

Using OpcDbGateway and Power BI for IoT

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[OpcDbGateway](#) is an application platform with both client and server communication interfaces. It contains two main applications – runtime without user interface and configuration with user interface (Figure 1). The configuration application can be used not only to configure user solutions, but also as a basic front-end application. The runtime application processes data from various sources using configured and/or programmed functionality.

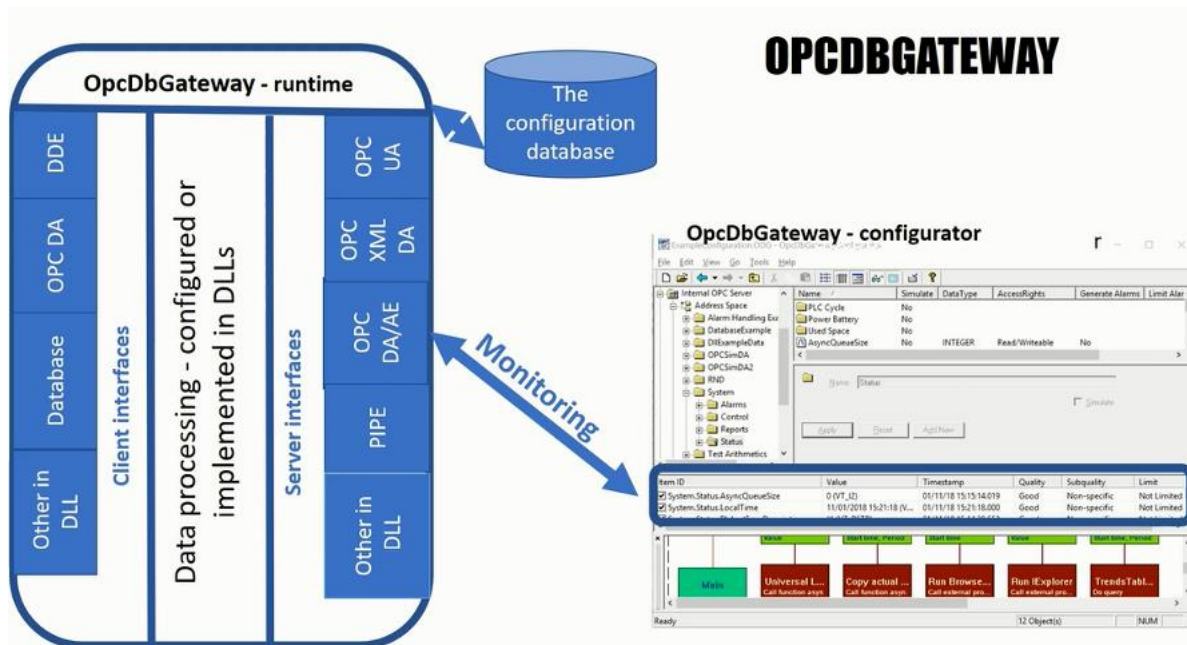


Figure 1 OpcDbGateway configuration and runtime application

Outputs from the runtime application are accessible not only through server interfaces but also as reports in various HTML, XML, CSV, XLS, configurable log files, writes to different types of databases such as MySQL, MS Access, MS SQL Server. Through the client DDE interface can be connected to MS Excel to take advantage of its rich analytical and graphical capabilities. The runtime application itself also includes several configurable analytical functions.

Several web and desktop client applications have also been developed for OpcDbGateway. E.g. [SAEAUT SCADA Web Client](#) (Figure 2) can communicate with the runtime OpcDbGateway application through the

OPC DA interface on the same computer, on the local network (OPC DA, OPC XML DA), and also in the cloud (OPC UA and OPC XML DA).



Figure 2 SAEAUT SCADA Web Client

Despite the existence of special client applications and the ability to use MS Excel as a front-end application, it is useful to think about the possibilities of using the **Microsoft Power BI** platform together with OpcDbGateway. Power BI is exceptional for working with data from different sources by linking it to a data model, visualizing data, and publishing it to the cloud.

One of the reasons for the common consideration of the OpcDbGateway application platform and the Power BI platform is the ease of linking the **on-premises PowerBI Desktop** application to OpcDbGateway and to the **cloud-based PowerBI service**.

PowerBI Desktop is easiest to connect to a database configured in the OpcDbGateway configuration application and used by its runtime application. PowerBI includes built-in connectors for different types of databases, Excel files, and in addition, there are open source OPC DA connector solutions and therefore links via OPC DA server interface of the runtime OpcDbGateway application. There is a possibility of creating **IoT applications with on-premises data pre-processing in OpcDbGateway** and transferring them to the cloud. OpcDbGateway has several **software wizards built into the configurator** that greatly simplify the creation of database applications and thus also databases that can be connected with Power BI:

- a wizard to configure the connection string to an existing database.
- a wizard for mapping configured tables to an existing database.
- a wizard for mapping existing tables into so-called database operands that are used to process data from a database in the runtime OpcDbGateway application,
- a wizard for creating [historical trends](#), which makes it easy to define external data points whose values are to be recorded in a database table with a defined interval, as well as to set the method and frequency of data backups

There are many application scenarios that can be created by linking the OpcDbGateway and Power BI platforms.