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1

1 What's New

New features in ODBC Driver for xBase 5.0

- Fixed connection timeout setting before opening connection
- Added support for the UTF8 encoding
- Added support for tables with duplicate column names
- Improved compatibility with Quantum GIS
- Improved compatibility with ETL Informatica PowerCenter
- Improved MS Access linked tables support
- Improved error handling when using the IgnoreDataErrors option
- Improved compatibility with FileMaker Server for Linux and macOS

New features in ODBC Driver for xBase 4.1

Added support for the CREATE TABLE AS SELECT statement

New features in ODBC Driver for xBase 4.0

- Improved significantly the performance of DML operations
- Improved compatibility with Power BI Desktop
- Improved compatibility with 4D in macOS
- Added support for CREATE TABLE IF NOT EXISTS and DROP TABLE IF EXISTS statements

New features in ODBC Driver for xBase 3.3

- Added support for SQL_ATTR_MAX_ROWS attribute
- Improved compatibility with Visual Basic in Visual Studio
- Added support for macOS 13 Ventura
- Added support for VisualFoxPro CANDIDATE indexes
- Added support for NOT function in index expressions

- Improved compatibility with Microsoft Power BI Desktop
- Improved compatibility with Tableau Prep Builder
- Improved compatibility with Crystal Reports

New features in ODBC Driver for xBase 3.2

- Added support for Windows 11
- Improved compatibility with FICO Mosel
- Improved compatibility with FileMaker
- Improved compatibility with JMP on macOS
- Improved support for an ODBC installer on Windows 2000
- Added support for the Autoinc data type in Visual FoxPro tables
- Added support for the YEAR, MONTH and DAY functions in index expressions

New features in ODBC Driver for xBase 3.1

• MSI installer for deploying through GPO is added

New features in ODBC Driver for xBase 3.0

- Apple Silicon M1 is supported
- Compatibility with macOS Big Sur is improved
- Compatibility with Microsoft SQL Server Management Studio is improved
- Compatibility with Microsoft Access is improved
- Suport for Out values in Numeric fields is added
- Work with tables of type dBaseV and dBaseVII with the DBFFormat option set to dfAuto is improved

New features in ODBC Driver for xBase 2.3

- Native dBase functions in an SQL statement are supported
- The AllFieldsAsNullable connection option is added
- The IgnoreBrokenTables connection option is added

3

New features in ODBC Driver for xBase 2.2

- The IgnoreIndexErrors connection option is added
- Access to table files when performing queries is optimized
- Compatibility with RStudio is improved
- Compatibility with Microsoft SQL Server Management Studio is improved
- Compatibility with Microsoft Power BI Desktop is improved
- Compatibility with Power Pivot is improved
- Compatibility with Visual Basic is improved

New features in ODBC Driver for xBase 2.1

- Now ODBC driver activation does not require administrator privileges
- Support for connection pooling is improved
- Improved compatibility with sandboxed applications for macOS
- The IgnoreDataErrors connection option is added
- The IdentifierCase connection option is added

New features in ODBC Driver for xBase 2.0

- Now ODBC driver for macOS is distributed as a PKG package
- Now ODBC driver for Linux is distributed as DEB and RPM packages
- Possibility to force the ODBC 2.x behavior is added

New features in ODBC Driver for xBase 1.3

- Support for Clipper/Harbour is added
- Possibility to show used connection string in the connection dialog is added

New features in ODBC Driver for xBase 1.2

- Possibility to return String Types as Ansi or Unicode is added
- Compatibility with MS Access is improved
- Compatibility with Tableau is improved

4 ODBC Driver for xBase

- Compatibility with Omnis Studio is improved
- · Compatibility with Power Pivot is improved
- Compatibility with DBeaver is improved
- · Compatibility with Codebase is improved

New features in ODBC Driver for xBase 1.1

- Performance of batch operations is significantly improved
- The IndexOnReading connection parameter is added

New features in ODBC Driver for xBase 1.0

- First release of ODBC Driver for xBase
- Windows is supported
- macOS is supported
- Linux is supported

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2 General Information

- 1. Overview
- 2. Features
- 3. Compatibility
- 4. Requirements
- 5. Licensing
- 6. Getting Support

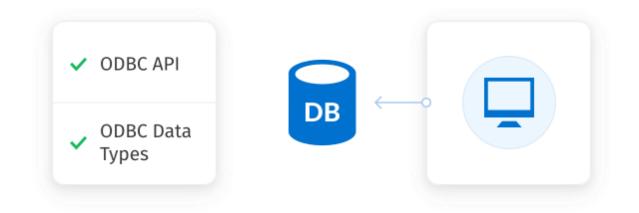
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Reserved.			

5

2.1 Overview

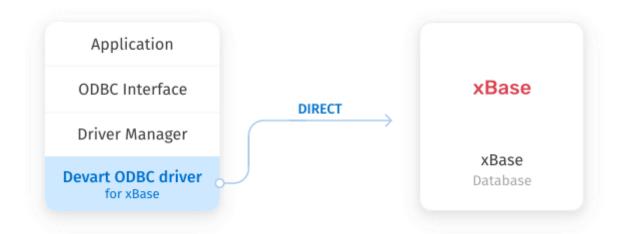
Overview

ODBC Driver for xBase is a high-performance connectivity tool with enterprise-level <u>features</u> for accessing FoxPro, Visual FoxPro, dBase, and other databases in DBF file formats from ODBC-compliant reporting, analytics, BI, and ETL tools on 32-bit and 64-bit Windows, macOS, and Linux. Our ODBC driver fully supports standard ODBC API functions and data types and enables easy and secure access to live xBase data from anywhere.



Direct connection

Our data connector enables various ODBC-aware applications to establish a direct <u>connection</u> to FoxPro 2, Visual FoxPro, dBase (DBF), and other xBase databases, without involving any external libraries. A direct connection increases the speed of data transmission between an external application and xBase database. It also streamlines the deployment process, since there is no need to distribute any additional client software with the driver.

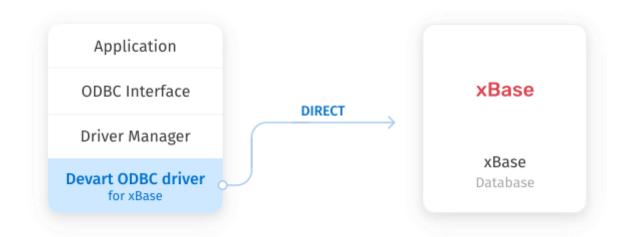


Compatibility

ODBC Driver for xBase supports FoxPro 2, Visual FoxPro, dBaselll-dBase10, and other DBF file formats.

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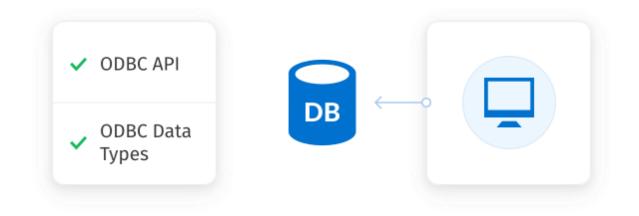
2.2 Features



Direct Connection

Database applications based on our solution get an opportunity to <u>establish connection</u> to FoxPro, dBase, and other databases in DBF file formats directly. Direct Connection gives

your applications an unrivalled advantage - connection to xBase without any additional libraries. That improves performance of your applications, their quality, reliability and especially the deployment process, since there is no need to supply additional client software together with your application.

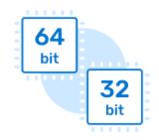


ODBC Conformance

Our ODBC driver provides full support for common ODBC interface:

- ODBC Data Types support
- ODBC API Functions support

In addition, we provide support for Advanced Connection String parameters. Thus allowing any desktop and web applications to connect to xBase from various environments and platforms, that support ODBC.



Development Platforms Variety

ODBC Driver for xBase doesn't limit your choice of the development platform and

environment. The driver installations are available for various operational systems and platforms. The current version supports Windows, both 32-bit and 64-bit. So you can develop both 32-bit and 64-bit cross-platform applications.



Database Compatibility

ODBC Driver for xBase supports FoxPro 2, Visual FoxPro, dBaselll-dBase10, and other DBF file formats.



High Performance

All our products are designed to help you write high-performance, lightweight data access layers, therefore they use advanced data access algorithms and techniques of optimization.



Support

Visit our <u>Support</u> page to get instant help from knowledgeable and experienced professionals, a quick resolution of your problems, and nightly builds with hotfixes.

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2.3 Compatibility

xBase Compatibility

ODBC Driver for xBase supports:

- FoxPro 2, Visual FoxPro
- dBaselll-dBase10
- Codebase, Clipper
- and other DBF file formats

Supported Platforms

- Windows x86 and x64 (including Windows Terminal Server)
- macOS x64 and ARM (Apple Silicon M1)
- Linux x86 and x64

Compatibility with Third-Party Tools

Application Development Tools

Adobe ColdFusion	~
Embarcadero Delphi & C++Builder UniDAC, FireDAC, dbGo (ADO), BDE and dbExpress	~
FileMaker	~
Lazarus	~

Microsoft Visual FoxPro	✓
Microsoft Visual Studio Server Explorer and ADO.NET ODBC Provider	~
Omnis Studio	~
РНР	~
PowerBASIC	~
Python	~

Database Management

Aqua Data Studio	~
dbForge Studio	~
dBeaver	~
EMS SQL Management Studio	~
Informatica Cloud	~
RazorSQL	~
SQL Server Data Tools	~
SQL Server Management Studio	~
SQL Server Reporting Services	~

BI & Analytics Software

Alteryx	~
DBxtra	~
Dundas Bl	~
IBM SPSS Statistics	~

MicroStrategy	~
Power BI	~
Qlik Sense	~
QlikView	~
RStudio	~
SAP Crystal Reports	~
SAS JMP	~
Tableau	~
TARGIT	~
TIBCO Spotfire	~

Office Software Suites

LibreOffice			~	
Microsoft Access			~	
Microsoft Excel			~	
OpenOffice			~	
StarOffice			~	
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2.4 Requirements

The following requirement must be met for ODBC Driver for xBase:

• Only one version of <u>ODBC Driver for xBase</u> is installed on your system.

No additional client software is required on your system.

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2.5 Licensing

ODBC Driver License Agreement

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2.6 Getting Support

This document lists several ways you can find help with using ODBC Driver for xBase describes the Priority Support program.

Support Options

There are a number of resources for finding help on installing and using ODBC Driver for xBase:

- You can find out more about ODBC Driver for xBase installation or licensing by consulting Installation and License articles of this manual respectively.
- You can get community assistance and technical support on the Community Forum.
- You can get advanced technical assistance by ODBC Driver for xBase developers through the ODBC Driver for xBase Priority Support program.

Subscriptions

The ODBC Driver for xBase Subscription program is an annual maintenance and support service for ODBC Driver for xBase users.

Users with a valid ODBC Driver for xBase Subscription get the following benefits:

- Product support through the ODBC Driver for xBase Priority Support program
- Access to new versions of ODBC Driver for xBase when they are released
- Access to all ODBC Driver for xBase updates and bug fixes
- Notifications about new product versions

Priority Support

ODBC Driver for xBase Priority Support is an advanced product support service for getting expedited individual assistance with ODBC Driver for xBase-related questions from the ODBC Driver for xBase developers themselves. Priority Support is carried out over email and has a two business day response policy. Priority Support is available for users with an active ODBC Driver for xBase Subscription.

To get help through the ODBC Driver for xBase Priority Support program, please send an email to <u>odbc@devart.com</u> describing the problem you are having. Make sure to include the following information in your message:

Your ODBC Driver for xBase Registration number.

- Full ODBC Driver for xBase edition name and version number. You can find the version number in DLL version information.
- The format of DBF files you are working with.
- A detailed problem description.
- If possible, ODBC Administrator Log, scripts for creating and filling in database objects, and the application using ODBC Driver for xBase.

If you have any questions regarding licensing or subscriptions, please see the FAQ or contact sales@devart.com

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3 Using ODBC Driver

- 1. Installation
- 2. Connecting to xBase
- 3. Connection String Parameters
- 4. Sandboxed Apps on macOS
- 5. Using with iODBC
- 6. Enabling ODBC Tracing

- 7. Supported Data Types
- 8. Supported ODBC API Functions

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3.1 Installation

ODBC Driver for xBase currently supports the following platforms: Windows, macOS, and Linux, both 32-bit and 64-bit.

See how to install Devart ODBC Driver for xBase :

- Windows
- Windows Silent
- macOS
- Linux DEB
- Linux RPM

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Windows 3.1.1

Installation

- 1. Download and run the installer.
- 2. Follow the instructions in the wizard.



- 3. In case if you already have the specified installation folder on the PC or another Driver version is installed, you will get a warning. Click **Yes** to overwrite the old files with the current installation, but it is recommended to completely uninstall the previous driver version first, and then install the new one.
- 4. On the Select Components page you can select whether to install the **64-bit** version of the driver or not. Clear the check box if you need no 64-bit installation. There is also a check box on this page, that allows you to select whether to install Help and Manual.

Which components should be installed?	c
Select the components you want to install; cle install. Click Next when you are ready to conti	
Full installation	~
Devart ODBC Driver for xBase	5,5 ME
🗹 Driver for Win32	2,4 ME
🛄 🗹 Driver for Win64	3,2 ME
Help and Manual	8,6 ME
Current selection requires at least 15,8 MB of	disk snace

- 5. In the License Information dialog box, you should select the license type and activate the product. If you have no activation key, you can select Trial and use the driver for evaluation purposes.
- 6. If you have an activation key, select the Activation Key option. Copy the activation key from the registration email or your Customer Portal account and paste it into the Activation Key edit box.

🕞 Setup - Devart ODBC Driver	_		×
License Information Please enter the path to the file containing the activation k purchasing the product. If you have no activation key, sele		n	devart
Trial Activation Key			
u 1w7jN0D5NGAP0SqfNzjuVAEoDpv/qLXmIX/heuy+ktl58N Z 1tjQVwOuQOoYTqtef2NfkuLgB+FAVeYqhaJ3cnNhifdvYIn 7zEIxR30Fj9BLspR6ydbomxYUYmTAZfHMQVXWPqQn2UM emlnjcTJIN4HEPxigTQRRgZBtKT1L3IAf0J/QfXsIp/PiKtnD5 5Qw1KL7hTv0dvSt5h6AtwPzLBaTj39CiY3Y+zMLSII3=	rWwFFwZNvIRh2 I1Y4odf3c3TIjJRA	2m4SJ	
Load Activation Key			
< Back	Next >	Ca	ancel

7. If you have the activation key file, click the Load Activation Key button and browse to it.

Activation			_	
$\leftarrow \rightarrow \checkmark \uparrow$	K Co > Activation	u ~ Ω	Search	Activat ዖ
💻 This PC 🔷	Name	Date modified	ł	Туре
🧊 3D Obji	activation	27.03.2020 13	:52	KEY File
📃 Desktor				
🔮 Docum				
👆 Downlo				
💧 Music 🗡	<			>
1 item				

- 8. Click Next.
- 9. Click Install, then Finish.
- 10.After the installation is completed, you need to configure the driver.

See also:

- Installation on macOS
- Install Linux DEB package
- Install Linux RPM package

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3.1.2 Windows Silent

Silent Installation with OEM license on Windows

1. Run the Command Prompt as an administrator.

2. Use the following command-lines to perform the driver silent/very silent installation:

DevartODBCxBase.exe /SILENT /ActivationKey=y1c7nmgdu2341aszxcvONGurjfhxm90LH

DevartODBCxBase.exe /VERYSILENT /ActivationKey=ekhdh765mh09ukr237gfHRtrilwq9

Note: The installation is performed by entering a license key.

DevartODBCxBase.exe /SILENT /ActivationFile=d:\lic.key

DevartODBCxBase.exe /VERYSILENT /ActivationFile=d:\lic.key

Note: The installation is performed by specifying the path to a license key file with any name.

When /SILENT is used, the installation progress is displayed, but no user interaction is required during installation.

When /VERYSILENT is used, the installation wizard dialog is hidden and the installation process is performed without user interference.

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3.1.3 macOS

Prerequisites

ODBC Driver for xBase works under control of an ODBC driver manager. ODBC driver manager is not distributed along with our driver and must be installed separately.

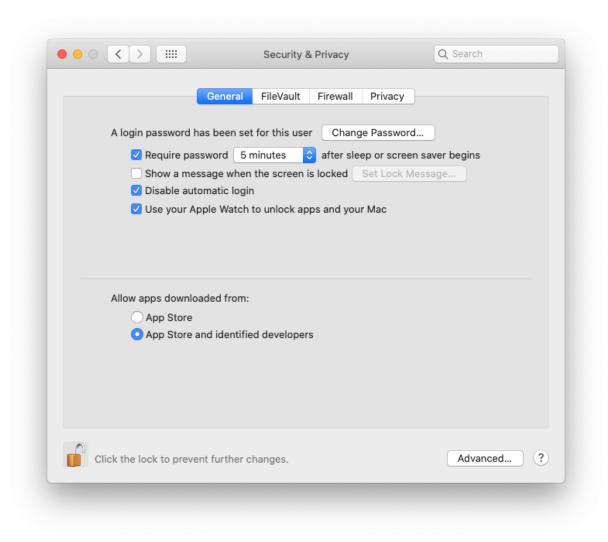
ODBC Driver for xBase is compatible with iODBC driver manager.

In case when using other ODBC driver managers, ODBC Driver for xBase will be installed, but it will require manual modification of configuration files of these managers.

Installing ODBC Driver for xBase

- 1. Go to Security & Privacy settings in the System Preferences.
- 2. Enable the App Store and identified developers option in the Allows apps downloaded

from section.



Note: If the options in **Allow apps downloaded from** section are grayed out, click on the lock icon and enter your administrator password to proceed with the installation.

- 3. <u>Download</u> the PKG file from the Devart website.
- 4. Run the downloaded file, press the Allow button to proceed with the installation.

	Welcome to the Devart ODBC Driver for xBase Installer
Introduction	This will install Devart ODBC Driver for xBase 1.3.4 on your computer.
Read Me	WARNING: This program is protected by copyright law and international
License	treaties
Registration	
Destination Select	
Installation Type	
Installation	
Summary	
	Go Back Continue

5. After reading the license agreement, click Agree.

	Sector Contraction		
	To continue installing the software you must agree to the terms of the software license agreement.		
 Intr 	Click Agree to continue or click Disagree to cancel the installation and		
Rea	quit the Installer.		
• Lic	MS		
 Reg 	Read License Disagree Agree		
De			
	ation Type INTRODUCTION		
 Install 	ation This Devart end-user license agreement ("Agreement") is a legal		
 Summ 	ary agreement between you (either an individual person or a single legal entity) and Devart, for the use of the ODBC Driver software application, demos, intermediate files, printed materials, and online or electronic documentation contained in this installation file. For the purpose of this Agreement, the software program(s) and supporting documentation will be referred to as the "Software".		
	LICENSE		
	Print Save Go Back Continue		

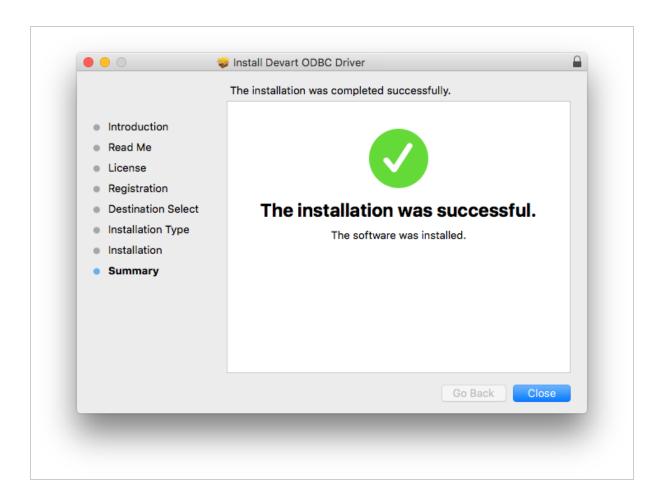
- 6. In the License Information dialog box, you should select the license type and activate the product. If you have no activation key, you can select Trial and use the driver for evaluation purposes.
- 7. If you have an activation key, select the Activation Key option. Copy the activation key from the registration email or your Customer Portal account and paste it into the Activation Key edit box.

		Registration	
•	Introduction	License information	
•	Read Me	Please enter the path to the file containing the activation key received when purchasing the product. If you have no	
•	License	activation key, select Trial Version.	
	Registration	◯ Trial	
	Destination Select	 Activation Key 	
	Installation Type	d1a5baFDhafk65HdrnfbvvncnveTR4i1+GDVFC465furdxawBNNVCru	
	Installation	bbv3546ifa657litkbbhuvDFaHrte2965+/gvcfxfxtrd23nmbCVBrut/ q1f2b7==chhfvrttviXcvRfyurxawRThqbvyyuTrwo09/65iiTR4BNNVCrb	
	Summary	bv4567kiiquuvbh	
		Load Activation Key	
		Go Back Continue	
		Go Back Continue	

8. If you have the activation key file, click the Load Activation Key button and browse to it.

< >		• • • • •	Q. Search
Favorites			
AirDrop			
iCloud Drive	~	TXT	
All My Files	test	Activation.txt	
Applications			
C Desktop			
🖺 Documents			
Downloads			
Devices			
Remote Disc			
Shared			
server			
All			

9. To complete the installation click Continue, then Install buttons.



To activate the driver, perform the steps described in the **Product Activation** article.

See also:

- Installation on Windows
- Install Linux DEB package
- Install Linux RPM package

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3.1.4 Linux DEB

Prerequisites

ODBC Driver for xBase works under control of an ODBC driver manager. ODBC driver manager is not distributed along with our driver and must be installed separately.

<u>ODBC Driver for xBase</u> is compatible with <u>UnixODBC</u> driver manager. You can install the unixODBC driver manager using the command below:

sudo apt-get install odbcinst1debian2 libodbc1 odbcinst unixodbc

In case when using other ODBC driver managers, ODBC Driver for xBase will be installed, but it will require manual modification of configuration files of these managers.

Installation

Let's consider how to install the Devart ODBC driver on Linux from a DEB package, for example, on Ubuntu. There are two ways to install the driver either manually or via the command line.

GUI installation

- 1. <u>Download</u> the DEB package of the required bitness from the Devart website.
- Navigate to the folder with the downloaded package ("Downloads" by default) and doubleclick it.
- 3. In the opened dialog, click the **Install** button.

devartodbcxbase
rtodbcxbase
vel of functionality and performance in data access via ODBC
stall
BC Driver for xBase provides a high-performance and feature-rich connectivity solution for ODBC- lications to access FoxPro, Visual FoxPro, dBase, and other databases in DBF file formats from macOS, Linux, both 32-bit and 64-bit. Full support for standard ODBC API functions and data types ted in our driver makes interaction of your database applications with xBase fast, easy and handy.
Site
.0.1
Jnknown
1,4 MB
3rd party
This software comes from a 3rd party and may contain non-free components.

4. If the installation is successfully completed, the Install button changes into the Remove

one.

Command-line installation

1. <u>Download</u> the DEB package from the Devart website.

By default the required package will be downloaded into the ~/Downloads folder (or the selected one);

- 2. Run the 'Terminal' program;
- 3. Navigate to the folder with the downloaded package cd ~/Downloads (if you downloaded

the package into another folder, you need to specify the path to this folder as the cd

command parameter):

cd ~/Downloads/

test@ubuntu:~\$ cd ~/Downloads/
test@ubuntu:~/Downloads\$

4. To install the devartodbcxbase_i386.deb on a 32-bit system, use the following command:

```
sudo dpkg -i devartodbcxbase_i386.deb
```

```
test@ubuntu:~$ cd ~/Downloads/
test@ubuntu:~/Downloads$ sudo dpkg -i devartodbcxbase_i386.deb
```

5. To install the devartodbcxbase_amd64.deb on a 64-bit system, use the following

command:

```
sudo dpkg -i devartodbcxbase_amd64.deb
```

test@ubuntu:~\$ cd ~/Downloads/
test@ubuntu:~/Downloads\$ sudo dpkg -i devartodbcxbase_amd64.deb

6. Driver is installed successfully.



To activate the driver, perform the steps described in the Product Activation article.

See also:

- Install Linux RPM package
- Installation on Windows

Installation on macOS

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3.1.5 Linux RPM

Prerequisites

<u>ODBC Driver for xBase</u> works under control of an ODBC driver manager. ODBC driver manager is not distributed along with our driver and must be installed separately.

ODBC Driver for xBase is compatible with UnixODBC driver manager.

In case when using other ODBC driver managers, ODBC Driver for xBase will be installed, but it will require manual modification of configuration files of these managers.

Installation

Let's consider how to install the Devart ODBC driver on Linux from an RPM package, for example, on CentOS. To install the driver, you should download the .rpm package and install it via the command line. See the detailed description of these steps below:

1. <u>Download</u> the RPM package from the Devart website.

By default the required package will be downloaded into the ~/Downloads folder (or the selected one);

- 2. Run the 'Konsole' program;
- 3. Navigate to the folder with the downloaded package cd ~/Downloads (if you downloaded

the package into another folder, you need to specify the path to this folder as the cd

command parameter):

cd ~/Downloads/

[test@centos7x64 ~]\$ cd ~/Downloads/ [test@centos7x64 Downloads]\$ 📕 4. To install the devart-odbc-xbase.i386.rpm on a 32-bit system, use the following command::

```
sudo rpm -ivh devart-odbc-xbase.i386.rpm
```

[test@localhost ~]\$ sudo rpm -ivh devart-odbc-xbase.i386.rpm

To install the devart-odbc-xbase.x86_64.rpm on a 64-bit system, use the following command::

```
sudo rpm -ivh devart-odbc-xbase.x86_64.rpm
```

```
[test@centos7x64 ~]$ cd ~/Downloads/
[test@centos7x64 Downloads]$ sudo rpm -ivh devart-odbc-xbase.x86_64.rpm 📕
```

5. Driver is installed successfully.



To activate the driver, perform the steps described in the Product Activation article.

See also:

- Install Linux DEB package
- Installation on Windows
- Installation on macOS

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3.2 Product Activation

See how to activate Devart ODBC Driver for xBase :

- Obtaining Activation Key
- <u>Activation on Windows</u>
- Activation on macOS
- <u>Activation on Linux</u>
- Where to see the license information

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3.2.1 Obtaining Activation Key

To obtain a product activation key, follow these instructions:

- 1. After purchasing the license, you receive a registration email to the email address, specified when ordering the product.
- This email contains a Driver Activation Key and Login Credentials for the <u>Customer Portal</u>. Keep this information secret.
- 3. You can copy the Activation Key either from the registration email or at the Customer Portal account.
- 4. To login to the Customer Portal, use your Username and Password from the registration email.
- 5. To obtain your Activation Key, click the View link on the right. You will get the following dialog box:

Activation Key	X
u1w7jC0D8NGAE0FqbNzjuTAToDjv/qLNmIX/heuy+kt2Yi5V39cp3 MhlQfslLhFJgr6hQWxTEmuz1Ji+lQycFEPkmX+Z5YQPXt7e5xqM 93Ee03mqH6a9wJ9fSQXuKK8zPlxDl81to5ff5vmppjL8EXvlaOkPf r64rzGQxuk5jd0NfxzeykQ==	/IUSHsUdPjVsKfs
	COPY TO CLIPBOARD CLOSE

6. Copy the Activation Key with the Copy to Clipboard button.

See also:

- Activation on Windows
- Activation on macOS
- Activation on Linux

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3.2.2 Activation on Windows

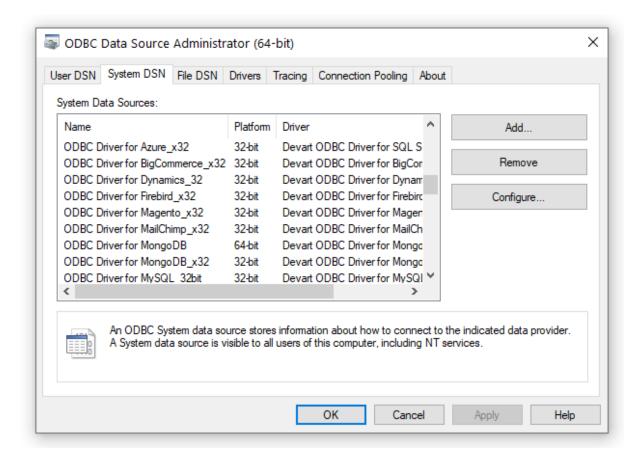
Driver Activation After Installation

To activate your installed driver using ODBC Administrator, perform the following steps:

1. Run ODBC Administrator.



2. In the System DSN tab click the Add button.



3. In the appeared dialog box, select the installed driver, click Finish.

Create New Data Sourc	e	×
	Select a driver for which you want to set up a data Name Devart ODBC Driver for BigCommerce Devart ODBC Driver for Dynamics CRM Devart ODBC Driver for FreshBooks Devart ODBC Driver for FreshBooks Devart ODBC Driver for Google BigQuery Devart ODBC Driver for InterBase Devart ODBC Driver for InterBase Devart ODBC Driver for Magento	a source.
	< Back Finish	Cancel

4. In the Driver Configuration dialog box, on the License tab, click the Input Activation Key button.

Devart O	DBC Driver Config	uration		×
General	Advanced Settings	License	About	
License	Information:			
Trial po 30 da	eriod: iys left			
				•
Inpu	t Activation Key			
Test C	onnection		ОК	Cancel

5. Copy the activation key from the registration email carefully and paste it into the Input

Activation Key edit box.

Input Activation Key	×
Activation Key:	
u 1w7jR0D8BGAE0FqbNzjuTAToGjv/qLNmIX/heuy+ktSp u 1w7jC0D8NGAE0FqbNzjuTgToDjv/qLNmIX/heuy+ktl5 97E 103mqH6a5wJ9fSQXuKK8zPlxDI8 1to5ff5vmppjL8E a9lBZh4EhVBtA/pR 1HWLZSXZ8k0oJ2Cx7gGy/v1XhiknLl wZSMN5rH7995OxNjFvtZ1FnMsC74sclOujgWQ6R6dXs	1N4ZZgxWh2jNjXwrfJS XvIaOkPRh4araau9UfK RK2LsbLNLP6mbxBC2gn
Load Key	OK Cancel

6. If you have the activation key file, click the Load Key button and browse to it.

7. Click OK.

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3.2.3 Activation on macOS

Driver Activation After Installation

If you don't activate your driver during installation, you can activate it later by following the steps:

- 1. Create a file with the "activation.key" name.
- 2. Copy the activation key from the registration email or your Customer Portal account and

paste it into the created file.

3. Place the "activation.key" file into the folder where the driver was installed (for Devart

ODBC Driver for xBase it is /Library/ODBC/Devart/xBase by default).

See also:

- <u>Activation on Windows</u>
- Activation on Linux

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3.2.4 Activation on Linux

Driver Activation After Installation

If you did not activate the driver during installation, you can activate it later:

- 1. Create a file with the "activation.key" name.
- 2. Copy the activation key from the registration email or your Customer Portal account and paste it into the created file.
- 3. Place the "activation.key" file into the folder where the driver was installed:

- for the DEB package of Devart ODBC Driver for xBase, it is */usr/share/devart/odbcxbase* by default;

- for the RPM package of Devart ODBC Driver for xBase, it is */usr/local/devart/odbcxbase* by default.

See also:

- Activation on Windows
- <u>Activation on macOS</u>

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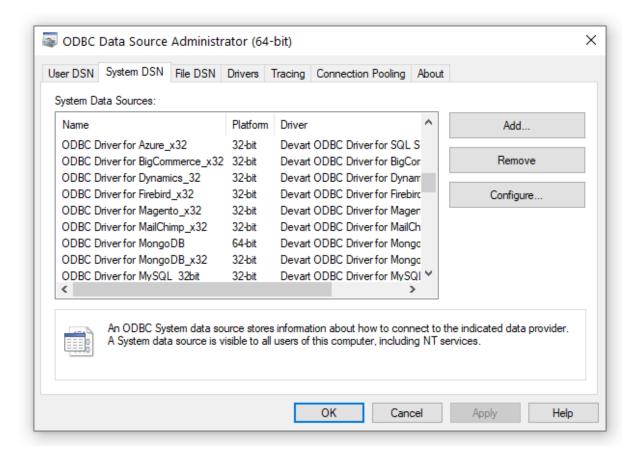
3.2.5 Where to See the License Information

To see the license information of your installed driver, do the following:

1. In the Control Panel run ODBC Administrator



2. Open the System DSN tab and click the Add button



3. Select the driver and click Finish

Create New Data Source	Select a driver for which you want to set up a data sourc	
	Name Name Devart ODBC Driver for BigCommerce Devart ODBC Driver for Dynamics CRM Devart ODBC Driver for Firebird Devart ODBC Driver for Firebind Devart ODBC Driver for FirebBooks Devart ODBC Driver for FreshBooks Devart ODBC Driver for For Google BigQuery Devart ODBC Driver for InterBase Devart ODBC Driver for Magento Devart ODBC Driver for Magento	~
	< Back Finish Cance	el l

4. In the appeared dialogue, select the License tab

Devart (DBC Driver Config	uration		×
General	Advanced Settings	License	About	
License	Information:			
Trial p 30 da	eriod: ays left			
Inpu	t Activation Key			•
Test C	onnection		ОК	Cancel

See also

• Product Activation

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3.3 Connecting to xBase

See how to connect the Devart ODBC Driver for ODBC Driver for xBase:

- Windows DSN Configuration
- macOS DSN Configuration
- Linux DSN Configuration

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3.3.1 Windows

Windows DSN Configuration

After installing the driver, create a DSN for xBase in the ODBC Data Source Administrator.

1. Open the ODBC Data Source Administrator.

- Type ODBC Data Sources in the Windows search box and choose the application that matches the bitness of the third-party application (32-bit or 64-bit). You can also open
 ODBC Data Sources from Control Panel > Administrative Tools. Note that before Windows 8, the icon was named Data Sources (ODBC).
- Alternatively, you can run C:\Windows\SysWOW64\odbcad32.exe to create a 32-bit DSN or C: \Windows\System32\odbcad32.exe to create a 64-bit DSN.
- 2. Select the **User DSN** or **System DSN** tab. Most applications work with both types, yet some applications require a specific type of DSN.
- 3. Click Add. The Create New Data Source dialog will appear.
- 4. Select **Devart ODBC Driver for ODBC Driver for xBase** and click **Finish**. The driver setup dialog will open.
- 5. Enter the connection information in the appropriate fields.

Devart (DDBC	Drive	r for xBa	se Config	guration	ı	×
General	al Advanced settings License About						
Data So Descrip		lame		ODBC Dri ODBC Dri			
Databa	se	C:\M	yDataba	se\			
File form	nat	Visua	FoxPro		~		
Test C	onnec	tion]		[ОК	Cancel

- 6. You may test the connectivity by clicking **Test Connection**.
- 7. Click **OK** to save the DSN.

See Also

Connection Options

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3.3.2 Mac

macOS DSN Configuration

After the driver is <u>installed</u>, DSN with the name DEVART_XBASE is created. You can use it to test a <u>connection with XBASE</u> server. For this, perform the following steps:

1. Run the iODBC utility of the required bitness. Find the DEVART_XBASE section and click the Configure button:

User DSN	System DSN	File DSN	ODBC Drivers	Connection Pooling	Tracing	Abou
System Data	Sources					
Name		Description	Driver			Add
DEVART_FIF	EBIRD	-	Devart ODE	C Driver for Firebird		
DEVART_IN	TERBASE	-	Devart ODE	BC Driver for InterBas	e Re	emove
DEVART_MO	ONGODB	-	Devart ODE	C Driver for MongoD	B	nfigure
DEVART_M		-		C Driver for MySQL	0	ningure
DEVART_OR		-		3C Driver for Oracle		
_	STGRESQL	-		C Driver for Postgre		T
DEVART_RE		-		C Driver for Amazon	R	Test
DEVART_SG		-		BC Driver for SQL Azu	ır€	
DEVART_SG		-		C Driver for SQLite		
DEVART_SG		-		C Driver for SQL Ser	VE	
DEVART_XB	ASE	-	Devart ODE	C Driver for xBase		
	em Data Sourc ce connection		systems-wide OD	BC Data Names that res		
_	_	_	_	Can	cel	OK

2. In the appeared dialog, specify the required connection settings and click OK.

Data Source Name	e (DSN) DEVART_XBASE
Comment	
Keyword	Value
DBFFormat	VisualFoxPro
CodePage	Default
ConnectMode Database	Shared /Users/test/Documents/MyDatabase/
+ -	

3. Now click the Test button to establish a test connection to your data source.

User DSN	System DSN	File DSN	ODBC Drivers	Connection Pooling	Tracing	About
System Data	Sources					
Name		Description	Driver			Add
DEVART_FIR	EBIRD	-	Devart ODE	BC Driver for Firebird		
DEVART_INT	TERBASE	-	Devart ODE	3C Driver for InterBas	e Re	emove
DEVART_MC	ONGODB	-	Devart ODE	BC Driver for MongoD		
DEVART_MY	(SQL	-	Devart ODE	BC Driver for MySQL	Co	nfigure
DEVART_OR	ACLE	-	Devart ODE	BC Driver for Oracle		
DEVART_PO	STGRESQL	-	Devart ODE	BC Driver for Postgres	sc	
DEVART_RE	DSHIFT	-	Devart ODE	3C Driver for Amazon	R	Test
DEVART_SQ	LAZURE	-	Devart ODE	BC Driver for SQL Azu	ıre	
DEVART_SQ	LITE	-	Devart ODE	BC Driver for SQLite		
DEVART_SQ	LSERVER	-	Devart ODE	BC Driver for SQL Ser	ve	
DEVART_XB	ASE	-	Devart ODE	BC Driver for xBase		
	em Data Source ce connection i		systems-wide OD	DBC Data Names that res	olve to Dat	a
				Can	cel	ОК

See Also

Connection Options

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3.3.3 Linux

Linux DSN Configuration

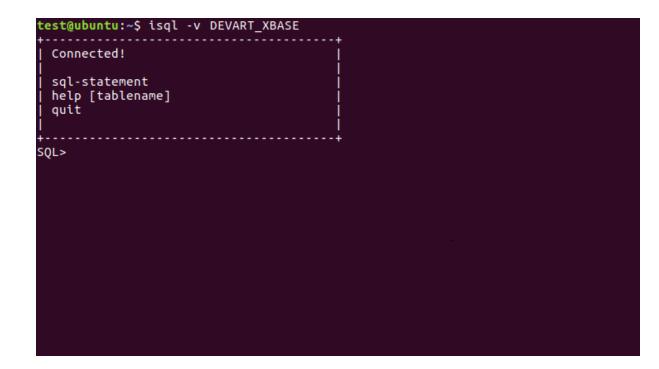
After the linux (DEB or RPM) driver is installed, a DSN with the name DEVART_XBASE is created. You can use it to test the connection with the XBASE server. For this, perform the following steps:

1. Open the odbc.ini file located in the /etc folder. Find the DEVART_XBASE section and specify the required connection settings:

Database=<the path to the folder that contains the database files> Format=<the used DBF format>

2. Run the UnixODBC Test Command utility and test a connection using the following command:

isql -v DEVART_XBASE



See Also

 Connection Options

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3.4 Connection String Parameters

FoxPro, dBase, Clipper ODBC Connection String Parameters

The following table lists the connection string parameters for FoxPro2, VisualFoxPro, dBase, Clipper, and other DBF formats.

Paramet Description

er	
AllFieldsAs Nullable	Used to open DBF tables with incorrect data (tables that have records with null values in non-nullable columns). The default value is False.
Allow NULL strings Empty strings as NULL Database DBF Format	To retrieve metadata, some parameters do not accept NULL values, and an exception is raised if a NULL value is passed. Enable these options for compatibility with those 3rd-party tools that pass NULL values to the parameters. Used to specify the folder in which the database files are located. Used to specify the default database format that will be used when creating new tables and working with indexes. Available values: Auto, dBaselll, dBaselV, dBaseV, dBaseVII, FoxPro2, VisualFoxPro, HiPerSix, Codebase and Clipper. Default value is Auto. When using Auto, for each
	separate table, the format is detected by its DBF file header. For any other values, DBF file header will be ignored. The format from the DBFFormat value will be forced used for all tables in the folder.
Code Page	Used to specify a code page when working with a database. Available values: Default, UnitedStatesOEM, GreekDOS, WesternEuropeanDOS, TurkishDOS, CentralEuropeanDOS, PortugueseDOS, IcelandicDOS, FrenchCanadianDOS, NordicDOS, CyrillicDOS, Thai, Japanese, ChineseSimplified, ChineseTraditional, Korean, CentralEuropeanANSI, CyrillicANSI, WesternEuropeanANSI, GreekANSI, TurkishANSI, HebrewANSI, ArabicANSI and BalticANSI. Default value is Default.
Connect Mode	Used to specify how applications access DBF table files. Exclusive Only one application can access the table file at a time. The active application holds read/write lock on the file to prevent other applications from reading or writing to it. Shared

	The default value. Multiple applications can concurrently read/write to the
	same table. The active application holds read/write lock on the table file,
	but releases the lock once it has finished reading or writing the data.
	Unsafe
	Multiple applications can concurrently read and write to the table file. This
	mode should be used with caution because it allows multiple applications
	to modify the file simultaneously. Since DBF databases do not support
	transactions, an attempt to change the same file simultaneously by
	multiple application can cause data corruption in the table file.
lgnoreBroke	If set to True, corrupted tables in the directory will be ignored, and an
nTables	exception won't be raised. The default value is False.
lgnoreDataE	If set to True, corrupted data errors will be ignored when opening a DBF
rrors	table, and an exception won't be raised. The default value is False.
lgnoreIndex	If set to True, errors in database indexes will be ignored when opening a
Errors	DBF table, and an exception won't be raised. The default value is False.
lgnoreMetad	If set to True, metadata errors will be ignored when opening a DBF table,
ataErrors	and an exception won't be raised. The default value is False.
	Specifies a mechanism of indexing when fetching tables data. Available
	values: Native and Local. When set to Native, the driver will use standard
	DBF index (if the one exists) when fetching data. When set to Local, the
IndexOnRea	driver will use its internal data indexing mechanism. Internal indexing has
ding	much more performance than native indexes, especially when performing
ung	complex queries against many tables. But note, that in this case a native
	index if it is present for a table, won't be updated when the table data
	changed (for example, when a UPDATE statement executed). So, it is
	recommended to use Local indexing only for querying data.
	Used to set the behavior corresponding to the ODBC specification
ODBC Bobayior	version that a third-party tool expects. The behavior of ODBC driver can
Behavior	be changed by setting a value for the SQL_ATTR_ODBC_VERSION
L	

	attribute by calling the SQLSetEnvAttr function. But some third-party tools
	expect the driver to exhibit ODBC 2.x behavior, but forget to call
	SQLSetEnvAttr with the specified version or pass an incorrect value there.
	In this case, the required behavior can be explicitly specified in the
	Connection String by setting the ODBC Behavior parameter. The possible
	values are:
	 Default - default ODBC behavior determined by a third-party tool.
	 Ver 2.x - ODBC 2.x behavior is explicitly set.
	 Ver 3.x - ODBC 3.x behavior is explicitly set.
RegionalNu mberSetting s	Enables the use of local regional settings when converting numbers to strings.
RegionalDat	Enables the use of local regional settings when converting dates and
eTimeSettin	times to strings.
gs	
	Sets the string value types returned by the driver as Default, Ansi or
	Unicode.
	 Default - the driver defines the string types.
	 Ansi - all string types will be returned as SQL_CHAR, SQL_VARCHAR
String Types	and SQL_LONGVARCHAR.
	 Unicode - all string types will be returned as SQL_WCHAR,
	SQL_WVARCHAR and SQL_WLONGVARCHAR.
	The parameter value should be changed if any third-party tool supports
	only Ansi string types or Unicode ones.
	1

xBase ODBC Connection String sample

DRIVER={Devart ODBC Driver for xBase};Database=C:\MyDatabase\;DBF
Format=VisualFoxPro;Code Page=UnitedStatesOEM;Connect

Mode=Exlusive © 2015-2024 Devart. All Rights Request Support ODBC Forum Provide Feedback Reserved.

3.5 Sandboxed Apps on macOS

Sandboxed Apps on macOS

Sandboxed applications don't have permission to access iODBC Driver Manager on macOS. This is caused by the System Integrity Protection (SIP) technology on macOS which protects your files and folders from potentially malicious software by locking the application. When accessing a data source from an application like Excel through the <u>ODBC driver for xBase</u>, you may get an error message saying that the driver is unable to create a file.

Note that all third-party applications distributed through the Mac App Store are sandboxed.

Disabling System Integration Protection (SIP) on macOS

To resolve the issue, you should turn off SIP on your computer:

- 1. Restart your computer in **Recovery mode** (hold down **Command + R** until you see the Apple logo).
- 2. Select Utilities > Terminal.
- 3. In the Terminal window, enter csrutil disable.

```
Terminal — -bash — 80×24

      [-bash-3.2# csrutil disable

      Successfully disabled System Integrity Protection. Please restart the machine for

      r the changes to take effect.

      -bash-3.2# reboot
```

- 4. Restart your computer.
- 5. Enter csrutil status to check the status of SIP.

tests-imac-2:~ test\$ csrutil status System Integrity Protection status: disabled. tests-imac-2:~ test\$

Enable SIP after you finish working with an ODBC data source. To turn on SIP, enter csrutil enable and restart your computer.

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3.6 Using with iODBC

Using the Driver with iODBC

Among known issues with iODBC driver manager is incorrect handling of the following ODBC data types:

- SQL_WCHAR
- SQL_WVARCHAR
- SQL_WLONGVARCHAR

For this reason, we recommend using the following data types instead:

- SQL_CHAR
- SQL_VARCHAR
- SQL_LONGVARCHAR

If you have to work with the SQL_WCHAR, SQL_WVARCHAR, and SQL_WLONGVARCHAR data types, we recommend that you use the unixODBC driver manager rather than iODBC.

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3.7 Enabling ODBC Tracing

Creating an ODBC Trace Log on Windows

When you start or stop tracing in the 64-bit ODBC Administrator, the tracing is also enabled or disabled in the 32-bit ODBC Administrator, and vice versa.

If the ODBC client application you need to trace runs under Local System account or any other user login than your own, select Machine-Wide tracing for all user identities. For example, this option may be necessary for SSMS.

To generate a trace file using ODBC Source Administrator on Windows, follow the steps below.

- 1. Type ODBC Data Sources in the Windows 10 search box (in earlier versions of Windows, open Control Panel > Administrative Tools) and choose the application of the needed bitness.
- 2. Select the Tracing tab.
- 3. If necessary, change the default Log File Path. Make sure that the path is writable by the application, then click Apply.
- 4. Click Start Tracing Now.
- 5. Restart all application processes.
- 6. Click Test Connection in the DSN settings to make sure the driver is able to connect.
- 7. Reproduce the issue.
- 8. Click Stop Tracing Now On the Tracing tab.
- 9. Send us the obtained log file (for example, devart.log).

Creating an ODBC Trace Log on macOS

To enable the trace option on macOS, use the Tracing tab within ODBC Administrator.

- 1. Open the ODBC Administrator.
- 2. Select the Tracing tab.
- 3. If necessary, change the default Log file path.
- 4. Select All the time in the When to trace option.

Creating an ODBC Trace Log on Linux

To trace the ODBC calls on Linux, set the Trace and TraceFile keyword/value pairs in the [ODBC] section of the /etc/odbcinst.ini file, for example:

[ODBC] Trace=Yes TraceFile=/home/test/devart.log

Make sure to disable logging after obtaining a log file since it affects the read/write speed.

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3.8 Supported Data Types

Data Type Mapping

The Devart ODBC Driver for xBase supports all xBase data types.

The following table describes how the xBase data types are mapped to the ODBC data types.

xBase Data Types	ODBC Data Types
CHAR	SQL_CHAR
VARCHAR	SQL_VARCHAR
MEMO	SQL_WVARCHAR
INTEGER	SQL_INTEGER
BIGINT	SQL_BIGINT
DOUBLE	SQL_DOUBLE
FLOAT	SQL_REAL
NUMERIC	SQL_NUMERIC
LOGICAL	SQL_BIT
DATE	SQL_TYPE_DATE
TIME	SQL_TYPE_TIME
DATETIME	SQL_TYPE_TIMESTAMP

VARBINARY		SQL_VARBINAR	Y
BLOB		SQL_LONGVARBINARY	
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3.9 Supported ODBC API Functions

Supported ODBC Functions

The SQLGetInfo function returns information about the driver and data source. To find out whether a specific function is supported in the driver, call SQLGetFunctions.

For more information about the ODBC interface, see the ODBC Programmer's Reference.

ODBC Driver for xBase supports all deprecated functions for backward compatibility.

The following table lists the currently supported ODBC functions.

Function Name	Support	Standard	Purpose
	~		Obtains an
			environment,
SQLAllocHandle		ISO 92	connection,
			statement, or
			descriptor handle.
			Connects to a
	~		specific driver by
SQLConnect		ISO 92	data source name,
			user ID, and
			password.
	~		Connects to a
			specific driver by
SQLDriverConnect		ODBC	connection string or
			requests that the

			Driver Manager and
			driver display
			connection dialog
			boxes for the user.
			Obtains an
SQLAllocEnv	~	Deprecated	environment handle
			allocated from driver.
SQLAllocConnect		Deprecated	Obtains a
SQLAIDCCOTHECT	~	Deprecated	connection handle

ODBC API Calls for Obtaining Information about a Driver and Data Source

Function Name	Support	Standard	Purpose
SQLDataSources	~	ISO 92	Returns the list of available data sources, handled by the Driver Manager
SQLDrivers	~	ODBC	Returns the list of installed drivers and their attributes, handles by Driver Manager
SQLGetInfo	~	ISO 92	Returns information about a specific driver and data source.
SQLGetFunctions	~	ISO 92	Returns the functions supported by the driver.

			Returns information	
SQLGetTypeInfo	~	ISO 92	about supported	
			data types.	

ODBC API Calls for Setting and Retrieving Driver Attributes

Function Name	Support	Standard	Purpose
SQLSetConnectAttr	~	ISO 92	Sets a connection attribute.
SQLGetConnectAttr	~	ISO 92	Returns the value of a connection attribute.
SQLSetConnectOpti on	~	Deprecated	Sets a connection option
SQLGetConnectOpti on	~	Deprecated	Returns the value of a connection option
SQLSetEnvAttr	~	ISO 92	Sets an environment attribute.
SQLGetEnvAttr	~	ISO 92	Returns the value of an environment attribute.
SQLSetStmtAttr	~	ISO 92	Sets a statement attribute.
SQLGetStmtAttr	~	ISO 92	Returns the value of a statement attribute.
SQLSetStmtOption	~	Deprecated	Sets a statement option
SQLGetStmtOption	~	Deprecated	Returns the value of a statement option

Function Name	Support	Standard	Purpose
SQLAllocStmt	~	Deprecated	Allocates a statement handle
SQLPrepare	~	ISO 92	Prepares an SQL statement for later execution.
SQLBindParameter	~	ODBC	Assigns storage for a parameter in an SQL statement.
SQLGetCursorNam e	~	ISO 92	Returns the cursor name associated with a statement handle.
SQLSetCursorNam e	~	ISO 92	Specifies a cursor name.
SQLSetScrollOption s	~	ODBC	Sets options that control cursor behavior.

ODBC API Calls for Preparing SQL Requests

ODBC API Calls for Submitting Requests

Function Name	Support	Standard	Purpose
SQLExecute	~	ISO 92	Executes a prepared statement.
SQLExecDirect	~	ISO 92	Executes a statement
SQLNativeSql	~	ODBC	Returns the text of an SQL statement as

			translated by the driver.
			Returns the
SQLDescribeParam		ODBC	description for a
	~		specific parameter
			in a statement.
			Returns the number
SQLNumParams	~	ISO 92	of parameters in a
			statement.
		ISO 92	Used in conjunction
			with SQLPutData to
SQLParamData			supply parameter
	~		data at execution
			time. (Useful for long
			data values.)
			Sends part or all of a
SQLPutData		ISO 92	data value for a
	~	100 92	parameter. (Useful
			for long data values.)

ODBC API Calls for Retrieving Results and Information about Results

Function Name	Support	Standard	Purpose
SQLRowCount	~	ISO 92	Returns the number of rows affected by an insert, update, or delete request.
SQLNumResultCols	~	ISO 92	Returns the number of columns in the

			result set.
SQLDescribeCol	~	ISO 92	Describes a column
OQED COULDECON		150 92	in the result set.
			Describes attributes
SQLColAttribute	~	ISO 92	of a column in the
			result set.
			Describes attributes
SQLColAttributes	 ✓ 	Deprecated	of a column in the
			result set.
SQLFetch		ISO 92	Returns multiple
	~		result rows.
SQLFetchScroll		ISO 92	Returns scrollable
	~		result rows.
SQLExtendedFetch		Deprecated	Returns scrollable
	~		result rows.
			Positions a cursor
			within a fetched
			block of data and
SQLSetPos		ODBC	enables an
	~		application to refresh
			data in the rowset or
			to update or delete
			data in the result set.
			Performs bulk
			insertions and bulk
SQLBulkOperations	~ (ODBC	bookmark
			operations, including
			update, delete, and
			fetch by bookmark.

ODBC API Calls for Retrieving Error or Diagnostic Information

Function Name	Support	Standard	Purpose
SQLError	~	Deprecated	Returns additional error or status information
SQLGetDiagField	~	ISO 92	Returns additional diagnostic information (a single field of the diagnostic data structure).
SQLGetDiagRec	~	ISO 92	Returns additional diagnostic information (multiple fields of the diagnostic data structure).

ODBC API Calls for Obtaining Information About Database Objects (Catalog Functions)

Function Name	Support	Standard	Purpose
SQLColumnPrivileg es	~	ODBC	Returns a list of columns and associated privileges for one or more tables.
SQLColumns	~	X/Open	Returns the list of column names in

			specified tables.
			Returns a list of
			column names that
SQLForeignKeys	×	ODBC	make up foreign
			keys, if they exist for
			a specified table.
			Returns the list of
SQLPrimaryKeys		ODBC	column names that
	~		make up the primary
			key for a table.
			Returns the list of
			input and output
SQLProcedureColu			parameters, as well
mns	 ✓ 	ODBC	as the columns that
			constitute the result
			set for the specified
			procedures.
			Returns the list of
SQLProcedures		ODBC	procedure names
	•		stored in a specific
			data source.
			Returns information
			about the optimal set
			of columns that
SQLSpecialColumn		X/Open	uniquely identifies a
s			row in a specified
			table, or the columns
			that are
			automatically

			updated when any value in the row is updated by a transaction.
SQLStatistics	~	ISO 92	Returns statistics about a single table and the list of indexes associated with the table.
SQLTablePrivileges	~	ODBC	Returns a list of tables and the privileges associated with each table.
SQLTables	~	X/Open	Returns the list of table names stored in a specific data source.

ODBC API Calls for Performing Transactions

Function Name	Support	Standard	Purpose
SQLTransact	~	Deprecated	Commits or rolls back a transaction
SQLEndTran	~	ISO 92	Commits or rolls back a transaction.

ODBC API Calls for Terminating a Statement

Support	Standard	Purpose
~	ISO 92	Ends statement
	Support ✓	••

			processing, discards
			pending results, and,
			optionally, frees all
			resources
			associated with the
			statement handle.
			Closes a cursor that
SQLCloseCursor	~	ISO 92	has been opened on
			a statement handle.
SQLCancel		ISO 92	Cancels an SQL
	~		statement.

ODBC API Calls for Terminating a Connection

Function Name	Support	Standard	Purpose
SQLDisconnect	~	ISO 92	Closes the connection.
SQLFreeHandle	~	ISO 92	Releases an environment, connection, statement, or descriptor handle.
SQLFreeConnect	~	Deprecated	Releases connection handle.
SQLFreeEnv	~	Deprecated	Releases an environment handle.
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4 Using in Third-Party Tools

This section discusses how to use ODBC Driver for xBase with ODBC-compliant tools.

- DBeaver
- DBxtra
- Oracle Database Link
- <u>Microsoft Access</u>
- Microsoft Excel
- OpenOffice and LibreOffice
- PHP
- Power BI
- Python
- QlikView
- SQL Server Management Studio
- SSIS
- Tableau

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4.1 Using in DBeaver

DBeaver Overview

DBeaver is a free, open source multiplatform database management tool and SQL client for developers and database administrators. DBeaver can be used to access any database or cloud application that has an ODBC or JDBC driver, such as Oracle, SQL Server, MySQI, Salesforce, or Mailchimp. Devart DBeaver provides you with the most important features you'd need when working with a database in a GUI tool, such as:

• SQL queries execution

- Metadata browsing and editing
- SQL scripts management
- Data export/import
- Data backup
- DDL generation
- ER diagrams rendering
- Test data generation
- BLOB/CLOB support
- Database objects browsing
- Scrollable resultsets

The tool comes in two editions — Community and Enterprise. Enterprise Edition supports NoSQL databases, such as MongoDB or Cassandra, persistent query manager database, SSH tunneling, vector graphics (SVG) and a few other enterprise-level features. Note though that you can access a MongoDB database from DBeaver Community Edition using the respective Devart ODBC driver. For the purposes of this guide, we'll use the Community Edition of DBeaver to retrieve data from xBase via the Open Database Connectivity driver.

Creating an ODBC Data Source to Use xBase Data in DBeaver

- 1. Click the Start menu and select Control Panel.
- 2. Select Administrative Tools, then click ODBC Data Sources.
- 3. Click on the **System DSN** tab if you want to set up a DSN name for all users of the system or select **User DSN** to configure DSN only for your account.
- 4. Click the Add button and double-click Devart ODBC Driver for xBase in the list.
- 5. Give a name to your data source and set up the connection parameters.
- 6. Click the **Test Connection** button to verify that you have properly configured the DSN.

When using ODBC driver for xBase with DBeaver, SQL_WVARCHAR data types may be displayed incorrectly in DBeaver. To prevent this, you need to set the string data types to Ansi either in the **Advanced Settings** tab of the driver configuration dialog or directly in the

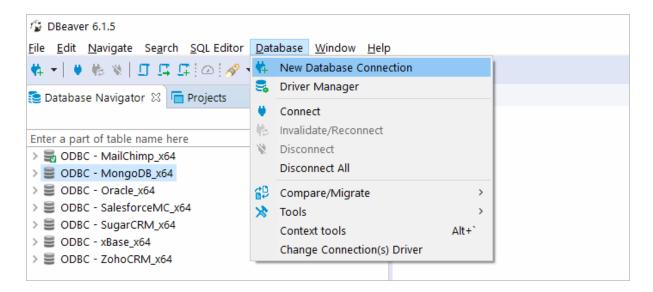
connection string (String Types=Ansi) — all string types will be returned as SQL_CHAR, SQL_VARCHAR and SQL_LONGVARCHAR.

Devart O	DBC Driver Co	onfiguration	Х
General	Advanced sett	ings License About	
Meta [Data	(trans array ar N.L. 2 Also N.L. array	
Conne	ction		
Carro	c Made	Nernal X	
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Carro	the Teenal	Press Put 1	
10.14	ALC: Name	200 C	
Compa	atibility		
ODBC	Behavior	Default \lor	
String	Types	Ansi (SQL_CHAR, SQL_VARCHAR, SQL_LONG ~	
	ocal Regional Se Imbers	ttings when converting to string	
Test Co	onnection	. OK Cance	1

Connecting to xBase Data from DBeaver via ODBC Driver for xBase

Follow the steps below to establish a connection to xBase in DBeaver.

1. In the Database menu, select New Database Connection.



2. In the Connect to database wizard, select ODBC and click Next.

Connect to database			×
Select your database			31)
ODBC bridge driver			
Type part of database/driver name to filter	G.	2 💷	Gallery
Name		#	^
S ODBC		7	
Apache Ignite			
> 🛼 AWS			
> 🔨 Azure			

3. Enter the previously configured DSN in the Database/Schema field.

1 Conne	ect to databa	ase					-			×
	DBC Conne onnection se		ettings							ODBC
General	Driver prop	perties	SSH	Proxy						
	JDBC URL:	jdbc:o	dbc:DBE/	AVER_DAT	ras	OURCE				
Databa	se/Schema:	DBEAV	ER_DATA	SOURCE						
1	User name:									
	Password:						Save p	asswo	rd loc	ally

4. Click Test Connection. If everything goes well, you'll see the Success message.

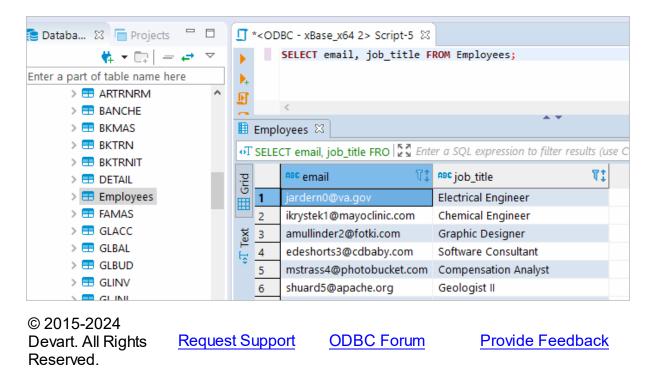
Viewing xBase Database Objects and Querying Data

You can expand out the database structure in DBeaver's **Database Navigator** to visualize all the tables in xBase database. To view and edit the data in a table, you need to right-click on the target table name and select **View data**. The content of the table will be displayed in the main workspace.

🚱 DBeaver 6.1.5 - Employees					
		D-4-1	and Monday, 11-	L-	
<u>File Edit Navigate Search SQL Edit</u>	or	Datat	base <u>w</u> indow <u>H</u> e	ip	
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Enter a part of table name here			15.2		
> 🚍 ARTRNRM \land		Empl	oyees 😰 Enter a S	QL expression to filte	er results (use Ctrl+Space)
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> 🚍 BKMAS	Grid	1	Janek	Ardern	jardern0@va.gov
> 🚍 BKTRN	▦	-			
> 🎫 BKTRNIT		2	Isis	Krystek	ikrystek1@mayoclinic.com
> 🚍 DETAIL	Text	3	Addy	Mullinder	amullinder2@fotki.com
> 🎫 Employees	÷	4	Eleen	Deshorts	edeshorts3@cdbaby.com
> = FAMAS	Ť	5	Missy	Strass	mstrass4@photobucket.com
> GLACC		6	Sigvard	Huard	shuard5@apache.org
> GLBAL		7	Dahlia	Lennard	dlennard6@webs.com

If you want to write a custom SQL query that will include only the necessary columns from the

table, you can select **New SQL Editor** in the **SQL Editor** main menu. Create your query and run it by clicking **Execute SQL Statement** to view the results in the same window.



4.3 Using in DBxtra

Troubleshooting xBase ODBC Connection in DBxtra

This page explains how to troubleshoot your ODBC connection to xBase in DBxtra.

Due to incompatibilities between DBxtra and xBase, leaving the sqL dialect property to its default might present various issues. To resolve compatibility issues, set the property to MS Access 2000/XP/2003 or ANSI sqL/2003 for DBxtra version 11.0.1 or newer, and to ANSI sqL/2003 for versions prior to 11.0.1.

OTE:		
	electing the Auto SQL dialect might present va	rious
	o SQL dialect with some database servers. t the right SQL dialect for your connection.	
Connection name	MyData	
Data source	DataSource1	
		Г
	~	
User		
Password		
Connection timeout	15 SQL dialect MS Access 2000/X	~
	Get columns descriptions	
lect Liser Groups wh	o can view this Connection	
Accounting		~
Controlling		
Guest Group		
]Legal]Management		
Manufacturing		
Marketing		
Purchasing		\mathbf{v}
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4.4 Using in Microsoft Access

Connecting Microsoft Access to xBase Using an ODBC Driver

This article explains how to connect Microsoft Access to xBase through the standard ODBC interface. Microsoft Access is a dababase management system that combines the relational database engine with a graphical user interface. Access can be used as a substitution for

spreadsheet applications like Excel to organize, store, and retrieve large amounts of related data that can be difficult to manage in spreadsheets.

In Microsoft Access, you can connect to your xBase data either by importing it or creating a table that links to the data. Devart ODBC drivers support all modern versions of Access. It is assumed that you have already installed and configured a DSN for ODBC driver for xBase. For the purpose of this article, we tested an <u>ODBC connection to xBase</u> through our ODBC drivers in Microsoft Access 2003, Microsoft Access 2007, Microsoft Access 2010, Microsoft Access 2013, Microsoft Access 2016, Microsoft Access 2019. The following steps describe how to use Microsoft Access 2019 to import or link to your data in xBase.

Importing xBase Data Into Microsoft Access Through an ODBC Connection

- 1. Open your Microsoft Access database.
- 2. Select the External Data tab in the ribbon.
- 3. Expand the **New Data Source** drop-down and select **From Other Sources**, then select **ODBC Dababase**.
- 4. In the **Get External Data ODBC Database** dialog box, select **Import the source data into a new table in the curent database**, and click **OK**.
- 5. In the **Select Data Source** dialog box, select the **Machine Data Source** tab.
- 6. Select the DSN that you have configured for xBase and click **OK**.
- 7. In the **Import Objects** dialog box, select the tables that you want to import, and click **OK**.
- 8. If the database objects have been successfully imported, you should the see the corresponding message in the dialog box. If you want to save the import steps to quickly repeat the process without using the wizard at a later time, select the Save import steps checkbox. Click Close.
- 9. The imported tables should appear in the **Tables** navigation pane on the left.

10.Double-click on the needed table to display its contents.

Linking to xBase Data in Microsoft Access Through an ODBC Connection

1. Open your Microsoft Access database.

- 2. Select the External Data tab in the ribbon.
- 3. Expand the **New Data Source** drop-down and select **From Other Sources**, then select **ODBC Dababase**.
- In the Get External Data ODBC Database dialog box, select Link to the data source by creating a linked table.
- 5. In the Select Data Source dialog box, select the Machine Data Source tab.
- 6. Select the DSN that you have configured for xBase and click OK.
- In the Link Tables dialog box, select the table or tables that you want to link to, and click OK.
- 8. The Select Unique Record Identifier dialog box will prompt you to choose a field or fields that uniquely identify each record in the table. To avoid inconsistencies, it is recommended to select the primary key in the xBase table as the unique record identifier. You are linking multiple tables, you will be prompted to select unique record identifiers for each of the selected tables.
- 9. The linked tables should appear in the **Tables** navigation pane on the left.

10.Double-click on the needed table to display its contents.

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4.5 Using in Microsoft Excel

Connecting to xBase from Microsoft Excel using ODBC Driver for xBase

You can use Microsoft Excel to access data from a xBase database using ODBC connector. With ODBC Driver, you can import the data directly into an Excel Spreadsheet and present it as a table. Make sure that you use matching Excel and ODBC Driver, e.g. if you have installed a 64-bit ODBC Driver, you will need to use the 64-bit version of Excel.

When working with Microsoft Excel, there are different ways of retrieving data from various data sources using our ODBC drivers.

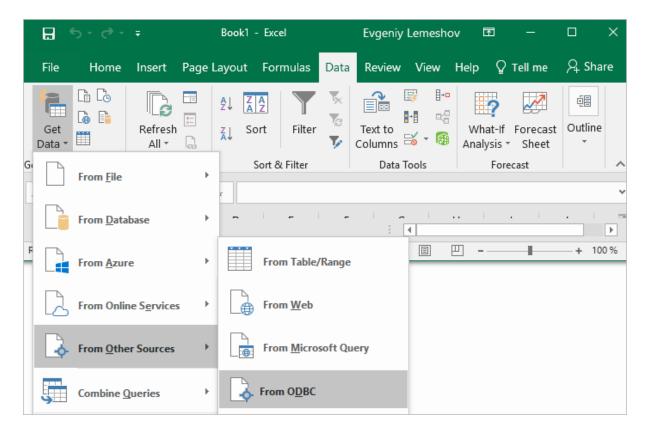
• Connecting Excel to xBase with Get & Transform (Power Query)

- Connecting Excel to xBase with Data Connection Wizard (Legacy Wizard)
- Connecting Excel to xBase with the Query Wizard
- <u>Connecting Excel to xBase with Microsoft Query</u>
- Connecting Excel to xBase with PowerPivot

Connecting Excel to xBase with Get & Transform (Power Query)

You can use Get & Transform (Power Query) to connect to xBase from Excel with ODBC. This method assumes that you've installed an ODBC driver for xBase.

 Click the Data in Excel, then expand the Get Data drop-down list. Click From Other Sources > From ODBC.



2. In the **From ODBC** dialog, choose your data source name (DSN). If you haven't configured your ODBC driver yet, you can expand the **Advanced Options** dialog box and enter the connection string for your data source (without credentials, which are defined in the

credentials dialog box in the next step). Additionally, you can enter an SQL statement that will be executed right after establishing a connection to the data source. Click **OK**.

From ODBC		
Data source name (DSN)		
Devart ODBC Driver	Ŧ	
Advanced options		
Connection string (non-cre	lential properties) (optional) 🕕	
Example: Driver={SQL Serv	er}; Server=(local); Database=Adventure Works	
QL statement (optional)	ase.MyTable;	
GQL statement (optional) SELECT * FROM MyDatab		
GQL statement (optional)		

3. If you're using a database username or password, select **Database** and enter your credentials in the dialox bog, then click **Connect**.

	ODBC driver	\times
Default or Custom	♦ dsn=Devart ODBC Driver	
Windows	Use a username and password to access a data source with an ODBC driver.	
Database	User name myusername	
	Password Credential connection string properties (optional) ① Back Connect Cancel	

If your database is not password-protected or you've already specified your credentials in the ODBC data source settings, select **Default or Custom** and press **Connect**

	ODBC driver	×
Default or Custom	♦ dsn=Devart ODBC Driver	
Windows	Don't specify any credentials or only connection string properties.	
Database	Credential connection string properties (optional) ①	
	Back Connect Cancel	

4. In the window that appears, select the table you want to retrieve data from, and click **Load**.

P	Employe	es			L.
	id	first_name	last_name	email	
C ₂	1	Janek	Ardern	jardern0@va.gov	
	2	Isis	Krystek	ikrystek1@mayoclinic.com	
^	3	Addy	Mullinder	amullinder2@fotki.com	
	4	Eleen	Deshorts	edeshorts3@cdbaby.com	
	5	Missy	Strass	mstrass4@photobucket.com	
	6	Sigvard	Huard	shuard5@apache.org	
	7	Dahlia	Lennard	dlennard6@webs.com	
	8	Liane	McPheat	Imcpheat7@jigsy.com	~
	9	Zollie	Verity	zverity8@thetimes.co.uk	
	~	id 1 1 1 1 1 1 1 1 2 3 4 5 6 7 8	id first_name 1 Janek 2 Isis 3 Addy 4 Eleen 5 Missy 6 Sigvard 7 Dahlia 8 Liane	id first_name last_name 1 Janek Ardern 2 Isis Krystek 3 Addy Mullinder 4 Eleen Deshorts 5 Missy Strass 6 Sigvard Huard 7 Dahlia Lennard 8 Liane McPheat	id first_name last_name email 1 Janek Ardern jardern0@va.gov 2 Isis Krystek ikrystek1@mayoclinic.com 3 Addy Mullinder amullinder2@fotki.com 4 Eleen Deshorts edeshorts3@cdbaby.com 5 Missy Strass mstrass4@photobucket.com 6 Sigvard Huard shuard5@apache.org 7 Dahlia Lennard dlennard6@webs.com 8 Liane McPheat Imcpheat7@jigsy.com

The data from the table will be a displayed in an Excel spreadsheet where you can further work with it.

	员	ه ، ه			Boo	k1 - Exce	2l		Evgen	iy Lemes	hov	T	—		×
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3	1	2 Isis	K	rystek	ik	rystek1	@mayoc	linic.co	m		Chemic	al En	gineer		
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8	-	7 Dahlia	Le	ennard	d	lennard	6@webs	.com			Clinical	Spe	cialist		
9	1	3 Liane	N	1cPheat	In	ncpheat	7@jigsy.	com			Registe	red I	Nurse		
10	9) Zollie	v	erity	Z١	/erity8@	thetime	es.co.u	k		Web De	esign	er III		
••	4) S	Sheet3	Sheet2	2 Sł	neet1	+		:	4]		•

Connecting Excel to xBase with Data Connection Wizard

(Legacy Wizard)

You can use this option to connect to OLE DB or ODBC external data source that has already been defined.

- 1. In Excel, go to the **Data** tab. Click **From Other Sources**, and then click **From Data Connection Wizard**.
- 2. In the opened dialog, select ODBC DSN and click Next to continue.
- 3. Now select a data source you want to connect to, and click Next.
- 4. To connect to the table containing the required data, select its name and click **Next** to enter and save information about your new file or click **Finish**.
- 5. In the **Import data** dialog, you can select the way your data will be viewed in Excel and the place where to put it in the worksheet, and click **OK**.
- 6. The required data is now displayed in the existing Excel worksheet.

Connecting Excel to xBase with the Query Wizard

You can use this option to create a simple query for retrieving data from xBase to Excel via ODBC driver.

- 1. Open Excel, in the main menu, click the **Data** tab.
- 2. Click the From Other Sources dropdown menu, and then click From Microsoft Query.
- 3. In the appeared dialog, you can choose the data source you want to connect to.
- 4. After a successful connection, you can select the data you want to be displayed in Excel and click **Next**.
- 5. The next two steps allow filtering and sorting the data. Click **Next** to skip these procedures.
- 6. If you plan to further use the query, you can save it by clicking the **Save** button on the right.
- 7. Select Return Data To Microsoft Excel and click Finish.
- 8. In the **Import data** dialog, you can select the way your data will be viewed in Excel and the place where to put it in the worksheet, and click **OK**.
- 9. The required data is successfully imported to Excel.

Connecting Excel to xBase with Microsoft Query

You can use this option to create a more complex query for retrieving xBase data to Excel via ODBC driver.

- 1. Start Excel, click the **Data** tab.
- 2. In the appeared ribbon, click From Other Sources, and then click From Microsoft Query.
- In the next dialog, choose the data source you want to connect to (e.g., using data source name - Devart ODBC xBase). Uncheck Use the Query Wizard to Create/Edit Queries and click OK.
- 4. Now you can select the tables you want to add to your query. When you finish, just click the **Add** button.
- 5. In the graphical editor, you can filter rows or columns of data, sort data, join multiple tables, create a parameter query, etc.

Connecting Excel to xBase with PowerPivot

You can use PowerPivot - an Excel add-in to perform data analysis and create complex data models. To load the required data, do the following:

- 1. In Excel, click the **PowerPivot** tab, then click **Manage** to go to the PowerPivot window.
- 2. In the opened window, click **From Other Sources**.
- 3. When the Table Import Wizard opens, select Others (OLEDB/ODBC) and click Next.
- 4. In the **Specify a Connection String** window, click the **Build** button.
- 5. In the **Data Link Properties** dialog, specify the data source you want to connect (e.g., using data source name Devart ODBC xBase), and then click **Next**.
- 6. Now you should choose how to import the data (either select a table from the list or write a query to specify the data to be imported).
- 7. When the Import operation succeeded, click the **Close** button. The retrieved data is inserted in the active worksheet.

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4.6 Using in SQL Server Management Studio

This section describes how to establish and troubleshoot a connection to xBase from SQL Server Management Studio using ODBC Driver for xBase.

- Creating a Linked Server
- Troubleshooting in SSMS

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4.6.1 Creating a Linked Server

Requirements

In order to avoid incorrect integration with MS SSMS, the working environment must meet the following conditions:

- The data source must be a configured system DSN. Refer to the <u>Driver Configuration</u> article to learn how to configure a System DSN
- The driver, studio, and SQL Server must be of the same bitness. For example, if you are using 64-bit SQL Server Management Studio on 64-bit Windows platform, then configure the 64-bit version of the driver using ODBC Administrator launched from %windir% \system32\odbcad32.exe. Otherwise, configure the driver using the 32-bit version of ODBC Administrator launch it from %windir%\SysWOW64\odbcad32.exe.
- ODBC Driver for xBase and SQL Server must be installed on the same computer.
- .NET Framework 4.5 must be installed on the computer.

Connecting to xBase from SQL Server Management Studio using ODBC Driver for xBase

You can use the Microsoft SQL Server Management Studio to connect your xBase data to an SQL Server instance. Linked Server is a tool of MS SQL Server that allows to execute distributed queries to refer tables stored on non-SQL Server datbase in a single query. With linked servers, you can execute commands against different data sources such as xBase and merge them with your SQL Server database. You can create a linked server with one of

these methods: by using the options in the Object Explorer or by executing stored procedures.

Below are major advantages of using SQL Server Linked Servers to connect to xBase:

- 1. The ability to connect other database instances on the same or remote server.
- 2. The ability to run distributed queries on heterogeneous data sources across the organization.
- 3. The ability to work with diverse data sources in the same way.

How to configure a SQL Server Linked Server to connect to xBase

You can follow the steps to create a linked server for xBase in SQL Server Management Studio by using Object Explorer:

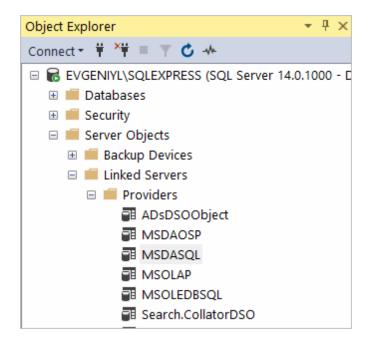
- 1. Start your Management Studio and choose your SQL Server instance.
- 2. In the **Object Explorer pane**, expand the **Server Objects**, right-click on **Linked Servers** and then click on **New Linked Server**.
- 3. Configure your linked server in the dialog box:
 - Give a name for your server in the Linked server field.
 - Under Server type, select Other data source .
 - Choose Microsoft OLE DB Provider for ODBC Drivers in the Provider drop-down list.
 - In the Data source field, enter the name of your DSN, e.g. Devart ODBC Driver for xBase. Alternatively, you can input the ODBC Driver connection string in the Provider field.

The linked server will appear under the Linked Servers in the Object Explorer Pane. You can now issue distributed queries and access xBase databases through SQL Server.

Retrieving Data From xBase

Ensure the **Allow inprocess option** of MSDASQL OLE DB Provider for ODBC Drivers is enabled. For this, find the **MSDASQL** provider in the list of Linked Servers and double-click on

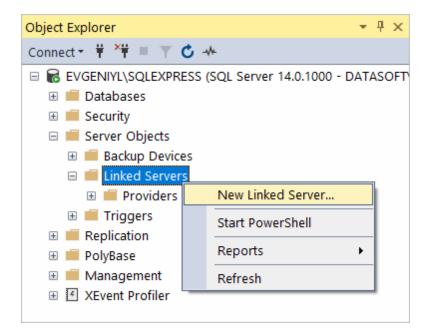
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In the appeared **Provider Options** window, enable the **Allow inprocess** checkbox:

Select a page General	🖵 Script 🔻 🕻	Help	
	Provider option	IS:	
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		Dynamic parameter	
		Nested queries	
		Level zero only	
		Allow inprocess	
		Non transacted updates	
		Index as access path	
		Disallow adhoc access	
		Supports 'Like' operator	~

Create a new Linked Server



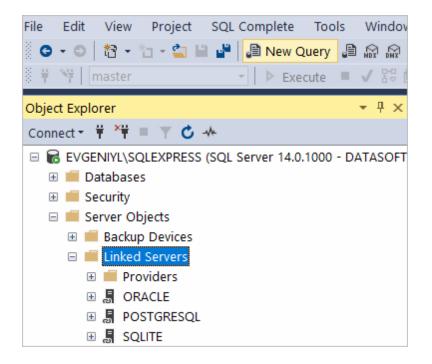
Make sure to select Microsoft OLE DB Provider for ODBC Drivers:

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	 SQL Server Other data source 			
	Provider: Product name:	Microsoft OLE DB Provider for ODBC Drivers		~
	Data source: Provider string:		 	
Connection	Location Catalog		 	

Now you need to input the Linked Server name, e.g. XBASE. In the Product Name and Data Source fields you need to indicate the System DSN that you've previously created - more info on System DSN setup can be found here.

쀪 New Linked Server		-	×
Select a page	🖵 Script 🔻 😮 Help		
 Security Server Options 	Linked server:	XBASE	
	Server type:		
	O SQL Server		
	Other data source		
	Provider:	Microsoft OLE DB Provider for ODBC Drivers	\sim
	Product name:	Devart ODBC Driver for xBase	
	Data source:	xBase	
	Provider string:		
	Location		
Connection	Catalog		

The xBase tables are already available to be fetched. To query the linked server, click **New Query** in the toolbar:



Enter your SQL query in the editor window and click **Execute** to run the query:

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E Catalogs	2	2	Isis	Krystek	ikrystek1@mayoclinic.com	Chemical Engineer	Victoria	
E = System Catalogs	3	3	Addy	Mullinder	amullinder2@fotki.com	Graphic Designer	Taiao	
□ □ D;\ib\xBaseDB	4	4	Eleen	Deshorts	edeshorts3@cdbaby.com	Software Consultant	Petrov	
Tables	5	5	Missy	Strass	mstrass4@photobucket.com	Compensation Analyst	Meilong	
Tubics	6	6	Sigvard	Huard	shuard5@apache.org	Geologist II	Chayek	
	7	7	Dahlia	Lennard	dlennard6@webs.com	Clinical Specialist	Cimunca	ng
B SALESFORCEMC	8	8	Liane	McPheat	Imcpheat7@jigsy.com	Registered Nurse	Bobrovka	а
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As a result, you can see the contents of the selected table retrieved directly from the xBase account you are connected to.

See also

<u>Troubleshooting SSMS</u>

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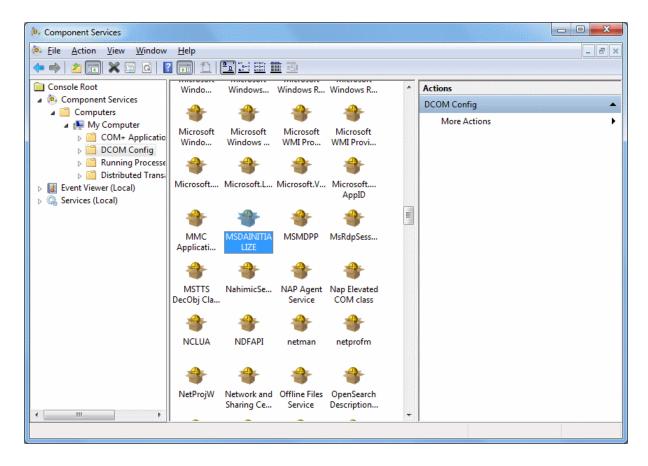
4.6.2 Troubleshooting in SSMS

When creating a linked server in SSMS, most errors happen due to security issues with DCOM class MSDAINITIALIZE. We need to alter the DCOM Class MSDAINITIALIZE security settings to make it work.

Following are the steps:

- 1. Open Component Services (Start>Run>DCOMCNFG)
- 2. Expand Component Services>Computers>My Computer>DCOM Config
- 3. From the list of DCOM components on the right side, select MSDAINITIALIZE and go to its

properties:



4. Go to the Security Tab, Choose 'Customize' and click on the 'Edit' Button:

MSDAINITIALIZE Properties	? ×
General Location Security Endpoints Identity	
Launch and Activation Permissions	
⊚ <u>U</u> se Default	
Oustomize	Edit
Access Permissions	
⊘ Use De <u>f</u> ault	
Oustomize	E <u>d</u> it
Configuration Permissions	
© Use Default	
Oustomize	Ed <u>i</u> t
Leam more about <u>setting these properties</u> .	
OK Car	ncel <u>A</u> pply

- 5. Add the Domain User who is accessing the linked server and 'Allow' all the permissions available (Local Launch, Remote Launch, Local Activation, Remote Activation). If you are connecting to SQL server using SQL account, you need to provide this permission to the account under which the SQL service is running.
- 6. Do this for all the 3 sections in the above screenshot.

To edit the Security settings, we followed the below steps:

- 1. Start > Run > Regedit
- 2. Find the Key: HKEY_LOCAL_MACHINE\SOFTWARE\Classes\AppID\{2206CDB0-19C1-11D1-89E0-00C04FD7A829}

3. Right Click>Permissions>Advanced>Owner Tab:

Advanced	Security Setting	s for {2206CDB0-19C	1-11D1-89E0-00C0	04FD7A829}		X
Permissions	Auditing Owner	Effective Permissions	1			
You can tal	ke or assign owner	ship of this object if you	have the required pe	ermissions or privile	eges.	
<u>C</u> urrent owr	ner:					
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Change <u>o</u> w	nerto:					
Name						
Admini	istrators (\Administrators)				
& 10,000	Productioning (R	and the second				
Other	users or groups					
Replace	owner on subcon	tainers and objects				
Learn abou	t object ownership					
				ОК	Cancel	Apply

- 4. Change the owner to Administrators.
- 5. Now, grant 'Full Control' to Administrators:

Permissions for {2206CDB0-19C	1-11D1-89E0-00	0C04F
Security		
Group or user names:		
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Special permissions		
For special permissions or advanced click Advanced.	settings,	Ad <u>v</u> anced
Learn about access control and per	missions	
ОК	Cancel	Apply

After this you should be able to edit MSDAINITIALIZE security settings .

See also

• Error message when you try to create an instance of an OLE DB provider in SQL Server: "Cannot create an instance of OLE DB provider"

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4.7 Using in OpenOffice and LibreOffice

Connecting to xBase from OpenOffice and LibreOffice using ODBC Driver for xBase

The article describes how to use Apache OpenOffice and LibreOffice to access ODBC data sources using the respective driver. You can access xBase data from Open Office Base or LibreOffice Base — desktop database management systems. Note that the Windows version of OpenOffice is 32-bit, and you may get the error "The specified DSN contains an architecture mismatch between the Driver and Application" when trying to access a data source through a 64-bit ODBC Driver. To get rid of the error message, set up the 32-bit version of the driver.

To connect to an ODBC data source from OpenOffice or LibreOffice using our <u>driver for</u> <u>xBase</u>, perform the steps below:

1. Start OpenOffice or LibreOffice, click **Database** to open the **Database Wizard**.

OpenOffice	[™] 4
Text Document	Drawing
Spreadsheet	D <u>a</u> tabase
Presentation	Formula
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Alternatively, you can launch the **Database Wizard** from OpenOffice or LibreOffice Calc, Writer or any other tool by choosing **File > New > Database**.

<u>ا</u>	🖹 Untitled 1 - OpenOffice Writer				
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ഷ്ട്രി	Close	1	Data <u>b</u> ase		
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2. In the **Database Wizard dialog box**, click **Connect to an existing database**, select **ODBC** from the drop-down list, and click **Next**.

Database Wizard	×
<u>Steps</u>	Welcome to the OpenOffice Database Wizard
 Select database Set up ODBC connection Set up user authentication Save and proceed 	Use the Database Wizard to create a new database, open an existing database file, or connect to a database stored on a server.
	What do you want to do? O Create a n <u>e</u> w database O Open an existing database <u>f</u> ile
	Recently used New Database2 Image: Comparison of the second se
	Connect to an existing database ODBC
Help	<< Back <u>N</u> ext >> <u>F</u> inish Cancel

3. Specify the name of the data source you want to connect to. You can either type the name of your data source into the field, e.g. ODBC Driver for xBase, or you can click Browse, double-click the data source you need, and then click Next.

Database Wizard	×
<u>Steps</u>	Set up a connection to an ODBC database
 Select database Set up ODBC connection Set up user authentication Save and proceed 	Enter the name of the ODBC database you want to connect to. Click 'Browse' to select an ODBC database that is already registered in OpenOffice. Please contact your system administrator if you are unsure about the following settings.
	Name of the ODBC data source on your system Browse

Data Source	×
<u>C</u> hoose a data source:	ОК
Devart ODBC Driver Devart ODBC Driver for SQLite_32	Cancel
Devart ODBC Driver_32bit	
ODBC Driver for MySQL_32bit	<u>H</u> elp
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Database Wizard	×
<u>Steps</u>	Set up a connection to an ODBC database
 Select database Set up ODBC connection Set up user authentication Save and proceed 	Enter the name of the ODBC database you want to connect to. Click 'Browse' to select an ODBC database that is already registered in OpenOffice. Please contact your system administrator if you are unsure about the following settings.
	Name of the ODBC data source on your system
	Devart ODBC Driver_32bit
<u>H</u> elp	<< Back Next >> Einish Cancel

4. If your database requires a user name, type it into the User name field. If you are connecting to a password protected database, check the Password required field.Alternatively, you can specify these parameters in the data source settings of your ODBC

Database Wizard Х <u>Steps</u> Set up the user authentication 1. Select database Some databases require you to enter a user name. 2. Set up ODBC connection 3. Set up user authentication 4. Save and proceed User name myusername Password required Test Connection Next >> << Bac<u>k</u> <u>H</u>elp <u>Finish</u> Cancel

Driver for xBase and leave these fields empty in **Database Wizard**.

To test the connection to your data source, click **Test Connection**, input your credentials and click **OK**.

Database Wizard		×				
<u>Steps</u>	Authentication Required X]				
1. Select database 2. Set up ODBC connection 3. Set up user authentication	Message from server: A password is needed to connect to the data source .					
4. Save and proceed	Enter user name and password for:					
	User name					
	myusername Pass <u>w</u> ord					

	Help OK Cancel	Test Connection				
Help	<< Back <u>N</u> ext >> <u>F</u> inish	Cancel				

If you have entered valid credentials, you will see a success message. Click **Next** to proceed to the final step.

5. You can keep the default selection in this dialog box and click **Finish**.

Database Wizard		×
<u>Steps</u>	Decide how to proceed after saving the database	
 Select database Set up ODBC connection Set up user authentication Save and proceed 	 Do you want the wizard to register the database in OpenOffice? ● Yes, register the database for me ○ No, do not register the database After the database file has been saved, what do you want to do? ○ Open the database for editing ○ Create tables using the table wizard Click 'Finish' to save the database. 	
Help	<< Bac <u>k</u> <u>N</u> ext >> <u>F</u> inish Car	ncel

You will be prompted to give a name to your new database and select the directory where you want to store it.

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🗊 3D Objects	🗃 New Databas	e	05.06.2019 16:43	OpenDocumer
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🖶 Downloads				
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📑 Videos				
🏪 Local Disk (C:)				
🕳 New Volume (I	< <			>
File name:	lew Database			~
Save as type: O	DF Database			~
	r	Automatic file name		
∧ Hide Folders		extension	Save	Cancel

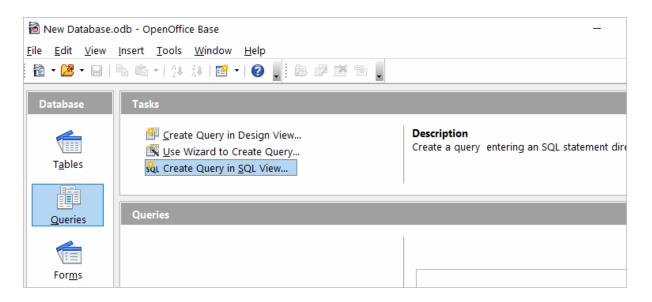
6. When the database opens, you will see the list of tables from your data source diplayed in OpenOffice or LibreOffice Base workspace. To view the data from a specific table, double-click the table name.

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Queries	Tables	1			
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	id	first_name	last_name	email	job_title	city	university	
	1	Janek	Ardern	jardern0@va.gov	Electrical Engineer	Buayan	Universidad Central d	
	2	Isis	Krystek	ikrystek1@mayoclinic.com	Chemical Engineer	Victoria	University of Bahrain	
	3	Addy	Mullinder	amullinder2@fotki.com	Graphic Designer	Tajao	Luxun Academy of Fin	
	4	Eleen	Deshorts	edeshorts3@cdbaby.com	Software Consultant	Petrov	Universit? de la Reuni	
	5	Missy	Strass	mstrass4@photobucket.com	Compensation Analyst	Meilong	Kwansei Gakuin Unive	
	6	Sigvard	Huard	shuard5@apache.org	Geologist II	Chayek	Chittagong University	
	7	Dahlia	Lennard	dlennard6@webs.com	Clinical Specialist	Cimuncang	Rajitlal Institute of Tec	
	8	Liane	McPheat	Imcpheat7@jigsy.com	Registered Nurse	Bobrovka	Miles College	

7. To create an SQL query, click **Queries** in the **Database** pane, then click **Create Query in SQL View...**

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Enter your query in the query text box and click **Run Query (F5)**. The date will be fetched from the database and displayed in Open Office or LibreOffice, respectively.

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	id	first_name	last_name	email	job_title	city	university		
⊳	1	Janek	Ardern	jardern0@va.gov	Electrical Engineer	Buayan	Universidad Central de Baya		
	2	Isis	Krystek	ikrystek1@mayoclinic.com	Chemical Engineer	Victoria	University of Bahrain		
	3	Addy	Mullinder	amullinder2@fotki.com	Graphic Designer	Tajao	Luxun Academy of Fine Art		
	4	Eleen	Deshorts	edeshorts3@cdbaby.com	Software Consultant	Petrov	Universit? de la Reunion		
	5	Missy	Strass	mstrass4@photobucket.com	Compensation Analyst	Meilong	Kwansei Gakuin University		
	6	Sigvard	Huard	shuard5@apache.org	Geologist II	Chayek	Chittagong University of En		
	7	Dahlia	Lennard	dlennard6@webs.com	Clinical Specialist	Cimuncang	Rajitlal Institute of Technolo		
8 Liane McPheat Imcpheat7@iigsv.com Registered Nurse Bobrovka Miles College >									
SEL	ECT *	FROM Emplo	yees;						

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4.8 Using in PHP

Connecting to xBase from PHP using ODBC Driver for xBase

PHP is one of the most popular programming languages for website development. ODBC drivers are connectors that make PHP development database agnostic — your software written in PHP will function with any vendor's database management system. You can use functions like odbc_exec() to prepare and execute SQL statements against any databases like MySQL, SQLite, PostgreSQL, etc.

PHP-based projects usually require a data storage, whether a traditional database or a cloudbased database. You can establish a connection to them using ODBC interface. With our ODBC drivers, you can access various data sources and retrieve tables and fields from a database.

Below is a sample PHP script for accessing xBase via ODBC. The script <u>connects to xBase</u> database and fetches all records from a table:

Step 1: Connect to ODBC data source

The *odbc_connect()* function is used to connect to an ODBC data source. Note that the function takes three mandatory parameters: the data source name, username and password. If your database is not password-protected or doesn't require a username, leave these parameters empty. In the following example, a connection is established using the *odbc_connect()* function in PHP.

php</th <th></th>	
\$user = "myusername";	
<pre>\$password = "mypassword";</pre>	
<pre>\$ODBCConnection = odbc_connect("DRIVER={Devart ODBC Driver for</pre>	xBase};Da

Step 2: Execute an SQL statement

If connection is successful, the *odbc_exec()* function is used to execute a SELECT statement against the *dept* table in the *autotest* database.

```
$SQLQuery = "SELECT * FROM autotest.dept";
$RecordSet = odbc_exec($ODBCConnection, $SQLQuery);
```

Step 3: Print the result set

The *odbc_fetch_row()* function is used to return records from the result set. While *odbc_fetch_row()* returns rows, the *odbc_result_set()* function prints a set of result in HTML table. After all rows from the result set have been printed, the *odbc_close()* function closes the connection.

```
while (odbc_fetch_row($RecordSet)) {
     $result = odbc_result_all($RecordSet, "border=1");
```

You can modify this script by specifying general settings for each Devart ODBC driver to use any of them with your PHP projects.

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4.9 Using in Power BI

Importing xBase Data into Power BI Through an ODBC Connection

Power BI is a popular business intelligence solution that is comprised of services, apps, and connectors that allow you to pull raw data from various sources and create meaningful reports. To connect Power BI to a data source such as xBase, you can use a corresponding ODBC driver.

This tutorial explores how to connect to xBase and <u>import data</u> into Power BI Desktop using an ODBC driver. It is assumed that you have already installed and configured a DSN for ODBC driver for xBase.

- 1. Run Power BI Desktop and click Get Data.
- Select the Other category in the Get Data dialog box, then select ODBC. Click Connect to confirm the choice.
- 3. In the **From ODBC** dialog box, expand the **Data Source Name (DSN)** drop-down list and select the previously configured DSN for xBase
- If you would like to enter a SQL statement to narrow down the returned results, click the Advanced options arrow, which expands the dialog box, and type or paste your SQL statement.
- 5. Click **OK**. If your data source is password-protected, Power BI will prompt you for user credentials. Type your **Username** and **Password** in the respective fields and click.
- 6. Now you should see the data structures in your data source. You can preview the contents of the database objects by clicking on them.
- 7. To load the xBase data into Power BI for analysis, select the needed table and click Load.

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4.10 Using in Python

Installing the ODBC Driver for xBase

One of the most convenient methods to connect to an external database or access cloud data from Python is via ODBC. Devart has developed a range of ODBC Drivers for Python to work with databases and cloud services.

If you don't have Python installed on your machine, go to the Python official website, download the appropriate installer and run it. You will also need to install the **pyodbc** module — the easiest way to do that is by using the *pip install pyodbc* command in the Python interactive mode. Next, you need to <u>download the ODBC Driver</u> for xBase. To use the ODBC driver as a translation layer between the application and the database, you need to configure it by following the installation instructions.

Connecting to xBase from Python using ODBC Driver for xBase

Here's an example to show you how to <u>connect to xBase</u> via Devart ODBC Driver in Python. First we import the pyodbc module, then create a connection to the database, insert a new row and read the contents of the EMP table while printing each row to the Python interactive console. To execute the script, you can type the code directly in the interactive console or add the code to a file with the .py extension and run the file from the command prompt.

Step 1: Connect

import pyodbc cnxn = pyodbc.connect('DRIVER={Devart ODBC Driver for xBase};Database=mydata

Step 2: Insert a row

Here's a simple example of how to execute an *insert* statement to test the connection to the database. The script inserts a new record to the EMP table.

```
cursor = cnxn.cursor()
cursor.execute("INSERT INTO EMP (EMPNO, ENAME, JOB, MGR) VALUES (535, 'Scott
```

Step 3: Execute query

The *cursor.execute()* function retrieves rows from the *select* query on a dataset. The *cursor.fetchone()* function iterates over the result set returned by *cursor.execute()* while the *print()* function prints out all records from the table to the console.

<pre>cursor = cnxn.cu cursor.execute("</pre>	SELECT * FROM EMP	P")	
row = cursor.fet	chone()		
while row:			
print (row)			
row = cursor.fe	tchone()		
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4.11 Using in QlikView

Connecting to xBase from QlikView using ODBC Driver for xBase

This tutorial describes how to connect and configure QlikView to retrieve data from xBase for further analysis. QlikView is a data visualization tool that connects and pulls data from different popular databases like MySQL, MongoDB, Oracle, SQL Server, Postgres, etc. to present it in a single view. The business intelligence platform identifies relationships in your data and discovers patterns and opportunities to support your decision making.

QlikView supports the ODBC connectivity interface for communication with external data sources. An ODBC data source must be configured for the database you want to access. You can create an ODBC connection using a DSN during the ODBC driver installation or later.

To connect to an ODBC data source from QlikView using our driver for xBase, perform the steps below:

 Open the QlikView client application and click File > New. Close the Getting Started wizard and open File > Edit Script (CTRL+E).

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2. In the Data tab, choose ODBC from the Database drop-down and click Connect. Select the Data Source you created earlier, type in the User ID and Password if your database is password-protected. You can test the connection by choosing Test Connection. The Connection Test succeeded message should appear. Click OK to connect to your data source.

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3. To retrieve the data from your data source, you can enter an SQL query and press **F5**. You will be suggested to choose fields to be displayed.

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4. Alternatively, you can click Select, and QlikView will show you the database structure window where you can compose a SELECT statement for the data to be fetched. You can choose a different database from the database drop-down list. Select the necessary tables and fields. You can retrieve date from multiple tables and fields by selecting them and clicking Add. When you are ready with your SELECT statement, click OK. You will get back to the main script editor with your SQL statement. Press F5 to execute the script and select the fields to be displayed in QlikView.

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5. Once the data has been fetched, you can choose a table layout to present the data in a table. Choose Layout > New Sheet Object > Table Box. Select the fields to be added to the tablebox and click OK.

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4.12 Using in SSIS

SQL Server Integration Services (SSIS) is a component of SQL Server that is designed to perform various data migration tasks. When using Devart ODBC Driver for xBase as a translation layer between the data source and SSIS, the driver and SSIS communicate via Microsoft ODBC version 3.x.

Note that when you extract data from an ODBC data source using the SQLExecDirect function, an issue may occur: SSIS expects the ODBC 2.x behavior, while the ODBC driver continues to fetch data from a data source via ODBC version 3.x. To prevent any issues when using SQLExecDirect, you should force the ODBC 2.x behavior in the DSN settings: open the Advanced Settings tab and select Ver 2.x from the ODBC Behavior dropdown.

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4.13 Using in Tableau

This section describes how to establish and troubleshoot a connection to xBase from Tableau using ODBC Driver for xBase.

- Using in Tableau
- Troubleshooting in Tableau on macOS

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4.13.1 Using in Tableau

Importing xBase Data Into Tableau Through an ODBC Connection

This article explains to establish and ODBC connection to xBase from Tableau Desktop. Tableau is a data visualization tool that allows you to pull in raw data, perform analysis on it, and create meaningful reports to get actionable insights. With Tableau Desktop and our suite of <u>ODBC drivers</u>, you can connect to various relational and non-relational databases, both cloud and on-premise.

- 1. Run Tableau Desktop.
- 2. On the start page, select **More...** in the **Connect** pane.
- 3. Choose Other Databases (ODBC).
- 4. Expand the **DSN** drop-down list and select the DSN that you have created and configured for xBase. Alternatively, if you have not created a DSN, you can choose the **Driver** option and select Devart ODBC Driver for xBase from the drop-down.
- 5. Click **Connect**.
- 6. After a successful connection, click Sign in.
- 7. Select the needed database and schema in xBase.
- 8. You should see the list of all tables you have access to in the connected data source.
- Drag-and-drop the table name to the area where it says **Drag tables here** to retrieve the data, or click **New Custom SQL** to write a query that will select only specific data from the table.
- 10.Hit **Update Now** to retrieve and display the data.

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4.13.2 Troubleshooting in Tableau on macOS

Troubleshooting ODBC Connection in Tableau on macOS

The iODBC driver manager incorrectly handles the SQL_WCHAR and SQL_WVARCHAR

ODBC data types. To work with these data types in Tableau, create a Tableau Datasource

Customization (.tdc) file in 'Users\[your name]\Documents\My Tableau Repository

\Datasources\' — for example, devart-xbase.tdc, and add the following capabilities to the file:

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