Visual FoxPro Data Model

for use with Invantive SQL

24.0

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Contents

1 SQL Driver for Visual FoxPro

Invantive UniversalSQL is the fastest, easiest and most reliable way to exchange data with Visual FoxPro.

Use the "Search" option in the left menu to search for a specific term such as the table or column description. When you already know the term, please use the "Index" option. When you can't find the information needed, please click on the Chat button at the bottom or place your question in the user community. Invantive Support or other users will try to help you.

File-based relational database platform.

The Visual FoxPro driver covers 12 tables and 453 columns.

Visual FoxPro Clients

Invantive UniversalSQL is available on many user interfaces ("clients" in traditional server-client paradigma). All Invantive UniversalSQL statements can be exchanged with a close to 100% compatibility across all clients and operating systems (Windows, MacOS, Linux, iOS, Android).

The clients include Microsoft Excel, Microsoft Power BI, Microsoft Power Query, Microsoft Word and Microsoft Outlook. Web-based clients include Invantive Cloud, Invantive Bridge Online as OData proxy, Invantive App Online for interactive apps, Online SQL Editor for query execution and Invantive Data Access Point as extended proxy.

For technical users there are command-line editions of Invantive Data Hub running on iOS, Android, Windows, MacOS and Linux. Invantive Data Hub is also often used for enterprise server applications such as ETL. High-volume replication of data taken from Visual FoxPro into traditional databases such as SQL Server (on-premises and Azure), MySQL, PostgreSQL and Oracle is possible using Invantive Data Replicator. Invantive Data Replicator automatically creates and maintains Visual FoxPro datawarehouses, possibly in combination with data from over 75 other (cloud) platforms. Invantive Data Replicator supports data volumes up to over 1 TB and over 5.000 companies. The on-premise edition of Invantive Bridge offers an Visual FoxPro ADO.net provider.

Specifications

The SQL driver for Visual FoxPro does not support partitioning. Define one data container in a database for each company in Visual FoxPro to enable parallel access for data from multiple companies.

An introduction into the concepts of Invantive UniversalSQL such as databases, data containers and partitioning can be found in the Invantive UniversalSQL grammar.

The configuration can be changed using various attributes from the database definition, on log on and during use. A full list of configuration options is listed in the driver attributes 2.

The catalog name is used to compose the full qualified name of an object like a table or view. The schema name is used to compose the full qualified name of an object like a table or view. On Visual FoxPro the comparison of two texts is case sensitive by default.

Changes and bug fixes on the Visual FoxPro SQL driver can be found in the release notes. There is currently no specific section on the Invantive forums for Visual FoxPro.Please reach out to other users of Visual FoxPro by leaving a question or contact request.

Driver code for use in settings.xml: `Foxpro`

Alias: `fp`

Recommended alias: `fp`

More technical documentation as provided by the supplier of Visual FoxPro on the native connection used can be found at http://www.dbase.com/help/12_0/Plus-en.htm.

Updated 17-09-2025 17:51 using Invantive UniversalSQL version 25.0.17-PROD+5535.

2 SQL Driver Attributes for Visual FoxPro

The SQL driver for Visual FoxPro has many attributes that can be finetuned to improve handling in scenarios with unreliable network connections to the Visual FoxPro server or high volumes of data. Also, many drivers have driver-specific attributes to finetune actual behaviour or handle data not matching specifications.

The Visual FoxPro driver attributes are assigned a default value which seldom requires change. However, changes can be applied when needed on four levels, which are reflected in the table below by separate checkmarks:

- Connection string: the connection string from the settings*.xml file and applied during log on.
- Set SQL statement: a set SQL-statement to be executed once connection has been established.
- Log on: value to be specified interactively by user during log on in a user interface.

The connection string for Visual FoxPro can be found in the settings*.xml file used for the database. The reference manuals contain instructions how to relocate the settings*.xml files. Settings*.xml files are typically located in the `%USERPROFILE%\invantive` folder in most deployment scenarios. Each data container of a database in the connection string can have a `connectionString` element specifying the name and values of attributes. Both name and value must be properly escaped according to XML-semantics. Actual application of the value is solely done during log on. A new connection must be established to change the value of a driver attribute using a connection string.

The set SQL statement can be executed after log on. The syntax is: `set NAME VALUE`, or for a distributed database: `set NAME@ALIAS VALUE`. In some scenarios you may need to enclose the driver attribute name in square brackets to escape it from parsing, for instance when a reserved SQL keyword is part of the name. The new value takes effect straight after execution of the set-statement. The set-statement can be executed as often as needed during a session.

Driver attributes that can be interactively set to a value are typically presented in the log on window. Depending on the platform and design decisions of the user interface designer, some or all of the available driver attributes can have been made available.

The Visual FoxPro driver can be configured using the following attributes:

Code	Description	Origin	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Drivers File	Set from Log On
analysis-enforce-row-uniqueness	Enforce rows to be unique for software analysis. A fingerprint is calculated from the whole row of data when the primary key column is unknown.	Shared	False	✓	✓	✓	

Code	Description	Origin	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Drivers File	Set from Log On
bulk-delete-page-size-rows	Number of rows to delete per batch when bulk deleting.	Shared	10000	✓	✓	✓	
bulk-insert-page-size-bytes	Approximate maximum size in bytes of batch when bulk inserting.	Shared	10000000	✓	✓	✓	
bulk-insert-page-size-rows	Number of rows to insert per batch when bulk inserting.	Shared	10000	✓	✓	✓	
database-directories	Comma-separated list of directories with database files.	Foxpro		✓	✓	✓	✓
database-extension	Extension of database files.	Foxpro	*.dbf	✓	✓	✓	✓
database-extension-ignore-case	{res:itgen_pae_database_extension_ignore_case_desc}	Foxpro		✓	✓	✓	✓
database-memo-extensions	Comma-separated list of extensions of supplemental database memo files.	Foxpro	dbt,fpt	✓	✓	✓	✓
force-case-sensitive-identifiers	Consider identifiers as case-sensitive independent of the platform capabilities.	Shared	False	✓	✓	✓	
forced-casing-identifiers	Forced casing of identifiers. Choose from: Unset, Lower, Upper and Mixed.	Shared		✓	✓	✓	
ignore-memo-value-errors	Whether to ignore errors during interpretation of memo values.	Foxpro	True	✓	✓	✓	✓
invantive-sql-compress-sparse-arrays	Whether to compress sparse arrays in result sets during compression.	SQL Engine V1	True	✓	✓	✓	
invantive-sql-correct-invalid-date	Whether to correct dates considered invalid since they are before 01-01-1753. When nullable, they are removed. Otherwise they are replaced by 01-01-1753.	SQL Engine V1	False	✓	✓	✓	
invantive-sql-execution-profile-disk-path	{res:itgen_pae_invantive_sql_execution_profile_disk_path}	SQL Engine V1		✓	✓	✓	
invantive-sql-execution-profile-to-disk	{res:itgen_pae_invantive_sql_execution_profile_to_disk}	SQL Engine V1	False	✓	✓	✓	
invantive-sql-forward-filters-to-data-containers	Whether to forward filters to data containers.	SQL Engine V1	True	✓	✓	✓	
invantive-sql-share-byte-arrays	Whether to share the memory used by identical byte arrays in result sets during compression.	SQL Engine V1	True	✓	✓	✓	
invantive-sql-share-strings	Whether to share the memory used by identical strings in result sets during compression.	SQL Engine V1	True	✓	✓	✓	
invantive-sql-shuffle-fetch-results-data-containers	Whether to shuffle results fetched from data containers.	SQL Engine V1	False	✓	✓	✓	

Code	Description	Origin	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Drivers File	Set from Log On
invantive-use-cache	Whether to cache the results of a query.	SQL Engine V1	True	✓	✓	✓	
log-native-calls-to-disk-max-events	Maximum number of call events to register from last activation.	Shared		✓	✓	✓	
log-native-calls-to-disk-max-seconds	Maximum number of seconds to register calls from last activation.	Shared		✓	✓	✓	
log-native-calls-to-disk-on-error	Registers native calls to data container backend as disk files when the call raised an error.	Shared	False	✓	✓	✓	
log-native-calls-to-disk-on-success	Registers native calls to data container backend as disk files when the call raised no error.	Shared	False	✓	✓	✓	
log-native-calls-to-trace	Log native calls to data container backend on the trace.	Shared	False	✓	✓	✓	
maximum-length-identifiers	Non-default maximum length in characters of identifier names.	Shared		✓	✓	✓	
max-table-memo-value-errors	Maximum number of memo value errors to allow in one table.	Foxpro	100	✓	✓	✓	
partition-slot-based-rate-limit-length-ms	Total length in milliseconds across all slots of a partition-based rate limit.	Shared	60000	✓		✓	
partition-slot-based-rate-limit-slots	Number of slots per partition-based rate limit. Null means no slot-based rate limit.	Shared		✓		✓	
pre-request-delay-ms	Pre-request delay in milliseconds per request.	Shared	0	✓	✓	✓	
recurse-database-directories	Whether to recursively search database directories for tables.	Foxpro	True	✓	✓	✓	✓
requested-page-size	Preferred number of rows to exchange per round trip; only effective on limited platforms such as AFAS Online.	Shared		✓	✓	✓	
requests-parallel-max	Maximum number of parallel data requests from individual partitions on the data container.	Shared	32	✓	✓	✓	
slot-based-rate-limit-length-ms	Total length in milliseconds across all slots of a slot-based rate limit.	Shared	60000	✓		✓	
slot-based-rate-limit-slots	Number of slots of a slot-based rate limit. Null means no slot-based rate limit.	Shared		✓		✓	
standardize-identifiers	Rewrite all identifiers to the preferred standards as configured by standardize-identifiers-casing and maximum-length-identifiers.	Shared	True	✓	✓	✓	
standardize-identifiers-casing	Rewrite all identifiers to the recommended standard platform-specific casing when changing a data model on a case-dependent platform.	Shared	True	✓	✓	✓	

Code	Description	Origin	Default Value	Set from Connection String	Set from Set SQL-Statement	Set from Drivers File	Set from Log On
text-encoding	Text encoding used to map binary data to characters (defaults to 7-bit US ASCII).	Foxpro		✓	✓	✓	✓

3 Catalog:
3.1 Schemas
3.1.1 av_art_hdr

The data in this table is partitioned per value of the column.

Can retrieve data and change data using insert, update and delete.

Table Columns

The columns of the table av_art_hdr are shown below. Each column has an SQL data type. A new non-null value must be provided for every required column at all times during insert and update.

Name	Data Type	Label	Required	Documentation
ACCT_NR	string(10)			
APX_LIST	string(5)			
ASS_CODE	string(10)			
AUTH_HIST	string			
BLK_AMT	decimal			
BLK_CUR	decimal			
BV_AMT	decimal			
BV_CUR	decimal			
COMMENT1	string(40)			
COMMENT2	string			
COMMENT3	string			
COST_CODE	string(10)			
CPY_PRN	string(100)			
CPY_PRTYPE	string(40)			
CRED_DAYS	decimal			
CUR_CODE	string(3)			
DD_ACT	boolean			
DEL_ADDR	string			
DEL_CP	string(40)			
DEL_DATE	datetime			
DISC_CODE	string(2)			
DISC_DAYS	decimal			

Name	Data Type	Label	Required	Documentation
DJ_CODE	string(3)			
DJ_POST	boolean			
DOC_NR	string(10)			
EMP_NR	string(10)			
EXCH_RATE	double			
EXT_DESC	string(40)			
EXT_ID	string(32)			
EXT_TYPE	int32			
HDR_TYPE	decimal			
INV_CP	string(40)			
INV_DATE	datetime			
INV_NR	string(10)			
LB_AMT	decimal			
LB_CUR	decimal			
MAND_B2B	boolean			
MAND_DATE	datetime			
MAND_ID	string(35)			
MAND_SEQ	int32			
OC_CUR	decimal			
ORD_COST	decimal			
ORD_CUR	decimal			
ORD_DATE	datetime			
ORD_NR	string(10)			
ORD_TOT	decimal			
PAC_NR	string(10)			
PAGE_NR	string(10)			
PAY_AMT	decimal			
PAY_CUR	decimal			
PAY_VAT	decimal			
PAY_VATC	string(2)			
PCT_LIST	string(5)			
PD_AMT	decimal			
PD_PCT	decimal			
PD_VAT	decimal			
PDA_CUR	decimal			
PDV_CUR	decimal			
PERIOD	decimal			
PREF_DATE	datetime			
PROJ_CODE	string(10)			
QT_ORD_NR	string(10)			
REC_ID	string(10)			

Name	Data Type	Label	Required	Documentation
RPL_DEL	string(10)			
RPL_INV	string(10)			
SBS_NR	string(10)			
SC_CUR	decimal			
SEL_CODE	string(5)			
SG_CODE	string(10)			
SHIP_COST	decimal			
SHIP_MTH	string(10)			
SUB_CUR	decimal			
SUB_TOT	decimal			
TRN_BOOK	boolean			
TRN_CNT	int32			
TRN_START	int32			
VAT_CUR	decimal			
VAT_ORD	decimal			
VAT_SHIP	decimal			
VAT_TOT	decimal			
VC_ORD	string(2)			
VC_SHIP	string(2)			
VO_CUR	decimal			
VS_CUR	decimal			

3.1.2 av_art_line

The data in this table is partitioned per value of the column.

Can retrieve data and change data using insert, update and delete.

Table Columns

The columns of the table av_art_line are shown below. Each column has an SQL data type. A new non-null value must be provided for every required column at all times during insert and update.

Name	Data Type	Label	Required	Documentation
AG_CODE	string(5)			
AL_PROC	boolean			
ART_AMT	decimal			
ART_BM	boolean			
ART_CA	boolean			
ART_CODE	string(15)			
ART_CUR	decimal			
ART_DATE	datetime			
ART_DESC1	string(40)			

Name	Data Type	Label	Required	Documentation
ART_LEVEL	int32			
ART_PX	decimal			
ART_QTY	double			
ART_QTYU	double			
BM_TAG	string(10)			
COGS_AMT	decimal			
COGS_SUSP	boolean			
COST_CODE	string(10)			
CUR_AMT	decimal			
DISC_AMT	decimal			
DISC_CUR	decimal			
DISC_PCT	decimal			
EMP_NR	string(10)			
HDR_ID	string(10)			
HDR_TYPE	decimal			
ICAT_CODE	string(1)			
ICNT_SRC	string(2)			
ICNT_TGT	string(2)			
INV_NR	string(10)			
IS_CNTNR	decimal			
IS_CUSTCD	string(2)			
IS_MONTH	decimal			
IS_WEIGHT	decimal			
ISHP_CODE	string(1)			
ISXF_CODE	string(3)			
ISYS_CODE	string(2)			
ITYP_CODE	string(1)			
LINK_ID	string(10)			
LOC_CODE	string(5)			
ORD_QTY	double			
ORD_QTYU	double			
ORG_ORDNR	string(10)			
PC_CODE	string(5)			
PIP_AMT	decimal			
PIP_CUR	decimal			
POL_ID	string(10)			
POP_AMT	decimal			
POP_CUR	decimal			
PREF_DATE	datetime			
PROJ_CODE	string(10)			
PROJ_ID	string(10)			

Name	Data Type	Label	Required	Documentation
PROJ_TYPE	int32			
PX_CALC	decimal			
PXDIF_AMT	decimal			
PXDIF_CUR	decimal			
REC_BLK	boolean			
REC_ID	string(10)			
REM_QTY	double			
REVA_AMT	decimal			
SPL_ID	string(10)			
UNT_CODE	string(10)			
UNT_CODEP	string(10)			
UNT_CUR	decimal			
UNT_PX	decimal			
VAT_AMT	decimal			
VAT_CODE	string(2)			
VAT_CUR	decimal			
WHS_CODE	string(5)			
XML_DATA	string			

4 Package: dcr_metadata

4.1 Procedures

4.1.1 dcr_metadata.get_partitions: Visual FoxPro Data container metadata package

Get all partitions.

Documentation:

List all partitions.

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