AMS^ETL

Optimized Data Analysis and Reporting with a Data Warehouse for AMS

Digitalization plays a crucial role in gaining competitive advantages. For informed decisions to be made within the company, it is essential that data is visible, retrievable, and analyzable.

AMS has numerous statistical data that provide valuable insights into jobs, loads, and complaints.

However, deeper analyses, securing data over a longer period, and optimal access are only possible after a restructuring of the data.
The comprehensive solution is the implementation of a Data Warehouse* in combination with an ETL process* (**E**xtract-**T**ransform-**L**oad).

The Data Warehouse is an indispensable tool for effectively using data, making strategic decisions and increasing competitiveness.

FACT_JOB_ITEM_COSTS

ID
ID_DIM_JOB_ITEM
DATE_OF_CALCULATION_DIM_DATE
DATE_OF_CALCULATION_DIM_TIME
ACTUAL_COSTS_OF_EQUIPMENT_DIM_CURRENCY
TARGET_COSTS_OF_EQUIPMENT_DIM_CURRENCY
ACTUAL_COSTS_OF_WORK_STEPS_DIM_CURRENCY
TARGET_COSTS_OF_WORK_STEPS_DIM_CURRENCY
ACTUAL_COSTS_OF_EMPLOYEE_DIM_CURRENCY
TARGET_COSTS_OF_EMPLOYEE_DIM_CURRENCY
CREDIT_NOTE_COSTS_DIM_CURRENCY
AMS_ID
DATE_OF_CALCULATION
ACTUAL_COSTS_OF_EQUIPMENT
TARGET_COSTS_OF_EQUIPMENT
ACTUAL_COSTS_OF_WORK_STEPS
TARGET_COSTS_OF_WORK_STEPS
ACTUAL_COSTS_OF_EMPLOYEE
TARGET_COSTS_OF_EMPLOYEE
CREDIT_NOTE_COSTS

DIM_JOB_ITEM

ID
ID_DIM_JOB
ID_DIM_JOB_TYPE
ID_DIM_INDUSTRY
ID_DIM_SEQUENCE_ITEM
CREATION_DATE_DIM_DATE
CREATION_DATE_DIM_TIME
CREATOR_DIM_EMPLOYEE
ID_DIM_MATERIAL_TYPE
ID_DIM_LOCATION
ID_DIM_CONVERTING_STAN
ID_DIM_INSTRUCTION
ID_DIM_MATERIAL
AMS_ID
JOB_ITEM_NUMBER
JOB_ITEM_NUMBER_COMP
IS_FOLLOW_UP_TREATMEN
CREATION-DATE

DIM_CURRENCY

ID
AMS_ID
DESCRIPTION
EFFECTIVE_DATE
CURRENT_ENTRY

DIM_DATE

ID
ID_DIM_YEAR

DIM_TIME

ID
ID_DIM_HOUR
ID_DIM_MINUTE

Your Benefits

Centralized and Unified Data Storage
A common storage location for AMS data and external data records facilitates access.

Real-Time Analyses and Reports
Faster decision-making through standardized data retrieval.

Improved Strategic Planning
Permanent storage of data allows for analyses over longer periods.

Optimized Analyses & Reporting
Connection to Business Intelligence tools with dashboard view possible at any time.

The image shows a simplified excerpt from the entire Snowflake schema.
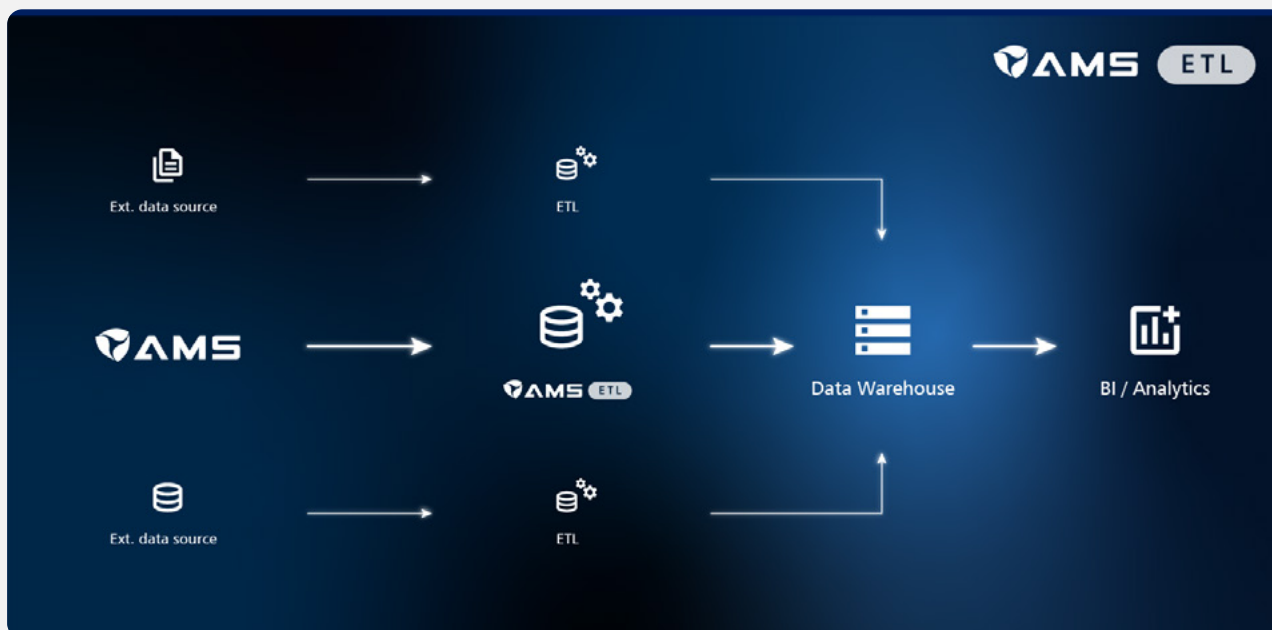
Data from AMS as well as from other systems is extracted, transformed into a suitable data structure, and loaded into the Data Warehouse (DWH). It stores all data in a universally readable Snowflake schema*, which allows access for external Business Intelligence applications such as Power BI. This enables comprehensive evaluations that can be summarized in clear reporting dashboards.

What is a Data Warehouse? What benefit does it have?

A data warehouse is a central system for storing and managing data, specifically designed for data retrieval for analysis, and reporting purposes.

It stores data from various sources (e.g., AMS) and enables comprehensive insights into historical data to analyze trends over longer periods.

The structure of a data warehouse is optimized to support fast and efficient queries – using a snowflake schema.

Why is an ETL Process needed?

Data warehouses serve as the foundation for business intelligence tools that allow companies to visualize data, create reports, and conduct deeper analyses of their business processes. The ETL process (**E**xtract, **T**ransform, **L**oad) is crucial for data integration. It ensures that data from all source systems (AMS, etc.) is brought into a suitable format and universally readable in the data warehouse.

What is a Snowflake Schema?

A snowflake schema is a data model used in data warehouses to organize data:

It is characterized by a normalized data structure where fact tables are connected to subordinate dimension tables. A fact table for AMS batches can, for example, be connected to appropriate dimension tables for material, treatment type, and date. This division leads to a data structure that reduces storage requirements and allows for quick retrieval.

TTC Informatik GmbH provides you with the complete Data Warehouse solution upon request: From exporting AMS data (and data from external data sources) in the ETL process to storage in a Data Warehouse to connecting to a Business Intelligence tool for optimal data evaluation.

Contact us! We will realize the optimal Data Warehouse solution for you!

An Overview of the Functions of AMS^{ETL}

The Data Warehouse stores the following historical data from AMS:

· Job Items
· Loads (treatments / work processes)
· Complaints

Storage from external data sources
is also possible.

The following dimension tables are used in the Data Warehouse:

· Time / Date / Hour / Minute / Second
· Year / Month / Quarter / Week / Weekday
· Action template
· Complaint / Reason
· Contact person
· Conversion norms
· Cost center
· Currency
· Customer / Location / Department / Employee
· Equipment / Equipment type
· Industry
· Treatment / (Treatment) instruction
· Job / Job item / Status / Type
· Load / load status
· Material / Material type
· Pre-treated / Nitrided / Status
· Item sequence
· Transport / Unit
· Work plan
· Work process / Work process load

The timing rhythm of data exports from AMS to the Data Warehouse can be set in advance:

· daily
· weekly
· monthly

The export always represents a snapshot of the data at the time of export. If data is overwritten multiple times between two export times, the system only considers the last change. For the initial export, it can be set how far back in the past the data should be transferred
(e.g., all items from the last 3 months).
After that, only the data that has changed since the last status or that has been newly added will be exported.

The following fact tables are used in the Data Warehouse:

· Complaint costs / Complaint processing
· Assignment of job items /
  Production jobs for loads
· Assignment of job items or
  production jobs to process work steps
· Order position costs / Order position processing /
  Order position revenues
· Load costs / Load processing
· Work process load costs or
  work process load processing

Required Licenses:
AMS^{ETL}

Technical Requirements
Sufficient storage space is necessary.
If a third-party DBMS is used, requirements / storage needs must be coordinated with the administrator of the existing DBMS. The Data Warehouse runs on a Firebird database. Therefore, the system for evaluating the data (e.g., BI tool) must be compatible with Firebird.

The following Business Intelligence tools can be connected to the Data Warehouse by default:

· Power BI
· QLIKS
· ARBUBA BI
(more upon request)

Without the connection to a BI tool,
the data can be evaluated in SQL tables.

TTC Informatik GmbH is a software and service system house specializing in heat treatment companies EL.

The international customer base includes contract and industrial hardening shops as well as companies in surface treatment and related industries.

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Customer Service and User Support
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Analysis and Consultation
on issues relating to material and document flow

Update and System Maintenance
to keep your systems running smoothly

User Training
tailored to your needs