ADO.NET DATA PROVIDERS

Last update :	July 2024
Revision :	3
Content :	This document presents the list of compatible ADO.NET providers with PcVue
Confidentiality :	C0 - Public

The information in this book is subject to change without notice and does not represent a commitment on the part of the publisher. The software described in this book is furnished under a license agreement and may only be used or copied in accordance with the terms of that agreement. It is against the law to copy software on any media except as specifically allowed in the license agreement. No part of this manual may be reproduced or transmitted in any form or by any means without the express permission of the publisher. The author and publisher make no representation or warranties of any kind with regard to the completeness or accuracy of the contents herein and accept no liability of any kind including but not limited to performance, merchantability, fitness for any particular purpose, or any losses or damages of any kind caused or alleged to be caused directly or indirectly from this book. In particular, the information contained in this book does not substitute to the instructions from the products' vendor. This book may contain material belonging to third-parties. Such information is used exclusively in internal work processes and is not intended to be disclosed. In addition, this notice is not a claim of property on such third-party information.
All product names and trademarks mentioned in this document belong to their respective owner.

Content

1. UNIVERSAL DATA CONNECTOR OVERVIEW 4

2. BUILT-IN ADO.NET DATA PROVIDERS 5

2.1 Overview 5

2.2 .NET Framework Data Provider for SQL Server 5

2.3 .NET Framework Data Provider for OLE DB 6

2.4 .NET Framework Data Provider for ODBC 6

2.5 .NET Framework Data Provider for Oracle 6

3. ADO.NET DATA PROVIDERS FOR PCVUE 7

3.1 Files & WebServices 8
3.1.1 CSV 8
3.1.2 Excel 9
3.1.3 JSON 10
3.1.4 Extra : Files providers benefits 11
3.1.5 REST 12

3.2 IoT (Internet Of Things) 13
3.2.1 Objenious 13
3.2.2 Sigfox 14
3.2.3 The Things Network 15
3.2.4 Wago Cloud 16
3.2.5 Netatmo Connect 17
3.2.6 Ewon Data Mailbox 18
3.2.7 Live Objects 19
3.2.8 Philips Hue 20

3.3 Big Data 21
3.3.1 Cassandra 21
3.3.2 Cosmos DB 22
3.3.3 Influx DB 23

3.4 Services 24
3.4.1 Azure Auto ML 24
3.4.2 Ecowatt 25
3.4.4 Enedis Data Connect 26
3.4.5 Operat 27
3.4.6 Advenir 27
3.4.7 OpenWeatherMap 29
3.4.8 Steadysun 30
3.4.9 Huawei FusionSolar 31

3.5 Communications 32
3.5.1 X (ex. Twitter) 32
3.5.2 Telegram 33
3.5.3 Twilio 34

3.6 Others 35
3.6.1 Dimo Maint MX 35
3.6.2 Salesforce 36

ARC Informatique - ©2024. All rights reserved.

3.6.3 Microsoft Graph..... 37

CONCLUSION..... 39

ARC Informatique - ©2024. All rights reserved.

1. Universal Data Connector Overview

The Universal Data Connector (UDC) is a feature of PcVue that allows users to connect to third party systems such as:

- MES - For retrieving production parameters and giving feedback on its execution...
- CMMS - For triggering work orders on event and alarms, retrieving work orders' status and accessing spare parts availability...
- ERP - For exchanging information about production planning, raw material availability and usage...
- Weather data - Either pushing weather data to a central database if weather stations are directly connected or retrieving weather data in a third-party system, for use in PcVue .
- etc.

UDC is based on two configuration objects:
SQL Connections to define data sources and SQL queries to interact with data sources.

Simply said, Sql connections and the underlying Sql request handler can be used to bridge PcVue to any external data source provided that a compatible ADO.NET provider is available.
The module behind Sql connection handling helps you connect seamlessly to Sql data sources. It includes:

- Request routing inside the multi-station system - In order to avoid the need to open the access to the data source to all stations of the network, the configuration allows you to define which station is in charge of the interface to the DBMS. All other stations will go through this designated station to execute requests.
- Support for single active server associations - A Sql connection can be produced by an association for redundant paths to the DBMS.
- Error handling
- Asynchronous command handling
- Centralized connection strings at the project configuration level and protection of secrets
- etc.

This Sql bridge supports all the DML/DDL commands, the only limit is about the ADO.NET driver itself. Interfacing can be via scripting or no-code through SQL variables.

ARC Informatique - ©2024. All rights reserved. C0 - Public

The UDC allows the developer to configure a connection to a Data Source, typically a Database Management System (DMBS) using the ADO.NET technology. The Data Source can be local, on another server on the local network or cloud based.

2. Built-in ADO.NET Data Providers

2.1 Overview

An ADO.NET Data Provider is used for connecting to a data source, executing commands, and retrieving results.

Some ADO.NET Data Providers are installed on Windows with the .NET Framework, others are supplied by the editor of the data source or developed by third-party software editors.

To specialize data sources to the needs of PcVue customers, ARC Informatique has positioned itself as a publisher of third-party ADO.NET Data Providers to open our solution to as many platforms as possible.

⚠ ADO.NET Data Providers published by ARC Informatique are only supported with PcVue.

There are 4 connectors available.

2.2 .NET Framework Data Provider for SQL Server

The .NET Framework Data Provider for SQL Server (SqlClient) uses its own protocol to communicate with SQL Server. It is lightweight and performs well because it is optimized to access a SQL Server directly without adding an OLE DB or Open Database Connectivity (ODBC) layer.

This is the driver you use to connect to an MS SQL Server or Azure SQL Database.

ARC Informatique - ©2024. All rights reserved. C0 - Public

2.3 .NET Framework Data Provider for OLE DB

The .NET Framework Data Provider for OLE DB (OleDb) uses built-in OLE DB through COM interop to enable data access. This means that all OleDB drivers available from third-party vendors or from legacy applications should work with the UDC.

To know more about OleDb, visit Microsoft portal:
https://learn.microsoft.com/en-us/dotnet/framework/data/adonet/data-providers#net-framework-data-provider-for-ole-db

2.4 .NET Framework Data Provider for ODBC

The .NET Framework Data Provider for ODBC uses the built-in ODBC Driver Manager (DM) to enable data access. This means that all ODBC drivers available from third-party vendors or from legacy applications should work with the UDC. To know more about ODBC, visit Microsoft portal:
https://learn.microsoft.com/en-us/dotnet/framework/data/adonet/data-providers#net-framework-data-provider-for-odbc

2.5 .NET Framework Data Provider for Oracle

Deprecated by Microsoft, use Oracle Data Provider.

- To remember : Built-in ADO.NET Data Providers are :

DATA PROVIDER NAME	DESCRIPTION
.NET Framework Data Provider for SQL Server	Provides data access for Microsoft SQL Server.
.NET Framework Data Provider for OLE DB	For data sources exposed by using OLE DB
.NET Framework Data Provider for ODBC	For data sources exposed by using ODBC
.NET Framework Data Provider for Oracle	Deprecated, use Oracle Data Provider.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3. ADO.NET Data Providers for PcVue

Why should you use ADO.NET Data providers with PcVue ? :

- Their integration within PcVue is relatively strong with a configuration interface (SQL Variables, graphical components...).
- Archiving mechanisms and features linked to PcVue variables are available.
- Any API modification at the initiative of the Data Provider has no impact on PcVue. This means you will not have to wait for a PcVue update to benefit from the last API updates.
- PcVue uses SQL syntax for querying data sources to read, sort, group, filter Data and more.

The ADO.NET Data Providers developed by ARC Informatique can be technically classified into 3 types:

- Those that interact with file system data source (CSV, Excel, ⋯)
- Those based on Rest APIs (Telegram, Netatmo, Open Weather, ⋯)
- And Others (InfluxDB, CosmosDB, ...)

Here is a list of them :

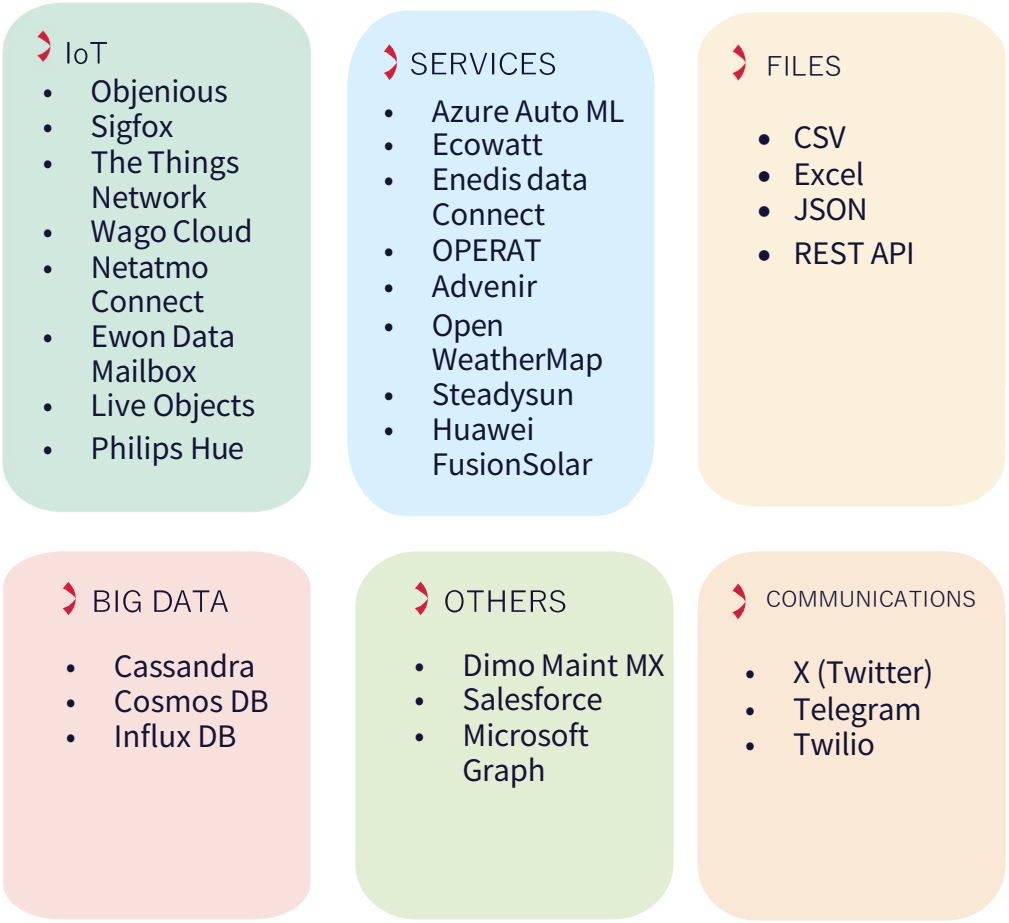


Figure 1 : Providers classification

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.1 Files & WebServices

3.1.1 CSV

3.1.1.1 Provider presentation

Name	CSV
Category	File System
Global Features	Read / Write / Modify / Delete data
Query Language	Simple Query Language (SQL)
PcVue version	15.2
Benefits	. Saves time during application development . Universal data exchange format (remote management, software, machine tool) . No code to Read / Write CSV files (no bug, easy to evolve, best performances) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

Additional information

The CSV file format is the universal data exchange format. It's simple and that's why it's used everywhere. It can be found in all systems that handle or exchange data, such as:

- Remote management, to import CSV data into PcVue archives from multiple sites that may not be connected to a supervisor.
- Third-party tools, to import/export data or configuration.
- Machine tools.
- …

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.1.2 Excel

3.1.2.1 Provider presentation

Name	Excel
Category	File System
Global Features	Read / Write / Modify / Delete cells value Write formula
Query Language	Simple Query Language (SQL)
PcVue version	15.2
Benefits	. Saves time during application development . Popular data exchange format (report data, third-party tools) . No code to Read / Write Excel files (no bug, easy to evolve, best performances) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…) . Can write formulas that will be interpreted by Excel . Support named cells and purpose smart cells selection . Support for .xlsx, .xlsm, .xltx, .xltm, .xlsb, xlam files . Do not need Excel installation/license to query Excel files

3.1.2.2 Additional information

The Excel file format is a must-have in the world of IT and automation.

It is found in all systems that handle or exchange data with human, such as:

- Report data, to import Excel data into our archives or to visualize them.
- Third-party tools, to import/export data or configuration.
- …

ARC Informatique - ©2024. All rights reserved.
C0 - Public

This provider does not allow you to read a file while another program is filling it, as is the case with DDE technology. This is because the provider does not need to have the Excel software installed on the computer to interact with the Excel file.

3.1.3 JSON

3.1.3.1 Provider Presentation

Name	JSON
Category	File System
Global Features	Read value
Query Language	Simple Query Language (SQL)
PcVue version	15.2
Benefits	. Saves time during application development . New standard for data exchange (remote management, software, machine tool) . No code to read JSON files (no bug, easy to evolve, best performances) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.1.3.2 Additional information

The JSON file format has established itself as a new standard in the IT, IoT and the Web world.

It can be found in all systems that handle or exchange data, such as:

- Remote management, to import JSON data into PcVue archives from multiple sites that may not be connected to a supervisor.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

- Third-party tools, to import/export data or configuration.
- Machine tools...

This provider does not allow you to modify JSON files, it’s only done to read data.

3.1.4 Extra : Files providers benefits

It's true that PcVue can interact with CSV, Excel, JSON files thanks SCADA Basic scripts, but integrators waste a lot of time developing their scripts and are not exempt to create a bug. In some cases, due to the complexity of the scripts, bugs may appear several months after commissioning, which is costly and has an impact on the end user.

It's important to remember that the less script you do in SCADA, the better.
Here are the main reasons why to prefer “no code”:

- Easy project evolution without having to understand the algorithmic script (which is often poorly documented).
- No time wasted scripting and testing.
- No insidious bugs.

Also remember SCADA Basic scripts run in PcVue UI thread, long scripts have an impact on graphics rendering. It is therefore preferable to use the UDC and ADO.NET Data Providers to carry out these potentially costly operations.

ARC Informatique - ©2024. All rights reserved. C0 - Public

3.1.5 REST

3.1.5.1 Provider presentation

Name	REST
Category	Rest
Global Features	Interact with “all” REST API
Query Language	Simple Query Language (SQL)
PcVue version	16
Benefits	. Interoperability with an infinite number of systems . Do not need specific development (Manager Toolkit) . No code to POST / PUT / GET / DELETE / ⋯ queries (no bug, easy to evolve) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average⋯)

3.1.5.2 Additional information

The need to connect to a Rest API is manifold. It allows to look at the wealth of Data Providers based on REST technology. This can be done for well known Providers (Twilio, Telegram...) but its real utility lies in its openness to private APIs.

REST APIs are the modern way of making data available, but they are also a modern way of communicating between two entities, because they are secure and easy to set up.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2 IoT (Internet Of Things)

3.2.1 Objenious

3.2.1.1 Provider presentation

Name	Objenious
Category	IoT, Cloud, LoRa
Global Features	Interact with devices managed by Objenious Platform
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Access IoT platform . No code to manage devices, get devices payloads . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.2 Sigfox

3.2.2.1 Provider presentation

Name	Sigfox
Category	IoT, Cloud, 0G network
Global Features	Access Sigfox IoT Platform
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Interact with Sigfox devices . No code to get devices payloads . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.2.2 Additional information

Sigfox is a global Internet of Things (IoT) network operator and service provider that offers a dedicated low-power, wide-area network (LPWAN) technology for connecting IoT devices to the internet.

PcVue is capable of interfacing with this platform.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.3 The Things Network

3.2.3.1 Provider presentation

Name	The Things Network
Category	IoT, Cloud, LoRa, Community IoT network
Global Features	Access TTN IoT Platform
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Interact with IoT devices declared in TTN . No code to get devices payloads . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.3.2 Additional information

The Things Network is a global, open, free and decentralized crowdsourcing project. Volunteers supply, set up and maintain LoRaWAN gateways. These long-range radio signals from energy-efficient sensors are transmitted to a control center via the Internet. There, the signals (e.g. measurement data from electricity or water meters, CO2 sensors, etc.) are processed and transmitted to defined receivers.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.4 Wago Cloud

3.2.4.1 Provider presentation

Name	WAGO Cloud
Category	IoT, Cloud
Global Features	Interact with WAGO Gateway and retrieve data
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	Collect IoT data Easy Connection

3.2.4.2 Additional information

IoT gateways push data from a site to the WAGO Cloud. This architecture means that you don't have to install PcVue where customers don't need it (water towers, etc.). This type of architecture replaces remote management.

Note that the wago cloud offers dashboard construction, but this solution is proprietary and cannot be used to aggregate data not connected via a wago gateway.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.5 Netatmo Connect

3.2.5.1 Provider presentation

Name	Netatmo Connect
Creation Date	01/08/2023
Category	IoT, Legrand, EV Charge, Weather station, Cloud
Global Features	Interact with devices managed by Netatmo Cloud Platform
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Access famous Netatmo IoT platform and Netatmo partner . No code to get/set devices data or state . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.5.2 Additional information

Integrate Green-Up charging points into their infrastructure. Installing a charging station doesn't always make sense, and simply installing an intelligent socket is enough.
It is also possible to access to the smart weather station offered by Netatmo.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.6 Ewon Data Mailbox

3.2.6.1 Provider presentation

Name	Ewon DataMailbox
Creation Date	01/05/2022
Category	IoT, Cloud, VPN
Global Features	Interact with devices managed by Ewon gateway and retrieve historical data
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Collect IoT data . No code to get list ewons, tags, historical values… . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.6.2 Additional information

IoT gateways (calls Ewon) push data from a site to the Ewon Cloud. This architecture means that you don't have to install PcVue where customers don't need it (water towers, etc.). This type of architecture replaces remote management.

The data is then retrieved by PcVue from the Ewon Cloud, which only has a few days of data retention.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.7 Live Objects

3.2.7.1 Provider presentation

Name	Live Objects
Category	IoT, Cloud, LoRa, 2/3/4/5G, LTE-M, NB-IoT, MQTT
Global Features	Interact with devices managed by Orange
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Access famous French IoT platform . No code to manage devices, get devices payloads . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.7.2 Additional information

The most popular public IoT network in France is offered by Orange. It supports LoRa, LTE-M, NB-IoT and MQTT connection objects.
Their platform can decrypt the payloads of the most popular devices and making the values available to their customers via a portal or a Rest API.

It is essential to use a public network when the IoT device is mobile (GPS tracking device) or when the installation of a gateway is not feasible.

At this point, the customer's need is to manage these IoTs as standard protocols and centralize everything in PcVue. Our connector uses the REST API offer by Live Objects to retrieve historical data, as well as to perform device management.

Use cases are mainly in the GTB (power consumption, presence, air quality, temperature), Industry (power consumption and preventive maintenance), Water (counting), Tracking (parcels, bicycles, scooters, ...) and Environment (air quality, weather,…).

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.2.8 Philips Hue

3.2.8.1 Provider presentation

Name	Philips Hue
Category	IoT, Cloud
Global Features	Interact with Philips Hue devices
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Access famous Philips Hue IoT platform . No code to get/set devices data or state . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.2.8.2 Additional information

A provider that was designed to control the lights in our showroom but also to create fun scenarios during our training sessions.

There may not be any commercial interest, but this type of installation can undoubtedly help by making lights or sockets controllable when this was not provided for in the basic infrastructure. The price is reasonable and it's easy to install.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.3 Big Data

3.3.1 Cassandra

3.3.1.1 Provider presentation

Name	Cassandra
Category	Big Data, NoSQL, Open source
Global Features	Wide-column storage
Query Language	Cassandra Query Language (CQL) – an SQL like language
PcVue version	16.0
Benefits	. Give access to new data source . Keep the original query language (CQL) . No code to query data source (VBA, Manager Toolkit,⋯)

3.3.1.2 Additional information

Apache Cassandra is commonly used by large organizations for applications such as social media, online retail, finance, and IoT, where massive data volumes and high availability are critical.

This provider is a solution to retrieve data from Cassandra to PcVue.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

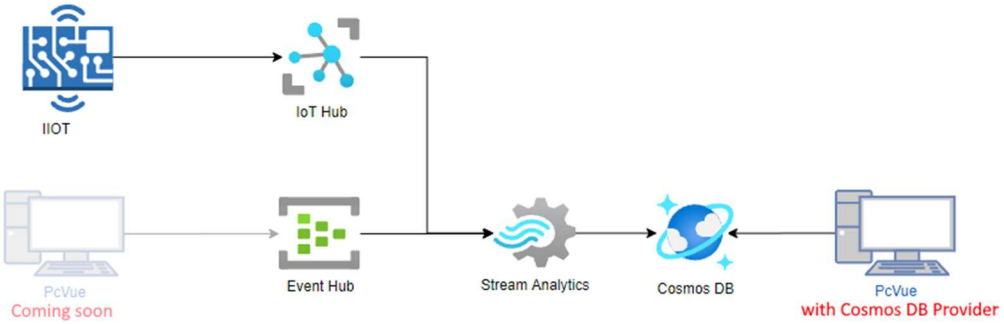
3.3.2 Cosmos DB

3.3.2.1 Provider presentation

Name	Cosmos DB
Category	Big Data, NoSQL
Global Features	Storage
Query Language	Simple Query Language (SQL)
PcVue version	16.0
Benefits	. Give access to new data source . Keep the original query language . No code to query data source (VBA, Manager Toolkit,…)

3.3.2.2 Additional information

Common use case with CosmosDB and PcVue is IoT, here is a simple representation of the data flow in Azure. Note also that PcVue will soon be able to push data batch into Azure Event Hub. At this point PcVue will be able to read and write in Cosmos DB.



ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.3.3 Influx DB

3.3.3.1 Provider presentation

Name	Influx DB
Category	TSDB, Big Data, NoSQL, Open source
Global Features	Time Series storage
Query Language	Flux (https://docs.influxdata.com/flux/v0/)
PcVue version	16.2
Benefits	. Give access to new data source . Keep the original query language (Flux) . No code to query data source (VBA, Manager Toolkit,⋯)

3.3.3.2 Additional information

Common use case with InfluxDB and PcVue is IoT and BigData. With the expansion of IoT in various fields InfluxDB is getting widely adopted because of its high throughput ingestion and real-time querying capabilities and Time Series functionalities.

The Flux language offered by Influx DB is very rich and opens huge possibilities for PcVue.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4 Services

3.4.1 Azure Auto ML

3.4.1.1 Provider presentation

Name	Azure Auto ML
Category	Rest, AI, Cloud
Global Features	Get prediction from a trained model on Azure
Query Language	Simple Query Language (SQL)
PcVue version	16.0
Benefits	. Using AI in a favorable environment with advanced tools . Suitable for AI uninitiated and initiated with multiple level of . No code to ask for prediction . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.4.1.2 Additional information

Artificial intelligence is being used more and more and represents a major focus for SCADA solutions. The big advantage of this AI service is that it is dedicated to the uninitiated and the initiated like Data Scientist.

Specifically, this provider will enable the PcVue integrator to request a prediction from an artificial intelligence model already trained in Azure from within PcVue. The result of this prediction will be put into a PcVue variable and may trigger an action or provide relevant information.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.2 Ecowatt

3.4.2.1 Provider presentation

Name	RTE Ecowatt
Category	Energy, BMS, Industry, Décret BACS
Global Features	To consume at the best time and reduce the risk of cuts
Query Language	Simple Query Language (SQL)
PcVue version	15.2
Benefits	. Optimizing processes . No code to get “Signal Level” . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.4.2.2 Additional Information

This system, developed by RTE, enables users to adapt their electricity consumption according to the country's production capacity.

The industrial production line supervised by PcVue could slow down or even stop according to Ecowatt indicators and its available stocks, maximizing its operation at times when local electricity production is most efficient.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.4 Enedis Data Connect

3.4.4.1 Provider presentation

Name	Enedis Data Connect
Category	Energy, BMS, Industry, Décret BACS
Global Features	Get electricity consumption
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Give access to Enedis Data platform . No code to get “Consumption”, “Load curves”, “Max power” . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.4.4.2 Additional information

Data Connect is an API proposed by Enedis to enable an application to access the consumption data of a user equipped with a Linky meter. It is free to use but can take several weeks to set up.

Enedis Data Connect is reserved for professionals who retrieve "customer" data.
A "customer" cannot create an application for himself via Enedis Data Connect, unless he is a professional with a "customer" account.

Data Connect enables an application to:
. Obtain the user's consent via the Enedis customer area.
. Access the consumption data of a user equipped with a Linky meter.
. Access the consumer's contractual information, such as identity, contact details, type of meter or power subscribed.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.5 Operat

3.4.5.1 Provider presentation

Name	Operat
Category	Energy, BMS, Industry, Décret BACS
Global Features	Publish energy consumption in the tertiary sector
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Obligation in the tertiary sector . No code declare energy consumption . Do not need specific development (Manager Toolkit)

3.4.5.2 Additional information

This provider is mandatory to publish consumption in the tertiary sector to official French platform for collecting and monitoring energy.
The declaration must be made every year, and PcVue can take care of it, as it has all the necessary metering information.

3.4.6 Advenir

3.4.6.1 Provider presentation

Name	Advenir
Category	Rest, IRVE
Global Features	Write data
Query Language	Simple Query Language (SQL)

PcVue version	16.0
Benefits	. Easy interfacing of PcVue with the Advenir platform . Do not need specific development (Manager Toolkit)

3.4.6.2 Additional information

To receive support for the installation of charging stations, the installer must commit to providing charging information to the Advenir service, which will consolidate this information. Combined with the OCPP protocol, ADO.NET Data Provider for Advenir makes this possible.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.7 OpenWeatherMap

3.4.7.1 Provider presentation

Name	OpenWeatherMap
Category	Weather, Solar panel, IA prediction
Global Features	Get weather information and more
Query Language	Simple Query Language (SQL)
PcVue version	15.2
Benefits	. Get current weather (temperature, humidity, snow...) . Get 5 days weather forecast . Paid APIs offer to get solar panel energy production forecast or get more accurate weather forecast . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average⋯)

3.4.7.2 Additional information

There are many possible uses for weather data, displaying current weather conditions on a mimic, calculating degree day, anticipating heating periods or the risk of frost, optimizing the ideal moment for production, etc...

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.8 Steadysun

3.4.8.1 Provider presentation

Name	Steadysun
Category	Solar energy forecast, Wind energy forecast, IA prediction
Global Features	Get accurate energy production forecast
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Manage power plant system and get accurate energy production forecast . Manage wind farm/turbine system and get accurate energy production forecast . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.4.8.2 Additional information

Steadysun is a provider of solar energy forecasting solutions.
Predicting the electricity production of solar panels or wind turbines is a growing need for all owners of solar panels or wind turbines, and the ability to collect its data on PcVue can enhance more its efficiency.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.4.9 Huawei FusionSolar

3.4.9.1 Provider presentation

Name	HUAWEI FusionSolar
Category	Solar panel, Cloud
Global Features	Obtain data from plants, devices, and batteries (monitoring, alarms, ...) managed by FusionSolar portal
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Collect data, alarms… . No code to get data… . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.4.9.2 Additional information

This is a solution to supervise solar panel installations.
This type of equipment is often used for small installations rather than large parks.

ARC Informatique - ©2024. All rights reserved. C0 - Public

3.5 Communications

3.5.1 X (ex. Twitter)

3.5.1.1 Provider presentation

Name	X (ex. Twitter)
Category	Rest, Social Network
Global Features	Create or send a tweet
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. No code to send tweet . Do not need specific development (Manager Toolkit)

3.5.1.2 Additional information

An easy way to send tweet to share information about a smart city for residents of a town or about a smart building.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.5.2 Telegram

3.5.2.1 Provider presentation

Name	Telegram
Category	Rest, Social Network
Global Features	Send message with emoji, bolt, italic… Send command, inline keyboards… List messages sent to a channel, a group, a bot
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. No code to send or list received messages . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.5.2.2 Additional information

Send messages to a community, maintenance staff or on-call personnel in the event of a problem in a modern way and without having to install an additional tool.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.5.3 Twilio

3.5.3.1 Provider presentation

Name	Twilio
Category	Rest, SMS, WhatsApp, Social Network
Global Features	Send message from a Cloud Platform (pay as you go)
Query Language	Simple Query Language (SQL)
PcVue version	16.0
Benefits	. Do not need modem . Modern way to send SMS message . Get SMS status (sent, delivered, ⋯) . Send/receive WhatsApp message . Get message status (sent, deliver, read, ⋯)

3.5.3.2 Additional information

With Twilio provider, PcVue can send an SMS from a data center or a Cloud Platform without needing to install its own equipment there. PcVue can also send an SMS even if it has poor 3G/4G/5G reception in the room where it is installed.

It's also interesting to note that this kind of service can be cheaper than a 4G or 5G subscription if you don't communicate much.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.6 Others

3.6.1 Dimo Maint MX

3.6.1.1 Provider presentation

Name	DIMO Maint MX
Category	CMMS, AI, Cloud
Global Features	Create, list work orders Create, list work requests Send machine update to optimize maintenance
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Interact with CMMS software . No code to create, list work orders/request or update machine uptime . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.6.1.2 Additional information

DIMO Maint MX (Cloud CMMS) is the new version of the DIMO Maint software. This new version is 100% Cloud, so it's a SAAS offering..

This connector interacts with DIMO Maint MX and retrieves information on assets, creates work orders or transmits information on machine uptime in order to optimize maintenance periods.

A motor that needs to be serviced every 1,000 hours may not need servicing if it has only been running for 3 days. But only the SCADA system can know that.

ARC Informatique - ©2024. All rights reserved. C0 - Public

3.6.2 Salesforce

3.6.2.1 Provider presentation

Name	Salesforce
Category	Rest, CRM, Cloud
Global Features	Connect PcVue to Salesforce Platform
Query Language	Simple Query Language (SQL) + SOQL
PcVue version	16.2
Benefits	. No code to get and set data in Salesforce . Support SOQL Queries . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.6.2.2 Additional information

Salesforce API refers to a set of programming interfaces provided by Salesforce that allow developers to interact with Salesforce data and services programmatically.
With this API, it is possible to connect Salesforce Platform to PcVue to get data from CRM for example.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

3.6.3 Microsoft Graph

3.6.3.1 Provider presentation

Name	Microsoft Graph
Category	Office 365, Cloud, GTB
Global Features	Interact with Teams, Calendar, Outlook
Query Language	Simple Query Language (SQL)
PcVue version	16.2
Benefits	. Support official interaction with Office 365 . Send/List Teams message . Get calendar events (room reservation…) . Send email with attachment . Do not need specific development (Manager Toolkit) . Smart data extract (filtering, ordering, grouping) . Perform calculations on data (min, max, sum, average…)

3.6.3.2 Additional information

Office 365 is often the mainstay of corporate communications. Communicating with PcVue through this infrastructure therefore seems an obvious choice.
Everyone knows how to use the calendar, outlook or teams. These have become everyday tools.

Imagine receiving alarm or other notifications via Teams or DataExport reports sent by email. Well, that's what this provider offers.

Interaction with the outlook calendar is often required to know when meeting rooms are occupied, so that the air conditioning can be started a few minutes beforehand to prepare the room and stopped at the end of the meeting. This is done to save energy.

ARC Informatique - ©2024. All rights reserved.
C0 - Public

ARC Informatique - ©2024. All rights reserved.
C0 - Public

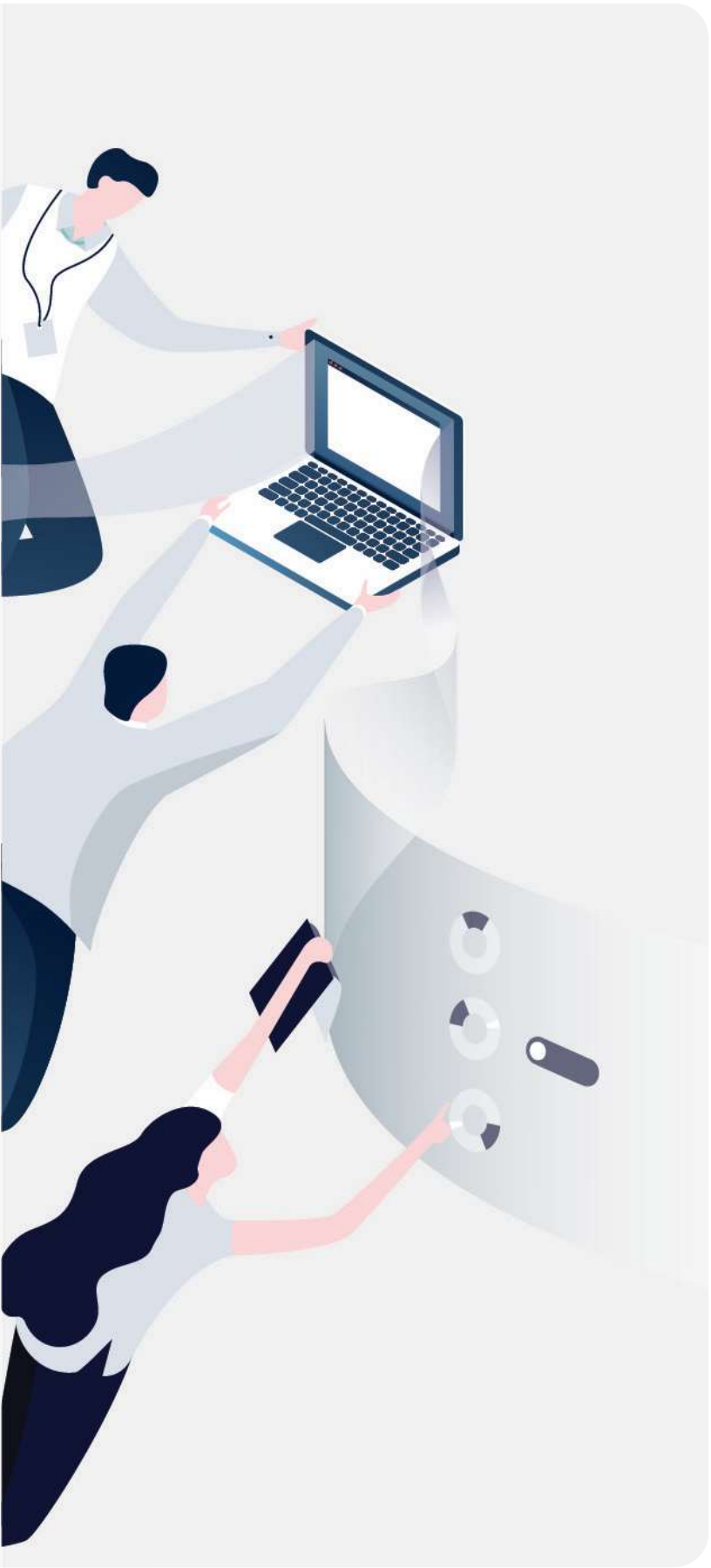
Conclusion

With PcVue you can access to a large number of ADO.NET Data Providers. Other Data providers might be added depending on the need of the market.

Developer communities and data source publishers offer also ADO.NET Data Providers. Those with an installation program (MySQL, Oracle, ...) can be used directly by the UDC, while others require repackaging (PostgreSQL, SQLite, ...).

To learn more about ADO.NET providers with PcVue, feel free to contact ARC Informatique or your sales representative.

ARC Informatique - ©2024. All rights reserved.
C0 - Public



ADO.NET DATA PROVIDERS

ARC Informatique
Private limited company
capitalized at 1 250 000 €
RCS Nanterre B 320 695 356
APE 5829C SIREN 320 695 356

Headquarters and Paris office
2 avenue de la Cristallerie,
92310 Sèvres, France
Tel: +331 4114 3600
Hotline: +331 4114 3625
Email: arcnews@arcinfo.com
www.pcvuesolutions.com

ARC Informatique is ISO 9001, ISO 14001 and ISO 27001 certified.

ARC Informatique - ©2024. All rights reserved. C0 - Public