23.0

Invantive Control for Excel

Reference Manual

invantive
the SQL company

Contents

1 Invantive Control for Excel

De doelgroepen voor de handleiding van Invantive Control for Excel zijn ontwikkelaars en gebruikers van een rekenmodel. De voordelen van Invantive Control for Excel zijn:

- Gebruik van veelgebruikte Microsoft Excel;
- Gebruik Invantive Producer applicaties, zoals Invantive Control for Excel;
- Synergie tussen Microsoft Excel en Invantive Control for Excel door eenvoudig opvragen en bewerken gegevens;
- Compliance met ISO 27002 met Excel.

1.1 Snelle Configuratie

Als je dit stappenplan volgt, kun je snel aan de slag met Invantive Control for Excel.

Voer de volgende stappen uit:

- Controleer dat op je werkplek de drivers geïnstalleerd zijn om de database te kunnen benaderen. Voor Microsoft SQL Server zijn drivers altijd al aanwezig. Voor andere database platformen vind je hier uitleg hoe je de installatie uitvoert.
- Als vanaf meerdere werkplekken verbindingen opgebouwd worden, dan kan het raadzaam zijn om de Invantive Web Service te gebruiken, want dan hoef je geen drivers te installeren op alle werkplekken.
- Installeer Microsoft .NET 4.5.1 indien nog niet aanwezig. Vanaf Windows 8.1 wordt deze versie van Microsoft .NET standaard door Microsoft meegeleverd. Deze software is voor Windows 7 en Windows 8 te downloaden vanaf http://www.microsoft.com/en-us/download/details.aspx?id=40779.
- Dubbelklik op het setup.exe bestand.
- Klik op de 'Install' knop als onderstaand venster verschijnt:

- De installatie wordt nu uitgevoerd.
- Invantive Control for Excel start samen met Microsoft Excel. Je kunt het dus alleen starten door Microsoft Excel op te starten.
- Bij de eerste keer starten van Microsoft Excel na de installatie verschijnt het configuratievenster. Het configuratievenster verschijnt ook als je de Ctrl-toets ingedrukt houdt bij het starten van Microsoft Word.

- Start Notepad via het Windows Start menu.
- Maak een leeg bestand settings.xml en bewaar dit bijvoorbeeld op je bureaublad.
- In de map waaruit je de Invantive Control for Excel hebt geïnstalleerd staat een voorbeeld van een settings.xml bestand met uitleg. Een voorbeeld voor Microsoft SQL Server staat ook op http://www.invantive.com/about-invantive/news/entryid/1123/windows-authenticatie-met-sql-server-voor-invantive-settings-xml. Een voorbeeld voor Oracle staat ook op http://www.invantive.com/about-invantive/news/entryid/1124/oracle-rdbms-met-invantive-settings-xml.

- In het settings.xml bestand definieer je de database verbinding die je wilt gaan gebruiken.
- Als je hierbij hulp nodig hebt, dan kun je voor gratis hulp bellen met Invantive Support op +31 88 00 26 599, een e-mail sturen naar support@invantive.com of http://support.invantive.com bezoeken.
- Kies jouw settings.xml in het configuratievenster.
- Druk op OK.
- Je komt nu in het aanmeldvenster.

- Kies de verbinding die je wilt gebruiken.
- Vul de gebruikersnaam in.
- Vul het wachtwoord in.
- Klik op 'Connect'.
- Het aanmeldvenster verdwijnt en afhankelijk van je rechten verschijnen knoppen in de linten Invantive Control en Modelleur.
- Lees in Aan de slag 2 hoe je met kunt werken met Invantive Control for Excel.

1.2 Aan de slag

Hier leer je hoe je Invantive Control for Excel snel voor het eerst kunt gebruiken.

Na de Snelle Configuratie 1 kom je in Microsoft Excel.

Er zijn geen verdere instructies.

1.3 Beschrijving

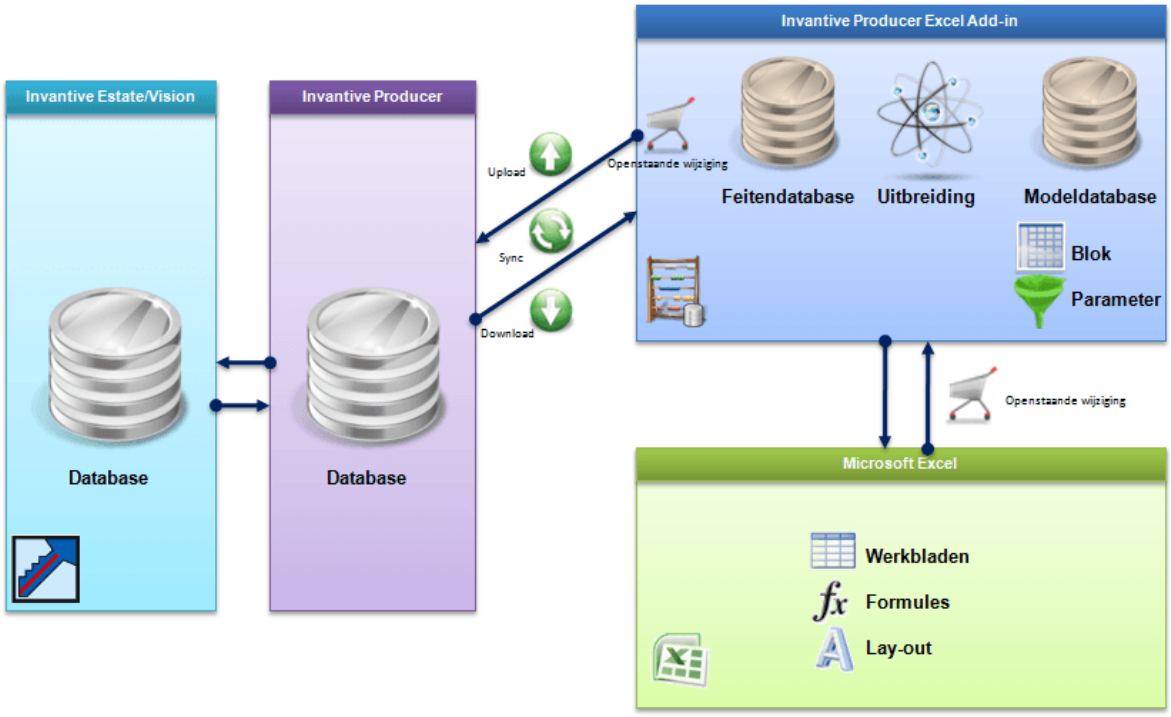
Dit hoofdstuk bestaat uit een beschrijving van het concept, de werking, en de toepassingsgebieden van Invantive Control for Excel.

1.3.1 Concept

Invantive Control for Excel kent de volgende concepten:

- Model;
- Blok;
- Parameter;
- Uitbreiding;
- Openstaande wijziging;
- Synchroniseren.

De afbeelding toont een overzicht van de concepten en de relaties tussen de concepten.



Model

Een model is een representatie van een formule in het formaat van Invantive Control for Excel. De formule gebruikt invoerparameters, in de vorm van gegevens van een database. Vervolgens worden deze invoerparameters verwerkt door middel van Excel-expressies en de uitkomst wordt getoond. De invoerparameters kunnen aangepast, toegevoegd of verwijderd worden. De wijzigingen hebben wel een effect op de database. Een voorbeeld is dat het model de definitie bevat van alle organisaties uit een bedrijfsobject. Zie Modelbewerker 22 voor meer informatie.

Blok

Een blok is een aangrenzend gebied in een Excel werkblad. Een blok bevat gegevens van een database opgehaald door een query bij de laatste synchronisatie en het bevat de gegevens die nog weggeschreven moet worden bij de volgende synchronisatie. Een blok loopt over één van de dimensies: cel, kolom, rij of werkblad. Zie Blokken 23 voor een voorbeeld.

Parameter

Een parameter is een filter dat ingesteld kan worden om een gedeelte van de gegevens van een blok op te halen uit de feitendatabase. Met het opgeven van een parameter zorg je ervoor dat alleen gegevens uit de database wordt opgehaald die in het filter ingesteld zijn. Zie Parameterwaarden 13 voor het instellen van parameters.

Uitbreiding

Een uitbreiding is een geïntegreerd script in het uitvoerproces van het model. Een uitbreiding verrijkt een Model met de functionaliteit die niet standaard zit in Invantive Control for Excel. Een voorbeeld van een uitbreiding is om door middel van een knop geautomatiseerd gegevens toe te voegen in het werkblad. Zie Uitbreidingen 28 voor meer informatie.

Openstaande wijziging

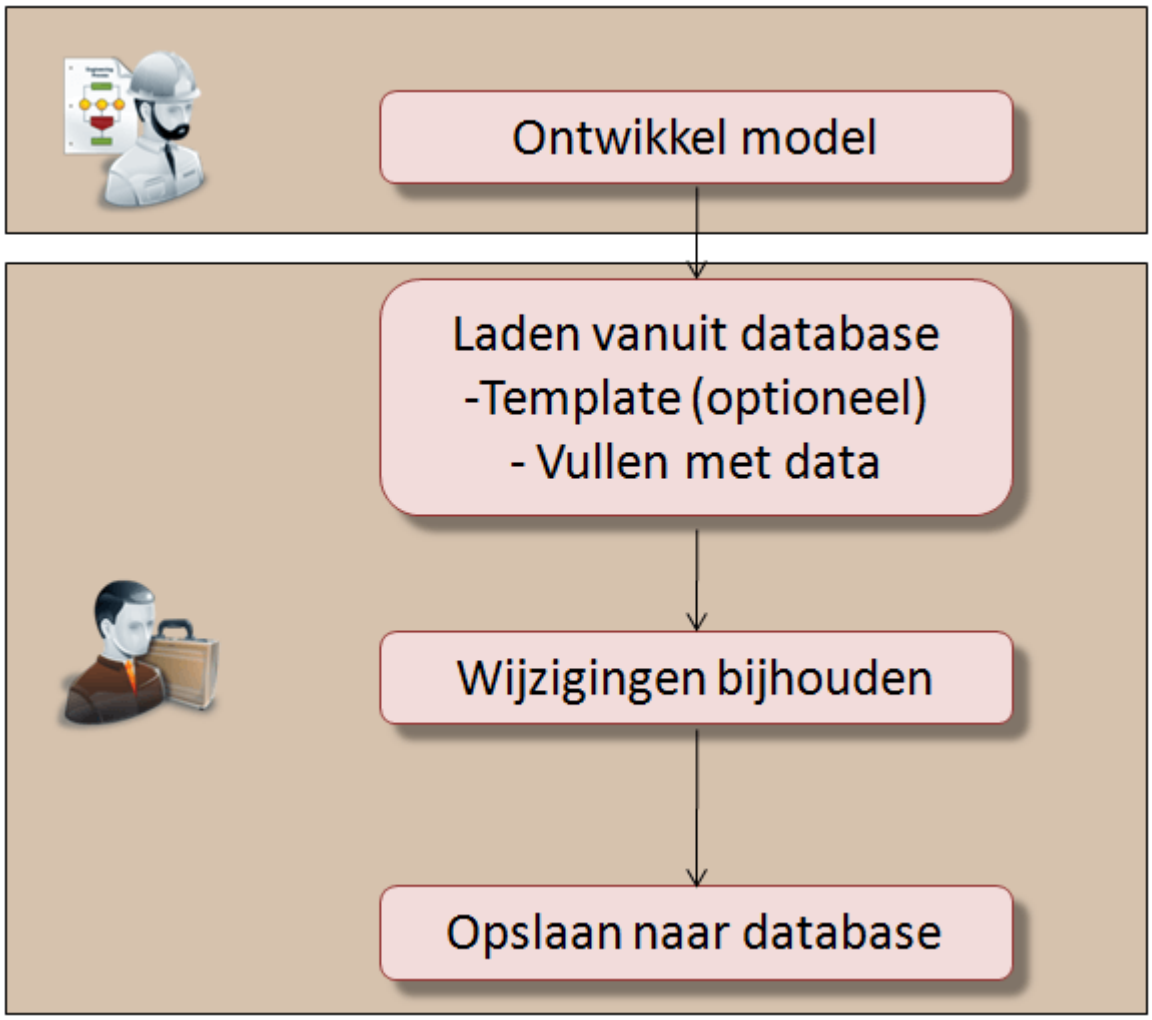
Dit zijn wijzigingen in de lokale gegevens van de modelgebruiker en staan klaar om gestuurd te worden naar de feitendatabase. De feitendatabase bevat de centrale opslag van feiten buiten een Excel werkblad. Een openstaande wijziging kan bijvoorbeeld een aanpassing zijn van een celwaarde in Excel en deze wijziging moet nog naar de feitendatabase gestuurd worden. Zie Openstaande Wijzigingen 12 voor meer informatie.

Synchroniseren

Synchroniseren gebruik je om openstaande wijzigingen naar de feitendatabase te verzenden en om de nieuwste gegevens uit de feitendatabase op te halen. Via de optie uploaden worden de wijzigingen die nog niet verzonden zijn naar de feitendatabase verstuurd. Via de optie downloaden worden laatste gegevens opgehaald uit de feitendatabase en verwerkt in het blok met gegevens. Zie Gebruikersinterface Modelgebruiker 9 voor meer informatie.

1.3.2 Werking

De afbeelding geeft de globale werking aan van Invantive Control for Excel. De modelontwikkelaar ontwikkelt het model in Invantive Control for Excel en slaat deze op in het Excelbestand. De modelgebruiker opent vervolgens het Excelbestand en laad de gegevens uit de database. De wijzigingen van de gebruiker worden bijgehouden en bij het synchroniseren worden de gewijzigde gegevens weer naar de database verzonden en nieuwe gegevens opgehaald.



1.3.3 Toepasssingsgebied

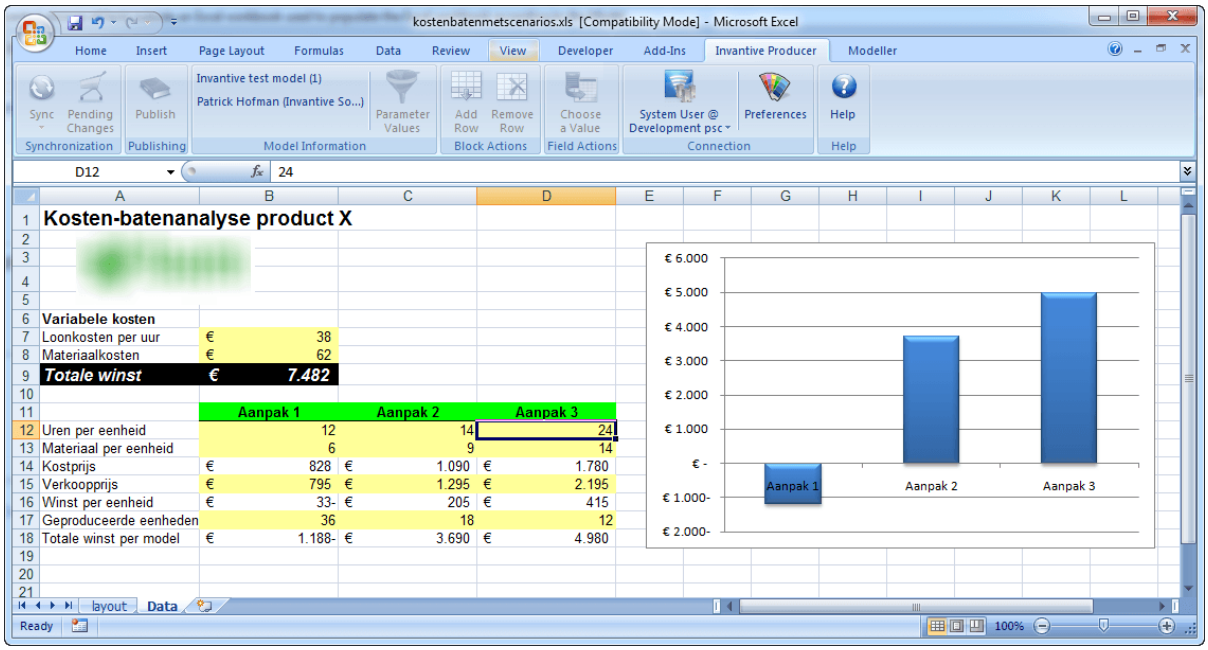
Deze paragraaf bevat de toepassingsgebieden voor Invantive Control for Excel. De toepassingsgebieden bestaan uit de ondersteuning voor rekenmodellen, off-line werken en het beheer van gegevens.

1.3.3.1 Rekenmodel

Een rekenmodel is een rekenkundig model en aan de hand van het model kunnen berekeningen worden uitgevoerd. Een voorbeeld van een rekenmodel is een kosten-batenanalyse en hiermee kunnen de verwachte kosten worden afgewogen ten opzichte van de te verwachte baten. De analyse wordt gebruikt om de winstgevendheid te bepalen van onder andere een product, project of dienst.

Voorbeeld rekenmodel in Invantive Control for Excel

De figuur laat een voorbeeld zien van een kosten-batenanalyse voor de ontwikkeling van een product die gebaseerd is op drie verschillende aanpakken. Per aanpak zijn verschillende kostprijzen en verkoopprijzen gehanteerd en uit de staafdiagram blijkt dat Aanpak 3 de meeste winst oplevert. De berekeningen in het model zijn opgeslagen in de database, zodat de uitkomsten na synchronisatie worden getoond door middel van Invantive Control for Excel in Excel. Het voordeel is dat de gebruiker de berekeningen niet (per ongeluk) kan aanpassen en een ander voordeel is dat berekeningen kunnen worden beheerd.

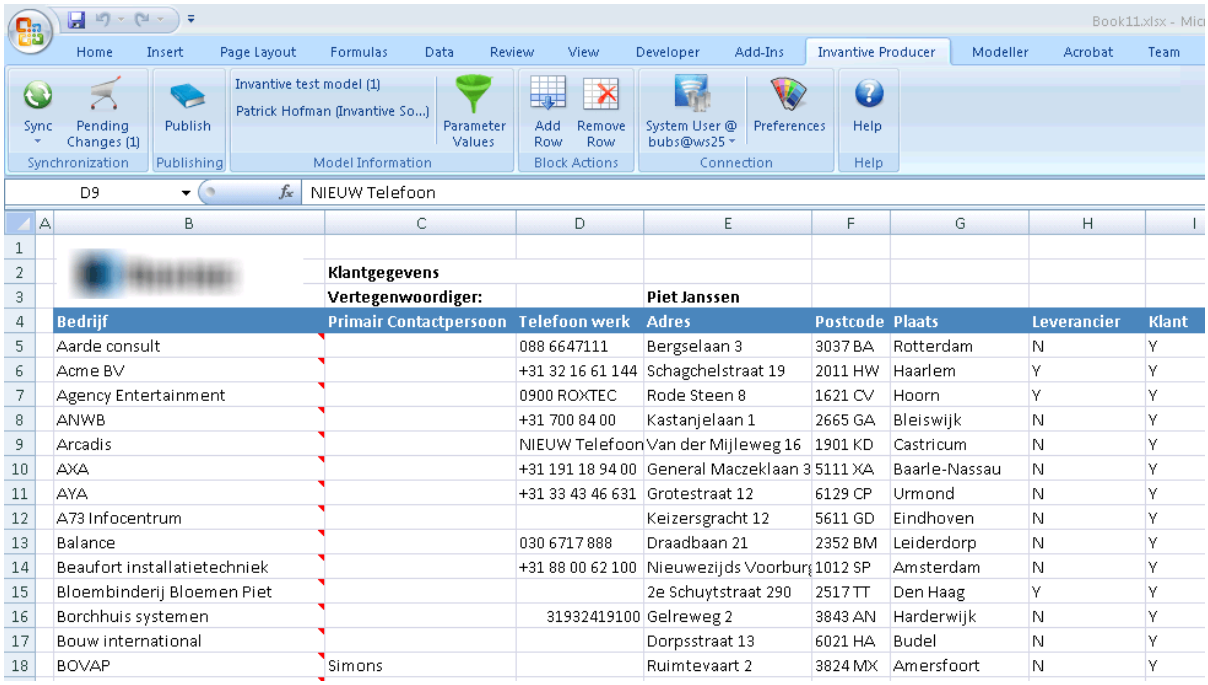


1.3.3.2 Offline Werken

Invantive Control for Excel kun je gebruiken om offline gegevens te bewerken in Excel. Met offline werken kun je zonder verbinding met een database gegevens invoeren, wijzigen en verwijderen in de werkmap. Als er weer een verbinding beschikbaar is met de database kun je de wijzigingen weer terugsturen en ophalen (synchroniseren) met de database.

1.3.3.3 Beheer van Gegevens

Een ander voorbeeld om Invantive Control for Excel te gebruiken is voor het beheer van gegevens voor het invoeren en bijwerken van grote blokken gegevens. Een voorbeeld hiervan is om CRM-gegevens te wijzigen zoals organisaties en personen, zie hiervoor de afbeelding. Het is mogelijk om meerdere organisaties en personen te wijzigen en dit weer te synchroniseren met de database.



	A	B	C	D	E	F	G	H	I
1									
2		[redacted]	Klantgegevens						
3			Vertegenwoordiger:		Piet Janssen				
4		Bedrijf	Primair Contactpersoon	Telefoon werk	Adres	Postcode	Plaats	Leverancier	Klant
5		Aarde consult		088 6647111	Bergselaan 3	3037 BA	Rotterdam	N	Y
6		Acme BV		+31 32 16 61 144	Schagchelstraat 19	2011 HW	Haarlem	Y	Y
7		Agency Entertainment		0900 ROXTEC	Rode Steen 8	1621 CV	Hoorn	Y	Y
8		ANWB		+31 700 84 00	Kastanjelaan 1	2665 GA	Bleiswijk	N	Y
9		Arcadis		NIEUW Telefoon	Van der Mijleweg 16	1901 KD	Castricum	N	Y
10		AXA		+31 191 18 94 00	General Maczeklaan 3	5111 XA	Baarle-Nassau	N	Y
11		AYA		+31 33 43 46 631	Grotestraat 12	6129 CP	Urmond	N	Y
12		A73 Infocentrum			Keizersgracht 12	5611 GD	Eindhoven	N	Y
13		Balance		030 6717 888	Draadbaan 21	2352 BM	Leiderdorp	N	Y
14		Beaufort installatietechniek		+31 88 00 62 100	Nieuwezijds Voorburg	1012 SP	Amsterdam	N	Y
15		Bloembinderij Bloemen Piet			2e Schuytstraat 290	2517 TT	Den Haag	Y	Y
16		Borchhuis systemen		31932419100	Gelreweg 2	3843 AN	Harderwijk	N	Y
17		Bouw international			Dorpsstraat 13	6021 HA	Budel	N	Y
18		BOVAP	Simons		Ruimtevaart 2	3824 MX	Amersfoort	N	Y

1.4 Functionaliteit

Deze paragraaf bevat de systeemeisen, de installatiestappen en de uitleg van de gebruikersinterface van Invantive Control for Excel.

1.4.1 Systeemeisen

Om Invantive Control for Excel te kunnen gebruiken op je PC of terminal server heb je de volgende programmatuur nodig inclusief licenties:

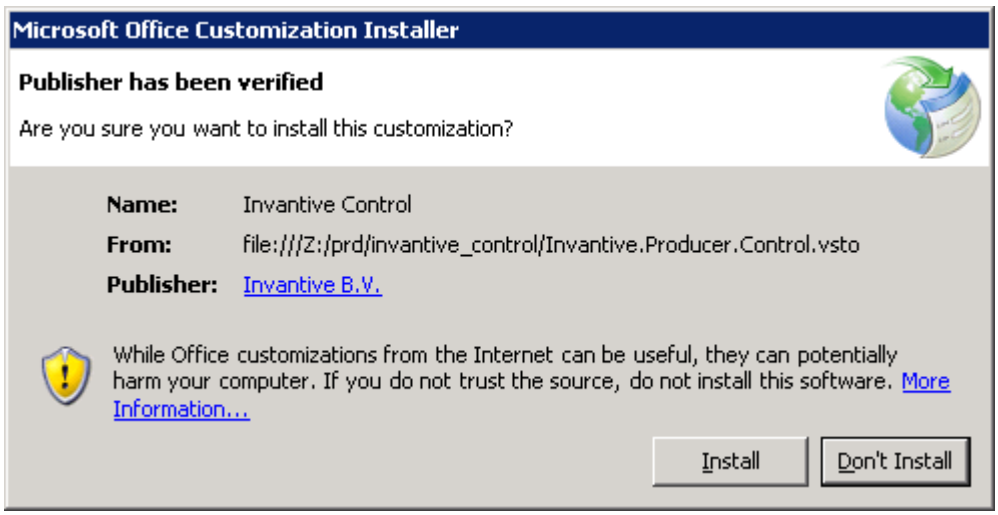
- Microsoft Office 2010 of Microsoft Office 2013 (alleen op Microsoft Windows).
- Microsoft .NET 4.5.
- Microsoft Windows 7, 8 of 8.1.
- Minimaal 2 Gb intern geheugen.
- Schermresolutie van 1280x1024 of hoger.
- Gebruikerslicentie gebruikte databases en/of bedrijfsapplicaties.
- Invantive Web Service of lokale drivers.

Gebruik op Mac, tablet en smartphone is niet mogelijk.

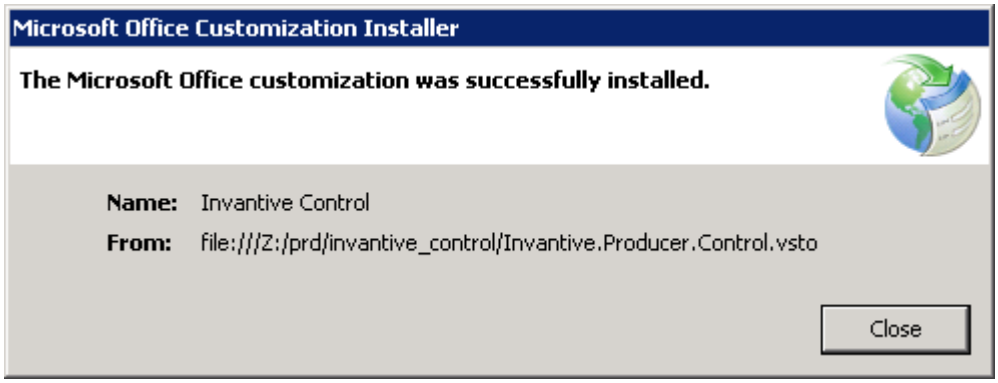
1.4.2 Installeren Excel Add-in

Invantive Control for Excel wordt geïnstalleerd op de Windows-computer door de volgende stappen uit te voeren:

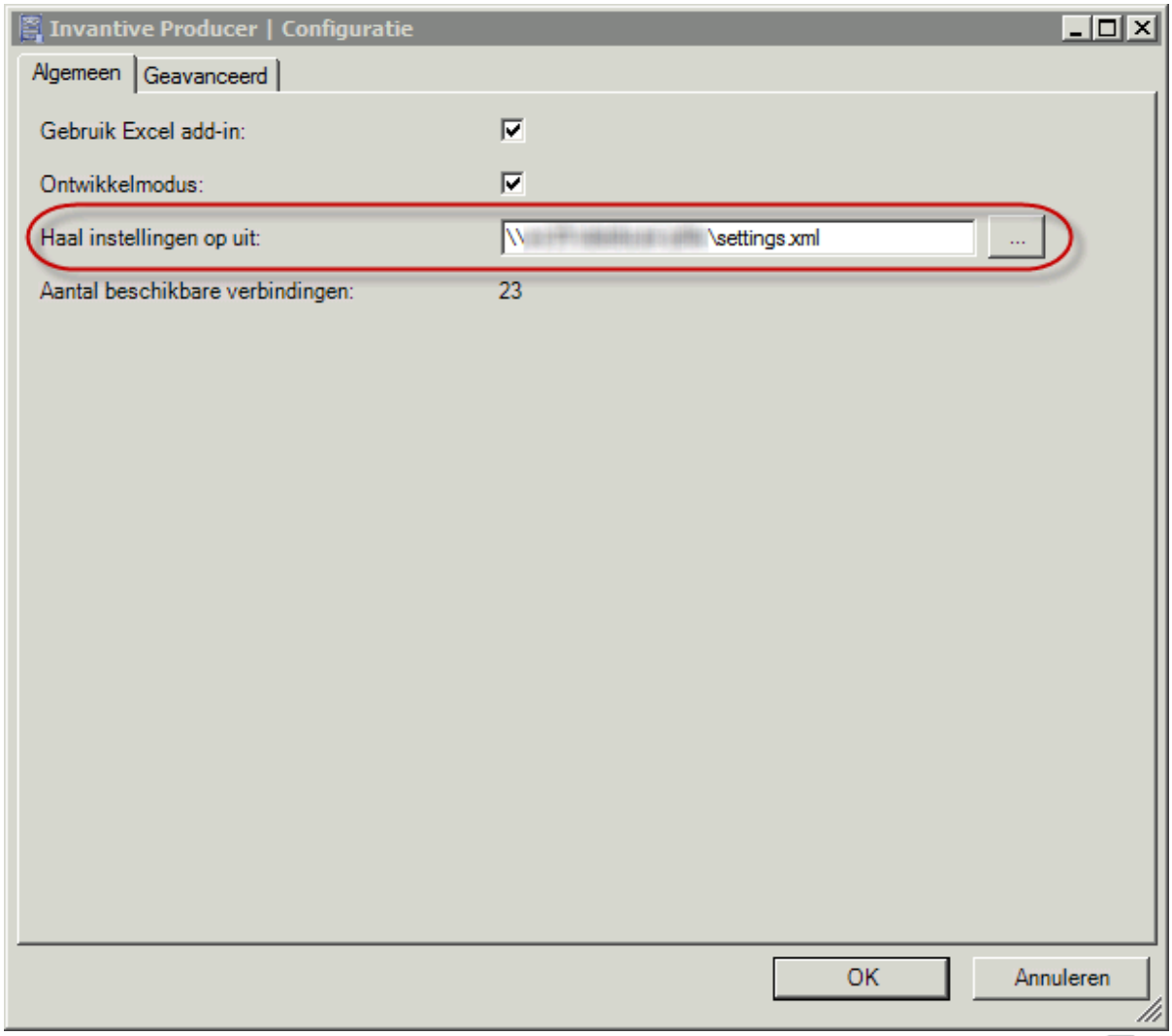
- Voer het installatiebestand 'setup.exe' uit en klik vervolgens op de knop 'Install'. Het bestand staat in de map van Invantive Control for Excel. Deze installatiemap wordt aangeleverd door Invantive.



- Als de installatie gelukt is verschijnt het onderstaande scherm.



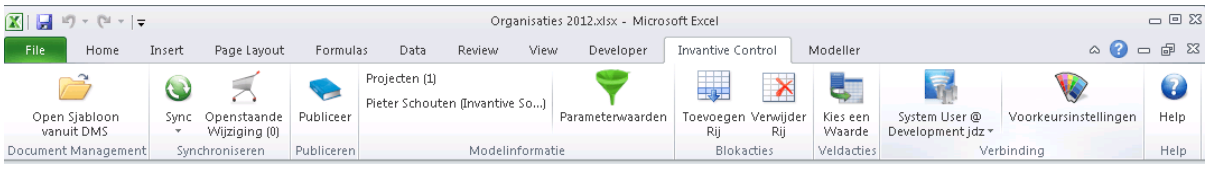
- Start vervolgens Microsoft Excel op om Invantive Control for Excel te gebruiken. Na het starten van Excel wordt dit venster getoond. Hierin moet de locatie worden opgegeven van het verbindingsbestand. Zie Verbindingsconfiguratie voor de uitleg van het verbindingsbestand. Klik vervolgens op 'OK' om de wijziging op te slaan.



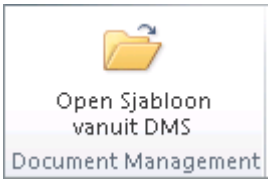
- Klik op het tabblad 'Invantive Control for Excel' in het lint en klik vervolgens op de knop 'Verbinden' om een verbinding op te zetten naar de server. Geef gebruikersnaam, wachtwoord en verbinding op en klik op 'OK', zie Verbinding 14 voor de uitgebreidere uitleg.

1.4.3 Gebruikersinterface Modelgebruiker

Deze paragraaf toont een uitleg van het tabblad Invantive Control for Excel in het lint in Microsoft Excel. De modelgebruiker kan gegevens invoeren, verwijderen en parameterwaarden instellen. Het tabblad 'Invantive Control for Excel' De volgende afbeelding toont dat het tabblad 'Invantive Control for Excel' is verdeelt in de groepen Document Management, Synchroniseren, Publiceren, Modelinformatie, Blokacties , Veldacties, Verbinding en Help. Per knop volgt er een uitleg.



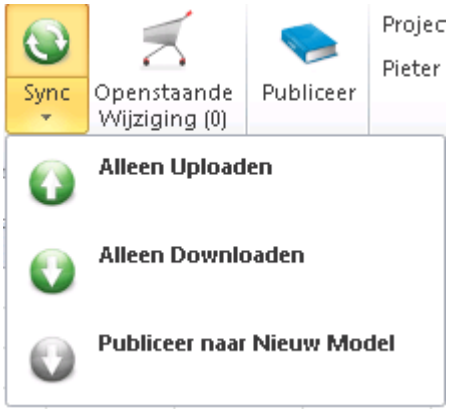
Document Management



De groep 'Document Management' bevat de volgende knop:

- Open Sjabloon vanuit DMS: Open een pop-up om documenten vanuit het DMS van Invantive Producer te openen, zie Open Sjabloon vanuit DMS 12.

Synchroniseren



De groep 'Synchroniseren' bevat de volgende knoppen:

- Sync: Synchroniseer de modelwerkmap met de feitendatabase. Download alle nieuwe feiten en upload de wijzigingen naar de feitendatabase. Onder de knop 'Sync' zitten de volgende functies:
    - Alleen Uploaden: Upload de wijzigingen van het huidige modelwerkblad naar de feitendatabase.
    - Alleen Downloaden: Download alle nieuwe feiten van de feitendatabase in het huidige model.
    - Publiceer naar Nieuw Model: Publiceer het model naar een nieuw bestand, met alleen het model zonder de feiten.
- Openstaande Wijzigingen: Toon de openstaande wijzigingen die nog niet gesynchroniseerd zijn met de feitendatabase. Het cijfer tussen haken toont het aantal wijzigingen die nog niet gesynchroniseerd zijn, zie Openstaande Wijzigingen 12.

Publiceren

De groep 'Publiceren' bevat de volgende knop:

- Publiceer: Publiceer de inhoud van dit Excel-werkblad naar een nieuw werkblad. U kunt vertrouwelijke gegevens van het originele werkblad uitsluiten van het nieuwe werkblad, zie Publiceer 13.

Modelinformatie

De groep 'Modelinformatie' bevat de volgende knoppen:

- Modelinformatie: De eerste regel toont de naam en versie van het model en de tweede regel de auteur en het bedrijf.
- Parameterwaarden: Open het parameterscherm om een filter in te stellen voor het ophalen van gegevens in de werkmap, zie Parameterwaarden 13.

Blokacties

De groep 'Blokacties' bevat de volgende knoppen:

- Toevoegen Rij: Voeg een nieuwe rij toe na de huidige rij in het geselecteerde blok.
- Verwijderen Rij: Verwijder de geselecteerde rij van het huidige blok.

Veldacties

De groep 'Veldacties' bevat de volgende knop:

- Kies een Waarde: Open een pop-up waarin ., zie Kies een Waarde 14.

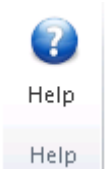
Verbinding

De groep 'Verbinding' bevat de volgende knoppen:

- Verbinden: Verbind naar een feitendatabase. Als er een verbinding is met de database toont de knop de gebruikersnaam en de server, zie Verbinding 14.
  Onder de knop 'Verbinden' zit de volgende functie:
  - Configuratie: Configureer de instellingen van Invantive Control for Excel, zie Configuratie 15.

- Voorkeuren: Configureer uw persoonlijke voorkeuren voor de Invantive Control for Excel, zie Voorkeuren 17.

Help



De groep 'Help' bevat de volgende knop:

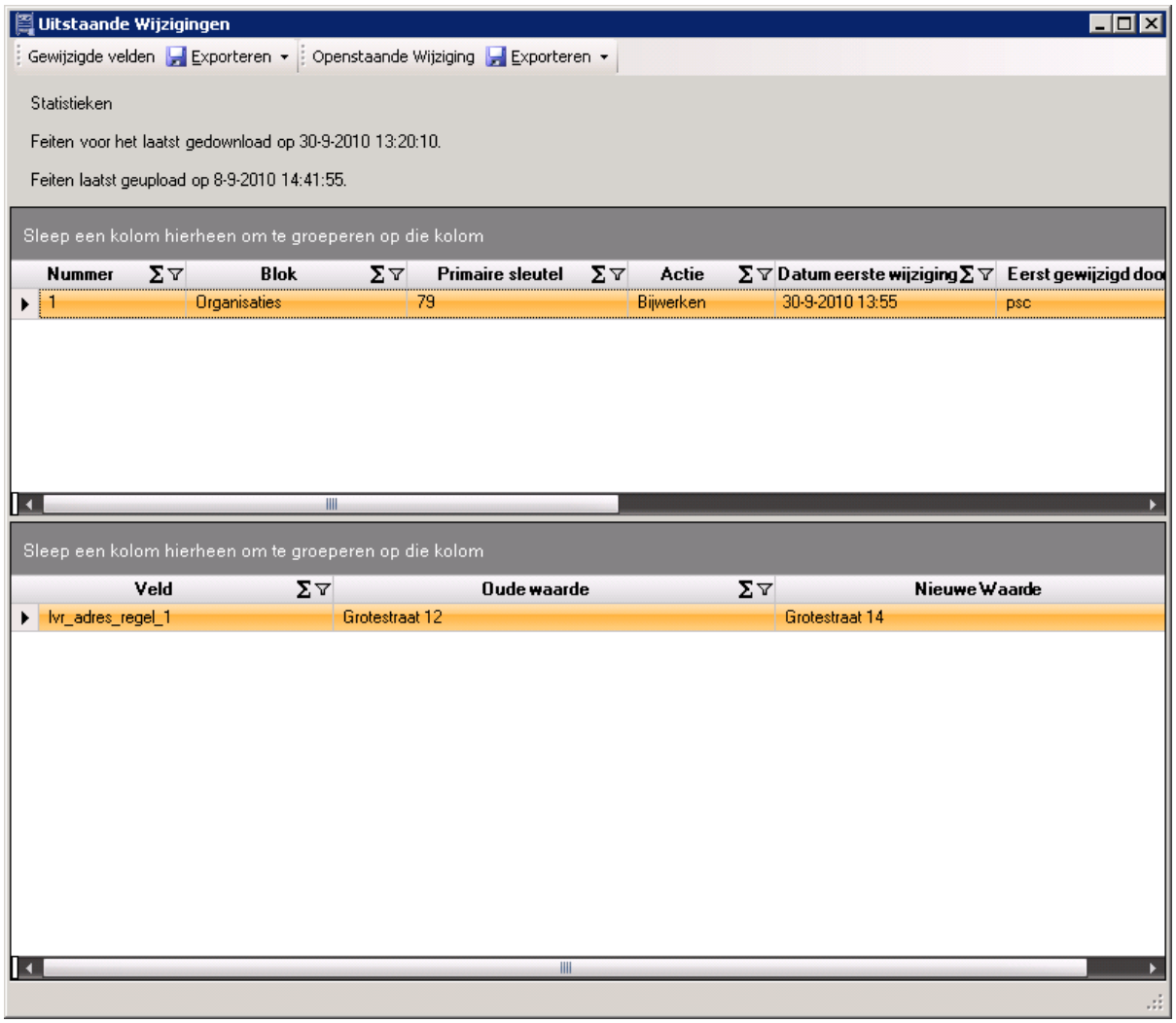
- Help: Krijg hulp voor het gebruik van Invantive Control for Excel, zie Help 19.

1.4.3.1 Open Sjabloon vanuit DMS

Voer hier tekst in.

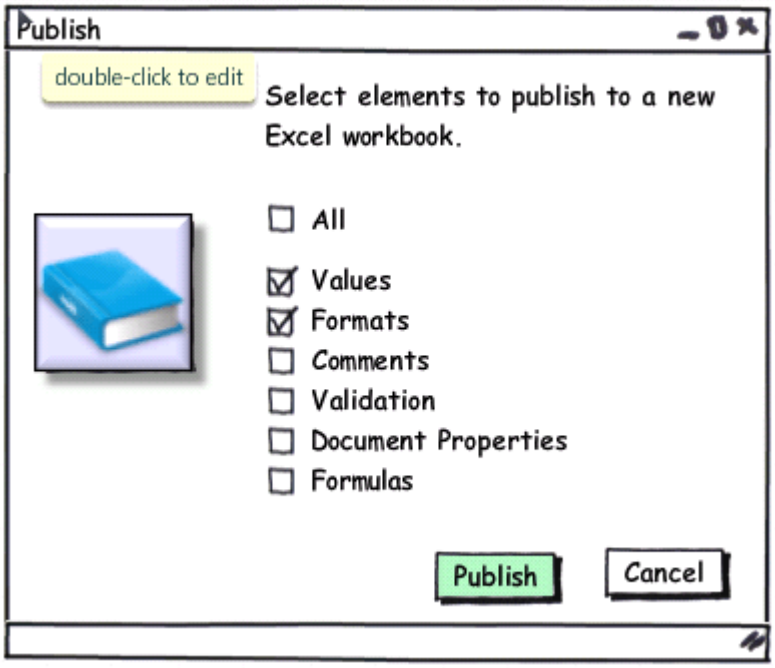
1.4.3.2 Openstaande Wijzigingen

De knop 'Openstaande Wijzigingen' toont alle wijzigingen die gemaakt zijn in Excel en nog niet gesynchroniseerd zijn met de feitendatabase.



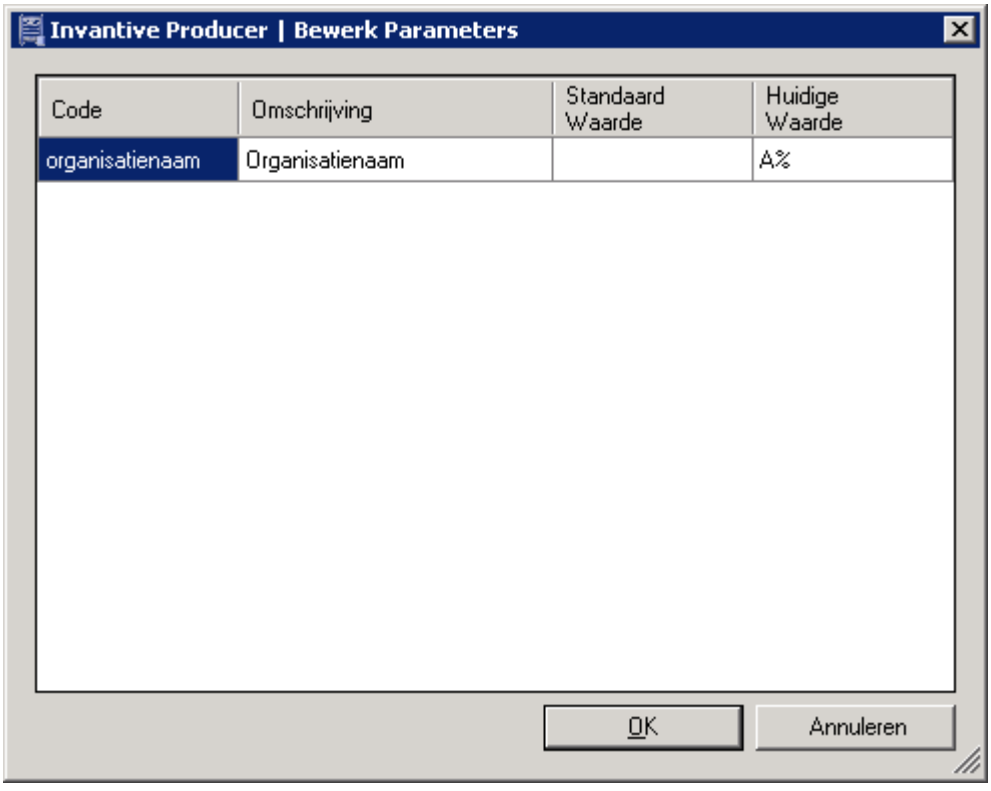
1.4.3.3 Publiceer

De functie 'Publiceer' maakt een nieuw Excelwerkblad met een kopie van gegevens uit het originele Excelbestand. In het venster selecteert u de elementen die overgenomen dienen te worden naar een nieuw werkblad.

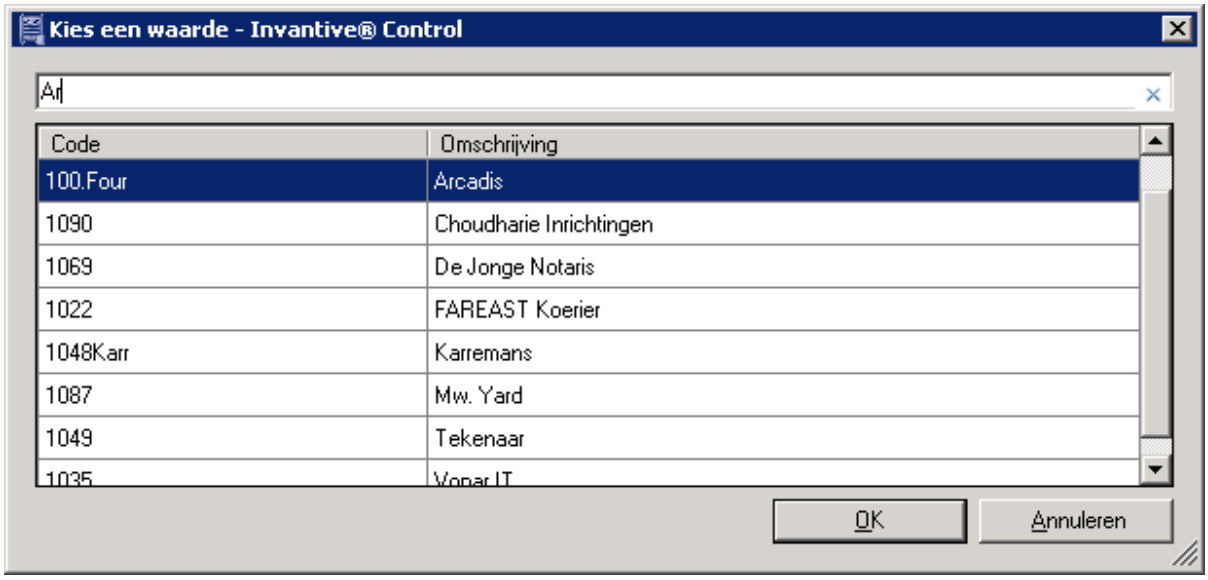


1.4.3.4 Parameterwaarden

De knop 'Parameterwaarden' toont de parameters die ingesteld zijn in de Modelbewerker[22]. De huidige waarde kan bewerkt worden om een andere deel te tonen van de gegevens in het model. In de afbeelding worden alleen de organisaties getoond die beginnen met de letter 'A'.



1.4.3.5 Kies een Waarde



1.4.3.6 Verbinding

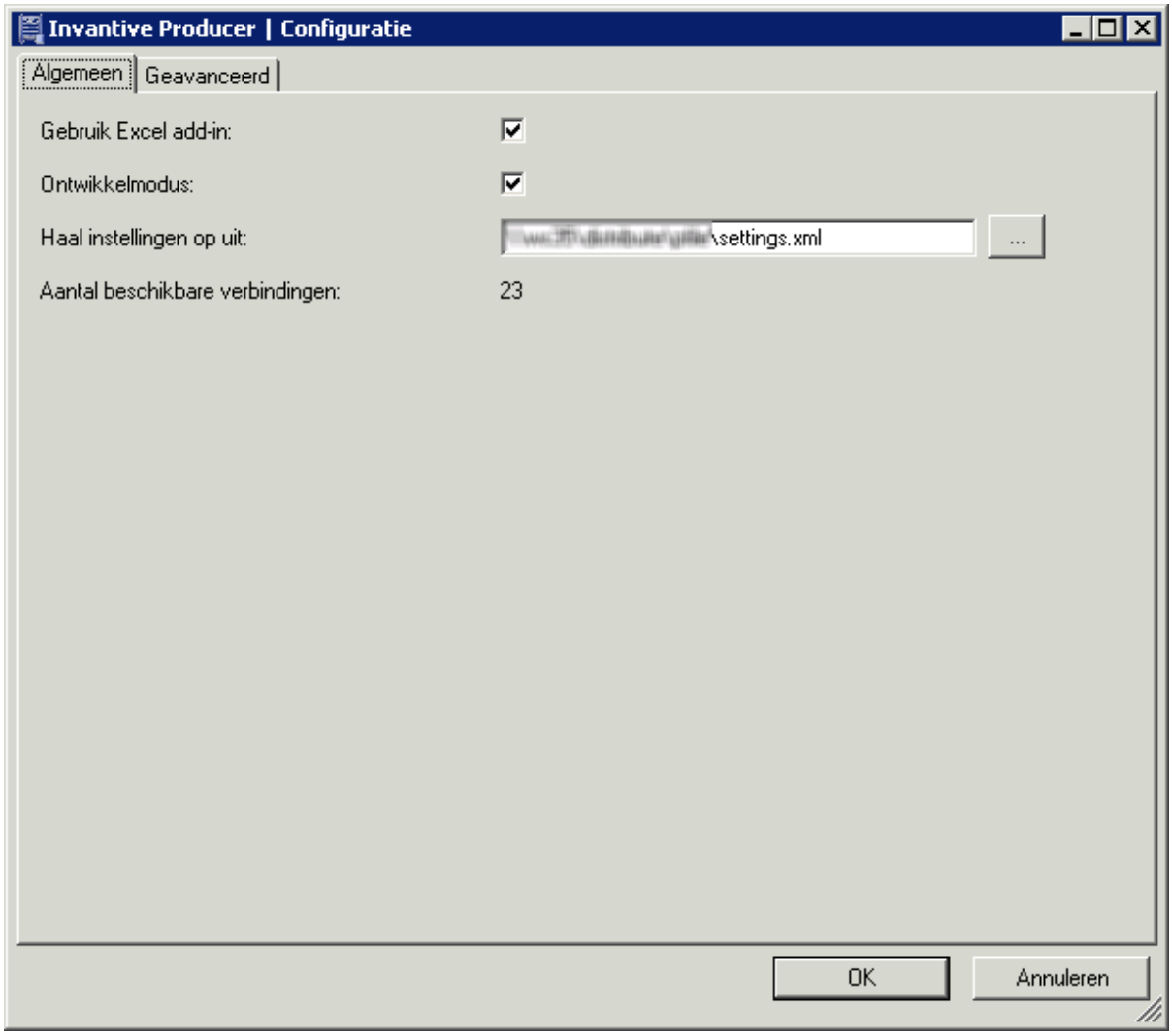
De afbeelding toont het venster waar de verbinding naar de database wordt opgegeven.

De betekenis van de invulvelden is:

Gebruikersnaam	Dit is de gebruikersnaam om verbinding te maken naar de server.
Wachtw oord	Hier staat het bijbehorende w achtw oord van de gebruiker.
Verbinding	Geef hier de server op w aarmee u verbinding w ilt maken.
Bew aar w achtw oord	Indien aangevinkt w ordt het w achtw oord versleuteld opgeslagen.
Automatisch verbinden	Indien aangevinkt w ordt automatisch verbinding gemaakt met de server en verschijnt het verbindingsscherm niet.

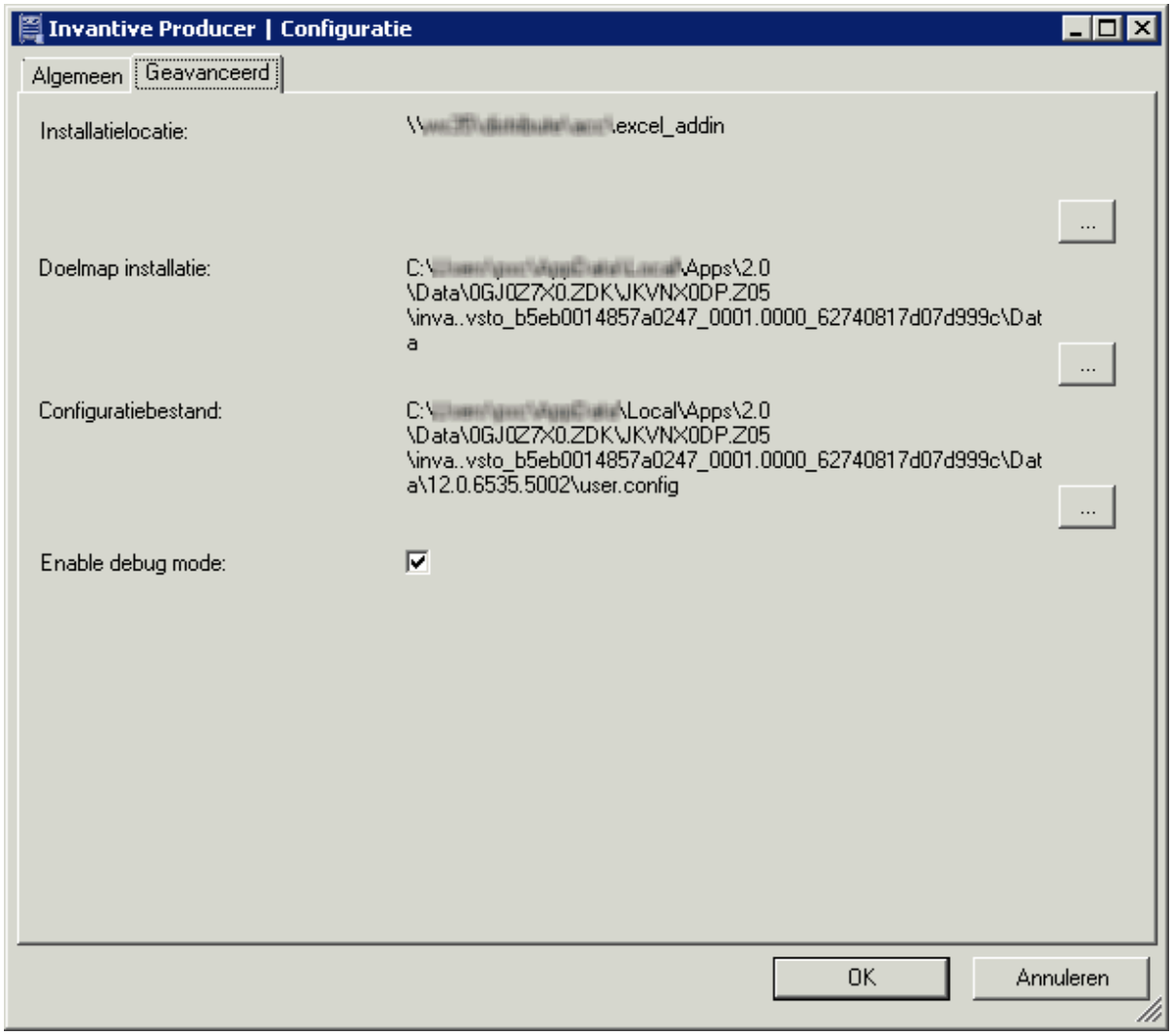
1.4.3.7 Configuratie

In dit venster stelt u de configuratie in van Invantive Control for Excel.



De betekenis van de velden in het tabblad 'Algemeen' is:

Gebruik Invantive Control for Excel	Indien aangevinkt is het mogelijk om Invantive Control for Excel te activeren.
Ontw ikkelmodus	Indien aangevinkt w ordt het tabblad Modeller zichtbaar in het lint. Deze optie is alleen nodig voor een modelontw ikkelaar.
Haal instellingen op uit	Hierin staat de bestandslocatie van het XML-bestand met de verbindingsinstellingen.
Aantal beschikbare verbindingen	Dit veld geeft het aantal beschikbare verbindingen aan naar databases.

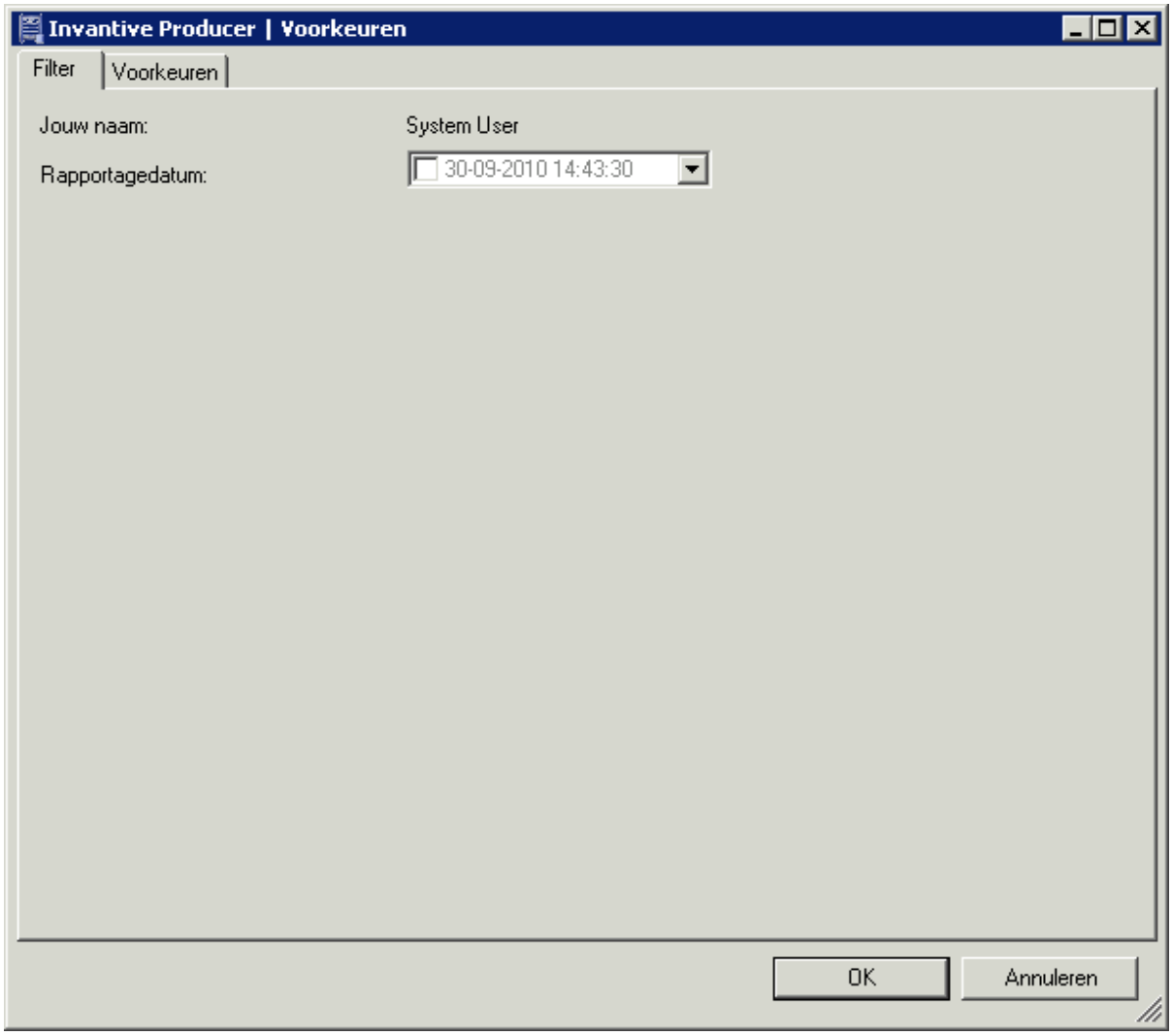


De betekenis van de velden in het tabblad 'Geavanceerd' is:

Installatielocatie	Hierin staat de locatie van het installatiebestand van Invantive Control for Excel. Bij het opstarten van Excel wordt op deze locatie gecontroleerd of een nieuwe versie beschikbaar is van Invantive Control for Excel. Als er een nieuwere versie beschikbaar is, verschijnt de vraag of je deze wilt installeren.
Doelmap installatie	Dit geeft de lokale bestandslocatie aan van Invantive Control for Excel waar het programma opgeslagen is.
Configuratiebestand	Dit is de bestandslocatie van het lokale configuratiebestand waarin de instellingen staan.
Enable debug mode	Indien aangevinkt is het tabblad Modeller beschikbaar, zie Gebruikersinterface Modelontwikkelaar 20. Deze optie mag alleen aangevinkt worden op verzoek van Invantive.

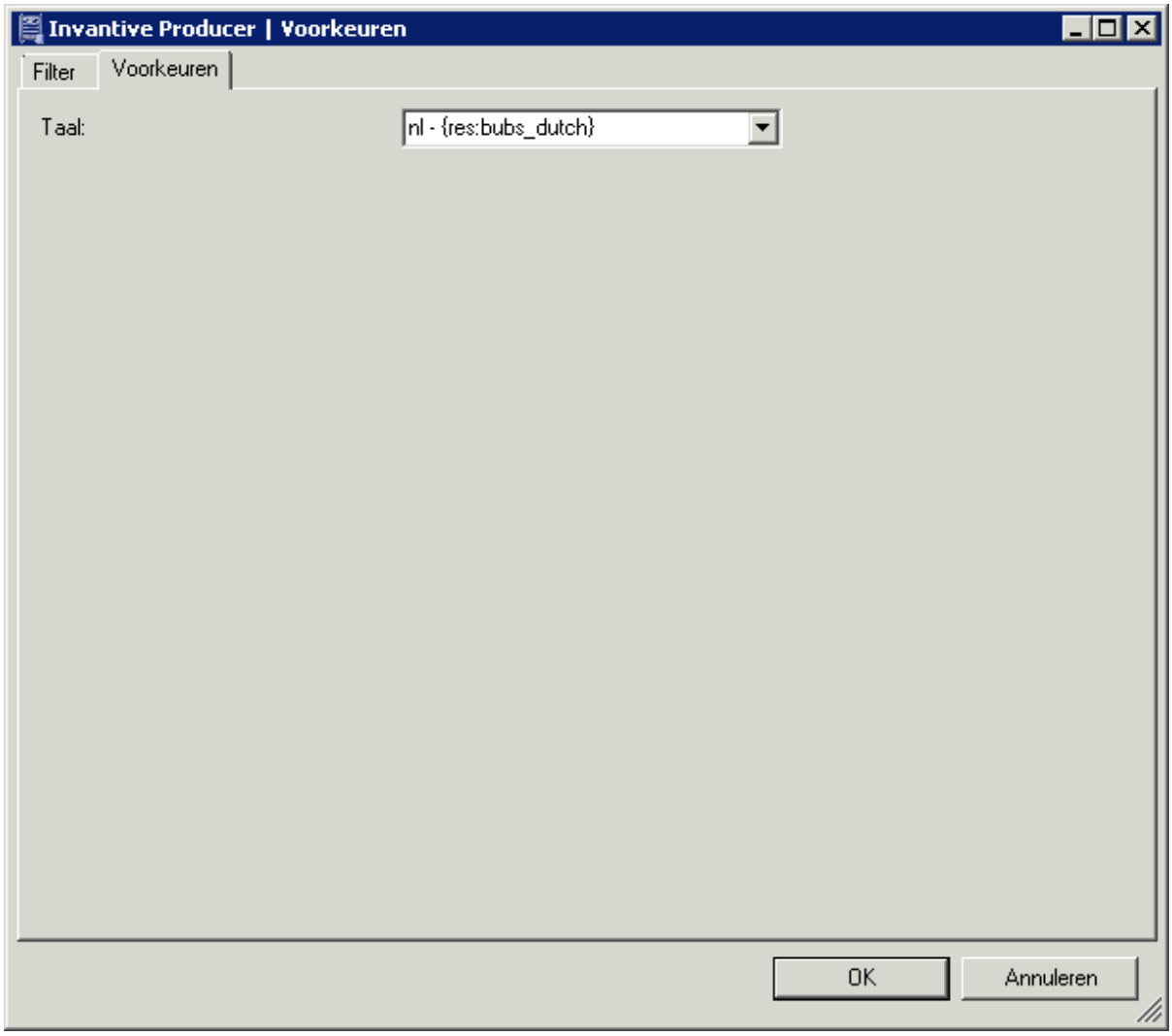
1.4.3.8 Voorkeuren

In dit venster stelt u de voorkeuren van Invantive Control for Excel in.



De betekenis van de velden in het tabblad Filter is:

Jouw naam	Dit geeft de naam van de gebruiker aan binnen Invantive Producer.
Rapportagedatum	Je kunt hier aangeven voor welke peildatum de gegevens op de rapportages getoond moeten worden. Deze datum wordt geactiveerd door de selectievakje aan te vinken

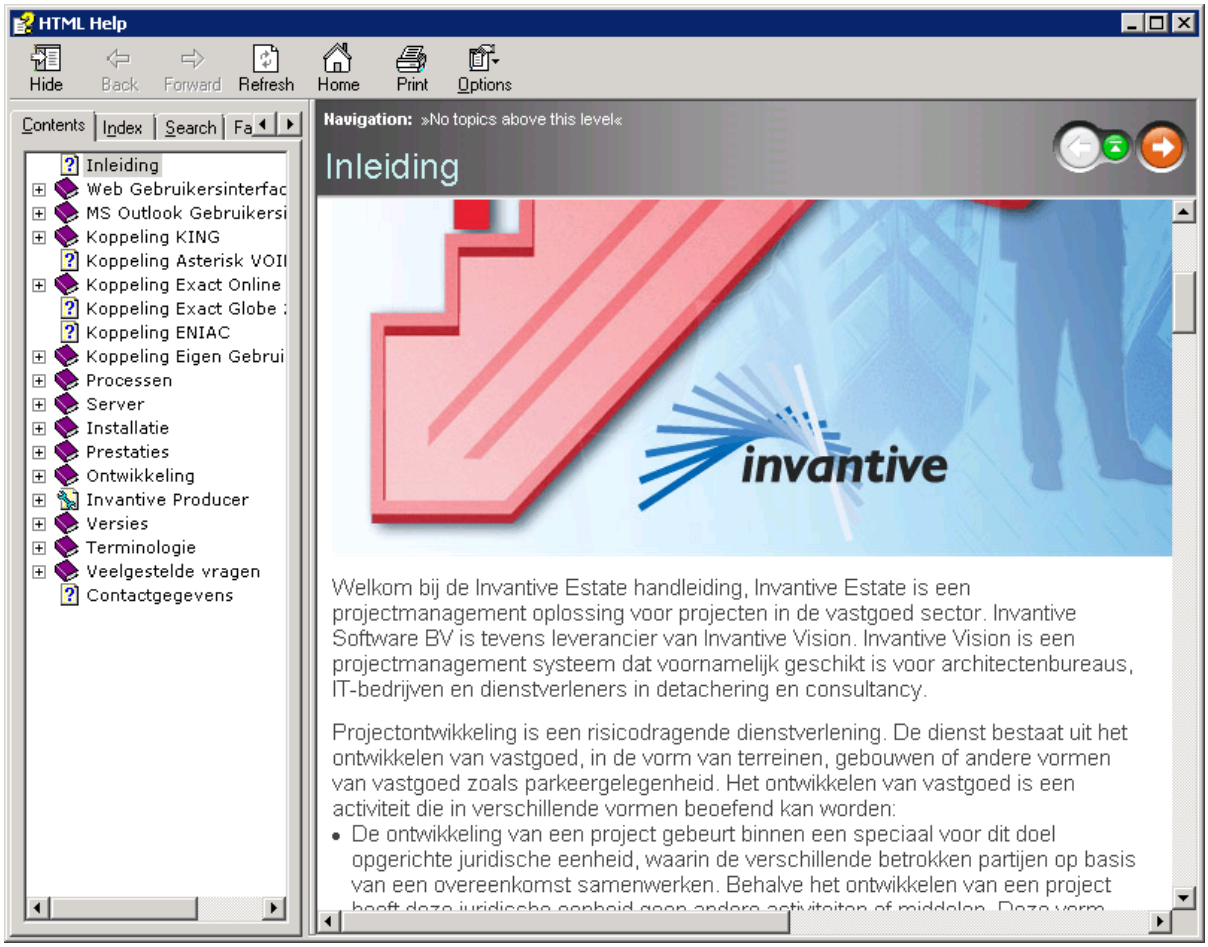


De betekenis van het veld in het tabblad Voorkeuren is:

Taal	Hierin staan de talen die beschikbaar zijn in Invantive Control for Excel. De taalwisseling wordt direct na het sluiten van het venster toegepast.

1.4.3.9 Help

De knop 'Help' laat de helpfunctie zien van Invantive Control for Excel inclusief die van Invantive Control for Excel.

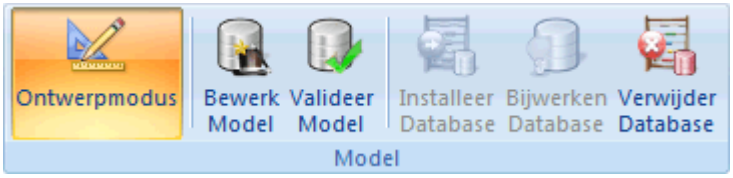


1.4.4 Gebruikersinterface Modelontwikkelaar

Deze paragraaf bevat de uitleg hoe een modelontwikkelaar Invantive Control for Excel kan gebruiken aan de hand van de knoppen in het lint in Microsoft Excel. De modelontwikkelaar kan dezelfde functies gebruiken als de modelgebruiker, alleen de ontwikkelaar kan ook het model aanpassen. De volgende afbeelding laat het tabblad 'Modeller' zien met de knoppen die de modelontwikkelaar kan gebruiken. Deze paragraaf geeft per knop de werking aan.

Het tabblad 'Modeller' is verdeelt in de groepen 'Synchroniseren', 'Publiceren', 'Modelinformatie', 'Blokacties', 'Verbinding' en 'Help'. Dit tabblad is alleen zichtbaar als de ontwikkelmodus ingeschakeld is in de Configuratie 15.

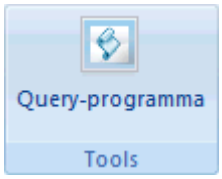
Model



De groep 'Model' bevat de volgende knoppen:

- Ontwerpmodus: schakelt de ontwerpmodus van de werkmap in of uit. Het model kan gewijzigd worden in de ontwerpmodus. Bij inschakelen word gevraagd om een wachtwoord als dit ingesteld is.
- Bewerk Model: wijzig het model van deze werkmap. Het venster toont de parameters, blokken, uitbreidingen en openstaande wijzigingen. Zie Modelbewerker 22.
- Valideer Model: valideert het ontworpen model. Als de validatie mislukt volgt er een foutmelding.
- Installeer Database: installeer de modeldatabase in dit werkblad.
- Bijwerken Database: upgrade het model van de database van dit werkboek naar de laatste versie die ondersteund wordt door Invantive Control for Excel. De knop werkt alleen als er een update beschikbaar is.
- Verwijder Database: verwijder het databasemodel van dit werkblad. Deze actie kan niet ongedaan worden gemaakt en synchroniseren van wijzigingen is hierna niet meer mogelijk.

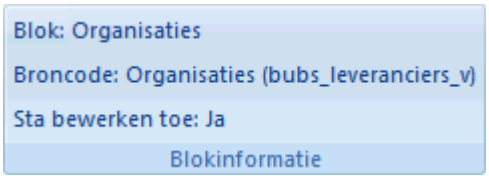
Tools



De groep 'Tools' bevat de volgende knop:

- Query Tool: opent de Query Tool om een SQL-query op de database uit te voeren, zie Invantive Producer Query-tool.

Blokinformatie



De groep 'Blokinformatie' bevat de volgende knop:

- Blokinformatie: hier wordt de informatie over het geselecteerde blok getoond met hierbij de broncode en of het blok bewerkt mag worden.

Rij-informatie

De groep 'Rij-informatie' bevat de volgende knop:

- Rij-informatie: hier wordt de informatie over de geselecteerde rij getoond met hierbij het unieke ID, status en veld uit de feitendatabase.

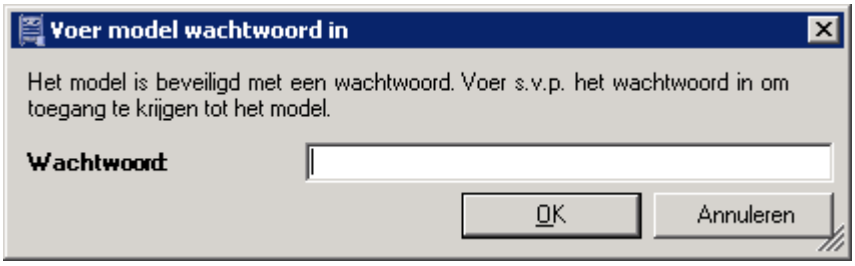
Foutopsporing en Analyse

De groep 'Foutopsporing en Analyse' is alleen zichtbaar als de debug mode aanstaat en bevat de volgende knoppen:

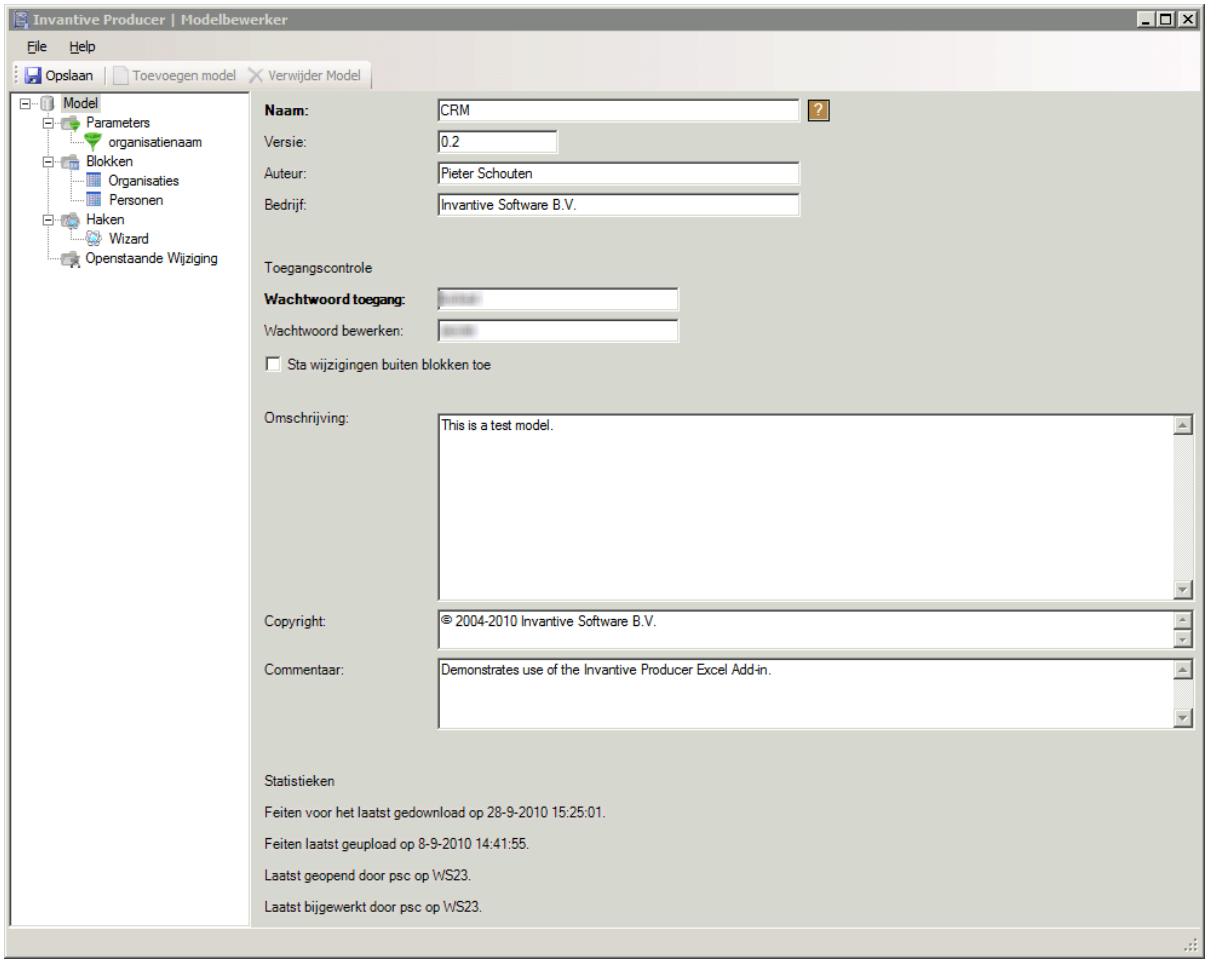
- Repository Werkbladen: toont de verborgen werkbladen. De repository bevat een werkmap met de modeldatabase en een leeg werkblad. zie Repository Werkbladen 34.
- Toon Spoor: opent een venster met de foutopsporing en analyse. Dit venster kan gebruikt worden om eventueel fouten in de werking van Invantive Control for Excel te analyseren, zie Toon Spoor 34.
- Markeer Rij als Nieuw: markeer deze rij als nieuws, zodat het kan worden ingevoegd in de feitendatabase bij de volgende synchronisatie. Deze functie kan gebruikt worden bij het kopieren van gegevens tussen twee feitendatabases.

1.4.4.1 Modelbewerker

In de modelbewerker wordt de configuratie van het model opgeslagen, zoals de naam, de versie, de auteur en het wachtwoord. Verder kun je er de parameters, blokken en uitbreidingen invoeren, wijzigen en verwijderen. Ook is er een overzicht van de openstaande wijzigingen. Als er een wachtwoord ingesteld is voor het bewerken van het model wordt er hierom gevraagd bij het klikken op de knop 'Bewerk model', zie afbeelding.



De afbeelding toont het scherm van de modelbewerker.



De betekenis van de invulvelden is:

Naam	De naam van dit model.
Versie	Het versienummer.
Auteur	De auteur(s) van het model.
Wachtw oord toegang	Het w achtw oord voor de beveiliging van het Excel-w erkboek.
Wachtw oord bew erken	Het w achtw oord om het w ijzigen van het model te mogen w ijzigen of inzien in de modelbew erker.
Sta w ijzigin-gen buiten blokken toe	Indien aangevinkt kun je w ijzigingen buiten de blokken maken.
Omschrijving	De beschrijving van het model.
Copyright	De copyright van het model.
Commentaar	Uitleg van het model.

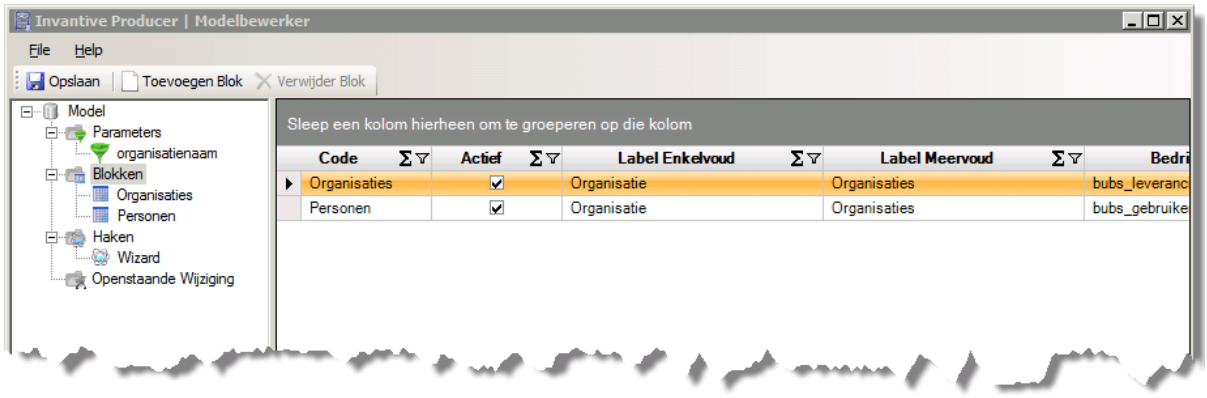
De betekenis van de overige velden is:

Statistieken	Dit veld toont de volgende statistieken: • Datum w anneer de feiten voor het laatst gedow nload zijn • Datum w anneer de feiten voor het laatst geüpload zijn • Server en gebruikersnaam w aarmee het model voor het laatste geopend is • Server en gebruikersnaam w aarmee het model voor het laatst bijgew erkt is

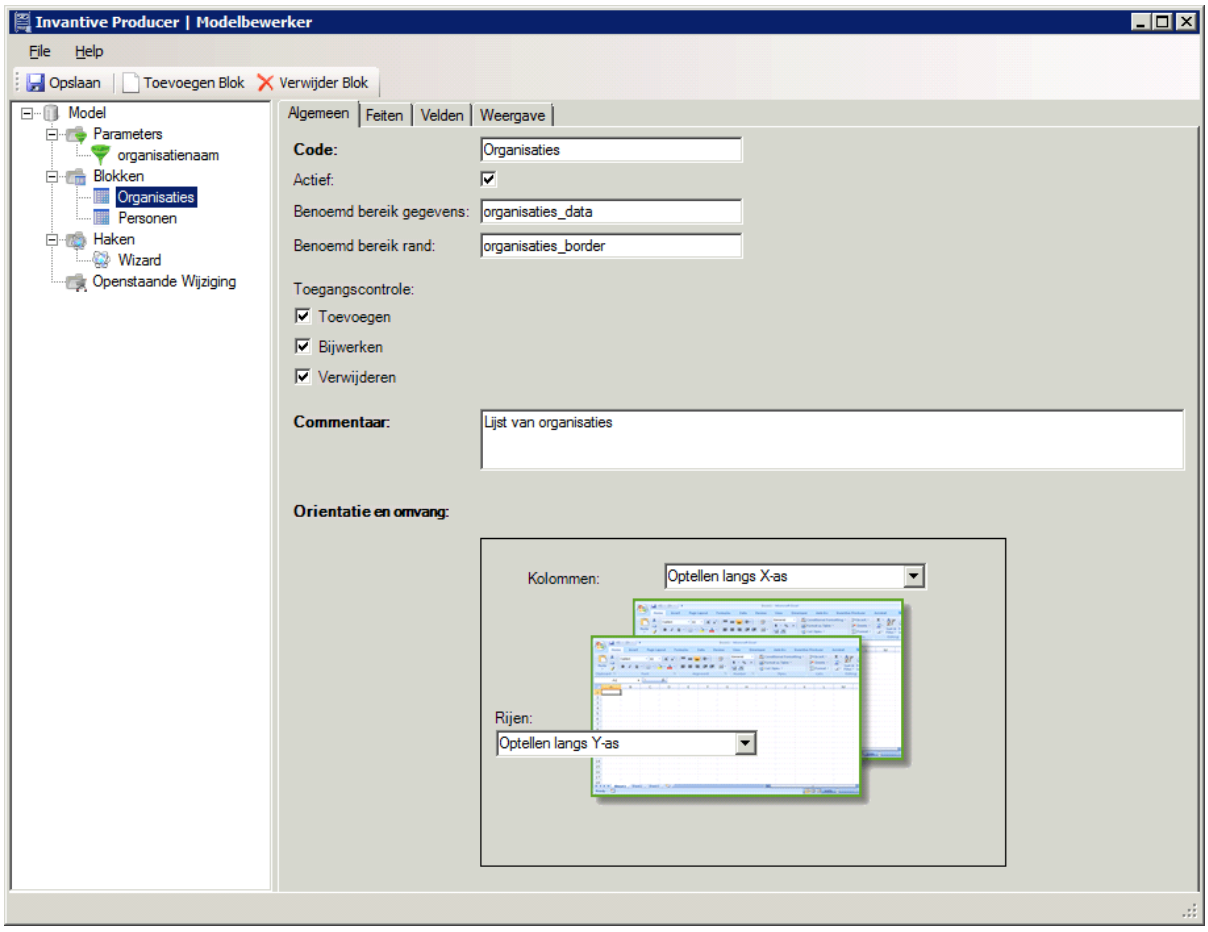
Blokken

Een blok is een aaneengesloten gebied in een Excel-werkboek. Een blok bevat gegevens van een database opgehaald door een query bij de laatste synchronisatie en het bevat de

gegevens die nog weggeschreven moet worden bij de volgende synchronisatie. Een blok loopt over één van de dimensies: cel, kolom, rij of werkblad. De afbeelding toont de huidige blokken, in dit voorbeeld zijn dit de blokken 'Organisaties' en 'Personen'.



In dit venster kun je een blok toevoegen, aanpassen of verwijderen.



De betekenis van de invulvelden is:

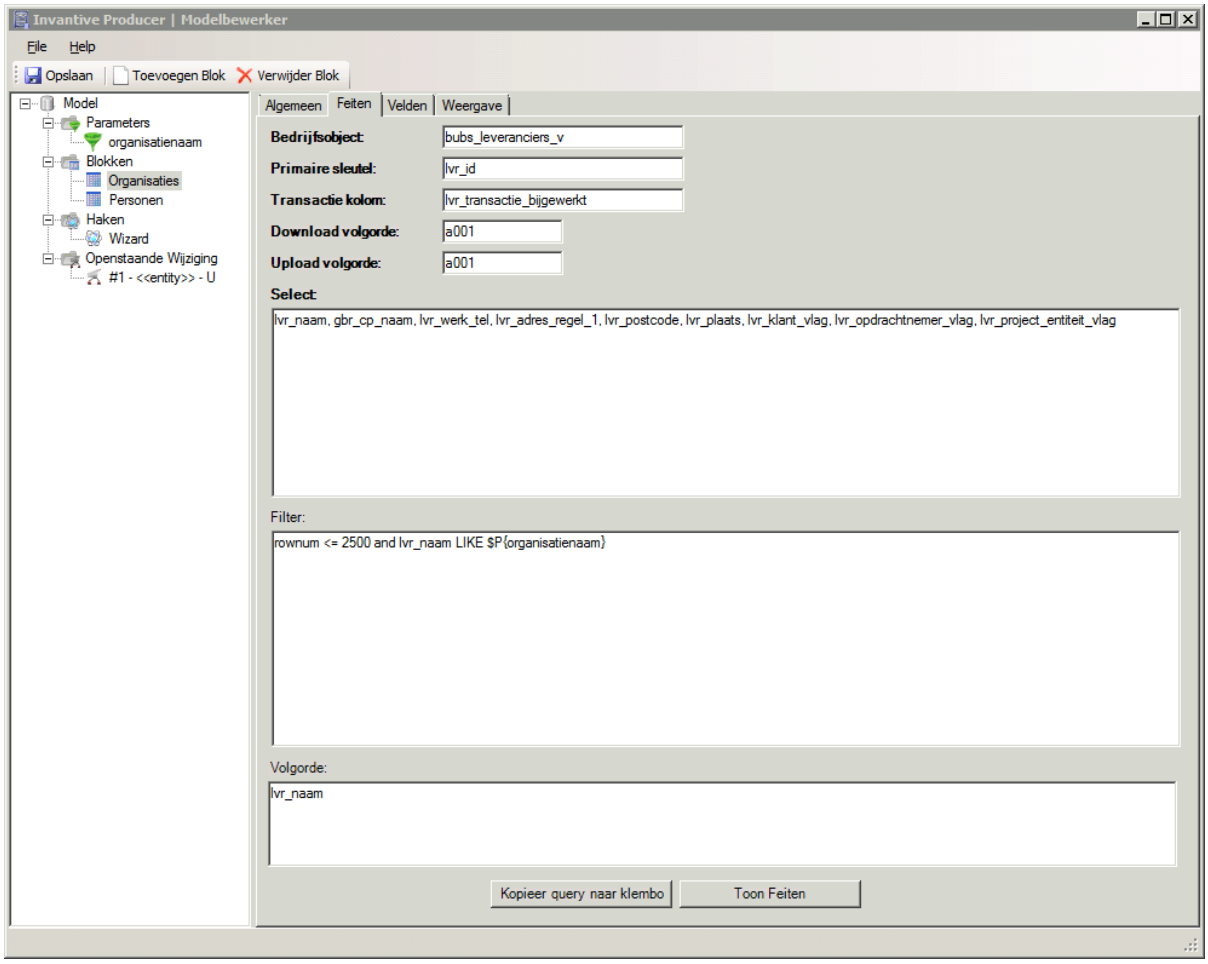
Code	De unieke naam van dit blok.
Actief	Indien aangevinkt is dit blok actief en kun je dit blok synchroniseren met de feitendatabase.
Benoemen bereik gegevens	Het bereik van gegevens als een unieke naam. Deze naam w ordt als benoemd bereik gebruikt in Excel om de data te identificeren van het gehele blok, inclusief randen. De naam kun je vervolgens gebruiken in een Excel-formule.
Benoemen bereik rand	De rand van het benoemd gegevensbereik als een unieke naam. Deze naam w ordt als benoemd bereik gebruikt in Excel om het gehele blok te identificeren, inclusief de randen. De naam kun je vervolgens gebruiken in een Excel-formule.

Toegang-scontrole	Toevoegen: Indien aangevinkt kun je gegevens toevoegen en kun je deze synchroniseren met de feitendata-base Bijw erken: Indien aangevinkt kun je gegevens bijw erken en kun je deze synchroniseren met de feitendata-base Verw ijderen: Indien aangevinkt kun je gegevens verw ijderen en kun je deze synchroniseren met de feitendatabase
Commentaar	Geef een beschrijving van het blok op.

Oriëntatie en omvang

- Kolommen:
- Rijen:

In dit venster kun je de herkomst feiten ingeven van het blok.

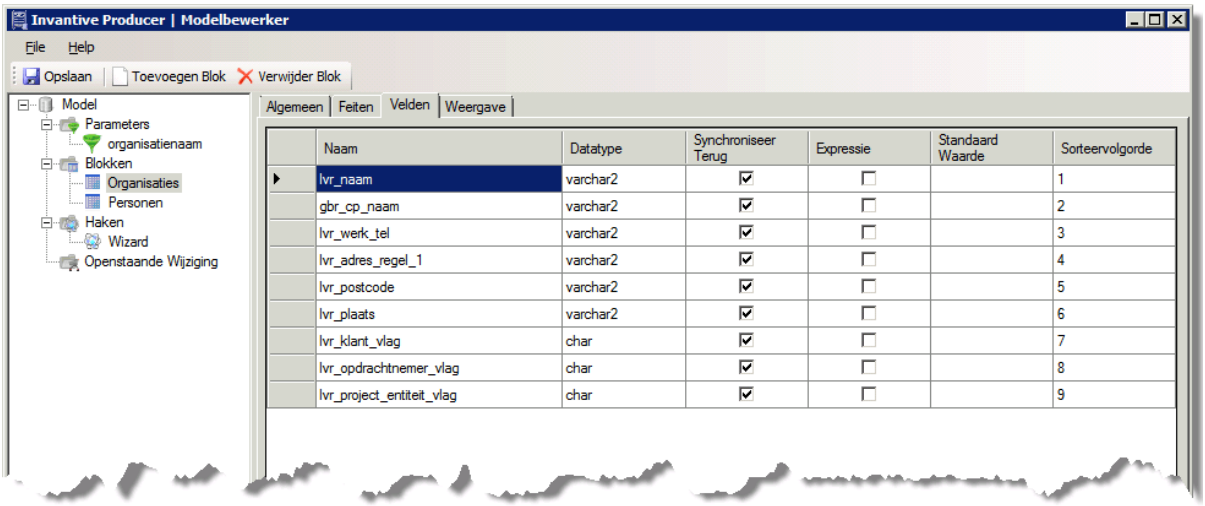


De betekenis van de invulvelden is:

Bedrijfsob-ject	De naam van het bedrijfsobject, zoals bekend in de feitendatabase. Dit is vaak de naam van een databa-seview .
Primaire sleutel	De primaire sleutel van het bedrijfsobject op. Optioneel w anneer dit blok alleen lezen is.
Trans-actiekolom	De transactiekolom van het bedrijfsobject. Dit veld is optioneel w anneer de toegangscontroles toevoegen, bijw erken en verw ijderen uit staan.
Dow nload-volgorde	De dow nloadvolgorde van het bedrijfsobject, dit kan één of meerdere nummer en/of letters zijn. Het geeft de dow nloadvolgorde aan van de blokken naar de database. Een voorbeeld is dat a001 voor b001 komt.
Uploadvol-gorde	De de uploadvolgorde aan van het bedrijfsobject, dit kan een combinatie zijn van één of meerdere nummer en/of letters. Dit geeft de uploadvorlgorde aan van blokken naar de database. Een voorbeeld is dat a001 voor b001 komt.

Select	De kolommen op van het bedrijfsobject. De kolommen moeten gescheiden zijn met een komma.
Filter	Definieer een filter om een gedeelte van een blok te selecteren in SQL-syntax.
Volgorde	De lijst van kolommen om de gegevensvolgorde te bepalen in SQL-syntax.

Dit venster toont de kolommen van het bedrijfsobject en wordt automatisch gevuld.

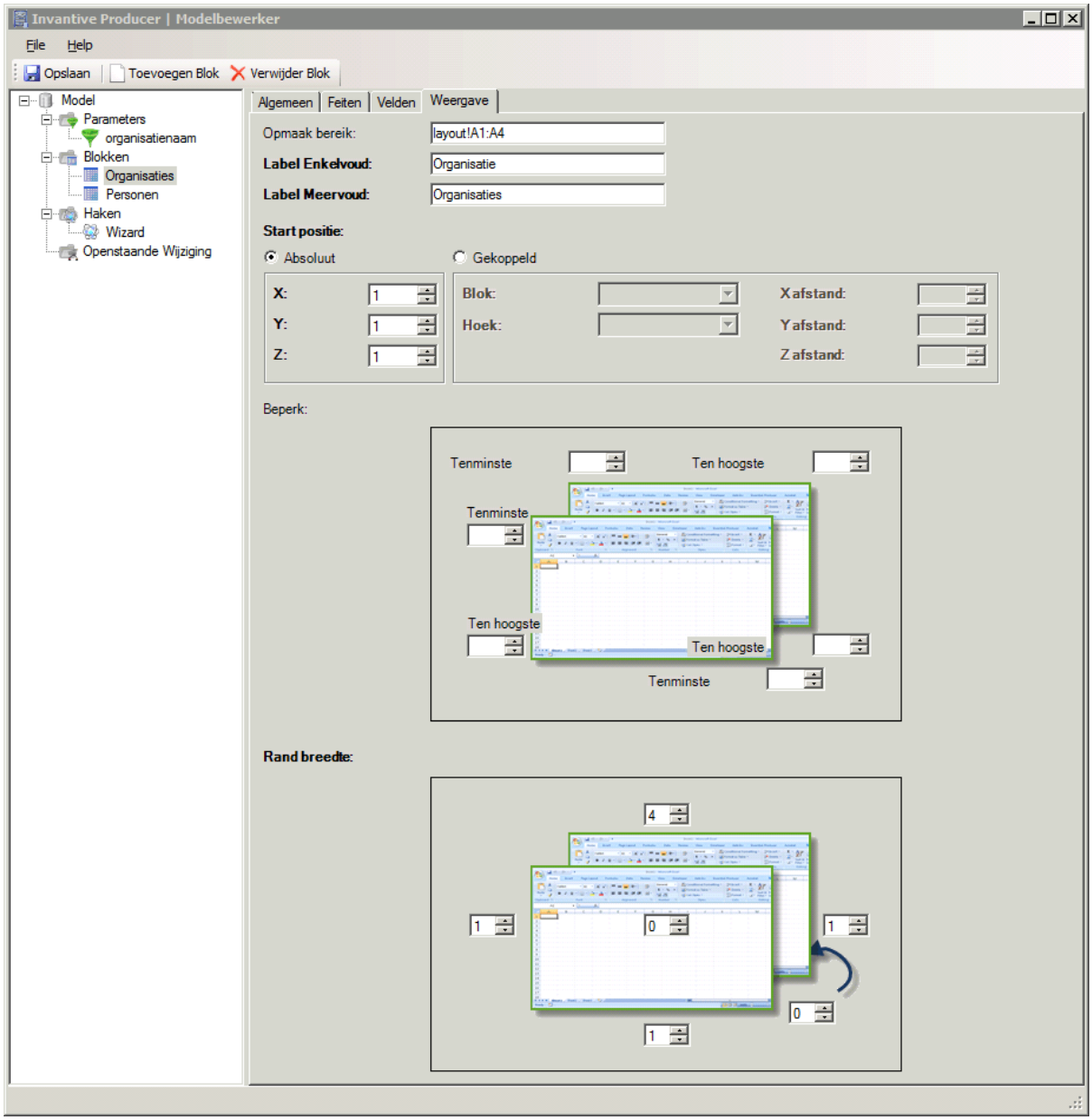


De betekenis van de velden zijn is:

Naam	De naam van de kolom.
Datatype	Het datatype van de kolom.
Synchroniseer Terug	Indien aangevinkt worden aanpassingen in de kolom bijgehouden in de openstaande wijzigingen. De wijzigingen worden bij het synchroniseren naar de feitendatabase verstuurd.
Formule	Indien aangevinkt kan de kolom een Excelformule bevatten. Hierbij wordt alleen de uitkomst van de formule teruggestuurd naar de feitendatabase bij synchronisatie. Vink het aan als je een formule in Excel wilt gebruiken in deze kolom.
Read-only	Indien aangevinkt kan de modelgebruiker de kolomwaarden niet aanpassen. De kolomwaarde kan wel door Invantive Control for Excel aangepast worden.
Standaardwaarde	De waarde wordt pas ingevuld na synchronisatie met de feitendatabase. • Constante waarde. • Parameter $P{naam van de parameter} • Excelformule, bijvoorbeeld: $E{formule}
Positie	Dit geeft de positie aan van de kolom in het blok in Excel.
Lijstbron	De lijst waarin de picklist staat voor de lijst.
Lijstcodeveld	DB-waarde
Lijstbeschrijving	Label

Dit venster toont de kolommen van het bedrijfsobject

In dit venster kun je de weergave instellen van het blok.



De betekenis van de invulvelden is:

Opmaak bereik	Geef het bereik op van het opmaakw erkblad, the opmaak van deze cellen w orden toegepast op het blok. De conventie van het bereik is 'w erkblad!celbereik', bijvoorbeeld 'layout!A1:A4'.
Label Enkel-voud	Geef een naam in enkelvoud voor de opmaak.
Label Meer-voud	Geef een naam op in het meervoud voor het label.

Startpositie

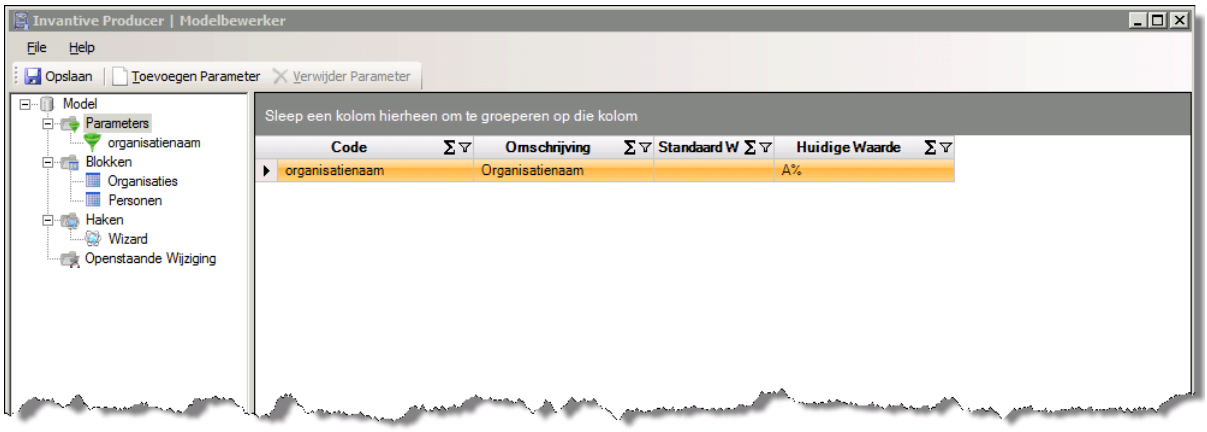
- Absoluut:
- Gekoppeld:

Beperk

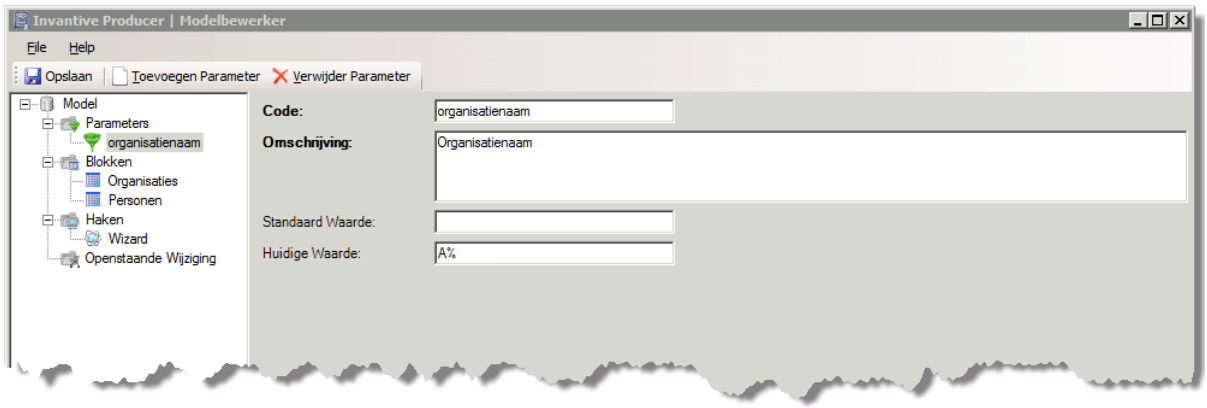
Randbreedte

Parameters

In de parameters kun je een filter voor het model opgeven. Met het opgeven van een filter, en het gebruik ervan, zorg je ervoor dat alleen gegevens uit de database wordt opgehaald die in de filter ingesteld zijn. Een parameter kun je gebruiken bij de filtering van een blok, zie Blokken 23. De afbeelding geeft aan dat de parameter ingesteld is op 'A%'. Dit betekent dat alleen organisaties die beginnen met de letter 'A' worden opgehaald door Invantive Control for Excel.



In dit onderdeel van de modelbewerker kun je de parameters toevoegen, wijzigen en verwijderen.

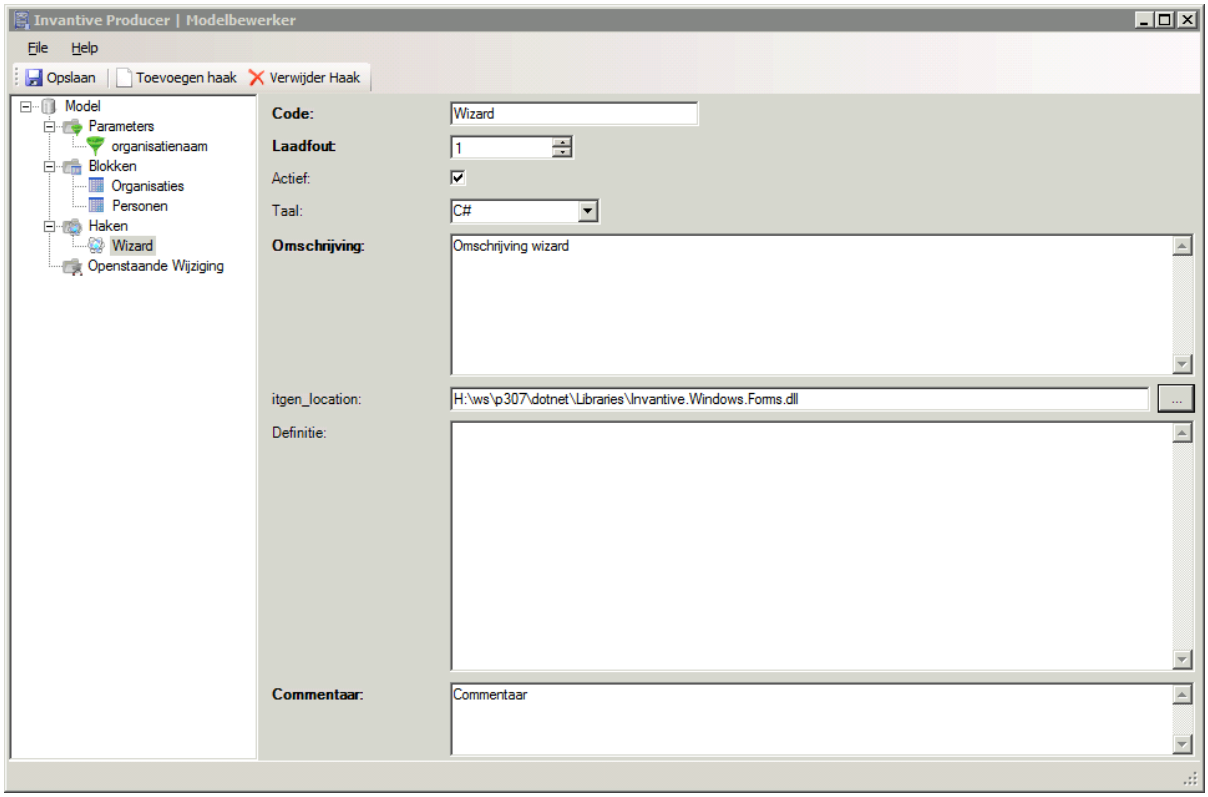


De betekenis van de invulvelden is:

Code	De unieke naam van de parameter.
Omschrijving	De omschrijving van de parameter.
Standaard-w aarde	De standaardw aarde van de parameter.
Huidige Waarde	De huidige w aarde van de parameter.

Uitbreidingen

Een uitbreiding is een embedded script in de execution flow van het Model. Een uitbreiding verrijkt een Model met functionaliteit die niet standaard is opgenomen in Invantive Control for Excel. Een voorbeeld van een uitbreiding om door middel van een knop geautomatiseerd gegevens toe te voegen in het werkblad.

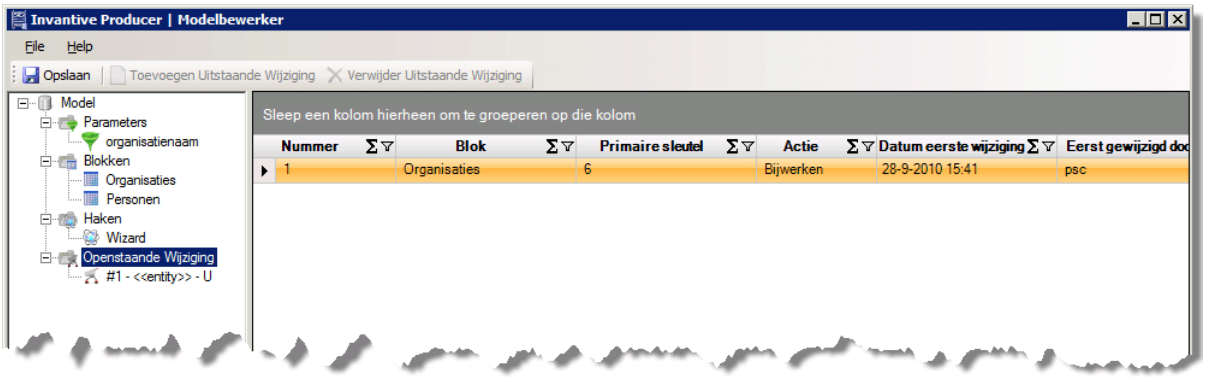


De betekenis van de invulvelden is:

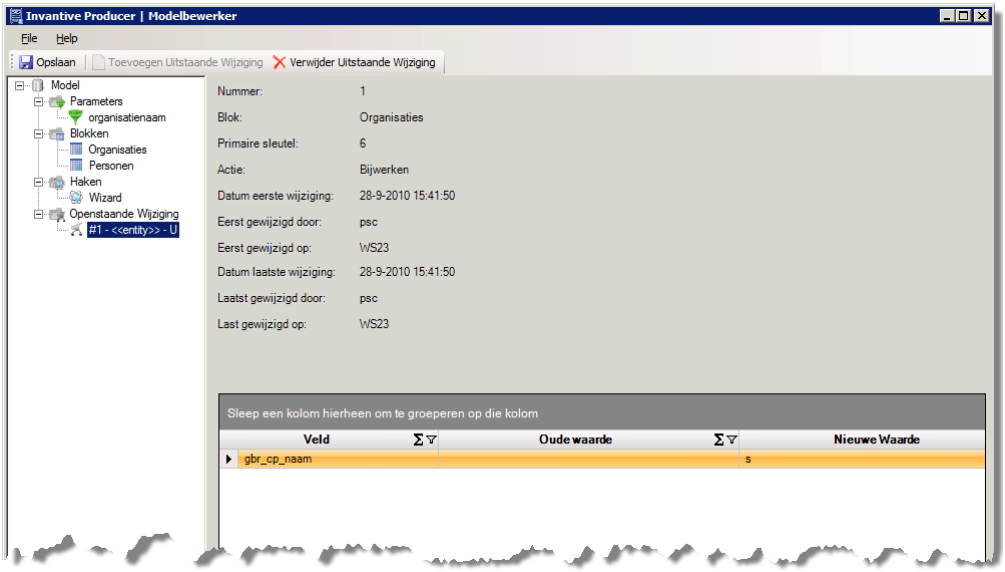
Code	Geef een unieke naam op voor de uitbreiding.
Laadvolgorde	Geef een nummer op voor de laadvolgorde van de uitbreiding in Invantive Control for Excel.
Actief	Dit veld geeft een indicatie of de uitbreiding actief is of niet.
Taal	Geef de programmeertaal op van de uitbreiding.
Omschrijving	Geef een omschrijving op van de uitbreiding.
Bestandslocatie	Geef een bestandslocatie op van de locatie van de uitbreiding. Het veld 'Bestandslocatie' of 'Definitie' moet gevuld zijn met respectievelijk de locatie van de uitbreiding of de programmacode.
Definitie	Geef de programmacode op van de uitbreiding. Het veld 'Bestandslocatie' of 'Definitie' moet gevuld zijn met respectievelijk de locatie van de uitbreiding of de programmacode.
Commentaar	Geef commentaar op de uitbreiding.

Openstaande Wijzigingen

Openstaande wijzigingen zijn wijzigingen in de lokale gegevens van de modelgebruiker en staan klaar om gestuurd te worden naar de feitendatabase. De feitendatabase bevat de centrale opslag van feiten buiten een Excel werkblad. Een openstaande wijziging kan bijvoorbeeld een aanpassing zijn van een celwaarde in Excel en deze wijziging moet nog naar de feitendatabase gestuurd worden. Het venster toont de wijzigingen die nog niet met de database gesynchroniseerd zijn.



In dit venster kun je openstaande wijzigingen verwijderen. Klik op een openstaande wijziging en verwijder deze vervolgens via de knop 'Verwijder Openstaande Wijziging'.



1.4.4.2 Celreferentie Expressie

De functionaliteit celreferentie expressie heeft als doel om normale celverwijzingen in Microsoft Office Excel dynamisch opslaan in het model. Een celverwijzing verwijst naar een cel of celbereik op een werkblad en kan in een formule worden gebruikt, zodat in Excel kan worden gezocht naar de waarden of gegevens die u met die formule wilt berekenen. Invantive Control for Excel zet in Excel automatisch de vooraf gedefinieerde celreferentie expressie om naar de celreferentie waar Excel mee werkt. In het blok kun je bij een kolom een celreferentie expressie opgeven naar een andere kolom. Na het synchroniseren wordt in de cellen van de kolom (met een celreferentie expressie) een verwijzing gemaakt naar de locatie in Excel waar de expressie naar verwijst.

Celreferentie in Microsoft Office Excel

Een celverwijzing verwijst naar een cel of celbereik op een werkblad en kan in een formule worden gebruikt, zodat in Microsoft Office Excel kan worden gezocht naar de waarden of gegevens die u met die formule wilt berekenen.

In een of meer formules kunt u een celverwijzing gebruiken om te verwijzen naar het volgende:

- Gegevens uit een cel van het werkblad
- Gegevens die zich in andere gebieden van een werkblad bevinden
- Gegevens in cellen van andere werkbladen in dezelfde werkmap

Voorbeeld:

Deze formule:	Verwijst naar:	En geeft als resultaat:
=C2	Cel C2	De waarde in cel C2
=Activa-Passiva	De cellen met de naam Activa en Passiva	De waarde in de cel Passiva afgetrokken van de waarde in de cel Activa
{=Week1+Week2}	Het celbereik met de naam Week1 en Week2	De som van de waarden van het celbereik met de naam Week1 en Week 2 als matrixformule
=Blad2!B2	Cel B2 op Blad2	De waarde in cel B2 op Blad2

Bron: *Microsoft Office* (2011). Opgeroepen op Juli 28, 2011, van Een celverwijzing maken of wijzigen: http://office.microsoft.com/nl-be/excel-help/een-celverwijzing-maken-of-wijzigen-HP010342370.aspx

Doel

Het doel van een celreferentie expressie is het makkelijk leggen van kruisverbanden in een model. Het maakt daarbij niet uit of het verband gelegd worden tussen twee cellen in het-zelfde blok, tussen meerdere blokken of zelfs daar buiten.

Voordelen van celreferentie expressie ten opzichte van Excel formules die dynamisch zelf bepalen welke andere cellen ze moeten gebruiken:

- Hoge verwerkingssnelheid bij grote hoeveelheden celreferenties in Excel.
- Verhoogde integriteit van de gegevens doordat de formules eenvoudiger worden.
- Snel en gemakkelijker geavanceerde modellen ontwikkelen.
- Celreferentie expressies kunnen zowel afkomstig zijn uit de database als in het model vastgelegd worden om zodoende de hoeveelheid benodigde netwerkbandbreedte te beperken voor extreem grote modellen.

Werking

De syntax van een celreferentie expressie is:

$C{Draaimethode, Blok, Werkblad, Kolom 1, Rij 1, Kolom 2, Rij 2}.

De betekenis van de onderdelen is:

Onderdeel	Verplicht	Omschrijving
Draaimethode	Ja	Het begin waar het bereik begint.
Blok	Ja	Het blok waar de waardes vanuit gekopieerd worden en die is geconfigureerd in Blokken 23.
Werkblad	Ja	Het werkblad waar de referentie naar verwijst.
Kolom 1	Ja	De kolom waar de expressie naar verwijst.
Rij 1	Ja	De rij waar de expressie naar verwijst.
Kolom 2	Nee	Met de tweede kolom kan het bereik worden aangegeven van de kolom.
Rij 2	Nee	Met de tweede rij kan het bereik worden aangegeven van de rij.

Waarbij de volgende mogelijkheden aanwezig zijn:

Onderdeel	Opties	Extra optie	Uitleg
Draaimethode	D E		Eerste cel en eerste rij Zoals bij het blok opgegeven
Blok	. "Bloknaam"		Het huidige blok Naam van het blok
Werkblad	. "Werkbladnaam"	+/-n	Huidige werkblad Naam van het werkblad

	^ $		Eerste werkblad Laatste werkblad
Kolom 1	. "Kolomnaam 1" ^ $	+/-n	Huidige kolom Naam van de kolom zoals in het blok staat Eerste kolom van het blok Laatste kolom van het blok
Rij 1	. "Rijnaam 1" ^ $	+/-n	Huidige rij Naam van de rij zoals in het blok staat Eerste rij van het blok Laatste rij van het blok
Kolom 2	. "Kolomnaam 2" ^ $	+/-n	Huidige kolom Naam van de kolom Eerste kolom Laatste kolom
Rij 2	. "Rijnaam 1" ^ $	+/-n	Huidige rij Naam van de rij zoals in het blok staat Eerste rij van het blok Laatste rij van het blok

Voorbeeld van gebruik celreferentie expressie:

Onderdeel	Voorbeeld	Uitleg voorbeeld
Draaimethode	D E	De eerste cel en de eerste rij Zoals bij het huidige blok is opgegeven
Blok	. "Projecten"	Het huidige blok Het blok projecten
Werkblad	. "Werkblad 1" ^+1 $-1	Het huidige werkblad Het werkblad "Werkblad 1" Het tweede werkblad Het op één na laatste werkblad
Kolom 1	.-1 "Projectcode" ^+2 $	De huidige kolom min één De kolom "Projectcode" De derde kolom van het blok De laatste kolom van het blok
Rij 1	.+1 "Projectcode" ^-1 $	De huidige rij plus één De rij "Projectcode" De rij boven het blok De laatste rij van het blok
Kolom 2	. "Projectcode"+2 ^+3 $-2	De huidige kolom Twee verder dan de kolom "Projectcode" De vierde kolom De twee na laatste kolom
Rij 2	.+2 "Projectcode" ^-1 $	De huidige rij plus twee De rij "Projectcode" De rij boven het blok De laatste rij van het blok

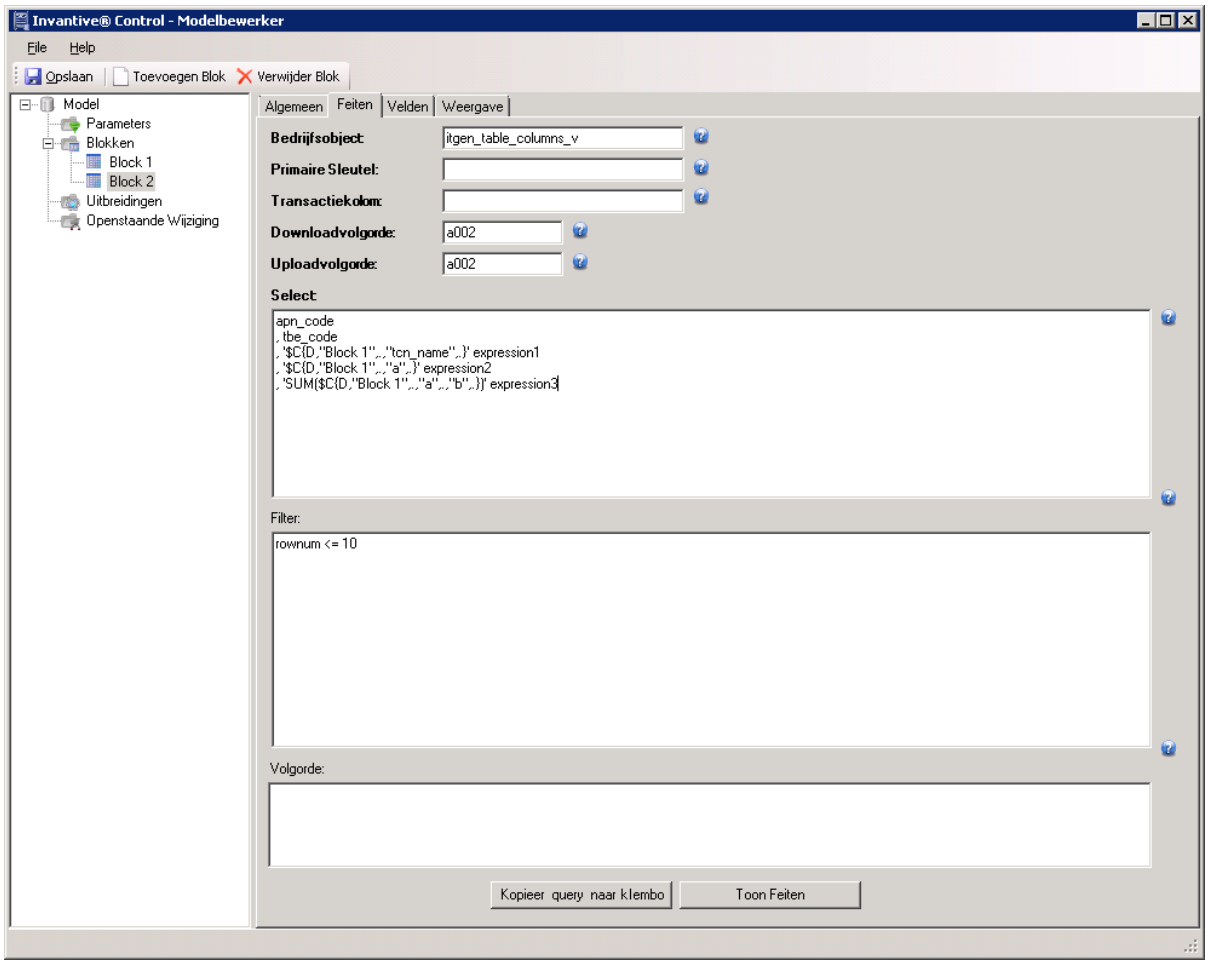
Een veelgebruikte celreferentie expressie is $C{E,.,.,^,.}: de eerste kolom van de huidige rij.

Bij de onderdelen Werkblad, Kolom 1/2 en Rij 1/2 is het mogelijk om ook bij de extra opties - of + met een natuurlijk getal op te geven. De extra optie zorgt ervoor dat er er bij de optie en getal afgetrokken of opgeteld wordt.
Eigenschappen celreferentie expressie:

- Hoofdlettergevoelig;
- Werkt ook binnen SQL-functies, zoals SUM, COUNT, AVG, enz.

In Invantive Control

Een celreferentie expressie wordt gedefinieerd in de select van een Blok 23 in de Modelbewerker 20. In de onderstaande afbeelding staan een aantal voorbeelden van het gebruik van celreferentie expressie in de select.



$C{Beginpunt, Blok, Werkblad, Kolom, Rij, Kolom1, Kolom2}

Met doel celverwijzing

Plaatje excel control

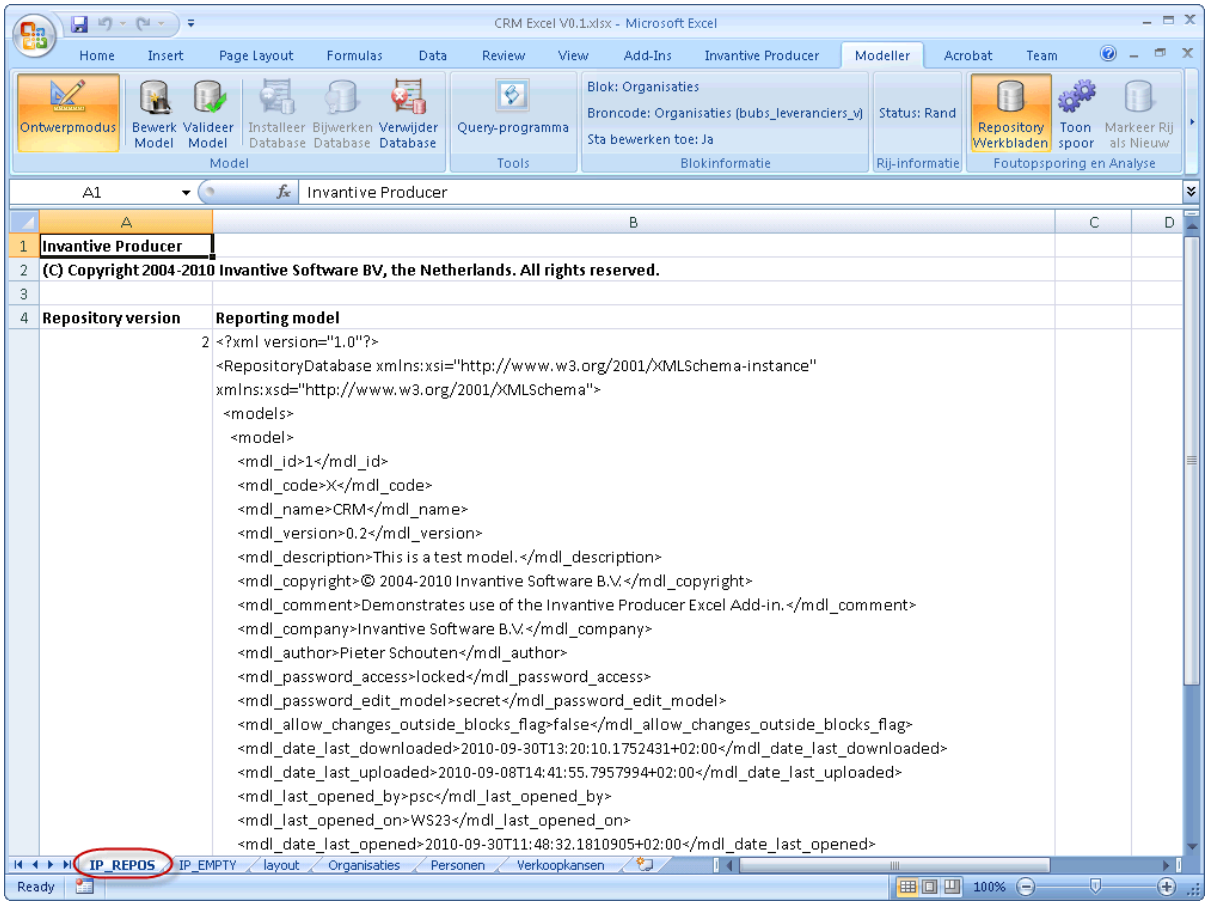
Formula, Expression aan bij 't veld. en sync back uit.

Een voorbeeld van celreferentie expressie is in een kolom is: '$C{D,"Block 1",,,"tcn_name",,}' expression1. Dit voorbeeld ...
[] -> []

Deze formule:	Verwijst naar:	En geeft als resultaat:
=C2	Cel C2	De waarde in cel C2
=Activa-Passiva	De cellen met de naam Activa en Passiva	De waarde in de cel Passiva afgetrokken van de waarde in de cel Activa

1.4.4.3 Repository Werkbladen

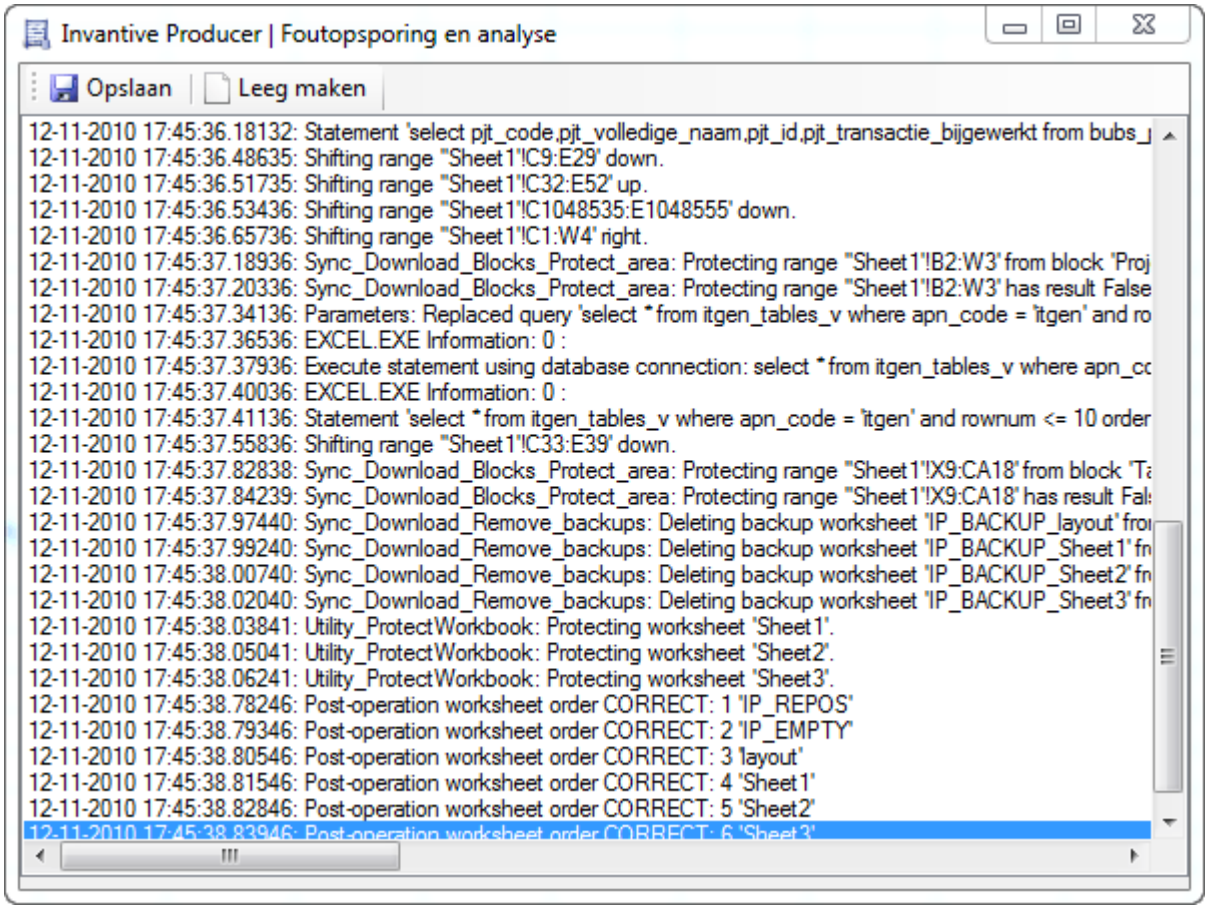
De repository werkbladen bevat een leeg werkblad en een werkblad met de XML-code waarin het model beschreven staat. Dit tabblad is alleen zichtbaar als je op de knop 'Repository Werkbladen' klikt, zie Gebruikersinterface Modelontwikkelaar 20.



1.4.4.4 Toon Spoor

De functie 'Toon Spoor' kun je gebruiken om eventuele fouten in de werken van Invantive Control for Excel te analyseren. Het venster wordt alleen getoond als de knop 'Toon Spoort' aangezet is, zie Gebruikersinterface Modelontwikkelaar 20.

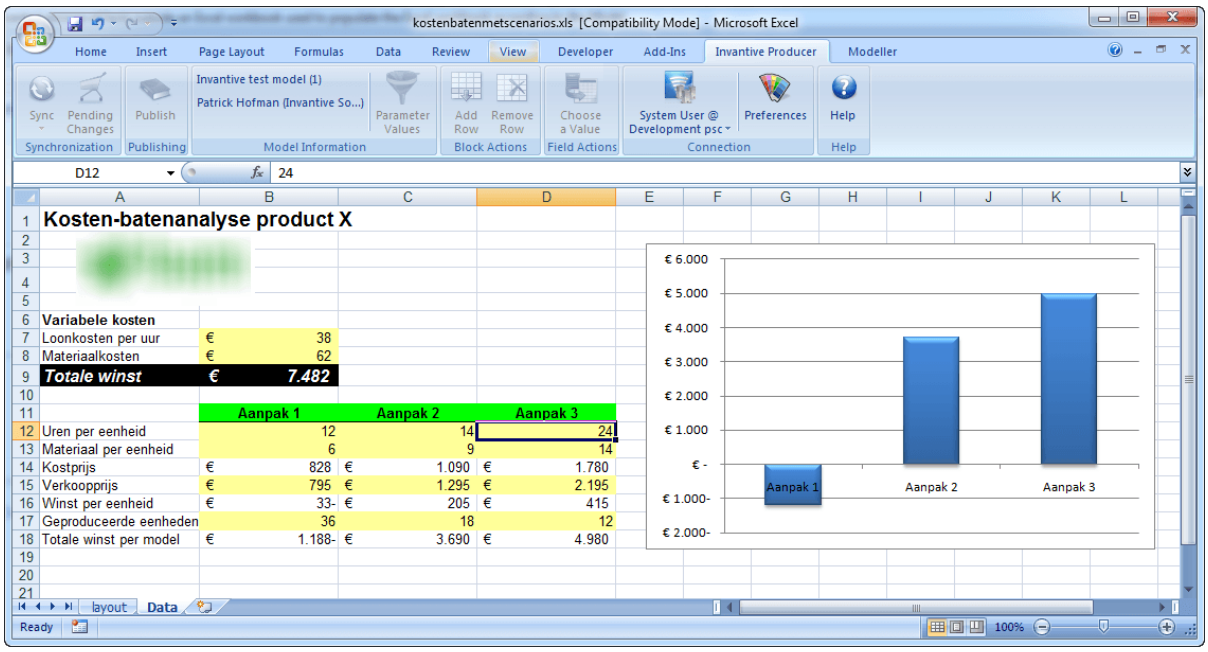
Invantive Support kan vragen om 'Toon Spoor' aan te zetten en de teksten op te sturen om je te helpen bij het analyseren van problemen.



1.5 Voorbeelden

1.5.1 Rekenmodel

Ontwikkelen van een model



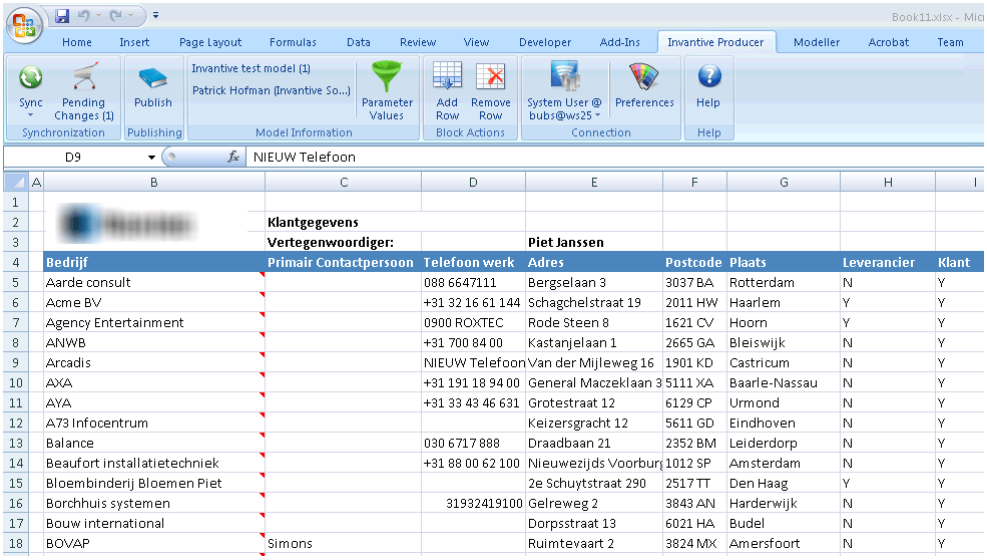
ERD diagram bijvoegen

1.5.2 Offline Werken
1.5.3 Beheer van Gegevens

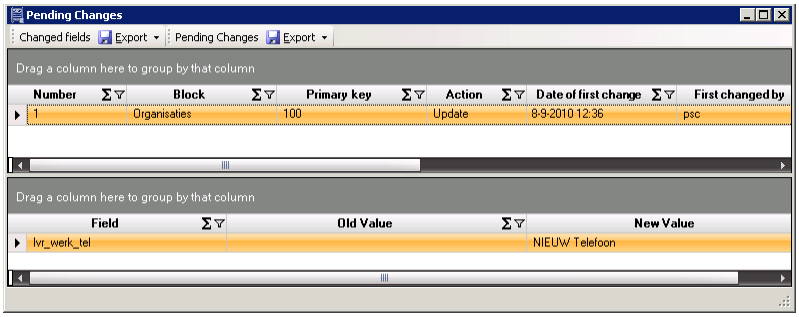
Een ander voorbeeld om Invantive Control for Excel te gebruiken is voor het beheer van gegevens.

CRM-gegevens
- Organisaties
- Personen

Invoeren en bijwerken van grote blokken gegevens.



		Klantgegevens						
		Vertegenwoordiger:		Piet Janssen				
Bedrijf	Primair Contactpersoon	Telefoon werk	Adres	Postcode	Plaats	Leverancier	Klant	
Aarde consult		088 6647111	Bergselaan 3	3037 BA	Rotterdam	N	Y	
Acme BV		+31 32 16 61 144	Schagchelstraat 19	2011 HW	Haarlem	Y	Y	
Agency Entertainment		0900 ROXTEC	Rode Steen 8	1621 CV	Hoorn	Y	Y	
ANWB		+31 700 84 00	Kastanjelaan 1	2665 GA	Bleiswijk	N	Y	
Arcadis		NIEUW Telefoon	Van der Mijleweg 16	1901 KD	Castricum	N	Y	
AXA		+31 191 18 94 00	General Maczeklaan 3	5111 XA	Baarle-Nassau	N	Y	
AYA		+31 33 43 46 631	Grotestraat 12	6129 CP	Urmond	N	Y	
A73 Infocentrum			Keizersgracht 12	5611 GD	Eindhoven	N	Y	
Balance		030 6717 888	Draadbaan 21	2352 BM	Leiderdorp	N	Y	
Beaufort installatietechniek		+31 88 00 62 100	Nieuwezijds Voorburg	1012 SP	Amsterdam	N	Y	
Bloembinderij Bloemen Piet			2e Schuytstraat 290	2517 TT	Den Haag	Y	Y	
Borchhuis systemen		31932419100	Gelreweg 2	3843 AN	Harderwijk	N	Y	
Bouw international			Dorpsstraat 13	6021 HA	Budel	N	Y	
BOVAP	Simons		Ruimtevaart 2	3824 MX	Amersfoort	N	Y	



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 42 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

```
sqlBatch[42] ::= sqlOrPSqlStatement[42] ( BATCHSEPARATOR[42]
  sqlOrPSqlStatement[42] )* BATCHSEPARATOR[42]?
```

no references

sqlOrPSqlStatement:

sqlStatement pSqlStatement
sqlOrPSqlStatement 42
::= sqlStatement 43
| pSqlStatement 130

referenced by:
- sqlBatch 42

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 43
::= selectStatement 43
| insertStatement 73
| updateStatement 75
| deleteStatement 75
| ddlStatement 66
| setStatement 70
| useStatement 72
| transactionStatement 70
| executeFileStatement 71

referenced by:
- pSqlStatement 130
- sqlOrPSqlStatement 42

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 43
::= uniqueSelectStatement 44
setOperatorSelectStatement 44* orderBy 57? limitClause 49?

referenced by:

- arithmeticExpression 83
- createTableStatement 69
- embeddedSelect 49
- inSelectStatement 44
- insertStatement 73
- pSqlForRecordLoopStatement 133
- sqlStatement 43
- useStatement 72

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 44
::= selectStatement 43

referenced by:

- predicateExpression 80

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 44
::= (UNION 42 ALL 42 ? | MINUS_C 42 | INTERSECT 42)
uniqueSelectStatement 44

referenced by:

- selectStatement 43

uniqueSelectStatement:

Retrieves a data set from one or more data containers.

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

uniqueSelectStatement 44
::= select 45 executionHints 45 ? distinct 48 ? topClause 49 ? selectList 63 (INTO 74 variableList 48) ? FROM 42 dataSource 45 joinStatements 58 ? whereClause 58 ? groupBy 57 ?

referenced by:

- selectStatement 43
- setOperatorSelectStatement 44

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 45
::= (tableOrFunctionSpec 50 | embeddedSelect 49 | xmlTableSpec 51 | csvTableSpec 53 | jsonTableSpec 52) aliased 63 ?

referenced by:

- joinStatement 59
- uniqueSelectStatement 44

select:

SELECT
select 45 ::= SELECT 45

referenced by:

- uniqueSelectStatement 44

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 45
::= EXECUTION_HINT_START 42 (joinSet 47 | noJoinSet 48 | ods 46 | resultSetName 47 | lowCost 48 | httpDiskCache 45 | httpMemoryCache 46) * EXECUTION_HINT_END 42

referenced by:

- uniqueSelectStatement 44

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[45]
          ::= HTTP_DISK_CACHE[42] ( PARENTHESIS_OPEN[42]
booleanConstant[128] ( COMMA[42] booleanConstant[128] ( COMMA[42]
intervalConstant[127] )? )? PARENTHESIS_CLOSE[42] )?
```

referenced by:

- executionHints[45]

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[46]
          ::= HTTP_MEMORY_CACHE[42] ( PARENTHESIS_OPEN[42]
booleanConstant[128] ( COMMA[42] booleanConstant[128] ( COMMA[42]
intervalConstant[127] )? )? PARENTHESIS_CLOSE[42] )?
```

referenced by:

- executionHints[45]

ods:

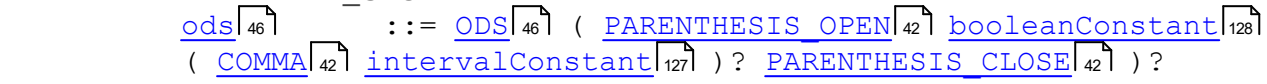
The ods-hint controls the use of the Invantive Data Cache stored in a relational database. The Invantive Data Cache is also the basis of the Operational Data Store managed by Invantive Data Replicator and the data warehouses managed by Invantive Data Vault. The ods-hint specifies the maximum age data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

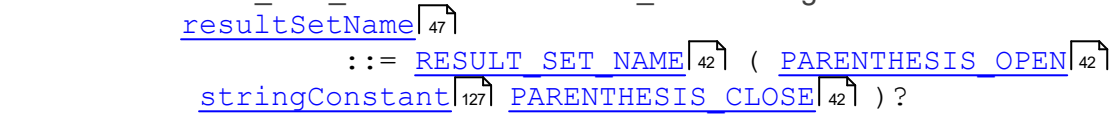


referenced by:

- executionHints 45

resultSetName:

RESULT_SET_NAME PARENTHESIS_OPEN stringConstant PARENTHESIS_CLOSE



referenced by:

- executionHints 45

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[47] ::= JOIN_SET[42] PARENTHESIS_OPEN[42] identifier[120] (COMMA[42] identifier[120] (COMMA[42] numericConstant[128])?)? PARENTHESIS_CLOSE[42]

referenced by:

- executionHints[45]

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[48] ::= NO_JOIN_SET[42] PARENTHESIS_OPEN[42] identifier[120] (COMMA[42] identifier[120])? PARENTHESIS_CLOSE[42]

referenced by:

- executionHints[45]

variableList:

variableName COMMA variableName

variableList[48] ::= variableName[133] (COMMA[42] variableName[133])?

referenced by:

- uniqueSelectStatement[44]

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[48] ::= LOW_COST[42]

referenced by:

- executionHints[45]

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 48 ::= DISTINCT 48

referenced by:

- aggregateFunction 64
- uniqueSelectStatement 44

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 49
::= TOP 42 numericConstant 128

referenced by:

- uniqueSelectStatement 44

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 49
::= LIMIT 42 numericConstant 128

referenced by:

- selectStatement 43

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 49
::= parenthesisOpen 77 selectStatement 43
parenthesisClose 78

referenced by:

- dataSource 45

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 50
          ::= fullTableIdentifier 118 distributedAliasDirective 51 ?
```

referenced by:

- alterPersistentCacheDropStatement 68
- alterPersistentCacheSetTableOptions 69
- alterPersistentCacheTableRefreshStatement 68
- createTableStatement 69
- deleteStatement 75
- dropTableStatement 70
- insertStatement 73
- updateStatement 75

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 50
          ::= fullTableIdentifier 118 tableFunctionSpec 50 ?
distributedAliasDirective 51 ?
```

referenced by:

- dataSource 45

tableFunctionSpec:

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

parenthesisOpen expression COMMA parenthesisClose

tableFunctionSpec 50
::= parenthesisOpen 77 (expression 76 (COMMA 42 expression 76)*)? parenthesisClose 78

referenced by:

- tableOrFunctionSpec 50

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 51
::= AT 42 dataContainerAlias 51

referenced by:

- partitionIdentifierWithAlias 73
- setIdentifier 70
- tableOrFunctionSpec 50
- tableSpec 50

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 51
::= identifier 120

referenced by:

- alterPersistentCacheRefreshStatement 67
- distributedAliasDirective 51

xmlTableSpec:

XMLTABLE parenthesisOpen stringConstant null xmlTablePassing xmlTableLiteral xmlTableColumns parenthesisClose
xmlTableSpec 51
::= XMLTABLE 42 parenthesisOpen 77 (stringConstant 127 | null 129) (xmlTablePassing 52 | xmlTableLiteral 52) xmlTableColumns 52 parenthesisClose 78

referenced by:

- dataSource 45

xmlTablePassing:

PASSING expression
xmlTablePassing 52
::= PASSING 42 expression 76

referenced by:
- xmlTableSpec 51

xmlTableLiteral:

LITERAL expression
xmlTableLiteral 52
::= LITERAL 42 expression 76

referenced by:
- xmlTableSpec 51

xmlTableColumns:

COLUMNS xmlTableColumSpec COMMA
xmlTableColumns 52
::= COLUMNS 42 xmlTableColumSpec 52 (COMMA 42 xmlTableColumSpec 52) *

referenced by:
- xmlTableSpec 51

xmlTableColumSpec:

identifier dataType PATH stringConstant
xmlTableColumSpec 52
::= identifier 120 dataType 54 PATH 42 stringConstant 127

referenced by:
- xmlTableColumns 52

jsonTableSpec:

JSONTABLE parenthesisOpen stringConstant null jsonTablePassing jsonTableLiteral jsonTableColumns parenthesisClose
jsonTableSpec 52
::= JSONTABLE 42 parenthesisOpen 77 (stringConstant 127 | null 129) (jsonTablePassing 52 | jsonTableLiteral 53) jsonTableColumns 53 parenthesisClose 78

referenced by:
- dataSource 45

jsonTablePassing:

PASSING expression
jsonTablePassing 52
::= PASSING 42 expression 76

referenced by:
- jsonTableSpec 52

jsonTableLiteral:

LITERAL expression
jsonTableLiteral 53
::= LITERAL 42 expression 76

referenced by:
- jsonTableSpec 52

jsonTableColumns:

COLUMNS jsonTableColumSpec COMMA
jsonTableColumns 53
::= COLUMNS 42 jsonTableColumSpec 53 (COMMA 42 jsonTableColumSpec 53)*

referenced by:
- jsonTableSpec 52

jsonTableColumSpec:

identifier dataType PATH stringConstant
jsonTableColumSpec 53
::= identifier 120 dataType 54 PATH 42 stringConstant 127

referenced by:
- jsonTableColumns 53

csvTableSpec:

CSVTABLE parenthesisOpen csvTablePassing csvTableLiteral csvTableOptions csvTableColumns parenthesisClose
csvTableSpec 53
::= CSVTABLE 42 parenthesisOpen 77 (csvTablePassing 54 | csvTableLiteral 54) csvTableOptions 53 csvTableColumns 54 parenthesisClose 78

referenced by:
- dataSource 45

csvTableOptions:

ROW DELIMITER stringConstant COLUMN DELIMITER stringConstant SKIP_ LINES numericConstant

csvTableOptions 53
::= (ROW 42 DELIMITER 42 stringConstant 127)? (COLUMN 58 DELIMITER 42 stringConstant 127)? (SKIP_ 42 LINES 42 numericConstant 128)?

referenced by:

- csvTableSpec 53

csvTableLiteral:

LITERAL expression

csvTableLiteral 54
::= LITERAL 42 expression 76

referenced by:

- csvTableSpec 53

csvTablePassing:

PASSING expression

csvTablePassing 54
::= PASSING 42 expression 76

referenced by:

- csvTableSpec 53

csvTableColumns:

COLUMNS csvTableColumSpec COMMA

csvTableColumns 54
::= COLUMNS 42 csvTableColumSpec 54 (COMMA 42 csvTableColumSpec 54)*

referenced by:

- csvTableSpec 53

csvTableColumSpec:

identifier dataType POSITION numericConstant

csvTableColumSpec 54
::= identifier 120 dataType 54 POSITION 42 numericConstant 128

referenced by:

- csvTableColumns 54

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

```
dataType[54] ::= BFILE[42]
               | BIGINT[42]
               | BIGSERIAL[42]
               | BIT[42]
               | BLOB[42]
               | BOOL[42]
               | BOOLEAN[42]
               | BPCHAR[42]
               | BYTE[42]
               | BYTEA[42]
               | CHAR[42]
               | CHARACTER[42]
               | CLOB[42]
               | DATE[42]
               | DATETIME[42]
               | DATETIMEOFFSET[42]
               | DEC[42]
               | DECIMAL[42]
               | DOUBLE[42]
               | FLOAT[42]
               | FLOAT4[42]
               | FLOAT8[42]
               | GUID[42]
               | IMAGE[42]
               | INT[42]
               | INT16[42]
               | INT2[42]
               | INT32[42]
               | INT4[42]
               | INT64[42]
               | INT8[42]
               | INTEGER[42]
               | INTERVAL[42]
               | LONGBLOB[42]
               | LONGTEXT[42]
               | MEDIUMBLOB[42]
               | MEDIUMINT[42]
               | MEDIUMTEXT[42]
               | MONEY[42]
               | NAME[42]
               | NCHAR[42]
               | NUMBER[42]
               | NUMERIC[42]
               | NVARCHAR[42]
               | OID[42]
               | RAW[42]
               | REAL[42]
               | SERIAL[42]
               | SMALLDATETIME[42]
               | SMALLINT[42]
               | SMALLMONEY[42]
               | SMALLSERIAL[42]
```

| TEXT 42
| TIME 42
| TIMESTAMP 42
| TIMESTAMPTZ 42
| TIMETZ 42
| TINYBLOB 42
| TINYINT 42
| TINYTEXT 42
| UINT16 42
| UINT32 42
| UINT64 42
| UNIQUEIDENTIFIER 42
| UUID 42
| VARBINARY 42
| VARCHAR 42
| VARCHAR2 42
| XML 42
| XMLTYPE 42
| YEAR 116

referenced by:

- csvTableColumSpec 54
- jsonTableColumSpec 53
- pSqlItemDeclaration 129
- xmlTableColumSpec 52

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 57 ::= GROUP 42 BY 42 columnList 58

referenced by:

- uniqueSelectStatement 44

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 57 ::= ORDER 42 BY 42 column 58 sortDirection 58 ? (COMMA 42 column 58 sortDirection 58 ?) *

referenced by:

- aggregateFunction 64
- selectStatement 43

sortDirection:

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

asc desc

```
sortDirection 58
          ::= asc 63
            | desc 63
```

referenced by:

- orderBy 57

columnList:

A comma-separated list of columns.

column COMMA

```
columnList 58
          ::= column 58 ( COMMA 42 column 58 )*
```

referenced by:

- groupBy 57
- insertFieldList 74

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 58    ::= identifier 120 ( DOT 42 identifier 120 )?
```

referenced by:

- columnList 58
- orderBy 57
- updateValue 75

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 58
          ::= WHERE 42 booleanExpression 76
```

referenced by:

- deleteStatement 75
- uniqueSelectStatement 44
- updateStatement 75

joinStatements:

A list of join statement.

joinStatement
joinStatements 58
::= joinStatement 59 +

referenced by:

- uniqueSelectStatement 44

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 59
::= joinCategory 59 join 60 dataSource 45
joinConditions 63 ?

referenced by:

- joinStatements 58

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 59
::= (inner 60 | joinSubCategory 60 outer 60 ? | cross 61
) ?

referenced by:

- joinStatement 59

joinSubCategory:

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

left right full

```
joinSubCategory 60
          ::= left 60
            | right 60
            | full 61
```

referenced by:

- joinCategory 59

join:

JOIN

```
join 60      ::= JOIN 60
```

referenced by:

- joinStatement 59

inner:

INNER

```
inner 60     ::= INNER 60
```

referenced by:

- joinCategory 59

outer:

OUTER

```
outer 60     ::= OUTER 60
```

referenced by:

- joinCategory 59

left:

LEFT

```
left 60      ::= LEFT 60
```

referenced by:

- functionExpression 84
- joinSubCategory 60

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 60 ::= RIGHT 60

referenced by:

- functionExpression 84
- joinSubCategory 60

full:

FULL

full 61 ::= FULL 61

referenced by:

- joinSubCategory 60

cross:

CROSS

cross 61 ::= CROSS 61

referenced by:

- joinCategory 59

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 61 ::= SUM 61

referenced by:

- aggregateFunction 64

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 61 ::= PRODUCT 61

referenced by:

- aggregateFunction 64

min:

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

MIN
min 61 ::= MIN 61

referenced by:
- aggregateFunction 64

max:

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

MAX
max 62 ::= MAX 62

referenced by:
- aggregateFunction 64

avg:

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

AVG
avg 62 ::= AVG 62

referenced by:
- aggregateFunction 64

stddev:

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

STDDEV
stddev 62 ::= STDDEV 62

referenced by:
- aggregateFunction 64

count:

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

COUNT
count 62 ::= COUNT 62

referenced by:
- aggregateFunction 64

listagg:

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

LISTAGG
listagg 62 ::= LISTAGG 62

referenced by:
- aggregateFunction 64

asc:

ASC
asc 63 ::= ASC 63

referenced by:
- sortDirection 58

desc:

DESC
desc 63 ::= DESC 63

referenced by:
- sortDirection 58

joinConditions:

ON booleanExpression
joinConditions 63
::= ON 42 booleanExpression 76

referenced by:
- joinStatement 59

selectList:

selectPart COMMA
selectList 63
::= selectPart 63 (COMMA 42 selectPart 63)*

referenced by:
- uniqueSelectStatement 44

selectPart:

part aliased labeled
selectPart 63
::= part 64 aliased 63? labeled 64?

referenced by:
- selectList 63

aliased:

AS alias
aliased[63] ::= AS[42]? alias[120]

referenced by:
- dataSource[45]
- selectPart[63]

labeled:

LABEL stringConstant
labeled[64] ::= LABEL[42] stringConstant[127]

referenced by:
- selectPart[63]

part:

expression aggregateFunction allColumnsSpec
part[64] ::= expression[76]
| aggregateFunction[64]
| allColumnsSpec[64]

referenced by:
- aggregateFunction[64]
- selectPart[63]

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[64]
::= (((sum[61] | product[61] | avg[62] | stddev[62])
parenthesisOpen[77] distinct[48]? | (min[61] | max[62])
parenthesisOpen[77]) arithmeticExpression[83] | count[62]
parenthesisOpen[77] distinct[48]? part[64] | listagg[62]
parenthesisOpen[77] distinct[48]? arithmeticExpressionList[84]
(parenthesisClose[78] WITHIN[42] GROUP[42] parenthesisOpen[77]
orderBy[57])?) parenthesisClose[78]

referenced by:
- part[64]

allColumnsSpec:

allColumnsSpecId allColumnsSpecColumnNamePrefix allColumnsSpecColumnNamePostfix allColumnsSpecLabelPrefix allColumnsSpecLabelPostfix

allColumnsSpec[64]
::= allColumnsSpecId[65]
allColumnsSpecColumnNamePrefix[65]?
allColumnsSpecColumnNamePostfix[65]? allColumnsSpecLabelPrefix[65]?
allColumnsSpecLabelPostfix[65]?

referenced by:
- part[64]

allColumnsSpecId:

alias DOT ASTERIX
allColumnsSpecId[65]
::= (alias[120] DOT[42])? ASTERIX[42]

referenced by:
- allColumnsSpec[64]

allColumnsSpecColumnNamePrefix:

PREFIX WITH stringConstant
allColumnsSpecColumnNamePrefix[65]
::= PREFIX[42] WITH[42] stringConstant[127]

referenced by:
- allColumnsSpec[64]

allColumnsSpecColumnNamePostfix:

POSTFIX WITH stringConstant
allColumnsSpecColumnNamePostfix[65]
::= POSTFIX[42] WITH[42] stringConstant[127]

referenced by:
- allColumnsSpec[64]

allColumnsSpecLabelPrefix:

LABEL PREFIX WITH stringConstant
allColumnsSpecLabelPrefix[65]
::= LABEL[42] PREFIX[42] WITH[42] stringConstant[127]

referenced by:
- allColumnsSpec[64]

allColumnsSpecLabelPostfix:

LABEL POSTFIX WITH stringConstant
allColumnsSpecLabelPostfix[65]
::= LABEL[42] POSTFIX[42] WITH[42] stringConstant[127]

referenced by:

- allColumnsSpec 64

ddlStatement:

createTableStatement dropTableStatement alterPersistentCacheStatement

```
ddlStatement 66
          ::= createTableStatement 69
            | dropTableStatement 70
            | alterPersistentCacheStatement 66
```

referenced by:

- sqlStatement 43

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[66]
          ::= alterPersistentCacheSetStatement[69]
            | alterPersistentCacheDownloadStatement[67]
            | alterPersistentCachePurgeStatement[67]
            | alterPersistentCacheRefreshStatement[67]
            | alterPersistentCacheLoadStatement[68]
            | alterPersistentCacheTableRefreshStatement[68]
            | alterPersistentCachePartitionRefreshStatement[68]
            | alterPersistentCacheDropStatement[68]
```

referenced by:

- ddlStatement[66]

alterPersistentCachePurgeStatement:

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

```
alterPersistentCachePurgeStatement[67]
          ::= ALTER[42] PERSISTENT[42] CACHE[42] PURGE[42] ( UNKNOWN[42] |
OBSOLETE[42] | READY[42] | DROPPABLE[42] | ALL[42] ) TABLE[42]
 PARTITION[42] VERSIONS[42]
```

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCacheDownloadStatement:

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

```
alterPersistentCacheDownloadStatement[67]
          ::= ALTER[42] PERSISTENT[42] CACHE[42] DOWNLOAD[42] FEED[42]
( LICENSE[42] CONTRACT[42] CODE[42] stringConstant[127] )?
( DATA_CONTAINER[42] stringConstant[127] )? ( PARTITION[42]
 partitionSimpleIdentifier[73] )? ( LIMIT[42] numericConstant[128] )?
```

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCacheRefreshStatement:

ALTER PERSISTENT CACHE FORCE REFRESH DATA_CONTAINER dataContainerAlias PARALLEL numericConstant

alterPersistentCacheRefreshStatement[67]
::= ALTER[42] PERSISTENT[42] CACHE[42] FORCE[42]? REFRESH[42] (DATA_CONTAINER[42] dataContainerAlias[51]?)? (PARALLEL[42] numericConstant[128])?

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCacheLoadStatement:

ALTER PERSISTENT CACHE LOAD

alterPersistentCacheLoadStatement[68]
::= ALTER[42] PERSISTENT[42] CACHE[42] LOAD[42]

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCacheTableRefreshStatement:

ALTER PERSISTENT CACHE TABLE tableSpec FORCE REFRESH PARTITION partitionIdentifier PARALLEL numericConstant

alterPersistentCacheTableRefreshStatement[68]
::= ALTER[42] PERSISTENT[42] CACHE[42] TABLE[42] tableSpec[50] FORCE[42]? REFRESH[42] (PARTITION[42] partitionIdentifier[72])? (PARALLEL[42] numericConstant[128])?

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCachePartitionRefreshStatement:

ALTER PERSISTENT CACHE PARTITION partitionIdentifier FORCE REFRESH PARALLEL numericConstant

alterPersistentCachePartitionRefreshStatement[68]
::= ALTER[42] PERSISTENT[42] CACHE[42] PARTITION[42] partitionIdentifier[72] FORCE[42]? REFRESH[42] (PARALLEL[42] numericConstant[128])?

referenced by:

- alterPersistentCacheStatement[66]

alterPersistentCacheDropStatement:

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

alterPersistentCacheDropStatement[68]
::= ALTER[42] PERSISTENT[42] CACHE[42] DROP[42] (TABLE[42] tableSpec[50] (PARTITION[42] partitionIdentifier[72])? | PARTITION[42] partitionIdentifier[72] | DATA_CONTAINER[42] stringConstant[127])

referenced by:

- alterPersistentCacheStatement[66]

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[69]
::= ALTER[42] PERSISTENT[42] CACHE[42] SET[42] ((FRESH[42] | RETENTION[42] FORWARDED[42] INCOMING[42] MESSAGES[42] | METADATA[42]? RECYCLEBIN[42] | DATA[42] MODEL[42] VERSION[42]) numericConstant[128] | TOKEN[42] stringConstant[127] | LOGICAL[42] (OVERALL[42] | PARTITION[42]) VIEW[42] (NAME[42] (PREFIX[42] | POSTFIX[42]) stringConstant[127] | MAINTAIN[42] booleanConstant[128]) | LOAD[42] MY[42] MESSAGES[42] booleanConstant[128] | AUTO[42] UPGRADE[42] ONCE[42] | alterPersistentCacheSetTableOptions[69])

referenced by:

- alterPersistentCacheStatement[66]

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[69]
::= TABLE[42] tableSpec[50] (LOGICAL[42] (OVERALL[42] VIEW[42] (MAINTAIN[42] booleanConstant[128] | NAME[42] stringConstant[127]) | PARTITION[42] VIEW[42] (MAINTAIN[42] booleanConstant[128] | NAME[42] (PREFIX[42] | POSTFIX[42]) stringConstant[127])) | STATE[42] (OBSOLETE[42] | DROPPED[42]) | (PARTITION[42] partitionIdentifier[72])? APPROACH[42] (COPY[42] | TRICKLE[42] | SAMPLE[42]))

referenced by:

- alterPersistentCacheSetStatement[69]

createTableStatement:

CREATE orReplace TABLE tableSpec AS selectStatement

createTableStatement 69
::= CREATE 42 orReplace 70 ? TABLE 42 tableSpec 50 AS 42 selectStatement 43

referenced by:

- ddlStatement 66

dropTableStatement:

DROP TABLE tableSpec

dropTableStatement 70
::= DROP 42 TABLE 42 tableSpec 50

referenced by:

- ddlStatement 66

orReplace:

OR REPLACE

orReplace 70
::= OR 80 REPLACE 104

referenced by:

- createTableStatement 69

setStatement:

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

SET setIdentifier expression

setStatement 70
::= SET 42 setIdentifier 70 expression 76

referenced by:

- sqlStatement 43

setIdentifier:

attributeIdentifier distributedAliasDirective

setIdentifier 70
::= attributeIdentifier 119 distributedAliasDirective 51 ?

referenced by:

- setStatement 70

transactionStatement:

beginTransactionStatement rollbackTransactionStatement commitTransactionStatement

transactionStatement 70
::= beginTransactionStatement 71
| rollbackTransactionStatement 71
| commitTransactionStatement 71

referenced by:

- sqlStatement 43

executeFileStatement:

FILE_PATH
executeFileStatement 71
::= FILE_PATH 42

referenced by:

- sqlStatement 43

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 71
::= BEGIN 42 TRANSACTION 42?

referenced by:

- transactionStatement 70

rollbackTransactionStatement:

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

ROLLBACK TRANSACTION
rollbackTransactionStatement 71
::= ROLLBACK 42 TRANSACTION 42?

referenced by:

- transactionStatement 70

commitTransactionStatement:

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

COMMIT TRANSACTION
commitTransactionStatement 71
::= COMMIT 42 TRANSACTION 42?

referenced by:

- transactionStatement 70

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 72
          ::= USE 42 ( partitionIdentifiersList 72 |
selectStatement 43 )
```

referenced by:

- sqlStatement 43

partitionIdentifiersList:

partitionIdentifierWithAlias COMMA

```
partitionIdentifiersList 72
          ::= partitionIdentifierWithAlias 73 ( COMMA 42
 partitionIdentifierWithAlias 73 ) *
```

referenced by:

- useStatement 72

partitionIdentifier:

parameterExpression numericConstant identifier ALL DEFAULT

```
partitionIdentifier 72
          ::= parameterExpression 81
            | numericConstant 128
            | identifier 120
            | ALL 42
            | DEFAULT 42
```

referenced by:

- alterPersistentCacheDropStatement 68
- alterPersistentCachePartitionRefreshStatement 68
- alterPersistentCacheSetTableOptions 69
- alterPersistentCacheTableRefreshStatement 68

- partitionIdentifierWithAlias 73

partitionIdentifierWithAlias:

partitionIdentifier distributedAliasDirective
partitionIdentifierWithAlias 73
::= partitionIdentifier 72 distributedAliasDirective 51?

referenced by:
- partitionIdentifiersList 72

partitionSimpleIdentifier:

numericConstant identifier
partitionSimpleIdentifier 73
::= numericConstant 128
| identifier 120

referenced by:
- alterPersistentCacheDownloadStatement 67

insertStatement:

bulk insert into tableSpec insertFieldList valuesExpression insertFieldList selectStatement identifiedByClause attachToClause
insertStatement 73
::= bulk 73? insert 74 into 74 tableSpec 50
(insertFieldList 74 valuesExpression 73 | insertFieldList 74?
selectStatement 43) identifiedByClause 75? attachToClause 75?

referenced by:
- sqlStatement 43

valuesExpression:

values_ insertValues
valuesExpression 73
::= values_ 74 insertValues 74

referenced by:
- insertStatement 73

bulk:

BULK
bulk 73 ::= BULK 73

referenced by:
- insertStatement 73

into:

INTO
into 74 ::= INTO 74

referenced by:
- insertStatement 73

insert:

INSERT
insert 74 ::= INSERT 74

referenced by:
- insertStatement 73

values_:

VALUES
values_ 74 ::= VALUES 42

referenced by:
- valuesExpression 73

insertFieldList:

parenthesisOpen columnList parenthesisClose
insertFieldList 74
::= parenthesisOpen 77 columnList 58 parenthesisClose 78

referenced by:
- insertStatement 73

insertValues:

parenthesisOpen insertValuesList parenthesisClose
insertValues 74
::= parenthesisOpen 77 insertValuesList 74
parenthesisClose 78

referenced by:
- valuesExpression 73

insertValuesList:

arithmeticExpression COMMA
insertValuesList 74
::= arithmeticExpression 83 (COMMA 42
arithmeticExpression 83)*

referenced by:

- insertValues 74

identifiedByClause:

IDENTIFIED BY arithmeticExpression
identifiedByClause 75
::= IDENTIFIED 42 BY 42 arithmeticExpression 83

referenced by:
- insertStatement 73

attachToClause:

ATTACH TO arithmeticExpression
attachToClause 75
::= ATTACH 42 TO 42 arithmeticExpression 83

referenced by:
- insertStatement 73

updateStatement:

UPDATE FROM tableSpec SET updateValuesList whereClause
updateStatement 75
::= UPDATE 42 FROM 42 ? tableSpec 50 SET 42
updateValuesList 75 whereClause 58 ?

referenced by:
- sqlStatement 43

updateValuesList:

updateValue COMMA
updateValuesList 75
::= updateValue 75 (COMMA 42 updateValue 75) *

referenced by:
- updateStatement 75

updateValue:

column EQ arithmeticExpression
updateValue 75
::= column 58 EQ 82 arithmeticExpression 83

referenced by:
- updateValuesList 75

deleteStatement:

delete FROM tableSpec whereClause
deleteStatement 75
::= delete 76 FROM 42 ? tableSpec 50 whereClause 58 ?

referenced by:
- sqlStatement 43

delete:

DELETE
delete 76 ::= DELETE 76

referenced by:
- deleteStatement 75

expression:

booleanExpression arithmeticExpression
expression 76
::= booleanExpression 76
| arithmeticExpression 83

referenced by:
- caseElseExpression 77
- caseWhenThenExpression 77
- csvTableLiteral 54
- csvTablePassing 54
- jsonTableLiteral 53
- jsonTablePassing 52
- pSqlAssignmentStatement 131
- pSqlExecuteImmediateStatement 131
- part 64
- setStatement 70
- tableFunctionSpec 50
- xmlTableLiteral 52
- xmlTablePassing 52

booleanExpression:

not booleanExpression and or booleanExpression parenthesisOpen booleanExpression parenthesisClose predicateExpression true false
booleanExpression 76
::= (not 79 | booleanExpression 76 (and 80 | or 80))
booleanExpression 76
| parenthesisOpen 77 booleanExpression 76
parenthesisClose 78
| predicateExpression 80
| true 80
| false 80

referenced by:

- booleanExpression 76
- expression 76
- joinConditions 63
- pSqlElsIfExpression 132
- pSqlIfStatement 132
- pSqlWhileLoopStatement 133
- whereClause 58

caseExpression:

case caseWhenThenExpression caseElseExpression end

caseExpression 77
::= case 78 caseWhenThenExpression 77+
caseElseExpression 77? end 79

referenced by:

- arithmeticExpression 83

caseWhenThenExpression:

when expression then arithmeticExpression

caseWhenThenExpression 77
::= when 78 expression 76 then 79 arithmeticExpression 83

referenced by:

- caseExpression 77

caseElseExpression:

else expression

caseElseExpression 77
::= else 79 expression 76

referenced by:

- caseExpression 77

parenthesisOpen:

PARENTHESIS_OPEN

parenthesisOpen 77
::= PARENTHESIS_OPEN 42

referenced by:

- aggregateFunction 64
- arithmeticExpression 83
- booleanExpression 76
- csvTableSpec 53
- embeddedSelect 49

- functionExpression 84
- insertFieldList 74
- insertValues 74
- jsonTableSpec 52
- now 118
- predicateExpression 80
- tableFunctionSpec 50
- utc 118
- xmlTableSpec 51

parenthesisClose:

PARENTHESIS_CLOSE
parenthesisClose 78
::= PARENTHESIS_CLOSE 42

referenced by:

- aggregateFunction 64
- arithmeticExpression 83
- booleanExpression 76
- csvTableSpec 53
- embeddedSelect 49
- functionExpression 84
- insertFieldList 74
- insertValues 74
- jsonTableSpec 52
- now 118
- predicateExpression 80
- tableFunctionSpec 50
- utc 118
- xmlTableSpec 51

case:

CASE
case 78 ::= CASE 78

referenced by:

- caseExpression 77

when:

WHEN
when 78 ::= WHEN 78

referenced by:

- caseWhenThenExpression 77

then:

THEN
then 79 ::= THEN 79

referenced by:

- caseWhenThenExpression 77

else:

ELSE
else 79 ::= ELSE 79

referenced by:

- caseElseExpression 77

end:

END
end 79 ::= END 79

referenced by:

- caseExpression 77

not:

NOT
not 79 ::= NOT 79

referenced by:

- booleanExpression 76
- isLikeComparingExpression 83
- isNullComparingExpression 82
- predicateExpression 80

is:

IS
is 79 ::= IS 79

referenced by:

- isNullComparingExpression 82

are:

ARE
are 79 ::= ARE 79

referenced by:

- isEqualComparingExpression 83

and:

AND
and 80 ::= AND 80

referenced by:
- booleanExpression 76
- predicateExpression 80

or:

OR
or 80 ::= OR 80

referenced by:
- booleanExpression 76

true:

TRUE
true 80 ::= TRUE 80

referenced by:
- booleanConstant 128
- booleanExpression 76

false:

FALSE
false 80 ::= FALSE 80

referenced by:
- booleanConstant 128
- booleanExpression 76

predicateExpression:

arithmeticExpression not in_ parenthesisOpen arithmeticExpression COMMA inSelectStatement parenthesisClose between arithmeticExpression and arithmeticExpression gt ge lt le eq neq arithmeticExpression isNullComparingExpression isLikeComparingExpression isEqualComparingExpression
predicateExpression 80
::= arithmeticExpression 83 ((gt 81 | ge 81 | lt 81 | le 81 | eq 82 | neq 82) arithmeticExpression 83 | not 79 ?
(between 82 arithmeticExpression 83 and 80 arithmeticExpression 83
| in_ 82 parenthesisOpen 77 (arithmeticExpression 83 (COMMA 42 arithmeticExpression 83) * | inSelectStatement 44)
parenthesisClose 78) | isNullComparingExpression 82 |
isLikeComparingExpression 83 | isEqualComparingExpression 83)

referenced by:

- booleanExpression 76

parameterExpression:

COLON identifier

parameterExpression 81
::= COLON 42 identifier 120

referenced by:

- arithmeticExpression 83
- partitionIdentifier 72

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 81 ::= GT 81

referenced by:

- predicateExpression 80

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 81 ::= GE 81

referenced by:

- predicateExpression 80

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 81 ::= LT 81

referenced by:

- predicateExpression 80

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 81 ::= LE 81

referenced by:
- predicateExpression 80

eq:

EQ
eq 82 ::= EQ 82

referenced by:
- predicateExpression 80

neq:

NEQ
neq 82 ::= NEQ 82

referenced by:
- predicateExpression 80

like:

LIKE
like 82 ::= LIKE 82

referenced by:
- isLikeComparingExpression 83

between:

BETWEEN
between 82 ::= BETWEEN 82

referenced by:
- predicateExpression 80

in_:

IN
in_ 82 ::= IN 42

referenced by:
- predicateExpression 80

isNullComparingExpression:

is not NULL

isNullComparingExpression 82
::= is 79 not 79 ? NULL 129

referenced by:

- predicateExpression 80

isEqualComparingExpression:

are EQUAL
isEqualComparingExpression 83
::= are 79 ? EQUAL 42

referenced by:

- predicateExpression 80

isLikeComparingExpression:

not like arithmeticExpression
isLikeComparingExpression 83
::= not 79 ? like 82 arithmeticExpression 83

referenced by:

- predicateExpression 80

arithmeticExpression:

minus plus arithmeticExpression times divide plus minus concat arithmeticExpression parenthesisOpen arithmeticExpression selectStatement parenthesisClose functionExpression parameterExpression caseExpression fieldIdentifier constant
arithmeticExpression 83
::= (minus 100 | plus 101 | arithmeticExpression 83
(times 110 | divide 94 | plus 101 | minus 100 | concat 91))
arithmeticExpression 83
| parenthesisOpen 77 (arithmeticExpression 83 |
selectStatement 43) parenthesisClose 78
| functionExpression 84
| parameterExpression 81
| caseExpression 77
| fieldIdentifier 119
| constant 126

referenced by:

- aggregateFunction 64
- arithmeticExpression 83
- arithmeticExpressionList 84
- attachToClause 75
- caseWhenThenExpression 77
- expression 76
- identifiedByClause 75
- insertValuesList 74
- isLikeComparingExpression 83

- predicateExpression 80
- updateValue 75

arithmeticExpressionList:

arithmeticExpression list
arithmeticExpressionList 84
::= arithmeticExpression 83 (list 97
arithmeticExpression 83)*

referenced by:

- aggregateFunction 64
- functionExpression 84

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 84
::= (abs 85 | acos 86 | anonymize 86 | ascii 87 | asin 87 | atan 87 | atan2 87 | base64_decode 88 | base64_encode 88 | bit_length 89 | octet_length 90 | camel 89 | ceil 89 | chr 89 | coalesce 90 | concat_func 91 | cos 91 | covfefify 91 | compress 91 | uncompress 92 | dateadd 92 | datepart 92 | date_ceil 92 | date_floor 92 | date_round 93 | date_trunc 93 | day 93 | dayofweek 93 | dayofyear 94 | dense_rank 94 | double_metaphone 94 | double_metaphone_alt 94 | exp_func 95 | floor 95 | from_unixtime 95 | hour 96 | httpget 115 | httpget_text 115 | httppost 115 | initcap 96 | instr 96 | jsondecode 96 | jsonencode 97 | left 60 | length 97 | levenshtein 97 | ln 97 | log 98 | lower 98 | lpad 98 | ltrim 98 | md5 99 | metaphone 99 | metaphone3 99 | metaphone3_alt 99 | microsecond 105 | millisecond 106 | minute 100 | mod 99 | month 100 | newid 100 | number_to_speech 106 | normalize 106 | nvl 101 | power 101 | quarter 115 | quote_ident 116 | quote_literal 116 | quote_nullable 116 | raise_error 90 | random 101 | random_blob 102 | rand 102 | rank 102 | regexp_instr 103 | regexp_replace 103 | regexp_substr 102 | remainder 104 | replace 104 | repeat 90 | reverse 104 | right 60 | round 104 | row_number 105 | rpad 105 | rtrim 105 | second 107 | sin 107 | soundex 107 | sqrt 107 | substr 107 | sys_context 108 | tan 110 | to_binary 117 | to_char 117 | to_date 117 | to_number 118 | to_guid 117 | to_hex 111 | translate 110 | translate_resources 110 | trim 111 | trunc 111 | unistr 111 | unix_timestamp 112 | upper 112 | urldecode 112 | urlencode 112 | user 116 | unzip 113 | zip 113 | xmlcomment 113 | xmldecode 113 | xmlencode 114 | xmlelement 114 | xmlformat 114 | xmltransform 114 | year 116 | add_months 88 | zero_blob 118)
parenthesisOpen 77 arithmeticExpressionList 84 ?
parenthesisClose 78
| random 101
| rand 102
| row_number 105
| now 118
| utc 118
| user 116

referenced by:

- arithmeticExpression 83

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 85 ::= ABS 85

referenced by:

- functionExpression 84

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 86 ::= ACOS 86

referenced by:

- functionExpression 84

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 86
::= ANONYMIZE 86

referenced by:
- functionExpression 84

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 87 ::= ASCII 87

referenced by:
- functionExpression 84

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 87 ::= ASIN 87

referenced by:
- functionExpression 84

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 87 ::= ATAN 87

referenced by:
- functionExpression 84

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 87 ::= ATAN2 87

referenced by:

- functionExpression 84

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 88 ::= ADD_MONTHS 88

referenced by:

- functionExpression 84

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 88 ::= BASE64_DECODE 88

referenced by:

- functionExpression 84

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 88 ::= BASE64_ENCODE 88

referenced by:

- functionExpression 84

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 89      ::= CAMEL 89
```

referenced by:

- functionExpression 84

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 89       ::= CEIL 89
```

referenced by:

- functionExpression 84

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 89        ::= CHR 89
                | CHAR 42
```

referenced by:

- functionExpression 84

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 89
::= BIT_LENGTH 89

referenced by:

- functionExpression 84

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 90
::= OCTET_LENGTH 90

referenced by:

- functionExpression 84

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 90 ::= REPEAT 90

referenced by:

- functionExpression 84

raise_error:

RAISE_ERROR

raise_error 90
::= RAISE_ERROR 90

referenced by:

- functionExpression 84

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 90 ::= COALESCE 90

referenced by:

- functionExpression 84

concat:

Concatenate the left and right values together as a text.

CONCAT_OP

concat 91 ::= CONCAT_OP 42

referenced by:

- arithmeticExpression 83

concat_func:

Concatenate a list of values together as a text.

CONCAT

concat_func 91
::= CONCAT 91

referenced by:

- functionExpression 84

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 91 ::= COS 91

referenced by:

- functionExpression 84

covfefify:

COVFEFIFY

covfefify 91
::= COVFEFIFY 91

referenced by:

- functionExpression 84

compress:

COMPRESS

compress 91 ::= COMPRESS 91

referenced by:

- functionExpression 84

uncompress:

UNCOMPRESS

uncompress 92 ::= UNCOMPRESS 92

referenced by:

- functionExpression 84

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 92 ::= DATEADD 92

referenced by:

- functionExpression 84

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 92 ::= DATEPART 92

referenced by:

- functionExpression 84

date_ceil:

DATE_CEIL

date_ceil 92 ::= DATE_CEIL 92

referenced by:

- functionExpression 84

date_floor:

DATE_FLOOR
date_floor 92
::= DATE_FLOOR 92

referenced by:

- functionExpression 84

date_round:

DATE_ROUND
date_round 93
::= DATE_ROUND 93

referenced by:

- functionExpression 84

date_trunc:

DATE_TRUNC
date_trunc 93
::= DATE_TRUNC 93

referenced by:

- functionExpression 84

day:

Collect the day from a date.

Parameters:

- Input: A dateTime.

Returns: The day as an integer. DAY
day 93 ::= DAY 93

referenced by:

- functionExpression 84

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 93
::= DAYOFWEEK 93

referenced by:

- functionExpression 84

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 94
::= DAYOFYEAR 94

referenced by:

- functionExpression 84

dense_rank:

DENSE_RANK

dense_rank 94
::= DENSE_RANK 94

referenced by:

- functionExpression 84

double_metaphone:

DOUBLE_METAPHONE

double_metaphone 94
::= DOUBLE_METAPHONE 94

referenced by:

- functionExpression 84

double_metaphone_alt:

DOUBLE_METAPHONE_ALT

double_metaphone_alt 94
::= DOUBLE_METAPHONE_ALT 94

referenced by:

- functionExpression 84

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 94 ::= DIVIDE 94

referenced by:

- arithmeticExpression 83

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 95 ::= EXP_OP 42

no references

exp_func:

EXP
exp_func 95 ::= EXP 95

referenced by:

- functionExpression 84

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 95 ::= FLOOR 95

referenced by:

- functionExpression 84

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 95
::= FROM_UNIXTIME 95

referenced by:

- functionExpression 84

hour:

Collect the hour from a date.

Parameters:

- Input: A dateTime.

Returns: The hour as an integer. HOUR

hour 96 ::= HOUR 96

referenced by:

- functionExpression 84

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 96 ::= INITCAP 96

referenced by:

- functionExpression 84

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 96 ::= INSTR 96

referenced by:

- functionExpression 84

jsondecode:

JSONDECODE

jsondecode 96

::= JSONDECODE 96

referenced by:

- functionExpression 84

jsonencode:

JSONENCODE
jsonencode 97
::= JSONENCODE 97

referenced by:
- functionExpression 84

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 97 ::= LENGTH 97

referenced by:
- functionExpression 84

levenshtein:

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

LEVENSHTEIN
levenshtein 97
::= LEVENSHTEIN 97

referenced by:
- functionExpression 84

list:

COMMA
list 97 ::= COMMA 42

referenced by:
- arithmeticExpressionList 84

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 97 ::= LN 97

referenced by:
- functionExpression 84

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 98 ::= LOG 98

referenced by:

- functionExpression 84

lower:

Converts provided string to lowercase.

Parameters:

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

Returns: A string converted to lowercase. LOWER

lower 98 ::= LOWER 98

referenced by:

- functionExpression 84

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 98 ::= LPAD 98

referenced by:

- functionExpression 84

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 98 ::= LTRIM 98

referenced by:

- functionExpression 84

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 99          ::= MD5 99
```

referenced by:

- functionExpression 84

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 99
                ::= METAPHONE 99
```

referenced by:

- functionExpression 84

metaphone3:

METAPHONE3

```
metaphone3 99
                ::= METAPHONE3 99
```

referenced by:

- functionExpression 84

metaphone3_alt:

METAPHONE3_ALT

```
metaphone3_alt 99
                ::= METAPHONE3_ALT 99
```

referenced by:

- functionExpression 84

mod:

Get the remainder of a divide calculation.

Parameters:

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

Returns: The remainder. MOD

mod 99 ::= MOD 99

referenced by:

- functionExpression 84

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 100 ::= MINUS 100

referenced by:

- arithmeticExpression 83

minute:

Collect the minute from a date.

Parameters:

- Input: A dateTime.

Returns: The minute as an integer. MINUTE

minute 100 ::= MINUTE 100

referenced by:

- functionExpression 84

month:

Collect the month from a date.

Parameters:

- Input: A dateTime.

Returns: The month as an integer. MONTH

month 100 ::= MONTH 100

referenced by:

- functionExpression 84

newid:

Creates a new Guid id.

Returns: The new Guid id.

NEWID
newid 100 ::= NEWID 100

referenced by:
- functionExpression 84

nvl:

Coalesce all values together.

Returns: All values coalesced together.

NVL
nvl 101 ::= NVL 101

referenced by:
- functionExpression 84

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 101 ::= PLUS 101

referenced by:
- arithmeticExpression 83

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 101 ::= POWER 101

referenced by:
- functionExpression 84

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 101 ::= RANDOM 101

referenced by:

- functionExpression 84

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 102 ::= RANDOM_BLOB 102

referenced by:

- functionExpression 84

rand:

RAND

rand 102 ::= RAND 102

referenced by:

- functionExpression 84

rank:

RANK

rank 102 ::= RANK 102

referenced by:

- functionExpression 84

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 102
::= REGEXP_SUBSTR 102

referenced by:

- functionExpression 84

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 103
::= REGEXP_INSTR 103

referenced by:

- functionExpression 84

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 103
::= REGEXP_REPLACE 103

referenced by:

- functionExpression 84

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 104
::= REMAINDER 104

referenced by:

- functionExpression 84

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 104 ::= REPLACE 104

referenced by:

- functionExpression 84

reverse:

Flips the input around.

Parameters:

- Input: text to flip around.

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

reverse 104 ::= REVERSE 104

referenced by:

- functionExpression 84

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 104 ::= ROUND 104

referenced by:

- functionExpression 84

row_number:

ROW_NUMBER

row_number 105 ::= ROW_NUMBER 105

referenced by:

- functionExpression 84

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 105 ::= RPAD 105

referenced by:

- functionExpression 84

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 105 ::= RTRIM 105

referenced by:

- functionExpression 84

microsecond:

Collect the microsecond from a date.

Parameters:

- Input: A dateTime.

Returns: The microsecond as an integer. MICROSECOND

microsecond 105
::= MICROSECOND 105

referenced by:

- functionExpression 84

millisecond:

Collect the millisecond from a date.

Parameters:

- Input: A dateTime.

Returns: The millisecond as an integer. MILLISECOND

millisecond 106
::= MILLISECOND 106

referenced by:

- functionExpression 84

number_to_speech:

NUMBER_TO_SPEECH

number_to_speech 106
::= NUMBER_TO_SPEECH 106

referenced by:

- functionExpression 84

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 106
::= NORMALIZE 106

referenced by:

- functionExpression 84

second:

Collect the second from a date.

Parameters:

- Input: A dateTime.

Returns: The second as an integer. SECOND

second 107 ::= SECOND 107

referenced by:

- functionExpression 84

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 107 ::= SOUNDEX 107

referenced by:

- functionExpression 84

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 107 ::= SIN 107

referenced by:

- functionExpression 84

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 107 ::= SQRT 107

referenced by:

- functionExpression 84

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 107 ::= SUBSTR 107

referenced by:

- functionExpression 84

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 108

::= SYS_CONTEXT 108

referenced by:

- functionExpression 84

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 110        ::= TAN 110
```

referenced by:

- functionExpression 84

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 110      ::= ASTERIX 42
```

referenced by:

- arithmeticExpression 83

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 110
          ::= TRANSLATE 110
```

referenced by:

- functionExpression 84

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 110
::= TRANSLATE_RESOURCES 110

referenced by:

- functionExpression 84

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 111 ::= TRIM 111

referenced by:

- functionExpression 84

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 111 ::= TRUNC 111

referenced by:

- functionExpression 84

to_hex:

TO_HEX
to_hex 111 ::= TO_HEX 111

referenced by:

- functionExpression 84

unistr:

Converts a text with unicodes to regular characters.

Parameters:

- Input: text with unicodes.

Returns: The input converted to all regular characters. UNISTR

unistr 111 ::= UNISTR 111

referenced by:

- functionExpression 84

upper:

Converts provided string to uppercase.

Parameters:

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

Returns: A string converted to uppercase. UPPER

upper 112 ::= UPPER 112

referenced by:

- functionExpression 84

urldecode:

Decodes a url.

Parameters:

- Url: url to decode.

Returns: The decoded url. URLDECODE

urldecode 112
::= URLDECODE 112

referenced by:

- functionExpression 84

urlencode:

Encodes a url.

Parameters:

- Url: url to encode.

Returns: The encoded url. URLENCODE

urlencode 112
::= URLENCODE 112

referenced by:

- functionExpression 84

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 112
::= UNIX_TIMESTAMP 112

referenced by:

- functionExpression 84

unzip:

UNZIP

unzip 113 ::= UNZIP 113

referenced by:

- functionExpression 84

zip:

ZIP

zip 113 ::= ZIP 113

referenced by:

- functionExpression 84

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 113
::= XMLCOMMENT 113

referenced by:

- functionExpression 84

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 113
::= XMLDECODE 113

referenced by:

- functionExpression 84

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 114
::= XMLENCODE 114

referenced by:

- functionExpression 84

xmlelement:

XMLELEMENT

xmlelement 114
::= XMLELEMENT 114

referenced by:

- functionExpression 84

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 114
::= XMLTRANSFORM 114

referenced by:

- functionExpression 84

xmlformat:

Pretty-print xml text.

Parameters:

- Xml: xml to pretty-print.

Returns: The pretty-printed XML text. XMLFORMAT

xmlformat 114
::= XMLFORMAT 114

referenced by:

- functionExpression 84

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 115 ::= HTTPGET 115

referenced by:

- functionExpression 84

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 115
::= HTTPGET_TEXT 115

referenced by:

- functionExpression 84

httppost:

HTTPPOST

httppost 115 ::= HTTPPOST 115

referenced by:

- functionExpression 84

quarter:

Collect the quarter from a date.

Parameters:

- Input: A dateTime.

Returns: The quarter as an integer. QUARTER

quarter 115 ::= QUARTER 115

referenced by:

- functionExpression 84

quote_ident:

QUOTE_IDENT
quote_ident 116
::= QUOTE_IDENT 116

referenced by:
- functionExpression 84

quote_literal:

QUOTE_LITERAL
quote_literal 116
::= QUOTE_LITERAL 116

referenced by:
- functionExpression 84

quote_nullable:

QUOTE_NULLABLE
quote_nullable 116
::= QUOTE_NULLABLE 116

referenced by:
- functionExpression 84

user:

Gets the user log on code.

Returns: The user log on code.

USER
user 116 ::= USER 116

referenced by:
- functionExpression 84

year:

Collect the year from a date.

Parameters:
- Input: A dateTime.

Returns: The year as an integer. YEAR
year 116 ::= YEAR 116

referenced by:
- functionExpression 84

to_binary:

TO_BINARY
to_binary 117
::= TO_BINARY 117

referenced by:

- functionExpression 84

to_char:

Converts a value into text.

Parameters:

- Input: value to convert.

Returns: The input converted to text. TO_CHAR
to_char 117 ::= TO_CHAR 117

referenced by:

- functionExpression 84

to_date:

Converts a value into a datetime.

Parameters:

- Input: value to convert.

Returns: The input converted to a datetime. TO_DATE
to_date 117 ::= TO_DATE 117

referenced by:

- functionExpression 84

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 117 ::= TO_GUID 117

referenced by:

- functionExpression 84

to_number:

TO_NUMBER
to_number 118
::= TO_NUMBER 118

referenced by:
- functionExpression 84

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 118
::= ZERO_BLOB 118

referenced by:
- functionExpression 84

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 118 ::= (NOW 118 | GETDATE 42 | SYSDATETIME 42)
parenthesisOpen 77 parenthesisClose 78
| SYSDATE 42

referenced by:
- functionExpression 84

utc:

UTC_DATE parenthesisOpen parenthesisClose GETUTCDATE NOWUTC parenthesisOpen parenthesisClose SYSDATEUTC
utc 118 ::= UTC_DATE 42 (parenthesisOpen 77
parenthesisClose 78)?
| (GETUTCDATE 42 | NOWUTC 42) parenthesisOpen 77
parenthesisClose 78
| SYSDATEUTC 42

referenced by:
- functionExpression 84

fullTableIdentifier:

catalogIdentifier DOT schemaIdentifier DOT tableIdentifier

fullTableIdentifier[118]
::= (catalogIdentifier[119] DOT[42] (schemaIdentifier[119]? DOT[42])?)? tableIdentifier[119]

referenced by:
- tableOrFunctionSpec[50]
- tableSpec[50]

catalogIdentifier:

identifier
catalogIdentifier[119]
::= identifier[120]

referenced by:
- fullTableIdentifier[118]

schemaIdentifier:

identifier
schemaIdentifier[119]
::= identifier[120]

referenced by:
- fullTableIdentifier[118]

tableIdentifier:

identifier
tableIdentifier[119]
::= identifier[120]

referenced by:
- fullTableIdentifier[118]

fieldIdentifier:

alias DOT identifier
fieldIdentifier[119]
::= (alias[120] DOT[42])? identifier[120]

referenced by:
- arithmeticExpression[83]

attributeIdentifier:

identifierWithMinus keywordsAsIdentifierOrAlias
attributeIdentifier[119]
::= identifierWithMinus[120]
| keywordsAsIdentifierOrAlias[121]

referenced by:

- setIdentifier 70

identifierWithMinus:

identifier MINUS identifier INT_OR_DECIMAL_C ESCAPED_IDENTIFIER

```
identifierWithMinus 120
          ::= ESCAPED_IDENTIFIER 42
            | identifier 120 ( MINUS 100 ( identifier 120 |
INT_OR_DECIMAL_C 42 )? )*
```

referenced by:

- attributeIdentifier 119

identifier:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

```
identifier 120
          ::= ESCAPED_IDENTIFIER 42
            | IDENTIFIER 120
            | keywordsAsIdentifierOrAlias 121
```

referenced by:

- catalogIdentifier 119
- column 58
- csvTableColumSpec 54
- dataContainerAlias 51
- fieldIdentifier 119
- identifierWithMinus 120
- joinSet 47
- jsonTableColumSpec 53
- noJoinSet 48
- parameterExpression 81
- partitionIdentifier 72
- partitionSimpleIdentifier 73
- schemaIdentifier 119
- tableIdentifier 119
- xmlTableColumSpec 52

alias:

ESCAPED_IDENTIFIER IDENTIFIER keywordsAsIdentifierOrAlias

```
alias 120     ::= ESCAPED_IDENTIFIER 42
            | IDENTIFIER 120
            | keywordsAsIdentifierOrAlias 121
```

referenced by:

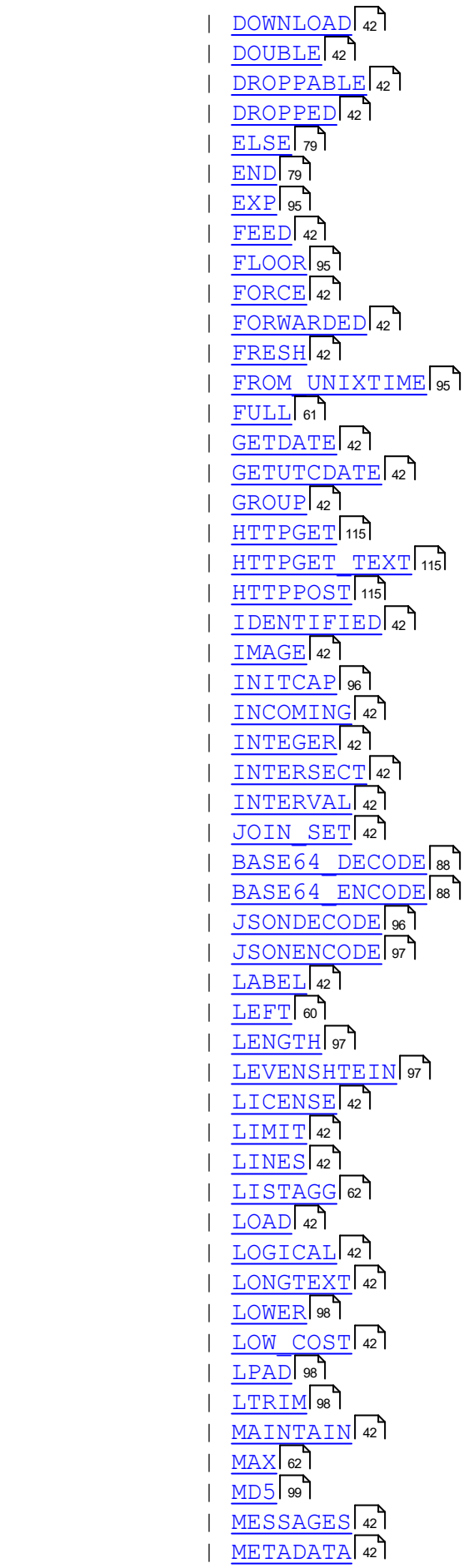
- aliased 63
- allColumnsSpecId 65

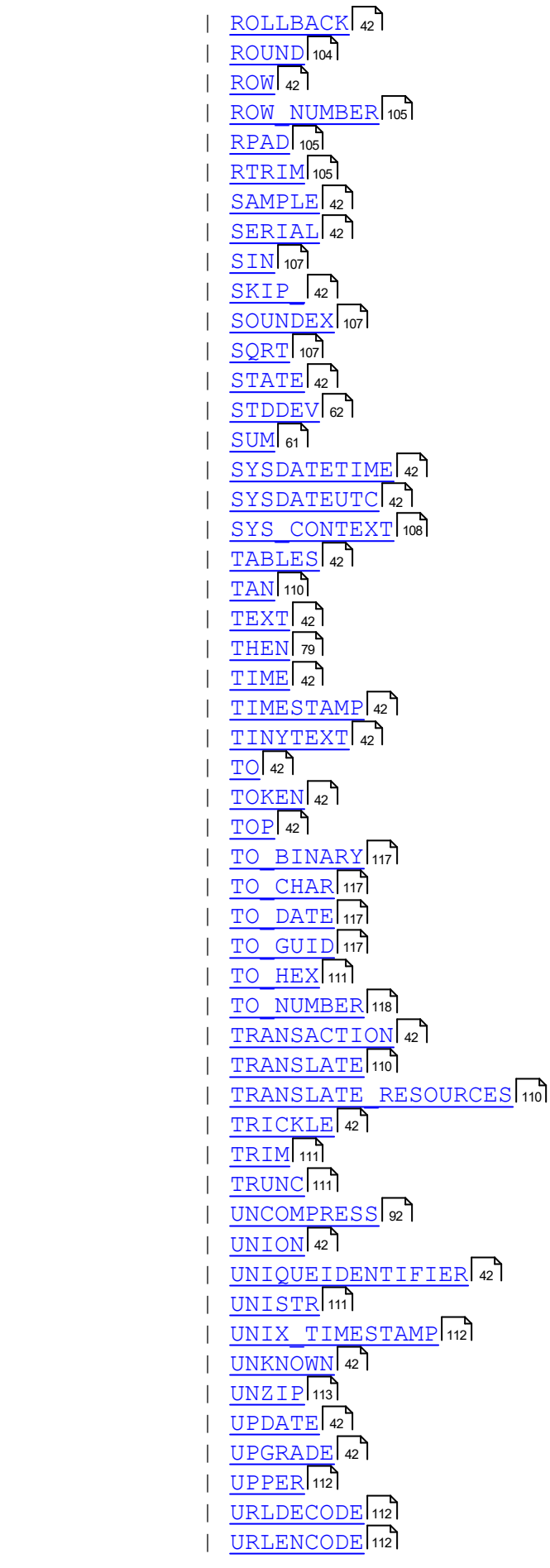
- fieldIdentifier 119

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[121]
::= ABS[85]
| ACOS[86]
| ADD_MONTHS[88]
| ANONYMIZE[86]
| APPROACH[42]
| ASC[63]
| ASCII[87]
| ASIN[87]
| ADD_MONTHS[88]
| ATAN[87]
| ATAN2[87]
| ATTACH[42]
| AUTO[42]
| AVG[62]
| BEGIN[42]
| BIT[42]
| BIT_LENGTH[89]
| BY[42]
| CACHE[42]
| CAMEL[89]
| CASE[78]
| CEIL[89]
| CHAR[42]
| CHR[89]
| COALESCE[90]
| COMMIT[42]
| COMPRESS[91]
| CODE[42]
| COLUMN[58]
| COLUMNS[42]
| CONTRACT[42]
| COPY[42]
| COS[91]
| COUNT[62]
| COVFEFIFY[91]
| CROSS[61]
| CSVTABLE[42]
| DATA[42]
| DATE[42]
| DATEADD[92]
| DATEPART[92]
| DATETIME[42]
| DATETIMEOFFSET[42]
| DATE_CEIL[92]
| DATE_FLOOR[92]
| DATE_ROUND[93]
| DATE_TRUNC[93]
| DEC[42]
| DELIMITER[42]
| DENSE_RANK[94]
| DESC[63]





| USE 42
| USER 116
| UTC 118
| UTC_DATE 42
| VERSION 42
| VERSIONS 42
| WHEN 78
| XML 42
| XMLCOMMENT 113
| XMLDECODE 113
| XMLELEMENT 114
| XMLENCODE 114
| XMLFORMAT 114
| XMLTABLE 42
| XMLTRANSFORM 114
| XMLTYPE 42
| YEAR 116
| ZERO_BLOB 118
| ZIP 113
| LOG 98
| LN 97
| MICROSECOND 105
| MILLISECOND 106
| SECOND 107
| MINUTE 100
| HOUR 96
| INSTR 96
| DAY 93
| DAYOFWEEK 93
| DAYOFYEAR 94
| MONTH 100
| QUARTER 115
| YEAR 116
| CONCAT 91
| WITH 42
| EQUAL 42
| SUBSTR 107

referenced by:

- alias 120
- attributeIdentifier 119
- identifier 120

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 126 ::= stringConstant 127
               | numericConstant 128
               | booleanConstant 128
               | intervalConstant 127
               | null 129
```

referenced by:

- arithmeticExpression 83
- pSqlItemDeclaration 129

stringConstant:

A constant text value with varchar2 data type.

STRING_C

```
stringConstant 127
          ::= STRING_C 42
```

referenced by:

- allColumnsSpecColumnNamePostfix 65
- allColumnsSpecColumnNamePrefix 65
- allColumnsSpecLabelPostfix 65
- allColumnsSpecLabelPrefix 65
- alterPersistentCacheDownloadStatement 67
- alterPersistentCacheDropStatement 68
- alterPersistentCacheSetStatement 69
- alterPersistentCacheSetTableOptions 69
- constant 126
- csvTableOptions 53
- intervalConstant 127
- jsonTableColumSpec 53
- jsonTableSpec 52
- labeled 64
- resultSetName 47
- xmlTableColumSpec 52
- xmlTableSpec 51

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 127
::= INTERVAL 42 stringConstant 127

referenced by:

- constant 126
- httpDiskCache 45
- httpMemoryCache 46
- ods 46

numericConstant:

A constant numeric value with numeric data type.

INT_OR_DECIMAL_C E_NOTATION_C
numericConstant 128
::= INT_OR_DECIMAL_C 42
| E_NOTATION_C 42

referenced by:

- alterPersistentCacheDownloadStatement 67
- alterPersistentCachePartitionRefreshStatement 68
- alterPersistentCacheRefreshStatement 67
- alterPersistentCacheSetStatement 69
- alterPersistentCacheTableRefreshStatement 68
- constant 126
- csvTableColumSpec 54
- csvTableOptions 53
- joinSet 47
- limitClause 49
- pSqlForNumberLoopStatement 132
- partitionIdentifier 72
- partitionSimpleIdentifier 73
- topClause 49

booleanConstant:

true false
booleanConstant 128
::= true 80
| false 80

referenced by:

- alterPersistentCacheSetStatement 69
- alterPersistentCacheSetTableOptions 69
- constant 126
- httpDiskCache 45

- httpMemoryCache 46
- ods 46

null:

The "unknown" value null.

NULL
  null 129 ::= NULL 129

referenced by:
- constant 126
- jsonTableSpec 52
- xmlTableSpec 51

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 129
    ::= pSqlDeclareSection 129? pSqlBody 130

referenced by:
- pSqlBlockOrStatement 130
- pSqlStatement 130

pSqlDeclareSection:

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

DECLARE pSqlDeclaration
  pSqlDeclareSection 129
    ::= DECLARE 42 pSqlDeclaration 129+

referenced by:
- pSqlBlock 129

pSqlDeclaration:

pSqlItemDeclaration
  pSqlDeclaration 129
    ::= pSqlItemDeclaration 129

referenced by:
- pSqlDeclareSection 129

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 129
::= variableName 133 dataType 54 (ASSIGNMENT_OPERATOR 42 constant 126)? BATCHSEPARATOR 42

referenced by:
- pSqlDeclaration 129

pSqlBody:

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

BEGIN pSqlStatement END BATCHSEPARATOR
pSqlBody 130 ::= BEGIN 42 pSqlStatement 130+ END 79 BATCHSEPARATOR 42

referenced by:
- pSqlBlock 129

pSqlStatement:

A number of basic PSQL statements are available.

pSqlAssignmentStatement pSqlExecuteImmediateStatement pSqlIfStatement pSqlLoopStatement pSqlNullStatement pSqlBlock sqlStatement BATCHSEPARATOR
pSqlStatement 130
::= pSqlAssignmentStatement 131
| pSqlExecuteImmediateStatement 131
| pSqlIfStatement 132
| pSqlLoopStatement 132
| pSqlNullStatement 131
| pSqlBlock 129
| sqlStatement 43 BATCHSEPARATOR 42

referenced by:
- pSqlBlockOrStatement 130
- pSqlBody 130
- sqlOrPSqlStatement 42

pSqlBlockOrStatement:

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

pSqlBlock pSqlStatement
pSqlBlockOrStatement 130
::= pSqlBlock 129
| pSqlStatement 130

referenced by:
- pSqlBlockOrStatements 131

pSqlBlockOrStatements:

pSqlBlockOrStatement
pSqlBlockOrStatements 131
::= pSqlBlockOrStatement 130+

referenced by:

- pSqlElsIfExpression 132
- pSqlForNumberLoopStatement 132
- pSqlForRecordLoopStatement 133
- pSqlIfStatement 132
- pSqlWhileLoopStatement 133

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 131
::= NULL 129 BATCHSEPARATOR 42

referenced by:

- pSqlStatement 130

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 131
::= variableName 133 ASSIGNMENT_OPERATOR 42 expression 76 BATCHSEPARATOR 42

referenced by:

- pSqlStatement 130

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 131
::= EXECUTE 42 IMMEDIATE 42 expression 76 BATCHSEPARATOR 42

referenced by:

- pSqlStatement 130

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 132
          ::= IF 42 booleanExpression 76 THEN 79
 pSqlBlockOrStatements 131 pSqlElsIfExpression 132* ( ELSE 79
 pSqlBlockOrStatements 131 )? END 79 IF 42 BATCHSEPARATOR 42
```

referenced by:

- pSqlStatement 130

pSqlElsIfExpression:

ELSIF booleanExpression THEN pSqlBlockOrStatements

```
pSqlElsIfExpression 132
          ::= ELSIF 42 booleanExpression 76 THEN 79
 pSqlBlockOrStatements 131
```

referenced by:

- pSqlIfStatement 132

pSqlLoopStatement:

A variety of PSQL statements for loops are available.

pSqlForNumberLoopStatement pSqlForRecordLoopStatement pSqlWhileLoopStatement

```
pSqlLoopStatement 132
          ::= pSqlForNumberLoopStatement 132
            | pSqlForRecordLoopStatement 133
            | pSqlWhileLoopStatement 133
```

referenced by:

- pSqlStatement 130

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[132]
::= FOR[42] variableName[133] IN[42] REVERSE[104]?
(numericConstant[128] | variableName[133]) DOT[42] DOT[42]
(numericConstant[128] | variableName[133]) LOOP[42]
pSqlBlockOrStatements[131] END[79] LOOP[42] BATCHSEPARATOR[42]

referenced by:

- pSqlLoopStatement[132]

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[133]
::= FOR[42] variableName[133] IN[42] PARENTHESIS_OPEN[42]
selectStatement[43] PARENTHESIS_CLOSE[42] LOOP[42]
pSqlBlockOrStatements[131] END[79] LOOP[42] BATCHSEPARATOR[42]

referenced by:

- pSqlLoopStatement[132]

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[133]
::= WHILE[42] booleanExpression[76] LOOP[42]
pSqlBlockOrStatements[131] END[79] LOOP[42] BATCHSEPARATOR[42]

referenced by:

- pSqlLoopStatement[132]

variableName:

IDENTIFIER

variableName[133]
::= IDENTIFIER[120]

referenced by:

- pSqlAssignmentStatement[131]
- pSqlForNumberLoopStatement[132]
- pSqlForRecordLoopStatement[133]
- pSqlItemDeclaration[129]
- variableList[48]

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 request from	32	✓	✓	✓

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

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	✓	✓	✓

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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	✓	✓	✓

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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 Connection String	Set from Set SQL-Statement	Set from Providers 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	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	✓	✓	✓	

3.2.18 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
	oshuffleresultsfetchedfromdatacontainers.				
invantive-use-cache	Whether to	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-level data area-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 Set 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	XML specification 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	✓	✓	✓

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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 container	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
	in milli-seconds 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-ultsfetchedfromdataacon-tain-ers.				
invantive-use-cache	Whetherto	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-level data area-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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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	✓	✓	✓

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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.

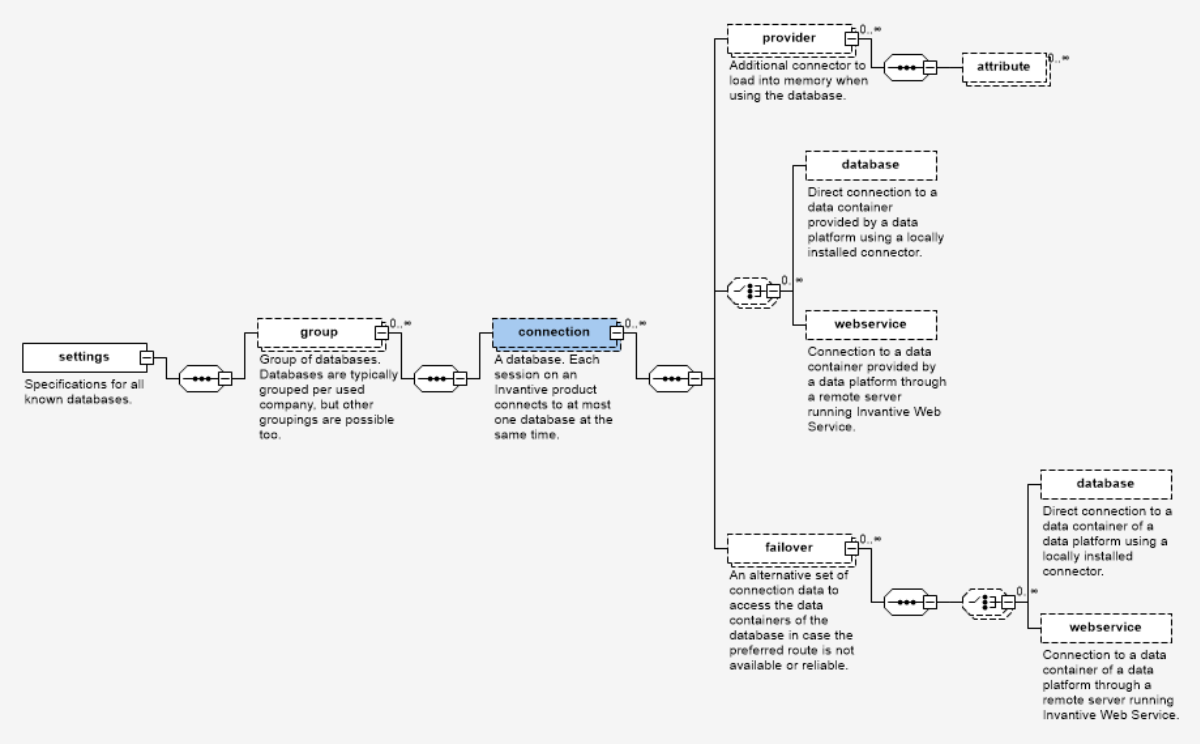
Additional Locations

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

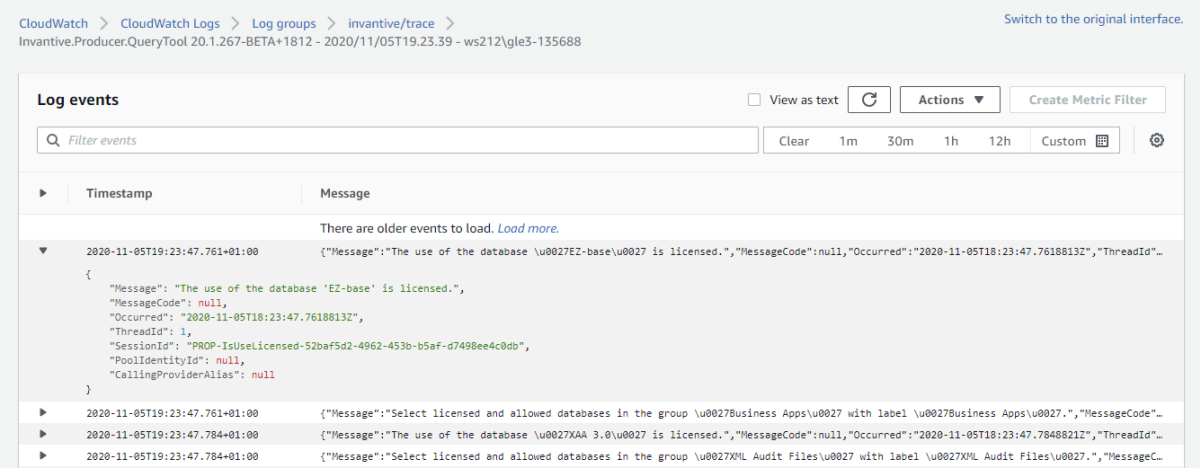
The trace can be logged to Amazon CloudWatch by configuring the following environment variables:

- 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.

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23.0.92
06/11/2023, 12:36
ISBN 978-94-6302-000-8: