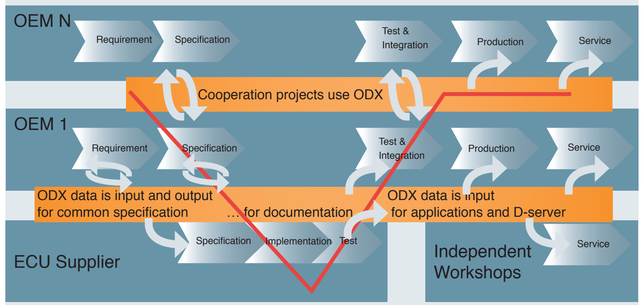
ODX 2.2 Open Diagnostic Data Exchange

softing

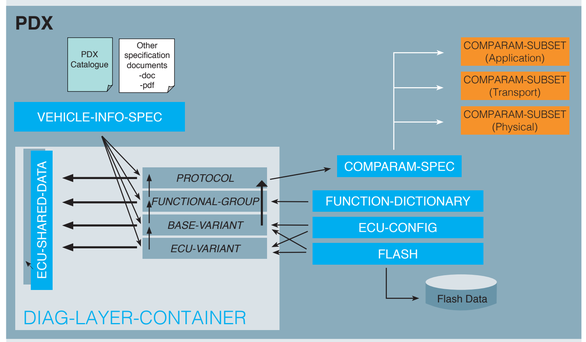
Usage of ODX data in the ECU life cycle: data exchange processes

The data model may contain all diagnostic data of a vehicle and its physical ECUs for the exchange between participants and systems.
- Specification, documentation and exchange of ECU diagnostic data for all phases of product life cycle
- Executable technical specification



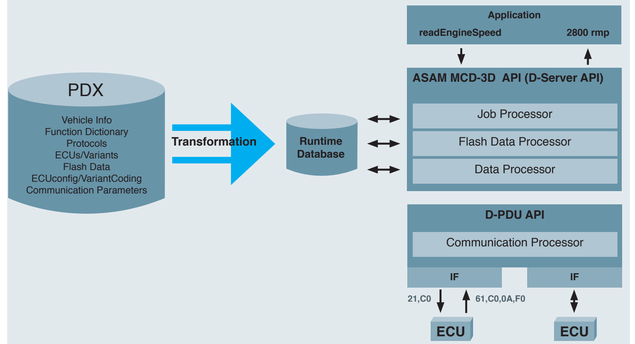
Content of ODX Container - Packaged ODX (PDX)

A PDX container is used to exchange ODX databases. It may contain the ODX database entirely or in parts.

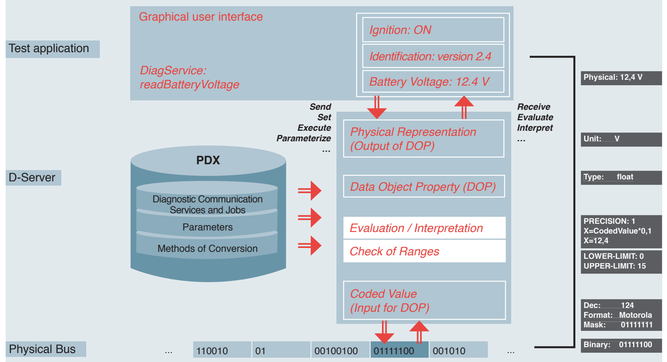


Modular Vehicle Communication Interface / MVCI System / D-Server (ISO 22900-2 and -3)

The ODX modeled diagnostic data enables a MVCI system to communicate with the vehicle (ECUs) and interpret the diagnostic data exchanged between the external test equipment and the ECUs. For an ODX compliant external test equipment implementation effort has to be spent to convert diagnostic data into information to be displayed by the tester.

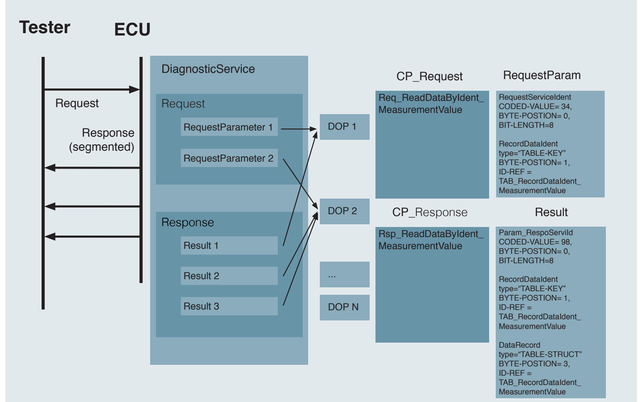


Data processing



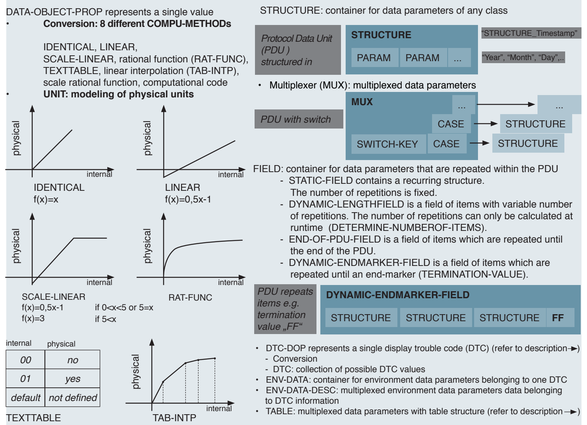
A DIAG-LAYER-CONTAINER specifies the communication between a diagnostic tester and ECUs.

The diagnostic messages are defined from a tester's point of view as request and response telegrams.



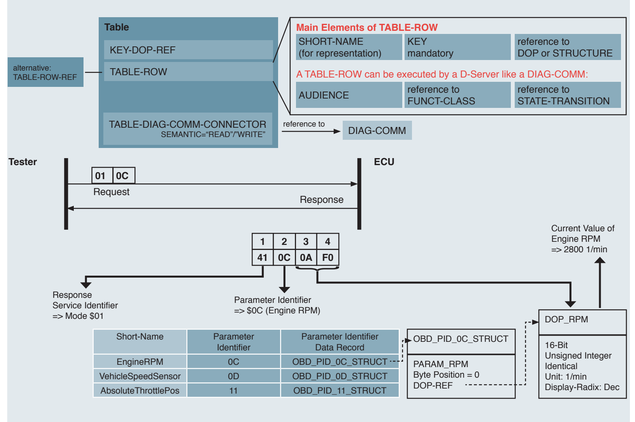
DATA-OBJECT-PROP (DOP) describes data objects in the diagnostic data stream.

The data object property contains the arguments for a D-server to convert coded byte format to physical representation format (and vice versa).



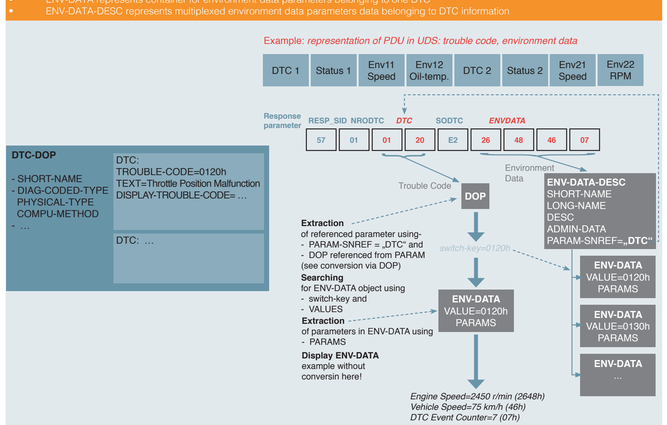
Compound Data Object or TABLE

Complex data structures are composite and diagnostic specific data structures with complex substructures that end up in simple data structures. Usage of a TABLE: Example for Interpretation of a response on OBD mode $01



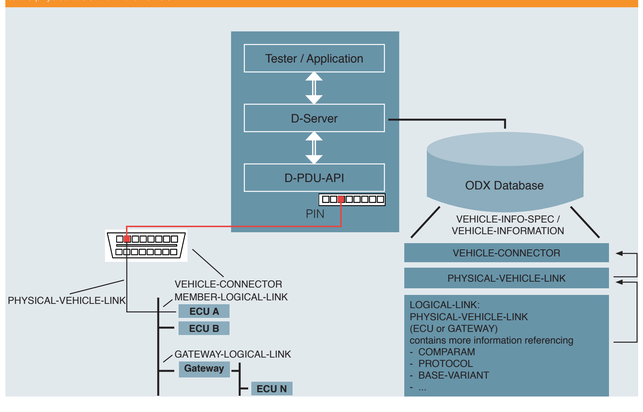
DTC-DOP and Environment Data Description (ENV-DATA-DESC)

- DTC-DOP represents a single diagnostic trouble code (DTC), (coded and physical format, computation methods, and collection of possible DTC values)
- ENV-DATA represents container for environment data parameters belonging to one DTC
- ENV-DATA-DESC represents multiplexed environment data parameters data belonging to DTC information



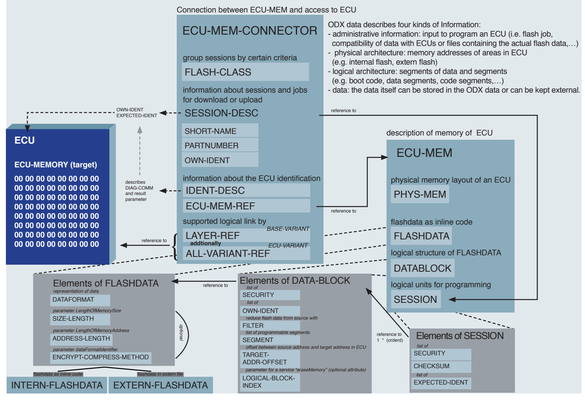
Vehicle information specification: LOGICAL-LINK

One purpose of vehicle information specification (VEHICLE-INFO-SPEC) is to give to give a D-server access to the vehicle by describing the vehicle topology. A LOGICAL-LINK specifies the complete access information to an ECU in order to enable the communication from the tester to the physical ECU within the vehicle.



ECU Memory Programming - FLASH

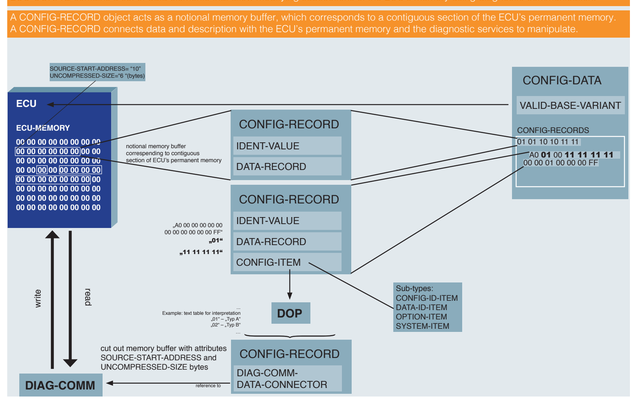
The data transfer from a D-Server to any ECU is the programming of ECUs, called „ECU Memory Programming". FLASH describes the data for upload / download (flash) procedure. A diagnostic application selects one SESSION to initiate a flash process.



ECU Variant Coding - ECU-CONFIG

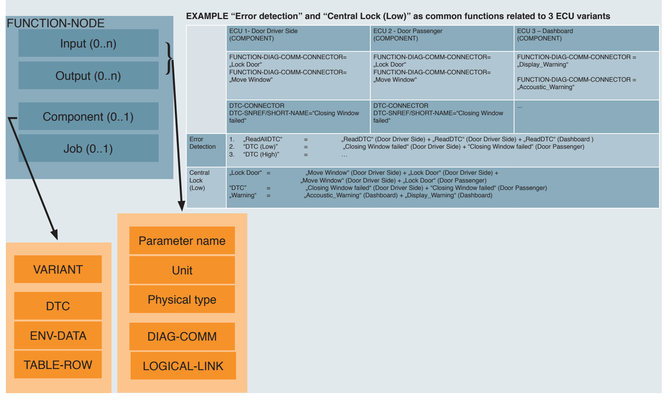
Variant Coding describes a procedure that allows the ECU software to be adapted to specific vehicle model (optional components, equipments and instrumentation) or a localization specific environment (e.g. country).
ECU-CONFIG contains a set of data elements that allow modifying subsections of the ECU's memory using diagnostic communication.

A CONFIG-RECORD object acts as a notional memory buffer, which corresponds to a contiguous section of the ECU's permanent memory.
A CONFIG-RECORD connects data and description with the ECU's permanent memory and the diagnostic services to manipulate.



FUNCTION-DICTIONARY

A function in ODX represents a vehicle subsystem considered from the point of view of diagnostics. A FUNCTION-NODE aggregates the features. A hierarchy of nodes may contain the function catalog representing the functional layout of the vehicle.



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