Implementation report

W3C Automotive WG Vehicle Information Service Specification Version 2 prototype implementation by the BMW Group.

Implementation

This implementation of the VISSv2 specification is a vehicle off-board implementation only, which is used to provide an interface for simulation and testing purposes. The below described server is used to handle and support the simulation of a VISSv2 interface to create and publish vehicle data based on the VSS standard and the VISSv2 specification to implement and test applications without having a real car.

The server supports the simulation of the VISSv2 interfaced based on multiple cars for the protocols HTTP and WebSocket.

Based on this scenario not all features are implemented at the moment. An overview of the implemented features are available below within the feature list.

The implementation uses the current data model, that is provided by the VSS project of COVESA.

Technologies
macOS BigSur / Linux
node v16.12.0 / npm 8.1.1
ws v8 / v13 (HyBi drafts 07-12 / HyBi drafts 13-17)
mongoDB v5.0
docker v20.10

Supported features

The following features are supported by the current VISSv2 implemented interface (date: 2022/06/02)

VISSv2	Implemented
HTTPS	
Read	
Authorized Read	Y
Search Read	Y
History Read	N
Signal Discovery Read	N
Metadata Read	N
Update	
Authorized Update	Y
WebSocket	
Read	
Authorized Read	Y
Search Read	Y
History Read	N
Signal Discovery Read	N
Update	
Authorized Update	Y
Subscribe	
Authorized Subscribe	Y
Curve Logging Subscribe	N
Range Subscribe	N
Change Subscribe	N
Unsubscribe	

Unsubscribe	Y
MQTT	
MQTT	N

Issues

Based on the current version on the VISSv2 and the scenario of usage the following issues need to be covered during the development.

Interface for purpose/scope list

Currently there are no automations available that could show the currently available purposes or scopes that can be requested for the vehicle. Based on that the implementation was extended for this type of interface tu support the scope and purpose list for developers.

Scopes and Access-Tokens

The reason that an access token can only handle one scope, leads to a massive increase of connections if scopes hold only a small amount of data endpoints. On the other side wide range scopes need to be defined to keep the amount of connections small, but this breaks the security concept.

Offline support

An additional authentication based on certificates for onboard only communication could help to make the usage of the VISS independent from being online

WebSocket authentication

Handling the web socket authentication and session time out. Currently it is not described when the websocket connection times out or how the session handlings is done if a request or subscription was authorized.

Lightweight content

Option to reduce the message context within WebSocket and HTTP responses to the minimum possible content e.g. only value to reduce the amount of send data