23.0

Invantive Composition for Word

Reference Manual

invantive
the SQL company

Contents

1 Invantive Composition for Word

Many organizations experience problems with the optimization of the information flow. An often occurring problem is the composition of complex documents with data from a database or application. Because of the multitude of complex information and deviating rules per jurisdiction employees spend a lot of time in the composing of documents. This manual and repetitive activity causes more erroneously composed documents and brings with it unnecessary employee costs. For organizations that are dealing with different laws and regulations such as insurers, lawyers and health care institutions, the creation of complex documents is a costly and time consuming task. The automatic generation and creation of documents that meet the laws and regulations is a huge challenge for most.

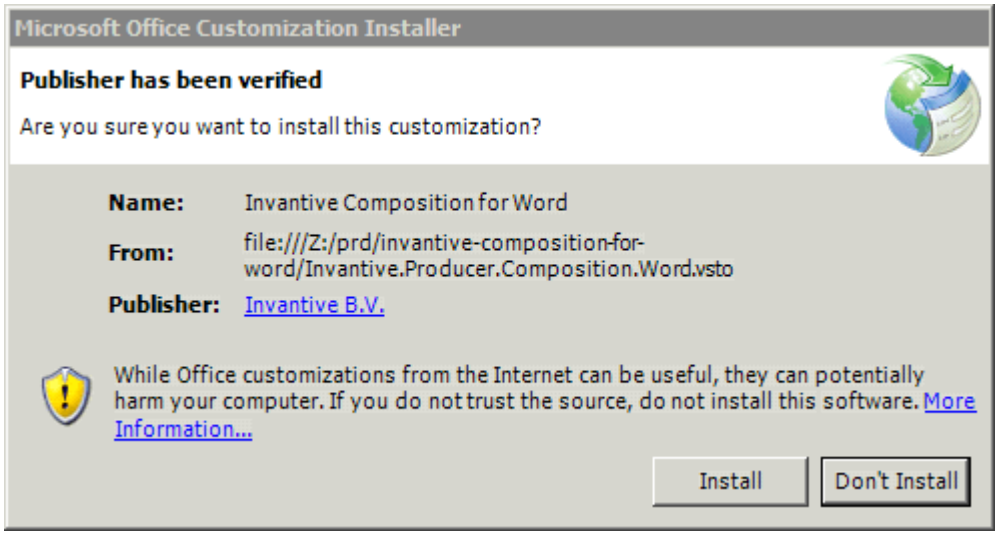
Invantive Composition for Word offers a complete solution for automatically generating complex documents that meet the requirements of laws and regulations. Invantive Composition allows you to easily retrieve information from your database and process it in Microsoft Word. This way, Invantive Composition makes it easy for you to automatically populate previously created templates with data from your database. For you this means that you can merge data from your administration system such as budget consumption, contract pieces, licenses, prices and other structured data into a personal document. The advantage of this is that with Invantive Composition you can manage and dynamically create documents from the document management system. Which results in an optimized information and communication process.

1.1 Snelle Configuratie

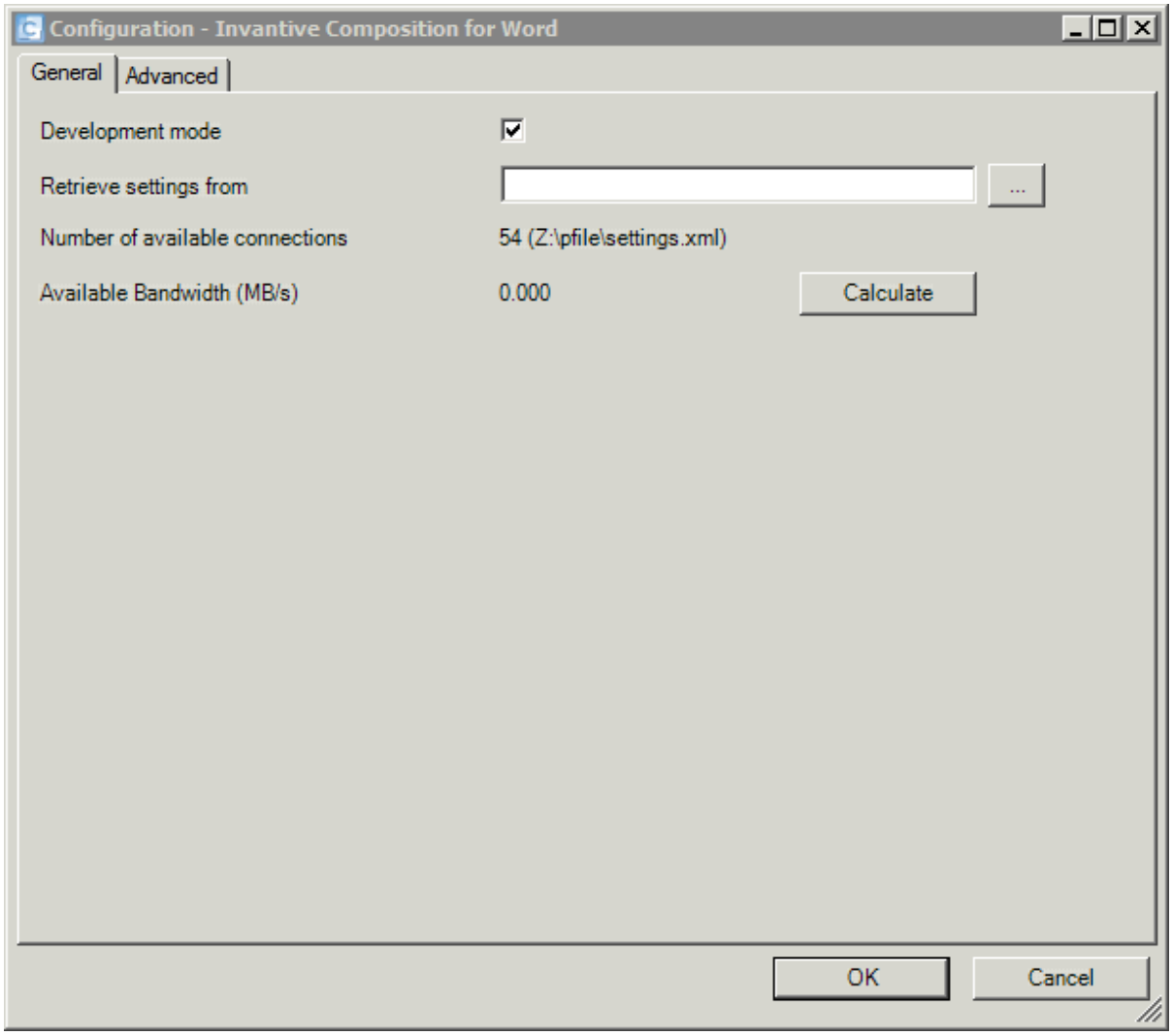
If you follow these steps, you will be able to start working with Invantive Composition for Word quickly.

Perform the following steps:

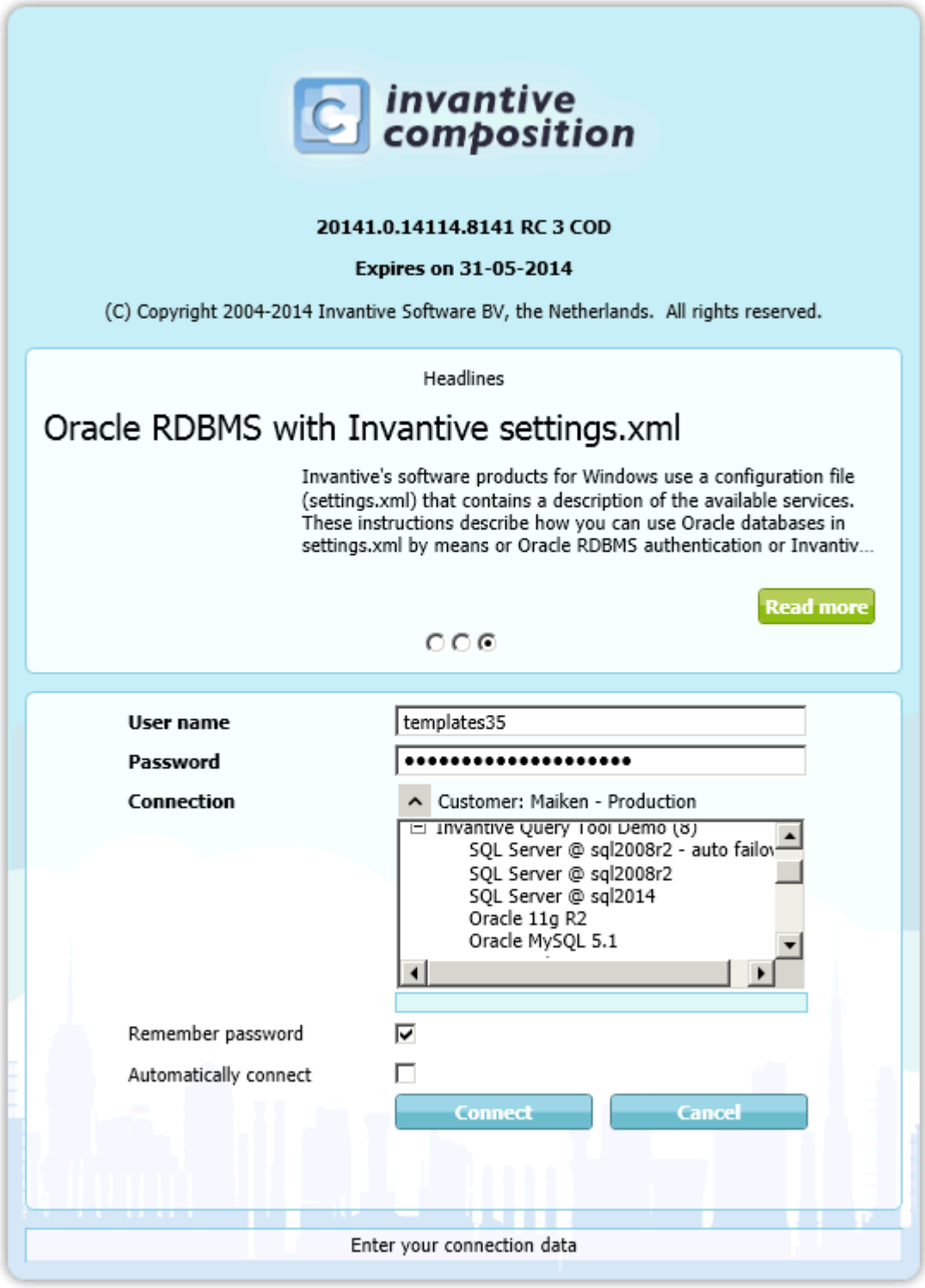
- Check if the drivers have been installed on your workplace so the database can be accessed. For Microsoft SQL Server, drivers are always present. For other database platforms you can find an expanation of the installation process here.
- If a connection is required from multiple workplaces, it is advisable to use the Invantive Web Service, because that means the drivers won't have to be installed at all workplaces.
- Install Microsoft .NET 4.5.1 if it is not yet present. From Windows 8.1 this version of Microsoft .NET is delivered by Microsoft by default. This software, for windows 7 and Windows 8, is for download at http://www.microsoft.com/en-us/download/details.aspx?id=40779.
- Double-click on the file setup.exe.
- Klik on Install when the following screen is displayed:



- The installation will be performed.
- Invantive Composition for Word will be started at the same time as Microsoft Word. This means you can only start the program by starting Microsoft Word.
- When Microsoft Word is opened the first time after the installation, the configuration screen is displayed. The configuration screen is also displayed when Ctrl is pressed during the start-up process of Microsoft Word.



- Start Notepad via the Windows Start menu.
- Create an empty file called settings.xml and save it on your desktop.
- The folder from which you have installed Invantive Composition for Word contains an example of a settings.xml file with an additional explanation. An example for Microsoft SQL Server can also be found on http://www.invantive.com/about-invantive/news/entryid/1123/windows-authenticatie-met-sql-server-voor-invantive-settings-xml. An example for Oracle can also be found on http://www.invantive.com/about-invantive/news/entryid/1124/oracle-rdbms-met-invantive-settings-xml.
- In the settings.xml file you define the database connections you want to use.
- If you need help with this, you can call Invantive Support for free at +31 88 00 26 599, you can call support@invantive.com or visit http://support.invantive.com.
- Choose your settings.xml file in the configuration screen.
- Press OK.
- The login screen is now displayed.



- Select the connection you want to use.
- Enter the username.
- Enter the password.
- Click on 'Connect'.
- The login screen is closed. The buttons that correspond with your rights are displayed in the ribbons Invantive Composition and Modelling.

- Getting started 5 will show you how you can start working with Invantive Composition for Word.

1.2 Aan de slag

Here you learn how you can get started with Invantive Composition for Word quickly.

After the Quick Configuration 1, Microsoft Word is opened.

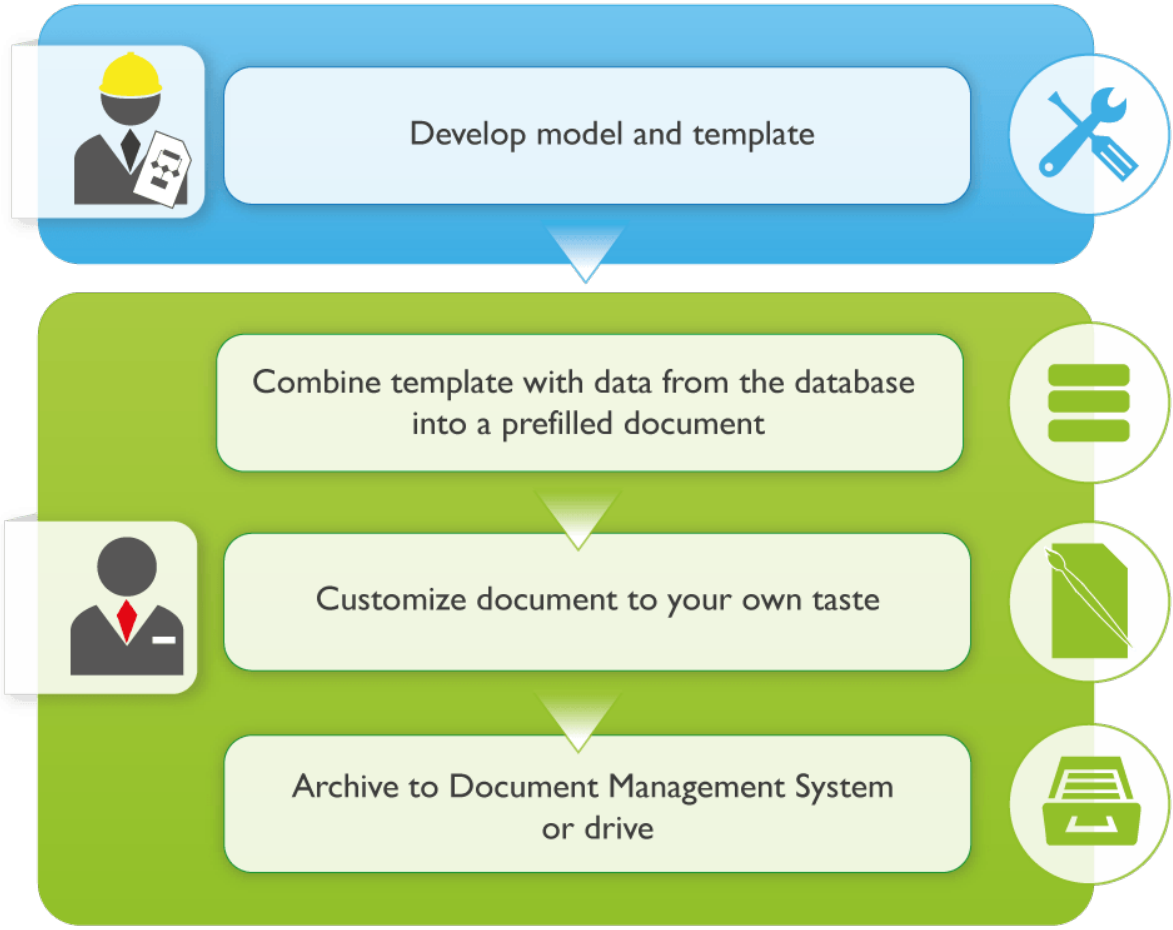
There are no further instructions.

1.3 Werking

The image displays the global working of Invantive Composition. The developer of the template develops the template and an accompanying model in Invantive Composition and saves it as a Word or Powerpoint file. This can be stored in Invantive Estate, Invantive Vision or a different Invantive Producer-based application. The developer of the template can also save the template on the file system, in a folder of the Invantive Web Service or in a Document Management System such as SharePoint or IBM ECM.

The user of the template subsequently opens the template and combines the template with data from the database. The final result is a Word or PowerPoint document with pre-filled data from the database. Overmore, Invantive Composition can, at once, enter the document properties properly by means of a case number or project code.

The user checks the document and, if needed, adds information. After that, the user can archive the document in a DMS or on a drive, for example as a Word or PowerPoint file or as an Adobe PDF file.



1.4 Voordelen

The automation of your information flow with Invantive Composition will bring you advantages such as:

- Optimization of the documenting and communication process.
- Automatically fill previously created templates in Word with data and tables.
- Focus on your business operations, not on the technology, without programming and without software developers.
- Lower time-to-market for the editing of your business operations by decreasing the efforts of your IT department.
- Add unstructured texts in a document together with structured data from your databases, datawarehouses and applications.
- Open documents from Word that were stored in a database, document management system or the file system.
- Less of erroneously prepared documents and lower costs per document.
- Improved security of company information.

With Invantive Composition you will have a complete solution for the automatic generation of complex documents in Microsoft Word. Invantive Composition easily allows you to automatically retrieve and edit unstructured data from a database or application. By automatically

filling precomposed templates with data, you will easily compose complex documents that meet the laws and regulations. This way Invantive Composition optimizes your information flow and yields you a cost reduction. By default, Invantive Composition is supplied along with Invantive Vision and Invantive Estate.

1.5 Systeemeisen

To use Invantive Composition on your PC or terminal server you will need the following software including licenses:

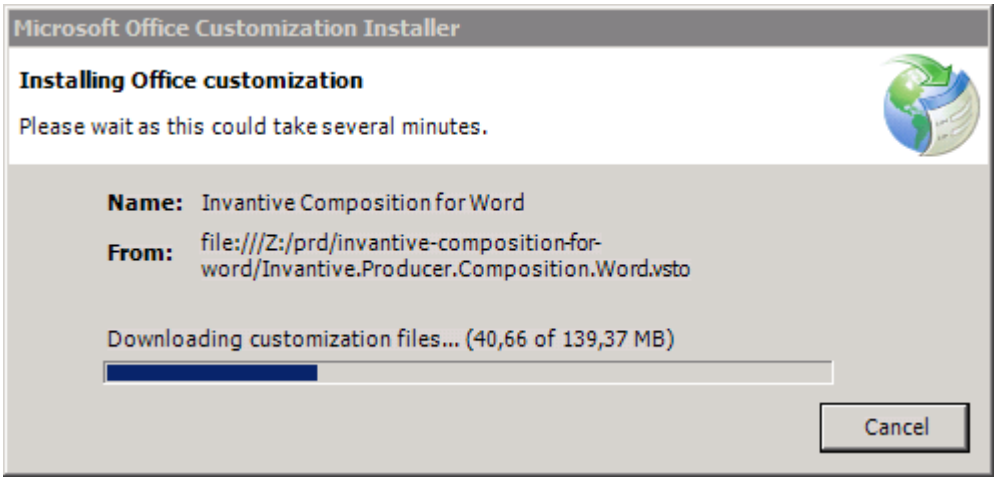
- Microsoft Word 2010 or Microsoft Word 2013 (only on Microsoft Windows).
- Microsoft .NET 4.5.
- Minimum 2 GB of internal memory.
- Microsoft Windows 7, 8 or 8.1.
- Screen resolution of 1280 x 1024 or higher.
- User license for databases used and/or business applications.
- Invantive Web Service or local drivers.

Use on Mac, tablet or smartphone is not possible.

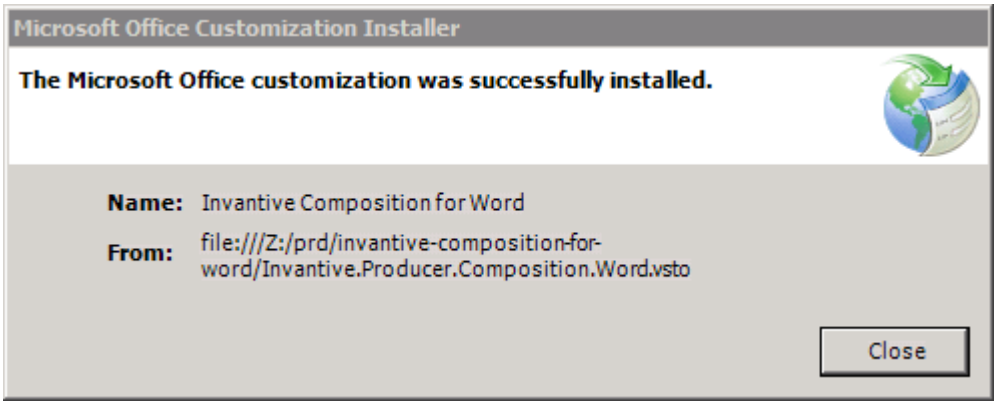
1.6 Installatie

Invantive Composition is installed on the Windows computers by executing the following steps:

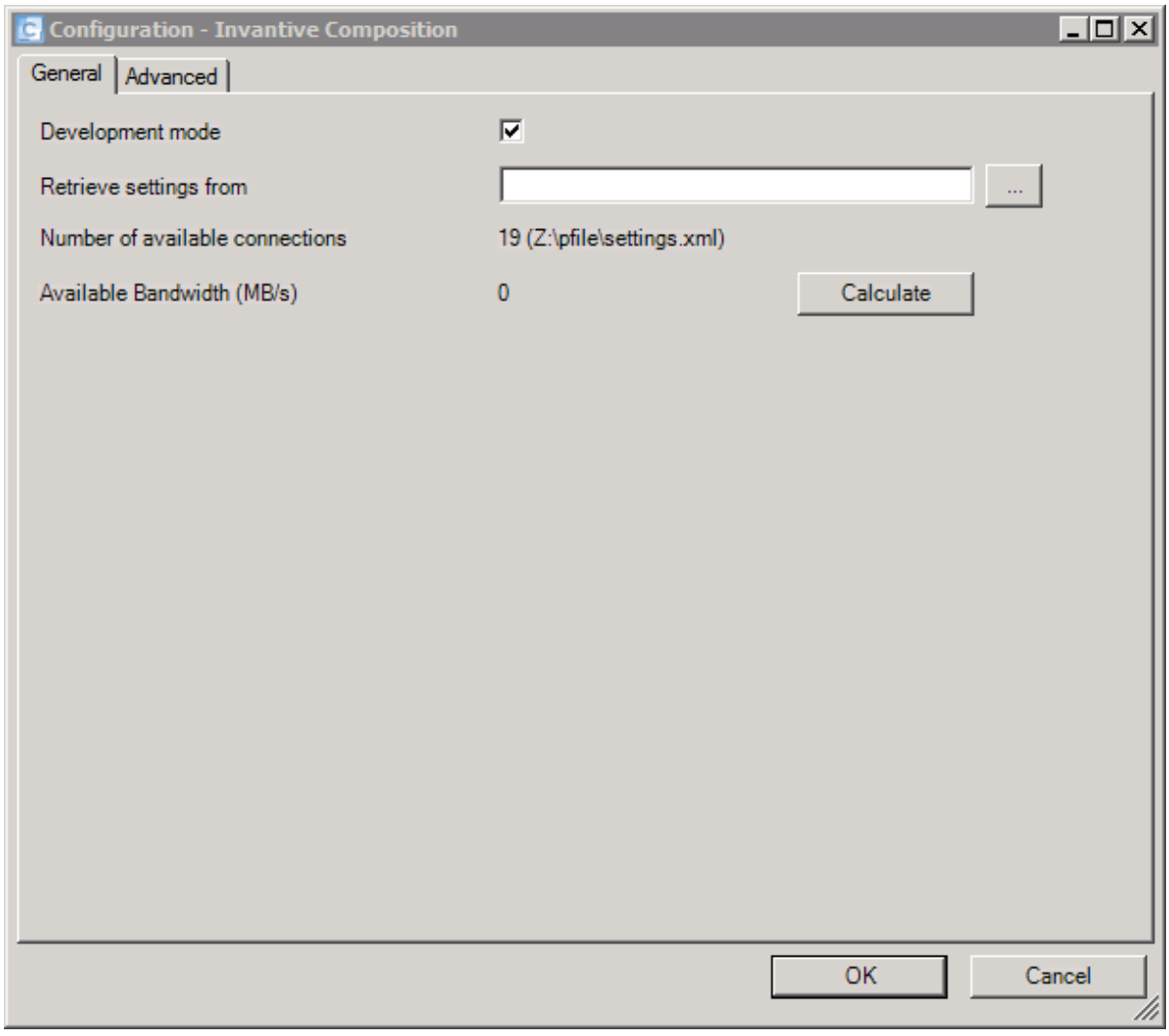
- Run the installation file 'setup.exe' then click on the 'Install' button. The file is in the folder of Invantive Composition for Word and in the folder of Invantive Composition for PowerPoint. You need to do a separate installation for every product. These installation folders are supplied by Invantive.



- When the installation is finished, the screen below is displayed.

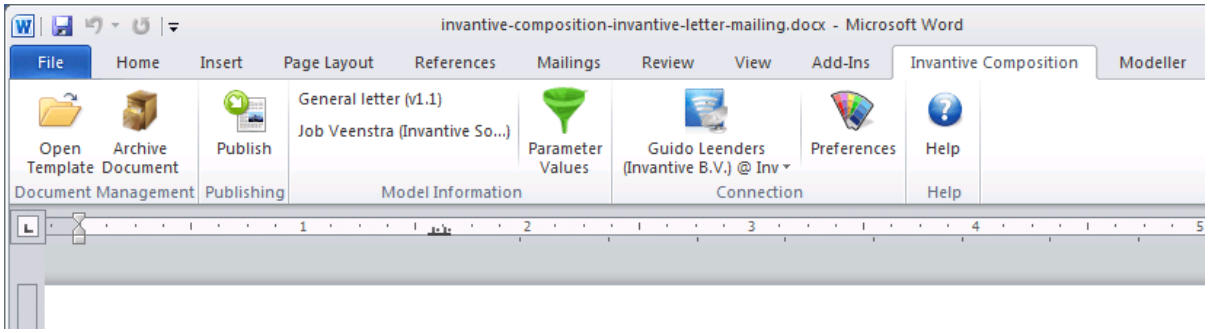


- Then you start Microsoft Word or Microsoft PowerPoint to use Invantive Composition. After launching the Office program this screen is displayed. In this screen, you need to enter the location of the connection file. See Connection configuration for the explanation of the connection file. Then click on 'OK' to save the change.



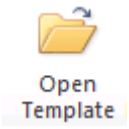
1.7 Gebruik

This paragraph displays an explanation the tab Invantive Composition in the ribbon in Microsoft Word and PowerPoint. The user can open templates, set values to parameters and complete a document. The following image displays the bar Invantive Composition



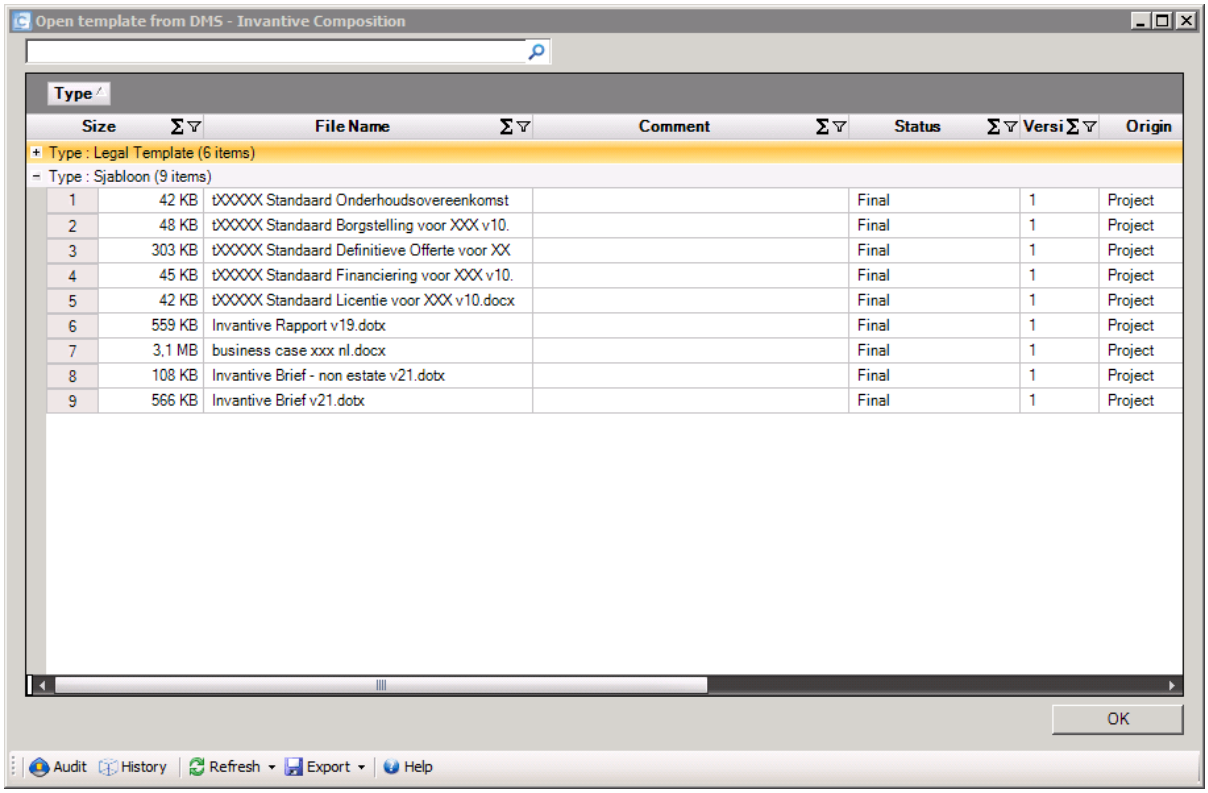
Depending on your rights, a part of the buttons may not be visible. Depending on the chosen configuration it may b erequired to first connect 12 before all buttons become visible.

1.7.1 Open Sjabloon



The group 'Document Management' includes a 'Open Template'. With this you will open a screen to open documents with from a supported DMS in Invantive Composition. You can of course also open documents in your file system. The advantage of a central DMS is that everyone always has the correct versions, independent of whether the user has access to the disks on his work.

In this screen you will see template documents dependent on your rights. Select the desired template.

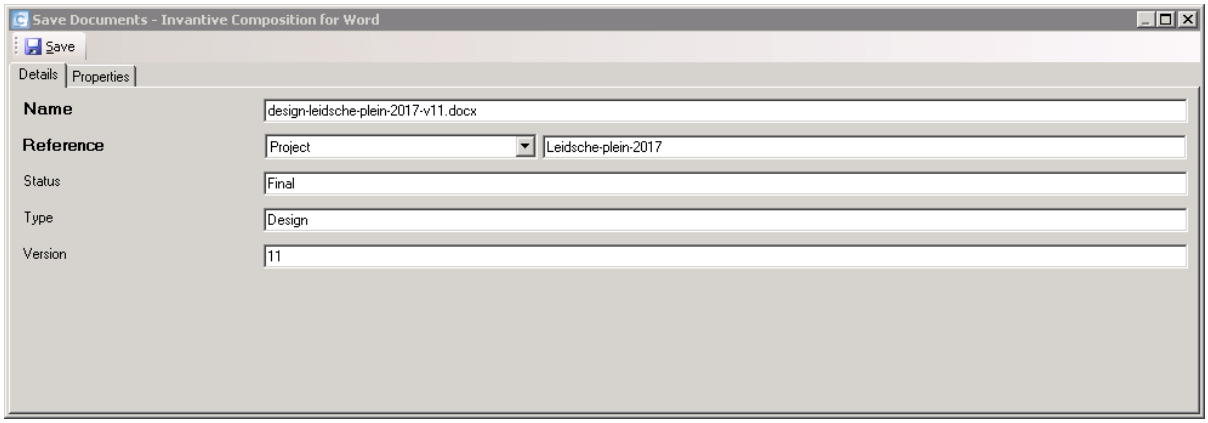


Once you have chosen the template, then it will be published immediately. Read more in Publishing 10.

1.7.2 Document Archiveren

With 'Archive Document' you open a window to save a published document in any supported DMS directly from within Invantive Composition. You can also save documents in the file system. The advantage of a central DMS is that everyone has fast and secure access to documents.

In this window, you fill in the Details tab and the Properties meta-data of the document:

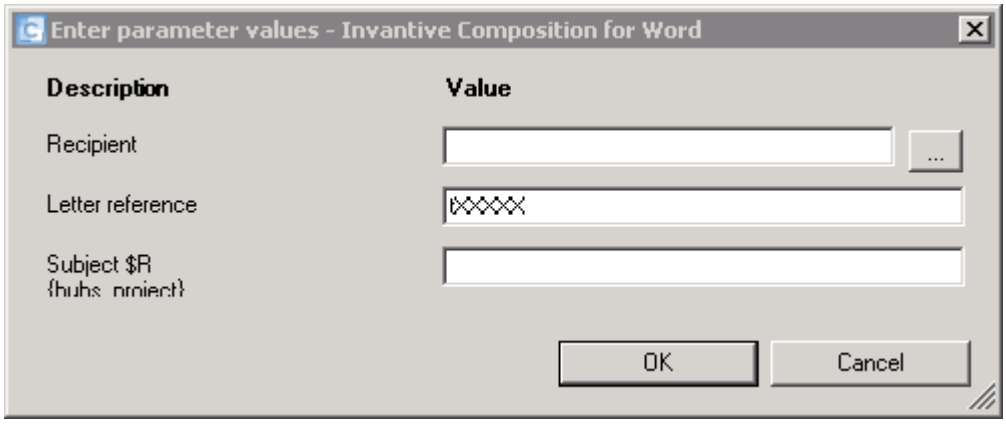


Then click on 'Archive Document' and the document will be archived.

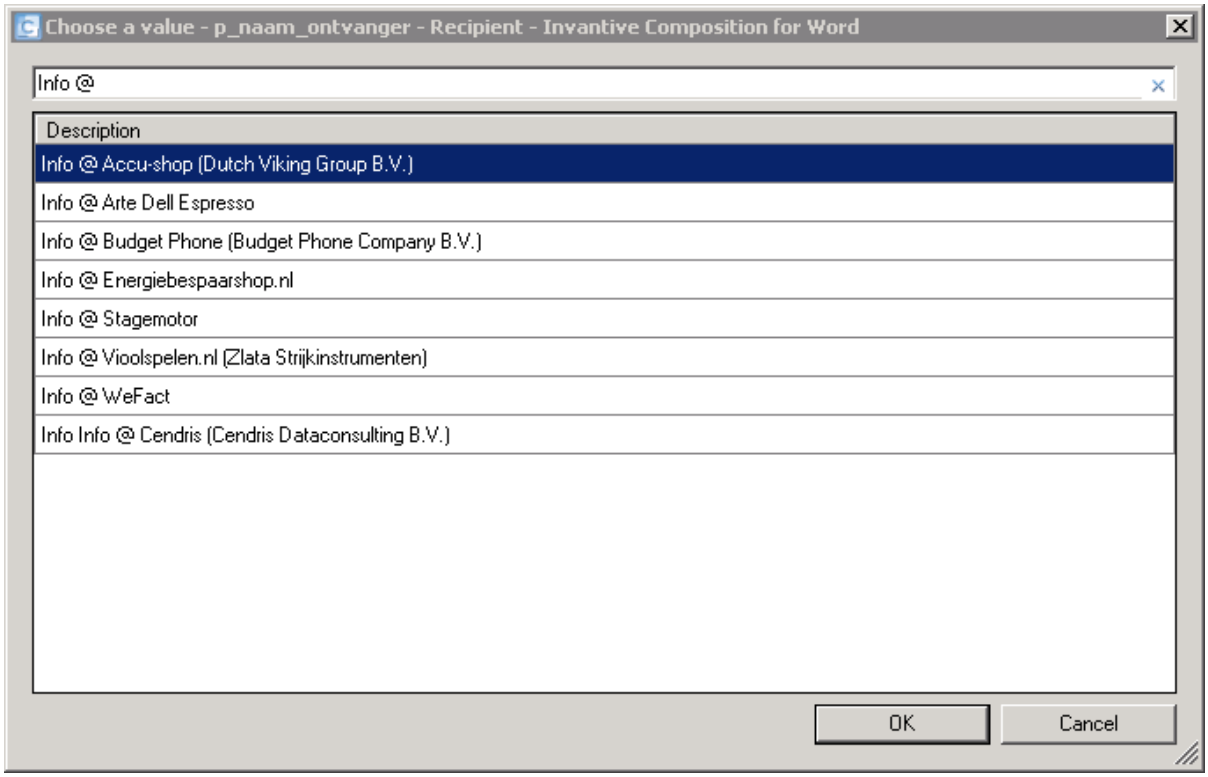
1.7.3 Publiceren

The publishing combines the template with data from the database so that you receive a prefilled document.

If there are no parameters, then there is nothing else that needs to be done. If there are parameters, then Invantive Composition first asks which values you wish to use, such as for example:

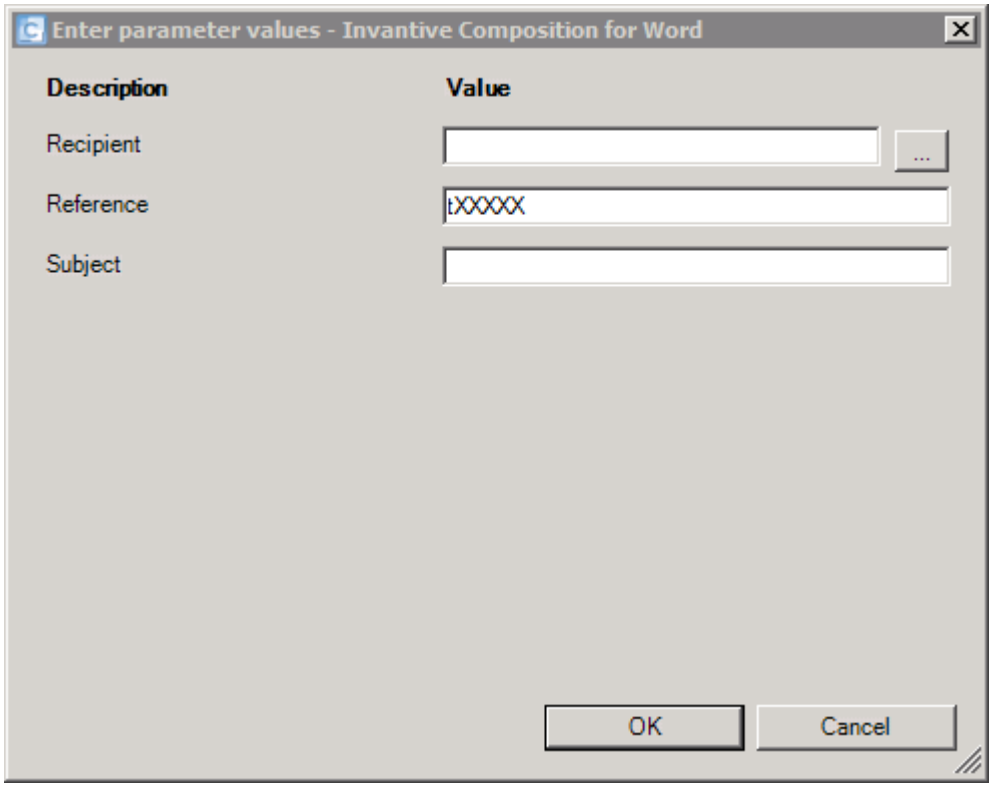


If possible the values will immediately be filled with a useful value. Parameter can be supplied with a button. If you choose this button, then you will get a list with possible values. An example of a list with possible values:



1.7.4 Parameterwaardes

The standard parameter values that you enter in Publishing[10] can also be requested using this button and other values can be provided.



1.7.5 Verbinden

Click on the tab Invantive Composition in the ribbon and subsequently click on the button 'Connect' to connect to the server. Enter user name, password and connection and click on 'OK'.

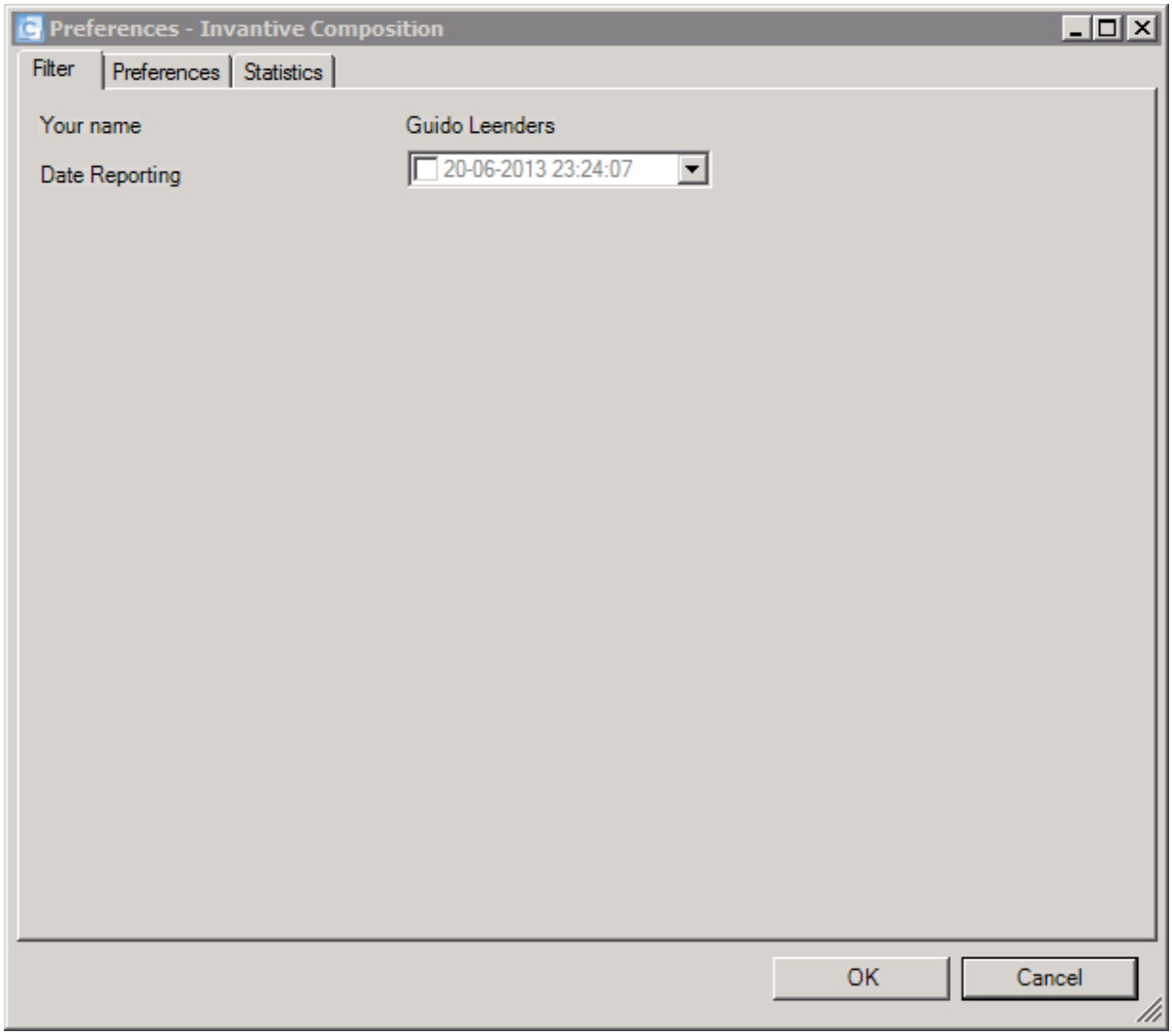
The meaning of the entry fields is:

Username	The username used for connecting to the server.
Password	The password of the user.
Connection	Here you enter the server with which you want to connect.
Store password	The password will be stored encrypted, when checked.
Connect Automatically	The application automatically connects to the server and the connection screen does not appear, when checked.

1.7.6 Voorkeuren

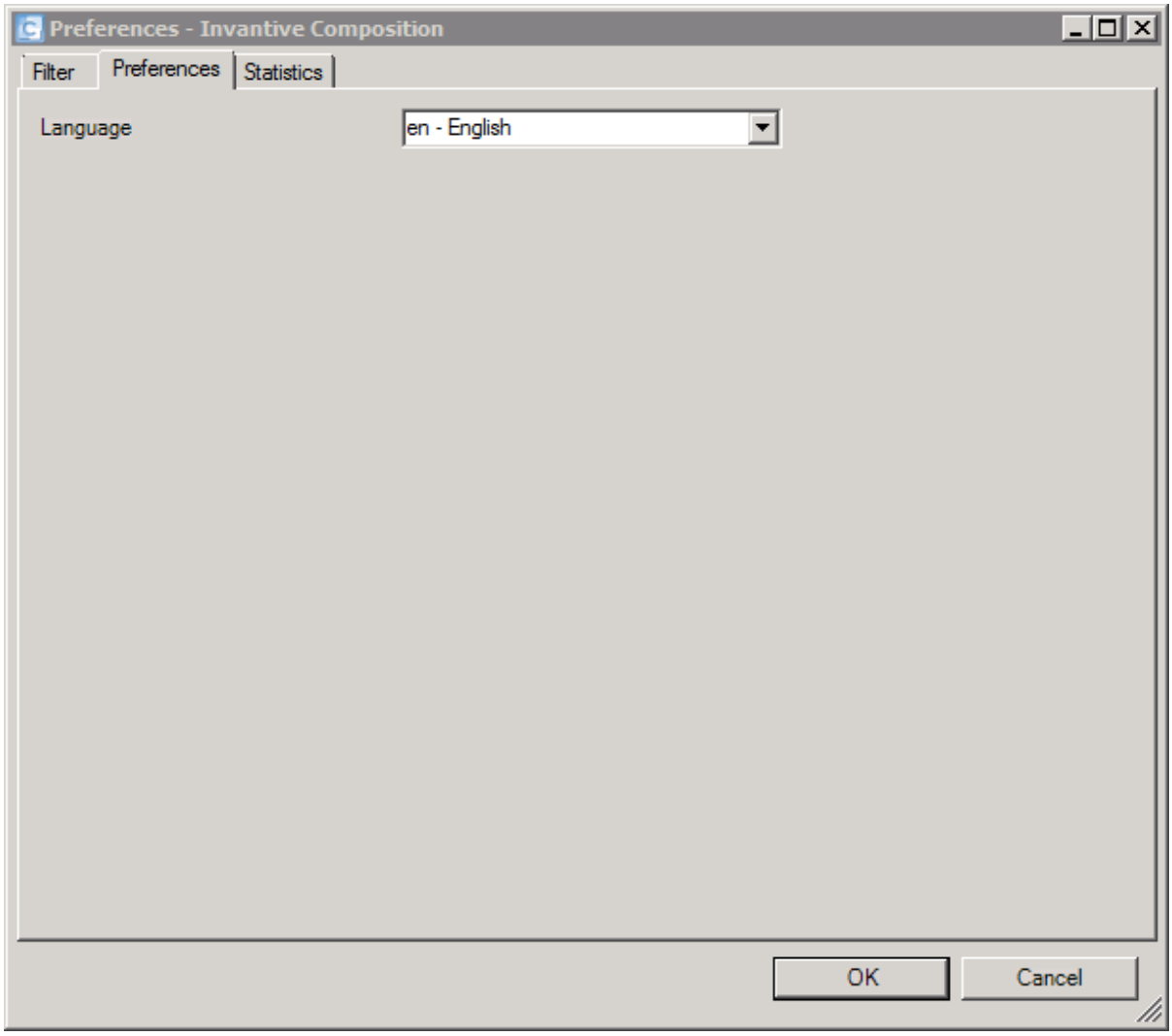
With this button on the screen for preferences:

In this screen you can set the preferences for Invantive Composition and other Invantive Producer-based products.



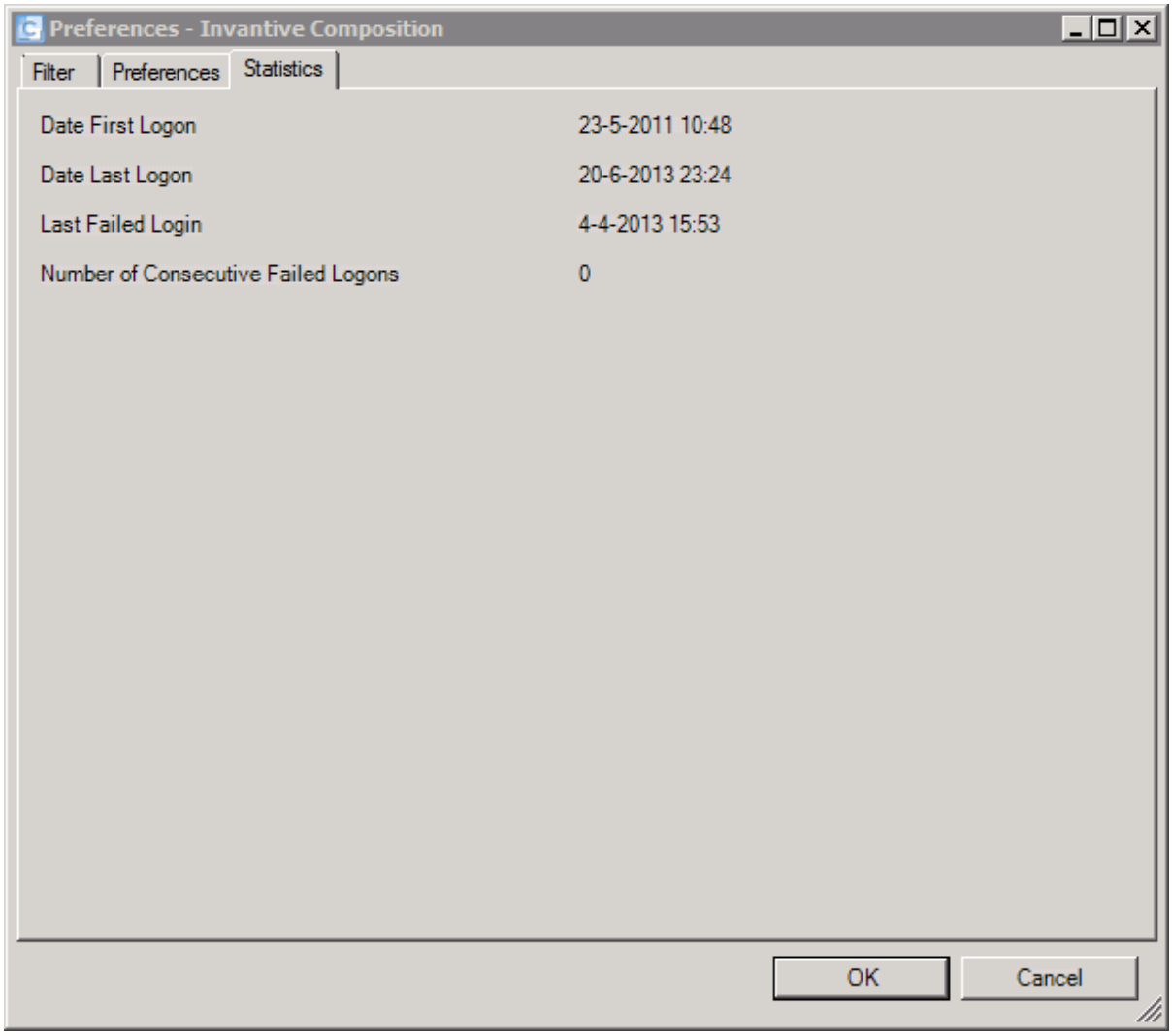
The meaning of the fields in the tab Filter is:

Your name	The name of the user within Invantive Producer.
Report date	Here you can enter the reporting date for which the information on the reports should be shown. This data is activated when checked



The significance of the field in the Preferences tab:

Language	This lists the languages that are available in Invantive Composition. The language shift is immediately processed after closing the screen.

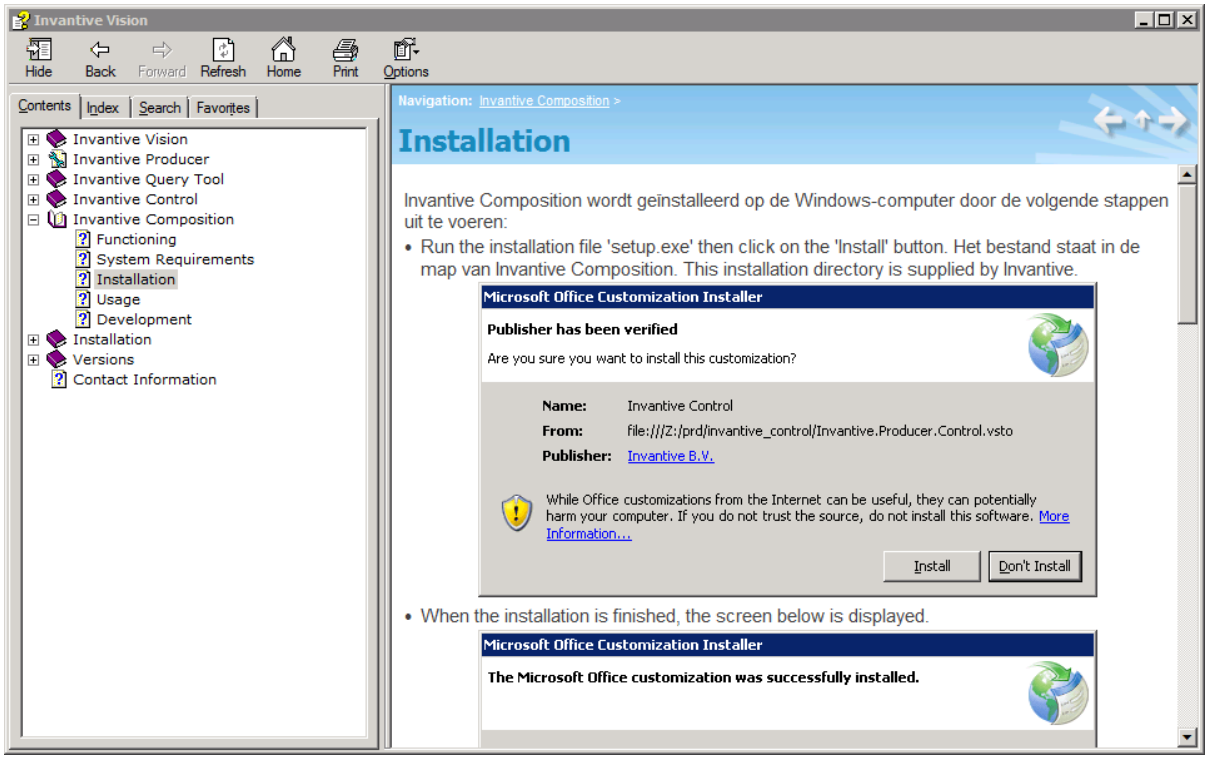


The meaning of the field in the tab Statistics is:

First login date	The time on w hich you logged in successfully for the first time.
Last login date	The time on w hich you login successfully for the last time.
Last failed login try	The time on w hich someone w ith your login code failed to login for the last time.
Number of Subsequent Failed Login Attempts	The number of subsequent login attempts that have failed.

1.7.7 Help

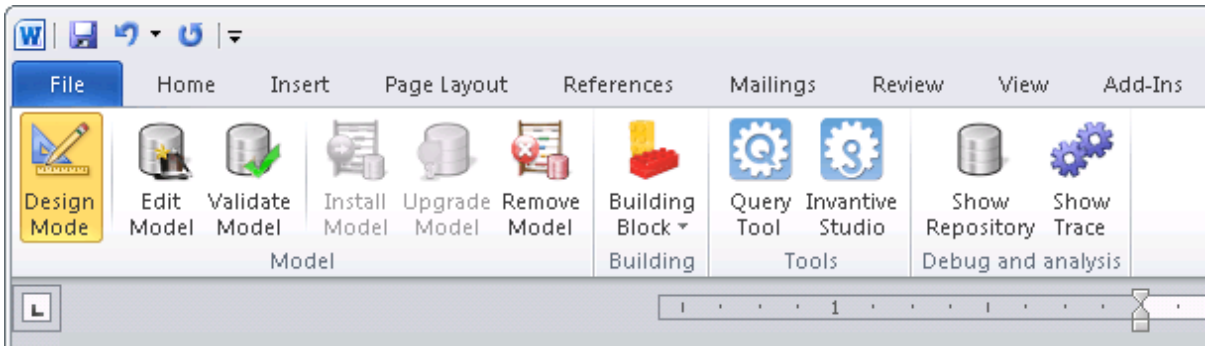
The button 'Help' displays the help function of Invantive Composition.



1.8 Modeller

A template consists of pieces of text with in the middle instructions for Invantive Composition.

For the development of a template for Invantive Composition you use instructions in the text and data in a model. For the development you use the resources in the lint "Model":



1.8.1 Ontwerpmodus

The button 'Design Mode' is used to switch between the usage and the designing of a template with model.

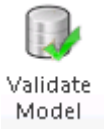
If the design mode is disabled, then the button looks as follows:

By clicking on it you activate the design mode. If you have not yet entered the password of the model for this model during this session in Word, you need to do this first. If the design mode is enabls, then the button looks as follows:

1.8.2 Model Bewerken

The model of the template can be edited through the model editor. The model editor has a tree structure with various components.

1.8.3 Valideer Model



With this you validate the consistency and validity of the model, should errors have emerged in the structure due to manual changes.

1.8.4 Installeer Model

With the button 'Install model' you can transfer an existing Microsoft Word document to an Invantive Composition template. Invantive Composition adds a local repository with included the definition of a model. The model can be edited like described in Model Bewerken 18.

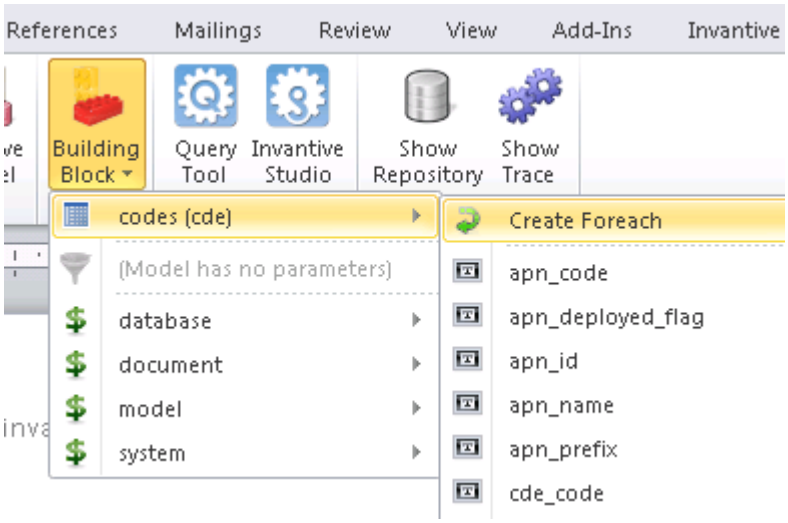
1.8.5 Upgrade Model

With the button 'Upgrade model' you update an existing model to the format that belongs with the version of Invantive Composition that you use. It is only possible to use newer versions. You can no longer use a model that has been updated to a newer version on an older version of Invantive Composition.

1.8.6 Verwijder Model

With the button 'Remove model' you transfer an Invantive Composition template into a Microsoft Word document. All data that is associated with Invantive Composition is removed like the repository.

1.8.7 Bouwblok



With the button 'Building Block' you can add an instruction on the current location of the cursor in the Invantive Composition template. In the list is listed first the blocks, subsequently the parameters and finally the environment variables. Blocks also have a menu of their own. In the menu of a block there is listed first a building block for the insertion of a <invantive:foreach> 22 and subsequently the variable values.

1.8.8 Query Tool

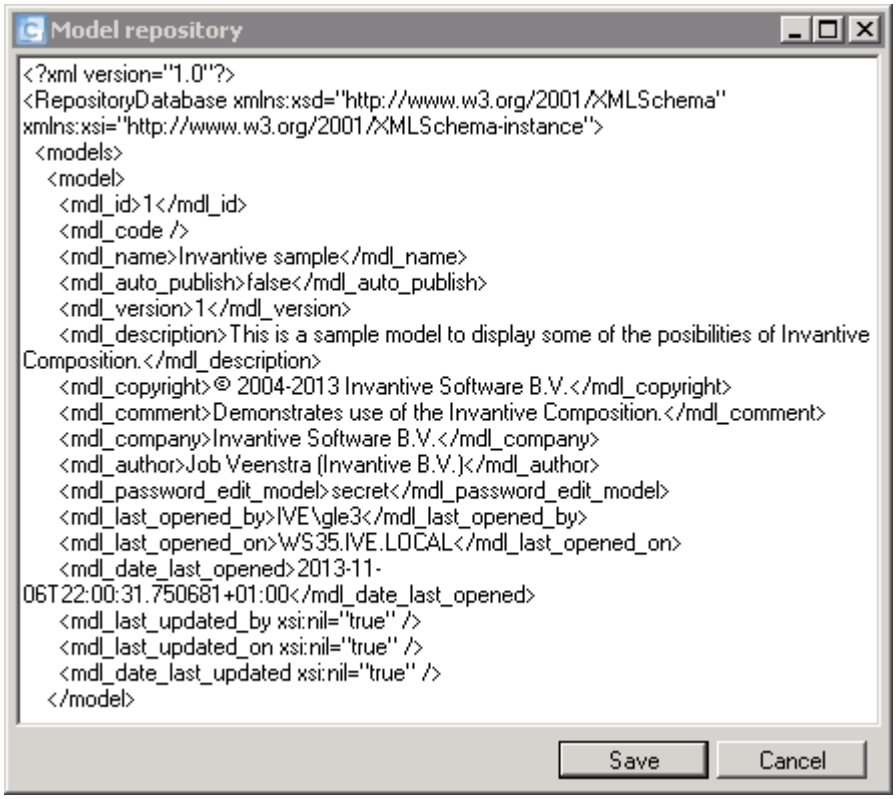
With 'Query Tool' you start the Query Tool of Invantive from within Microsoft Word. You are logged in to Invantive Query Tool under the user that you are logged in for Invantive Composition.

1.8.9 Invantive Studio

With 'Invantive Studios you start from within Microsoft Word the CASE tool from Invantive: Invantive Studio. You are logged into Invantive Studio under the user with which you are also logged into Invantive Composition.

1.8.10 Toon Repository

The model of an Invantive Composition template is stored in a repository in the Microsoft Word document. With the button 'Show Repository' you will make the content of this repository visible:

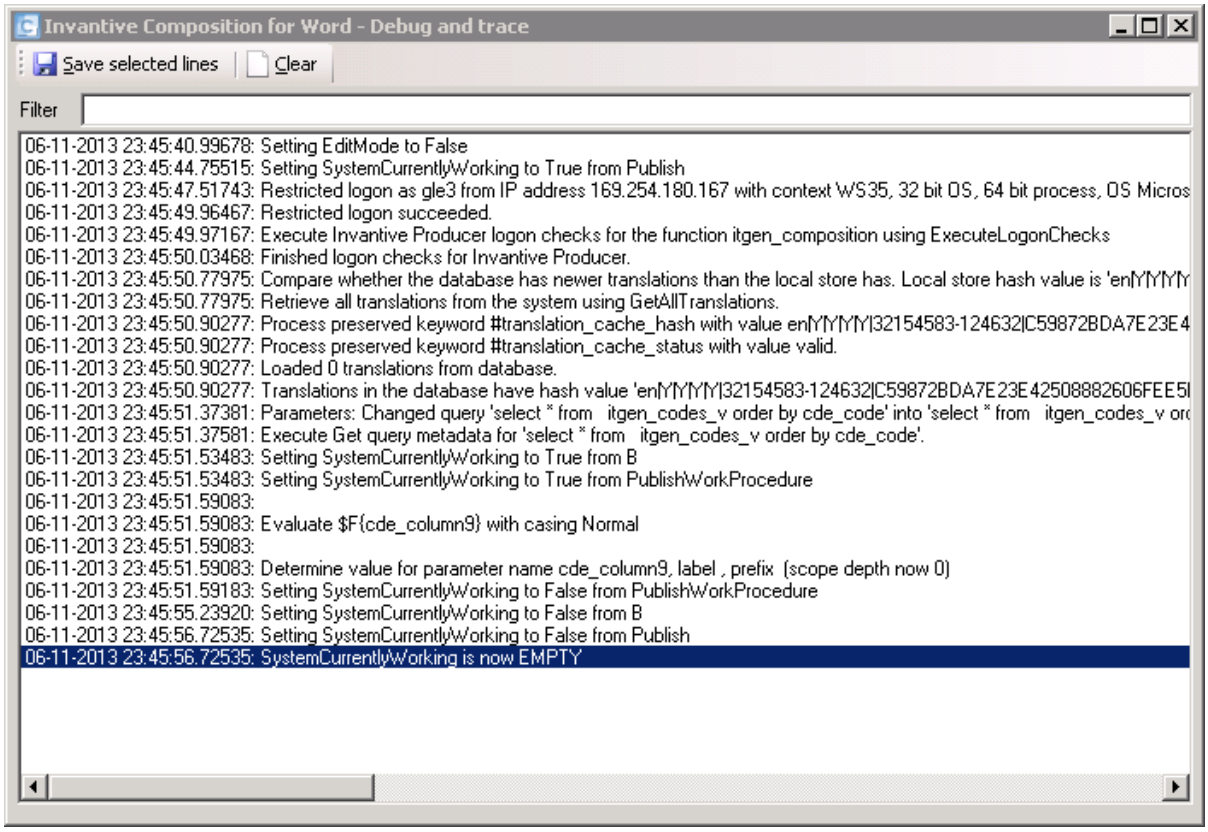


Invantive Support could ask you in the case of malfunctions to edit parts of the repository and/or to send the repository.

1.8.11 Toon Spoor

'Show Trace' can be used to analyze any possible problems in the use of Invantive Composition. An extra screen appears if Show Trace is activated. In this screen notifications of Invantive Control are displayed, including the executed SQL statements. You can shut down 'Show Trace' by closing the new screen.

Invantive Support can ask to switch on 'Show Trace' andsend the texts to help you analyze the problems.



1.8.12 Mogelijke instructies

The following types of instructions are possible:

- <invantive:value-of/>: Print value of an expression or cell from a SQL statement.
- <invantive:foreach>...</invantive:foreach>: Run through all rows of a SQL statement for the intermediate piece of text.

1.8.13 Expressies

An expression can use multiple types of data:

- Parameter value: the value that the user has entered for a parameter as described in the model.
- Variable value: the value of a cell out of a SQL statement.
- Group value: a derivative value of a cell from a SQL statement.
- Environment variables: the value of information concerning the environment.
- Resource variable: the translation of a translateable resource in the currently chosen language.
- Text: all the remaining.

1.8.14 <invantive:value-of/>

With `<invantive:value-of/>` you can request the value of an expression. This instruction can be added easily with Building Block 19.

Several examples of `<invantive:value-of/>`:

- `<invantive:value-of expression="$P{p_pgp_code}" />`: delivers the value of the parameter `p_pgp_code`.
- `<invantive:value-of expression="$F{pjt.pjt_code}"/>`: supplies the current value of the cell in the column `pjt_code` of the SQL statement with alias `pjt`. The use of $F{} is only useful it it happens within a <invantive:foreach> 22.
- `<invantive:value-of expression="Hello world!"/>`: supplies the mentioned text.
- The use of `query label` is optional; if it is not used then the last determined value is used. This is comparable with variable scoping in programming languages.

Layout Parameters

The layout of the expression can be influenced with the following parameter:

- casing: use capitalization.

Use Casing

With "casing" you can change the capitalization of an expression. This can be used to display the same fields with capitals in parts of the document and in other places with lower case. Of course you can also do this by adjusting the SQL query.

The possible values of casing are:

- "Normal": replace nothing to the letters. For instance <invantive:value-of expression="$E{database:user}" casing=”Normal”/> returns the database user name without changing characters.
- "LowerCase": replace all characters by the corresponding lowercase character. For instance <invantive:value-of expression="$E{database:user}" casing=”UpperCase”/> returns the database user name in uppercase characters.
- "UpperCase": replace all letters by the associated upper case. For instance <invantive:value-of expression="$E{database:user}" casing=”LowerCase”/> returns the database user name in lower case characters.
- "InitCaps": replace the first letter of every word by an upper case letter and replace the rest with lower case letters. For instance <invantive:value-of expression="$E{database:user}" casing=” InitCaps”/> returns the database user name with all characters as lowercase; only the first character of every word is changed into uppercase.

Meaning in Header and Footer

For a header and/or footer it is possible to use expressions. It is only possible to use group values such as "$E{first:naam}" instead of the current value, such as "$E{naam}". The value will then be equal to the value the expression had at the beginning of the current section.

1.8.15 <invantive:foreach>...</invantive:foreach>

Sequences from the Model

With `<invantive:foreach>...</invantive:foreach>` you can repeat a sequence, every time again with different values for the variables. This instruction can be added easily with Building Block 19.

An example of <invantive:foreach>...</invantive:foreach>:

- <invantive:foreach block="cde" />: supplies subsequently the data from the block cde that is described in the model.

Apart from the block, you can also enter an alias to later use with the <invantive:value-of>. If no alias is specified, the alias will be the sames as the value for "block".

SQL Sequences

Some sequences can not be easily described in the model. That is why with Invantive Composition you can also describe sequences in free text as SQL:

- <invantive:foreach query="select gbr_naam from bubs_gebruikers_v" />: provides successively each person's name from the system.
- <invantive:foreach query="select gbr_naam from bubs_gebruikers_v where gbr_naam = $P{p_naam} order by gbr_naam" />: provides successively every person's name from the system, which is equal to the value of the parameter p_naam, sorted by name.
- <invantive:foreach alias="gbr" query="select gbr_naam from bubs_gebruikers_v" />: successively provides each person's name from the system. These data can also be requested from <invantive:value-of> by entering the alias in front of the field code.

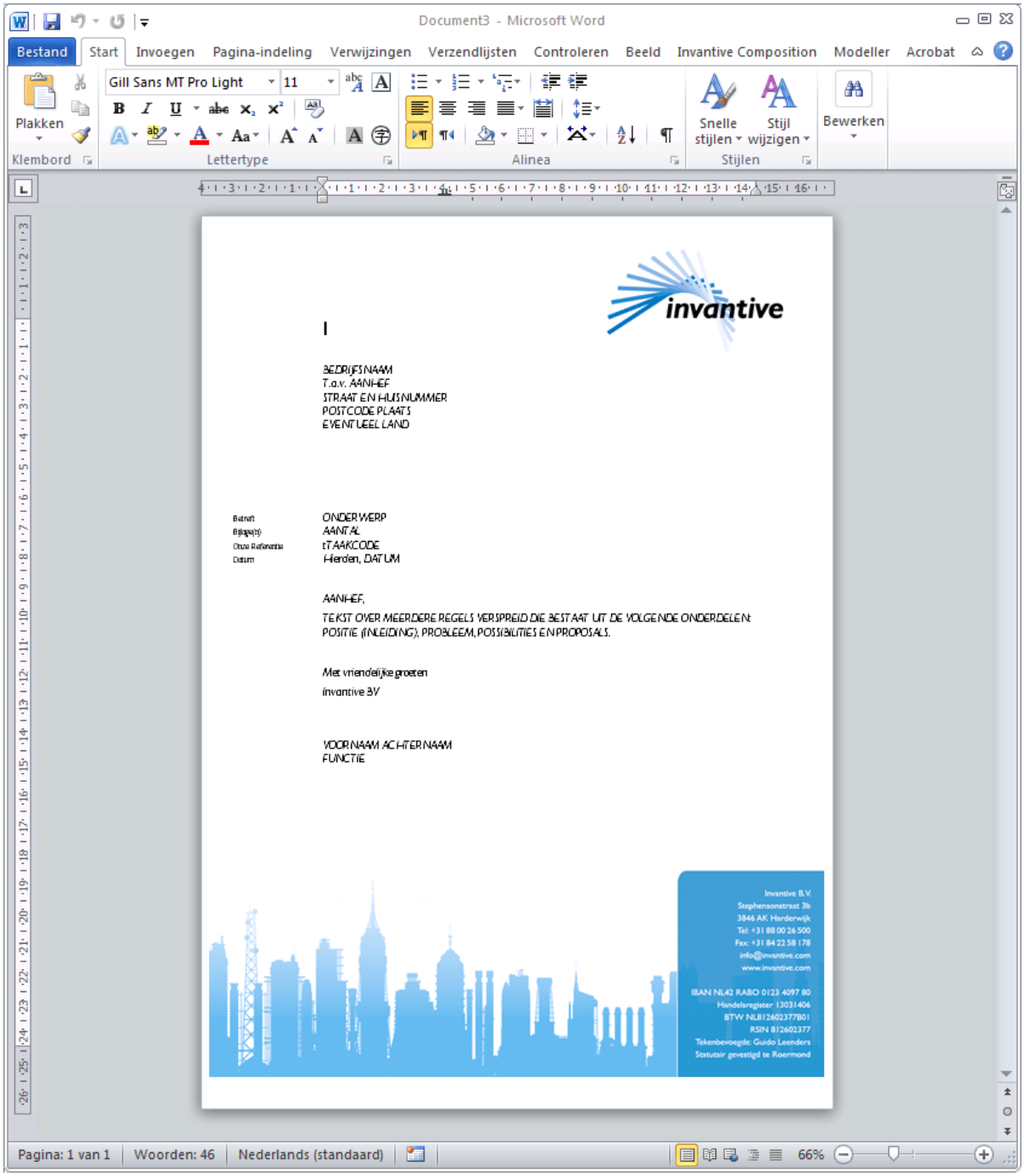
The queries you can use '*' to retrieve all fields. With <invantive:value-of> you still need to specify the exact field name.

1.8.16 Voorbeeld seriebrief

The following example shows you how to compose a series letter that can be sent to all employees of the company with an overview of their used leave hours.

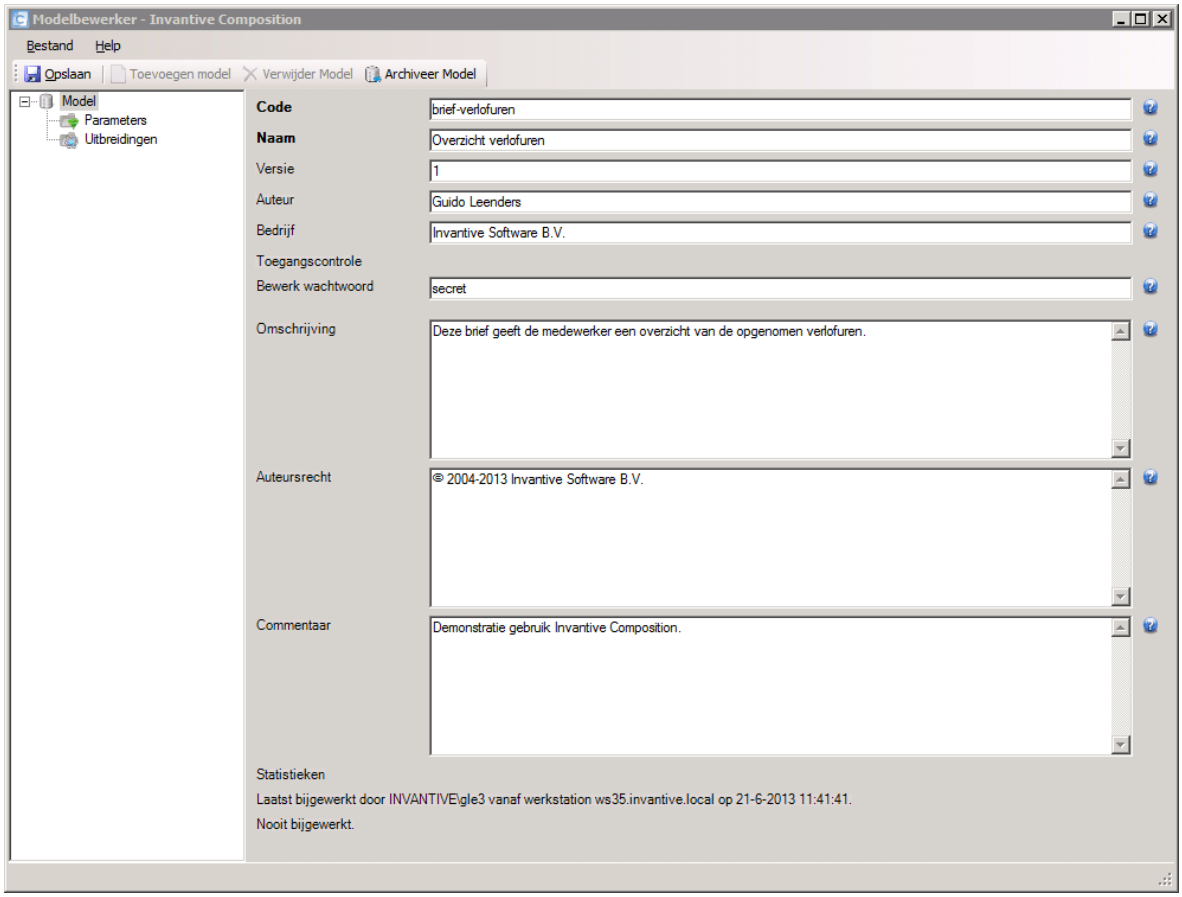
Perform the following steps:

- Start Microsoft Word.
- Log in to Invantive Composition as described in Connect 12.
- Make a new file, for example on the basis of the prescribed layout for letters within the company. The end result might be for example:

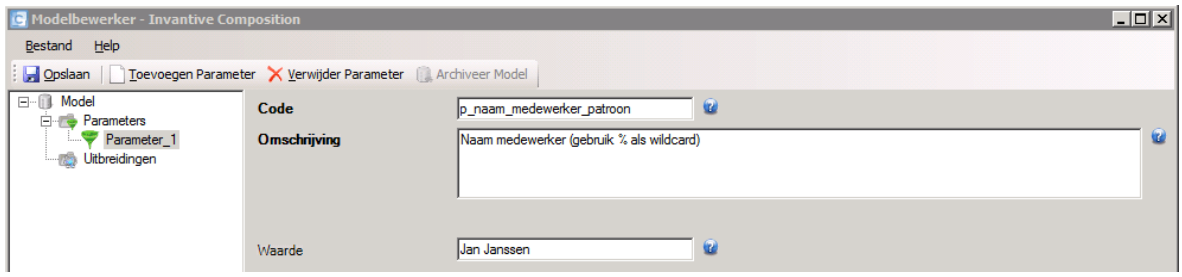


- Set the fixed texst in the letter. In this example we assume that we are giving an employee an overview of his recorded leave hours of the last year.
- Be careful not to use any unnecessary line breaks or any double spaces. Use styles.
- The final template without information from the database is:

- Click on 'Install Database' in the Modeller ribbon. This changes the document in a template for Invantive Composition.
- With the button 'Design Modus' you shift between being able to edit or not being able to edit the model using 'Edit Model'.
- Click on 'Edit Model' and adjust the model as follows:



- You wish to be able to print out the letter just for one specific employee which you enter at the start.
- That is why you need to enter a parameter as follows in the model:



- Then finally choose 'Save' and close the model editor.
- You can now leave the design modus by clicking on the button 'Design Modus' one more time.
- Next we will add instructions to add data to the letter when the template is opened.
- Be careful: Microsoft Word, depending on your settings, changes the straight double quote (") in open or close quotes. If this happens, press Ctrl+Z (undo) immediately; you will then regain the originally entered straight double quote.
- We will now add the following query lines and parameters to the document. With these rules Invantive Composition will allow you to automatically fill your document with dynamic texts:
- Foreach query rule:

To ensure that the same information layout returns on every document, we add the query line "foreach". This indicates that you want the same information to be applied on every document with the same layout. Within the "foreach" query line you enter all information that you wish to have on the employee. The "foreach" query line looks like this:

```
<invantive:foreach query="select gbr_voornaam || case when
gbr_tussenvoegsel is not null then ' ' || gbr_tussenvoegsel end
|| ' ' || gbr_achternaam gbr_volledige_naam, case when
gbr_geslacht_ind='M' then 'heer' else 'mevrouw' end
gbr_aanhef_geslacht, gbr_adres_regel_1, gbr_postcode,
gbr_plaats, gbr_land, to_char(sysdate, 'dd-mm-yyyy') vandaag,
lvr_naam, gbr_baas_functie, gbr_baas_naam,
to_char(add_months(sysdate, -6) , 'dd-mm-yyyy') || '-' ||
to_char(sysdate, 'dd-mm-yyyy') periode, gbr_id from
bubs_gebruikers_v where gbr_naam like
$P{p_naam_medewerker_patroon} || '%' and lvr_code = '13031406'
and gbr_tijdschrijver_vlag = 'Y' order by gbr_naam ">
```

- Now that we have entered the "foreach" query for the document, the different "parameters" for the dynamic filling of the letter need to be added. The first "parameter" that we add is the addressing. This is because this differs for each letter. To automatically add addressing by Invantive Compositions, you add the following "parameters" to the document:

```
<invantive:value-of expression="$F{gbr_volledige_naam}"/>
<invantive:value-of expression="$F{gbr_adres_regel_1}"/>
<invantive:value-of expression="$F{gbr_postcode}"/> <in-
vantive:value-of expression="$F{gbr_plaats}"/>
<invantive:value-of expression="$F{gbr_land}"/>
```

- The next step is the adding of the "parameters" for the salutation and content information of the serial letter. Here you are also dealing with dynamic texts. The "parameters" that you wish to add automatically you place between the continuous text of your document. The implementation then looks as follows:

Subject Recorded leave during the period <invantive:value-of expression="$F{periode}"/> by <invantive:value-of expression="$F{gbr_volledige_naam}"/>
Appendix(es) 0
Our Reference <invantive:value-of expression="$P{p_referentie}"/>
Date Harderwijk, <invantive:value-of expression="$F{vandaag}"/>

- Now that we have added the "parameters" for the salutation we continue with the remainder of the serial letter. The next "parameters" that we add are part of the core of the serial letter. With these "parameters you ensure the proper mention of the personal data within the letter. By adding the following "parameters" within the ongoing text you allow Invantive Composition to automatically fill the text.

Dear <invantive:value-of expression="$F{gbr_aanhef_geslacht}"/> <invantive:value-of expression="$F{gbr_volledige_naam}"/>,

For your work activities within <invantive:value-of expression="$F{lvr_naam}"/> you accrue leave entitlement. If you make use of leave time then this will be at the expense of accrued leave hours. With this letter we

present you with an overview of the recored leave hours in the recent six months.

- Now that the dynamic texts are automatically added within the serial letter, we add the "parameters" for the leave hours. Because you want to have the same layout for each letter, you again add a "foreach" query line. With this query you retrieve all leave hours from the database and process these by Invantive Composition in the text. The query then looks as follows:

```
<invantive:foreach query="select to_char(uur_uren_inspanning,
'FM90D00') uur_uren_inspanning_c, to_char(uur_datum_start, 'dd-
mm-yyyy') uur_datum_start_c, uur_commentaar from bubs_uren_v
where gbr_id = $F{gbr_id}  and pjt_code like 'IVAC%' and
uur_datum_start > add_months(sysdate, -6) order by
uur_datum_start">
      <invantive:value-of expression="$F{uur_datum_start_c}"/>:
<invantive:value-of expression="$F{uur_uren_inspanning_c}"/>
uur</invantive:foreach>
```

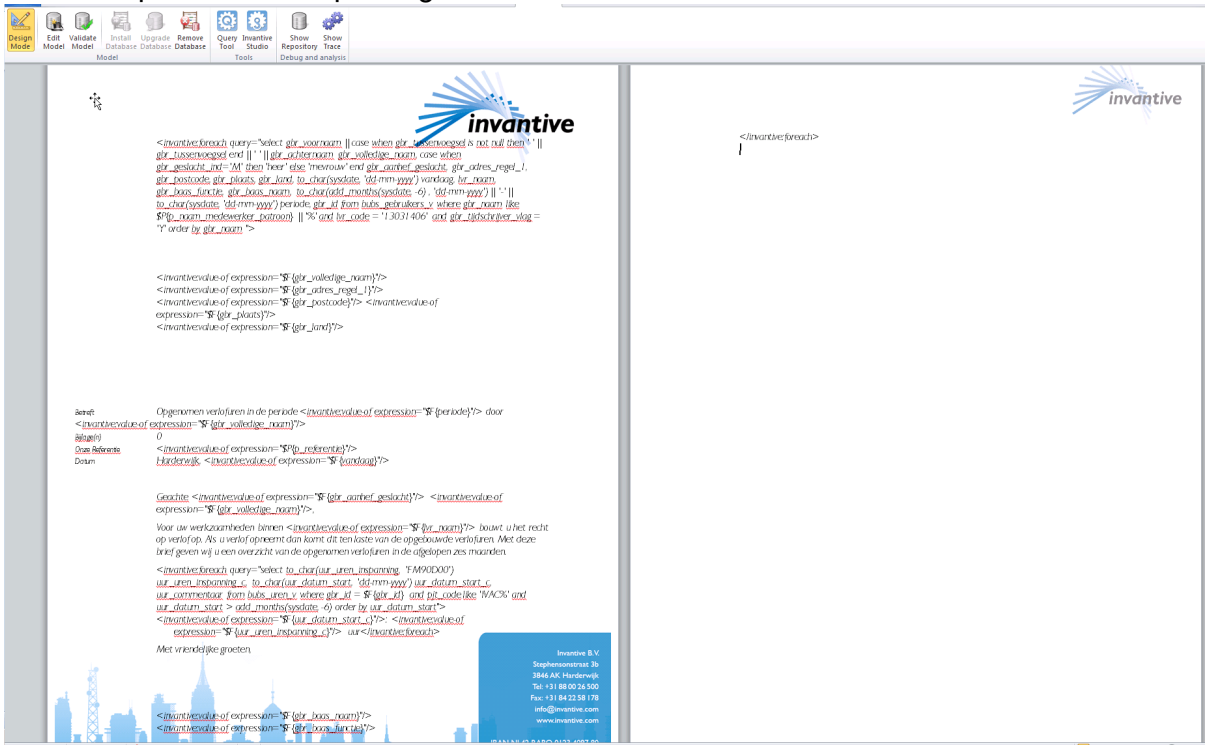
- Now that the leave hours are automatically entered, we close the serial letter with the sender. Here we also make use of "parameters" to automatically fill in the name and function of the sender. We enter the following "parameters":

```
<invantive:value-of expression="$F{gbr_baas_naam}"/>
<invantive:value-of expression="$F{gbr_baas_functie}"/>
```

- Now that all "parameters" have been added, we close the document with the following line:

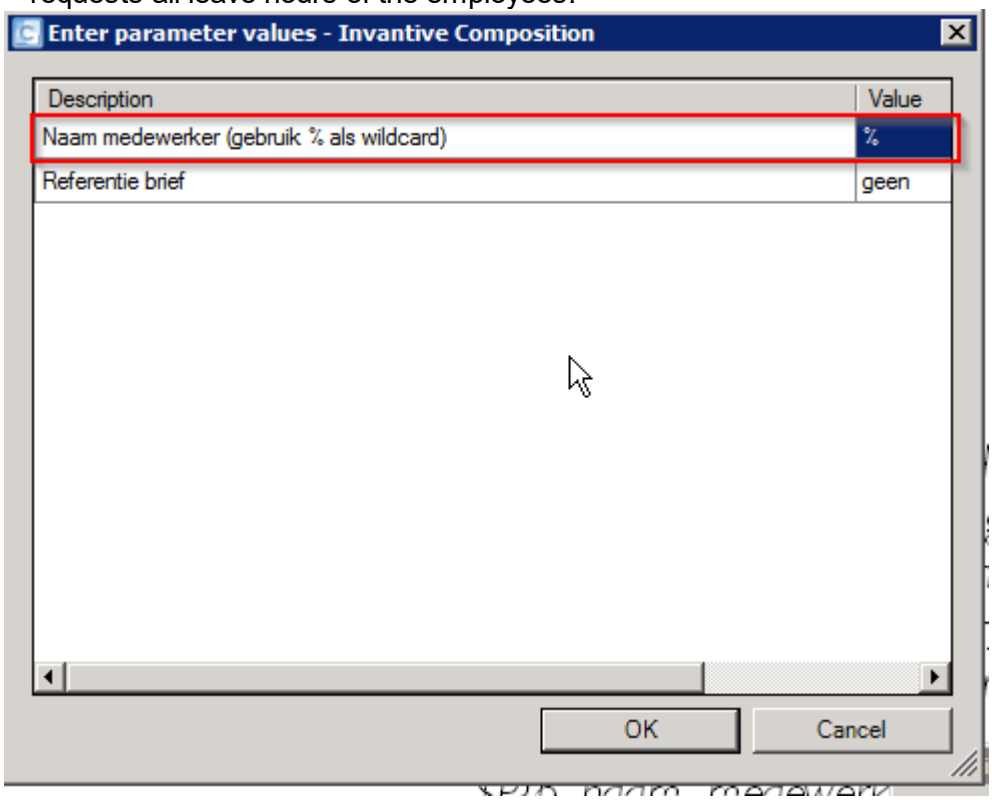
```
</invantive:foreach>
```

- The template for the requesting of the leave hours is now finished and looks as follows:

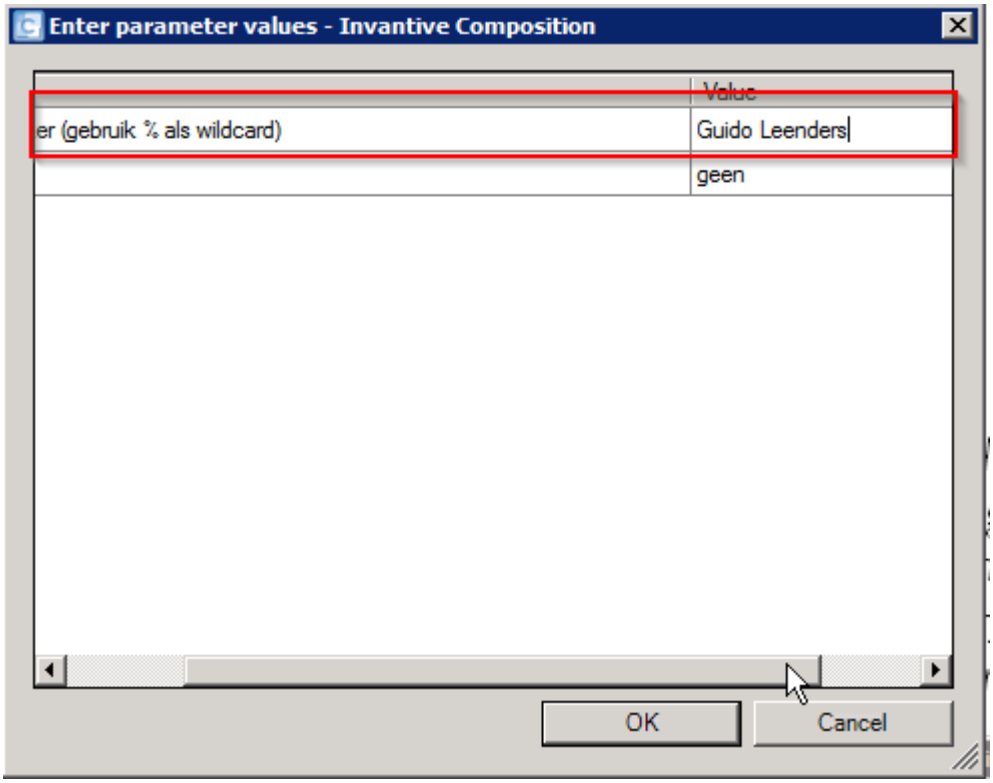


- Now save the template. For this example I will save the template as "voorbeeld-verlofuren-seriebrief" in Word.

- Now the model is saved Invantive Composition will allow you to publish this with a single click. By publishing the template Invantive Composition will retrieve the data from your database and the "parameters" will automatically be filled.
- To request the leave hours of an employee you will proceed as follows.
- Click on "Publish" and let Invantive Composition use the template to fetch the recorded leave.
- Now you see a window appear with "parameters". You will see here the "parameters" name employee and reference letter. This is currently on the setting "wildcard" which means that Invantice Composition does not add reference (this is different per letter) and requests all leave hours of the employees.



- To request the leave per employee, replace the "%" in "value" for the name of the employee. Do you want a reference? Fill these in as well then. Subsequently, click on "ok" to publish the model.



- Invantive Composition now asks you under which name and on which disc you want to save the document. Choose a name and drive and save the document.
- Now open the document with the requested leave hours. Your document will look as follows:

Guido Leenders
Stephensonstrtaat 3b
3846 AK Harderwijk

Betreft Opgenomen verlofuren in de periode 24-12-2012-24-06-2013 door Guido Leenders
Bijlage(n) 0
Onze Referentie geen
Datum Harderwijk, 24-06-2013

Geachte heer Guido Leenders,

Voor uw werkzaamheden binnen Invantive B.V. bouwt u het recht op verlof op. Als u verlof opneemt dan komt dit ten laste van de opgebouwde verlofuren. Met deze brief geven wij u een overzicht van de opgenomen verlofuren in de afgelopen zes maanden.

18-02-2013: 8,00 uur
19-02-2013: 8,00 uur
20-02-2013: 8,00 uur
21-02-2013: 8,00 uur
06-05-2013: 8,00 uur
07-05-2013: 8,00 uur
08-05-2013: 8,00 uur

Met vriendelijke groeten,

Guido Leenders

Directeur

1.8.17 Voorbeeld contract

The following example shows you how to compile a contract on the basis of data from a process.

Notice that the document that is filled with data from the database can still be edited afterwards! This way Invantive Composition offers totally different possibilities compared to the standard reporting help resources.

2 Invantive Basics

2.1 Configuration

2.1.1 Customer Service

All Invantive products exchanges 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`.

2.1.2 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.

2.1.3 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.

All Platforms

The following settings are available on all platforms:

- `INVANTIVE_MIN_GB_FREE_SYSTEM`: minimum amount of free disk space in GB on the system disk during startup. Defaults to 5 GB.

Microsoft Windows

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

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.

2.1.4 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 a 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.

2.1.5 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.

2.1.6 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_PERMANENT_CACHE_FOLDER: the folder with permanent disk cache files such as backups of Swagger specification files. Defaults to the root cache folder plus "permanent" and the OS-user and front-end user.
- INVANTIVE_CONFIGURATION_INCREMENTAL_DATA_FOLDER: the folder with permanent incremental data files such as Exact Online sync APIs. Defaults to the root cache folder plus "incdata" 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_CONFIGURATION_TEMPLATES_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:

- iiid: Invantive Installation ID.
- sessionid: Invantiv 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.

2.1.7 Capacity

The Invantive products can configure the capacity of various elements using environment variables.

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

The following settings are available on all platforms:

- `INVANTIVE_DEFAULT_THREAD_POOL_MIN_WORKER_THREADS`: minimum number of worker threads in default pool. Defaults to twice the number of processors.
- `INVANTIVE_DEFAULT_THREAD_POOL_MIN_ASYNC_IO_THREADS`: minimum number of asynchronous I/O threads in default pool. Defaults to twice the number of processors.

3 Invantive SQL

One of the most familiar questions at our support desk is "what functions are available" in Invantive UniversalSQL 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 37 depicts the possibilities.

3.1 Language

3.1.1 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 of 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 UniversalSQL. 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.

3.1.2 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 UniversalSQL 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'.

3.1.3 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.

3.1.4 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 UniversalSQL 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 UniversalSQL have multiple partitions active at the same time in one user session.

3.1.5 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 UniversalSQL.

3.1.6 Procedural SQL

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

3.1.7 Licensing

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

3.1.8 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 UniversalSQL 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 UniversalSQL will automatically merge these files in the main settings.xml file.

3.1.9 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 UniversalSQL. 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 ...)'.

3.1.10 Locking

An Invantive UniversalSQL 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.

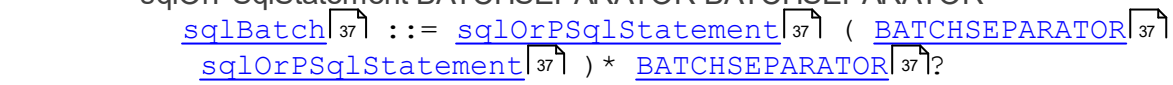
3.1.11 Transactions

Invantive UniversalSQL 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'.

3.1.12 Grammar

sqlBatch:

sqlOrPSqlStatement BATCHSEPARATOR BATCHSEPARATOR



no references

sqlOrPSqlStatement:

sqlStatement pSqlStatement

```
sqlOrPSqlStatement 37
          ::= sqlStatement 38
            | pSqlStatement 125
```

referenced by:

- sqlBatch 37

sqlStatement:

An Invantive UniversalSQL 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.

selectStatement insertStatement updateStatement deleteStatement ddlStatement setStatement useStatement transactionStatement executeFileStatement

```
sqlStatement 38
          ::= selectStatement 38
            | insertStatement 68
            | updateStatement 70
            | deleteStatement 70
            | ddlStatement 61
            | setStatement 65
            | useStatement 67
            | transactionStatement 65
            | executeFileStatement 66
```

referenced by:

- pSqlStatement 125
- sqlOrPSqlStatement 37

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 UniversalSQL 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 38
          ::= uniqueSelectStatement 39
 setOperatorSelectStatement 39* orderBy 52? limitClause 44?
```

referenced by:

- arithmeticExpression 78
- createTableStatement 64
- embeddedSelect 44
- inSelectStatement 39
- insertStatement 68
- pSqlForRecordLoopStatement 128
- sqlStatement 38
- useStatement 67

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
inSelectStatement 39
::= selectStatement 38

referenced by:

- predicateExpression 75

setOperatorSelectStatement:

SQL is based upon a solid mathematical foundation named 'set theory' with some exceptions. The set operators of Invantive UniversalSQL 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
setOperatorSelectStatement 39
::= (UNION 37 ALL 37 ? | MINUS_C 37 | INTERSECT 37)
uniqueSelectStatement 39

referenced by:

- selectStatement 38

uniqueSelectStatement:

Retrieves a data set from one or more data containers.

select executionHints distinct topClause selectList INTO variableList FROM dataSource joinStatements whereClause groupBy

uniqueSelectStatement[39]
::= select[40] executionHints[40]? distinct[43]? topClause[44] ? selectList[58] (INTO[69] variableList[43])? FROM[37] dataSource[40] joinStatements[53]? whereClause[53]? groupBy[52]?

referenced by:
- selectStatement[38]
- setOperatorSelectStatement[39]

dataSource:

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

tableOrFunctionSpec embeddedSelect xmlTableSpec csvTableSpec jsonTableSpec aliased
dataSource[40]
::= (tableOrFunctionSpec[45] | embeddedSelect[44] | xmlTableSpec[46] | csvTableSpec[48] | jsonTableSpec[47]) aliased[58]?

referenced by:
- joinStatement[54]
- uniqueSelectStatement[39]

select:

SELECT
select[40] ::= SELECT[40]

referenced by:
- uniqueSelectStatement[39]

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 UniversalSQL 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
executionHints[40]
::= EXECUTION_HINT_START[37] (joinSet[42] | noJoinSet[43] | ods[41] | resultSetName[42] | lowCost[43] | httpDiskCache[40] | httpMemoryCache[41])* EXECUTION_HINT_END[37]

referenced by:
- uniqueSelectStatement[39]

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 UniversalSQL sessions.

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

HTTP_DISK_CACHE PARENTHESIS_OPEN booleanConstant COMMA booleanConstant COMMA intervalConstant PARENTHESIS_CLOSE

```
httpDiskCache 40
          ::= HTTP_DISK_CACHE 37 ( PARENTHESIS_OPEN 37
 booleanConstant 123 ( COMMA 37 booleanConstant 123 ( COMMA 37
 intervalConstant 122 )? )? PARENTHESIS_CLOSE 37 )?
```

referenced by:

- executionHints 40

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 setting 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 UniversalSQL 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 41
          ::= HTTP_MEMORY_CACHE 37 ( PARENTHESIS_OPEN 37
 booleanConstant 123 ( COMMA 37 booleanConstant 123 ( COMMA 37
 intervalConstant 122 )? )? PARENTHESIS_CLOSE 37 )?
```

referenced by:

- executionHints 40

ods:

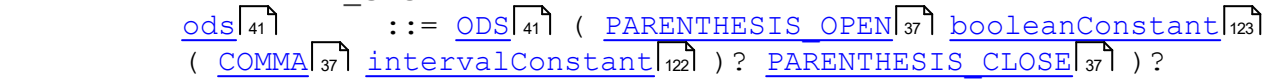
The ods-hint controls the use of the Invantive Data Cache stored in a relational database. The Invantive Data Cache is also the basis of the Operational Data Store managed by Invantive Data Replicator and the data warehouses managed by Invantive Data Vault. The ods-hint specifies the maximum age data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

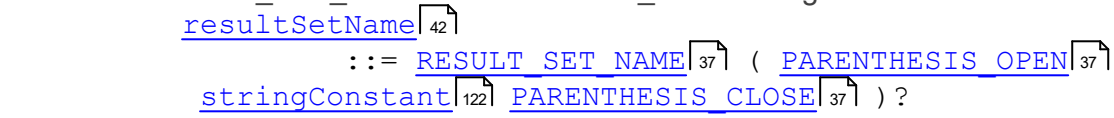


referenced by:

- executionHints 40

resultSetName:

RESULT_SET_NAME PARENTHESIS_OPEN stringConstant PARENTHESIS_CLOSE



referenced by:

- executionHints 40

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 upto 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.

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[42] ::= JOIN_SET[37] PARENTHESIS_OPEN[37] identifier[115] (COMMA[37] identifier[115] (COMMA[37] numericConstant[123])?)? PARENTHESIS_CLOSE[37]

referenced by:

- executionHints[40]

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

noJoinSet[43] ::= NO_JOIN_SET[37] PARENTHESIS_OPEN[37] identifier[115] (COMMA[37] identifier[115])? PARENTHESIS_CLOSE[37]

referenced by:

- executionHints[40]

variableList:

variableName COMMA variableName

variableList[43] ::= variableName[128] (COMMA[37] variableName[128])?

referenced by:

- uniqueSelectStatement[39]

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[43] ::= LOW_COST[37]

referenced by:

- executionHints[40]

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 43 ::= DISTINCT 43

referenced by:

- aggregateFunction 59
- uniqueSelectStatement 39

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
topClause 44
::= TOP 37 numericConstant 123

referenced by:

- uniqueSelectStatement 39

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
limitClause 44
::= LIMIT 37 numericConstant 123

referenced by:

- selectStatement 38

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 UniversalSQL 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.

parenthesisOpen selectStatement parenthesisClose
embeddedSelect 44
::= parenthesisOpen 72 selectStatement 38
parenthesisClose 73

referenced by:

- dataSource 40

tableSpec:

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.

fullTableIdentifier distributedAliasDirective

tableSpec 45
::= fullTableIdentifier 113 distributedAliasDirective 46 ?

referenced by:

- alterPersistentCacheDropStatement 63
- alterPersistentCacheSetTableOptions 64
- alterPersistentCacheTableRefreshStatement 63
- createTableStatement 64
- deleteStatement 70
- dropTableStatement 65
- insertStatement 68
- updateStatement 70

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 returns 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 45
::= fullTableIdentifier 113 tableFunctionSpec 45 ?
distributedAliasDirective 46 ?

referenced by:

- dataSource 40

tableFunctionSpec:

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

parenthesisOpen expression COMMA parenthesisClose

tableFunctionSpec 45
::= parenthesisOpen 72 (expression 71 (COMMA 37 expression 71)*)? parenthesisClose 73

referenced by:

- tableOrFunctionSpec 45

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 46
::= AT 37 dataContainerAlias 46

referenced by:

- partitionIdentifierWithAlias 68
- setIdentifier 65
- tableOrFunctionSpec 45
- tableSpec 45

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 UniversalSQL to precisely determine to what data container forward a request for data.

identifier
dataContainerAlias 46
::= identifier 115

referenced by:

- alterPersistentCacheRefreshStatement 62
- distributedAliasDirective 46

xmlTableSpec:

XMLTABLE parenthesisOpen stringConstant null xmlTablePassing xmlTableLiteral xmlTableColumns parenthesisClose
xmlTableSpec 46
::= XMLTABLE 37 parenthesisOpen 72 (stringConstant 122 | null 124) (xmlTablePassing 47 | xmlTableLiteral 47) xmlTableColumns 47 parenthesisClose 73

referenced by:

- dataSource 40

xmlTablePassing:

PASSING expression
xmlTablePassing 47
::= PASSING 37 expression 71

referenced by:
- xmlTableSpec 46

xmlTableLiteral:

LITERAL expression
xmlTableLiteral 47
::= LITERAL 37 expression 71

referenced by:
- xmlTableSpec 46

xmlTableColumns:

COLUMNS xmlTableColumSpec COMMA
xmlTableColumns 47
::= COLUMNS 37 xmlTableColumSpec 47 (COMMA 37 xmlTableColumSpec 47) *

referenced by:
- xmlTableSpec 46

xmlTableColumSpec:

identifier dataType PATH stringConstant
xmlTableColumSpec 47
::= identifier 115 dataType 49 PATH 37 stringConstant 122

referenced by:
- xmlTableColumns 47

jsonTableSpec:

JSONTABLE parenthesisOpen stringConstant null jsonTablePassing jsonTableLiteral jsonTableColumns parenthesisClose
jsonTableSpec 47
::= JSONTABLE 37 parenthesisOpen 72 (stringConstant 122 | null 124) (jsonTablePassing 47 | jsonTableLiteral 48) jsonTableColumns 48 parenthesisClose 73

referenced by:
- dataSource 40

jsonTablePassing:

PASSING expression
jsonTablePassing 47
::= PASSING 37 expression 71

referenced by:
- jsonTableSpec 47

jsonTableLiteral:

LITERAL expression
jsonTableLiteral 48
::= LITERAL 37 expression 71

referenced by:
- jsonTableSpec 47

jsonTableColumns:

COLUMNS jsonTableColumSpec COMMA
jsonTableColumns 48
::= COLUMNS 37 jsonTableColumSpec 48 (COMMA 37 jsonTableColumSpec 48)*

referenced by:
- jsonTableSpec 47

jsonTableColumSpec:

identifier dataType PATH stringConstant
jsonTableColumSpec 48
::= identifier 115 dataType 49 PATH 37 stringConstant 122

referenced by:
- jsonTableColumns 48

csvTableSpec:

CSVTABLE parenthesisOpen csvTablePassing csvTableLiteral csvTableOptions csvTableColumns parenthesisClose
csvTableSpec 48
::= CSVTABLE 37 parenthesisOpen 72 (csvTablePassing 49 | csvTableLiteral 49) csvTableOptions 48 csvTableColumns 49 parenthesisClose 73

referenced by:
- dataSource 40

csvTableOptions:

ROW DELIMITER stringConstant COLUMN DELIMITER stringConstant SKIP_ LINES numericConstant

csvTableOptions[48]
::= (ROW[37] DELIMITER[37] stringConstant[122])? (COLUMN[53] DELIMITER[37] stringConstant[122])? (SKIP_[37] LINES[37] numericConstant[123])?

referenced by:
- csvTableSpec[48]

csvTableLiteral:

LITERAL expression

csvTableLiteral[49]
::= LITERAL[37] expression[71]

referenced by:
- csvTableSpec[48]

csvTablePassing:

PASSING expression

csvTablePassing[49]
::= PASSING[37] expression[71]

referenced by:
- csvTableSpec[48]

csvTableColumns:

COLUMNS csvTableColumSpec COMMA

csvTableColumns[49]
::= COLUMNS[37] csvTableColumSpec[49] (COMMA[37] csvTableColumSpec[49])*

referenced by:
- csvTableSpec[48]

csvTableColumSpec:

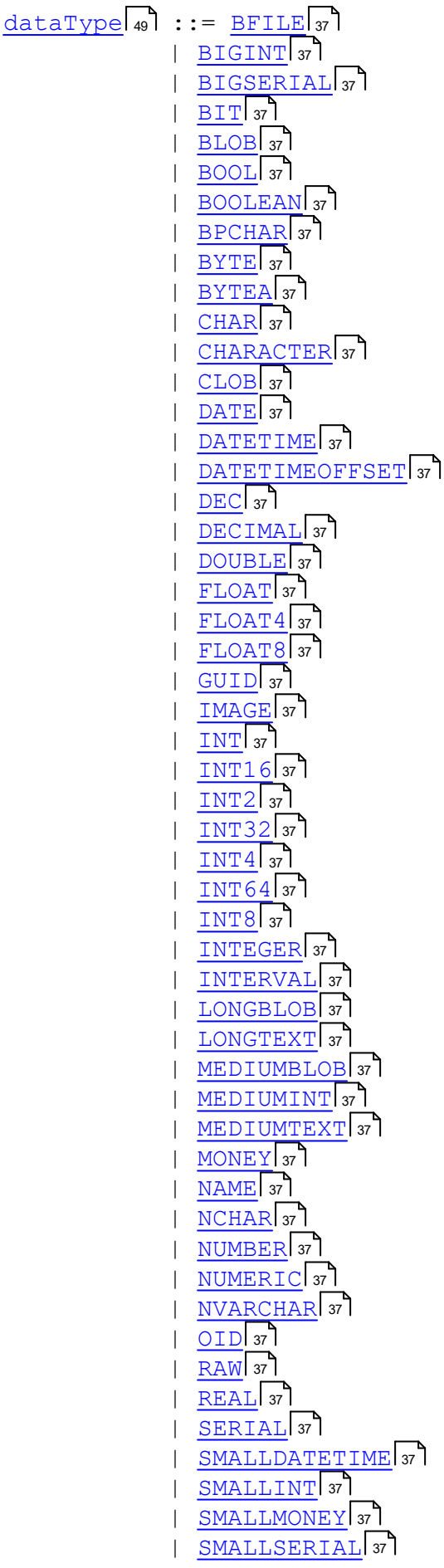
identifier dataType POSITION numericConstant

csvTableColumSpec[49]
::= identifier[115] dataType[49] POSITION[37] numericConstant[123]

referenced by:
- csvTableColumns[49]

dataType:

BFILE BIGINT BIGSERIAL BIT BLOB BOOL BOOLEAN BPCHAR 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 TEXT TIME TIMESTAMP TIMESTAMPTZ TIMETZ TINYBLOB TINYINT TINYTEXT UINT16 UINT32 UINT64 UNIQUEIDENTIFIER UUID VARBINARY VARCHAR VARCHAR2 XML XMLTYPE YEAR



| TEXT 37
| TIME 37
| TIMESTAMP 37
| TIMESTAMPTZ 37
| TIMETZ 37
| TINYBLOB 37
| TINYINT 37
| TINYTEXT 37
| UINT16 37
| UINT32 37
| UINT64 37
| UNIQUEIDENTIFIER 37
| UUID 37
| VARBINARY 37
| VARCHAR 37
| VARCHAR2 37
| XML 37
| XMLTYPE 37
| YEAR 111

referenced by:

- csvTableColumSpec 49
- jsonTableColumSpec 48
- pSqlItemDeclaration 124
- xmlTableColumSpec 47

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 52 ::= GROUP 37 BY 37 columnList 53

referenced by:

- uniqueSelectStatement 39

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 52 ::= ORDER 37 BY 37 column 53 sortDirection 53 ? (COMMA 37 column 53 sortDirection 53 ?) *

referenced by:

- aggregateFunction 59
- selectStatement 38

sortDirection:

A sort direction can be either 'asc' for 'ascending' (the default) or 'desc' for 'descending'.

asc desc

```
sortDirection 53
          ::= asc 58
            | desc 58
```

referenced by:

- orderBy 52

columnList:

A comma-separated list of columns.

column COMMA

```
columnList 53
          ::= column 53 ( COMMA 37 column 53 )*
```

referenced by:

- groupBy 52
- insertFieldList 69

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 53    ::= identifier 115 ( DOT 37 identifier 115 )?
```

referenced by:

- columnList 53
- orderBy 52
- updateValue 70

whereClause:

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

WHERE booleanExpression

```
whereClause 53
          ::= WHERE 37 booleanExpression 71
```

referenced by:

- deleteStatement 70
- uniqueSelectStatement 39
- updateStatement 70

joinStatements:

A list of join statement.

joinStatement
joinStatements 53
::= joinStatement 54 +

referenced by:

- uniqueSelectStatement 39

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.

joinCategory join dataSource joinConditions
joinStatement 54
::= joinCategory 54 join 55 dataSource 40
joinConditions 58 ?

referenced by:

- joinStatements 53

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. Each column that originates from the left result set is assigned a null value. 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.

inner joinSubCategory outer cross
joinCategory 54
::= (inner 55 | joinSubCategory 55 outer 55 ? | cross 56
) ?

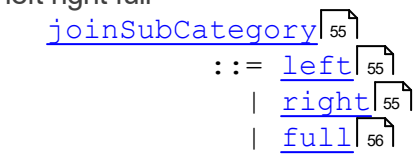
referenced by:

- joinStatement 54

joinSubCategory:

The join sub-category refines the join category. Please see 'joinCategory' for an explanation.

left right full



referenced by:

- joinCategory 54

join:

JOIN

referenced by:

- joinStatement 54

inner:

INNER

referenced by:

- joinCategory 54

outer:

OUTER

referenced by:

- joinCategory 54

left:

LEFT

referenced by:

- functionExpression 79
- joinSubCategory 55

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

right 55 ::= RIGHT 55

referenced by:

- functionExpression 79
- joinSubCategory 55

full:

FULL

full 56 ::= FULL 56

referenced by:

- joinSubCategory 55

cross:

CROSS

cross 56 ::= CROSS 56

referenced by:

- joinCategory 54

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.

SUM

sum 56 ::= SUM 56

referenced by:

- aggregateFunction 59

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.

PRODUCT

product 56 ::= PRODUCT 56

referenced by:

- aggregateFunction 59

min:

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

MIN
min 56 ::= MIN 56

referenced by:
- aggregateFunction 59

max:

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

MAX
max 57 ::= MAX 57

referenced by:
- aggregateFunction 59

avg:

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

AVG
avg 57 ::= AVG 57

referenced by:
- aggregateFunction 59

stddev:

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

STDDEV
stddev 57 ::= STDDEV 57

referenced by:
- aggregateFunction 59

count:

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

COUNT
count 57 ::= COUNT 57

referenced by:
- aggregateFunction 59

listagg:

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

LISTAGG
listagg 57 ::= LISTAGG 57

referenced by:
- aggregateFunction 59

asc:

ASC
asc 58 ::= ASC 58

referenced by:
- sortDirection 53

desc:

DESC
desc 58 ::= DESC 58

referenced by:
- sortDirection 53

joinConditions:

ON booleanExpression
joinConditions 58
::= ON 37 booleanExpression 71

referenced by:
- joinStatement 54

selectList:

selectPart COMMA
selectList 58
::= selectPart 58 (COMMA 37 selectPart 58)*

referenced by:
- uniqueSelectStatement 39

selectPart:

part aliased labeled
selectPart 58
::= part 59 aliased 58? labeled 59?

referenced by:
- selectList 58

aliased:

AS alias
aliased 58 ::= AS 37 ? alias 115

referenced by:

- dataSource 40
- selectPart 58

labeled:

LABEL stringConstant
labeled 59 ::= LABEL 37 stringConstant 122

referenced by:

- selectPart 58

part:

expression aggregateFunction allColumnsSpec
part 59 ::= expression 71
| aggregateFunction 59
| allColumnsSpec 59

referenced by:

- aggregateFunction 59
- selectPart 58

aggregateFunction:

sum product avg stddev parenthesisOpen distinct min max parenthesisOpen arithmeticExpression count parenthesisOpen distinct part listagg parenthesisOpen distinct arithmeticExpressionList parenthesisClose WITHIN GROUP parenthesisOpen orderBy parenthesisClose
aggregateFunction 59
::= (((sum 56 | product 56 | avg 57 | stddev 57)
parenthesisOpen 72 distinct 43 ? | (min 56 | max 57)
parenthesisOpen 72) arithmeticExpression 78 | count 57
parenthesisOpen 72 distinct 43 ? part 59 | listagg 57
parenthesisOpen 72 distinct 43 ? arithmeticExpressionList 79
(parenthesisClose 73 WITHIN 37 GROUP 37 parenthesisOpen 72
orderBy 52) ?) parenthesisClose 73

referenced by:

- part 59

allColumnsSpec:

allColumnsSpecId allColumnsSpecColumnNamePrefix allColumnsSpecColumnNamePostfix allColumnsSpecLabelPrefix allColumnsSpecLabelPostfix

allColumnsSpec[59]
::= allColumnsSpecId[60]
allColumnsSpecColumnNamePrefix[60]?
allColumnsSpecColumnNamePostfix[60]? allColumnsSpecLabelPrefix[60]?
allColumnsSpecLabelPostfix[60]?

referenced by:

- part[59]

allColumnsSpecId:

alias DOT ASTERIX
allColumnsSpecId[60]
::= (alias[115] DOT[37])? ASTERIX[37]

referenced by:

- allColumnsSpec[59]

allColumnsSpecColumnNamePrefix:

PREFIX WITH stringConstant
allColumnsSpecColumnNamePrefix[60]
::= PREFIX[37] WITH[37] stringConstant[122]

referenced by:

- allColumnsSpec[59]

allColumnsSpecColumnNamePostfix:

POSTFIX WITH stringConstant
allColumnsSpecColumnNamePostfix[60]
::= POSTFIX[37] WITH[37] stringConstant[122]

referenced by:

- allColumnsSpec[59]

allColumnsSpecLabelPrefix:

LABEL PREFIX WITH stringConstant
allColumnsSpecLabelPrefix[60]
::= LABEL[37] PREFIX[37] WITH[37] stringConstant[122]

referenced by:

- allColumnsSpec[59]

allColumnsSpecLabelPostfix:

LABEL POSTFIX WITH stringConstant
allColumnsSpecLabelPostfix[60]
::= LABEL[37] POSTFIX[37] WITH[37] stringConstant[122]

referenced by:

- allColumnsSpec 59

ddlStatement:

createTableStatement dropTableStatement alterPersistentCacheStatement

```
ddlStatement 61
          ::= createTableStatement 64
            | dropTableStatement 65
            | alterPersistentCacheStatement 61
```

referenced by:

- sqlStatement 38

alterPersistentCacheStatement:

Besides an in-memory cache valid during the duration of a session, Invantive UniversalSQL offers an integrated cache storing data persistently using an on-premise or cloud relation database such as SQL Server or PostgreSQL. When configured, Invantive UniversalSQL 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 UniversalSQL 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 UniversalSQL 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 cre-

ate 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.

alterPersistentCacheSetStatement alterPersistentCacheDownloadStatement alterPersistentCachePurgeStatement alterPersistentCacheRefreshStatement alterPersistentCacheLoadStatement alterPersistentCacheTableRefreshStatement alterPersistentCachePartitionRefreshStatement alterPersistentCacheDropStatement

alterPersistentCacheStatement 61
::= alterPersistentCacheSetStatement 64
| alterPersistentCacheDownloadStatement 62
| alterPersistentCachePurgeStatement 62
| alterPersistentCacheRefreshStatement 62
| alterPersistentCacheLoadStatement 63
| alterPersistentCacheTableRefreshStatement 63
| alterPersistentCachePartitionRefreshStatement 63
| alterPersistentCacheDropStatement 63

referenced by:

- ddlStatement 61

alterPersistentCachePurgeStatement:

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

alterPersistentCachePurgeStatement 62
::= ALTER 37 PERSISTENT 37 CACHE 37 PURGE 37 (UNKNOWN 37 | OBSOLETE 37 | READY 37 | DROPPABLE 37 | ALL 37) TABLE 37 PARTITION 37 VERSIONS 37

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCacheDownloadStatement:

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

alterPersistentCacheDownloadStatement 62
::= ALTER 37 PERSISTENT 37 CACHE 37 DOWNLOAD 37 FEED 37 (LICENSE 37 CONTRACT 37 CODE 37 stringConstant 122)? (DATA_CONTAINER 37 stringConstant 122)? (PARTITION 37 partitionSimpleIdentifier 68)? (LIMIT 37 numericConstant 123)?

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCacheRefreshStatement:

ALTER PERSISTENT CACHE FORCE REFRESH DATA_CONTAINER dataContainerAlias PARALLEL numericConstant

alterPersistentCacheRefreshStatement 62
::= ALTER 37 PERSISTENT 37 CACHE 37 FORCE 37 ? REFRESH 37 (DATA_CONTAINER 37 dataContainerAlias 46 ?) ? (PARALLEL 37 numericConstant 123) ?

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCacheLoadStatement:

ALTER PERSISTENT CACHE LOAD

alterPersistentCacheLoadStatement 63
::= ALTER 37 PERSISTENT 37 CACHE 37 LOAD 37

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCacheTableRefreshStatement:

ALTER PERSISTENT CACHE TABLE tableSpec FORCE REFRESH PARTITION partitionIdentifier PARALLEL numericConstant

alterPersistentCacheTableRefreshStatement 63
::= ALTER 37 PERSISTENT 37 CACHE 37 TABLE 37 tableSpec 45 FORCE 37 ? REFRESH 37 (PARTITION 37 partitionIdentifier 67) ? (PARALLEL 37 numericConstant 123) ?

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCachePartitionRefreshStatement:

ALTER PERSISTENT CACHE PARTITION partitionIdentifier FORCE REFRESH PARALLEL numericConstant

alterPersistentCachePartitionRefreshStatement 63
::= ALTER 37 PERSISTENT 37 CACHE 37 PARTITION 37 partitionIdentifier 67 FORCE 37 ? REFRESH 37 (PARALLEL 37 numericConstant 123) ?

referenced by:

- alterPersistentCacheStatement 61

alterPersistentCacheDropStatement:

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

alterPersistentCacheDropStatement[63]
::= ALTER[37] PERSISTENT[37] CACHE[37] DROP[37] (TABLE[37] tableSpec[45] (PARTITION[37] partitionIdentifier[67])? | PARTITION[37] partitionIdentifier[67] | DATA_CONTAINER[37] stringConstant[122])

referenced by:

- alterPersistentCacheStatement[61]

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

alterPersistentCacheSetStatement[64]
::= ALTER[37] PERSISTENT[37] CACHE[37] SET[37] ((FRESH[37] | RETENTION[37] FORWARDED[37] INCOMING[37] MESSAGES[37] | METADATA[37]? RECYCLEBIN[37] | DATA[37] MODEL[37] VERSION[37]) numericConstant[123] | TOKEN[37] stringConstant[122] | LOGICAL[37] (OVERALL[37] | PARTITION[37]) VIEW[37] (NAME[37] (PREFIX[37] | POSTFIX[37]) stringConstant[122] | MAINTAIN[37] booleanConstant[123]) | LOAD[37] MY[37] MESSAGES[37] booleanConstant[123] | AUTO[37] UPGRADE[37] ONCE[37] | alterPersistentCacheSetTableOptions[64])

referenced by:

- alterPersistentCacheStatement[61]

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

alterPersistentCacheSetTableOptions[64]
::= TABLE[37] tableSpec[45] (LOGICAL[37] (OVERALL[37] VIEW[37] (MAINTAIN[37] booleanConstant[123] | NAME[37] stringConstant[122]) | PARTITION[37] VIEW[37] (MAINTAIN[37] booleanConstant[123] | NAME[37] (PREFIX[37] | POSTFIX[37]) stringConstant[122])) | STATE[37] (OBSOLETE[37] | DROPPED[37]) | (PARTITION[37] partitionIdentifier[67])? APPROACH[37] (COPY[37] | TRICKLE[37] | SAMPLE[37]))

referenced by:

- alterPersistentCacheSetStatement[64]

createTableStatement:

CREATE orReplace TABLE tableSpec AS selectStatement

createTableStatement 64
::= CREATE 37 orReplace 65 ? TABLE 37 tableSpec 45 AS 37 selectStatement 38

referenced by:

- ddlStatement 61

dropTableStatement:

DROP TABLE tableSpec

dropTableStatement 65
::= DROP 37 TABLE 37 tableSpec 45

referenced by:

- ddlStatement 61

orReplace:

OR REPLACE

orReplace 65
::= OR 75 REPLACE 99

referenced by:

- createTableStatement 64

setStatement:

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

SET setIdentifier expression

setStatement 65
::= SET 37 setIdentifier 65 expression 71

referenced by:

- sqlStatement 38

setIdentifier:

attributeIdentifier distributedAliasDirective

setIdentifier 65
::= attributeIdentifier 114 distributedAliasDirective 46 ?

referenced by:

- setStatement 65

transactionStatement:

beginTransactionStatement rollbackTransactionStatement commitTransactionStatement

transactionStatement 65
::= beginTransactionStatement 66
| rollbackTransactionStatement 66
| commitTransactionStatement 66

referenced by:

- sqlStatement 38

executeFileStatement:

FILE_PATH
executeFileStatement 66
::= FILE_PATH 37

referenced by:

- sqlStatement 38

beginTransactionStatement:

A begin transaction statement initiates a transaction. Invantive UniversalSQL 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 66
::= BEGIN 37 TRANSACTION 37?

referenced by:

- transactionStatement 65

rollbackTransactionStatement:

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

ROLLBACK TRANSACTION
rollbackTransactionStatement 66
::= ROLLBACK 37 TRANSACTION 37?

referenced by:

- transactionStatement 65

commitTransactionStatement:

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

COMMIT TRANSACTION
commitTransactionStatement 66
::= COMMIT 37 TRANSACTION 37?

referenced by:

- transactionStatement 65

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 UniversalSQL 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 67
          ::= USE 37 ( partitionIdentifiersList 67 |
selectStatement 38 )
```

referenced by:

- sqlStatement 38

partitionIdentifiersList:

partitionIdentifierWithAlias COMMA

```
partitionIdentifiersList 67
          ::= partitionIdentifierWithAlias 68 ( COMMA 37
 partitionIdentifierWithAlias 68 ) *
```

referenced by:

- useStatement 67

partitionIdentifier:

parameterExpression numericConstant identifier ALL DEFAULT

```
partitionIdentifier 67
          ::= parameterExpression 76
            | numericConstant 123
            | identifier 115
            | ALL 37
            | DEFAULT 37
```

referenced by:

- alterPersistentCacheDropStatement 63
- alterPersistentCachePartitionRefreshStatement 63
- alterPersistentCacheSetTableOptions 64
- alterPersistentCacheTableRefreshStatement 63

- partitionIdentifierWithAlias 68

partitionIdentifierWithAlias:

partitionIdentifier distributedAliasDirective
partitionIdentifierWithAlias 68
::= partitionIdentifier 67 distributedAliasDirective 46 ?

referenced by:
- partitionIdentifiersList 67

partitionSimpleIdentifier:

numericConstant identifier
partitionSimpleIdentifier 68
::= numericConstant 123
| identifier 115

referenced by:
- alterPersistentCacheDownloadStatement 62

insertStatement:

bulk insert into tableSpec insertFieldList valuesExpression insertFieldList selectStatement identifiedByClause attachToClause
insertStatement 68
::= bulk 68 ? insert 69 into 69 tableSpec 45
(insertFieldList 69 valuesExpression 68 | insertFieldList 69 ?
selectStatement 38) identifiedByClause 70 ? attachToClause 70 ?

referenced by:
- sqlStatement 38

valuesExpression:

values_ insertValues
valuesExpression 68
::= values_ 69 insertValues 69

referenced by:
- insertStatement 68

bulk:

BULK
bulk 68 ::= BULK 68

referenced by:
- insertStatement 68

into:

INTO
into 69 ::= INTO 69

referenced by:
- insertStatement 68

insert:

INSERT
insert 69 ::= INSERT 69

referenced by:
- insertStatement 68

values_:

VALUES
values_ 69 ::= VALUES 37

referenced by:
- valuesExpression 68

insertFieldList:

parenthesisOpen columnList parenthesisClose
insertFieldList 69
::= parenthesisOpen 72 columnList 53 parenthesisClose 73

referenced by:
- insertStatement 68

insertValues:

parenthesisOpen insertValuesList parenthesisClose
insertValues 69
::= parenthesisOpen 72 insertValuesList 69
parenthesisClose 73

referenced by:
- valuesExpression 68

insertValuesList:

arithmeticExpression COMMA
insertValuesList 69
::= arithmeticExpression 78 (COMMA 37
arithmeticExpression 78)*

referenced by:

- insertValues 69

identifiedByClause:

IDENTIFIED BY arithmeticExpression
identifiedByClause 70
::= IDENTIFIED 37 BY 37 arithmeticExpression 78

referenced by:
- insertStatement 68

attachToClause:

ATTACH TO arithmeticExpression
attachToClause 70
::= ATTACH 37 TO 37 arithmeticExpression 78

referenced by:
- insertStatement 68

updateStatement:

UPDATE FROM tableSpec SET updateValuesList whereClause
updateStatement 70
::= UPDATE 37 FROM 37 ? tableSpec 45 SET 37
updateValuesList 70 whereClause 53 ?

referenced by:
- sqlStatement 38

updateValuesList:

updateValue COMMA
updateValuesList 70
::= updateValue 70 (COMMA 37 updateValue 70) *

referenced by:
- updateStatement 70

updateValue:

column EQ arithmeticExpression
updateValue 70
::= column 53 EQ 77 arithmeticExpression 78

referenced by:
- updateValuesList 70

deleteStatement:

delete FROM tableSpec whereClause
deleteStatement 70
::= delete 71 FROM 37? tableSpec 45 whereClause 53?

referenced by:
- sqlStatement 38

delete:

DELETE
delete 71 ::= DELETE 71

referenced by:
- deleteStatement 70

expression:

booleanExpression arithmeticExpression
expression 71
::= booleanExpression 71
| arithmeticExpression 78

referenced by:
- caseElseExpression 72
- caseWhenThenExpression 72
- csvTableLiteral 49
- csvTablePassing 49
- jsonTableLiteral 48
- jsonTablePassing 47
- pSqlAssignmentStatement 126
- pSqlExecuteImmediateStatement 126
- part 59
- setStatement 65
- tableFunctionSpec 45
- xmlTableLiteral 47
- xmlTablePassing 47

booleanExpression:

not booleanExpression and or booleanExpression parenthesisOpen booleanExpression parenthesisClose predicateExpression true false
booleanExpression 71
::= (not 74 | booleanExpression 71 (and 75 | or 75))
booleanExpression 71
| parenthesisOpen 72 booleanExpression 71
parenthesisClose 73
| predicateExpression 75
| true 75
| false 75

referenced by:

- booleanExpression 71
- expression 71
- joinConditions 58
- pSqlElsIfExpression 127
- pSqlIfStatement 127
- pSqlWhileLoopStatement 128
- whereClause 53

caseExpression:

case caseWhenThenExpression caseElseExpression end

caseExpression 72
::= case 73 caseWhenThenExpression 72+
caseElseExpression 72? end 74

referenced by:

- arithmeticExpression 78

caseWhenThenExpression:

when expression then arithmeticExpression

caseWhenThenExpression 72
::= when 73 expression 71 then 74 arithmeticExpression 78

referenced by:

- caseExpression 72

caseElseExpression:

else expression

caseElseExpression 72
::= else 74 expression 71

referenced by:

- caseExpression 72

parenthesisOpen:

PARENTHESIS_OPEN

parenthesisOpen 72
::= PARENTHESIS_OPEN 37

referenced by:

- aggregateFunction 59
- arithmeticExpression 78
- booleanExpression 71
- csvTableSpec 48
- embeddedSelect 44

- functionExpression 79
- insertFieldList 69
- insertValues 69
- jsonTableSpec 47
- now 113
- predicateExpression 75
- tableFunctionSpec 45
- utc 113
- xmlTableSpec 46

parenthesisClose:

PARENTHESIS_CLOSE
parenthesisClose 73
::= PARENTHESIS_CLOSE 37

referenced by:

- aggregateFunction 59
- arithmeticExpression 78
- booleanExpression 71
- csvTableSpec 48
- embeddedSelect 44
- functionExpression 79
- insertFieldList 69
- insertValues 69
- jsonTableSpec 47
- now 113
- predicateExpression 75
- tableFunctionSpec 45
- utc 113
- xmlTableSpec 46

case:

CASE
case 73 ::= CASE 73

referenced by:

- caseExpression 72

when:

WHEN
when 73 ::= WHEN 73

referenced by:

- caseWhenThenExpression 72

then:

THEN
then 74 ::= THEN 74

referenced by:
- caseWhenThenExpression 72

else:

ELSE
else 74 ::= ELSE 74

referenced by:
- caseElseExpression 72

end:

END
end 74 ::= END 74

referenced by:
- caseExpression 72

not:

NOT
not 74 ::= NOT 74

referenced by:
- booleanExpression 71
- isLikeComparingExpression 78
- isNullComparingExpression 77
- predicateExpression 75

is:

IS
is 74 ::= IS 74

referenced by:
- isNullComparingExpression 77

are:

ARE
are 74 ::= ARE 74

referenced by:
- isEqualComparingExpression 78

and:

AND
and 75 ::= AND 75

referenced by:
- booleanExpression 71
- predicateExpression 75

or:

OR
or 75 ::= OR 75

referenced by:
- booleanExpression 71

true:

TRUE
true 75 ::= TRUE 75

referenced by:
- booleanConstant 123
- booleanExpression 71

false:

FALSE
false 75 ::= FALSE 75

referenced by:
- booleanConstant 123
- booleanExpression 71

predicateExpression:

arithmeticExpression not in_ parenthesisOpen arithmeticExpression COMMA inSelectStatement parenthesisClose between arithmeticExpression and arithmeticExpression gt ge lt le eq neq arithmeticExpression isNullComparingExpression isLikeComparingExpression isEqualComparingExpression
predicateExpression 75
::= arithmeticExpression 78 ((gt 76 | ge 76 | lt 76 | le 76 | eq 77 | neq 77) arithmeticExpression 78 | not 74 ?
(between 77 arithmeticExpression 78 and 75 arithmeticExpression 78
| in_ 77 parenthesisOpen 72 (arithmeticExpression 78 (COMMA 37
arithmeticExpression 78) * | inSelectStatement 39)
parenthesisClose 73) | isNullComparingExpression 77 |
isLikeComparingExpression 78 | isEqualComparingExpression 78)

referenced by:

- booleanExpression 71

parameterExpression:

COLON identifier

parameterExpression 76 ::= COLON 37 identifier 115

referenced by:

- arithmeticExpression 78
- partitionIdentifier 67

gt:

Greater then 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.

GT

gt 76 ::= GT 76

referenced by:

- predicateExpression 75

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.

GE

ge 76 ::= GE 76

referenced by:

- predicateExpression 75

lt:

Less then 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.

LT

lt 76 ::= LT 76

referenced by:

- predicateExpression 75

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.

LE
le 76 ::= LE 76

referenced by:
- predicateExpression 75

eq:

EQ
eq 77 ::= EQ 77

referenced by:
- predicateExpression 75

neq:

NEQ
neq 77 ::= NEQ 77

referenced by:
- predicateExpression 75

like:

LIKE
like 77 ::= LIKE 77

referenced by:
- isLikeComparingExpression 78

between:

BETWEEN
between 77 ::= BETWEEN 77

referenced by:
- predicateExpression 75

in_:

IN
in_ 77 ::= IN 37

referenced by:
- predicateExpression 75

isNullComparingExpression:

is not NULL

isNullComparingExpression 77
::= is 74 not 74 ? NULL 124

referenced by:

- predicateExpression 75

isEqualComparingExpression:

are EQUAL
isEqualComparingExpression 78
::= are 74 ? EQUAL 37

referenced by:

- predicateExpression 75

isLikeComparingExpression:

not like arithmeticExpression
isLikeComparingExpression 78
::= not 74 ? like 77 arithmeticExpression 78

referenced by:

- predicateExpression 75

arithmeticExpression:

minus plus arithmeticExpression times divide plus minus concat arithmeticExpression parenthesisOpen arithmeticExpression selectStatement parenthesisClose functionExpression parameterExpression caseExpression fieldIdentifier constant
arithmeticExpression 78
::= (minus 95 | plus 96 | arithmeticExpression 78
(times 105 | divide 89 | plus 96 | minus 95 | concat 86))
arithmeticExpression 78
| parenthesisOpen 72 (arithmeticExpression 78 |
selectStatement 38) parenthesisClose 73
| functionExpression 79
| parameterExpression 76
| caseExpression 72
| fieldIdentifier 114
| constant 121

referenced by:

- aggregateFunction 59
- arithmeticExpression 78
- arithmeticExpressionList 79
- attachToClause 70
- caseWhenThenExpression 72
- expression 71
- identifiedByClause 70
- insertValuesList 69
- isLikeComparingExpression 78

- predicateExpression 75
- updateValue 70

arithmeticExpressionList:

arithmeticExpression list
arithmeticExpressionList 79
::= arithmeticExpression 78 (list 92
arithmeticExpression 78)*

referenced by:

- aggregateFunction 59
- functionExpression 79

functionExpression:

abs acos anonymize ascii asin atan atan2 base64_decode base64_encode bit_length octet_length camel ceil chr coalesce concat_func cos covfefify compress uncompress dateadd datepart date_ceil 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 ln log lower lpad ltrim md5 metaphone metaphone3 metaphone3_alt microsecond millisecond minute mod month newid number_to_speech normalize nvl power quarter quote_ident quote_literal quote_nullable raise_error random random_blob rand rank regexp_instr regexp_replace regexp_substr remainder replace repeat 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 unistr unix_timestamp upper urldecode urlencode user unzip zip xmlcomment xmldecode xmlencode xmlelement xmlformat xmltransform year add_months zero_blob parenthesisOpen arithmeticExpressionList parenthesisClose random rand row_number now utc user

functionExpression 79
::= (abs 80 | acos 81 | anonymize 81 | ascii 82 | asin 82 | atan 82 | atan2 82 | base64_decode 83 | base64_encode 83 | bit_length 84 | octet_length 85 | camel 84 | ceil 84 | chr 84 | coalesce 85 | concat_func 86 | cos 86 | covfefify 86 | compress 86 | uncompress 87 | dateadd 87 | datepart 87 | date_ceil 87 | date_floor 87 | date_round 88 | date_trunc 88 | day 88 | dayofweek 88 | dayofyear 89 | dense_rank 89 | double_metaphone 89 | double_metaphone_alt 89 | exp_func 90 | floor 90 | from_unixtime 90 | hour 91 | httpget 110 | httpget_text 110 | httppost 110 | initcap 91 | instr 91 | jsondecode 91 | jsonencode 92 | left 55 | length 92 | levenshtein 92 | ln 92 | log 93 | lower 93 | lpad 93 | ltrim 93 | md5 94 | metaphone 94 | metaphone3 94 | metaphone3_alt 94 | microsecond 100 | millisecond 101 | minute 95 | mod 94 | month 95 | newid 95 | number_to_speech 101 | normalize 101 | nvl 96 | power 96 | quarter 110 | quote_ident 111 | quote_literal 111 | quote_nullable 111 | raise_error 85 | random 96 | random_blob 97 | rand 97 | rank 97 | regexp_instr 98 | regexp_replace 98 | regexp_substr 97 | remainder 99 | replace 99 | repeat 85 | reverse 99 | right 55 | round 99 | row_number 100 | rpad 100 | rtrim 100 | second 102 | sin 102 | soundex 102 | sqrt 102 | substr 102 | sys_context 103 | tan 105 | to_binary 112 | to_char 112 | to_date 112 | to_number 113 | to_guid 112 | to_hex 106 | translate 105 | translate_resources 105 | trim 106 | trunc 106 | unistr 106 | unix_timestamp 107 | upper 107 | urldecode 107 | urlencode 107 | user 111 | unzip 108 | zip 108 | xmlcomment 108 | xmldecode 108 | xmlencode 109 | xmlelement 109 | xmlformat 109 | xmltransform 109 | year 111 | add_months 83 | zero_blob 113)
parenthesisOpen 72 arithmeticExpressionList 79? parenthesisClose 73
| random 96
| rand 97
| row_number 100
| now 113
| utc 113
| user 111

referenced by:

- arithmeticExpression 78

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
abs 80 ::= ABS 80

referenced by:

- functionExpression 79

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

acos 81 ::= ACOS 81

referenced by:

- functionExpression 79

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 sofar in the session and their corresponding values:

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

Returns: Anonymized value. ANONYMIZE

anonymize 81 ::= ANONYMIZE 81

referenced by:

- functionExpression 79

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

ascii 82 ::= ASCII 82

referenced by:

- functionExpression 79

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

asin 82 ::= ASIN 82

referenced by:

- functionExpression 79

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 82 ::= ATAN 82

referenced by:

- functionExpression 79

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 82 ::= ATAN2 82

referenced by:

- functionExpression 79

add_months:

Add an amount of months to a datetime.

Parameters:

- Date: datetime to ass the months to.
- Months: the amount of months to add.

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

add_months 83 ::= ADD_MONTHS 83

referenced by:

- functionExpression 79

base64_decode:

Converts the base64_encoded value back to the binairy value as defined on Wikipedia.

Parameters:

- Input: value to convert back to the original.

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

base64_decode 83 ::= BASE64_DECODE 83

referenced by:

- functionExpression 79

base64_encode:

Converts a binairy 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 83 ::= BASE64_ENCODE 83

referenced by:

- functionExpression 79

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 84      ::= CAMEL 84
```

referenced by:

- functionExpression 79

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 84       ::= CEIL 84
```

referenced by:

- functionExpression 79

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 84        ::= CHR 84
                | CHAR 37
```

referenced by:

- functionExpression 79

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 84
::= BIT_LENGTH 84

referenced by:

- functionExpression 79

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 number 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 85
::= OCTET_LENGTH 85

referenced by:

- functionExpression 79

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 85 ::= REPEAT 85

referenced by:

- functionExpression 79

raise_error:

RAISE_ERROR

raise_error 85
::= RAISE_ERROR 85

referenced by:

- functionExpression 79

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 85 ::= COALESCE 85

referenced by:

- functionExpression 79

concat:

Concatenate the left and right values together as a text.

CONCAT_OP
concat 86 ::= CONCAT_OP 37

referenced by:

- arithmeticExpression 78

concat_func:

Concatenate a list of values together as a text.

CONCAT
concat_func 86
::= CONCAT 86

referenced by:

- functionExpression 79

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 86 ::= COS 86

referenced by:

- functionExpression 79

covfefify:

COVFEFIFY
covfefify 86
::= COVFEFIFY 86

referenced by:

- functionExpression 79

compress:

COMPRESS
compress 86 ::= COMPRESS 86

referenced by:

- functionExpression 79

uncompress:

UNCOMPRESS

uncompress 87 ::= UNCOMPRESS 87

referenced by:

- functionExpression 79

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 wich the interval should be added.

Returns: The original date with the number of intervals added. DATEADD

dateadd 87 ::= DATEADD 87

referenced by:

- functionExpression 79

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. DATEPART

datepart 87 ::= DATEPART 87

referenced by:

- functionExpression 79

date_ceil:

DATE_CEIL

date_ceil 87 ::= DATE_CEIL 87

referenced by:

- functionExpression 79

date_floor:

DATE_FLOOR
date_floor 87
::= DATE_FLOOR 87

referenced by:
- functionExpression 79

date_round:

DATE_ROUND
date_round 88
::= DATE_ROUND 88

referenced by:
- functionExpression 79

date_trunc:

DATE_TRUNC
date_trunc 88
::= DATE_TRUNC 88

referenced by:
- functionExpression 79

day:

Collect the day from a date.

Parameters:
- Input: A dateTime.

Returns: The day as an integer. DAY
day 88 ::= DAY 88

referenced by:
- functionExpression 79

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 88
::= DAYOFWEEK 88

referenced by:
- functionExpression 79

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 89
::= DAYOFYEAR 89

referenced by:

- functionExpression 79

dense_rank:

DENSE_RANK

dense_rank 89
::= DENSE_RANK 89

referenced by:

- functionExpression 79

double_metaphone:

DOUBLE_METAPHONE

double_metaphone 89
::= DOUBLE_METAPHONE 89

referenced by:

- functionExpression 79

double_metaphone_alt:

DOUBLE_METAPHONE_ALT

double_metaphone_alt 89
::= DOUBLE_METAPHONE_ALT 89

referenced by:

- functionExpression 79

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 89 ::= DIVIDE 89

referenced by:

- arithmeticExpression 78

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 90 ::= EXP_OP 37

no references

exp_func:

EXP
exp_func 90 ::= EXP 90

referenced by:

- functionExpression 79

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 90 ::= FLOOR 90

referenced by:

- functionExpression 79

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 90
::= FROM_UNIXTIME 90

referenced by:

- functionExpression 79

hour:

Collect the hour from a date.

Parameters:

- Input: A dateTime.

Returns: The hour as an integer. HOUR

hour 91 ::= HOUR 91

referenced by:

- functionExpression 79

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 91 ::= INITCAP 91

referenced by:

- functionExpression 79

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 91 ::= INSTR 91

referenced by:

- functionExpression 79

jsondecode:

JSONDECODE

jsondecode 91
::= JSONDECODE 91

referenced by:

- functionExpression 79

jsonencode:

JSONENCODE
jsonencode 92
::= JSONENCODE 92

referenced by:
- functionExpression 79

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 92 ::= LENGTH 92

referenced by:
- functionExpression 79

levenshtein:

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

LEVENSHTEIN
levenshtein 92
::= LEVENSHTEIN 92

referenced by:
- functionExpression 79

list:

COMMA
list 92 ::= COMMA 37

referenced by:
- arithmeticExpressionList 79

ln:

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
ln 92 ::= LN 92

referenced by:
- functionExpression 79

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

log 93 ::= LOG 93

referenced by:

- functionExpression 79

lower:

Converts provided string to lowercase.

Parameters:

- Input: the string that will be converted to lowercase.

Returns: A string converted to lowercase. LOWER

lower 93 ::= LOWER 93

referenced by:

- functionExpression 79

lpad:

Pad a string to the left to make it a specified length.

Parameters:

- Input: string to be padded.
- Lenght: 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

lpad 93 ::= LPAD 93

referenced by:

- functionExpression 79

ltrim:

Trims characters from the left side of a string.

Parameters:

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

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

ltrim 93 ::= LTRIM 93

referenced by:

- functionExpression 79

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 94          ::= MD5 94
```

referenced by:

- functionExpression 79

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 94
            ::= METAPHONE 94
```

referenced by:

- functionExpression 79

metaphone3:

METAPHONE3

```
metaphone3 94
            ::= METAPHONE3 94
```

referenced by:

- functionExpression 79

metaphone3_alt:

METAPHONE3_ALT

```
metaphone3_alt 94
            ::= METAPHONE3_ALT 94
```

referenced by:

- functionExpression 79

mod:

Get the remainder of a divide calculation.

Parameters:

- dividend: a number.
- divider: a number.

Returns: The remainder. MOD

mod 94 ::= MOD 94

referenced by:

- functionExpression 79

minus:

Subtracts a value from another.

Parameters:

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

Returns: The value minus the subtraction. MINUS

minus 95 ::= MINUS 95

referenced by:

- arithmeticExpression 78

minute:

Collect the minute from a date.

Parameters:

- Input: A dateTime.

Returns: The minute as an integer. MINUTE

minute 95 ::= MINUTE 95

referenced by:

- functionExpression 79

month:

Collect the month from a date.

Parameters:

- Input: A dateTime.

Returns: The month as an integer. MONTH

month 95 ::= MONTH 95

referenced by:

- functionExpression 79

newid:

Creates a new Guid id.

Returns: The new Guid id.

NEWID
newid 95 ::= NEWID 95

referenced by:
- functionExpression 79

nvl:

Coalesce all values together.

Returns: All values coalesced together.

NVL
nvl 96 ::= NVL 96

referenced by:
- functionExpression 79

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 eachother. PLUS
plus 96 ::= PLUS 96

referenced by:
- arithmeticExpression 78

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
power 96 ::= POWER 96

referenced by:
- functionExpression 79

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

random 96 ::= RANDOM 96

referenced by:

- functionExpression 79

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

random_blob 97 ::= RANDOM_BLOB 97

referenced by:

- functionExpression 79

rand:

RAND

rand 97 ::= RAND 97

referenced by:

- functionExpression 79

rank:

RANK

rank 97 ::= RANK 97

referenced by:

- functionExpression 79

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. REGEXP_SUBSTR

regexp_substr 97
::= REGEXP_SUBSTR 97

referenced by:

- functionExpression 79

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. REGEXP_INSTR

regexp_instr 98
::= REGEXP_INSTR 98

referenced by:

- functionExpression 79

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 ('$') 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.

REGEXP_REPLACE

regexp_replace 98
::= REGEXP_REPLACE 98

referenced by:

- functionExpression 79

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

remainder 99
::= REMAINDER 99

referenced by:

- functionExpression 79

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

replace 99 ::= REPLACE 99

referenced by:

- functionExpression 79

reverse:

Flips the input around.

Parameters:

- Input: text to flip around.

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

reverse 99 ::= REVERSE 99

referenced by:

- functionExpression 79

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. ROUND

round 99 ::= ROUND 99

referenced by:

- functionExpression 79

row_number:

ROW_NUMBER

row_number 100 ::= ROW_NUMBER 100

referenced by:

- functionExpression 79

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. RPAD

rpad 100 ::= RPAD 100

referenced by:

- functionExpression 79

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

rtrim 100 ::= RTRIM 100

referenced by:

- functionExpression 79

microsecond:

Collect the microsecond from a date.

Parameters:

- Input: A dateTime.

Returns: The microsecond as an integer. MICROSECOND

microsecond 100
::= MICROSECOND 100

referenced by:

- functionExpression 79

millisecond:

Collect the millisecond from a date.

Parameters:

- Input: A dateTime.

Returns: The millisecond as an integer. MILLISECOND

millisecond 101
::= MILLISECOND 101

referenced by:

- functionExpression 79

number_to_speech:

NUMBER_TO_SPEECH

number_to_speech 101
::= NUMBER_TO_SPEECH 101

referenced by:

- functionExpression 79

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

normalize 101
::= NORMALIZE 101

referenced by:

- functionExpression 79

second:

Collect the second from a date.

Parameters:

- Input: A dateTime.

Returns: The second as an integer. SECOND
second 102 ::= SECOND 102

referenced by:

- functionExpression 79

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
soundex 102 ::= SOUNDEX 102

referenced by:

- functionExpression 79

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
sin 102 ::= SIN 102

referenced by:

- functionExpression 79

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
sqrt 102 ::= SQRT 102

referenced by:

- functionExpression 79

substr:

Gets a substring from the input.

Parameters:

- Input: text to gather the substring from.
- Start: start position.
- Lenght: maximum lenght of the substring.

Returns: The substring from the original input. SUBSTR

substr[102] ::= SUBSTR[102]

referenced by:

- functionExpression[79]

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.
- SESSIONID: 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: picturel (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 web site of current user.

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

sys_context 103

::= SYS_CONTEXT 103

referenced by:

- functionExpression 79

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

tan 105 ::= TAN 105

referenced by:

- functionExpression 79

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

times 105 ::= ASTERIX 37

referenced by:

- arithmeticExpression 78

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 from_string replaced by its corresponding character in to_string. TRANSLATE

translate 105 ::= TRANSLATE 105

referenced by:

- functionExpression 79

translate_resources:

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

Parameters:

- txt: The string to replace resources in.

Returns: the input with all resources replaced by their translation.
TRANSLATE_RESOURCES
translate_resources[105]
::= TRANSLATE_RESOURCES[105]

referenced by:

- functionExpression[79]

trim:

Trims whitespaces from both sides of the provided string.

Parameters:

- Input: the string from which to trim characters.

Returns: A string trimmed from whitespaces from both sides. TRIM
trim[106] ::= TRIM[106]

referenced by:

- functionExpression[79]

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:

- Input: A number or datetime to truncate.
- 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.

Returns: The truncated input. TRUNC
trunc[106] ::= TRUNC[106]

referenced by:

- functionExpression[79]

to_hex:

TO_HEX
to_hex[106] ::= TO_HEX[106]

referenced by:

- functionExpression[79]

unistr:

Converts a text with unicodes to regular characters.

Parameters:

- Input: text with unicodes.

Returns: The input converted to all regular characters. UNISTR

unistr 106 ::= UNISTR 106

referenced by:

- functionExpression 79

upper:

Converts provided string to uppercase.

Parameters:

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

Returns: A string converted to uppercase. UPPER

upper 107 ::= UPPER 107

referenced by:

- functionExpression 79

urldecode:

Decodes a url.

Parameters:

- Url: url to decode.

Returns: The decoded url. URLDECODE

urldecode 107
::= URLDECODE 107

referenced by:

- functionExpression 79

urlencode:

Encodes a url.

Parameters:

- Url: url to encode.

Returns: The encoded url. URLENCODE

urlencode 107
::= URLENCODE 107

referenced by:

- functionExpression 79

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

unix_timestamp 107
::= UNIX_TIMESTAMP 107

referenced by:

- functionExpression 79

unzip:

UNZIP

unzip 108 ::= UNZIP 108

referenced by:

- functionExpression 79

zip:

ZIP

zip 108 ::= ZIP 108

referenced by:

- functionExpression 79

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

xmlcomment 108
::= XMLCOMMENT 108

referenced by:

- functionExpression 79

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

xmldecode 108
::= XMLDECODE 108

referenced by:

- functionExpression 79

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

xmlencode 109
: := XMLENCODE 109

referenced by:

- functionExpression 79

xmlelement:

XMLELEMENT

xmlelement 109
: := XMLELEMENT 109

referenced by:

- functionExpression 79

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

xmltransform 109
: := XMLTRANSFORM 109

referenced by:

- functionExpression 79

xmlformat:

Pretty-print xml text.

Parameters:

- Xml: xml to pretty-print.

Returns: The pretty-printed XML text. XMLFORMAT

xmlformat 109
: := XMLFORMAT 109

referenced by:

- functionExpression 79

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

httpget 110 ::= HTTPGET 110

referenced by:

- functionExpression 79

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

httpget_text 110
::= HTTPGET_TEXT 110

referenced by:

- functionExpression 79

httppost:

HTTPPOST

httppost 110 ::= HTTPPOST 110

referenced by:

- functionExpression 79

quarter:

Collect the quarter from a date.

Parameters:

- Input: A dateTime.

Returns: The quarter as an integer. QUARTER

quarter 110 ::= QUARTER 110

referenced by:

- functionExpression 79

quote_ident:

QUOTE_IDENT
quote_ident 111
::= QUOTE_IDENT 111

referenced by:

- functionExpression 79

quote_literal:

QUOTE_LITERAL
quote_literal 111
::= QUOTE_LITERAL 111

referenced by:

- functionExpression 79

quote_nullable:

QUOTE_NULLABLE
quote_nullable 111
::= QUOTE_NULLABLE 111

referenced by:

- functionExpression 79

user:

Gets the user log on code.

Returns: The user log on code.

USER
user 111 ::= USER 111

referenced by:

- functionExpression 79

year:

Collect the year from a date.

Parameters:

- Input: A dateTime.

Returns: The year as an integer. YEAR
year 111 ::= YEAR 111

referenced by:

- functionExpression 79

to_binary:

TO_BINARY
to_binary 112
::= TO_BINARY 112

referenced by:

- functionExpression 79

to_char:

Converts a value into text.

Parameters:

- Input: value to convert.

Returns: The input converted to text. TO_CHAR
to_char 112 ::= TO_CHAR 112

referenced by:

- functionExpression 79

to_date:

Converts a value into a datetime.

Parameters:

- Input: value to convert.

Returns: The input converted to a datetime. TO_DATE
to_date 112 ::= TO_DATE 112

referenced by:

- functionExpression 79

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 112 ::= TO_GUID 112

referenced by:

- functionExpression 79

to_number:

TO_NUMBER
to_number 113
::= TO_NUMBER 113

referenced by:

- functionExpression 79

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 113
::= ZERO_BLOB 113

referenced by:

- functionExpression 79

now:

The time of the system clock in local time at the device where Invantive UniversalSQL runs.

Returns: current date/time.

NOW GETDATE SYSDATETIME parenthesisOpen parenthesisClose SYSDATE
now 113 ::= (NOW 113 | GETDATE 37 | SYSDATETIME 37)
parenthesisOpen 72 parenthesisClose 73
| SYSDATE 37

referenced by:

- functionExpression 79

utc:

UTC_DATE parenthesisOpen parenthesisClose GETUTCDATE NOWUTC parenthesisOpen parenthesisClose SYSDATEUTC
utc 113 ::= UTC_DATE 37 (parenthesisOpen 72
parenthesisClose 73)?
| (GETUTCDATE 37 | NOWUTC 37) parenthesisOpen 72
parenthesisClose 73
| SYSDATEUTC 37

referenced by:

- functionExpression 79

fullTableIdentifier:

catalogIdentifier DOT schemaIdentifier DOT tableIdentifier

fullTableIdentifier[113]
::= (catalogIdentifier[114] DOT[37] (schemaIdentifier[114]? DOT[37])?)? tableIdentifier[114]

referenced by:
- tableOrFunctionSpec[45]
- tableSpec[45]

catalogIdentifier:

identifier
catalogIdentifier[114]
::= identifier[115]

referenced by:
- fullTableIdentifier[113]

schemaIdentifier:

identifier
schemaIdentifier[114]
::= identifier[115]

referenced by:
- fullTableIdentifier[113]

tableIdentifier:

identifier
tableIdentifier[114]
::= identifier[115]

referenced by:
- fullTableIdentifier[113]

fieldIdentifier:

alias DOT identifier
fieldIdentifier[114]
::= (alias[115] DOT[37])? identifier[115]

referenced by:
- arithmeticExpression[78]

attributeIdentifier:

identifierWithMinus keywordsAsIdentifierOrAlias
attributeIdentifier[114]
::= identifierWithMinus[115]
| keywordsAsIdentifierOrAlias[116]

referenced by:

- setIdentifier 65

identifierWithMinus:

identifier MINUS identifier INT_OR_DECIMAL_C ESCAPED_IDENTIFIER

```
identifierWithMinus 115
          ::= ESCAPED_IDENTIFIER 37
            | identifier 115 ( MINUS 95 ( identifier 115 |
INT_OR_DECIMAL_C 37 )? )*
```

referenced by:

- attributeIdentifier 114

identifier:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

```
identifier 115
          ::= ESCAPED_IDENTIFIER 37
            | IDENTIFIER 115
            | keywordsAsIdentifierOrAlias 116
```

referenced by:

- catalogIdentifier 114
- column 53
- csvTableColumSpec 49
- dataContainerAlias 46
- fieldIdentifier 114
- identifierWithMinus 115
- joinSet 42
- jsonTableColumSpec 48
- noJoinSet 43
- parameterExpression 76
- partitionIdentifier 67
- partitionSimpleIdentifier 68
- schemaIdentifier 114
- tableIdentifier 114
- xmlTableColumSpec 47

alias:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

```
alias 115      ::= ESCAPED_IDENTIFIER 37
                 | IDENTIFIER 115
                 | keywordsAsIdentifierOrAlias 116
```

referenced by:

- aliased 58
- allColumnsSpecId 60

- fieldIdentifier 114

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 DOWNLOAD DOUBLE DROPPABLE DROPPED ELSE END EXP FEED FLOOR FORCE FORWARDED FRESH FROM_UNIXTIME FULL GETDATE GETUTCDATE GROUP HTTPGET HTTPGET_TEXT HTTPPOST IDENTIFIED IMAGE INITCAP INCOMING INTEGER INTERSECT INTERVAL JOIN_SET BASE64_DECODE BASE64_ENCODE 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 RECYCLEBIN 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 SQRT STATE STDDEV SUM SYSDATETIME SYSDATEUTC 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_TIMESTAMP UNKNOWN UNZIP UPDATE UPGRADE UPPER URLDECODE URLENCODE USE USER UTC UTC_DATE VERSION VERSIONS WHEN XML XMLCOMMENT XMLDECODE XMLELEMENT XMLENCODE XMLFORMAT XMLTABLE XMLTRANSFORM XMLTYPE YEAR ZERO_BLOB ZIP LOG LN MICROSECOND MILLISECOND SECOND MINUTE HOUR INSTR DAY DAYOFWEEK DAYOFYEAR MONTH QUARTER YEAR CONCAT WITH EQUAL SUBSTR

keywordsAsIdentifierOrAlias 116

::= ABS 80
| ACOS 81
| ADD_MONTHS 83
| ANONYMIZE 81
| APPROACH 37
| ASC 58
| ASCII 82
| ASIN 82
| ADD_MONTHS 83
| ATAN 82
| ATAN2 82
| ATTACH 37
| AUTO 37
| AVG 57
| BEGIN 37
| BIT 37
| BIT_LENGTH 84
| BY 37
| CACHE 37
| CAMEL 84
| CASE 73
| CEIL 84
| CHAR 37
| CHR 84
| COALESCE 85
| COMMIT 37
| COMPRESS 86
| CODE 37
| COLUMN 53
| COLUMNS 37
| CONTRACT 37
| COPY 37
| COS 86
| COUNT 57
| COVFEFIFY 86
| CROSS 56
| CSVTABLE 37
| DATA 37
| DATE 37
| DATEADD 87
| DATEPART 87
| DATETIME 37
| DATETIMEOFFSET 37
| DATE_CEIL 87
| DATE_FLOOR 87
| DATE_ROUND 88
| DATE_TRUNC 88
| DEC 37
| DELIMITER 37
| DENSE_RANK 89
| DESC 58

| USE 37
| USER 111
| UTC 113
| UTC_DATE 37
| VERSION 37
| VERSIONS 37
| WHEN 73
| XML 37
| XMLCOMMENT 108
| XMLDECODE 108
| XMLELEMENT 109
| XMLENCODE 109
| XMLFORMAT 109
| XMLTABLE 37
| XMLTRANSFORM 109
| XMLTYPE 37
| YEAR 111
| ZERO_BLOB 113
| ZIP 108
| LOG 93
| LN 92
| MICROSECOND 100
| MILLISECOND 101
| SECOND 102
| MINUTE 95
| HOUR 91
| INSTR 91
| DAY 88
| DAYOFWEEK 88
| DAYOFYEAR 89
| MONTH 95
| QUARTER 110
| YEAR 111
| CONCAT 86
| WITH 37
| EQUAL 37
| SUBSTR 102

referenced by:

- alias 115
- attributeIdentifier 114
- identifier 115

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 121 ::= stringConstant 122
| numericConstant 123
| booleanConstant 123
| intervalConstant 122
| null 124

referenced by:

- arithmeticExpression 78
- pSqlItemDeclaration 124

stringConstant:

A constant text value with varchar2 data type.

STRING_C
stringConstant 122
::= STRING_C 37

referenced by:

- allColumnsSpecColumnNamePostfix 60
- allColumnsSpecColumnNamePrefix 60
- allColumnsSpecLabelPostfix 60
- allColumnsSpecLabelPrefix 60
- alterPersistentCacheDownloadStatement 62
- alterPersistentCacheDropStatement 63
- alterPersistentCacheSetStatement 64
- alterPersistentCacheSetTableOptions 64
- constant 121
- csvTableOptions 48
- intervalConstant 122
- jsonTableColumSpec 48
- jsonTableSpec 47
- labeled 59
- resultSetName 42
- xmlTableColumSpec 47
- xmlTableSpec 46

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'.

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".

INTERVAL stringConstant
intervalConstant 122
::= INTERVAL 37 stringConstant 122

referenced by:

- constant 121
- httpDiskCache 40
- httpMemoryCache 41
- ods 41

numericConstant:

A constant numeric value with numeric data type.

INT_OR_DECIMAL_C E_NOTATION_C
numericConstant 123
::= INT_OR_DECIMAL_C 37
| E_NOTATION_C 37

referenced by:

- alterPersistentCacheDownloadStatement 62
- alterPersistentCachePartitionRefreshStatement 63
- alterPersistentCacheRefreshStatement 62
- alterPersistentCacheSetStatement 64
- alterPersistentCacheTableRefreshStatement 63
- constant 121
- csvTableColumSpec 49
- csvTableOptions 48
- joinSet 42
- limitClause 44
- pSqlForNumberLoopStatement 127
- partitionIdentifier 67
- partitionSimpleIdentifier 68
- topClause 44

booleanConstant:

true false
booleanConstant 123
::= true 75
| false 75

referenced by:

- alterPersistentCacheSetStatement 64
- alterPersistentCacheSetTableOptions 64
- constant 121
- httpDiskCache 40

- httpMemoryCache 41
- ods 41

null:

The "unknown" value null.

NULL
  null 124 ::= NULL 124

referenced by:
- constant 121
- jsonTableSpec 47
- xmlTableSpec 46

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 124
    ::= pSqlDeclareSection 124? pSqlBody 125

referenced by:
- pSqlBlockOrStatement 125
- pSqlStatement 125

pSqlDeclareSection:

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

DECLARE pSqlDeclaration
  pSqlDeclareSection 124
    ::= DECLARE 37 pSqlDeclaration 124+

referenced by:
- pSqlBlock 124

pSqlDeclaration:

pSqlItemDeclaration
  pSqlDeclaration 124
    ::= pSqlItemDeclaration 124

referenced by:
- pSqlDeclareSection 124

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 BATCHSEPARATOR
pSqlItemDeclaration 124
::= variableName 128 dataType 49 (ASSIGNMENT_OPERATOR 37 constant 121)? BATCHSEPARATOR 37

referenced by:

- pSqlDeclaration 124

pSqlBody:

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

BEGIN pSqlStatement END BATCHSEPARATOR
pSqlBody 125 ::= BEGIN 37 pSqlStatement 125+ END 74 BATCHSEPARATOR 37

referenced by:

- pSqlBlock 124

pSqlStatement:

A number of basic PSQL statements are available.

pSqlAssignmentStatement pSqlExecuteImmediateStatement pSqlIfStatement pSqlLoopStatement pSqlNullStatement pSqlBlock sqlStatement BATCHSEPARATOR
pSqlStatement 125
::= pSqlAssignmentStatement 126
| pSqlExecuteImmediateStatement 126
| pSqlIfStatement 127
| pSqlLoopStatement 127
| pSqlNullStatement 126
| pSqlBlock 124
| sqlStatement 38 BATCHSEPARATOR 37

referenced by:

- pSqlBlockOrStatement 125
- pSqlBody 125
- sqlOrPSqlStatement 37

pSqlBlockOrStatement:

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

pSqlBlock pSqlStatement
pSqlBlockOrStatement 125
::= pSqlBlock 124
| pSqlStatement 125

referenced by:

- pSqlBlockOrStatements 126

pSqlBlockOrStatements:

pSqlBlockOrStatement
pSqlBlockOrStatements 126
::= pSqlBlockOrStatement 125+

referenced by:

- pSqlElsIfExpression 127
- pSqlForNumberLoopStatement 127
- pSqlForRecordLoopStatement 128
- pSqlIfStatement 127
- pSqlWhileLoopStatement 128

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
pSqlNullStatement 126
::= NULL 124 BATCHSEPARATOR 37

referenced by:

- pSqlStatement 125

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
pSqlAssignmentStatement 126
::= variableName 128 ASSIGNMENT_OPERATOR 37 expression 71 BATCHSEPARATOR 37

referenced by:

- pSqlStatement 125

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
pSqlExecuteImmediateStatement 126
::= EXECUTE 37 IMMEDIATE 37 expression 71 BATCHSEPARATOR 37

referenced by:

- pSqlStatement 125

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 pSqlBlock-OrStatements END IF BATCHSEPARATOR

```
pSqlIfStatement 127
          ::= IF 37 booleanExpression 71 THEN 74
 pSqlBlockOrStatements 126 pSqlElsIfExpression 127* ( ELSE 74
 pSqlBlockOrStatements 126 )? END 74 IF 37 BATCHSEPARATOR 37
```

referenced by:

- pSqlStatement 125

pSqlElsIfExpression:

ELSIF booleanExpression THEN pSqlBlockOrStatements

```
pSqlElsIfExpression 127
          ::= ELSIF 37 booleanExpression 71 THEN 74
 pSqlBlockOrStatements 126
```

referenced by:

- pSqlIfStatement 127

pSqlLoopStatement:

A variety of PSQL statements for loops are available.

pSqlForNumberLoopStatement pSqlForRecordLoopStatement pSqlWhileLoopStatement

```
pSqlLoopStatement 127
          ::= pSqlForNumberLoopStatement 127
            | pSqlForRecordLoopStatement 128
            | pSqlWhileLoopStatement 128
```

referenced by:

- pSqlStatement 125

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 numericCon-stant variableName LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

pSqlForNumberLoopStatement[127]
::= FOR[37] variableName[128] IN[37] REVERSE[99]?
(numericConstant[123] | variableName[128]) DOT[37] DOT[37]
(numericConstant[123] | variableName[128]) LOOP[37]
pSqlBlockOrStatements[126] END[74] LOOP[37] BATCHSEPARATOR[37]

referenced by:

- pSqlLoopStatement[127]

pSqlForRecordLoopStatement:

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

FOR variableName IN PARENTHESIS_OPEN selectStatement PARENTHESIS_CLOSE LOOP pSqlBlockOrStatements END LOOP BATCHSEPARATOR

pSqlForRecordLoopStatement[128]
::= FOR[37] variableName[128] IN[37] PARENTHESIS_OPEN[37]
selectStatement[38] PARENTHESIS_CLOSE[37] LOOP[37]
pSqlBlockOrStatements[126] END[74] LOOP[37] BATCHSEPARATOR[37]

referenced by:

- pSqlLoopStatement[127]

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[128]
::= WHILE[37] booleanExpression[71] LOOP[37]
pSqlBlockOrStatements[126] END[74] LOOP[37] BATCHSEPARATOR[37]

referenced by:

- pSqlLoopStatement[127]

variableName:

IDENTIFIER

variableName[128]
::= IDENTIFIER[115]

referenced by:

- pSqlAssignmentStatement[126]
- pSqlForNumberLoopStatement[127]
- pSqlForRecordLoopStatement[128]
- pSqlItemDeclaration[124]
- variableList[43]

3.2 Providers

The providers described here are available on all platforms.

3.2.1 Provider Atom10

Atom version 1.0.

Code for use in settings.xml: Atom10

Alias: atom

Status: Production

Available in Editions: Paid, Open Data, Community

3.2.2 Provider AutoTask

AutoTask service management.

Code for use in settings.xml: AutoTask

Alias: autotask

Status: Non-production

Available in Editions: Paid

Technical Documentation: http://severa.visma.com/en/support/severaapi/

Non-technical Documentation: http://severa.visma.com

3.2.3 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

Technical Documentation: https://www.cbs.nl/nl-nl/onze-diensten/open-data/statline-als-open-data

Provider Attributes

The following provider attributes are available for CbsNl:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:08 on version 17.30.0-PROD+1821.

3.2.4 Provider Conversion

Conversion table functions.

Code for use in settings.xml: Conversion

Alias: conversion

Status: Production

Available in Editions: Paid

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-sql-forward-filters-to-data-containers	Whether to	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	forwardfil-terstodataacon-tain-ers.				
invantive-sql-shuffle-fetch-results-data-containers	Whethertoshuffler	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	esultsfetchedfromdataconnectainers.				
invantive-use-cache	Whethertocachether	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	esultsofaquery.				
pre-request-delay-ms	Pre-request delay in milli-seconds per r	0	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	e-quest.				
requests-parallel-max	Maximum number of parallel data are-quests from	32	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	individualparticipationsonthedataconntainer.				

3.2.5 Provider DataCache

Persistent data cache, data replication or data vault.

Code for use in settings.xml: DataCache

Alias: cache

Abbreviation: idc

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: 26-06-2020 06:48 using Invantive UniversalSQL version 20.1.99-BETA+2846.

Technical Documentation: https://documentation.invantive.com/2017R2/data-cache-data-model/webhelp/index.html

Provider Attributes

The following provider attributes are available for DataCache:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
application-prefix-facts	A prefix applied after the environment prefix to every facts table, index and view.	dcd_	✓			
application-prefix-history	A prefix applied after the environment prefix to every history table, index and view.	dcs_	✓			
application-prefix-repository	A prefix applied after the environment prefix to every repository table, index and view.	dc_	✓			
backing-bulk-insert-page-size-bytes	Approximate maximum size in bytes of page when bulk inserting on backing database.		✓	✓	✓	
backing-bulk-insert-page-size-rows	Number of rows to insert per page when bulk inserting on backing database.		✓	✓	✓	
backing-bulk-insert-timeout-sec	Number of seconds after which a bulk insert on backing database times out.	3600	✓	✓	✓	
backing-command-timeout-sec	Number of seconds after which a command on backing database times out.	3600	✓	✓	✓	
backing-connection-string	The connection string for the backing database		✓		✓	
backing-force-case-sensitive-identifiers	Consider identifiers on the backing database as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
backing-forced-casing-identifiers	Forced casing of identifiers on the backing database. Choose from Unset, Lower, Upper and Mixed.	Unset	✓	✓	✓	
backing-maximum-length-identifiers	Non-default maximum length on the backing database in characters of identifier names.		✓	✓	✓	
backing-maximum-number-of-pooled-connec-	Maximum number of concurrent pooled connections on backing database.		✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
tions						
backing-maximum-sleep-acquire-pooled-connection-ms	Maximum time in ms to wait for acquiring a free connection from a pool of connections on backing database.	300000	✓	✓	✓	
backing-maximum-sleep-acquire-un-pooled-connection-ms	Maximum time in ms to wait for acquire a free connection when there is no connection pooling on backing database.	600000	✓	✓	✓	
backing-minimum-connection-timeout-sec	Minimum number of seconds after which a newly requested connection on backing database times out.	300	✓	✓	✓	
backing-preferred-number-of-pooled-connections	Preferred number of concurrent pooled connections on backing database.		✓	✓	✓	
backing-provider	Name of the Invantive connector for the backing database		✓		✓	
backing-sql-server-connect-retry-count	Number of connect retries on connection failed on the backing SQL Server database (SQL Server only).	60	✓	✓	✓	
backing-sql-server-connect-retry-interval-sec	Interval between connect retries on connection failed on the backing SQL Server database (SQL Server only)..	15	✓	✓	✓	
backing-standardize-identifiers	Rewrite all identifiers on the backing database to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
backing-standardize-identifiers-casing	Rewrite all identifiers on the backing database to the platform-specific recommended standard casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
beta-compress-facts-on-disk	Whether to compress facts in the disk cache.	True	✓	✓	✓	
beta-encrypt-facts-on-disk	Whether to encrypt facts in the disk cache.	True	✓	✓	✓	
beta-store-facts-in-database	Whether to store facts in the database containing the repository.	True	✓	✓	✓	
beta-store-facts-on-disk	Whether to store facts in the disk cache.	True	✓	✓	✓	
beta-use-facts-in-database	Whether to use facts in the database cache.	True	✓	✓	✓	
beta-use-facts-on-disk	Whether to use facts in the disk cache.	False	✓	✓	✓	
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	10000	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
cache-folder	Folder to store Data Cache cache files in.	C:\Users\gle3.WS212\Invantive\Cache\datacache	✓	✓	✓	
default-skip-client-side-cacheable	Whether to skip client-side cacheable tables by default.	True	✓	✓	✓	
default-use-ods	Whether to use the Operational Data Store when no hint is specified.	True	✓	✓	✓	
delete-number-table-partition-versions-per-group	Maximum number of table partition versions selected in the IN-clause for a delete of facts.	50	✓	✓	✓	
development-use-http-disk-cache	Whether to allow use of the disk cache for platform HTTP requests.	False	✓	✓		
drop-backlog-factor	Maximum ratio between number of versions dropped and new versions loaded on refresh.		✓	✓	✓	
environment-prefix-all	A prefix applied to repository, facts and history database tables, indexes and views.		✓			
environment-prefix-facts	A prefix applied to every facts table, index and view.		✓			
environment-prefix-history	A prefix applied to every history table, index and view.		✓			
environment-prefix-logical-view	A prefix applied to every logical view.		✓			
environment-prefix-repository	A prefix applied to every repository table, index and view.		✓			
event-log-entries-delete-page-size-rows	Number of rows to delete per batch on maintaining facts.	1000	✓	✓	✓	
event-log-memory-cache-flush-interval-sec	Maximum intervla in seconds between flushes of in-memory cache of event log entries to database.	15	✓			
event-log-memory-cache-size	Size of in-memory cache of event log entries before they are written to the database.	100	✓			
facts-delete-page-size-characters	Number of characters to delete per batch on maintaining facts.	10000000	✓	✓	✓	
facts-delete-page-size-rows	Number of rows to delete per batch on maintaining facts.		✓	✓	✓	
facts-insert-page-size-rows	Number of rows to insert per batch on maintaining facts.		✓	✓	✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
forced-casing-logical-view-column-name	Forced casing of logical view column names. Choose from Unset, Lower, Up-	Unset	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
	per and Mixed.					
forced-casing-logical-view-name	Forced casing of logical view names. Choose from Unset, Lower, Upper and Mixed.	Unset	✓	✓	✓	
forwarded-incoming-messages-delete-max-runtime-sec	Maximum runtime of purge forwarded incoming messages in seconds.	3600	✓	✓	✓	
forwarded-incoming-messages-delete-page-size-rows	Number of rows to delete per batch on maintaining forwarded incoming messages.	10000	✓	✓	✓	
garbage-collection-physical-memory-load-threshold	Percentage of physical memory load above which a full garbage collection is run after replication.	80	✓	✓	✓	
garbage-collection-replication-interval-count	Number of replications after last garbage collection after which a full garbage collection is run.	100	✓	✓	✓	
garbage-collection-replication-minimum-interval-sec	Minimum interval in seconds between two full garbage collections..	30	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
log-native-calls-to-disk	Registers native calls to data container backend as disk files.	False	✓	✓	✓	
log-native-calls-to-trace	Log native calls to data container backend on the trace.	False	✓	✓	✓	
max-delete-facts-parallel	Maximum number of parallel deletes on facts tables.	8	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
maximum-length-logical-view-column-name	Maximum length of logical view column names.		✓	✓	✓	
maximum-length-logical-view-name	Maximum length of logical view names.		✓	✓	✓	
max-messages-per-customer-service-request	Maximum number of messages to download from Customer Service per request.	10000	✓	✓	✓	
max-refreshes-parallel	Maximum number of parallel refreshes.	32	✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	8000	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	8000	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
orphaned-facts-delete-page-size-rows	Number of rows to delete per batch on purging orphaned facts during repository upgrade or maintenance.	10000	✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
purge-interval-event-log-entries-minutes	Interval in minutes between completed purges of ancient event log entries.	60	✓	✓	✓	
requested-page-size	Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓	
retention-event-log-entries-days	Retention of event log entries in days.	35	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
update-number-table-partition-versions-per-group	Maximum number of table partition versions selected in the IN-clause for an update of metadata.	1000	✓	✓	✓	
upgrade-force-execute	Whether to force execution of possible upgrade steps, even when there are no reasons to perform an upgrade.	False	✓			
upgrade-force-repository-version-start	Specifies the repository version to start upgrade from when specified.		✓			
upgrade-force-specials	Execute special operations before the repository is opened.		✓			

3.2.6 Provider DataDictionary

Invantive UniversalSQL 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 UniversalSQL version 20.1.206-BETA+2915.

Connector Attributes

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	10000	✓	✓	✓	
connection-string	The connection string for the backing database		✓		✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3.WS212\Invantive\Cache\http\gle3\shared	✓	✓	✓	
http-disk-cache-ignore-write-errors	Whether to ignore write errors to disk cache.	False	✓	✓	✓	
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓	
invantive-sql-correct-invalid-date	Whether to correct invalid dates.	False	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-con-	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
tainers						
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
log-native-calls-to-disk	Registers native calls to data container backend as disk files.	False	✓	✓	✓	
log-native-calls-to-trace	Log native calls to data container backend on the trace.	False	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	8000	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	8000	✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
provider	Name of the Invantive connector for the backing database		✓		✓	
requested-page-size	Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	False	✓	✓	✓	
use-http-disk-cache-write	Whether to memorize HTTP responses on disk.	False	✓	✓	✓	

3.2.7 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:

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

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

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

3.2.8 Provider Dropbox

Dropbox information.

Code for use in settings.xml: Dropbox

Alias: dropbox

Status: Non-production

Available in Editions: Paid, Open Data, Community

Technical Documentation: https://www.dropbox.com/developers

3.2.9 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 UniversalSQL version 17.31.26-BETA+1898.

Provider Attributes

The following provider attributes are available for Dummy:

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

3.2.10 Provider DynamicsCrm

Microsoft Dynamics CRM.

Code for use in settings.xml: DynamicsCrm

Alias: dyncrm

Status: Production

Available in Editions: Paid

3.2.11 Provider EcbExchangeRates

ECB Exchange Rates.

Code for use in settings.xml: EcbExchangeRates

Alias: ecbexref

Status: Production

Available in Editions: Paid, Open Data, Community

Non-technical Documentation: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/index.en.html

3.2.12 Provider Edifact

EDIFACT.

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

Non-technical Documentation: https://www.unece.org/trade/untdid/texts/d421_d.htm

Provider Attributes

The following provider attributes are available for Edifact:

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

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

3.2.13 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 UniversalSQL version 17.33.216-BETA+2512.

Technical Documentation: https://support.exactonline.com/community/s/knowledge-base#All-All-HNO-Content-resources-eol-files-homeexactonlinehelpcentre

Provider Attributes

The following provider attributes are available for ExactOnlineAll:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
api-client-id	The client ID is a unique identifier of your application. It is generated by registering an application.		✓		✓	✓
api-client-secret	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.	***	✓		✓	✓
api-refresh-token	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.	***	✓		✓	✓
api-redirect-url	The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.		✓		✓	✓
totp-secret	Shared secret key to generate one-time password using TOTP RFC 6238. For improved security, manually enter the one-time password asked during login.	***	✓		✓	✓
api-token-url	The token URI is the OAuth2 endpoint to exchange tokens.		✓		✓	
api-url	URL to access the API.		✓		✓	
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	250	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
download-error-400-bad-request-max-tries	Maximum number of tries when Akamai reports that the API server is unavailable during retrieval of data.	30	✓	✓	✓	
download-error-400-bad-request-sleep-initial-ms	Initial sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.	5000	✓	✓	✓	
download-error-400-bad-request-sleep-max-ms	Maximum sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.	60000	✓	✓	✓	
download-error-400-bad-request-sleep-multiplicator	Multiplication factor for sleep between retries Akamai reports that the API server is unavailable during retrieval of data.	2	✓	✓	✓	
download-error-429-too-many-requests-max-tries	Maximum number of tries when the website reports that too many requests have been made during a timeslot of one minute or one day.	10	✓	✓	✓	
download-error-429-too-many-requests-sleep-initial-ms	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.	5000	✓	✓	✓	
download-error-429-too-many-requests-sleep-max-ms	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.	60000	✓	✓	✓	
download-error-429-too-many-requests-sleep-multiplicator	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.	2	✓	✓	✓	
download-error-503-server-unavailable-max-tries	Maximum number of tries when Akamai reports that the API server is unavailable during retrieval of data.	30	✓	✓	✓	
download-error-503-server-unavailable-sleep-initial-ms	Initial sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.	5000	✓	✓	✓	
download-error-503-server-unavailable-sleep-max-ms	Maximum sleep in milliseconds between retries when Akamai reports that the API server is unavailable during retrieval of data.	60000	✓	✓	✓	
download-error-503-server-unavailable-sleep-multiplicator	Multiplication factor for sleep between retries Akamai reports that the API server is unavailable during retrieval of data.	2	✓	✓	✓	
download-error-504-gateway-timeout-max-tries	Maximum number of tries when the website reports a gateway timeout.	10	✓	✓	✓	
download-error-504-gateway-timeout-sleep-initial-ms	Initial sleep in milliseconds between retries when the website reports a gateway timeout.	5000	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
download-error-504-gateway-timeout-sleep-max-ms	Maximum sleep in milliseconds between retries when the website reports a gateway timeout.	60000	✓	✓	✓	
download-error-504-gateway-timeout-sleep-multiplicator	Multiplication factor for sleep between retries when the website reports a gateway timeout.	2	✓	✓	✓	
download-error-argument-exception-max-tries	Maximum number of tries when an argument exception is returned when downloading a blob.	10	✓	✓	✓	
download-error-argument-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an argument exception is returned when downloading a blob.	1000	✓	✓	✓	
download-error-argument-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an argument exception is returned when downloading a blob.	60000	✓	✓	✓	
download-error-argument-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an argument exception is returned when downloading a blob.	2	✓	✓	✓	
download-error-internet-down-max-tries	Maximum number of tries when the Internet connection seems down during retrieval of data.	10	✓	✓	✓	
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.	10000	✓	✓	✓	
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.	60000	✓	✓	✓	
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.	2	✓	✓	✓	
download-error-io-exception-max-tries	Maximum number of tries when a network I/O connection failure occurs during retrieval of data.	10	✓	✓	✓	
download-error-io-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.	10000	✓	✓	✓	
download-error-io-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.	60000	✓	✓	✓	
download-error-io-exception-sleep-multiplicator	Multiplication factor for sleep between retries when a network I/O connection failure occurs during retrieval of data.	2	✓	✓	✓	
download-error-json-exception-max-tries	Maximum number of tries when an invalid JSON body is returned.	3	✓	✓	✓	
download-error-json-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an invalid JSON body is returned.	1000	✓	✓	✓	
download-error-json-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an invalid JSON body is returned.	10000	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
download-error-json-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an invalid JSON body is returned.	2	✓	✓	✓	
download-error-other-exception-max-tries	Maximum number of tries when an unqualified error occurs during retrieval of data.	3	✓	✓	✓	
download-error-other-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an unqualified error ocurrs during retrieval of data.	5000	✓	✓	✓	
download-error-other-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an unqualified error ocurrs during retrieval of data.	30000	✓	✓	✓	
download-error-other-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an unqualified error ocurrs during retrieval of data.	2	✓	✓	✓	
download-error-socket-exception-max-tries	Maximum number of tries when the network connection is forcible dropped during retrieval of data.	10	✓	✓	✓	
download-error-socket-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when the network connection is forcible dropped during retrieval of data.	10000	✓	✓	✓	
download-error-socket-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when the network connection is forcible dropped during retrieval of data.	60000	✓	✓	✓	
download-error-socket-exception-sleep-multiplicator	Multiplication factor for sleep between retries when the network connection is forcible dropped during retrieval of data.	2	✓	✓	✓	
download-error-web-exception-max-tries	Maximum number of tries when a web connection failure occurs during retrieval of data.	10	✓	✓	✓	
download-error-web-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.	10000	✓	✓	✓	
download-error-web-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.	60000	✓	✓	✓	
download-error-web-exception-sleep-multiplicator	Multiplication factor for sleep between retries when a web connection failure occurs during retrieval of data.	2	✓	✓	✓	
download-error-web-not-implemented-max-tries	Maximum number of tries when the connection reports not implemented.	1	✓	✓	✓	
download-error-web-not-implemented-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports not implemented.	5000	✓	✓	✓	
download-error-web-not-implemented-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports not implemented.	60000	✓	✓	✓	
download-error-web-not-implemented-sleep-	Multiplication factor for sleep between retries when the connection reports not im-	2	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
multiplicator	plemented.					
download-error-web-timeout-max-tries	Maximum number of tries when the connection reports a timeout.	10	✓	✓	✓	
download-error-web-timeout-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports a timeout.	5000	✓	✓	✓	
download-error-web-timeout-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports a timeout.	60000	✓	✓	✓	
download-error-web-timeout-sleep-multiplicator	Multiplication factor for sleep between retries when the connection reports a timeout.	2	✓	✓	✓	
download-error-web-unauthorized-max-tries	Maximum number of tries when the connection reports an unauthorized error.	1	✓	✓	✓	
download-error-web-unauthorized-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports an unauthorized error.	5000	✓	✓	✓	
download-error-web-unauthorized-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports an unauthorized error.	60000	✓	✓	✓	
download-error-web-unauthorized-sleep-multiplicator	Multiplication factor for sleep between retries when the connection reports an unauthorized error.	2	✓	✓	✓	
encrypt-http-disk-cache	Whether to encrypt the contents of the disk cache when used. Disable only when performance is a premium above data security.	True	✓	✓	✓	
exact-development-mode	True if we have to connect to the Exact development instance		✓	✓	✓	
exact-online-url	URL of Exact Online web service		✓		✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
hide-empty-columns	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.	True	✓	✓	✓	
http-disk-cache	Action: provide 'empty' to empty HTTP disk cache.			✓		
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache\	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
		http\gle3\shared				
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓	
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓	
http-memory-cache	Action: provide 'empty' to empty HTTP memory cache.			✓		
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓	
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓	
ignore-document-download-errors	Ignore all errors when fetching the document contents from Exact Online.	False	✓	✓	✓	
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-429-errors	Ignore HTTP 429 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-500-errors	Ignore HTTP 500 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-xml-errors	Ignore normal errors within the XML returned by the API.	False	✓	✓	✓	
ignore-xml-fatal-errors	Ignore fatal errors within the XML returned by the API.	False	✓	✓	✓	
ignore-xml-no-access-errors	Ignore no access errors within the XML returned by the API.	False	✓	✓	✓	
ignore-xml-warnings	Ignore warnings within the XML returned by the API.	False	✓	✓	✓	
insert-allowed	Allow use of the BETA functionality for inserts	False	✓	✓	✓	
invalid-json-on-get-max-tries	Maximum number of tries when the JSON received on GET is invalid.	10	✓	✓	✓	
invalid-json-on-get-sleep-initial-ms	Initial sleep in milliseconds between retries when the JSON received on GET is invalid.	10000	✓	✓	✓	
invalid-json-on-get-sleep-max-ms	Maximum sleep in milliseconds between retries when the JSON received on GET is invalid.	60000	✓	✓	✓	
invalid-json-on-get-sleep-multiplicator	Multiplication factor for sleep between retries when the JSON received on GET is invalid.	2	✓	✓	✓	
invalid-json-on-post-max-tries	Maximum number of tries when the JSON received on POST is invalid.	1	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
invalid-json-on-post-sleep-initial-ms	Initial sleep in milliseconds between retries when the JSON received on POST is invalid.	10000	✓	✓	✓	
invalid-json-on-post-sleep-max-ms	Maximum sleep in milliseconds between retries when the JSON received on POST is invalid.	60000	✓	✓	✓	
invalid-json-on-post-sleep-multiplicator	Multiplication factor for sleep between retries when the JSON received on POST is invalid.	2	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓	
limit-partition-calls-left	Minimum number of remaining API calls on a partition towards a hard limit. When below, an error is raised.	500	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	2800	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	2500	✓	✓	✓	
metadata-cache-max-age-sec	Maximum acceptable age in seconds for re-use of metadata.		✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	66000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit	272	✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	16	✓	✓	✓	
result-set-cache	Action: provide 'empty' to empty.			✓		
simulate-http-400-errors	Simulate HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-400-errors-percentage	Percentage of simulated HTTP 400 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-403-errors	Simulate HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-403-errors-percentage	Percentage of simulated HTTP 403 errors when exchanging results with the OData	0	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
	endpoint.					
simulate-http-429-errors	Simulate HTTP 429 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-429-errors-percentage	Percentage of simulated HTTP 429 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-500-errors	Simulate HTTP 500 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-500-errors-percentage	Percentage of simulated HTTP 500 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-protocol-errors	Simulate HTTP protocol errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-protocol-errors-percentage	Percentage of simulated HTTP protocol errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-timeout-errors	Simulate HTTP timeout errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-timeout-errors-percentage	Percentage of simulated HTTP timeout errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓	
update-allowed	Allow use of the BETA functionality for updates	False	✓	✓	✓	
use-batch-insert	Whether to use batch insert.	False	✓	✓	✓	
use-http-disk-cache	Combination of use-http-disk-cache-read and use-http-disk-cache-write.		✓	✓	✓	
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓	
use-http-disk-cache-write	Whether to memorize HTTP responses on disk.	True	✓	✓	✓	
use-http-memory-cache	Combination of use-http-memory-cache-read and use-http-memory-cache-write.		✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
use-http-memory-cache-read	Whether to use HTTP responses from previous queries stored in memory that can answer the current query.	True	✓	✓	✓	
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	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	✓	✓	✓	

3.2.14 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data con-	32	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	tainer.				
result-set-cache	Action: provide 'empty' to empty.			✓	
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
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	✓	✓	✓
xml-directories	{res:itgen_provider_attribute_xml_directories_description}		✓	✓	✓
xml-extension	{res:itgen_provider_attribute_xml_extension_description}	*.xml	✓	✓	✓
xml-namespaces	Comma-separated list of namespace prefixes and their URI		✓	✓	✓

Generated 11-01-2019 20:12 on version 17.30.0-PROD+1821.

3.2.15 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/

Provider Attributes

The following provider attributes are available for Facebook:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
api-client-id	The client ID is a unique identifier of your application. It is generated by registering an application.		✓		✓
api-client-secret	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.	***	✓		✓
api-redirect-url	The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.		✓		✓
api-refresh-token	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.	***	✓		✓
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 15:44 on version 17.30.0-PROD+1821.

3.2.16 Provider Freshdesk

Freshdesk, customer happiness for exceptional customer service.

Code for use in settings.xml: Freshdesk

Alias: freshdesk

Status: Production

Available in Editions: Paid

Technical Documentation: https://developer.freshdesk.com/api/#quick-reference

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 UniversalSQL 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 UniversalSQL ensures that within your session the number of calls allowed per hour is not exceeded.

To get an impression of how Invantive UniversalSQL 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
api-url	URL to access the API.		✓		✓
company	{res:itgen_freshdesk_company_description}		✓		✓
download-error-internet-down-max-tries	Maximum number of tries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 19:46 on version 17.30.0-PROD+1821.

3.2.17 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

Updated: 23-06-2019 19:40 using Invantive UniversalSQL version 17.33.48-BETA+2173.

Provider Attributes

The following provider attributes are available for Ftp:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
site	{res:itgen_ftp_site_description}		✓		✓	✓

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

Code	Description	Default Value	Set from Con-nection String	Set from Set SQL-State-ment	Set from Pro-viders File	Set from Log On
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
standardize-identifiers	Rew rite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rew rite all identifiers to the recommended standard platform-specific casing w hen changing a data model on a case-de-pendent platform.	True	✓	✓	✓	
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓	

3.2.18 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

3.2.19 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

3.2.20 Provider InMemoryStorage

Session-specific temporary storage of result sets.

Code for use in settings.xml: InMemoryStorage

Alias: inmem

Status: Production

Available in Editions: Paid

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether t	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	oshufflerres-ultsfetchedfromdataacon-tain-ers.				
invantive-use-cache	Whethertoo	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	cachetheresultsofaquery.				
pre-request-delay-ms	Pre-request delay in milli-lise	0	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	conds per request.				
requests-parallel-max	Maximum number of parallel-all-ledata are-q	32	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	uestsfromin-di-vidualpar-ti-tionsonthedataacon-tainer.				

3.2.21 Provider Invantive.Producer

Invantive Producer repository.

Code for use in settings.xml: Invantive.Producer

Alias: producer

Status: Production

Available in Editions: Paid

Code	Description	Default Value	Set from Connection String	Set from SQL-Statement	Set from Providers File
models	XML specification of folders with model per p		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	roduct				
templates	XMLspecification of folders with template per pro		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	duct				

3.2.22 Provider JIRA

JIRA, ticketing.

Code for use in settings.xml: JIRA

Alias: jira

Status: Non-production

Available in Editions: Paid

Technical Documentation: https://developer.atlassian.com/server/jira/platform/rest-apis/

Non-technical Documentation: https://jira-apps.com

Provider Attributes

The following provider attributes are available for JIRA:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
server	{res:itgen_provider_attribute_jira_server_description}		✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 22:00 on version 17.30.0-PROD+1821.

3.2.23 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

Provider Attributes

The following provider attributes are available for Kadaster:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 22:02 on version 17.30.0-PROD+1821.

3.2.24 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 UniversalSQL version 20.1.206-BETA+2915.

Connector Attributes

The KeePass connector can be configured using the following attributes:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	10000	✓	✓	✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	

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

3.2.25 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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	s.				
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data container.	False	✓	✓	✓

Code	Description.	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
pre-request-delay-ms	Pre-request delay	0	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	milliseconds per request.				
requests-parallel-max	Maximum number of parallel-	32	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	Ieldatarequestsfromindividualparticipationsonthedatac				

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	on-tainer.				
translations	Folder con-taining trans-lation files		✓		✓

3.2.26 Provider LinkedIn

LinkedIn.

Code for use in settings.xml: LinkedIn

Alias: linkedin

Status: Production

Available in Editions: Paid

Technical Documentation: https://developer.linkedin.com/

3.2.27 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
environment-code	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.		✓		✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms)	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptableage in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms)	300000	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-con-	Whether to shuffle results fetched from data containers.	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
tainers					
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
partition-slot-based-rate-limit-length-ms	Length in ms of a partition-based rate limit across all slots.	60000	✓		✓
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
result-set-cache	Action: provide 'empty' to empty.			✓	
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit across all slots.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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	✓	✓	✓
use-test-environment	OBSOLETED. USE @test INSTEAD.		✓		✓

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

3.2.28 Provider Magento

Magento web shop.

Code for use in settings.xml: Magento

Alias: magento

Status: Non-production

Available in Editions: Paid

Technical Documentation: https://devdocs.magento.com/guides/v2.0/rest/bk-rest.html

3.2.29 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 UniversalSQL version 20.1.206-BETA+2915.

Connector Attributes

The Mail connector can be configured using the following attributes:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	10000	✓	✓	✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
invantive-sql-correct-invalid-date	Whether to correct invalid dates.	False	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
log-native-calls-to-disk	Registers native calls to data container backend as disk files.	False	✓	✓	✓	
log-native-calls-to-trace	Log native calls to data container backend on the trace.	False	✓	✓	✓	
mail-body-html	Set w hether the mail body is HTML.		✓	✓	✓	
mail-from-email	The default FROM email address.		✓	✓	✓	
mail-from-name	The default FROM name.		✓	✓	✓	
mail-priority	Priority of the mail; negative is bulk, 0 is neutral, positive is urgent.		✓	✓	✓	
mail-reply-to-email	The default REPLY TO email address.		✓	✓	✓	
mail-reply-to-name	The default REPLY TO name.		✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	8000	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	8000	✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
requested-page-size	Preferred number of row s to exchange per round trip; only effective on limited platforms such as AFAS Online		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
smtp-enable-ssl	Set w hether SSL is enabled for SMTP connections.	False	✓	✓	✓	
smtp-host-address	The default SMTP host address to use.		✓	✓	✓	
smtp-host-port-number	The default SMTP host post number to use.		✓	✓	✓	
smtp-minimum-deliver-duration-ms	Minimum deliver duration in milliseconds for the SMTP send plus inserted sleep w hen SMTP send finished earlier than the minimum.		✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
smtp-password	The default SMTP password to authenticate with.		✓	✓	✓	
smtp-send-timeout-ms	Timeout in milliseconds after which the SMTP send times out.		✓	✓	✓	
smtp-user-name	The default SMTP user name to authenticate with.		✓	✓	✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	

3.2.30 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/apidocs-mxsdk/apidocs/

Non-technical Documentation: https://mendix-apps.com

3.2.31 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://developer.microsoft.com/en-us/graph

3.2.32 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

Provider Attributes

The following provider attributes are available for MySql:

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	changing a data model on a case-dependent platform.				
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

3.2.33 Provider Nasa

NASA space information.

Code for use in settings.xml: Nasa

Alias: nasa

Status: Production

Available in Editions: Paid, Open Data, Community

Technical Documentation: https://api.nasa.gov/

Non-technical Documentation: https://api.nasa.gov/

Provider Attributes

The following provider attributes are available for Nasa:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:40 on version 17.30.0-PROD+1821.

3.2.34 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 UniversalSQL version 20.1.36-BETA+2798.

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

Provider Attributes

The following provider attributes are available for NmbrsNl:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
minimum-length-text	Extend all text columns to this length to allow processing of XML that uses longer text values than the XSD specifies.		✓			✓
api-url	URL of Nmbrs web service		✓		✓	
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	10000	✓	✓	✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3.WS212\Invantive\Cache\http\gle3\shared	✓	✓	✓	
http-disk-cache-ignore-write-errors	Whether to ignore write errors to disk cache.	False	✓	✓	✓	
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓	
http-get-timeout-ms	HTTP GET timeout (ms)	300000	✓	✓	✓	
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-memory-cache-max-age-sec	Maximum acceptableage in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓	
http-post-timeout-ms	HTTP POST timeout (ms)	300000	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	8000	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	8000	✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
requested-page-size	Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File	Set from Log On
result-set-memory-cache	Action: provide 'empty' to empty.			✓		
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓	
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	False	✓	✓	✓	
use-http-disk-cache-write	Whether to memorize HTTP responses on disk.	False	✓	✓	✓	
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-memory-cache	Whether to use the metadata in memory calculated previously Has only practical use during development on a XML provider.	True	✓	✓	✓	
use-result-memory-cache	Whether to use result sets cached in memory from previous queries that can answer the current query	True	✓	✓	✓	

3.2.35 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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether t	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	oshufflerres-ultsfetchedfromdatacon-tain-ers.				
invantive-use-cache	Whethertoo	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	cachetheresultsofaquery.				
pre-request-delay-ms	Pre-request delay in milli-lise	0	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	conds per request.				
requests-parallel-max	Maximum number of parallel-all-ledata are-q	32	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	uestsfromin-di-vidualpar-ti-tionsonthedataacon-tainer.				

3.2.36 Provider Odbc

ODBC.

Code for use in settings.xml: Odbc

Alias: odbc

Status: Production

Available in Editions: Paid

3.2.37 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/

Provider Attributes

The following provider attributes are available for OpenArch:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:27 on version 17.30.0-PROD+1821.

3.2.38 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/

Non-technical Documentation: https://docs.openexchangerates.org/docs

Provider Attributes

The following provider attributes are available for OpenExchangeRates:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 22:22 on version 17.30.0-PROD+1821.

3.2.39 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: https://openspending.nl/api/v1/doc

Non-technical Documentation: https://openspending.nl/pagina/data

Provider Attributes

The following provider attributes are available for OpenSpendingNl:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 22:07 on version 17.30.0-PROD+1821.

3.2.40 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

3.2.41 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
command-timeout-sec	Number of seconds after which a command times out.		✓	✓	✓
connection-string-self-tuning-add	Should the 'Self Tuning' be added automatically to the connection string?	True	✓	✓	✓
connection-string-self-tuning-value	Value of self tuning to be added to the connection string	True	✓	✓	✓
connection-string-statement-cache-size-add	Should the 'Statement Cache Size' be added automatically to the connection string?	True	✓	✓	✓
connection-string-statement-cache-size-value	Size of the statement cache size to be added to the connection string	250	✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
maximum-number-of-pooled-connections	Maximum number of concurrent pooled connections.		✓	✓	✓
maximum-sleep-acquire-pooled-connection-ms	Maximum time in ms to wait for acquiring a free connection from a pool of connections.	30000	✓	✓	✓
maximum-sleep-acquire-unpooled-connection-ms	Maximum time in ms to wait for acquire a free connection when there is no connection pooling.	60000	✓	✓	✓
preferred-number-of-pooled-connections	Preferred number of concurrent pooled connections.		✓	✓	✓
prefix-bind-variable-in-list	Prefix for bind variables used in an IN-list	i	✓	✓	✓
prefix-bind-variable-normal	Prefix for bind variables used in all cases except in an IN-list	w	✓	✓	✓
prefix-renamed-columns	Prefix appended to columns whose names occur multiple times in the column list of a query	column	✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
return-null-on-ora-22288	Return a null value instead of an exception when Oracle returns ORA-22288 when querying a bfile column	False	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

3.2.42 Provider Os: Windows operating system objects.

Windows operating system objects.

Code for use in settings.xml: Os

Alias: os

Status: Production

Available in Editions: Paid

Provider Attributes

The following provider attributes are available for Os:

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

Generated 11-01-2019 19:31 on version 17.30.0-PROD+1821.

3.2.43 Provider PayPal: PayPal.

PayPal.

Code for use in settings.xml: PayPal

Alias: paypal

Status: Production

Available in Editions: Paid

Technical Documentation: https://developer.paypal.com/docs/

3.2.44 Provider PostgreSql: 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
bulk-insert-page-size-rows	Number of rows to insert per page when bulk inserting	1000	✓	✓	✓
command-timeout-sec	Number of seconds after which a command times out.		✓	✓	✓
database	Database to open when connecting.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
maximum-number-of-pooled-connections	Maximum number of concurrent pooled connections.		✓	✓	✓
maximum-sleep-acquire-pooled-connection-ms	Maximum time in ms to wait for acquiring a free connection from a pool of connections.	30000	✓	✓	✓
maximum-sleep-acquire-unpooled-connection-ms	Maximum time in ms to wait for acquire a free connection when there is no connection pooling.	60000	✓	✓	✓
npgsql-log	Whether to log messages of the npgsql provider	False	✓	✓	✓
preferred-number-of-pooled-connections	Preferred number of concurrent pooled connections.		✓	✓	✓
prefix-bind-variable-in-list	Prefix for bind variables used in an IN-list	i	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
prefix-bind-variable-normal	Prefix for bind variables used in all cases except in an IN-list	w	✓	✓	✓
prefix-renamed-columns	Prefix appended to columns whose names occur multiple times in the column list of a query	column	✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

3.2.45 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/over-rdw/dienstverlening/open-data

Provider Attributes

The following provider attributes are available for RdwNl:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down		✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
	during retrieval of data.				
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:34 on version 17.30.0-PROD+1821.

3.2.46 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

Technical Documentation: https://www.rssboard.org/rss-specification

Provider Attributes

The following provider attributes are available for Rss20:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-con-	Whether to shuffle results fetched from data containers.	False	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
tainers					
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
result-set-cache	Action: provide 'empty' to empty.			✓	
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
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	✓	✓	✓
xml-directories	{res:itgen_provider_attribute_xml_directories_description}		✓	✓	✓
xml-extension	{res:itgen_provider_attribute_xml_extension_description}	*.rss	✓	✓	✓
xml-namespaces	Comma-separated list of namespace prefixes and their URI		✓	✓	✓

Generated 11-01-2019 20:49 on version 17.30.0-PROD+1821.

3.2.47 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://www.salesforce.com/nl/?ir=1

Provider Attributes

The following provider attributes are available for Salesforce:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
api-client-id	The client ID is a unique identifier of your application. It is generated by registering an application.		✓		✓
api-client-secret	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.	***	✓		✓
api-redirect-url	The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.		✓		✓
api-refresh-token	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.	***	✓		✓
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.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-429-errors	Ignore HTTP 429 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
partition-slot-based-rate-limit-length-ms	Length in ms of a partition-based rate limit across all slots.	60000	✓		✓
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit across all slots.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
use-http-disk-cache-write	Whether to memorize HTTP responses on disk.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
use-http-memory-cache-read	Whether to use HTTP responses from previous queries stored in memory that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 31-01-2019 18:44 on version 17.31.19-BETA+1876.

3.2.48 Provider Sftp: Secure FTP.

Secure FTP.

Code for use in settings.xml: Sftp

Alias: sftp

Status: Production

Available in Editions: Paid

3.2.49 Provider SilverEssence: SilverEssence.

SilverEssence.

Code for use in settings.xml: SilverEssence

Alias: silver

Status: Non-production

Available in Editions: Paid

3.2.50 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

3.2.51 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

3.2.52 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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
bulk-insert-page-size-rows	Number of rows to insert per page when bulk inserting	1000	✓	✓	✓
bulk-insert-timeout-sec	Number of seconds after which a bulk insert times out	300	✓	✓	✓
command-timeout-sec	Number of seconds after which a command times out.		✓	✓	✓
connection-string-async-add	Should the 'Async' be added automatically to the connection string?	True	✓	✓	✓
connection-string-async-value	Size of the Async to be added to the connection string	True	✓	✓	✓
connection-string-multiple-active-result-sets-add	Should the 'MultipleActiveResultSets' be added automatically to the connection string?	True	✓	✓	✓
connection-string-multiple-active-result-sets-value	Value of MultipleActiveResultSets to be added to the connection string	True	✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
maximum-number-of-pooled-connections	Maximum number of concurrent pooled connections.		✓	✓	✓
maximum-sleep-acquire-pooled-connection-ms	Maximum time in ms to wait for acquiring a free connection from a pool of connections.	30000	✓	✓	✓
maximum-sleep-acquire-unpooled-connection-ms	Maximum time in ms to wait for acquire a free connection when there is no connection pooling.	60000	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
preferred-number-of-pooled-connections	Preferred number of concurrent pooled connections.		✓	✓	✓
prefix-bind-variable-in-list	Prefix for bind variables used in an IN-list	i	✓	✓	✓
prefix-bind-variable-normal	Prefix for bind variables used in all cases except in an IN-list	w	✓	✓	✓
prefix-renamed-columns	Prefix appended to columns whose names occur multiple times in the column list of a query	column	✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

3.2.53 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

Non-technical Documentation: https://stackexchange-apps.com

Provider Attributes

The following provider attributes are available for StackExchange:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
api-client-id	The client ID is a unique identifier of your application. It is generated by registering an application.		✓		✓
api-client-secret	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.	***	✓		✓
api-redirect-url	The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.		✓		✓
api-refresh-token	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.	***	✓		✓
api-url	URL to access the API.		✓		✓
authentication-key	The authentication key of the app on StackApps.		✓		✓
download-error-internet-down-max-tries	Maximum number of tries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.		✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3\Invantive\Cache	✓	✓	✓
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:54 on version 17.30.0-PROD+1821.

3.2.54 Provider SwiftMt940Rabo: Swift MT940 Rabobank.

Swift MT940 Rabobank.

Code for use in settings.xml: SwiftMt940Rabo

Alias: mt940rabo

Status: Non-production

Available in Editions: Paid

Non-technical Documentation: https://www.sepaforcorporates.com/swift-for-corporates/account-statement-mt940-file-format-overview/

Provider Attributes

The following provider attributes are available for SwiftMt940Rabo:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
directories	{res:itgen_provider_attribute_directories_description}	c:\temp	✓	✓	✓
extension	{res:itgen_provider_attribute_extension_description}	*.swi	✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
log-directory	Directory where the text messages are stored	c:\temp	✓	✓	✓
log-text	Whether to log the text messages exchanged to disk	False	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓

Generated 11-01-2019 22:18 on version 17.30.0-PROD+1821.

3.2.55 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 UniversalSQL version 20.1.206-BETA+2915.

Technical Documentation: https://apidocs.teamleader.be/

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.

Usage Limits

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

To get an impression of how Invantive UniversalSQL 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_Fields_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:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
force-custom-field-to-string	Whether to force custom field values shown in columns to be represented as string instead of the registered type.	False	✓		✓	✓
scopes	Space-separated and case-sensitive list of scope for OAuth only. Leave empty for all.		✓		✓	✓
api-client-id	The client ID is a unique identifier of your application. It is generated by registering an application.		✓		✓	✓
api-client-secret	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.	***	✓		✓	✓
api-refresh-token	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	***	✓		✓	✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
	client secret must be stored securely since once compromised allows access to your protected resources.					
api-redirect-url	The redirect URI is the website a browser session is redirected to after the OAuth2 authentication process has been completed.		✓		✓	✓
api-group-authentication	Use API group authentication when true. OAuth otherwise.		✓		✓	
api-scope	The scope to request an OAuth token for.		✓		✓	
api-token-url	The token URI is the OAuth2 endpoint to exchange tokens.		✓		✓	
api-url	URL to access the API.		✓		✓	
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting	250	✓	✓	✓	
download-error-400-bad-request-max-tries	Maximum number of tries when OData server reports bad format during retrieval of data.	30	✓	✓	✓	
download-error-400-bad-request-sleep-initial-ms	Initial sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.	5000	✓	✓	✓	
download-error-400-bad-request-sleep-max-ms	Maximum sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.	60000	✓	✓	✓	
download-error-400-bad-request-sleep-multiplicator	Multiplication factor for sleep between retries OData server reports that the API server is unavailable during retrieval of data.	2	✓	✓	✓	
download-error-422-bad-request-max-tries	Maximum number of tries when OData server reports unprocessable entity during retrieval of data.	30	✓	✓	✓	
download-error-422-bad-request-sleep-initial-ms	Initial sleep in milliseconds between retries when OData server reports unprocessable entity during retrieval of data.	5000	✓	✓	✓	
download-error-422-bad-request-sleep-max-ms	Maximum sleep in milliseconds between retries when OData server reports unprocessable entity during retrieval of data.	60000	✓	✓	✓	
download-error-422-bad-request-sleep-multiplicator	Multiplication factor for sleep between retries OData server reports unprocessable entity during retrieval of data.	2	✓	✓	✓	
download-error-429-too-many-requests-	Maximum number of tries when the website reports that too many requests have	10	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
max-tries	been made during a timeslot of one minute or one day.					
download-error-429-too-many-requests-sleep-initial-ms	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.	5000	✓	✓	✓	
download-error-429-too-many-requests-sleep-max-ms	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.	60000	✓	✓	✓	
download-error-429-too-many-requests-sleep-multiplicator	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.	2	✓	✓	✓	
download-error-502-server-unavailable-max-tries	Maximum number of tries when OData server reports a bad gateway during retrieval of data.	30	✓	✓	✓	
download-error-502-server-unavailable-sleep-initial-ms	Initial sleep in milliseconds between retries when OData server reports a bad gateway during retrieval of data.	10000	✓	✓	✓	
download-error-502-server-unavailable-sleep-max-ms	Maximum sleep in milliseconds between retries when OData server reports that a bad gateway during retrieval of data.	60000	✓	✓	✓	
download-error-502-server-unavailable-sleep-multiplicator	Multiplication factor for sleep between retries OData server reports a bad gateway during retrieval of data.	2	✓	✓	✓	
download-error-503-server-unavailable-max-tries	Maximum number of tries when OData server reports that the API server is unavailable during retrieval of data.	30	✓	✓	✓	
download-error-503-server-unavailable-sleep-initial-ms	Initial sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.	5000	✓	✓	✓	
download-error-503-server-unavailable-sleep-max-ms	Maximum sleep in milliseconds between retries when OData server reports that the API server is unavailable during retrieval of data.	60000	✓	✓	✓	
download-error-503-server-unavailable-sleep-multiplicator	Multiplication factor for sleep between retries OData server reports that the API server is unavailable during retrieval of data.	2	✓	✓	✓	
download-error-504-gateway-timeout-max-tries	Maximum number of tries when the website reports a gateway timeout.	10	✓	✓	✓	
download-error-504-gateway-timeout-sleep-initial-ms	Initial sleep in milliseconds between retries when the website reports a gateway timeout.	5000	✓	✓	✓	
download-error-504-gateway-timeout-sleep-max-ms	Maximum sleep in milliseconds between retries when the website reports a gateway timeout.	60000	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
download-error-504-gateway-timeout-sleep-multiplicator	Multiplication factor for sleep between retries when the website reports a gateway timeout.	2	✓	✓	✓	
download-error-argument-exception-max-tries	Maximum number of tries when an argument exception is returned when downloading a blob.	10	✓	✓	✓	
download-error-argument-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an argument exception is returned when downloading a blob.	1000	✓	✓	✓	
download-error-argument-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an argument exception is returned when downloading a blob.	60000	✓	✓	✓	
download-error-argument-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an argument exception is returned when downloading a blob.	2	✓	✓	✓	
download-error-internet-down-max-tries	Maximum number of tries when the Internet connection seems down during retrieval of data.	10	✓	✓	✓	
download-error-internet-down-sleep-initial-ms	Initial sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.	10000	✓	✓	✓	
download-error-internet-down-sleep-max-ms	Maximum sleep in milliseconds between retries when the Internet connection seems down during retrieval of data.	60000	✓	✓	✓	
download-error-internet-down-sleep-multiplicator	Multiplication factor for sleep between retries when the Internet connection seems down during retrieval of data.	2	✓	✓	✓	
download-error-io-exception-max-tries	Maximum number of tries when a network I/O connection failure occurs during retrieval of data.	10	✓	✓	✓	
download-error-io-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.	10000	✓	✓	✓	
download-error-io-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when a network I/O connection failure occurs during retrieval of data.	60000	✓	✓	✓	
download-error-io-exception-sleep-multiplicator	Multiplication factor for sleep between retries when a network I/O connection failure occurs during retrieval of data.	2	✓	✓	✓	
download-error-json-exception-max-tries	Maximum number of tries when an invalid JSON body is returned.	3	✓	✓	✓	
download-error-json-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an invalid JSON body is returned.	1000	✓	✓	✓	
download-error-json-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an invalid JSON body is returned.	10000	✓	✓	✓	
download-error-json-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an invalid JSON body is returned.	2	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
download-error-other-exception-max-tries	Maximum number of tries when an unqualified error occurs during retrieval of data.	3	✓	✓	✓	
download-error-other-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when an unqualified error ocurrs during retrieval of data.	5000	✓	✓	✓	
download-error-other-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when an unqualified error ocurrs during retrieval of data.	30000	✓	✓	✓	
download-error-other-exception-sleep-multiplicator	Multiplication factor for sleep between retries when an unqualified error ocurrs during retrieval of data.	2	✓	✓	✓	
download-error-socket-exception-max-tries	Maximum number of tries when the network connection is forcible dropped during retrieval of data.	10	✓	✓	✓	
download-error-socket-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when the network connection is forcible dropped during retrieval of data.	10000	✓	✓	✓	
download-error-socket-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when the network connection is forcible dropped during retrieval of data.	60000	✓	✓	✓	
download-error-socket-exception-sleep-multiplicator	Multiplication factor for sleep between retries when the network connection is forcible dropped during retrieval of data.	2	✓	✓	✓	
download-error-web-exception-max-tries	Maximum number of tries when a web connection failure occurs during retrieval of data.	10	✓	✓	✓	
download-error-web-exception-sleep-initial-ms	Initial sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.	10000	✓	✓	✓	
download-error-web-exception-sleep-max-ms	Maximum sleep in milliseconds between retries when a web connection failure occurs during retrieval of data.	60000	✓	✓	✓	
download-error-web-exception-sleep-multiplicator	Multiplication factor for sleep between retries when a web connection failure occurs during retrieval of data.	2	✓	✓	✓	
download-error-web-not-implemented-max-tries	Maximum number of tries when the connection reports not implemented.	1	✓	✓	✓	
download-error-web-not-implemented-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports not implemented.	5000	✓	✓	✓	
download-error-web-not-implemented-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports not implemented.	60000	✓	✓	✓	
download-error-web-not-implemented-sleep-multiplicator	Multiplication factor for sleep between retries when the connection reports not implemented.	2	✓	✓	✓	
download-error-web-timeout-max-tries	Maximum number of tries when the connection reports a timeout.	10	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
download-error-web-timeout-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports a timeout.	5000	✓	✓	✓	
download-error-web-timeout-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports a timeout.	60000	✓	✓	✓	
download-error-web-timeout-sleep-multiplicator	Multiplication factor for sleep between retries when the connection reports a timeout.	2	✓	✓	✓	
download-error-web-unauthorized-max-tries	Maximum number of tries when the connection reports an unauthorized error.	1	✓	✓	✓	
download-error-web-unauthorized-sleep-initial-ms	Initial sleep in milliseconds between retries when the connection reports an unauthorized error.	5000	✓	✓	✓	
download-error-web-unauthorized-sleep-max-ms	Maximum sleep in milliseconds between retries when the connection reports an unauthorized error.	60000	✓	✓	✓	
download-error-web-unauthorized-sleep-multiplicator	Multiplication factor for sleep between retries when the connection reports an unauthorized error.	2	✓	✓	✓	
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓	
http-disk-cache-compression-level	Compression level for the HTTP disk cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-disk-cache-directory	Directory where HTTP cache is stored.	C:\Users\gle3.WS212\Invantive\Cache\http\gle3\shared	✓	✓	✓	
http-disk-cache-ignore-write-errors	Whether to ignore write errors to disk cache.	False	✓	✓	✓	
http-disk-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP disk cache.	2592000	✓	✓	✓	
http-get-timeout-ms	HTTP GET timeout (ms).	300000	✓	✓	✓	
http-memory-cache-compression-level	Compression level for the HTTP memory cache, ranging from 1 (little) to 9 (intense). Default is 5.	5	✓	✓	✓	
http-memory-cache-max-age-sec	Maximum acceptable age in seconds for use of data in the HTTP memory cache.	14400	✓	✓	✓	
http-post-timeout-ms	HTTP POST timeout (ms).	300000	✓	✓	✓	
ignore-http-400-errors	Ignore HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-401-errors	Ignore HTTP 401 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
ignore-http-403-errors	Ignore HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-404-errors	Ignore HTTP 404 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-422-errors	Ignore HTTP 422 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-429-errors	Ignore HTTP 429 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-500-errors	Ignore HTTP 500 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
ignore-http-502-errors	Ignore HTTP 502 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
invalid-json-on-get-max-tries	Maximum number of tries when the JSON received on GET is invalid.	10	✓	✓	✓	
invalid-json-on-get-sleep-initial-ms	Initial sleep in milliseconds between retries when the JSON received on GET is invalid.	10000	✓	✓	✓	
invalid-json-on-get-sleep-max-ms	Maximum sleep in milliseconds between retries when the JSON received on GET is invalid.	60000	✓	✓	✓	
invalid-json-on-get-sleep-multiplicator	Multiplication factor for sleep between retries when the JSON received on GET is invalid.	2	✓	✓	✓	
invalid-json-on-post-max-tries	Maximum number of tries when the JSON received on POST is invalid.	1	✓	✓	✓	
invalid-json-on-post-sleep-initial-ms	Initial sleep in milliseconds between retries when the JSON received on POST is invalid.	10000	✓	✓	✓	
invalid-json-on-post-sleep-max-ms	Maximum sleep in milliseconds between retries when the JSON received on POST is invalid.	60000	✓	✓	✓	
invalid-json-on-post-sleep-multiplicator	Multiplication factor for sleep between retries when the JSON received on POST is invalid.	2	✓	✓	✓	
invantive-sql-correct-invalid-date	Whether to correct invalid dates.	False	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓	
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓	
join-set-points-per-request	Maximum number of values in a request when executing a join set.	60	✓	✓	✓	
limit-partition-calls-left	Minimum number of remaining API calls on a partition towards a hard limit. When below, an error is raised.	500	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
log-native-calls-to-disk	Registers native calls to data container backend as disk files.	False	✓	✓	✓	
log-native-calls-to-trace	Log native calls to data container backend on the trace.	False	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓	
max-odata-filters	The maximum number of OData filter elements.	100	✓	✓	✓	
max-url-length-accepted	The maximum accepted URL length before raising an error.	8000	✓	✓	✓	
max-url-length-desired	The maximum desired URL length.	8000	✓	✓	✓	
metadata-cache-max-age-sec	Maximum acceptable age in seconds for re-use of metadata.		✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in ms across all slots of a partition-based rate limit.	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓	
requested-page-size	Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓	
simulate-http-400-errors	Simulate HTTP 400 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-400-errors-percentage	Percentage of simulated HTTP 400 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-401-errors	Simulate HTTP 401 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-401-errors-percentage	Percentage of simulated HTTP 401 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-403-errors	Simulate HTTP 403 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-403-errors-percentage	Percentage of simulated HTTP 403 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-429-errors	Simulate HTTP 429 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-429-errors-percentage	Percentage of simulated HTTP 429 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-500-errors	Simulate HTTP 500 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Connectors File	Set from Log On
simulate-http-500-errors-percentage	Percentage of simulated HTTP 500 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-502-errors	Simulate HTTP 502 errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-502-errors-percentage	Percentage of simulated HTTP 502 errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-protocol-errors	Simulate HTTP protocol errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-protocol-errors-percentage	Percentage of simulated HTTP protocol errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
simulate-http-timeout-errors	Simulate HTTP timeout errors when exchanging results with the OData endpoint.	False	✓	✓	✓	
simulate-http-timeout-errors-percentage	Percentage of simulated HTTP timeout errors when exchanging results with the OData endpoint.	0	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in ms across all slots of a slot-based rate limit.	6000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit	21	✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓	
use-batch-insert	Whether to use batch insert.	True	✓	✓	✓	
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓	
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 that can answer the current query.	True	✓	✓	✓	
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓	

3.2.56 Provider TeamViewer: TeamViewer online assistance.

TeamViewer online assistance.

Code for use in settings.xml: TeamViewer

Alias: teamviewer

Status: Production

Available in Editions: Paid

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
http-get-timeout-ms	HTTP GET Timeout (ms)	30000	✓	✓	✓

3.2.57 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

3.2.58 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

Technical Documentation: http://docs.oasis-open.org/ubl/cs-UBL-2.0/xsd/

3.2.59 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/

3.2.60 Provider Vies: AutoTask service management.

AutoTask service management.

Code for use in settings.xml: Vies

Alias: vies

Status: Non-production

Available in Editions: Paid

Technical Documentation: http://severa.visma.com/en/support/severaapi/

Non-technical Documentation: http://severa.visma.com

3.2.61 Provider VirusTotal: VirusTotal.

VirusTotal.

Code for use in settings.xml: VirusTotal

Alias: virustotal

Status: Non-production

Available in Editions: Paid

Technical Documentation: https://developers.virustotal.com/v2.0/reference/getting-started

3.2.62 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

Technical Documentation: http://severa.visma.com/en/support/severaapi/

Non-technical Documentation: http://severa.visma.com

Provider Attributes

The following provider attributes are available for VismaSevera:

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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	✓	✓	✓

Generated 11-01-2019 20:18 on version 17.30.0-PROD+1821.

3.2.63 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

3.2.64 Provider Wikipedia: Wikipedia information.

Wikipedia information.

Code for use in settings.xml: Wikipedia

Alias: Wikipedia

Status: Non-production

Available in Editions: Paid, Open Data, Community

Provider Attributes

The following provider attributes are available for Wikipedia:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
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.		✓	✓	✓

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
use-http-disk-cache-read	Whether to use HTTP responses from previous queries stored on disk to answer the current query.	True	✓	✓	✓
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 that can answer the current query.	True	✓	✓	✓
use-http-memory-cache-write	Whether to memorize HTTP responses from previous queries for use by future queries.	True	✓	✓	✓

Generated 11-01-2019 21:19 on version 17.30.0-PROD+1821.

3.2.65 Provider Wmi: Windows Management Instrumentation.

Windows Management Instrumentation.

Code for use in settings.xml: Wmi

Alias: wmi

Status: Production

Available in Editions: Paid

3.2.66 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

3.2.67 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

Technical Documentation:
https://www.softwarepakket.nl/upload/auditfiles/xaa/XmlAuditfileAfrekensystemen_3.1.zip

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_afrekensystemen.php?bronw=6

Provider Attributes

The following provider attributes are available for Xaa31:

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

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
xml-directories	{res:itgen_provider_attribute_xml_directories_description}		✓	✓	✓
xml-extension	{res:itgen_provider_attribute_xml_extension_description}	*.xaa	✓	✓	✓
xml-namespaces	Comma-separated list of namespace prefixes and their URI	xaa=http://www.auditfiles.nl/XAA/3.1	✓	✓	✓

Generated 11-01-2019 19:51 on version 17.30.0-PROD+1821.

3.2.68 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

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_financieel.php?bronw=6

3.2.69 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

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_financieel.php?bronw=6

3.2.70 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

Technical Documentation:
https://www.oswo.nl/pluginfile.php/13189/mod_folder/content/0/_AuditfileFinancieelVersie_3_1.zip

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_financieel.php?bronw=6

3.2.71 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

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_financieel.php?bronw=6

Provider Attributes

The following provider attributes are available for Xaf32:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
result-set-cache	Action: provide 'empty' to empty.			✓	
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
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	✓	✓	✓
xml-directories	{res:itgen_provider_attribute_xml_directories_description}		✓	✓	✓
xml-extension	{res:itgen_provider_attribute_xml_extension_description}	*.xaf	✓	✓	✓
xml-namespaces	Comma-separated list of namespace prefixes and their URI	xaf=http://www.auditfiles.nl/XAF/3.2	✓	✓	✓

Generated 11-01-2019 19:54 on version 17.30.0-PROD+1821.

3.2.72 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

Non-technical Documentation:
https://www.softwarepakket.nl/swpakketten/auditfiles/auditfile_financieel.php?bronw=6

Provider Attributes

The following provider attributes are available for Xas70:

Code	Description	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Providers File
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	False	✓	✓	✓
forced-casing-identifiers	Forced casing of identifiers. Choose from Unset, Lower, Upper and Mixed.		✓	✓	✓
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	True	✓	✓	✓
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	False	✓	✓	✓
invantive-use-cache	Whether to cache the results of a query.	True	✓	✓	✓
maximum-length-identifiers	Non-default maximum length in characters of identifier names.		✓	✓	✓
pre-request-delay-ms	Pre-request delay in milliseconds per request.	0	✓	✓	✓
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	32	✓	✓	✓
result-set-cache	Action: provide 'empty' to empty.			✓	
slot-based-rate-limit-length-ms	Length in ms of a slot-based rate limit.	60000	✓		✓
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit		✓		✓
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	True	✓	✓	✓
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	True	✓	✓	✓
trace-native-calls	Trace native calls to data container backend.	False	✓	✓	✓
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	✓	✓	✓
xml-directories	{res:itgen_provider_attribute_xml_directories_description}		✓	✓	✓
xml-extension	{res:itgen_provider_attribute_xml_extension_description}	*.xas	✓	✓	✓
xml-namespaces	Comma-separated list of namespace prefixes and their URI	xas=http://www.audit-files.nl/XAS/7	✓	✓	✓

Generated 11-01-2019 19:48 on version 17.30.0-PROD+1821.

3.2.73 Providers

The providers described here are available on all platforms.

3.3 Configuration

3.3.1 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.

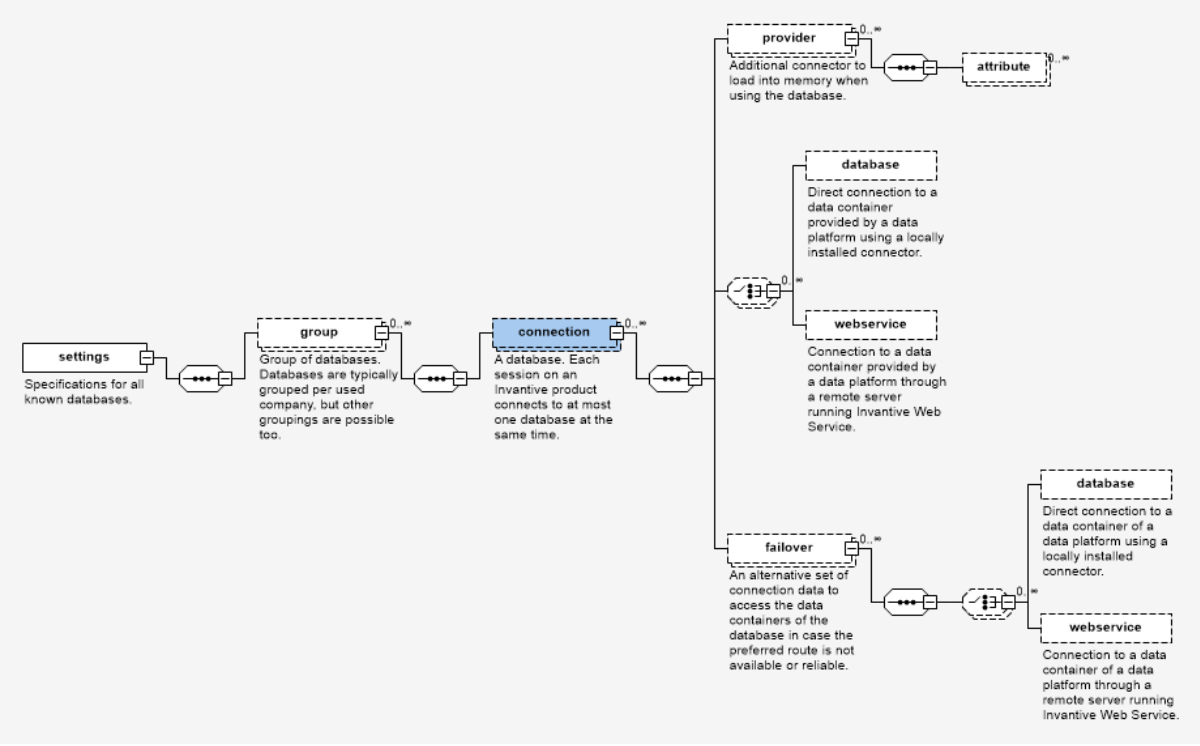
Additional Locations

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.



3.3.2 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'.

3.3.3 Logging

3.3.3.1 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 trace messages are also sent to the stderr when the environment variable 'INVANTIVE_TRACE_STDERR' is set to 'true'.

PSQL compilation is also logged when additionally the environment variable 'INVANTIVE_TRACE_PSQL' 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'.

The default number of seconds after which trace files in the trace folder structure are purged is 7 days. This can be altered by setting the environment variable 'INVANTIVE_TRACE_DELETE_AGE_SEC'. Only files in the configured trace folder are studied for purge; when the trace folder location is changed the software does not study files in the previous locations.

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

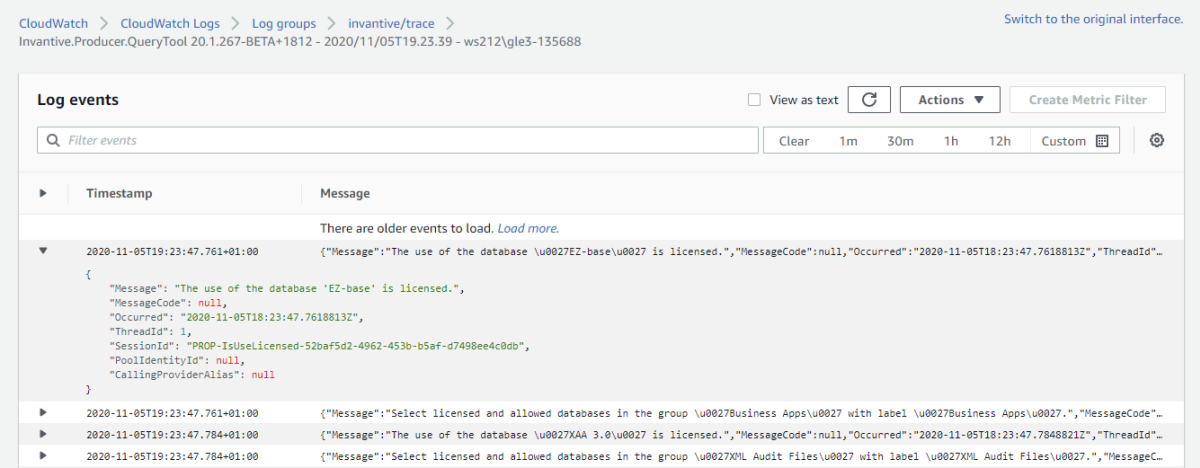
The trace can be logged to Amazon CloudWatch by configuring the following environment variables:

- 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:



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 UniversalSQL 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:

```
export 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:

```
export COMPlus_DefaultStackSize=10000000
```

3.3.3.2 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.
- IID: 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 proces 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.

3.3.4 Debugging

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

3.3.4.1 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.

4 Invantive SQL for Windows

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

4.1 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.

4.2 OS Upgrade Checks

Invantive SQL executes many internal consistency to ensure correctness of the results. A check is made that the device is patched with recent updates upon start on Windows platforms. This check ensures that known security risks will have been fixed within months or else Invantive SQL will not run.

However, for some enterprise environments it can be necessary to explicitly disable or enable these checks by setting environment variables to the value 'true' or 'false'.

To explicitly enable all OS upgrade checks, set the environment variable `INVANTIVE_CHECK_OS_UPGRADES` to true. To explicitly disable it, set the environment variable `INVANTIVE_CHECK_OS_UPGRADES` to false.

The default setting used when no deviating value is configured is true.

5 Contact Information

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

Location Harderwijk

Biesteweg 11
3849 RD Hierden
the Netherlands

Sales: +31 88 00 26 500
E-mail: info@invantive.com
Web: https://invantive.com

Chamber of Commerce: 13031406
Managing Director: Guido Leenders
Company domiciled in Roermond (NL).
Bank: NL25 BUNQ 2098 2586 07, BIC BUNQNL2A
VAT: NL812602377B01

Founded: 1992
2012 NAICS: 511210

Support

Forums: https://forums.invantive.com
Customer Portal: https://cloud.invantive.com
Finance: finance@invantive.com
Sales: sales@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.

Published: 06 November 2023

Index

- < -

- A -

- B -

- C -

- D -

- E -

- F -

- G -

- H -

- I -

- J -

- K -

- L -

- M -

- N -

- O -

- P -

- Q -

- R -

- S -

- T -

- U -

- V -

- W -

- X -

- Y -

- Z -

Copyright

Auteurs: Jan van Engelen, Michiel de Brieder, Mathijs Terhaag, Tanja Middelkoop, Guido Leenders, Tatjana Daka.

Invantive B.V.
Biesteweg 11
3849 RD Hierden
the Netherlands

Tel: +31 88 00 26 500
Fax: +31 84 22 58 178
info@invantive.com
invantive.com

IBAN NL25 BUNQ 2098 2586 07
Chamber of Industry and Commerce
13031406
VAT NL812602377B01
RSIN 8122602377
Managing Director: Guido Leenders
Registered office: Roermond

23.0.92
06/11/2023, 12:35
ISBN 978-94-6302-000-8: