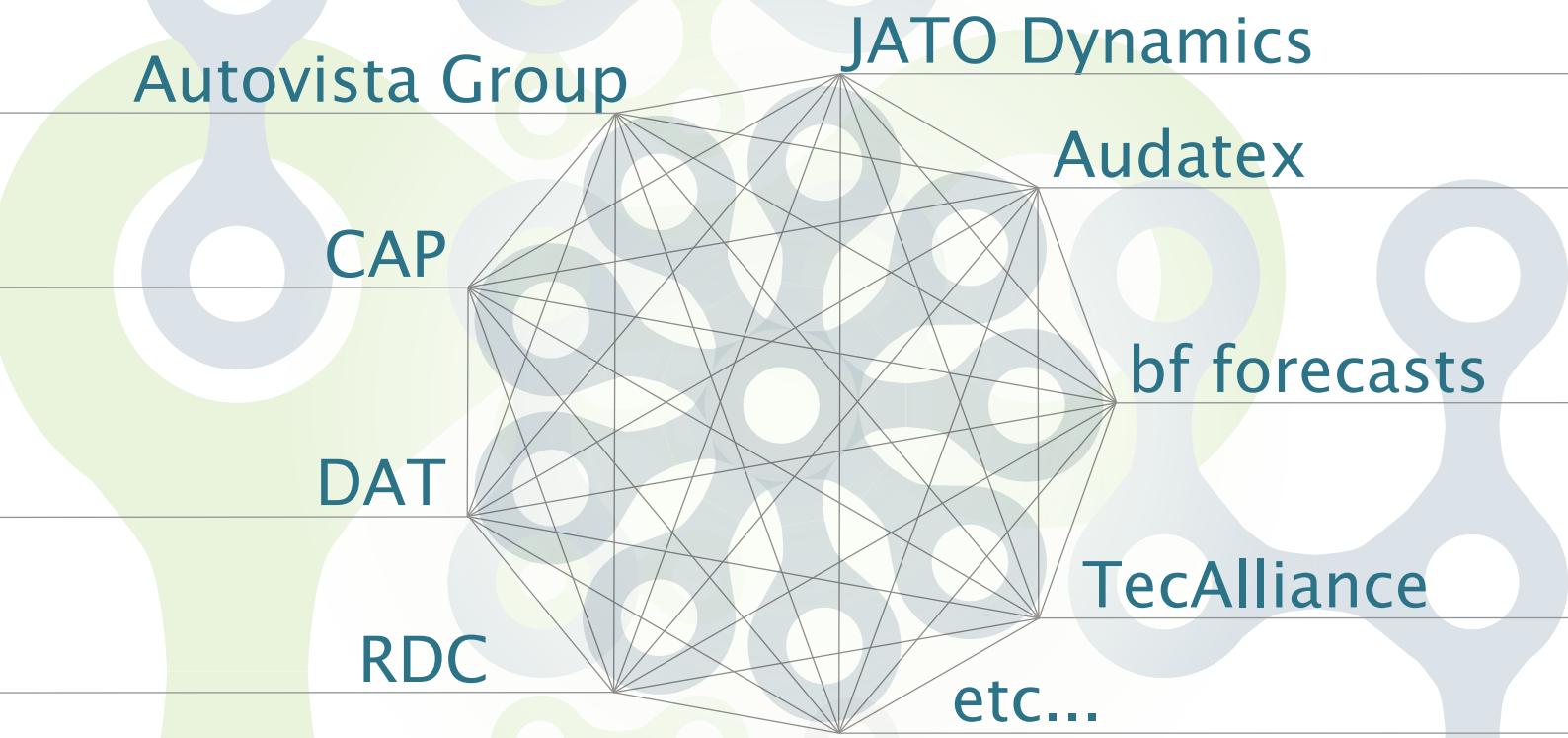
Highly efficient software for comparing automobile lists from a diverse source of data suppliers.



e:c:mapper

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e:c:logic

Highly efficient software for comparing automobile lists from a diverse source of data suppliers.

e:c:mapper brings together what belongs together

Field and task

Automobile specifications, residual values, service and maintenance schedules are researched by some data suppliers and the data is presented as a licenced data bank. Leasing companies, fleet management companies, insurance companies, banks, automobile repair shops and car dealers licence these data banks for the ongoing operations of their own software solutions for configurations, calculations or TCO analysis. This software is then tailor-made for the particular data provider and utilises tue particular proprietary data formats.

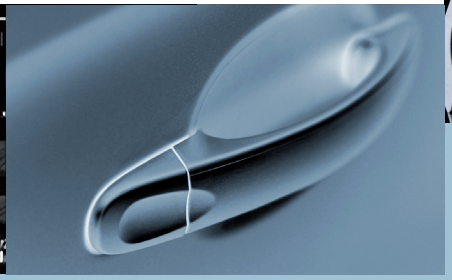
In this way, the vehicles are identified via the data provider´s key in the database. There is no provision for a standard interface for the exchange of vehicle data.

Not all of the data providers supply all the data parameters for every single vehicle – for example JATO Dynamics only provides vehicle specifications and bf forecasts only provides residual values. The different areas of application within the data bank result in specialized data bank structures. A data provider for passenger car specifications researches every single sales variant that a vehicle has, including model series, model year, body type, type of motor, transmission and trim line – in Germany these make up some 6000 data sets. As opposed to that, a particular data provider for service and planned maintenance only researches the model series, motor type and transmission – in Germany that comprises less than 1000 data sets. This diversity of data granularity within the data banks imminently results in typical specification assignment problems with respect to service and maintenance schedules. When different companies utilise different data providers, additional frictional losses occur due to the lack of common identification features for assigning a vehicle to the data banks in use. In this way, a fleet manager's leasing query directed to a leasing company often leads to the manual, and thereby more laborious, time-consuming, and error-prone comparison of various vehicle lists.

Each data provider supplements, changes and renews his data inventory in tact with his cyclic data researches, in accordance with modifications in the manufacturer's range of vehicles. For this reason, adjustments between the various data provider systems have to be repeated regularly.

e:c:logic's e:c:mapper automatically allocates the identification features which are provided by differing automobile data providers to one another.

- JATO Dynamics
- DAT
- bf forecasts
- Autovista Group
- Audatex
- TecAlliance
- CAP
- RDC
- etc...



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Mapping Scenarios

SCENARIO 1

Exchange of vehicle lists between systems from different data providers

As a fleet manager you regularly obtain new quotes from leasing companies. Your internal fleet administration software utilizes JATO for ordering new vehicles, yet the leasing company you directed your request to utilizes Eurotax internally to carry out the leasing calculation. You send a list of vehicle requests to the leasing company and in return you receive quotes for each vehicle with the leasing rates and the corresponding Eurotax NAT codes. You are then obliged to adjust the list of requested vehicles with reference to the quotation list you have received; the quoted leasing rate should be carried over in the process.

You upload the tender offer list and the quotes received in the e:c:mapper and assign the vehicles to them respectively. The mapping result can then be readjusted if necessary. In this way, systematic assignment errors are easily detected and can usually be eliminated by `recalibrating´ the mapping profile for future assignment orders.

SCENARIO 2

Integration of a new data provider into an internal software solution

You operate an internal fleet management system for processing new vehicle orders, using a configurator based on JATO data.

You wish to integrate residual values as an additional service in evaluating the fleet and choose DAT as your residual value supplier.
You regularly receive new residual values and wish to transfer these to the internal evaluation system; the residual value data sets are to be assigned to the respective JATO data sets.

The e:c:mapper batch mode automatically takes care of this as soon as the transferred data is received.

SCENARIO 3

Takeover of an existing fleet (data migration)

Your company has succcessfully acquired a new fleet and you have to transfer the relevant fleet data to your internal administration system.
You have received a list of vehicles which has to be managed without any unambiguous data provider source identification tags whatsoever.
Using an individualised e:c:mapper takeover profile, foreign inventory data are successfully carried over to internal formats.

SCENARIO 4

Requests in a foreign data format

As a leasing company, you receive requests in foreign formats from fleet administrators. You perform calculations in your internal system using Eurotax data and receive, e.g. requests from fleet administrators who use JATO data internally.
You are obliged to calculate lists internally of new vehicles that are requested on a regular basis and you therefore require a conversion of JATO data into your internal Eurotax format; the quotes should however, be subsequently forwarded back to the fleet manager in JATO format again.

With the help of the e:c:mapper you can easily transfer the request for quotation lists to your internal calculations.

Advantages:

- **Expensive manual comparison of data is minimized**
- **Improved quality of data sets**
- **Cost reduction due to faster comparison**

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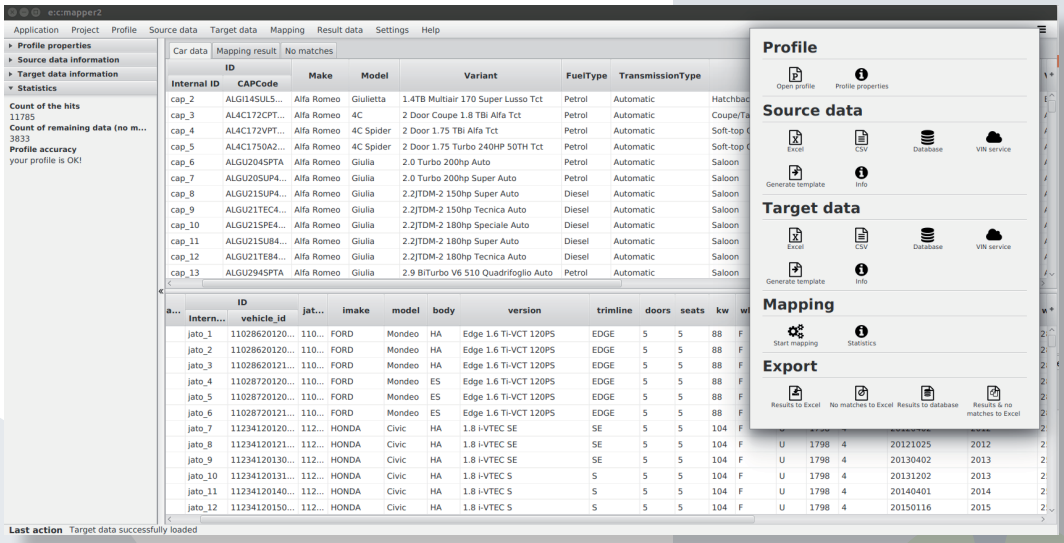
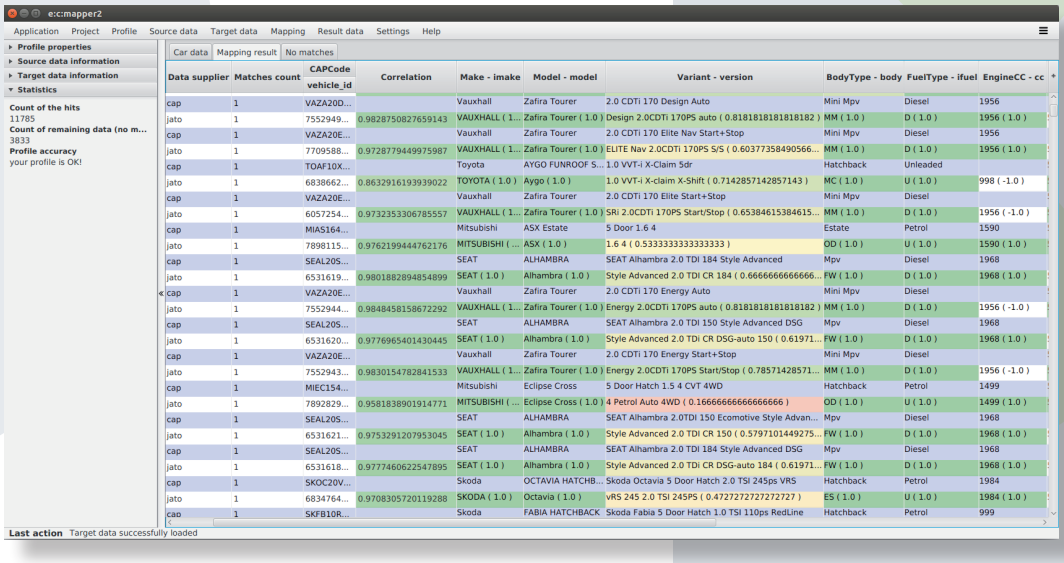
Program Features

List 1 (data provider e.g. CAP) ***List2 2 (data provider e.g. Jato)***



After opening a profile, both input lists are uploaded and can be checked once again.
After that, the actual mapping procedure is initiated.



After the mapping has been successfully completed, the result is displayed and can be exported as text data or in MS-excel format.

- **Reduced follow-up costs due to reduced error rate**
- **Facilitated integration of new data providers**

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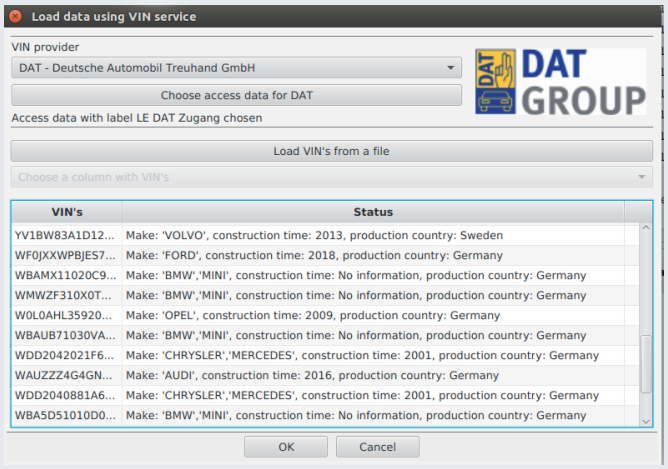


VIN Mapper e:c:vinmapper

Creating detailed commercial specifications for already built vehicles.

The optional plugin e:c:vinmapper for e:c:mapper turns a meaningless list of VINs (Vehicle Identification Numbers) into a complete data source for e:c:mapper.

The plugin uses VIN query servers (e.g. from DAT) to create a mapping list including the vehicles with all selected optional equipment.

This list is then used in a mapping procedure against a target data source (e.g. JATO).
At first, each appropriate basic vehicle is identified, then the corresponding suitable equipments as well. The result is a highly standardized vehicle in the database schema of the target data source.
In that process many vehicle attributes which are hidden in the initial VIN response will become visible by the target data source. Mapping the price structure of the vehicles and the complete description of the special and standard equipment produces results that can be used for calculations and administration.

The optional plugin e:c:vinmapper requires an additional usage contract for VIN services.
The target database must allow historical data to be retrieved.

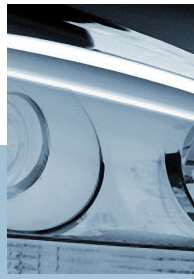
Scenarios for VIN-Mapping:

SCENARIO 5

Vehicle dealers/branch offices, internet portals

As a car dealer/branch or internet portal operator you offer stock and used cars from different sources.
Inconsistent, unclassified vehicle descriptions prevent a manufacturer-spanning search for vehicles, make it difficult to compare vehicles or to speed up bidding processes.
You can obtain normalised vehicle descriptions from a VIN query provider, but in many cases this is not sufficient.

By usage of e:c:mapper/e:c:vinmapper these results are transferred into high quality classified commercial vehicle specifications (e.g. from JATO) increasing the service quaility for your vehicle stock and sales.



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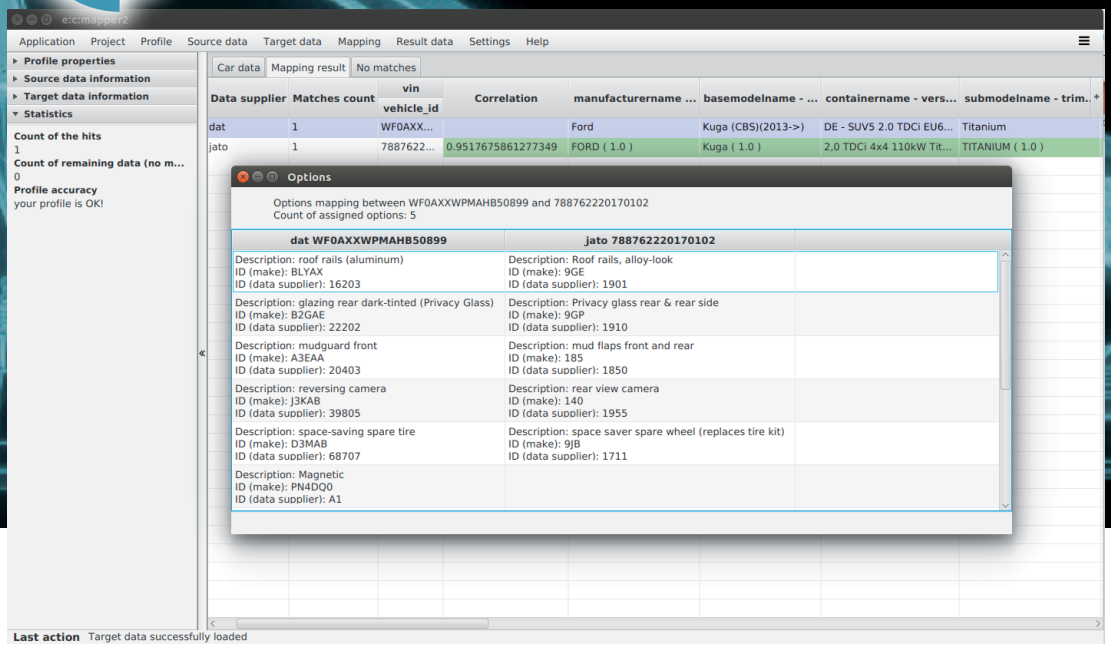

SZENARIO 6

Vehicle Insurances

VIN Mapping - uniform and classified description of your vehicle contract portfolio.

Your company is interested in damage relevant vehicle equipment.
Only by usage of classified vehicle descriptions statistically valid statements can be made. This cannot be carried out solely on the basis of the uniform description of VIN query results.

By usage of e:c:mapper/e:c:vinmapper these query results are transferred into detailed classified vehicle specifications (e.g. from JATO), ready for the statistical examination of your motor vehicle contract portfolio.
Furthermore, each detailed vehicle specification allows for detecting and calculating inherent vehicle damage risks (e. g. glas damage risk) and supports your damage management.

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Description of the program

The e:c:mapper is a Java program for internal applications.
In this way, your data remain fully under your control. Mapping tasks are organized in the form of profiles. Each profile includes specifications as to which data provider has provided the starting material and which mapping direction is to be utilized e.g. JATO to DAT. After a profile has been opened, the two entry lists are uploaded and can be checked once again. After that the actual mapping procedure is initiated. After the mapping has been successfully completed, the result is displayed and can be exported as text data or in MS-excel format. The actual mapping process is carried out in several stages:

1. Extraction of characteristics

All of the entry fields are scanned for utilizable vehicle description features. During the process, aggregated identifier terms are brought into play in order to extract every possible bit of information – e.g. the designation `DSG´ or `Tiptronic´ in a vehicle denotation will automatically be identified as such as automatic transmission.

2. Standardization of the characteristics

Some data providers describe particular vehicles or vehicle characteristics in different ways. For instance one data provider classifies a hatchback as being a door, others do not. What one provider describes as being a `hatchback´ model is a `limousine´ for a different provider. These variations are evened out by step-wise standardizations based on heuristics.

3. Statistical hit evaluation

All known characteristics of a particular profile are weighted and after that all data sets are compared phonetically feature by feature. This yields a hit probability for the particular pairs of data sets. Should the hit probability exceed the pre-allocated profile threshold, the relevant data set pair will be incorporated into the final hit list.
In addition to e:c:mapper's interactive mode, a batch mode is provided for automating the mapping in the form of scripts. In the process, the program is completely operated by command line parameters. In doing so, no interactive user interface is rendered visible.

The program is executable using Java 1.8 with Windows, Linux, MacOS

e:c:mapper *consolidates:*

JATO Dynamics
Vehicle specifications for passenger cars and trucks (up to 3,5 t) for more than 45 markets; volume data and market analyses
www.jato.com

DAT
Automobile specifications, residual values, forecasts, information regarding maintenance, wear and tear parts and repairs for passenger vehicles and trucks; expert assessments and market analyses.
www.dat.de

bf forecasts
Residual values, forecasts and portfolio analyses for passenger vehicles and trucks (up to 3,5 t).
www.bfforecasts.de

Autivista Group
Vehicle specifications, residual values, forecasts, information regarding maintenance, wear and tear parts for passenger vehicles and trucks.
www.eurotax.com

Audatex
Residual values, information regarding maintenance, wear and tear parts and repairs for passenger vehicles and trucks.
www.audanet.de

TecRMI
Information regarding maintenance and wear and tear parts for passenger vehicles and trucks.
www.audacon.de

CAP
Vehicle specifications, residual values and forecasts for passenger vehicles and trucks.
www.cap.co.uk

RDC
Vehicle specifications for passenger vehicles and trucks (up to 3,5t); market information.
www.rdcbelgium.be

Arbitrarily defined data formats
Specific mapping tasks can be solved by creating one's own data profiles. Our consultants support you in conceptualizing appropriate data structures, standardization steps and course of action.

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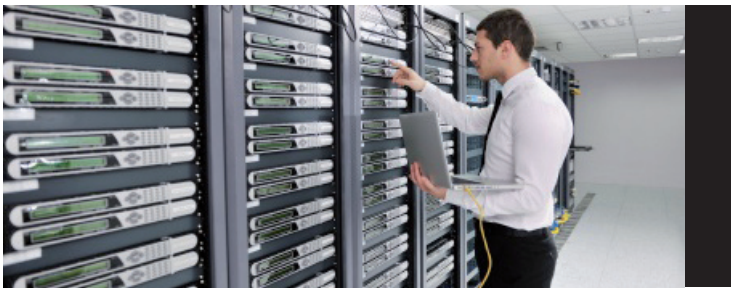
e:c:mapper *is a product of:*

e:c:logic

Company Details:

e:c:logic GmbH is a leading German producer of vehicle configurators.
e:c:logic has been engaged in producing and running software in an automobile environment for over ten years.
Internet applications for over 18 european countries are run from our own fail-safe data hosting center.



e:c:logic's product line supports fleet management companies, leasing companies and web portals in the implemention of vehicle configurators and TCO applications.

Contact:

ec-logic GmbH
Theresienstr. 12
D-90762 Fürth

Sales Department
Telephone: 0911-9711927
Fax: +49 (0)911 9711915
HR B 7997 Fürth

Head office
Telephone: +49 (0)911 9711910

www.ec-logic.com
info@ec-logic.com

Additional products:

e:c:car
is a highly functional Application Service Providing (ASP) automobile configurator for new vehicles.

A fully-customizable core configurator, vehicle comparison, financing modules for leasing and credits, a `garage´ as a permanent memory mechanism, sophisticated search mechanisms, export functions, statistics and multi-client capability enable short realization cycles via `skinning´.

Fleet policies with mandatory options and budget monitoring round off the functions for fleet management.

Users from 18 European countries configure their vehicles from e:c:car's highly accessible hosting center.

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