



**Project****EGEA Net based on asanetwork****0614-1**

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## 1 Aim and overview

This proposal documents an implementation of EGEA Net based on currently available technology for data exchange in automotive trade facilities called **asanetwork**.


This document does not discuss any licensing issues and any rights on specification and software.

### 1.1 Notes on the breakdown

The topics in this document are based on the email „Drafts for quote preparation“ from Marco Le Brun on April 29<sup>th</sup>, 2014.

### 1.2 Terms and Acronyms

MANUFACTURER	Manufacturer of EGEA Net compatible equipment or software products
DEV	Developer creating EGEA Net client applications
USER	End user working with EGEA Net enabled products
SDK	Software development kit, a collection of tools and software packages

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## 2 What is asanetwork (greatly simplified)?

asanetwork is a protocol and a data definition and is based on a communication server called network manager. Data exchange uses TCP/IP with a proprietary protocol.

### 2.1 What is a Service?

The term service is used twofold in asanetwork. First a service is a communication channel with a distinct data definition.

A service has properties like service name DId and location DLoc, priority or read/write capabilities.

A service name is split into two parts, the manufacturer name and the subservice name. The service name defines the communication model used:

- Private, communication only possible between identical services. Example BOSCHRC\_TM. Used to build a private communication channel.
- Manufacturer independent, communication possible between multiple services. Used to exchange order and vehicle data. Example BOSCH00000 and \_AVL\_00000.
- Global, service receives data from all other services. Example TUEV\_\*\*\*\*. Used to fetch test results.

Second a service is a synonym for a specific task like emission test on a diesel vehicle because this is always mapped to a matching service, here AWNTXEM070 and used as a job identifier in order data.

### 2.2 What is network manager used for?

Network manager is a communication server. Each service connects only to network manager. Network manager stores received data and forwards data to connected services (store and forward). Network manager handles queries for data.


### 2.3 What is the communication model?

asanetwork uses the **push** model. Data is pushed by network manager to recipients waiting for data (if they are ready to receive). There's no need for any additional notification infrastructure.

### 2.4 Data definitions used in asanetwork

The first data definitions date back to 1996. At that time, standard or widely used data definitions were not available. Order and vehicle data was therefore defined with a fixed length block format. This is still in use today to keep backward compatibility with existing implementations. The block size has been increased over time to allow additional data fields.

Test result definitions were added in 2000 and use XML.


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### 3 EGEA Net Requirements and asanetwork

EGEA Net Requirements are documented in "EGEA Net use cases and high-level requirements" version 8, (RequirementSpecificationENC V8.docx).

Some EGEA Net requirements cannot be completely fulfilled by asanetwork, these are marked in **bold**.

Topic	EGEA Net Requirement	asanetwork
4.1.1 Operating system for ENC Server	Windows, Linux	Network manager only on <b>Windows platforms</b>
4.1.2 Transmission protocols	TCP/IP	Fulfilled
4.1.3 Standard data formats	XML, JPG	Some parts are in <b>fixed block</b> format. Results are XML
4.1.4 Documentation	Language+Keywords in English	Fulfilled
4.2.1 Installation	Simple, user level	Fulfilled
4.2.1 Server discovery	Automatic	Fulfilled
4.2.1 Client acceptance	Automatic and manual	Only <b>automatic</b>
4.2.2 Client compliance	Conformance test suite	<b>Manual test with tools</b>
4.3.4 Client configuration	Optional group and sequence	<b>DLoc and optional group</b>
4.2.4 Status report	Connection and communication test	Fulfilled (AwnDiag)
4.2.5 New client types and services	Should not affect existing implementations	Fulfilled
4.2.6 Adding new information to existing service definitions	Should not affect existing implementations	Fulfilled
4.2.7 Software Updates	Provide version information and updates to clients	<b>Possible with new service definition and implementation</b>
4.2.8 Device information	Client shall provide information to ENC Server	<b>Client information partially embedded in test results. Additional information possible with new service</b>
4.2.9 Diagnosis	Diagnosis tool shall be available	Fulfilled (AwnDiag)
4.3.1 and 4.5.1 Order and status	Create, distribute and modify order data	Fulfilled
4.3.2 Time synchronization	ENC server shall provide time	Fulfilled
4.3.3 and 4.3.4 Vehicle data	Separate modules	Separate modules
4.3.6 and 4.5.2 test results	Shall transport any kind of data	Fulfilled
4.3.7 and 4.5.3 Retrieve results	Client can request former results	Fulfilled
4.4.1 Trigger action	Perform action on specific client	<b>Possible with new service definition</b>
4.4.2 Exchange live data	Live exchange directly and via ENC	<b>asanetwork LiveStream only via server</b>
4.4.3 Remote control	Request client to perform a command	Fulfilled
4.6 Security	Shall be provided via public/private key infrastructure	Possible, provided by clients

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## 4 Email Topics for quote preparation

### 4.1 Technical specification

This includes most requirements from chapter 4.

#### 4.1.1 Technical specification of ENC interface concepts, data structures and services

This is the core technical specification of the ENC interface for MANUFACTURER and DEVs and includes:

- The communication protocol (server discovery, establishing a connection, data exchange)
- The data structures exchanged between server and clients
- Logical concepts to arrange the data flow called services

This document allows MANUFACTURERS to create ENC clients.

asanetwork already provides this information in these documents:

- Core documentation and data structures: asanetwork 98/10
- asanetwork Services 99/04

*Required work: reformatting/editing/rebranding existing documents.*

#### 4.1.2 Technical specification of ENC server interface

This specification documents the ENC server:

- Documentation of internal functionality for DEVs
- Documentation for USERSs (installation and operation manual)

asanetwork already provides this information in these documents:

- Network manager functionality (in core documentation)
- Network manager user manual

*Required work: reformatting/editing/rebranding existing documents.*

### 4.2 ENC Server Software

Requirement 4.1.1: ENC Server software should be provided in source code and as compiled binaries for Windows and Linux operating systems.


asanetwork provides network manager only as binary for Windows operating systems.

*Required work: rebranding*

### 4.3 Conformance test plan and test suite

Requirement 4.2.2: A conformance test plan and test suite shall be available.

asanetwork provides a test plan, called “requirements for asanetwork compatible test equipment” and “requirements for asanetwork compatible dealer management systems” together with testing tools, called “asanetwork SDK Tool”.

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Asanetwork does not have an automated test suite, testing is done manually.

*Required work: create an automated test suite*

#### 4.4 Implementation guideline

There is no explicit requirement for an implementation guideline in RequirementSpecificationENC V8.docx.

asanetwork provides some guidelines in chapter 7 "Guidelines for the definition and implementation of services" of the core documentation.

*Required work: reformatting/editing/verifying existing documents*

#### 4.5 Schedule


Modification of existing documents:	3-4 weeks
Modification of existing software:	2-3 weeks
Conformance test suite (new):	6-8 weeks
Update service (new):	3-4 weeks

#### 4.6 Developer support

See quote.

#### 4.7 License terms

TBD (outside of my scope with asanetwork).

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## 5 Requirements not currently fulfilled by asanetwork

Because of the open structure and communication model used in asanetwork, it is only necessary to define (and implement) these additional services.

### 5.1 Update service

Requirement 4.2.7: ENC Update client

asanetwork has currently no request and no plan to provide such a functionality.

*Required work: Define and implement an update service as a separate software module*

### 5.2 Device information

Requirement 4.2.8: Client shall provide equipment and inventory information to ENC Server (like serial number, calibration date etc.).

asanetwork provides device information embedded into each test result.

*Required work: Define a service and data structure for device information*


### 5.3 Trigger action

Requirement 4.4.1: Perform an action on a specific client type (service).

asanetwork has no generic definition for a trigger service.

*Required work: Define a service and data structure for trigger actions*



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## 6 Optional

### 6.1 Conformance test plan for ENC server

There is no explicit requirement for a conformance test plan for ENC server yet.

### 6.2 Conformance test suite for ENC server

There is no explicit requirement for a conformance test suite for ENC server yet.

### 6.3 Technical specification of ENC server

There is no explicit requirement for a technical specification, which allows independent development of an ENC server. EGEA Net should use, maintain and provide one implementation.

### 6.4 ENC client platform modules

ENC client platform modules shall help DEVs to integrate their products with less effort. These SDKs are platform and/or operating system specific.

asanetwork provides a wide range of platform SDKs and technologies:

- Windows DLL for Delphi/C++
- Portable C-Libraries for Windows and Linux
- Java (by AxoNet)
- .Net Framework for Windows (by AxoNet)
- ActiveX/COM for Windows (by AxoNet)