EUtech
Scientific
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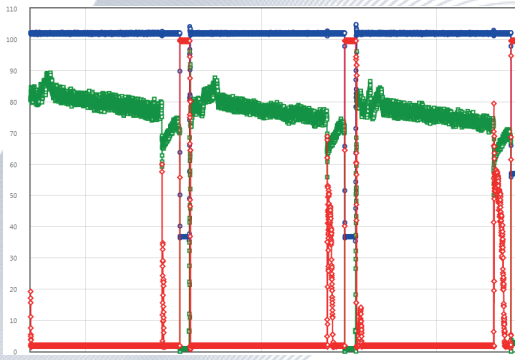
EU-MDM™

Web-based Measurement Data Management

- Standardize and process your data
- Search for data and events easily
- Generate your reports in seconds



EU-MDM™
Web-based Measurement Data Management

With big data comes the big challenge of managing and analyzing it in order to extract the desired information. Having the right data at the right time and at the right place is crucial to business success - driving innovation, revenue growth and competitive excellence.

EU-MDM helps you to address this challenge by giving you quick and easy access to exactly the data you need. It is a modular, web-based solution that can be readily adjusted to your specific requirements, covering the entire range from data collection, efficient data storage and retrieval, powerful data analytics and sophisticated reporting functionality.

Features

- Extensive search functionalities
- Multi-source data joining
- Plausibility checks
- Import and export capability
- Standardization of formats, signal names and units
- Linking measured data with metadata
- Fine granular user and right management
- Easy to use web-interface
- Data processing and reporting based on MATLAB®
- Notification system

Benefits

- Increase of company-wide availability and comparability of data
- Reduction in overall data complexity
- Improved data quality
- Early identification of critical events or potential problems
- Prerequisite for condition-based-maintenance

Measurement Data Management Challenge

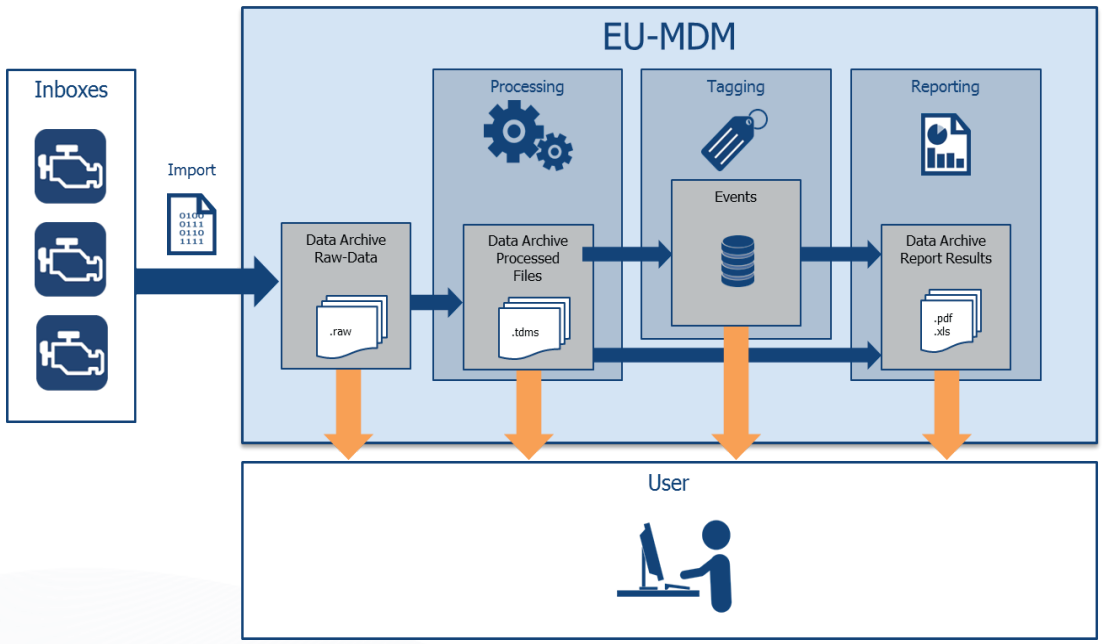
EU-MDM™

System Overview

EU-MDM is responsible for managing your big data. It is a tool to unify and consolidate measurement data within your company to make analysis reports applicable. The tool supports you to create a common understanding of the data and its meaning and make it available for every user.

The system collects recorded raw data from different data sources, unifies signal names, calculates characteristic values, marks data of interest, stores consolidated measurement data and allows searching for processed files. All measurement data are assigned to its “unit under test” (e.g. engine, heating device etc.) and are associated with the unit’s metadata. In addition, documents or photos can be attached or linked to a point in the lifetime of the "unit under test".

EU-MDM generates scheduled or on demand reports. Extensive search, extract and export functionalities enable further analysis. The user interacts with an easy to use web frontend via his web browser. A web preview of the data ensures that the right information is downloaded.

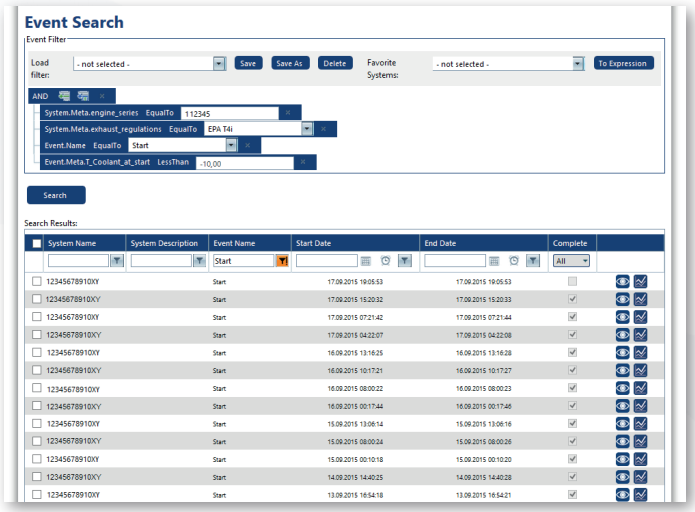


System structure

Search

One of the key features of EU-MDM is the ability to perform detailed yet quick searches on large amounts of data. By processing the data directly on import and attaching metadata to it, the system can later on search up to multiple terabyte of data for specific predefined events, metadata or signal criteria in seconds.

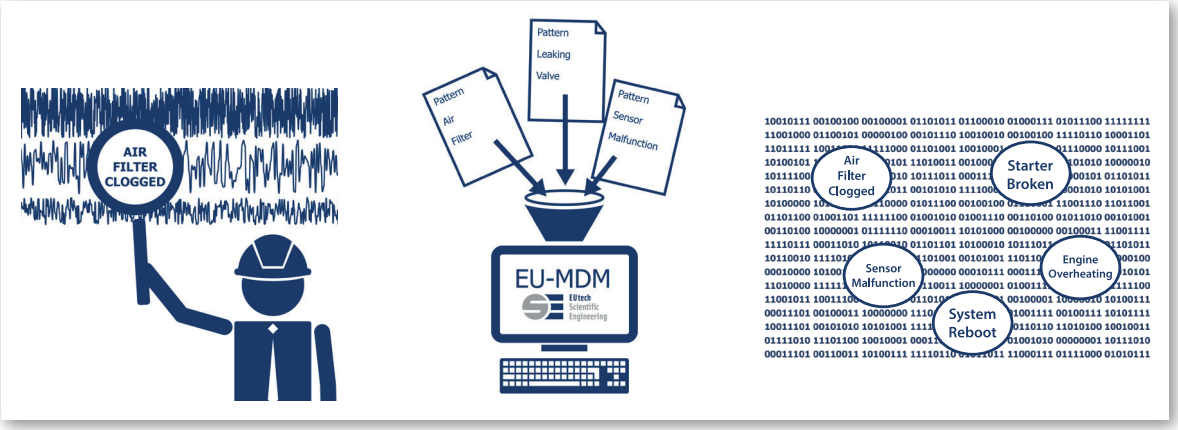
The search functionality is also coupled with report generation. With a few clicks, use your search results to generate detailed reports that can be mailed, downloaded or archived into the system.



Search results for cold start events under specific exhaust regulations

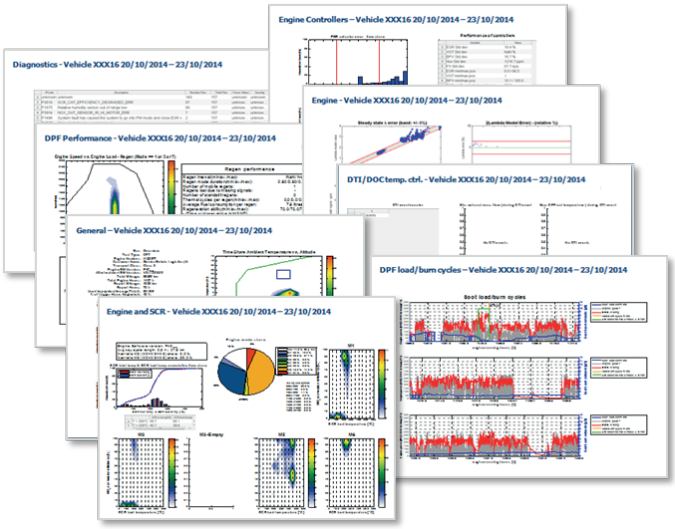
Tagging

EU-MDM allows marking a time-range in a processed data set as an event. The criteria for defining an event are specified by the user. For example, in data from car test-drives, we can search data sets for time ranges where the ignition turned on and then off again. These time ranges can then be marked as a “Drive” event. This process is called “Tagging”, and once configured by the user it is performed automatically by the EU-MDM server on all processed data sets. The resulting tagging information allows fast searches for events of interest.



Tagging procedure

Reports



Automated reports

Reports are generated by custom scripts which are executed on demand or in regular intervals. Typically, they analyze or summarize data from multiple data sets of the data base and create one or more artifacts like PDF documents, Excel-sheets, data files or messages. EU-MDM allows sharing information and analysis results between users easily to avoid multiple generation of the same plots/analysis.

Reports can make use of all available measurement and meta-information. They can perform statistic analysis, modeling and prediction tasks as well as complex comparison between data. Therefore, reports contain detailed information if there are specific data/events found. In addition, geo information is used to visualize GPS traces in maps, geo-fencing etc.

Reports and all processing and event detection algorithms can be directly implemented by the user using the power of MATLAB as technical computation language and its toolboxes. Optionally other external analysis tools can be executed.

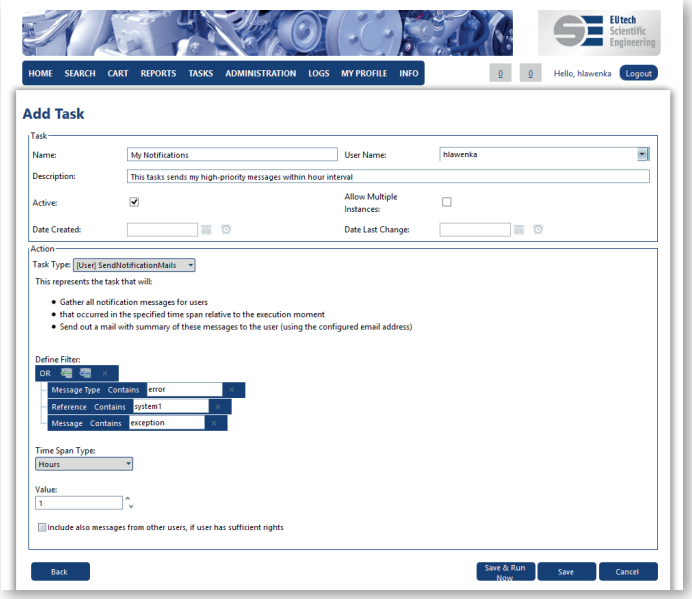
Export

EU-MDM offers the ability to inspect or export data in standardized formats. Including CSV, XLS, MDF, TDMS, ATFX, MATLAB, NetCDF, Uniplot and hundreds of additional data formats supported via National Instruments Data plugins.

EU-MDM™

Notification Management

With EU-MDM, you design your communication yourself. The complex processes of your data management system can be automated according to your individual requirements. Use the extensive notification function to ensure a continuous information flow. Integrated email and SMS alerts, for example, support your escalation management and ensure that you will always be informed about the operations of your “unit under test”. Configure your events of interest (interval, categories, content etc.) and EU-MDM will proactively notify you about irregularities.



Notification filter and interval

Traceability

EU-MDM keeps track of all calculated values and reports. No matter if you are interested in tracing back how a specific value was calculated EU-MDM provides the corresponding information. The connection from raw data via processed data down to generated reports is stored within the EU-MDM system, such that you can see which reports were influenced by a given set of raw data or which raw data were used to generate a specific report.

EU-MDM handles version history of all scripts and configurations to provide traceability not only on the data itself but also on the semantic processing and analysis steps applied to it. This enables easy identification of results that need to be revised when changing a script or formula.

IT infrastructure

EU-MDM’s data base is based on MS-SQL Server. For processing, event identification and report generation EU-MDM relies on MATLAB®. The use of MATLAB facilitates use of specific toolboxes for in depth analysis. For very large systems multiple backend worker machines can be deployed.

Application and Results

With the EU-MDM system in place you are able to get the most out of your data by increasing its availability and comparability company-wide. Use detailed reports that were generated according to your requirements and send clearly arranged information and key performance indicators to colleagues and management either in an event-controlled fashion or automatically after a predefined schedule. Now you are able to identify critical events or potential problems in advance and introduce appropriate strategies such as condition-based-maintenance.

Application fields of EU-MDM include automotive fleet development, process industry plants, buildings with smart metering etc.

EUtech Scientific Engineering GmbH

EUtech Scientific Engineering provides cutting edge engineering solutions for the leading technology companies. Using model-based design we bridge the gap between innovation and industrial application. Energy is the driving force – not only for us but also for our international customers coming from industries as diverse as automotive & propulsion, aerospace, power generation & utilities, and advanced energy. For more than fifteen years EUtech is now active as development partner in the field of simulation, software engineering and turn-key testing systems. Our portfolio also includes energy and data management, calibration, function development and virtual sensors.

Contact

EUtech Scientific Engineering GmbH
Dennewartstr. 25 - 27
52068 Aachen, Germany
Phone: +49 241 / 963 - 2380
Fax: +49 241 / 963 - 2389
Email: info@eutech-scientific.de
Internet: www.eutech-scientific.de

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