

# Information on the industrial edge and its apps

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The industrial edge is a platform produced by Siemens, that is meant to be used to handle data and information flows in production environments. Different types of edge devices exist, which can be connected to PLCs, different cloud providers and other edge devices. The connection between the devices, PLCs and clouds is configured in the industrial edge management (IEM), which is a web interface. On each device different types of apps can be installed. Apps can be used to facilitate connections between devices, to configure dataflows within the device, to process data and for user interfaces about the data. An overview over the IEM, the different types of devices and apps is provided below.

## Industrial Edge Management

Industrial Edge Management serves as the central infrastructure for Industrial Edge, empowering organizations to leverage edge computing's potential to boost operational efficiency, minimize latency, enhance reliability, and expedite decision-making. By bringing intelligence and analytics capabilities closer to the data source, it enables quicker response times, improved resource allocation, and more efficient monitoring and control of industrial systems.

The industrial edge management can be used to connect edge devices to the industrial edge. It has an app catalog from which different apps can be installed on edge devices. The state of the connected edge devices can be checked, including the status (online/offline), hardware information, like the type of device, and the local IP address of the device. Data about memory, CPU and storage use are provided.

The data connections between edge devices can be configured from the IEM. Depending on the use case different types of apps should be used. Information about the apps is provided below.

Information about different jobs is also provided on the IEM. Jobs in the context of IEM can be the installation of apps, uninstalling apps, updating apps or updating app configurations.

## Industrial Edge devices

There are different types of edge devices with different properties and capabilities. Information about the devices is not proposed in detail here. A list of the available edge devices is given here:

!TODO include list

## Apps on the industrial edge

### OPC-UA Server

The OPC-UA server uses the OPC-UA protocol to publish data in a local network. Multiple devices can receive the data sent out by the OPC-UA server. The data is most typically regular interval time series data, such as sensor measurements. The different datapoints have to be defined in advance.

The official description is given here: Edge OPC UA server application runs on Industrial Edge Device (IED) which provides open standard access to data that is available to the customers. Edge OPC UA server connects to the Databus for extracting the data. Any data source which supports Databus common payload

format can be modeled in Edge OPC UA server. The application has two parts; Edge OPC UA Server Configurator and Edge OPC UA Server.

## OPC-UA Connector

The OPC-UA connector connects an edge device to a opc-ua server. It can only receive data from the server and can not send any data. It uses the OPC-UA protocol. It can be either connected to an edge device with the OPC-UA server installed, or to other devices in the same network that use OPC-UA, such as integrated sensors.

## Databus

The databus application is used to publish data on one edge device. It has to be used to for example facilitate the data exchange between the OPC-UA connector and the cloud connector. Every datapoint is specified as a topic, which is then referenced in other apps when trying to access that data.

The official description of the databus is given here: The Databus Configurator provides you information about all available users including their access rights for the corresponding Industrial Edge Device. In addition, you can create users and grant users access rights to the Databus of the corresponding Industrial Edge Devices. You can connect the SIMATIC S7 Connector and other apps to the Databus and thereby obtain access rights to the Databus. This allows you to use the data that the Industrial Edge Runtime of the SIMATIC S7 Connector sends to the Databus for your individual application. The Databus Configurator supports multiple user access with the following scenarios: • One user per session is allowed for each Databus Configurator of the corresponding IED. • Each user can open Databus Configurator of multiple IEDs. • Two users can access Databus of different IEDs.

## DataXess

### Cloud connector

The Cloud Connector allows you to send data from your Industrial Edge Device to a cloud infrastructure, such as the Azure IoT Hub, or AWS IoT, or to a local infrastructure. All data is transmitted using the MQTT protocol and encrypted via TLS/SSL. The Cloud Connector consists of the following two components:

Cloud Connector Configurator Cloud Connector With the Cloud Connector Configurator, you can configure Cloud Connector application installed in any IE Device, from your IEM.

The Cloud Connector accesses data of the Databus from defined topics.

## Edgeshark

Discover and capture the virtual networking of your containers in your SIEMENS Industrial Edge devices.

See the virtual "wiring" and network configuration in your web browser. For instance, your container's IP and MAC addresses, their IP routing, and DNS configuration.

Easily capture your container network traffic with the SIEMENS Edgeshark plugin for the Wireshark network capture program. Simply install the Edgeshark plugin on your desktop system (Windows and Linux) and you are ready to capture. In the plugin, you see the containers running on your Industrial Edge device. Just click on the container you want to capture from.

No fiddling around with low-level Linux CLI tools, or baking capture tools into your containers for diagnosis.

## IEnight

IEnight offers a possibility to inspect and get more insight of containers running on a dedicated host. For this, IEnight leverages the Docker Daemon. Currently, IEnight offers the following features:

-> View all running containers on a host -> Connect to a container's shell via web browser -> View docker logs from a selected container