Data exchange between a measurement system and a MDM system

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MDM - System

- Structured storage and archiving measurement data

- Various components for managements of test and measurement data

- Based on ASAM data model

- Data exchange between a measurement system and a MDM – System

Contents

- Measurement Data

- Concept of MDM loading ramps

- Use Cases
  - Test order
  - Export to TDM-File Format
  - Measurement
  - Import into the MDM System

- TDM File Format

- Mapping TDM File Format – MDM data model – ASAM data model

- Future development

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Measurement Data

- The generation of measurement data takes place outside of the MDM system
  - Test sites
  - Test benches
  - Road tests

- Different data signals are recorder
  - Distance, speed, acceleration
  - Audio signals
  - Video signals

- Different data formats are generated
  - Structured text files
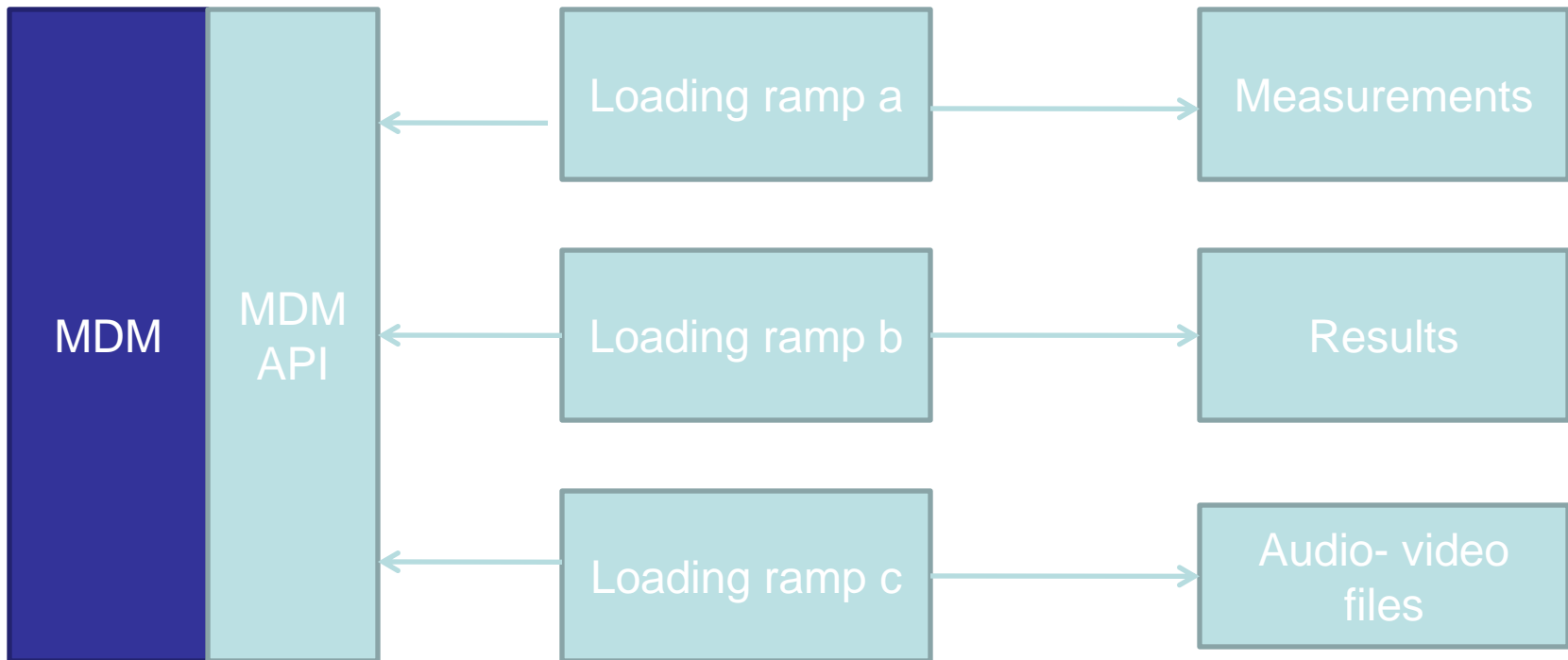 - TDM File Format

Concept of MDM loading ramps

Different requirements

- Import of measurements

- Import of calculated results

- Import of documents

- Import of different data formats

- Import of large amounts of data

- Offset in time to save

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Concept of MDM loading ramps

Import and Export

Use Case

Implementation of a loading ramp as it is used at AUDI AG

- Data exchange via the TDM File Format of the analysis tool Diadem

- The process involves
  - Test order
  - Export to TDM file format
  - Measurement
  - Import to MDM System

Use Case

Test order

- Create a test order

- Required data for measurements

- Describes the examinee

- Describes the test equipment
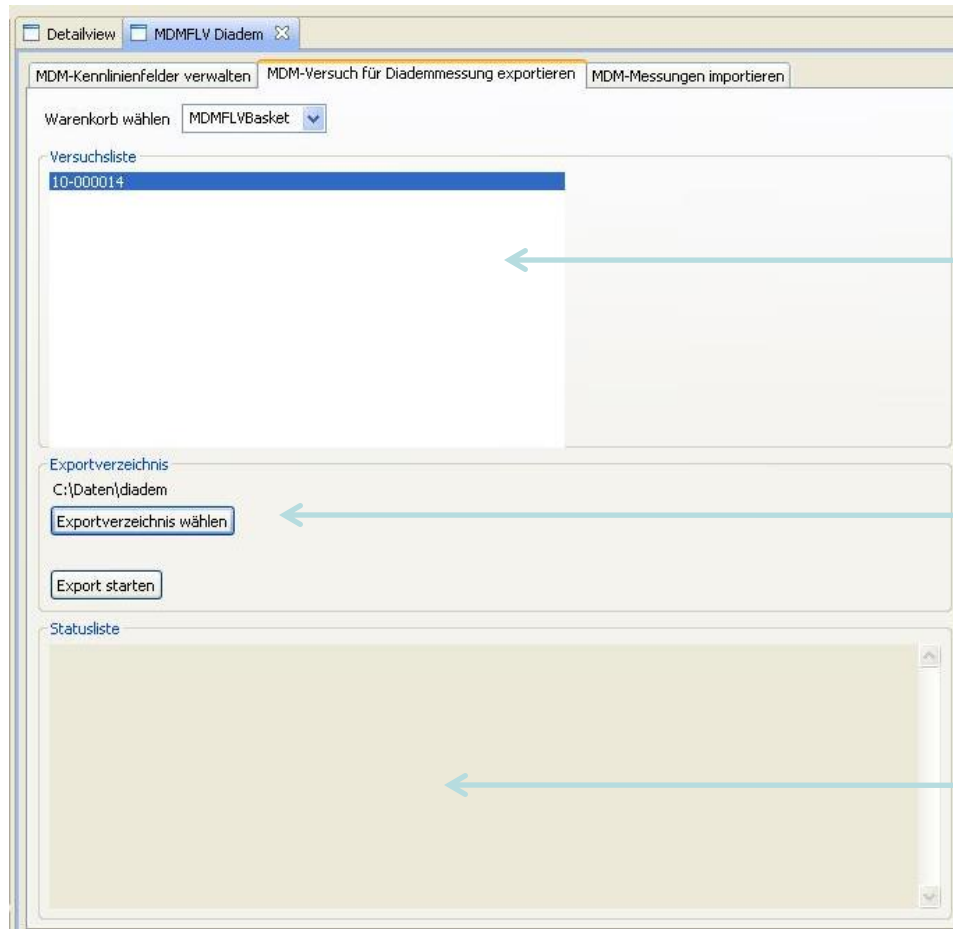
- Describes the environment

Use Case

Export to TDM – File Format

- Export to TDM – File Format

- Different libraries
    - XML Writer
    - MS Excel Writer
    - TDM Writer

- Graphical User Interface

- Use a C library to write the TDM file format

Use Case

GUI – Export to TDM - Format

Choose a test order

Choose the export path

Status information

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Use Case

Measurement

- Uses the test order data

- Perform the measurement

- Register the measurement data
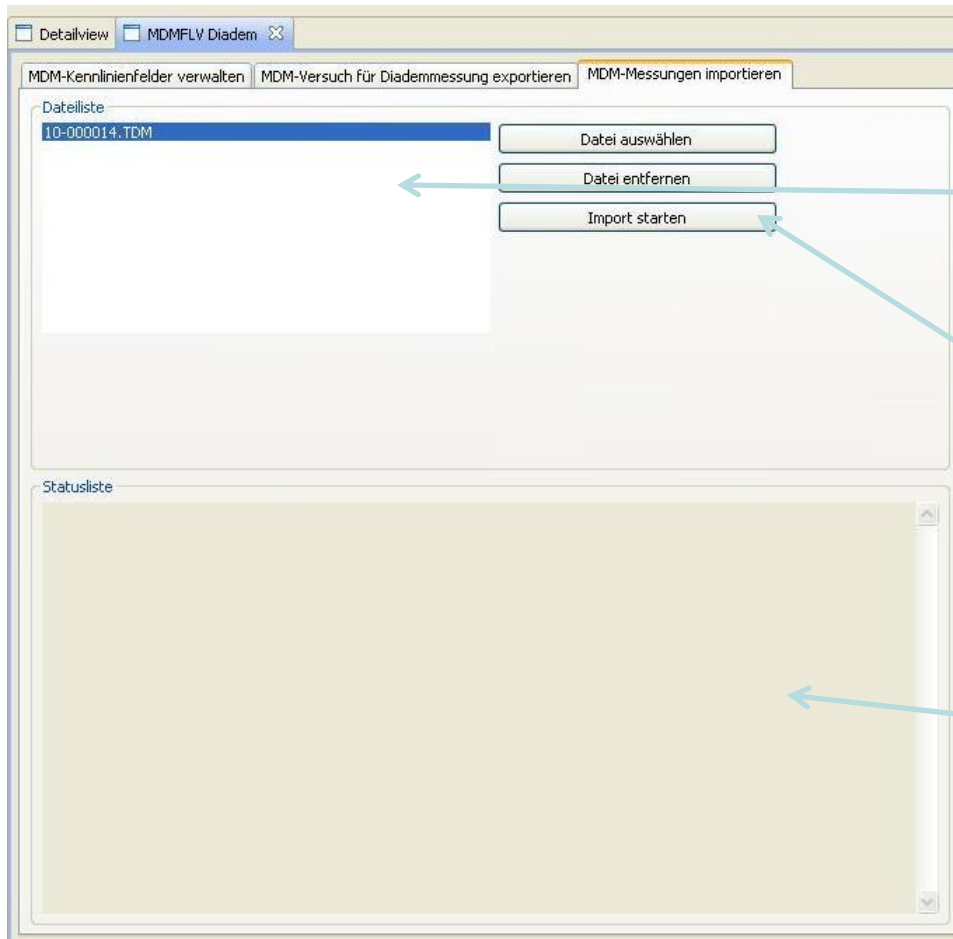
- Record and store the measurement data

Use Case

Import into the MDM System

- Graphical user interface

- Read the measurement data

- Store the data in den MDM data model

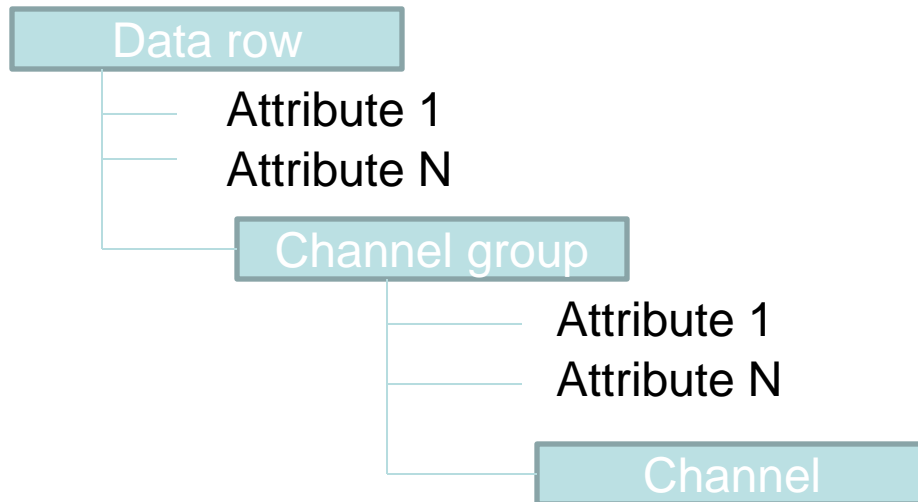# Use Case

GUI – Import a TDM-File

Select the import data

Trigger the import process

Status information

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TDM – File format

- TDM = Technical Data Management

- Was developed by National Instruments

```
Data row
    Attribute 1
    Attribute N
        Channel group
            Attribute 1
            Attribute N
                Channel
```

Mapping TDM – File Format – MDM data model

- A TDM-File has more than two groups, which we consider each as a Result Mea.

- Each channel group includes its channels

- Each channel has two attributes (Quantity and Unit)

- The Attributes Quantity and Unit are mapped to MeaQuantity and LocalColumn

Future development

- For future extensions to the "loading ramp" a partial automation of the process is planned to import data more quickly into the MDM system

Thank you for your attention.

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