionList
- attachToClause
- caseWhenThenExpression
- expression
- identifiedByClause
- insertValuesList
- isLikeComparingExpression
- predicateExpression
- updateValue

arithmeticExpressionList:

arithmeticExpression list

\[
\text{arithmeticExpressionList} ::= \text{arithmeticExpression} \text{list} \ (\text{list} \text{arithmeticExpression} \text{list} \text{list}) *\n\]

referenced by:
- aggregateFunction
- functionExpression
functionExpression:

abs acos anonymize ascii asin atan atan2 base64_decode base64_encode bit_length octet_length camel ceil chr coalesce concat_func cos cosh coveryfify compress uncompress dateadd datepart date_floor date_round date_trunc day dayofweek dayofyear dense_rank double_metaphone double_metaphone_alt exp_func floor from_unixtime hour httpget httpget_text httppost initcap instr jsondecode jsonencode left length levenshtein In log lower ipad ltrim md5 metaphor metaphor3 metaphor3_alt microsecond millisecond minute month newid number_to_speech normalize nvl power quarter quote_ident quote_literal quote_nullable raise_error random random_blob rand rank regexp_exp regexp_replace regexp_substr remainder replace reverse right round row_number rpad rtrim second sin soundex sqrt substr sys_context tan to_binary to_char to_date to_number to_guid to_hex translate translate_resources trim trunc unix_timestamp upper urldcencode user unzip zip xmlcomment xmldecode xmlencode xmlelement xmlformat xmltransform year add_months zero_blob parenthesisOpen arithmeticExpressionList parenthesisClose random rand row_number now utc user

referred by:

• arithmeticExpression

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abs:
Returns the absolute value of a double-precision floating-point number.

Parameters:
- Input: A number that is greater than or equal to System.Double.MinValue, but less than or equal to System.Double.MaxValue.

Returns: A double-precision floating-point number. ABS

\[
\text{abs} \quad : = \quad \text{ABS}
\]

referenced by:
- functionExpression

acos:
Returns the angle of the provided cosine.

Parameters:
- Input: the cosine to get the angle of.

Returns: A number which represents the angle of the provided cosine. ACOS

\[
\text{acos} \quad : = \quad \text{ACOS}
\]

referenced by:
- functionExpression

anonymize:
Anonymize a text or number. Anonymization is executed such that when the same original value is anonymized within the same session, the anonymized value will be identical. The anonymized value also uniquely matches the original value. With no access to the anonymization map however, the original value can however not be calculated from the anonymized value.

In mathematics, the anonymization function is a bijection: each element of the original set is paired with exactly one element of the anonymized set, and each element of the anonymized set is paired with exactly one element of the original set.

Parameters:
- Value: A text or number to be obfuscated.
- Maximum length (optional): Maximum length in digits for numbers or characters for text of anonymized value. Null means no restriction on maximum length.
- Mapping (optional): algorithm to use. The default algorithm is 'DEFAULT' which maps text values to a range of hexadecimal characters and numbers to a range of numbers. Alternative mappings are described below.

The following anonymization maps are available on installation:
- DEFAULT: the default algorithm.
- IVE-GL-JOURNAL-DESCRIPTION: general ledger journal descriptions: no preferred anonymizations, leave familiar and non-confidential descriptions in original state.
• IVE-GL-ACCOUNT-DESCRIPTION: general ledger account descriptions: no preferred anonymizations, leave familiar and non-confidential descriptions in original state.
• IVE-PSN-FIRST-NAME: person first names: prefer readable alternative first names, anonymize all.
• IVE-PSN-LAST-NAME: person last names: prefer readable alternative last names, anonymize all.
• IVE-ADS-CITY-NAME: address city names: prefer readable alternative city names, anonymize all.
• IVE-ADS-STREET-NAME: address street names: prefer readable alternative street names, anonymize all.

The data dictionary contains the anonymization maps used so far in the session and their corresponding values:

```sql
select * from SystemAnonymizationMaps@DataDictionary
select * from SystemAnonymizationMapValues@DataDictionary
select * from SystemAnonymizationPredefinedMaps@DataDictionary
```

Returns: Anonymized value. ANONYMIZE

```sql
anonymize ::= ANONYMIZE
```

referenced by:
• `functionExpression`

`ascii`:
Get the position of a character on database character set.

Parameters:
• Input: character to get position from.

Returns: The position of the character on database character set. ASCII

```sql
ascii ::= ASCII
```

referenced by:
• `functionExpression`

`asin`:
Returns the angle of the provided sine.

Parameters:
• Input: the sine to get the angle of.

Returns: A number which represents the angle of the provided sine. ASIN

```sql
asin ::= ASIN
```

referenced by:
• `functionExpression`

`atan`:
Returns the angle of the provided tangent.
Parameters:
  • Input: the tangent to get the angle of.

Returns: A number which represents the angle of the provided tangent. ATAN

```
atan \[61\] ::= \text{ATAN} \[61\]
```

referenced by:
  • `functionExpression` \[62\]

atan2:

Returns the angle of the provided tangent.

Parameters:
  • First number: the first number to get the angle of.
  • Second number: the second to get the angle of.

Returns: A number which represents the angle of the provided tangent. ATAN2

```
atan2 \[62\] ::= \text{ATAN2} \[62\]
```

referenced by:
  • `functionExpression` \[62\]

add_months:

Add an amount of months to a datetime.

Parameters:
  • Date: datetime to add the months to.
  • Months: the amount of months to add.

Returns: A new datetime with the amount of months added. ADD_MONTHS

```
add\_months \[62\] ::= \text{ADD\_MONTHS} \[62\]
```

referenced by:
  • `functionExpression` \[62\]

base64_decode:

Converts the base64-encoded value back to the binary value as defined on Wikipedia.

Parameters:
  • Input: value to convert back to the original.

Returns: The input decoded back to the binary value. BASE64_DECODE

```
base64\_decode \[62\] ::= \text{BASE64\_DECODE} \[62\]
```

referenced by:
  • `functionExpression` \[62\]

base64_encode:
Converts a binary value to base64-encoded characters as defined on Wikipedia.

Parameters:
- Input: value to convert to base64 characters.

Returns: The input encoded to base64 characters. BASE64_ENCODE

```
base64_encode[63] ::= BASE64_ENCODE[63]
```

Referenced by:
- functionExpression[63]

**camel:**

Converts provided string to Camel case.

Parameters:
- Input: the string that will be converted to Camel case.

Returns: A string converted to Camel case. CAMEL

```
camel[63] ::= CAMEL[63]
```

Referenced by:
- functionExpression[63]

**ceil:**

Rounds the input to the largest following integer. Unless an amount of decimals is defined, in which case it rounds to the largest integer number with the amount of decimals or date with the amount of positions.

Parameters:
- Input: A number or datetime to ceil.
- Decimals [optional]: A number to specify how many decimals it may ceil to in case of a number. In case of a datetime, it reflects the number of time positions, ranging from -2 for years to 2 for minutes.

Returns: The ceiling of the input. CEIL

```
ceil[63] ::= CEIL[63]
```

Referenced by:
- functionExpression[63]

**chr:**

Get a character from database character set.

Parameters:
- Input: a numeric value of a character.

Returns: A character from the database character set. CHR CHAR

```
chr[63] ::= CHR[63]
```

Referenced by:
bit_length:
Get the number of bits needed to represent a value. For a blob, this is the number of bits for
the bytes of the blob. For all other data types, the value is first converted to a string and then
the number of bits of the UTF8 representation is determined.
Parameters:
- Value: value to determine length in bits for.
Returns: number of bits needed to represent the value. BIT_LENGTH

```
bit_length ::= BIT_LENGTH
```

octet_length:
Get the number of bytes needed to represent a value. For a blob, this is the number of bytes
of the blob. For all other data types, the value is first converted to a string and then the num-
ber of bytes of the UTF8 representation is determined.
Parameters:
- Value: value to determine length in bytes for.
Returns: number of bytes needed to represent the value. OCTET_LENGTH

```
octet_length ::= OCTET_LENGTH
```

repeat:
Get a concatenation of the text by a number of times.
Parameters:
- Text: text to repeat.
- Times: number of time to repeat the text.
Returns: the text repeated a number of times. REPEAT

```
repeat ::= REPEAT
```

raise_error:
RAI SE_ERROR

```
raise_error ::= RAISE_ERROR
```

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referenced by:
  - functionExpression

coalesce:
Performs a coalescing operation.

Parameters:
  - Left: an object.
  - Right: an object.

Returns: the left value if right is empty, otherwise the right value. COALESCE
coalesce ::= COALESCE

referenced by:
  - functionExpression

concat:
Concatenate the left and right values together as a text.

CONCAT_OP
cocncat ::= CONCAT_OP

referenced by:
  - arithmeticExpression

concat_func:
Concatenate a list of values together as a text.

CONCAT
concat_func ::= CONCAT

referenced by:
  - functionExpression

cos:
Returns the cosine of the provided angle.

Parameters:
  - Input: the angle to get the cosine of.

Returns: A number which represents the cosine of the provided angle. COS
cos ::= COS

referenced by:
  - functionExpression

covfefify:
COVFREFIFY

\texttt{covfeify} :: = COVFREFIFY

referenced by:
- \texttt{functionExpression}

\texttt{compress}:

\texttt{COMPRESS} :: = COMPRESS

referenced by:
- \texttt{functionExpression}

\texttt{uncompress}:

\texttt{UNCOMPRESS} :: = UNCOMPRESS

referenced by:
- \texttt{functionExpression}

dateadd:

Adds an amount of time to a date.

Parameters:
- Interval: the date interval to be added.
- Number: the number of intervals to add.
- Date: the date to which the interval should be added.

Returns: The original date with the number of intervals added. \texttt{DATEADD}

\texttt{dateadd} :: = DATEADD

referenced by:
- \texttt{functionExpression}

datepart:

Get the specified datepart from a datetime.

Parameters:
- datepart: a part of a date.
- date: a datetime to get the datepart from.

Returns: a part of a datetime. \texttt{DATEPART}

\texttt{datepart} :: = DATEPART

referenced by:
- \texttt{functionExpression}
date_ceil:

\text{DATE_CEIL}

\text{\textit{date}\textunderscore ceil}} := \text{\textit{DATE_CEIL}}

referenced by:

\bullet \text{functionExpression}

date_floor:

\text{DATE_FLOOR}

\text{\textit{date}\textunderscore floor}} := \text{\textit{DATE_FLOOR}}

referenced by:

\bullet \text{functionExpression}

date_round:

\text{DATE_ROUND}

\text{\textit{date}\textunderscore round}} := \text{\textit{DATE_ROUND}}

referenced by:

\bullet \text{functionExpression}

date_trunc:

\text{DATE_TRUNC}

\text{\textit{date}\textunderscore trunc}} := \text{\textit{DATE_TRUNC}}

referenced by:

\bullet \text{functionExpression}

day:

Collect the day from a date.

Parameters:

\bullet Input: A dateTime.

Returns: The day as an integer. \text{\textit{DAY}}

\text{\textit{day}} := \text{\textit{DAY}}

referenced by:

\bullet \text{functionExpression}

dayofweek:
Collect the day of a week from a date.

Parameters:
- Input: A DateTime.

Returns: The day of a week as an integer. DAYOFWEEK
dayofweek = DAYOFWEEK

referenced by:
- functionExpression

dayofyear:
Collect the day of a year from a date.

Parameters:
- Input: A DateTime.

Returns: The day of a year as an integer. DAYOFYEAR
dayofyear = DAYOFYEAR

referenced by:
- functionExpression

dense_rank:
DENSE_RANK
dense_rank = DENSE_RANK

referenced by:
- functionExpression

double_metaphone:
DOUBLE_METAPHONE
double_metaphone = DOUBLE_METAPHONE

referenced by:
- functionExpression

double_metaphone_alt:
DOUBLE_METAPHONE_ALT
double_metaphone_alt = DOUBLE_METAPHONE_ALT

referenced by:
- functionExpression
divide:
Divide one number by the second number.

Parameters:
- first: a number to divide.
- second: a number to divide with.

Returns: the divided output. `DIVIDE`

```
divide ::= DIVIDE
```

Referenced by:
- `arithmeticExpression`

exp:
Returns the provided number raised to the specified power.

Parameters:
- Input: the number to raise by the specified power.

Returns: A number which is the provided number raised to the specified power. `EXP_OP`

```
exp ::= EXP_OP
```

no references

exp_func:
`EXP`

```
exp_func ::= EXP
```

Referenced by:
- `functionExpression`

floor:
Rounds the input to the smallest following integer. Unless an amount of decimals is defined, in which case it rounds to the smallest integer with the amount of decimals or date with the amount of positions.

Parameters:
- Input: A number or datetime to floor.
- Decimals [optional]: A number to specify how many decimals it may floor to in case of a number. In case of a datetime, it reflects the number of time positions, ranging from -2 for years to 2 for minutes.

Returns: The floor of the input. `FLOOR`

```
floor ::= FLOOR
```

Referenced by:
- `functionExpression`
from _unixtime:

Get the date/time from an integer representing a UNIX epoch time.

Parameters:
• Input: An integer.

Returns: The date/time which the UNIX epoch time represents. FROM_UNIXTIME

from _unixtime ::= FROM_UNIXTIME

referenced by:
• functionExpression

hour:

Collect the hour from a date.

Parameters:
• Input: A dateTime.

Returns: The hour as an integer. HOUR

hour ::= HOUR

referenced by:
• functionExpression

initcap:

Changes the first letter of each word in uppercase, all other letters in lowercase.

Parameters:
• Input: Text to convert.

Returns: The input with the first letter of each word in uppercase. INITCAP

initcap ::= INITCAP

referenced by:
• functionExpression

instr:

Get a number which is a position of the first occurrence of substring in the string.

Parameters:
• String: String to be searched.
• Substring: Text to search for.
• StartPosition [optional]: Position of string to start searching.
• occurrence [optional]: Return the position of the occurrence.

Returns: The position of the substring inside the original string. INSTR

instr ::= INSTR

referenced by:
• functionExpression
jsondecode:

JSONDECODE

    jsondecode ::= JSONDECODE

referenced by:
    • functionExpression

jsonencode:

JSONENCODE

    jsonencode ::= JSONENCODE

referenced by:
    • functionExpression

length:

Gets the number of characters in provided string.

Parameters:
    • Input: the string to get the length of.

Returns: A number which represents the number of characters in the provided string.

LENGTH

    length ::= LENGTH

referenced by:
    • functionExpression

levenshtein:

Determine the Levenshtein distance between two values as defined on Wikipedia.

LEVENSHTEIN

    levenshtein ::= LEVENSHTEIN

referenced by:
    • functionExpression

list:

COMMA

    list ::= COMMA

referenced by:
    • arithmeticExpressionList
In:
Get the natural logarithm of a number.
Parameters:
  - Input: a number to get the natural logarithm from.
Returns: The natural logarithm of the input. LN
  \[ \text{ln} \] : = \text{LN} \[ \text{ln} \]
  referenced by:
    - \text{functionExpression} \[ \text{59} \]

log:
Get the natural logarithm of a number in a specified base.
Parameters:
  - Input: a number to get the natural logarithm from.
  - Base [optional]: the base to get the natural logarithm from.
Returns: The natural logarithm of the input in the specified base. LOG
  \[ \text{log} \] : = \text{LOG} \[ \text{log} \]
  referenced by:
    - \text{functionExpression} \[ \text{59} \]

lower:
Converts provided string to lowercase.
Parameters:
  - Input: the string that will be converted to lowercase.
Returns: A string converted to lowercase. LOWER
  \[ \text{lower} \] : = \text{LOWER} \[ \text{lower} \]
  referenced by:
    - \text{functionExpression} \[ \text{59} \]

lpad:
Pad a string to the left to make it a specified length.
Parameters:
  - Input: string to be padded.
  - Length: the length the string should be padded to.
  - Characters [optional]: Characters to pad with.
Returns: A string padded to the left to a given length with the optional specified characters. LPAD
  \[ \text{lpad} \] : = \text{LPAD} \[ \text{lpad} \]
  referenced by:
    - \text{functionExpression} \[ \text{59} \]
ltrim:
Trims characters from the left side of a string.

Parameters:
- Input: the string from to trim characters from the left side.
- (Optional) Chars to trim: the character to trim. Default is " ".

Returns: A string with chars trimmed from the left. LTRIM

```
ltrim : LTRIM
```

md5:
Converts a value to a 128-bit hash value as defined on Wikipedia.

Parameters:
- Input: Text to convert with MD5.

Returns: The input converted with MD5. MD5

```
md5 : MD5
```

metaphone:
Converts a value to the Metaphone code as defined on Wikipedia.

Parameters:
- Input: value to convert to metaphone.
- Length: maximum output length of the given input.

Returns: The input converted to metaphone, with a given output length. METAPHONE

```
metaphone : METAPHONE
```

metaphone3:
METAPHONE3

```
metaphone3 : METAPHONE3
```

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metaphone3_alt:
METAPHONE3_ALT
  metaphone3_alt ::= METAPHONE3_ALT
referenced by:
  • functionExpression

mod:
Get the remainder of a divide calculation.
Parameters:
  • dividend: a number.
  • divider: a number.
Returns: The remainder.

minus:
Subtracts a value from another.
Parameters:
  • Value: a number or datetime.
  • Subtract: a number or datetime.
Returns: The value minus the subtraction.

minute:
Collect the minute from a date.
Parameters:
  • Input: A dateTime.
Returns: The minute as an integer.

month:
Collect the month from a date.
Parameters:

- Input: A date Time.

Returns: The month as an integer. MONTH

\[
\text{month} \ := \ \text{MONTH}
\]

referenced by:

- functionExpression

**newid:**

Creates a new Guid id.

Returns: The new Guid id.

NEWID

\[
\text{newid} \ := \ \text{NEWID}
\]

referenced by:

- functionExpression

**nvl:**

Coalesce all values together.

Returns: All values coalesced together.

NVL

\[
\text{nvl} \ := \ \text{NVL}
\]

referenced by:

- functionExpression

**plus:**

Adding a value to another.

Parameters:

- Value: a number or datetime.
- add: a number or datetime.

Returns: A new value with both values added to each other. PLUS

\[
\text{plus} \ := \ \text{PLUS}
\]

referenced by:

- arithmeticExpression

**power:**

Gets a value of a number raised to another.

Parameters:

- Value: a number.
- exponent: a number.
Returns: The value of a number raised to another. POWER

\[ \text{power} ::= \text{POWER} \]

referenced by:
- functionExpression

random:
Generates a random number between 0 and 1.

Parameters:
- Seed: Produce a repeatable sequence of random numbers each time that seed value is provided.

Returns: A random number between 0 and 1. RANDOM

\[ \text{random} ::= \text{RANDOM} \]

referenced by:
- functionExpression

random_blob:
Generates a blob with pseudo-random values.

Parameters:
- Length: Produce a blob with this length in terms of bytes.

Returns: A blob with pseudo-random values. RANDOM_BLOB

\[ \text{random\_blob} ::= \text{RANDOM\_BLOB} \]

referenced by:
- functionExpression

rand:
RAND

\[ \text{rand} ::= \text{RAND} \]

referenced by:
- functionExpression

rank:
RANK

\[ \text{rank} ::= \text{RANK} \]

referenced by:
- functionExpression

regexp_substr:
Extracts a substring from the given value using regular expression.

Parameters:
- Input: The text to get the substring from.
- Pattern: Regular expression pattern.
- Start position [optional]: The start index from the input.
- Appearance [optional]: Indicating the appearance of the substr operation.
- Match_parameter [optional]: A text literal that lets you change the default matching behavior of the function.

Returns: The substring from the input. \texttt{REGEXP\_SUBSTR}

\begin{verbatim}
\textbf{regexp\_substr}\textbf{[}\textnumero78\textbf{]}
::= \texttt{REGEXP\_SUBSTR}\textbf{[}\textnumero78\textbf{]}
\end{verbatim}

referenced by:
- \texttt{functionExpression}\textbf{[}\textnumero59\textbf{]}

\textbf{regexp\_instr}:

Determine the position of the regular expression in the given value. Returns 0 when the regular expression is not contained in the given value.

Parameters:
- Input: The text to get the regular expression position from.
- Pattern: Regular expression pattern.
- Start position [optional]: The start index from the input.
- Appearance [optional]: Indicating the appearance of the instr operation.
- ReturnOption [optional]: Select either the first character found or the first character after the occurrence of the pattern.
- Match_parameter [optional]: A text literal that lets you change the default matching behavior of the function.

Returns: The location of a regular expression pattern in the input. \texttt{REGEXP\_INSTR}

\begin{verbatim}
\textbf{regexp\_instr}\textbf{[}\textnumero77\textbf{]}
::= \texttt{REGEXP\_INSTR}\textbf{[}\textnumero77\textbf{]}
\end{verbatim}

referenced by:
- \texttt{functionExpression}\textbf{[}\textnumero59\textbf{]}

\textbf{regexp\_replace}:

Replaces all occurrences matching the regular expression with the replacement value. The replacement value may contain references to matches in the regular expression by using the dollar-sign (\texttt{"\$\}) plus the reference number.

Parameters:
- Input: The text to get the substring from.
- Pattern: Regular expression pattern.
- Replacement [optional]: Text to replace with.
- Start position [optional]: The start index from the input.
- Appearance [optional]: Indicating the appearance of the replace operation.
• Match parameter [optional]: A text literal that lets you change the default matching behavior of the function. The available options are 'c' for case-sensitive, 'i' for ignore case, 'n' for single-line, 'm' for multi-line and 'x' for ignore pattern white space.

Returns: The input with every occurrence of the regular expression pattern replaced with the replacement.

```plaintext
REGEXP_REPLACE
    regexp_replace[:,78]
    ::= REGEXP_REPLACE[:,78]
```

referenced by:

• `functionExpression[:,58]`

remainder:

Get the remainder of a divide calculation.

The REMAINDER function uses the round function in its formula, whereas the MOD function uses the floor function in its formula.

Parameters:

• Number1: a number.
• Number2: a number.

Returns: The remainder. REMAINDER

```plaintext
remainder[:,78]
    ::= REMAINDER[:,78]
```

referenced by:

• `functionExpression[:,58]`

replace:

Replaces a string with string in given string.

Parameters:

• Input: the string to replace a string in.
• Old text: the string to be replaced.
• New text: the string which 'Old text' will be replaced with.

Returns: A string with the replaced string. REPLACE

```plaintext
replace[:,78]
    ::= REPLACE[:,78]
```

referenced by:

• `functionExpression[:,58]`

reverse:

Flips the input around.

Parameters:

• Input: text to flip around.

Returns: The text with it's characters in reversed order. REVERSE
**reverse**

\[ reverse ::= \text{REVERSE} \]

 referenced by:

- functionExpression

**round**

Rounds the input to the closest following integer. Unless an amount of decimals is defined, in which case it rounds to the closest integer number with the amount of decimals or date with the amount of positions.

Parameters:

- Input: A number or datetime to round.
- Decimals [optional]: A number to specify how many decimals it may round to in case of a number. In case of a datetime, it reflects the number of time positions, ranging from -2 for years to 2 for minutes.

Returns: The rounded input. \( \text{ROUND} \)

\[ round ::= \text{ROUND} \]

 referenced by:

- functionExpression

**row_number**

\( \text{ROW\_NUMBER} \)

 referenced by:

- functionExpression

**rpad**

Rightpad function pads the right-side of a string with a specific set of characters to the given length. When no set of characters given, it will pad with a whitespace.

Parameters:

- Input: Text to be padded.
- Length: The length to make the input to.
- Pad text [optional]: Text to add to the input if the length is larger then the input.

Returns: The padded text, or null if the string cannot be padded. \( \text{RPAD} \)

\[ rpad ::= \text{RPAD} \]

 referenced by:

- functionExpression

**rtrim**

Trims characters from the right side of a string.

Parameters:
• Input: the string from which to trim characters from the right side.
• (Optional) Chars to trim: the character to trim. Default is " ".

Returns: A string with chars trimmed from the right. RTRIM

```plaintext
rtrim ::= RTRIM
```

referenced by:

• `functionExpression`

**microsecond:**

Collect the microsecond from a date.

Parameters:

• Input: A `dateTime`.

Returns: The microsecond as an integer. MICROSECOND

```plaintext
microsecond ::= MICROSECOND
```

referenced by:

• `functionExpression`

**millisecond:**

Collect the millisecond from a date.

Parameters:

• Input: A `dateTime`.

Returns: The millisecond as an integer. MILLISECOND

```plaintext
millisecond ::= MILLISECOND
```

referenced by:

• `functionExpression`

**number_to_speech:**

NUMBER_TO_SPEECH

```plaintext
number_to_speech ::= NUMBER_TO_SPEECH
```

referenced by:

• `functionExpression`

**normalize:**

Normalize a file path by replacing all invalid and non-ASCII characters for use in a file path by underscore. After that, the file path is made more readable by various operations such as removal of duplicate whitespace and underscore characters.

Parameters:

• Original file path: path of the file.
• Maximum file name length: length in characters into which the normalized file name must fit.
• Allow path separator: whether to allow the path separator '/' in the normalized file name. When not, occurrences are replaced.

Returns: a normalized file path. NORMALIZE

\[ \text{normalize} \] ::= \text{NORMALIZE} \\

referenced by:

• \text{functionExpression} \\

\textbf{second:}
Collect the second from a date.

Parameters:
• Input: A dateTime.

Returns: The second as an integer. SECOND

\[ \text{second} \] ::= \text{SECOND} \\

referenced by:

• \text{functionExpression} \\

\textbf{soundex:}
Converts a value to the Soundex code as defined on Wikipedia.

Parameters:
• Input: Text to that retrieve the soundex value from.

Returns: A text started with a number and followed by 3 digits. SOUNDEX

\[ \text{soundex} \] ::= \text{SOUNDEX} \\

referenced by:

• \text{functionExpression} \\

\textbf{sin:}
Returns the sine of the provided angle.

Parameters:
• Input: the angle to get the sine of.

Returns: A number which represents the sine of the provided angle. SIN

\[ \text{sin} \] ::= \text{SIN} \\

referenced by:

• \text{functionExpression} \\

\textbf{sqrt:}
Returns the square root of the provided number.
Parameters:
- Input: the number to get the square root of.

Returns: A number which represents the square root of the provided number. SQRT

\[ \text{sqrt} \] := \text{SQRT} \]

referred by:
- \text{functionExpression} \]

\text{substr}:

Gets a substring from the input.

Parameters:
- Input: text to gather the substring from.
- Start: start position.
- Length: maximum length of the substring.

Returns: The substring from the original input. SUBSTR

\[ \text{substr} \] := \text{SUBSTR} \]

referred by:
- \text{functionExpression} \]

\text{sys\_context}:

Text value of a parameter associated with a context.

Parameters:
- Context: a namespace.
- Parameter: name of the parameter.

Solely the namespace USERENV is available with the following parameter names:
- APPLICATION\_VERSION: version of the client application.
- APPLICATION\_FULL: name and version of the client application.
- APPLICATION\_BUILD\_EXPIRATION\_DATE: build expiration date of the client application.
- AUTHENTICATION\_METHOD: current authentication method.
- CLIENT\_IP\_ADDRESS\_INTERNAL: internal IP address of the client device.
- CLIENT\_IP\_ADDRESS\_EXTERNAL: external IP address of the client device.
- CLIENT\_LOGICAL\_CORE\_COUNT: number of logical processor cores in the client device.
- CLIENT\_MACHINE\_NAME: machine name of the client device.
- CLIENT\_SYSTEM\_64\_BIT: whether the OS is 64-bit on the client device.
- CLIENT\_SYSTEM\_NAME: full OS name running on the client device.
- CLIENT\_SYSTEM\_DIRECTORY: system directory of the client device.
- CLIENT\_SYSTEM\_PAGE\_SIZE: system page size of the client device.
- CLIENT\_VIRTUAL\_MACHINE: whether the client device is a virtual machine.
- CLR\_VERSION\_BUILD: build version of the Common Language Runtime.
- CLR\_VERSION\_MAJOR: major version of the Common Language Runtime.
- CLR\_VERSION\_MAJOR\_REVISION: major revision of the Common Language Runtime.
- CLR_VERSION_MINOR: minor version of the Common Language Runtime.
- CLR_VERSION_MIN_REVISION: minor revision of the Common Language Runtime.
- COMPANY_ID: ID of the company of current user.
- COMPANY_NAME: name of the company of current user.
- COMPANY_PHONE: phone of the company of current user.
- COMPANY_WEB_SITE: web site of the company of current user.
- DATA_CONTAINER_ALIAS: alias of active data container.
- DATA_CONTAINER_ID: ID of active data container.
- DATABASE_DESCRIPTION: description of database.
- DATABASE_FULL_NAME: full name of database.
- DATABASE_VERSION: version of database.
- LANG: ISO abbreviation for the language name of the user. Alternative: USER_LANGUAGE_CODE.
- MODULE: name of the client application. Alternative: APPLICATION_NAME.
- PROCESS_64_BIT: whether the OS process on the client device runs as 64-bit.
- PROCESS_COMMAND_LINE: command line used to start the OS process.
- PROCESS_CURRENT_DIRECTORY: current directory of the OS process.
- PROCESS_STACK_TRACE: current stack trace of the OS process.
- PROCESS_WORKING_SET: working set of the OS process.
- PROVIDER_DESCRIPTION: description of active data container.
- PROVIDER_DOCUMENTATION_URL: documentation (URL) of active data container.
- PROVIDER_DOWNLOAD_IMPLEMENTATION_URL: download driver (URL) of active data container.
- PROVIDER_NAME: name of active data container.
- PROVIDER_SHORT_NAME: short name of active data container.
- PROVIDER_TECHNICAL_DOCUMENTATION_URL: technical documentation (URL) of active data container.
- SESSION_USER: log on code of the current user. Alternative: CURRENT_USER.
- SESSION_ID: session ID of current session.
- USER_DOMAIN_NAME: Windows domain name of current user.
- USER_EMAIL_ADDRESS: email address of current user.
- USER_FIRST_NAME: first name of current user.
- USER_FULL_NAME: full name of current user.
- USER_GENDER: gender of current user.
- USER_HOME_DIRECTORY: home directory of current user on client device.
- USER_INTERACTIVE: whether the current user works interactive.
- USER_PICTURES_DIRECTORY: pictures directory of current user on client device.
- USER_FAVORITES_DIRECTORY: favorites directory of current user on client device.
- USER_DESKTOP_DIRECTORY: desktop directory of current user on client device.
- USER_DOCUMENTS_DIRECTORY: documents directory of current user on client device.
- USER_PROFILE_DIRECTORY: profile directory of current user on client device.
- USER_LAST_LOG_ON: time of last log on of current user.
- USER_LAST_NAME: last name of current user.
- USER_LINKED_IN: LinkedIn name of current user.
- USER_MIDDLE_NAME: middle name of current user.
- USER_MOBILE_NUMBER: mobile number of current user.
- USER_NATIONALITY: nationality of current user.
- USER_PHONE_NUMBER: phone number of current user.
- USER_PICTURE_URL: picture URL of current user.
- USER_SKYPE: Skype name of current user.
- USER_TITLE: title of current user.
- USER_TWITTER: Twitter name of current user.
- USER_WEB_SITE: personal website of current user.

Returns: Value of the parameter in the context namespace. SYS_CONTEXT

    sys_context ::= SYS_CONTEXT

referenced by:

- functionExpression

\text{tan}:

Returns the tangent of the provided angle.

Parameters:
- Input: the angle to get the tangent of.

Returns: A number which represents the tangent of the provided angle. TAN

    \text{tan} ::= TAN

referenced by:

- functionExpression

\text{times}:

Multiplies one number by the second number.

Parameters:
- First: a number to multiply.
- Second: a number to multiply with.

Returns: The first number multiplied by the second number. ASTERIX

    \text{times} ::= ASTERIX

referenced by:

- arithmeticExpression

\text{translate}:

Translate replaces all occurrences of each character in from_string to its corresponding character in to_string.

Parameters:
- input: The string to replace a sequence of characters with another set of characters.
- from_string: The string that will be searched for in the input.
- to_string: All characters in the from_string will be replaced with the corresponding character in the to_string.
Returns: the input with all occurrences of each character in \texttt{from\_string} replaced by its corresponding character in \texttt{to\_string}. \texttt{TRANSLATE}
\begin{verbatim}
translate ::= TRANSLATE
\end{verbatim}

\texttt{translate\_resources:}

Replace all Invantive-style resources ('\{res:...\}') by their translation in the current language.

Parameters:
\begin{itemize}
\item \texttt{txt}: The string to replace resources in.
\end{itemize}

Returns: the input with all resources replaced by their translation.
\texttt{TRANSLATE\_RESOURCES}
\begin{verbatim}
translate\_resources ::= TRANSLATE\_RESOURCES
\end{verbatim}

\texttt{trim:}

Trims whitespaces from both sides of the provided string.

Parameters:
\begin{itemize}
\item \texttt{Input}: the string from which to trim characters.
\end{itemize}

Returns: A string trimmed from whitespaces from both sides. \texttt{TRIM}
\begin{verbatim}
trim ::= TRIM
\end{verbatim}

\texttt{trunc:}

Calculates the integral part of a number. Unless an amount of decimals is defined, in which case it calculates to the integer with the amount of decimals or date with the amount of positions.

Parameters:
\begin{itemize}
\item \texttt{Input}: A number or datetime to truncate.
\item \texttt{Decimals [optional]}: A number to specify how many decimals it may truncate to in case of a number. In case of a datetime, it reflects the number of time positions, ranging from -2 for years to 2 for minutes.
\end{itemize}

Returns: The truncated input. \texttt{TRUNC}
\begin{verbatim}
trunc ::= TRUNC
\end{verbatim}
to_hex:

\[
\text{TO\_HEX} \\
\text{to\_hex} \ ::= \text{TO\_HEX}
\]

referred by:
- \text{functionExpression}

unistr:

Converts a text with unicodes to regular characters.

Parameters:
- Input: text with unicodes.

Returns: The input converted to all regular characters. \text{UNISTR}

\[
\text{unistr} \ ::= \text{UNISTR}
\]

referred by:
- \text{functionExpression}

upper:

Converts provided string to uppercase.

Parameters:
- Input: the string that will be converted to uppercase.

Returns: A string converted to uppercase. \text{UPPER}

\[
\text{upper} \ ::= \text{UPPER}
\]

referred by:
- \text{functionExpression}

urldecode:

Decodes a url.

Parameters:
- Url: url to decode.

Returns: The decoded url. \text{URLDECODE}

\[
\text{urldecode} \ ::= \text{URLDECODE}
\]

referred by:
- \text{functionExpression}

urlencode:

Encodes a url.

Parameters:
• Url: url to encode.

Returns: The encoded url. URLENCODE

\[
\text{urlencode} := \text{URLENCODE}
\]

referenced by:
• functionExpression

unix_timestamp:

Get the UNIX epoch time of a date/time.

Parameters:
• Input: A dateTime. Current date/time is used when no value is specified.

Returns: The UNIX epoch time. UNIX_TIMESTAMP

\[
\text{unix_timestamp} := \text{UNIX_TIMESTAMP}
\]

referenced by:
• functionExpression

unzip:

UNZIP

\[
\text{unzip} := \text{UNZIP}
\]

referenced by:
• functionExpression

zip:

ZIP

\[
\text{zip} := \text{ZIP}
\]

referenced by:
• functionExpression

xmlcomment:

Format a text as an XML comment.

Parameters:
• Input: the input which will be formatted as XML comment.

Returns: A text with the input as XML comment. XMLCOMMENT

\[
\text{xmlcomment} := \text{XMLCOMMENT}
\]

referenced by:
• functionExpression
xmldecode:
Returns the XML decoded input.
Parameters:
  - Input: the input which will be decoded into XML.
Returns: An object which is the XML decoded input. XMLDECODE

xmlencode:
Returns the XML encoded input.
Parameters:
  - Input: the input which will be encoded into XML.
Returns: An object which is the XML encoded input. XMLENCODE

xmlelement:
XMLELEMENT

xmltransform:
Applies an XSL style sheet to the XML instance.
Parameters:
  - XML: XML type instance to be transformed with the XSL style sheet.
  - Style sheet: The XSL style sheet to apply.
Returns: The XML instance with the style sheet applied to it. XMLTRANSFORM

xmlformat:
Pretty-print xml text.

Parameters:
- Xml: xml to pretty-print.

Returns: The pretty-printed XML text. XMLFORMAT

```xml
xmlformat ::= XMLFORMAT
```

Referenced by:
- `functionExpression`

### httpget:

Collects all data from the URL as binary data.

The URL must be publicly accessible. Use the NativePlatformScalarRequest view on cloud applications to directly access their web APIs.

Parameters:
- URL: the URL to collect the data from.

Returns: The collected data as an byte array. HTTPGET

```xml
httpget ::= HTTPGET
```

Referenced by:
- `functionExpression`

### httpget_text:

Collects all data from the URL as text.

The URL must be publicly accessible. Use the NativePlatformScalarRequest view on cloud applications to directly access their web APIs.

Parameters:
- URL: the URL to collect the data from.
- Encoding: the encoding from the data to receive, which is by default UTF8.

Returns: The collected data as text. HTTPGET_TEXT

```xml
httpget_text ::= HTTPGET_TEXT
```

Referenced by:
- `functionExpression`

### httppost:

HTTPPOST

```xml
httppost ::= HTTPPOST
```

Referenced by:
- `functionExpression`
quarter:
Collect the quarter from a date.
Parameters:
  - Input: A dateTime.
Returns: The quarter as an integer. QUARTER
  
  \[
  \text{quarter} \quad ::= \quad \text{QUARTER}
  \]
  
  referenced by:
  - functionExpression

quote_ident:
QUOTE_IDENT

\[
\text{quote_ident} \quad ::= \quad \text{QUOTE_IDENT}
\]

referenced by:
  - functionExpression

quote_literal:
QUOTE_LITERAL

\[
\text{quote_literal} \quad ::= \quad \text{QUOTE_LITERAL}
\]

referenced by:
  - functionExpression

quote_nullable:
QUOTE_NULLABLE

\[
\text{quote_nullable} \quad ::= \quad \text{QUOTE_NULLABLE}
\]

referenced by:
  - functionExpression

user:
Gets the user log on code.
Returns: The user log on code.
USER

\[
\text{user} \quad ::= \quad \text{USER}
\]

referenced by:
  - functionExpression
year:
Collect the year from a date.
Parameters:
  • Input: A date Ti me.
Returns: The year as an integer. YEAR

year::= YEAR

referenced by:
  • functionExpression

to_binary:
TO_BINARY

to_binary::= TO_BINARY

referenced by:
  • functionExpression

to_char:
Converts a value into text.
Parameters:
  • Input: value to convert.
Returns: The input converted to text. TO_CHAR

to_char::= TO_CHAR

referenced by:
  • functionExpression

to_date:
Converts a value into a datetime.
Parameters:
  • Input: value to convert.
Returns: The input converted to a datetime. TO_DATE

to_date::= TO_DATE

referenced by:
  • functionExpression

to_guid:
Converts a value into a guid.
Parameters:
  • Input: value to convert.
Returns: The input converted to a guid.
Converts a value into a number.
Parameters:
  • Input: value to convert.
Returns: The input converted to a number. TO_GUID
    to_guid [91] ::= TO_GUID [91]
referenced by:
  • functionExpression [59]

to_number:
TO_NUMBER
to_number [92] ::= TO_NUMBER [92]
referenced by:
  • functionExpression [59]

zero_blob:
Generates a blob with 0-byte values.
Parameters:
  • Length: Produce a blob with this length in terms of bytes.
Returns: A blob with 0-byte values. ZERO_BLOB
    zero_blob [92] ::= ZERO_BLOB [92]
referenced by:
  • functionExpression [59]

now:
The time of the system clock in local time at the device where Invantive SQL runs.
Returns: current date/time.
NOW GETDATE SYSDATETIME parenthesisOpen parenthesisClose SYSDATE
    | SYSDATE [13]
referenced by:
  • functionExpression [59]

utc:
UTC_DATE parenthesisOpen parenthesisClose GETUTCDATE NOWUTC parenthesisOpen parenthesisClose SYSDATEUTC
utc ::= UTC_DATE ( ( parenthesisOpen parenthesisClose )? | ( GETUTCDATE | NOWUTC ) parenthesisOpen parenthesisClose | SYSDATEUTC )

referenced by:
- functionExpression

fullTableIdentifier:
catalogIdentifier DOT schemaIdentifier DOT tableIdentifier

fullTableIdentifier ::= ( catalogIdentifier DOT ( schemaIdentifier? DOT )? tableIdentifier )

referenced by:
- tableOrFunctionSpec
- tableSpec

catalogIdentifier:
identifier
catalogIdentifier ::= identifier

referenced by:
- fullTableIdentifier

schemaIdentifier:
identifier

schemaIdentifier ::= identifier

referenced by:
- fullTableIdentifier

tableIdentifier:
identifier
tableIdentifier ::= identifier

referenced by:
- fullTableIdentifier

fieldIdentifier:
alias DOT identifier
fieldIdentifier

::= ( alias DOT )? identifier

referenced by:

- arithmeticExpression

attributeIdentifier:

identifierWithMinus keywordsAsIdentifierOrAlias

attributeIdentifier

::= identifierWithMinus | keywordsAsIdentifierOrAlias

referenced by:

- setIdentifier

identifierWithMinus:

identifier MINUS identifier INT_OR_DECIMAL_C ESCAPED_IDENTIFIER

identifierWithMinus

::= ESCAPED_IDENTIFIER

| identifier ( MINUS ( identifier | INT_OR_DECIMAL_C )? )* | INT_OR_DECIMAL_C

referenced by:

- attributeIdentifier

identifier:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

identifier

::= ESCAPED_IDENTIFIER

| IDENTIFIER

| keywordsAsIdentifierOrAlias

referenced by:

- catalogIdentifier
- column
- csvTableColumnSpec
- dataContainerAlias
- fieldIdentifier
- identifierWithMinus
- joinSet
- jsonTableColumnSpec
- noJoinSet
- parameterExpression
- partitionIdentifier
- partitionSimpleIdentifier
- schemaIdentifier
- tableIdentifier

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alias:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

\[\text{alias}::=\text{ESCAPED}\_\text{IDENTIFIER}|\text{IDENTIFIER}|\text{keywordsAsIdentifierOrAlias}\]

referenced by:

- aliased
- allColumnsSpecId
- fieldIdentifier

keywordsAsIdentifierOrAlias:

ABS ACOS ADD\_MONTHS ANONYMIZE APPROACH ASC ASCII ASIN \text{ADD\_MONTHS}
ATAN ATAN2 ATTACH AUTO AVG BEGIN BIT BIT\_LENGTH BY CACHE CAMEL CASE
CEIL CHAR CHR COALESCE COMMIT COMPRESS CODE COLUMN CMNS
CONTRACT COPY COS COUNT COVFEIFY CROSS CSVTABLE DATA\_DATE
DATE ADD DATE\_PART DATE\_TIME DATETIME OFFSET DATE\_CEIL DATE\_FLOOR
DATE\_ROUND DATE\_TRUNC DEC DELIMITER DENSE\_RANK DESC DOWNLOAD
DOUBLE DROPPABLE DROPPED ELSE END EXP FEED FLOOR FORC
FORWARDED FRESH FROM\_UNIXTIME FULL GETDATE GETUTCDATE GROUP
HTTP GET HTTP\_TEXT HTTP\_POST IDENTIFIED IMAGE INITCAP INCOMING
INTEGER INTERSECT INTERVAL JOIN\_SET BASE64\_DECODE BASE64\_ENCOD
JSONDECODE JSONENCODE LABEL LEFT LENGTH LEVENSHTEIN LICENSE LIMIT
LINES LISTAGG LOAD LOGICAL LONGTEXT LOWER LOW\_COST LPAD LTRIM
MAINTAIN MAX MD5 MESSAGES METADATA MEDIUMTEXT MIN MINUS\_C MOD MODEL
MONEY MY NAME NEWID NO\_JOIN\_SET NORMALIZE NOWUTC NUMBER
NUMBER\_TO\_SPEECH NVL OBSOLETE OCTET\_LENGTH ODS ONCE OUTER
OVERALL PARALLEL PASSING PARTITION PATH PERSISTENT POSITION POSTFIX
POWER PREFIX PRODUCT PURGE QUOTE IDENT QUOTE\_LITERAL
QUOTE\_NULLABLE RAISE\_ERROR RAND RANK RANDOM RANDOM\_BLOB READY
RECYCLE\_BIN REFRESH REGEXP\_INSTR REGEXP\_REPLACE REGEXP\_SUBSTR
REMAINDER REPEAT RESULT\_SET NAME RETENTION REVERSE RIGHT ROLLBACK
ROUND ROW ROW\_NUMBER RPAD RTRIM SAMPLE SERIAL SIN SKIP\_SOUNDEX
SORT STATE STD\_DEV SUM SYSDATE\_TIME SYSDATE\_UTC SYS\_CONTEXT TABLES
TAN TEXT THEN TIME TIMESTAMP TINYTEXT TO TOKEN TOP TO\_BINARY TO\_CHAR
TO\_DATE TO\_GUID TO\_HEX TO\_NUMBER TRANSACTION TRANSLATE
TRANSLATE\_RESOURCES TRICKLE TRIM TRUNC UNCOMPRESS UNION
UNIQUEIDENTIFIER UNISTR UNIX\_TIME\_STAMP UNKNOWN UNZIP UPDATE UPGRADE
UPPER URL\_DECODE URL\_ENCODE USE USER UTC\_DATE VERSION VERSIONS
WHEN XML\_COMMENT XML\_DECODE XML\_ELEMENT XML\_ENCODE XML\_FORMAT
XML\_TABLE XML\_TRANSFORM XML\_TYPE YEAR ZERO\_BLOB ZIP LOG LN
MICROSECOND MILLISECOND SECOND\_MINUTE HOUR INSTR DAY DAY\_OF\_WEEK
DAY\_OF\_YEAR MONTH QUARTER YEAR CONCAT WITH EQUAL SUBSTR
keywordsAsIdentifierOrAlias ::= ABS | ACOS | ADD_MONTHS | ANONYMIZE | APPROACH | ASC | ASCII | ASIN | ADD_MONTHS | ATAN | ATAN2 | ATTACH | AUTO | AVG | BEGIN | BIT | BIT_LENGTH | BY | CACHE | CAMEL | CASE | CEIL | CHAR | CHR | COALESCE | COMMIT | COMPRESS | CODE | COLUMN | COLUMNS | CONTRACT | COPY | COS | COUNT | COVFEFIFY | CROSS | CSVTABLE | DATA | DATE | DATEADD | DATEPART | DATETIME | DATETIMEOFFSET | DATE_CEIL | DATE_FLOOR | DATE_ROUND | DATE_TRUNC | DEC | DELIMITER | DENSE_RANK | DESC
| MEDIUMTEXT | MIN | MINUS C | MOD | MODEL | MONEY | MY | NAME | NEWID | NO JOIN SET | NORMALIZE | NOWUTC | NUMBER | NUMBER TO SPEECH | NVL | OBSOLETE | OCTET LENGTH | ODS | ONCE | OUTER | OVERALL | PARALLEL | PASSING | PARTITION | PATH | PERSISTENT | POSITION | POSTFIX | POWER | PREFIX | PRODUCT | PURGE | QUOTE IDENT | QUOTE_LITERAL | QUOTE_NONNULL | RAISE_ERROR | RAND | RANK | RANDOM | RANDOM_BLOB | READY | RECYCLEBIN | REFRESH | REGEXP_INSTR | REGEXP_REPLACE | REGEXP_SUBSTR | REMAINDER | REPEAT | RESULT_SET_NAME | RETENTION | REVERSE | RIGHT |
referenced by:
  • `alias` [93]
  • `attributeIdentifier` [84]
  • `identifier` [84]

**constant:**

A constant value with associated data type. The null value is typically associated with the null data type.

`stringConstant` `numericConstant` `booleanConstant` `intervalConstant` `null`
constant::= stringConstant | numericConstant | booleanConstant | intervalConstant | null

referenced by:
- arithmeticExpression
- pSqlItemDeclarati

stringConstant:
A constant text value with varchar2 data type.

stringConstant::= STRING_C

referenced by:
- allColumnsSpecColumnNamePostfix
- allColumnsSpecColumnNamePrefix
- allColumnsSpecLabelPostfix
- allColumnsSpecLabelPrefix
- alterPersistentCacheDownloadStatement
- alterPersistentCacheDropStatement
- alterPersistentCacheSetStatement
- alterPersistentCacheSetTableOptions
- constant
- csvTableOptions
- intervalConstant
- jsonTableColumnSpec
- jsonTableSpec
- labeled
- resultSetName
- xmlTableColumnSpec
- xmlTableSpec

intervalConstant:
A constant interval value, reflecting the time span between two dates. The string constant consists of an integer number and unit of time, taken from the following list:
- Millisecond,
- second,
- minute,
- hour,
- day,
- week, and
- year.

The units may be postfixed with an 's' without changing meaning, like 'years'.

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Valid interval values are for example: "5 seconds", "20 hours" and "1 year". There is no support for combined intervals such as "30 minutes and 30 seconds".

```plaintext
INTERVAL stringConstant
intervalConstant ::= INTERVAL stringConstant
```

referred by:
- `constant`
- `httpDiskCache`
- `httpMemoryCache`
- `ods`

**numericConstant:**
A constant numeric value with numeric data type.

```plaintext
INT_OR_DECIMAL_C E_NOTATION_C numericConstant ::= INT_OR_DECIMAL_C | E_NOTATION_C
```

referred by:
- `alterPersistentCacheDownloadStatement`
- `alterPersistentCachePartitionRefreshStatement`
- `alterPersistentCacheRefreshStatement`
- `alterPersistentCacheSetStatement`
- `alterPersistentCacheTableRefreshStatement`
- `constant`
- `csvTableColumnSpec`
- `csvTableOptions`
- `joinSet`
- `limitClause`
- `pSqlForNumberLoopStatement`
- `partitionIdenti fier`
- `partitionSimpleIdentifier`
- `topClause`

**booleanConstant:**

```plaintext
true false booleanConstant ::= true | false
```

referred by:
- `alterPersistentCacheSetStatement`
- `alterPersistentCacheSetTableOptions`
- `constant`
- `httpDiskCache`
null:
The "unknown" value null.

NULL

null ::= NULL

referenced by:

- constant
- jsonTableSpec
- xmlTableSpec

pSqlBlock:
A PSQL block is a structure to define procedural logic. It can contain both procedural logic as well as SQL statements like "select".

pSqlDeclareSection pSqlBody

pSqlBlock ::= pSqlDeclareSection? pSqlBody

referenced by:

- pSqlBlockOrStatement
- pSqlStatement

pSqlDeclareSection:
A PSQL declare section defines one or more local variables, which are available in the block and nested blocks.

DECLARE pSqlDeclaration

pSqlDeclareSection ::= DECLARE pSqlDeclaration+

referenced by:

- pSqlBlock

pSqlDeclaration:

pSqlItemDeclaration

pSqlDeclaration ::= pSqlItemDeclaration

referenced by:

- pSqlDeclareSection

pSqlItemDeclaration:
An item declaration defines one named variable, based upon data type. The initial value can be added as a constant.

```
variableName dataType ASSIGNMENT_OPERATOR constant BATCH_SEPARATOR
```

```
pSqlItemDeclaration ::= variableName dataType ASSIGNMENT_OPERATOR constant BATCH_SEPARATOR
```

referenced by:
- `pSqlDeclaration`

**pSqlBody:**

A PSQL body contains the procedural logic as well as SQL statements. Variables must have been declared beforehand.

```
BEGIN pSqlStatement END BATCH_SEPARATOR
```

```
pSqlBody ::= BEGIN pSqlStatement END BATCH_SEPARATOR
```

referenced by:
- `pSqlBlock`

**pSqlStatement:**

A number of basic PSQL statements are available.

```
pSqlAssignmentStatement pSqlExecuteImmediateStatement pSqlIfStatement
pSqlLoopStatement pSqlNullStatement pSqlBlock sqlStatement BATCH_SEPARATOR
```

```
```

referenced by:
- `pSqlBlockOrStatement`
- `pSqlBody`
- `sqlOrPSqlStatement`

**pSqlBlockOrStatement:**

A PSQL block or statement defines a procedural step or a SQL statement to be executed.

```
pSqlBlock pSqlStatement
```

```
pSqlBlockOrStatement ::= pSqlBlock | pSqlStatement
```

referenced by:
- `pSqlBlockOrStatements`
pSqlBlockOrStatements:

```
pSqlBlockOrStatement
```

::= `pSqlBlockOrStatements` +

referred by:
- `pSqlElseIfExpression`
- `pSqlForNumberLoopStatement`
- `pSqlForRecordLoopStatement`
- `pSqlIfStatement`
- `pSqlWhileLoopStatement`

pSqlNullStatement:

The null-statement is a NOP-statement (No Operator). The use of the null-statement is necessary when a PSQL statement is needed, but no activity needs to be performed such as with an if statement. The null-statement also makes explicit that a developer has considered the actions needed and found that no action applies to a specific scenario. This leads to improved code documentation.

```
NULL BATCHSEPARATOR
```

::= `NULL` BATCHSEPARATOR

referred by:
- `pSqlStatement`

pSqlAssignmentStatement:

The assignment statement assign a new value to a variable. To assign the results of a SQL query to a value, use a select ... into ... statement.

```
variableName ASSIGNMENT_OPERATOR expression BATCHSEPARATOR
```

::= `variableName` ASSIGNMENT_OPERATOR expression BATCHSEPARATOR

referred by:
- `pSqlStatement`

pSqlExecuteImmediateStatement:

The execute immediate PSQL statement enables the use of SQL statements that are compiled at runtime. For instance dynamic DDL statements can not always be executed on compiled time and the execute immediate enables these.

```
EXECUTE IMMEDIATE expression BATCHSEPARATOR
```

::= EXECUTE IMMEDIATE expression BATCHSEPARATOR

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pSqlIfStatement:
The if-statement performs conditional logic. When the boolean expression after if holds, the PSQL block after the ‘then’ will be executed. Other branches can be specified using an elsif. Otherwise, and only when specified, the logic after the else is executed.

```
IF booleanExpression THEN pSqlBlockOrStatements pSqlElsIfExpression ELSE pSqlBlockOrStatements END IF BATCH SEPARATOR
```

pSqlElsIfExpression:
ELSIF booleanExpression THEN pSqlBlockOrStatements

```
pSqlElsIfExpression ::= ELSIF booleanExpression THEN pSqlBlockOrStatements
```

pSqlLoopStatement:
A variety of PSQL statements for loops are available.

```
pSqlLoopStatement ::= pSqlForNumberLoopStatement | pSqlForRecordLoopStatement | pSqlWhileLoopStatement
```

pSqlForNumberLoopStatement:
This PSQL integer loop statement iterates over a range of integer values, executing PSQL statements for each iterated value. The iterations goes from the first value to the last value in increments of 1. The iterations go backward in decrements of 1 when ‘reverse’ is specified.

```
FOR variableName IN REVERSE numericConstant variableName DOT DOT numericConstant variableName LOOP pSqlBlockOrStatements END LOOP BATCH SEPARATOR
```
pSqlForNumberLoopStatement::= FOR variableName IN REVERSE? (numericConstant | variableName) DOT DOT (numericConstant | variableName) LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

referenced by:
• pSqlLoopStatement

pSqlForRecordLoopStatement:
This PSQL result set loop statement iterates over a result set returned by an Invantive SQL query. The PSQL statements are executed for each record. The record's specific values can be retrieved using the variable.

FOR variableName IN PARENTHESES_OPEN selectStatement PARENTHESES_CLOSE LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

pSqlForRecordLoopStatement::= FOR variableName IN PARENTHESES_OPEN selectStatement PARENTHESES_CLOSE LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

referenced by:
• pSqlLoopStatement

pSqlWhileLoopStatement:
This PSQL while loop statement executes PSQL statements as long as the specified boolean condition evaluates to true at loop end.

WHILE booleanExpression LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

pSqlWhileLoopStatement::= WHILE booleanExpression LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

referenced by:
• pSqlLoopStatement

variableName:
IDENTIFIER

variableName::= IDENTIFIER

referenced by:
• pSqlAssignmentStatement
• pSqlForNumberLoopStatement
• pSqlForRecordLoopStatement
• pSqlItemDeclaration
• variableList
5.2 Providers

The providers described here are available on all platforms.

5.2.1 Provider Atom10

Atom version 1.0.
Code for use in settings.xml: Atom10
Alias: atom
Status: Production
Available in Editions: Paid, Open Data, Community

5.2.2 Provider AutoTask

AutoTask service management.
Code for use in settings.xml: AutoTask
Alias: autotask
Status: Non-production
Available in Editions: Paid
Non-technical Documentation: http://severa.visma.com

5.2.3 Provider CbsNl

Centraal Bureau voor de Statistiek.
Code for use in settings.xml: CbsNl
Alias: cbsnl
Status: Production
Available in Editions: Paid, Open Data, Community

Provider Attributes

The following provider attributes are available for CbsNl:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>dow nload-error-internet dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet dow n-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.4 Provider Conversion

Conversion table functions.

Code for use in settings.xml: Conversion

Alias: conversion

Status: Production

Available in Editions: Paid

<table>
<thead>
<tr>
<th>Code</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>True</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>0</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set fromConnectionString</td>
<td>Set fromSetSQLStatement</td>
<td>Set fromProvidersFile</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>

### 5.2.5 Provider DataCache

Persistent data cache, data replication or data vault.

Code for use in settings.xml: DataCache

Alias: cache
Provider Attributes

The following provider attributes are available for DataCache:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>application-prefix-facts</td>
<td>A prefix applied after the environment prefix to every facts table, index and view.</td>
<td>dcd_</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>application-prefix-history</td>
<td>A prefix applied after the environment prefix to every history table, index and view.</td>
<td>dcs_</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>application-prefix-repository</td>
<td>A prefix applied after the environment prefix to every repository table, index and view.</td>
<td>dc_</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>backing-bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of page when bulk inserting on backing database.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-bulk-insert-page-size-rows</td>
<td>Number of rows to insert per page when bulk inserting on backing database.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-bulk-insert-timeout-sec</td>
<td>Number of seconds after which a bulk insert on backing database times out.</td>
<td>3600</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-command-timeout-sec</td>
<td>Number of seconds after which a command on backing database times out.</td>
<td>3600</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-connection-string</td>
<td>The connection string for the backing database.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>backing-force-case-sensitive-identifiers</td>
<td>Consider identifiers on the backing database as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-forced-casing-identifiers</td>
<td>Forced casing of identifiers on the backing database. Choose from Unset, Lower, Upper and Mixed.</td>
<td>Unset</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-maximum-length-identifiers</td>
<td>Non-default maximum length on the backing database in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>backing-maximum-number-of-pooled-connec</td>
<td>Maximum number of concurrent pooled connections on backing database.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>backing-maximum-sleep-acquire-pooled-connection-ms</td>
<td>Maximum time in ms to wait for acquiring a free connection from a pool of connections on backing database.</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-maximum-sleep-acquire-unpooled-connection-ms</td>
<td>Maximum time in ms to wait for acquire a free connection when there is no connection pooling on backing database.</td>
<td>600000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-minimum-connection-timeout-sec</td>
<td>Minimum number of seconds after which a newly requested connection on backing database times out.</td>
<td>300</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-preferred-number-of-pooled-connections</td>
<td>Preferred number of concurrent pooled connections on backing database.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-provider</td>
<td>Name of the Invantive connector for the backing database</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-sql-server-connect-retry-count</td>
<td>Number of connect retries on connection failed on the backing SQL Server database (SQL Server only).</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-sql-server-connect-retry-interval-sec</td>
<td>Interval between connect retries on connection failed on the backing SQL Server database (SQL Server only).</td>
<td>15</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-standardize-identifiers</td>
<td>Rewrite all identifiers on the backing database to the preferred standards as configured by standardize-identifiers-casing and max-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>backing-standardize-identifiers-casing</td>
<td>Rewrite all identifiers on the backing database to the platform-specific recommended standard casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-compress-facts-on-disk</td>
<td>Whether to compress facts in the disk cache.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-encrypt-facts-on-disk</td>
<td>Whether to encrypt facts in the disk cache.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-store-facts-in-database</td>
<td>Whether to store facts in the database containing the repository.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-store-facts-on-disk</td>
<td>Whether to store facts in the disk cache.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-use-facts-in-database</td>
<td>Whether to use facts in the database cache.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>beta-use-facts-on-disk</td>
<td>Whether to use facts in the disk cache.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
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</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
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<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>cache-folder</td>
<td>Folder to store Data Cache files in.</td>
<td>C: \Users\gle3.WS 212\Invantive\Cache\datacache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>default-skip-client-side-cacheable</td>
<td>Whether to skip client-side cacheable tables by default.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>default-use-ods</td>
<td>Whether to use the Operational Data Store when no hint is specified.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>delete-number-table-partition-versions-per-group</td>
<td>Maximum number of table partition versions selected in the IN-clause for a delete of facts.</td>
<td>50</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>development-use-http-disk-cache</td>
<td>Whether to allow use of the disk cache for platform HTTP requests.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>drop-backlog-factor</td>
<td>Maximum ratio between number of versions dropped and new versions loaded on refresh.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>environment-prefix-all</td>
<td>A prefix applied to repository, facts and history database tables, indexes and views.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment-prefix-facts</td>
<td>A prefix applied to every facts table, index and view.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment-prefix-history</td>
<td>A prefix applied to every history table, index and view.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment-prefix-logical-view</td>
<td>A prefix applied to every logical view.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment-prefix-repository</td>
<td>A prefix applied to every repository table, index and view.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>event-log-entries-delete-page-size-row-s</td>
<td>Number of rows to delete per batch on maintaining facts.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>event-log-memory-cache-flush-interval-sec</td>
<td>Maximum interval in seconds between flushes of in-memory cache of event log entries to database.</td>
<td>15</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>event-log-memory-cache-size</td>
<td>Size of in-memory cache of event log entries before they are written to the database.</td>
<td>100</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>facts-delete-page-size-characters</td>
<td>Number of characters to delete per batch on maintaining facts.</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>facts-delete-page-size-rows</td>
<td>Number of rows to delete per batch on maintaining facts.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>facts-insert-page-size-rows</td>
<td>Number of rows to insert per batch on maintaining facts.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>forced-casing-logical-view-column-name</td>
<td>Forced casing of logical view column names. Choose from Unset, Lower, Up-</td>
<td>Unset</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
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<td>Set from Log On</td>
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<td>----------------</td>
</tr>
<tr>
<td>per and Mixed.</td>
<td>Per and mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>forced-casing-logical-view-name</td>
<td>Forced casing of logical view names. Choose from Unset, Lower, Upper and Mixed.</td>
<td>Unset</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>forced-incoming-messages-delete-max-runtime-sec</td>
<td>Maximum runtime of purge forced incoming messages in seconds.</td>
<td>3600</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>forced-incoming-messages-delete-page-size-rows</td>
<td>Number of rows to delete per batch on maintaining forced incoming messages.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-physical-memory-load-threshold</td>
<td>Percentage of physical memory load above which a full garbage collection is run after replication.</td>
<td>80</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-physical-memory-load-threshold</td>
<td>Percentage of physical memory load above which a full garbage collection is run after replication.</td>
<td>80</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-page-size-rows</td>
<td>Number of rollbacks after last garbage collection after which a full garbage collection is run.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-page-size-rows</td>
<td>Number of rollbacks after last garbage collection after which a full garbage collection is run.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-page-size-rows</td>
<td>Number of rollbacks after last garbage collection after which a full garbage collection is run.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-page-size-rows</td>
<td>Number of rollbacks after last garbage collection after which a full garbage collection is run.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>garbage-collection-rollback-page-size-rows</td>
<td>Number of rollbacks after last garbage collection after which a full garbage collection is run.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>log-native-calls-to-disk</td>
<td>Registers native calls to data container backend as disk files.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>log-native-calls-to-trace</td>
<td>Logs native calls to data container backend on the trace.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-delete-facts-parallel</td>
<td>Maximum number of parallel deletes on facts tables.</td>
<td>8</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum-length-logical-view-column-name</td>
<td>Maximum length of logical view column names.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum-length-logical-view-name</td>
<td>Maximum length of logical view names.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>max-messages-per-customer-service-request</td>
<td>Maximum number of messages to download from Customer Service per request.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-refreshes-parallel</td>
<td>Maximum number of parallel refreshes.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
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<td>------------------------</td>
<td>-------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>orphaned-facts-delete-page-size-rows</td>
<td>Number of rows to delete per batch on purging orphaned facts during repository upgrade or maintenance.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit.</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>purge-interval-event-log-entries-minutes</td>
<td>Interval in minutes between completed purges of ancient event log entries.</td>
<td>60</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>retention-event-log-entries-days</td>
<td>Retention of event log entries in days.</td>
<td>35</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>update-number-table-partition-versions-per-group</td>
<td>Maximum number of table partition versions selected in the IN-clause for an update of metadata.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>upgrade-force-execute</td>
<td>Whether to force execution of possible upgrade steps, even when there are no reasons to perform an upgrade.</td>
<td>False</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>upgrade-force-repository-version-start</td>
<td>Specifies the repository version to start upgrade from when specified.</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>upgrade-force-specials</td>
<td>Execute special operations before the repository is opened.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2.6 Provider DataDictionary
Invantive SQL data dictionary.

Code for use in settings.xml: DataDictionary
Alias: dd
Abbreviation: dd
Status: Production
Available in Editions: Paid
String-comparison is Case-sensitive: true
Use Catalog in Full Name: true
Use Schema in Full Name: true
Updated: 10-09-2020 00:07 using Invantive SQL version 20.1.206-BETA+2915.

Connector Attributes

The Data Dictionary connector can be configured using the following attributes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string</td>
<td>The connection string for the backing database</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\WS 21\Invantive\Cache\http\gle3\shared</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-ignore-write-errors</td>
<td>Whether to ignore write errors to disk cache.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-correct-invalid-date</td>
<td>Whether to correct invalid dates.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
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<td>-----------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>inventivе-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-native-calls-to-disk</td>
<td>Registers native calls to data container backend as disk files.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-native-calls-to-trace</td>
<td>Log native calls to data container backend on the trace.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit.</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>provider</td>
<td>Name of the Invantive connector for the backing database</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rew rite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.7 Provider DocumentCloud

DocumentCloud.

Code for use in settings.xml: DocumentCloud

Alias: docc

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: https://www.documentcloud.org/help/api

Non-technical Documentation: https://www.documentcloud.org/home

Provider Attributes

The following provider attributes are available for DocumentCloud:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-downd-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-downd-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-downd-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-downd-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Code Settings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Generated 11-01-2019 20:08 on version 17.30.0-PROD+1821.

### 5.2.8 Provider Dropbox

Dropbox information.

Code for use in settings.xml: Dropbox
5.2.9 Provider Dummy

Fixed memory provider with fixed data set for regression testing and demos.

Code for use in settings.xml: Dummy

Alias: dummy

Status: Production

Available in Editions: Paid

Updated: 08-02-2019 16:03 using Invantive SQL version 17.31.26-BETA+1898.

Provider Attributes

The following provider attributes are available for Dummy:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Length in ms of a partition-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.10 Provider DynamicsCrm
Microsoft Dynamics CRM.
Code for use in settings.xml: DynamicsCrm
Alias: dyncrm
Status: Production
Available in Editions: Paid

5.2.11 Provider EcbExchangeRates
ECB Exchange Rates.
Code for use in settings.xml: EcbExchangeRates
Alias: ecbexref
Status: Production
Available in Editions: Paid, Open Data, Community

5.2.12 Provider Edifact
EDI FACT.
Code for use in settings.xml: Edifact
Alias: edi
Status: Production
Available in Editions: Paid
Technical Documentation: [https://www.unece.org/cefact/edifact/welcome.html](https://www.unece.org/cefact/edifact/welcome.html)
Non-technical Documentation: [http://www.unece.org/trade/untdid/texts/d421_d.htm](http://www.unece.org/trade/untdid/texts/d421_d.htm)

Provider Attributes
The following provider attributes are available for Edifact:
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>edi-extension</td>
<td>{res:itgen_provider_attribute_edi_extension_description}</td>
<td>“.*”</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>edi-input-directories</td>
<td>{res:itgen_provider_attribute_edi_input_directories_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>edi-output-directory</td>
<td>{res:itgen_provider_attribute_edi_output_directory_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Generated 11-01-2019 20:45 on version 17.30.0-PROD+1821.

5.2.13 Provider ExactOnlineAll

Exact Online (XML, REST and undocumented).

Code for use in settings.xml: ExactOnlineAll

Alias: eol

Abbreviation: eol

Status: Production

Available in Editions: Paid
String-comparison is Case-sensitive: true
Use Catalog in Full Name: true
Use Schema in Full Name: true
Partition Column: division

Updated: 02-12-2019 15:47 using Invantive SQL version 17.33.216-BETA+2512.
Technical Documentation: https://developers.exactonline.com

**Provider Attributes**

The following provider attributes are available for ExactOnlineAll:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-client-id</td>
<td>The client ID is a unique identifier of your application. It is generated by registering an application.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-client-secret</td>
<td>The client secret is to be kept confidential. Such as a password for a logon code, the client secret is the confidential part of an app identified by a client ID. It is needed during the OAuth2 Code Grant Flow together with the refresh token to get access.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-refresh-token</td>
<td>Refresh Token is a security token for the OAuth2 Code Grant Flow. With a Refresh Token and client secret you can retrieve a renewed access token to access protected resources. A Refresh Token and client secret must be stored securely since once compromised allows access to your protected resources.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-redirect-url</td>
<td>The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>totp-secret</td>
<td>Shared secret key to generate one-time password using TOTP RFC 6238. For improved security, manually enter the one-time password asked during login.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-token-url</td>
<td>The token URI is the OAuth2 endpoint to exchange tokens.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>250</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-400-bad-request-max-tries</td>
<td>Maximum number of tries when Akamai reports that the API server is unavailable</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
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<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-init-ial-ms</td>
<td>Initial sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests-max-tries</td>
<td>Maximum number of retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable-max-tries</td>
<td>Maximum number of retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when Akamai reports that the API server is unavailable during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-504-gatew ay-timeout-max-tries</td>
<td>Maximum number of retries when the website reports a gateway timeout.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-504-gatew ay-timeout-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the website reports a gateway timeout.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-504-gatew ay-timeout-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the website reports a gateway timeout.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
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<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
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<td>Set from Log On</td>
</tr>
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<td>-----------------------------------------------------------------------------</td>
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<td>----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>dow nload-error-504-gateway-down-timeout-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the website reports a gateway timeout.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-max-tries</td>
<td>Maximum number of tries when an argument exception is returned when downloading a blob.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an argument exception is returned when downloading a blob.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an argument exception is returned when downloading a blob.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when an argument exception is returned when downloading a blob.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-max-tries</td>
<td>Maximum number of tries when a network I/O connection failure occurs during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-max-tries</td>
<td>Maximum number of tries when an invalid JSON body is returned.</td>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an invalid JSON body is returned.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an invalid JSON body is returned.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when an invalid JSON body is returned.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
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<td>---------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
<td>------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>dow nload-error-other-exception-max-tries</td>
<td>Maximum number of tries when an unqualified error occurs during retrieval of data.</td>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-other-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an unqualified error occurs during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-other-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an unqualified error occurs during retrieval of data.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-other-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when an unqualified error occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-socket-exception-max-tries</td>
<td>Maximum number of tries when the network connection is forcibly dropped during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-socket-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-socket-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-socket-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-exception-max-tries</td>
<td>Maximum number of tries when a web connection failure occurs during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when a web connection failure occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-not-implemented-max-tries</td>
<td>Maximum number of tries when the connection reports not implemented.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-not-implemented-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the connection reports not implemented.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-not-implemented-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports not implemented.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-not-implemented-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the connection reports not implemented.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-web-timeout-max-tries</td>
<td>Maximum number of tries when the connection reports a timeout.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
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<td>------------------</td>
</tr>
<tr>
<td>download-error-web-timeout-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the connection reports a timeout.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-timeout-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports a timeout.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-timeout-sleep-multipli-</td>
<td>Multiplication factor for sleep between retries when the connection reports a timeout.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>cator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>download-error-web-unauthorized-max-tries</td>
<td>Maximum number of retries when the connection reports an unauthorized error.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-unauthorized-sleep-initial-</td>
<td>Initial sleep in milliseconds between retries when the connection reports an unauthorized error.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ms</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>download-error-web-unauthorized-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports an unauthorized error.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-unauthorized-sleep-multipli-</td>
<td>Multiplication factor for sleep between retries when the connection reports an unauthorized error.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>cator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>encrypt-http-disk-cache</td>
<td>Whether to encrypt the contents of the disk cache when used. Disable only when performance is a premium above data security.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>exact-development-mode</td>
<td>True if we have to connect to the Exact development instance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exact-online-url</td>
<td>URL of Exact Online web service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hide-empty-columns</td>
<td>Whether to exclude columns without a value from a result set when using 'select *' With this XML provider, often more than 95% of the columns are empty due to limitations of the XSD specification. Should be enabled in general.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache</td>
<td>Action: provide 'empty' to empty HTTP disk cache.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C: \Users\gle3\Invantive\Cache\http\gle3\shared</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
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<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache</td>
<td>Action: provide 'empty' to empty HTTP memory cache.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-document-download-errors</td>
<td>Ignore all errors when fetching the document contents from Exact Online.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-429-errors</td>
<td>Ignore HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-500-errors</td>
<td>Ignore HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-xml-errors</td>
<td>Ignore normal errors within the XML returned by the API.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-xml-fatal-errors</td>
<td>Ignore fatal errors within the XML returned by the API.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-xml-no-access-errors</td>
<td>Ignore no access errors within the XML returned by the API.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-xml-warnings</td>
<td>Ignore warnings within the XML returned by the API.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>insert-allowed</td>
<td>Allow use of the BETA functionality for inserts</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-max-tries</td>
<td>Maximum number of tries when the JSON received on GET is invalid.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the JSON received on GET is invalid.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the JSON received on GET is invalid.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the JSON received on GET is invalid.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-max-tries</td>
<td>Maximum number of tries when the JSON received on POST is invalid.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the JSON received on POST is invalid.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the JSON received on POST is invalid.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
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<td>---------------------------</td>
<td>---------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the JSON received on POST is invalid.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>limit-partition-calls-left</td>
<td>Minimum number of remaining API calls on a partition towards a hard limit. When below, an error is raised.</td>
<td>500</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>2800</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>2500</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>metadata-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for re-use of metadata.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>66000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit.</td>
<td>272</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>16</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-400-errors</td>
<td>Simulate HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-400-errors-percentage</td>
<td>Percentage of simulated HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-403-errors</td>
<td>Simulate HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-403-errors-percentage</td>
<td>Percentage of simulated HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-429-errors</td>
<td>Simulate HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>simulate-http-429-errors-percentage</td>
<td>Percentage of simulated HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
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<td>-----------------</td>
</tr>
<tr>
<td>simulate-http-500-errors</td>
<td>Simulate HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-500-errors-percentage</td>
<td>Percentage of simulated HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-protocol-errors</td>
<td>Simulate HTTP protocol errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-protocol-errors-percentage</td>
<td>Percentage of simulated HTTP protocol errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-timeout-errors</td>
<td>Simulate HTTP timeout errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-timeout-errors-percentage</td>
<td>Percentage of simulated HTTP timeout errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>update-allowed</td>
<td>Allow use of the BETA functionality for updates.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-batch-insert</td>
<td>Whether to use batch insert.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
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<td>Set from Providers File</td>
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</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>use-metadata-cache</td>
<td>Whether to use the metadata calculated previously. Has only practical use during development on a XML provider.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-result-cache</td>
<td>Whether to use result sets from previous queries that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.2.14 Provider EzBase

EZ-Base

Code for use in settings.xml: EzBase

Alias: ezbase

Status: Production

Available in Editions: Paid

**Provider Attributes**

The following provider attributes are available for EzBase:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Set from Connection String</th>
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</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2.15 Provider Facebook

Facebook.

Code for use in settings.xml: Facebook

Alias: facebook

Status: Non-production

Available in Editions: Paid

Technical Documentation: [https://developers.facebook.com/](https://developers.facebook.com/)

**Provider Attributes**

The following provider attributes are available for Facebook:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-client-id</td>
<td>The client ID is a unique identifier of your application. It is generated by registering an application.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>api-client-secret</td>
<td>The client secret is to be kept confidential. Such as a password for a logon code, the client secret is the confidential part of an app identified by a client ID. It is needed during the OAuth2 Code Grant Flow together with the refresh token to get access.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-redirect-url</td>
<td>The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-refresh-token</td>
<td>Refresh Token is a security token for the OAuth2 Code Grant Flow. With a Refresh Token and client secret you can retrieve a renewed access token to access protected resources. A Refresh Token and client secret must be stored securely since once compromised allows access to your protected resources.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:sers\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connec-tion String</td>
<td>Set from SQL-State-ment</td>
<td>Set from Pro-viders File</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-fil-ters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-re-quest</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifi-ers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-len-gth-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifi-ers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.16 Provider Freshdesk

Freshdesk, customer happiness for exceptional customer service.

Code for use in settings.xml: Freshdesk

Alias: freshdesk
Status: Production
Available in Editions: Paid

**Documentation**

**Authentication**

Authentication can be done using one of the following two alternatives:

1. Using the user log on code, password and company also used on the Freshdesk website.
2. Using an API key and company.

Authentication using user log on code and password is recommended for general use. The company is the name before '.freshdesk.com' in the URL used to log on to Freshdesk in a browser.

The API key can be found in the 'Edit Profile' page in Freshdesk, as described on https://support.freshdesk.com/support/solutions/articles/225435-where-can-i-find-my-api-key.

**Usage Limits**

Invantive SQL executes API calls to retrieve and upload data. The number of API calls allowed per hour depends on your Freshdesk plan. The default usage limits vary between 1,000 and 5,000 calls per hour. Invantive SQL ensures that within your session the number of calls allowed per hour is not exceeded.

To get an impression of how Invantive SQL translates into API calls, please query the data dictionary view 'sessionios', such as with 'select * from sessionios@datadictionary'.

**Provider Attributes**

The following provider attributes are available for Freshdesk:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connect String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>company</td>
<td>{res:itgen_freshdesk_company_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unt-set, Low-er, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\In-vantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rew rite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.17 Provider Ftp

FTP.

Code for use in settings.xml: Ftp

Alias: ftp

Abbreviation: ftp

Status: Production

Available in Editions: Paid

String-comparison is Case-sensitive: true

Use Catalog in Full Name: true

Use Schema in Full Name: true


Provider Attributes

The following provider attributes are available for Ftp:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>site</td>
<td>{res:itgen_ftp_site_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>port</td>
<td>{res:itgen_ftp_port_description}</td>
<td>21</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-ssl</td>
<td>Use SSL for the connection (FTPS).</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-passive</td>
<td>Use passive FTP(S) instead of active.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-binary</td>
<td>Use binary mode (true) or ASCII mode (false) transfers by default.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>timeout-connection-sec</td>
<td>Seconds to wait for a connection attempt to succeed before giving up.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>timeout-data-connection-sec</td>
<td>Seconds for a data connection to be established before giving up.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>timeout-data-read-sec</td>
<td>Seconds the data channel should wait for the server to send data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>timeout-read-sec</td>
<td>Seconds for data to be read from the underlying stream.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>socket-poll-interval-sec</td>
<td>Seconds between two poll intervals when enabled.</td>
<td>15</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>socket-keep-alive</td>
<td>Whether to keep the connection alive by polling.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>special-connection-type</td>
<td>Special connection types for specialized use.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>ssl-protocols</td>
<td>Comma-separated list of SSL protocols, defaults to TLS 1.1 and TLS 1.2.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.18 Provider GitLab

GitLab version control in the cloud or on-premises.
Code for use in settings.xml: GitLab
Alias: GitLab
Status: Production
Available in Editions: Paid
Technical Documentation: https://docs.gitlab.com/ee/api/
Non-technical Documentation: https://gitlab-apps.com

5.2.19 Provider IbmDb2Udb

IBM DB2/UDB.
Code for use in settings.xml: IbmDb2Udb
Alias: db2
Status: Production
Available in Editions: Paid
Additional Driver to install: https://support.invantive.com/download-driver-ibm-db2

5.2.20 Provider InMemoryStorage

Session-specific temporary storage of result sets.
Code for use in settings.xml: InMemoryStorage
Alias: inmem
Status: Production
Available in Editions: Paid
<table>
<thead>
<tr>
<th>Code</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>invantive-sql-forward-filters-to-data-containers</code></td>
<td>True</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>invantive-sql-shuffle-fetch-results-data-containers</code></td>
<td>False</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>True</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>32</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
</tr>
<tr>
<td>------</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2.21 Provider Invantive.Producer

Invantive Producer repository.

Code for use in settings.xml: Invantive.Producer

Alias: producer

Status: Production

Available in Editions: Paid

<table>
<thead>
<tr>
<th>Code</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>models</td>
<td>XML specification of folders with models</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Code templates</td>
<td>XML specification of folders with templates per provider</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
### Provider Attributes

The following provider attributes are available for JIRA:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>download-error-internet-down-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>server</td>
<td>{res:itgen_provider_attribute_jira_server_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewire all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewire all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.23 Provider Kadaster

Kadaster.

Code for use in settings.xml: Kadaster

Alias: kadaster

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [https://app.swaggerhub.com/api/pdok/brk](https://app.swaggerhub.com/api/pdok/brk)

### Provider Attributes

The following provider attributes are available for Kadaster:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rew rite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### 5.2.24 Provider KeePass

Security-sensitive storage of keys.

**Code** for use in settings.xml: KeePass

**Alias:** KeePass

**Abbreviation:** kp

**Status:** Non-production

**Available in Editions:** Paid

**String-comparison is Case-sensitive:** true

**Use Catalog in Full Name:** true

**Use Schema in Full Name:** true

**Updated:** 10-09-2020 00:09 using Invantive SQL version 20.1.206-BETA+2915.

### Connector Attributes

The KeePass connector can be configured using the following attributes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

---

**Generated 11-01-2019 22:02 on version 17.30.0-PROD+1821.**
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-correct-invalid-date</td>
<td>Whether to correct invalid dates.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-native-calls-to-disk</td>
<td>Registers native calls to data container backend as disk files.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-native-calls-to-trace</td>
<td>Log native calls to data container backend on the trace.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.25 Provider LastResort

Provider always available as a last resort for translations.

Code for use in settings.xml: LastResort

Alias: last
Status: Production
Available in Editions: Paid

<table>
<thead>
<tr>
<th>Code</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>True</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
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<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to use cache when results of a query.</td>
<td>True</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request-delay (ms)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>32</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
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<td>----------------------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Descriptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>translations</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.2.26 Provider LinkedIn

LinkedIn.

Code for use in settings.xml: LinkedIn
Alias: linkedin
Status: Production
Available in Editions: Paid
Technical Documentation: https://developer.linkedin.com/

5.2.27 Provider LoketNl
Loket.nl information.
Code for use in settings.xml: LoketNl
Alias: LoketNl
Status: Production
Available in Editions: Paid
Technical Documentation: https://helpdesk.loket.nl/hc/nl/articles/206244508

**Provider Attributes**
The following provider attributes are available for LoketNl:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>environment-code</td>
<td>Environment code. The environment code signals the unique database to use. The code is a small integer. Please append '@test' to use a test environment located at the test data centre.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-</td>
<td>Length in ms of a partition-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>limit-length-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>limit-slots</td>
<td>rate limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>data container.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rite all identifiers to the recommended standards as configured by</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>standardize-identifiers-casing and maximum-length-identifiers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>the current query.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory to</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>answer the current query</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses in memory</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-metadata-cache</td>
<td>Whether to use the metadata calculated previously. Has only practical use</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>during development on a XML provider.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use-result-cache</td>
<td>Whether to use result sets from previous queries that can answer the</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>current query</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use-test-environment</td>
<td>OBSOLETED. USE @test INSTEAD.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Generated 04-02-2019 9:03: on version 17.31.23-BETA+1887.
5.2.28 Provider Magento

 Magento web shop.
 Code for use in settings.xml: Magento
 Alias: magento
 Status: Non-production
 Available in Editions: Paid
 Technical Documentation: http://devdocs.magento.com/guides/v2.0/rest/bk-rest.html

5.2.29 Provider Mail

 SMTP mail.
 Code for use in settings.xml: Mail
 Alias: mail
 Abbreviation: ml
 Status: Production
 Available in Editions: Paid
 String-comparison is Case-sensitive: true
 Use Catalog in Full Name: true
 Use Schema in Full Name: true
 Updated: 10-09-2020 00:08 using Invantive SQL version 20.1.206-BETA+2915.

Connector Attributes

The Mail connector can be configured using the following attributes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-correct-invalid-date</td>
<td>Whether to correct invalid dates</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>log-native-calls-to-disk</td>
<td>Registers native calls to data container backend as disk files.</td>
<td>False</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>log-native-calls-to-trace</td>
<td>Log native calls to data container backend on the trace.</td>
<td>False</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-body-html</td>
<td>Set whether the mail body is HTML.</td>
<td>False</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-from-email</td>
<td>The default FROM email address.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-from-name</td>
<td>The default FROM name.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-priority</td>
<td>Priority of the mail; negative is bulk, 0 is neutral, positive is urgent.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-reply-to-email</td>
<td>The default REPLY TO email address.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>mail-reply-to-name</td>
<td>The default REPLY TO name.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>smtp-enable-ssl</td>
<td>Set whether SSL is enabled for SMTP connections.</td>
<td>False</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>smtp-host-address</td>
<td>The default SMTP host address to use.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>smtp-host-port-number</td>
<td>The default SMTP host post number to use.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>smtp-minimum-deliver-duration-ms</td>
<td>Minimum deliver duration in milliseconds for the SMTP send plus inserted sleep when SMTP send finished earlier than the minimum.</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>smtp-password</td>
<td>The default SMTP password to authenticate with.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>smtp-send-timeout-ms</td>
<td>Timeout in milliseconds after which the SMTP send times out.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>smtp-user-name</td>
<td>The default SMTP user name to authenticate with.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.2.30 Provider Mendix
Mendix version control in the cloud or on-premises.

Code for use in settings.xml: Mendix

Alias: Mendix

Status: Non-production

Available in Editions: Paid

Technical Documentation: [https://docs.mendix.com/ee/api/](https://docs.mendix.com/ee/api/)

Non-technical Documentation: [https://mendix-apps.com](https://mendix-apps.com)

### 5.2.31 Provider MicrosoftGraph
Microsoft Graph (as used by Office 365).

Code for use in settings.xml: MicrosoftGraph

Alias: graph

Status: Production

Available in Editions: Paid

Technical Documentation: [https://graph.microsoft.io/en-us/](https://graph.microsoft.io/en-us/)

### 5.2.32 Provider MySql
Oracle MySQL.

Code for use in settings.xml: MySql

Alias: mysql

Status: Production

Available in Editions: Paid
Additional Driver to install: [https://support.invantive.com/download-driver-mysql](https://support.invantive.com/download-driver-mysql)

**Provider Attributes**

The following provider attributes are available for MySQL:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>command-timeout-sec</td>
<td>Number of seconds after which a command times out.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-number-of-pooled-connections</td>
<td>Maximum number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-pooled-connection-ms</td>
<td>Maximum time in ms to wait for acquiring a free connection from a pool of connections.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-unpooled-connection-ms</td>
<td>Maximum time in ms to wait for acquire a free connection when there is no connection pooling.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>preferred-number-of-pooled-connections</td>
<td>Preferred number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-in-list</td>
<td>Prefix for bind variables used in an IN-list</td>
<td>i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-normal</td>
<td>Prefix for bind variables used in all cases except in an IN-list</td>
<td>w</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-renamed-columns</td>
<td>Prefix appended to columns whose names occur multiple times in the column list of a query</td>
<td>column</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.33 Provider Nasa

NASA space information.

Code for use in settings.xml: Nasa

Alias: nasa

Status: Production

Available in Editions: Paid, Open Data, Community


Non-technical Documentation: [https://api.nasa.gov/api.html#NeoWS](https://api.nasa.gov/api.html#NeoWS)

**Provider Attributes**

The following provider attributes are available for Nasa:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.34 Provider NmbrsNL

Payrolling and HR management.

Code for use in settings.xml: NmbrsNL

Alias: nmbrs

Abbreviation: nms

Status: Production

Available in Editions: Paid

String-comparison is Case-sensitive: true

Use Catalog in Full Name: true

Use Schema in Full Name: true

Partition Column: COMPANY_CODE

Updated: 14-05-2020 17:13 using Invantive SQL version 20.1.36-BETA+2798.

Technical Documentation: https://api.nmbrs.nl

Provider Attributes

The following provider attributes are available for NmbrsNL:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>minimum-length-text</td>
<td>Extend all text columns to this length to allow processing of XML that uses longer text values than the XSD specifies.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL of Nmbrs web service</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-ignore-write-errors</td>
<td>Whether to ignore write errors to disk cache.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>result-set-memory-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses in memory.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-metadata-memory-cache</td>
<td>Whether to use the metadata in memory calculated previously Has only practical use during development on a XML provider.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>use-result-memory-cache</td>
<td>Whether to use result sets cached in memory from previous queries that can answer the current query</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

5.2.35 Provider OAuth UI provider

OAuth provider for Windows user-interface integrated OAuth authentication with a pop-up browser.

Code for use in settings.xml: OAuth UI provider
Alias: oauth
Status: Production
Available in Editions: Paid
<table>
<thead>
<tr>
<th>Code</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>True</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>False</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>True</td>
<td></td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>0</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
</tbody>
</table>

*Note: The table content is not fully visible in the image.*

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### 5.2.36 Provider Odbc

ODBC.

Code for use in settings.xml: Odbc

Alias: odbc

Status: Production

Available in Editions: Paid

### 5.2.37 Provider OpenArch: OPENARCH (NL) information.

OPENARCH (NL) information.

Code for use in settings.xml: OpenArch

Alias: openarch

Status: Non-production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [https://www.openarch.nl/api/docs/](https://www.openarch.nl/api/docs/)

## Provider Attributes

The following provider attributes are available for OpenArch:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow-n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:Users\gile3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Code Description

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


### 5.2.38 Provider OpenExchangeRates: Open Exchange Rates.

Open Exchange Rates.

Code for use in settings.xml: OpenExchangeRates

Alias: openexra

Status: Production

Available in Editions: Paid

Technical Documentation: [https://docs.openexchangerates.org/](https://docs.openexchangerates.org/)

Non-technical Documentation: [https://docs.openexchangerates.org/docs](https://docs.openexchangerates.org/docs)

### Provider Attributes

The following provider attributes are available for OpenExchangeRates:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gie3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
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<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.39 Provider OpenSpendingNL: Openspending.nl.

Openspending.nl.

Code for use in settings.xml: OpenSpendingNL

Alias: osnl

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [http://openspending.nl/api/v1/doc](http://openspending.nl/api/v1/doc)

Non-technical Documentation: [http://openspending.nl/pagina/data](http://openspending.nl/pagina/data)

### Provider Attributes

The following provider attributes are available for OpenSpendingNL:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>download-error-internet-down-n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-n-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rew rite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.40 Provider Oracle: Oracle C driver-based provider.

Oracle C driver-based provider.

Code for use in settings.xml: Oracle

Alias: oracle

Status: Production

Available in Editions: Paid

5.2.41 Provider OracleManaged: Oracle .NET driver-based.

Oracle .NET driver-based provider.

Code for use in settings.xml: OracleManaged

Alias: oracle

Status: Production

Available in Editions: Paid

Additional Driver to install: https://support.invantive.com/download-driver-oracle

Provider Attributes

The following provider attributes are available for OracleManaged:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>command-timeout-sec</td>
<td>Number of seconds after which a command times out.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-self-tuning-add</td>
<td>Should the 'Self Tuning' be added automatically to the connection string?</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-self-tuning-value</td>
<td>Value of self tuning to be added to the connection string</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-statement-cache-size-add</td>
<td>Should the 'Statement Cache Size' be added automatically to the connection string?</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-statement-cache-size-value</td>
<td>Size of the statement cache size to be added to the connection string</td>
<td>250</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers, Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-number-of-pooled-connections</td>
<td>Maximum number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-pooled-connection-ms</td>
<td>Maximum time in ms to wait for acquiring a free connection from a pool of connections.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-unpooled-connection-ms</td>
<td>Maximum time in ms to wait for acquire a free connection when there is no connection pooling.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>preferred-number-of-pooled-connections</td>
<td>Preferred number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-in-list</td>
<td>Prefix for bind variables used in an IN-list</td>
<td>i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-normal</td>
<td>Prefix for bind variables used in all cases except in an IN-list</td>
<td>w</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-renamed-columns</td>
<td>Prefix appended to columns whose names occur multiple times in the column list of a query</td>
<td>column</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>return-null-on-ora-22288</td>
<td>Return a null value instead of an exception when Oracle returns ORA-22288 when querying a bfile column</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrte all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrte all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.42 Provider Os: Windows operating system objects.

Windows operating system objects.

Code for use in settings.xml: Os

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Alias: os
Status: Production
Available in Editions: Paid

**Provider Attributes**

The following provider attributes are available for Os:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.43 **Provider PayPal: PayPal.**

PayPal.

Code for use in settings.xml: PayPal

Alias: paypal

Status: Production
5.2.44 Provider PostgreSQL: PostgreSQL.

Code for use in settings.xml: PostgreSql

Alias: pg

Status: Production

Available in Editions: Paid

Additional Driver to install: https://support.invantive.com/download-driver-postgresql

**Provider Attributes**

The following provider attributes are available for PostgreSql:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per page when bulk inserting</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>command-timeout-sec</td>
<td>Number of seconds after which a command times out.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>database</td>
<td>Database to open when connecting.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-number-of-pooled-connections</td>
<td>Maximum number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-pooled-connection-ms</td>
<td>Maximum time in ms to wait for acquiring a free connection from a pool of connections.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-unpooled-connection-ms</td>
<td>Maximum time in ms to wait for acquire a free connection when there is no connection pooling.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>npgsql-log</td>
<td>Whether to log messages of the npgsql provider</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>preferred-number-of-pooled-connections</td>
<td>Preferred number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-in-list</td>
<td>Prefix for bind variables used in an IN-list</td>
<td>i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>prefix-bind-variable-normal</td>
<td>Prefix for bind variables used in all cases except in an IN-list</td>
<td>w</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-renamed-columns</td>
<td>Prefix appended to columns whose names occur multiple times in the column list of a query</td>
<td>column</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.45 Provider RdwNl: RDW (NL) information.

RDW (NL) information.

Code for use in settings.xml: RdwNl

Alias: rdwnl

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [https://www.rdw.nl/opendata/Paginas/default.aspx](https://www.rdw.nl/opendata/Paginas/default.aspx)

**Provider Attributes**

The following provider attributes are available for RdwNl:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓ ✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.46 Provider Rss20: RSS version 2.0.

RSS version 2.0.

Code for use in settings.xml: Rss20

Alias: rss

Status: Production

Available in Editions: Paid, Open Data, Community


**Provider Attributes**

The following provider attributes are available for Rss20:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Low er, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>tainers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rew rit e all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rew rit e all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-metadata-cache</td>
<td>Whether to use the metadata calculated previously Has only practical use during development on a XML provider.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-result-cache</td>
<td>Whether to use result sets from previous queries that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-directories</td>
<td><code>{res:itgen_provider_attribute_xml_directories_description}</code></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xml-extension</td>
<td><code>{res:itgen_provider_attribute_xml_extension_description}</code></td>
<td>*rss</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-namespaces</td>
<td>Comma-separated list of namespace prefixes and their URI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


5.2.47 Provider Salesforce: Salesforce CRM and other applications.

Salesforce CRM and other applications.

Code for use in settings.xml: Salesforce

Alias: sf

Status: Production

Available in Editions: Paid

Technical Documentation: https://developer.salesforce.com
### Non-technical Documentation: [https://salesforce.com](https://salesforce.com)

### Provider Attributes

The following provider attributes are available for Salesforce:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-client-id</td>
<td>The client ID is a unique identifier of your application. It is generated by registering an application.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-client-secret</td>
<td>The client secret is to be kept confidential. Such as a password for a logon code, the client secret is the confidential part of an app identified by a client ID. It is needed during the OAuth2 Code Grant Flow together with the refresh token to get access.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-redirect-url</td>
<td>The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-refresh-token</td>
<td>Refresh Token is a security token for the OAuth2 Code Grant Flow. With a Refresh Token and client secret you can retrieve a renewed access token to access protected resources. A Refresh Token and client secret must be stored securely since once compromised allows access to your protected resources.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-download-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-down-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms.).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-429-errors</td>
<td>Ignore HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventiv.sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventiv.sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventiv.use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-ms</td>
<td>Length in ms of a partition-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots of a partition-based rate limit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit across all slots.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>


**5.2.48 Provider Sftp: Secure FTP.**

Secure FTP.

Code for use in settings.xml: Sftp

Alias: sftp

Status: Production

Available in Editions: Paid

**5.2.49 Provider SilverEssence: SilverEssence.**

SilverEssence.

Code for use in settings.xml: SilverEssence

Alias: silver

Status: Non-production

Available in Editions: Paid

**5.2.50 Provider Slack: Slack**

Slack

Code for use in settings.xml: Slack

Alias: Slack

Status: Non-production

Available in Editions: Paid

Technical Documentation: [https://api.slack.com](https://api.slack.com)

**5.2.51 Provider Snelstart: Snelstart (NL) information.**

Snelstart (NL) information.

Code for use in settings.xml: Snelstart

Alias: Snelstart

Status: Non-production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [https://www.snelstart.nl/api/docs/](https://www.snelstart.nl/api/docs/)
## 5.2.5 Provider SqlServer: Microsoft SQL Server

Microsoft SQL Server.

Code for use in settings.xml: SqlServer

Alias: mssql

Status: Production

Available in Editions: Paid

### Provider Attributes

The following provider attributes are available for SqlServer:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per page when bulk inserting</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-timeout-sec</td>
<td>Number of seconds after which a bulk insert times out</td>
<td>300</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>command-timeout-sec</td>
<td>Number of seconds after which a command times out.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>connection-string-async-add</td>
<td>Should the 'Async' be added automatically to the connection string?</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-async-value</td>
<td>Size of the Async to be added to the connection string</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-multiple-active-result-sets-add</td>
<td>Should the 'MultipleActiveResultSets' be added automatically to the connection string?</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>connection-string-multiple-active-result-sets-value</td>
<td>Value of MultipleActiveResultSets to be added to the connection string</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forw ard filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum-number-of-pooled-connections</td>
<td>Maximum number of concurrent pooled connections.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum-sleep-acquire-pooled-connection-ms</td>
<td>Maximum time in ms to wait for acquiring a free connection from a pool of connections.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-sleep-acquire-unpooled-connection-ms</td>
<td>Maximum time in ms to wait for acquire a free connection when there is no connection pooling.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>preferred-number-of-pooled-connections</td>
<td>Preferred number of concurrent pooled connections.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-in-list</td>
<td>Prefix for bind variables used in an IN-list</td>
<td>i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-bind-variable-normal</td>
<td>Prefix for bind variables used in all cases except in an IN-list</td>
<td>w</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>prefix-renamed-columns</td>
<td>Prefix appended to columns whose names occur multiple times in the column list of a query</td>
<td>column</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.53 Provider StackExchange: StackExchange.

StackExchange.

Code for use in settings.xml: StackExchange

Alias: StackExchange

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: [https://api.stackexchange.com](https://api.stackexchange.com)

Non-technical Documentation: [https://stackexchange-apps.com](https://stackexchange-apps.com)

**Provider Attributes**

The following provider attributes are available for StackExchange:
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-client-id</td>
<td>The client ID is a unique identifier of your application. It is generated by registering an application.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-client-secret</td>
<td>The client secret is to be kept confidential. Such as a password for a logon code, the client secret is the confidential part of an app identified by a client ID. It is needed during the OAuth2 Code Grant Flow together with the refresh token to get access.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-redirect-url</td>
<td>The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-refresh-token</td>
<td>Refresh Token is a security token for the OAuth2 Code Grant Flow. With a Refresh Token and client secret you can retrieve a renewed access token to access protected resources. A Refresh Token and client secret must be stored securely since once compromised allows access to your protected resources.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>authentication-key</td>
<td>The authentication key of the app on StackApps.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-internet-dow n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.54 Provider SwiftMt940Rabo: Swift MT940 Rabobank.

Swift MT940 Rabobank.

Code for use in settings.xml: SwiftMt940Rabo

Alias: mt940rabo

Status: Non-production

Available in Editions: Paid


## Provider Attributes

The following provider attributes are available for SwiftMt940Rabo:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>directories</td>
<td>{res:itgen_provider_attribute_directories_description}</td>
<td>c:\temp</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>extension</td>
<td>{res:itgen_provider_attribute_extension_description}</td>
<td>*.swi</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>inventive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-directory</td>
<td>Directory where the text messages are stored</td>
<td>c:\temp</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-text</td>
<td>Whether to log the text messages exchanged to disk</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.55 Provider Teamleader: Teamleader CRM.

Teamleader is a cloud solution for customer management. Teamleader includes CRM as well as project and tickets. Teamleader can be extended by defining custom fields on several core concepts.

Code for use in settings.xml: Teamleader

Alias: teamleader

Abbreviation: tlr

Status: Production

Available in Editions: Paid

String-comparison is Case-sensitive: true

Use Catalog in Full Name: true

Use Schema in Full Name: true

Updated: 10-09-2020 00:09 using Invantive SQL version 20.1.206-BETA+2915.


**Documentation**

**Authentication**

Authentication can be done using one of the following two alternatives:

1. Using the user log on code and password also used on the Teamleader website.
2. Using an API group and API secret.

Authentication using user log on code and password is recommended for general use. The user must have access to all functionality since by default all so-called 'scopes' are requested. The scopes can be manually entered to be able to log in with a restricted accounts. Please provide a space-separated list chosen from companies, contacts, deals, departments, events, invoices, products, projects, quotations, subscriptions, tickets, todos, users.

The API group and secret can be found on [https://app.teamleader.eu/apiwebhooks.php?show_key](https://app.teamleader.eu/apiwebhooks.php?show_key).

**Usage Limits**
Invantive SQL executes API calls to retrieve and upload data. The number of API calls allowed per 5 seconds is 25. Invantive SQL ensures that within your session the number of calls allowed per hour is not exceeded.

To get an impression of how Invantive SQL translates into API calls, please query the data dictionary view 'sessionios', such as with 'select * from sessionios@datadictionary'.

Custom Fields

Custom fields for which one value can be entered on an object are added to the table representing the object. For instance, a custom field 'needsaudit' on 'project', will be added as a column 'c_needsaudit' on the 'project' table. The name of the additional column directly derives from the custom field name. Almost all changes, including adding numbers or reading characters, will result in the data model being changed.

Custom fields which can have no, one or multiple values ('set' custom fields) are reflected in the data model by tables with a name constructed of the object name, an underscore plus the name of the custom field. For example, a custom field named 'Multiple Selection' on 'Task' will add a table 'task_multipleselection' to the data model.

Custom fields are unique to each Teamleader environment. When the existence of specific custom field is not guaranteed, please use generic solutions like the tables 'CustomFieldDefinitions', 'custom_fields', 'custom_field_options', 'custom_field', 'Custom_Field-All', 'Custom_Field_Types' and their object-specific custom field value tables like 'ticket_custom_field_values_by_id'.

Connector Attributes

The Teamleader connector can be configured using the following attributes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-custom-field-to-string</td>
<td>Whether to force custom field values shown in columns to be represented as string instead of the registered type.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>scopes</td>
<td>Space-separated and case-sensitive list of scope for OAuth only. Leave empty for all.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-client-id</td>
<td>The client ID is a unique identifier of your application. It is generated by registering an application.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-client-secret</td>
<td>The client secret is to be kept confidential. Such as a password for a logon code, the client secret is the confidential part of an app identified by a client ID. It is needed during the OAuth2 Code Grant Flow together with the refresh token to get access.</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-refresh-token</td>
<td>Refresh Token is a security token for the OAuth2 Code Grant Flow. With a Refresh Token and client secret you can retrieve a renewed access token to access protected resources. A Refresh Token and</td>
<td>***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>api-redirect-url</td>
<td>The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>api-group-authentication</td>
<td>Use API group authentication when true. OAuth otherwise.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>api-scope</td>
<td>The scope to request an OAuth token for.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>api-token-url</td>
<td>The token URI is the OAuth2 endpoint to exchange tokens.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>api-url</td>
<td>URL to access the API.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>bulk-delete-page-size-rows</td>
<td>Number of rows to delete per batch when bulk deleting</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-bytes</td>
<td>Approximate maximum size in bytes of batch when bulk inserting</td>
<td>10000000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>bulk-insert-page-size-rows</td>
<td>Number of rows to insert per batch when bulk inserting</td>
<td>250</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-max-tries</td>
<td>Maximum number of tries when OData server reports bad format during retrieval of data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-400-bad-request-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries OData server reports that the API server is unavailable during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-422-bad-request-max-tries</td>
<td>Maximum number of tries when OData server reports unprocessable entity during retrieval of data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-422-bad-request-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when OData server reports unprocessable entity during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-422-bad-request-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when OData server reports unprocessable entity during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-422-bad-request-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries OData server reports unprocessable entity during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests</td>
<td>Maximum number of tries when the website reports that too many requests have 10</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>max-tries</td>
<td>been made during a timeslot of one minute or one day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests</td>
<td>Initial sleep in milliseconds between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-initial-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests</td>
<td>Maximum sleep in milliseconds between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-max-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-429-too-many-requests</td>
<td>Multiplication factor for sleep between retries when the website reports that too many requests have been made during a timeslot of one minute or one day.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-multiclor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-502-server-unavailable</td>
<td>Maximum number of tries when OData server reports a bad gateway during retrieval of data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-tries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-502-server-unavailable</td>
<td>Initial sleep in milliseconds between retries when OData server reports a bad gateway during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-initial-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-502-server-unavailable</td>
<td>Maximum sleep in milliseconds between retries when OData server reports that a bad gateway during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-max-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>dow nload-error-502-server-unavailable</td>
<td>Multiplication factor for sleep between retries OData server reports a bad gateway during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-multiclor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable</td>
<td>Maximum number of times when OData server reports that the API server is unavailable during retrieval of data.</td>
<td>30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-tries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable</td>
<td>Initial sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-initial-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-503-server-unavailable</td>
<td>Maximum sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-max-ms</td>
<td></td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>sleep-multiclor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-504-gateway-timeout</td>
<td>Maximum number of tries when the website reports a gateway timeout.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-tries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dow nload-error-504-gateway-timeout</td>
<td>Maximum sleep in milliseconds between retries when the website reports a gateway timeout.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>sleep-max-ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Connectors File</th>
<th>Set from Log On</th>
</tr>
</thead>
<tbody>
<tr>
<td>dow nload-error-504-gateway-timeout-multiplicator</td>
<td>Multiplication factor for sleep between retries when the website reports a gateway timeout.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-max-tries</td>
<td>Maximum number of tries when an argument exception is returned when downloading a blob.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an argument exception is returned when downloading a blob.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an argument exception is returned when downloading a blob.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-argument-exception-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when an argument exception is returned when downloading a blob.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internal-dow n-max-tries</td>
<td>Maximum number of tries when the Internet connection seems down during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internal-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internal-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internal-dow n-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-max-tries</td>
<td>Maximum number of tries when a network I/O connection failure occurs during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-io-exception-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when a network I/O connection failure occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-max-tries</td>
<td>Maximum number of tries when an invalid JSON body is returned.</td>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an invalid JSON body is returned.</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an invalid JSON body is returned.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-json-exception-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when an invalid JSON body is returned.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
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<td>---------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
<td>--------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>download-error-other-exception-max-tries</td>
<td>Maximum number of tries when an unqualified error occurs during retrieval of data.</td>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-other-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when an unqualified error occurs during retrieval of data.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-other-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when an unqualified error occurs during retrieval of data.</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-other-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when an unqualified error occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-socket-exception-max-tries</td>
<td>Maximum number of tries when the network connection is forcibly dropped during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-socket-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-socket-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-socket-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the network connection is forcibly dropped during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-exception-max-tries</td>
<td>Maximum number of retries when a web connection failure occurs during retrieval of data.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-exception-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-exception-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-exception-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when a web connection failure occurs during retrieval of data.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-not-implemented-max-tries</td>
<td>Maximum number of retries when the connection reports not implemented.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-not-implemented-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the connection reports not implemented.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-not-implemented-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports not implemented.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-not-implemented-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the connection reports not implemented.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>download-error-web-timeout-max-tries</td>
<td>Maximum number of retries when the connection reports a timeout.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from</td>
<td>Set from</td>
<td>Set from</td>
<td>Set from</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Connection String</td>
<td>SQL-Statement</td>
<td>Connectors File</td>
<td>Log On</td>
</tr>
<tr>
<td>dow nload-error-w eb-timeout-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the connection reports a timeout.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-timeout-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports a timeout.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-timeout-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the connection reports a timeout.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-unauthorized-max-tries</td>
<td>Maximum number of tries when the connection reports an unauthorized error.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-unauthorized-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the connection reports an unauthorized error.</td>
<td>5000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-unauthorized-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the connection reports an unauthorized error.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>dow nload-error-w eb-unauthorized-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the connection reports an unauthorized error.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3.WS\212\Invantive\Cache\http\gle3\shared</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-ignore-write-errors</td>
<td>Whether to ignore write errors to disk cache.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OD ata endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ignore-http-401-errors</td>
<td>Ignore HTTP 401 errors when exchanging results with the OD ata endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
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<td>----------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-404-errors</td>
<td>Ignore HTTP 404 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-422-errors</td>
<td>Ignore HTTP 422 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-429-errors</td>
<td>Ignore HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-500-errors</td>
<td>Ignore HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-502-errors</td>
<td>Ignore HTTP 502 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-max-tries</td>
<td>Maximum number of tries when the JSON received on GET is invalid.</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the JSON received on GET is invalid.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the JSON received on GET is invalid.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-get-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the JSON received on GET is invalid.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-max-tries</td>
<td>Maximum number of tries when the JSON received on POST is invalid.</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the JSON received on POST is invalid.</td>
<td>10000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the JSON received on POST is invalid.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invalid-json-on-post-sleep-multiplicator</td>
<td>Multiplication factor for sleep between retries when the JSON received on POST is invalid.</td>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-correct-invalid-date</td>
<td>Whether to correct invalid dates.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>limit-partition-calls-left</td>
<td>Minimum number of remaining API calls on a partition towards a hard limit. When below, an error is raised.</td>
<td>500</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from SQL Statement</td>
<td>Set from Connectors File</td>
<td>Set from Log On</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
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<td>------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>log-native-calls-to-disk</td>
<td>Registers native calls to data container backend as disk files.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>log-native-calls-to-trace</td>
<td>Log native calls to data container backend on the trace.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max-odata-filters</td>
<td>The maximum number of OData filter elements.</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-accepted</td>
<td>The maximum accepted URL length before raising an error.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>max-url-length-desired</td>
<td>The maximum desired URL length.</td>
<td>8000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>metadata-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for re-use of metadata.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a partition-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>partition-slot-based-rate-limit-slots</td>
<td>Number of slots per partition-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requested-page-size</td>
<td>Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-400-errors</td>
<td>Simulate HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-400-errors-percentage</td>
<td>Percentage of simulated HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-401-errors</td>
<td>Simulate HTTP 401 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-401-errors-percentage</td>
<td>Percentage of simulated HTTP 401 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-403-errors</td>
<td>Simulate HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-403-errors-percentage</td>
<td>Percentage of simulated HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-429-errors</td>
<td>Simulate HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-429-errors-percentage</td>
<td>Percentage of simulated HTTP 429 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-500-errors</td>
<td>Simulate HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
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<td>----------------------------</td>
<td>----------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>simulate-http-500-errors-percentage</td>
<td>Percentage of simulated HTTP 500 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-502-errors</td>
<td>Simulate HTTP 502 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-502-errors-percentage</td>
<td>Percentage of simulated HTTP 502 errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-protocol-errors</td>
<td>Simulate HTTP protocol errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-protocol-errors-percentage</td>
<td>Percentage of simulated HTTP protocol errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-timeout-errors</td>
<td>Simulate HTTP timeout errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>simulate-http-timeout-errors-percentage</td>
<td>Percentage of simulated HTTP timeout errors when exchanging results with the OData endpoint.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Total length in ms across all slots of a slot-based rate limit.</td>
<td>6000</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit.</td>
<td>21</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-batch-insert</td>
<td>Whether to use batch insert.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.56 Provider TeamViewer: TeamViewer online assistance.

TeamViewer online assistance.

Code for use in settings.xml: TeamViewer
Alias: teamviewer
Status: Production
Available in Editions: Paid

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms)</td>
<td>30000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.2.57 Provider Teradata: Teradata data warehousing.
Teradata data warehousing.
Code for use in settings.xml: Teradata
Alias: teradata
Status: Production
Available in Editions: Paid
Additional Driver to install: [https://support.invantive.com/download-driver-teradata](https://support.invantive.com/download-driver-teradata)

5.2.58 Provider Ubl20: UBL version 2.0.
UBL version 2.0.
Code for use in settings.xml: Ubl20
Alias: ubl20
Status: Non-production
Available in Editions: Paid
5.2.59 Provider Ubl21: UBL version 2.1.
UBL version 2.1.
Code for use in settings.xml: Ubl21
Alias: ubl21
Status: Non-production
Available in Editions: Paid
Technical Documentation: http://docs.oasis-open.org/ubl/cs1-UBL-2.1/xsd/

5.2.60 Provider Vies: AutoTask service management.
AutoTask service management.
Code for use in settings.xml: Vies
Alias: vies
Status: Non-production
Available in Editions: Paid
Non-technical Documentation: http://severa.visma.com

5.2.61 Provider VirusTotal: VirusTotal.
VirusTotal.
Code for use in settings.xml: VirusTotal
Alias: virustotal
Status: Non-production
Available in Editions: Paid

5.2.62 Provider VismaSevera: Visma Severa project management.
Visma Severa project management.
Code for use in settings.xml: VismaSevera
Alias: severa
Status: Production
Available in Editions: Paid
Non-technical Documentation: http://severa.visma.com

Provider Attributes
The following provider attributes are available for VismaSevera:
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>api-url</td>
<td>URL of Visma Severa web service</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms)</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Code Description Default Value Set from Set from Set from
-- -- -- --
| Code | Description | | | |
| use-http-disk-cache-write | Whether to memorize HTTP responses on disk. | True | ✓ | ✓ | ✓ |
| use-http-memory-cache-read | Whether to use HTTP responses from previous queries stored in memory to answer the current query | True | ✓ | ✓ | ✓ |
| use-http-memory-cache-write | Whether to memorize HTTP responses in memory | True | ✓ | ✓ | ✓ |
| use-metadata-cache | Whether to use the metadata calculated previously Has only practical use during development on a XML provider. | True | ✓ | ✓ | ✓ |
| use-result-cache | Whether to use result sets from previous queries that can answer the current query | True | ✓ | ✓ | ✓ |

---

5.2.63 Provider WebService: Invantive Web Service HTTPS data protocol.

Invantive Web Service HTTPS data protocol.
Code for use in settings.xml: WebService
Alias: ws
Status: Production
Available in Editions: Paid


Wikipedia information.
Status: Non-production
Available in Editions: Paid, Open Data, Community

**Provider Attributes**

The following provider attributes are available for Wikipedia:

<p>| Code | Description | Default Value | Set from Set from Set from |
| -- | -- | -- | -- | -- |
| api-url | URL to access the API. | | ✓ | ✓ |
| download-error-internet-down-max-tries | Maximum number of tries when the Internet connection seems down during retrieval of data. | | ✓ | ✓ | ✓ |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>dow nload-error-internet-dow n-sleep-initial-ms</td>
<td>Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-max-ms</td>
<td>Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>dow nload-error-internet-dow n-sleep-multiplier</td>
<td>Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Low er, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-compression-level</td>
<td>Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-directory</td>
<td>Directory where HTTP cache is stored.</td>
<td>C:\Users\gle3\Invantive\Cache</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-disk-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP disk cache.</td>
<td>2592000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-get-timeout-ms</td>
<td>HTTP GET timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-compression-level</td>
<td>Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-memory-cache-max-age-sec</td>
<td>Maximum acceptable age in seconds for use of data in the HTTP memory cache.</td>
<td>14400</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>http-post-timeout-ms</td>
<td>HTTP POST timeout (ms).</td>
<td>300000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-400-errors</td>
<td>Ignore HTTP 400 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ignore-http-403-errors</td>
<td>Ignore HTTP 403 errors when exchanging results with the OData endpoint.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>join-set-points-per-request</td>
<td>Maximum number of values in a request when executing a join set.</td>
<td>60</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored on disk to answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-disk-cache-write</td>
<td>Whether to memorize HTTP responses on disk.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-read</td>
<td>Whether to use HTTP responses from previous queries stored in memory that can answer the current query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-http-memory-cache-write</td>
<td>Whether to memorize HTTP responses from previous queries for use by future queries.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


**5.2.65 Provider Wmi: Windows Management Instrumentation.**

Windows Management Instrumentation.

Code for use in settings.xml: Wmi

Alias: wmi

Status: Production

Available in Editions: Paid

**5.2.66 Provider Xaa30: XML Auditfile Afrekensystemen version 3.0.**

XML Auditfile Afrekensystemen version 3.0.

Code for use in settings.xml: Xaa30

Alias: xaa

Status: Production

Available in Editions: Paid

**5.2.67 Provider Xaa31: XML Auditfile Afrekensystemen version 3.1.**

XML Auditfile Afrekensystemen version 3.1.

Code for use in settings.xml: Xaa31

Alias: xaa
Status: Production
Available in Editions: Paid

# Provider Attributes

The following provider attributes are available for Xaa31:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-metadata-cache</td>
<td>Whether to use the metadata calculated previously. Has only practical use during development on a XML provider.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-result-cache</td>
<td>Whether to use result sets from previous queries that can answer the current query</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.2.68 Provider Xaf10: XML Auditfile Financieel version 1.0.

XML Auditfile Financieel version 1.0.

Code for use in settings.xml: Xaf10

Alias: xaf

Status: Production

Available in Editions: Paid

Technical Documentation: https://www.oswo.nl/pluginfile.php/13189/mod_folder/content/0/AuditfileFinancieelVersie1.0.zip


5.2.69 Provider Xaf30: XML Auditfile Financieel version 3.0.

XML Auditfile Financieel version 3.0.

Code for use in settings.xml: Xaf30

Alias: xaf

Status: Production

Available in Editions: Paid

Technical Documentation: https://www.oswo.nl/pluginfile.php/13189/mod_folder/content/0/XAF_V3.0.zip


5.2.70 Provider Xaf31: XML Auditfile Financieel version 3.1.

XML Auditfile Financieel version 3.1.

Code for use in settings.xml: Xaf31

Alias: xaf

Status: Production

Available in Editions: Paid
5.2.71 Provider Xaf32: XML Auditfile Financieel version 3.2.

XML Auditfile Financieel version 3.2.

Code for use in settings.xml: Xaf32

Alias: xaf

Status: Production

Available in Editions: Paid

Technical Documentation: http://www.ictplaza.nl/uploads/xml_auditfiles/xmlfinancieel/20140402_AuditfileFinancieelVersie_3_2.zip


**Provider Attributes**

The following provider attributes are available for Xaf32:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from SQL Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-sql-shuffle-fetch-results-data-containers</td>
<td>Whether to shuffle results fetched from data containers.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>invantive-use-cache</td>
<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>result-set-cache</td>
<td>Action: provide 'empty' to empty.</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-length-ms</td>
<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL-Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>standardize-identifiers-casing</td>
<td>Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>trace-native-calls</td>
<td>Trace native calls to data container backend.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-metadata-cache</td>
<td>Whether to use the metadata calculated previously Has only practical use during development on a XML provider.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>use-result-cache</td>
<td>Whether to use result sets from previous queries that can answer the current query</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-directories</td>
<td>{res:itgen_provider_attribute_xml_directories_description}</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-extension</td>
<td>{res:itgen_provider_attribute_xml_extension_description}</td>
<td>*.xaf</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-namespaces</td>
<td>Comma-separated list of namespace prefixes and their URI</td>
<td>xaf=<a href="http://www.audit-files.nl/XAF/3.2">http://www.audit-files.nl/XAF/3.2</a></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.72 Provider Xas70: XML Auditfile Salaris version 7.0.

XML Auditfile Salaris version 7.0.

Code for use in settings.xml: Xas70

Alias: xas

Status: Production

Available in Editions: Paid

Technical Documentation: [https://www.oswo.nl/pluginfile.php/13189/mod_folder/content/0/AuditfileFinancieelVersie1.0.zip](https://www.oswo.nl/pluginfile.php/13189/mod_folder/content/0/AuditfileFinancieelVersie1.0.zip)


**Provider Attributes**

The following provider attributes are available for Xas70:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Default Value</th>
<th>Set from Connection String</th>
<th>Set from Set SQL-Statement</th>
<th>Set from Providers File</th>
</tr>
</thead>
<tbody>
<tr>
<td>force-case-sensitive-identifiers</td>
<td>Consider identifiers as case-sensitive independent of the platform capabilities.</td>
<td>False</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>forced-casing-identifiers</td>
<td>Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Default Value</td>
<td>Set from Connection String</td>
<td>Set from Set SQL Statement</td>
<td>Set from Providers File</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>invantive-sql-forward-filters-to-data-containers</td>
<td>Whether to forward filters to data containers.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
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<td>Whether to shuffle results fetched from data containers.</td>
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<td>✓</td>
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<td>Whether to cache the results of a query.</td>
<td>True</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>maximum-length-identifiers</td>
<td>Non-default maximum length in characters of identifier names.</td>
<td></td>
<td>✓</td>
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</tr>
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<td>pre-request-delay-ms</td>
<td>Pre-request delay in milliseconds per request.</td>
<td>0</td>
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<td>✓</td>
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<td>requests-parallel-max</td>
<td>Maximum number of parallel data requests from individual partitions on the data container.</td>
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<td>✓</td>
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<td></td>
</tr>
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<td>Length in ms of a slot-based rate limit.</td>
<td>60000</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>slot-based-rate-limit-slots</td>
<td>Number of slots of a slot-based rate limit. Null means no slot-based rate limit</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>standardize-identifiers</td>
<td>Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.</td>
<td>True</td>
<td>✓</td>
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<td>trace-native-calls</td>
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<td>✓</td>
<td>✓</td>
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</tr>
<tr>
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<tr>
<td>xml-extension</td>
<td>{res:itgen_provider_attribute_xml_extension_description}</td>
<td>*.xas</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>xml-namespaces</td>
<td>Comma-separated list of namespace prefixes and their URI</td>
<td>xas=<a href="http://www.audit-files.nl/XAS/7">http://www.audit-files.nl/XAS/7</a></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>


5.2.73 Providers

The providers described here are available on all platforms.
5.3 Configuration

5.3.1 Network

The list of available databases is maintained in so-called 'settings.xml' files. These file names all start with 'settings' and end with '.xml'.

Interactive and OS-Applications

A default file 'settings.xml' is placed in the user's home directory folder 'Invantive' during discovery of databases in interactive or OS-applications. Additional settings files may be placed in this folder too.

Web Applications

For web applications, the folder App_Data/Config must contain the settings.xml files. Additional settings files may be placed in this folder too.

Additional Locations

Using the environment variable INVANTIVE_SETTINGS_FILE_PATH, you can specify a different file name and path for the default settings.xml file.

Settings.xml is not searched for at other locations.

Structure

The settings files all have the following structure in XML format; The full specification is available in xsd format and online.

5.3.2 License

The license key controls the availability of functionality, providers and limits of your Invantive products. A license key is associated with a license contract. A license contract has a unique code consisting of a 'L' plus a number. Each license contract can have multiple license keys.
License keys are automatically revoked when they have not been used for three months.
When a license contract concerns a subscription, the contract is automatically ended when it has not been used for three months.

**Interactive and OS-Applications**

For interactive and OS-applications, a file named 'invantive.lic' is searched within the user's home directory folder 'Invantive'. The license key for use of Invantive products is normally stored within the product's configuration files after loading it through the user interface of the product.

**Web Applications**

For web applications, a file named 'invantive.lic' is searched within the folder 'App_Data/Config'.

**Additional Locations**

Using the environment variable INVANTIVE_LICENSE_FILE_PATH, you can specify a deviating location for the default license file 'invantive.lic'.

### 5.3.3 Logging

#### 5.3.3.1 Trace

During use of the products, a continuous stream of relevant trace messages is being sent to the trace listeners. On Microsoft Windows, you can use the Microsoft program 'dbgview.exe' to see the trace messages.

Trace options are only available when the environment variable 'INVANTIVE_TRACE_ACTIVE' is set to any non-empty value.

The trace messages are also stored in trace files when the environment variable 'INVANTIVE_TRACE_TO_FILE' is set to 'true'.

The default location of the trace files is the folder for temporary files on interactive and OS-applications. The default location for web applications is 'App_Data\Trace'. An alternative folder for trace files can be specified by setting the environment variable 'INVANTIVE_TRACE_FOLDER'.

A limited amount of information is sent to the trace when an error occurs. The call stack and the natural key can be sent to trace by setting the environment variable 'INVANTIVE_TRACE_OWN_EXCEPTION_DETAILS' to 'true'.

**Log to Amazon CloudWatch**

The trace can be logged to Amazon CloudWatch by configuring the following environment variables:

- INVANTIVE_TRACE_TO_CLOUDWATCH: change to True to activate logging to CloudWatch
- INVANTIVE_TRACE_CLOUDWATCH_ACCESS_KEY: the access key as generated on Amazon.
- INVANTIVE_TRACE_CLOUDWATCH_SECRET_KEY: the corresponding secret key.
- INVANTIVE_TRACE_CLOUDWATCH_REGION: the geographical region to log the messages.
• **INVANTIVE_TRACE_CLOUDWATCH_GROUP**: the log group to use for logging.

The identity associated with the access key must allow logging to CloudWatch.

Amazon CloudWatch logging is rate limited. Messages may not be logged during periods of intensive activity.

The log format is JSON-based as shown:

![CloudWatch Log Events](image)

**Microsoft Power BI**

When used in combination with Microsoft Power BI, please note that Power BI tries to disable all trace logging by third party drivers. Invantive SQL has limited tracing available through Power BI. To activate: in Power BI go to 'Options and Settings', then 'Options' and choose 'Diagnostics' in the Global group. Place a checkmark next to 'Enable tracing'. This setting will remain effective till you restart Microsoft Power BI.

**Direct Trace**

Trace messages generated by Invantive can also be logged to file outside the Microsoft .NET trace mechanism. This is called "direct trace".

The advantages of direct trace are:

• Direct trace starts very early in program execution, even before the normal trace mechanism is activates. It therefore allows analysis of start-up problems.

• Direct trace works independent of the normal trace mechanism. It is therefore available even when the environment manages Microsoft .NET trace, such as with Power BI.

The disadvantages of direct trace are:

• The use of direct trace reduces performance significantly. Therefore only enable direct trace when needed.

To activate direct trace, please set the environment variable 'INVANTIVE_DIRECT_TRACE_FILE_PATH' to the file path of the intended log file.

It is recommended to include the placeholder '{PID}' in the file name when you expect to run multiple OS-processes with direct trace.

A commonly used setting for INVANTIVE_DIRECT_TRACE_FILE_PATH is `c:\temp\invantive-direct-trace-{PID}.log`. 
Mac OSX and Linux

Set the environment variable COMPlus_DebugWriteToStdErr to write trace messages to the console of Microsoft .NET Core applications:

```bash
eexport COMPlus_DebugWriteToStdErr=1
```

Note that the Microsoft .NET Core implementation on Mac OSX and Linux are restrained in the default stack size. On StackOverflowException such as with Exact Online, please increase stacksize first using:

```bash
eexport COMPlus_DefaultStackSize=10000000
```

5.3.3.2 Execution Log

Every completed execution of an Invantive product appends an entry to the local execution log. The execution log is in XML-format and located by default at `%USERPROFILE%\executionlog.xml`.

The name and location of the execution log can be altered by placing the full path and file name in the environment variable `INVANTIVE_EXECUTION_LOG_FILE`.

The root tag `EXECUTIONLOGS` contains an `EXECUTIONLOG` for every execution once finished. The following elements are available:

- `VERSION`: the record format, always '1'.
- `MESSAGEUID`: the UID of the message as registered on Invantive Cloud.
- `IIID`: the Invantive Installation ID of the device.
- `SESSIONID`: the ID of the session.
- `LICENSECODE`: the code of the subscription contract.
- `LICENSEKEYID`: the numeric ID of the license key.
- `MACHINENAME`: the name of the device.
- `EXECUTABLENAME`: the name and path of the executable.
- `APPLICATIONNAME`: the name of the Invantive application.
- `APPLICATIONVERSION`: the version of the Invantive application.
- `USERNAME`: the name of the operating system user.
- `PROCESSID`: the ID of the OS process.
- `STARTTIMEUTC`: the start time of the process (UTC).
- `ENDTIMEUTC`: the end time of the process (UTC).
- `EXITCODE`: the exit code of the process.
- `EXITLEVEL`: the textual description of the exit code.
- `EXITMESSAGECODE`: the message code associated with the execution exit.
- `ISHEADLESS`: whether the process ran headless.
- `COMPUTERMANUFACTURER`: the name of the device’s manufacturer.
• COMPUTERMODEL: the model of the device.
• OSVERSION: the version of the operating system.
• PHYSICALMEMORYINBYTES: the number of bytes in the physical memory.

5.3.4 Debugging
Invantive software products contain a number of features to aid analysis of problems.

5.3.4.1 Translations
During use of the products, the user interface is adapted to the user interface language based upon the environment.

The translation involves replacing so-called "resource codes" by their translation.

The translation can be disabled by setting the environment variable 'INVANTIVE_NO_TRANSLATE' to a non-empty value.

6 Invantive SQL for Windows
The Windows-specific features of Invantive SQL are documented in this section.

6.1 Internal Consistency Checks
Invantive SQL executes many internal consistency to ensure correctness of the results.
Some of these consistency checks are only done during testing phases for reasons such as performance. These checks are automatically checked on testing environments and excluded on production environments.

However, during test or production use you can explicitly disable or enable these checks by setting environment variables to the value 'true' or 'false'. The checks can individually be disabled or enabled, or all together.

To explicitly enable all consistency checks, set the environment variable INVANTIVE_CHECK_ALL to true. To explicitly disable all consistency checks, set the environment variable INVANTIVE_CHECK_ALL to false.

First determine with help of support the message code to explicitly enable or disable a consistency check. Then set the environment variable INVANTIVE_CHECK_<message code> to the correct value.

7 Contact Information
Invantive® BV is distributor of software solutions owned by Invantive® Software BV.

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Fax: +31 84 2258178
E-mail: info@invantive.com
Web: https://invantive.com

Chamber of Commerce: 13031406
Managing Director: Guido Leenders
Company domiciled in Roermond (NL).
Support

Support: +31 88 00 26 599
Email: support@invantive.com
Customer Portal: https://cloud.invantive.com
Opening hours: 9:00 - 17:00 CET Monday to Friday excluding Dutch holidays

Privacy Policy

Security incidents

Security incidents: +31 88 00 26 598
Email: security@invantive.com
Opening hours: 9:00 - 17:00 CET Monday to Friday

Always include your telephone number, your e-mail address and a short description. Please do not give sensitive details until a secure communication channel has been established.

For urgent security incidents please send both an email outside of opening hours and call with number display on. You will be called back as soon as possible.

We use the threat matrix of NCSC to classify a reported incident. We use the Responsible Disclosure Guideline of NCSC as basis for our policy.

You will always receive a confirmation of receipt within 1 working day.

We ask you not to share information about the security incident with others until Invantive has had sufficient opportunity to resolve the problem and users have had sufficient opportunity to use a possibly updated version of the software. We ask you to not further use any knowledge of the security incident and to omit any actions made possible after the existence of the security problem.

If you are not satisfied with the handling, we would like to ask you to contact the NCSC.

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