

# Using PxPlus SQL ODBC Driver and PxPlus SQL Server

PxPlus 2016 (v13)



# Enhanced PxPlus SQL ODBC Driver

- Introducing the new **SQL ODBC** products
  - Many new features and enhancements
  - **SQL** is now in the name

PxPlus ODBC Driver



PxPlus SQL ODBC Driver

PxPlus File Server



PxPlus SQL Server



# Enhanced PxPlus SQL ODBC Driver

- More platforms supported
  - 64-bit UNIX/Linux **PxPlus SQL Server**
    - Views support with 64-bit PxPlus
    - No need for 32-bit libraries
  - UNIX/Linux **PxPlus SQL ODBC Driver**
    - iSQL
    - LibreOffice
    - Apache/PHP



# Enhanced PxPlus SQL ODBC Driver

- Previous ODBC driver conforms to older standards
  - Incompatible with some ODBC applications
    - Visual Studio
    - Excel Data Connection Wizard
    - **OLE DB ODBC** and **.NET ODBC** providers
- New **PxPlus SQL ODBC Driver** conforms to the latest ODBC standards
  - Compatible with all ODBC applications



# More Flexible SQL Syntax

- Required escape syntax for joins, dates, and functions

```
SELECT C.ClientId, {FN UCASE(C.ClientName)}, I.InvoiceNumber, I.DueDate  
FROM {OJ 'Client Master File' C  
LEFT JOIN 'Invoice Header' I ON C.ClientId=I.ClientId }  
WHERE I.DueDate <= {D '2016-12-31'}
```

- Still supported but now optional

```
SELECT C.ClientId, UCASE(C.ClientName), I.InvoiceNumber, I.DueDate  
FROM 'Client Master File' C  
LEFT JOIN 'Invoice Header' I ON C.ClientId=I.ClientId  
WHERE I.DueDate <= '2016-12-31'
```



# More Flexible SQL Syntax

- Comments are now supported

```
//this is a line comment  
/* this is a  
   multi-line comment */
```

- Automatic conversion
  - In PxPlus, `0/""` and `NULL` are the same, in SQL they are not
    - `0/""` <-> `NULL`
    - String -> number



# More Flexible SQL Syntax

- Nested 3+ table join syntax

```
SELECT *  
FROM {OJ 'Invoice Header' I  
LEFT JOIN 'Client Master File' C  
LEFT JOIN 'Sales Rep' S  
ON C.SalesRep=S.SalesRepCode  
ON I.ClientID=C.ClientID }
```

- Modern 3+ table join syntax

```
SELECT *  
FROM 'Invoice Header' I  
LEFT JOIN 'Client Master File' C ON I.ClientID=C.ClientID  
LEFT JOIN 'Sales Rep' S ON C.SalesRep=S.SalesRepCode
```



# New SQL Syntax

- **table1** RIGHT [OUTER] JOIN **table2** ON **boolean**
  - Returns all rows from the right table (**table2**), with the matching rows in the left table (**table1**)
  - The result is **NULL** on the left side when there is no match

```
SELECT *  
FROM 'Client Master File'  
RIGHT JOIN 'Sales Rep' ON SalesRepCode=SalesRep
```





# New SQL Syntax

- `CAST(expression AS sql_type [(integer1[, integer2]])) / CONVERT(expression, sql_type)`
  - Convert/Cast result of an expression to a SQL data type
  - CAST optionally allows modifiers for
    - Length
    - Precision and optionally scale

```
SELECT CAST(ClientID AS SQL_NUMERIC (6, 0)) FROM 'Client Master File'  
SELECT CONVERT(ClientID, SQL_NUMERIC) FROM 'Client Master File'
```



# New SQL Syntax

- CASE **expression** WHEN **expression** THEN **expression** END /  
CASE WHEN **boolean** THEN **expression** END
  - Evaluates conditions and returns one of multiple possible result expressions
  - Two formats:
    - Simple CASE format compares an expression to a set of simple expressions
    - Searched CASE format evaluates a set of Boolean expressions
  - May have more than one WHEN clause
  - Both formats support an optional ELSE



# New SQL Syntax

- Example

```
SELECT
CASE CRLimitNotify
WHEN 'N' THEN 'None'
WHEN 'T' THEN 'SMS Text Message'
WHEN 'E' THEN 'Email Message'
END
FROM 'Client Master File' WHERE ClientID='054703'
```

```
SELECT
CASE
WHEN CRLimitNotify='T' OR CRLimitNotify='E' THEN 'Notification On'
ELSE 'Notification Off'
END
FROM 'Client Master File' WHERE ClientID='065853'
```



# New SQL Syntax

- **select UNION [ALL] select**
  - Combines the results of two or more select statements
  - Removes duplicates and sort results unless ALL is used
  - **select** statements must have the same number of columns
  - Columns must have similar data types in same order

```
SELECT *  
FROM DivisionOneClients  
UNION  
SELECT *  
FROM DivisionTwoClients
```



# New SQL Syntax

- HINT KEY **keynum**

- In almost all cases, the best key is selected for file I/O
- Use HINT KEY to force the use of a specific **keynum**

```
SELECT *  
FROM 'Client Master File'  
WHERE ClientID>'200000' OR PhoneNumber<>'''  
HINT KEY 3
```



# PxPlus SQL ODBC Driver Demo

- Excel data visualization
  - Query the data via **SQL ODBC**
  - Use PivotTables and PivotCharts to visualize the data



# Enhanced PxPlus SQL ODBC Driver

- Speed enhancements

- Optimized independent sub-queries
- Optimized access to views with date keys



- Tips to improve speed

- Minimize the amount of work the query has to do
- Always use filters that involve keys, when possible
- Create/Recreate files using
  - 'XK' parameter on
  - Large key blocks **BSZ=31**



# Enhanced PxPlus SQL ODBC Driver

- Easier problem solving

- Improved error messages
- Improved documentation

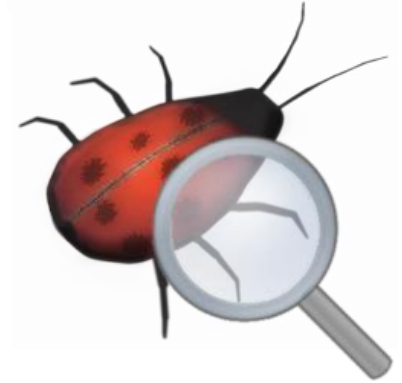
- Reorganized

- New FAQ section:

- [http://manual.pvxplus.com/?odbc/odbc\\_faq.htm](http://manual.pvxplus.com/?odbc/odbc_faq.htm)

- New examples section:

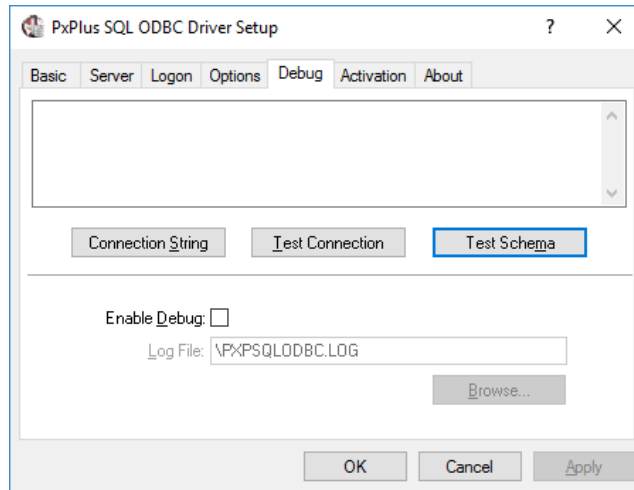
- [http://manual.pvxplus.com/?odbc/using\\_odbc\\_driver/example\\_sql.htm](http://manual.pvxplus.com/?odbc/using_odbc_driver/example_sql.htm)





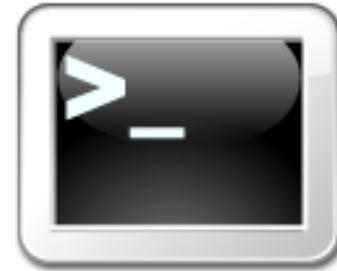
# Enhanced PxPlus SQL ODBC Driver

- New Test schema button
  - Tests that it has access to all file and views in the data dictionary
  - Reports an error on the first file or view that cannot be accessed
  - Found in the Data Source Name Setup Debug tab



# Enhanced PxPlus SQL ODBC Driver

- PxPlus SQL Command Line Client enhancements
  - Options
    - **--version**
      - Displays version info
    - **--column-names**
      - Displays column names with output
  - Command
    - LIST **tablename**
      - Returns the tables column info



# Additional Resources

The help link(s) below refer to the current on-line help pages. The functionality may have been further updated since the PxPlus 2016 (version 13) release.

- [PxPlus SQL Server](#) and [PxPlus SQL ODBC Driver](#)

