



"With the EquipmentCloud® we are now in the position to monitor our equipment quickly and easily and make systems more comparable. It also offers initial starting points for AI."

Daniel Mairing, DB Netz AG,
District Manager in Induction,
Seddin

EquipmentCloud®

FOR DB NETZ AG

Kontron AIS GmbH has successfully integrated the train formation system Seddin North-South into the EquipmentCloud®. In addition to alarms from shunting equipment, process values and load statistics of the rail brakes, the EquipmentCloud® is also deployed to execute and document maintenance.

The common goal of the cooperation is to integrate further equipment into the department of marshalling yards and train formation facilities. The secure data transfer is implemented via the IoT Gateway of AIS.



DB Netz AG

Operating site Seddin

Project:

Integration of the Seddin North-South marshalling yard into EquipmentCloud®

Platform:

EquipmentCloud®, IoT Gateway, REST

Kontron AIS Services:

Consulting, Conceptual design of an IOT solution, Integration EquipmentCloud®, Support



CHALLENGE

- ▶ Collect data from all sensors for analyzing
- ▶ Electronic documentation/ performance of maintenance
- ▶ Prediction of deadlines/ achievement of thresholds as well as the detection of trends



SOLUTION

- ▶ Integration of the systems/ components
- ▶ Evaluation of the data via EquipmentCloud®
- ▶ Installation/Integration IoT Gateway into existing infrastructure



RESULTS

- ▶ Documentation/execution of maintenance
- ▶ Evaluations are available to authorized maintenance staff/employees worldwide
- ▶ Comparability of systems
- ▶ Data basis for artificial intelligence (AI) approaches

The integration of the train formation system Seddin North-South into the EquipmentCloud® of Kontron AIS is done via an IoT Gateway. The Linux-based gateway serves as a link between the brake control database and the REST interface of the EquipmentCloud®.

This linking is realized via the graphical visualization tool Node-Red. Using Node-Red, various protocols can already be read via the available physical interfaces and processed with minimum programming knowledge. Thus, it is also possible for the end customer to make changes or extensions to the system independently. The end customer is freed from the linking to the EquipmentCloud® thanks to Node-Red, developed by Kontron AIS.

The node handles all authentication and buffering of data in case of temporary loss of Internet connection.



https://flows.nodered.org/node/@ais_automation/node-red-contrib-eqcloud-monitoring

The collected data can now be used to compare systems or parts of systems, to generate load statistics and for documentation of alarm frequencies for rail track and system boundaries. The integrated maintenance module is used for realization and documentation and guides the user/maintainer through the maintenance process by using multiple checklists. A constant access to the relevant documents and maintenance instructions from DB Netz or the respective manufacturer is ensured at any times. Due to the responsive view, the checklists can easily be processed on any smartphone or tablet directly at the system.



Fig. Overview of load statistics, process value monitoring and alarm frequencies.

The basis for the integration of further equipment parts or entire train formation systems has now been created. Especially the department for shunting technology in Munich of the DB Netz AG is aiming to push the integration of additional systems as soon as possible.

“We want to use the EquipmentCloud® to make systems comparable, e.g. to identify faults in systems as early as possible, to detect recurring errors in cross-location components and thus improve the availability and shunting quality of our train formation systems.”

Dr. Martin Scheuch, Shunting Technology Department, DB Netz AG



ABOUT NETZ AG

DB Netz AG is the railway infrastructure manager of Deutsche Bahn AG. With around 46,000 employees, it is responsible for the approximately 33,400-kilometer-long rail network, including all operationally necessary installations. An average of 23,500 trains are using DB Netz AG's infrastructure per day. Thus, DB Netz AG was able to generate revenues in the 2019 business year of EUR 5,651m.

The main task is to make available to the around 420 RUs a high-quality, high-availability and non-discriminatory infrastructure and to manage the operation of said infrastructure. This includes the compilation of timetables in close cooperation with our customers and the repair and maintenance of the rail network. In addition, investment in the existing network, in modern command and control technology and in plans for building new lines and upgrading old ones ensures the further development of the rail infrastructure.

DB Netze Fahrweg is the number one European railroad infrastructure provider. Every year, more than 1 billion track kilometers are driven on the tracks in Germany. Most important sources of income are revenues from train paths, which account for over 90% of total sales. Train path prices are transparent thanks to a train path pricing system regulated by the Federal Network Agency. Besides the permanent backup of a high infrastructure quality and availability and non-discriminatory access to train paths and service facilities, DB Netze Fahrweg is also responsible for the management of infrastructure operations. This includes timetable preparation in close cooperation with customers, operations management, construction management and maintenance.

For more information please visit: www.dbnetze.com

ABOUT KONTRON AIS GMBH

We set the benchmark in industrial software. For more than 30 years and with a growing team of 160 employees, we provide solutions for machine and plant manufacturers as well as factory operators to break new ground in automation and thereby substantially reduce costs. Together with our customers, we develop concepts for smart manufacturing and Industry 4.0, helping to implement intelligent digitization strategies successfully.

As part of the Kontron Division in the S&T Group, we offer integrated concepts for control & IoT hardware as well as project management, service and support through a global network of regional centers.

We offer innovative functions for brake and transport systems in shunting yards. Our software solutions have been increasing the effectiveness and reliability of rail freight transport in Germany for many years.

For more information please visit: www.kontron-ais.com