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EVR specifications for the implementation of the interfaces

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1 Introduction

The Commission Implementing Decision (EU) 2018/1614 allows MSs that want to keep their Vehicle Register decentralized to do it until 2024.

The Agency has the obligation of defining the interfaces that will describe the interaction between the EVR and the D-ARS.

This guide deals with the integration of existing IT systems into the European Vehicle Register (EVR).

This guide provides the technical information for IT professionals to configure their system to operate with the EVR.

There are four services which must be provided by the D-ARS systems in order to facilitate EVR access to the vehicles stored in each system. The following section provides an overview of these services.

2 D-ARS provisioned services

In order to facilitate MSs mission of keeping their Vehicle Register connected, or develop new systems to be connected to EVR, the Agency will reuse the current services definitions of the services exposed by the current Vehicle Register.

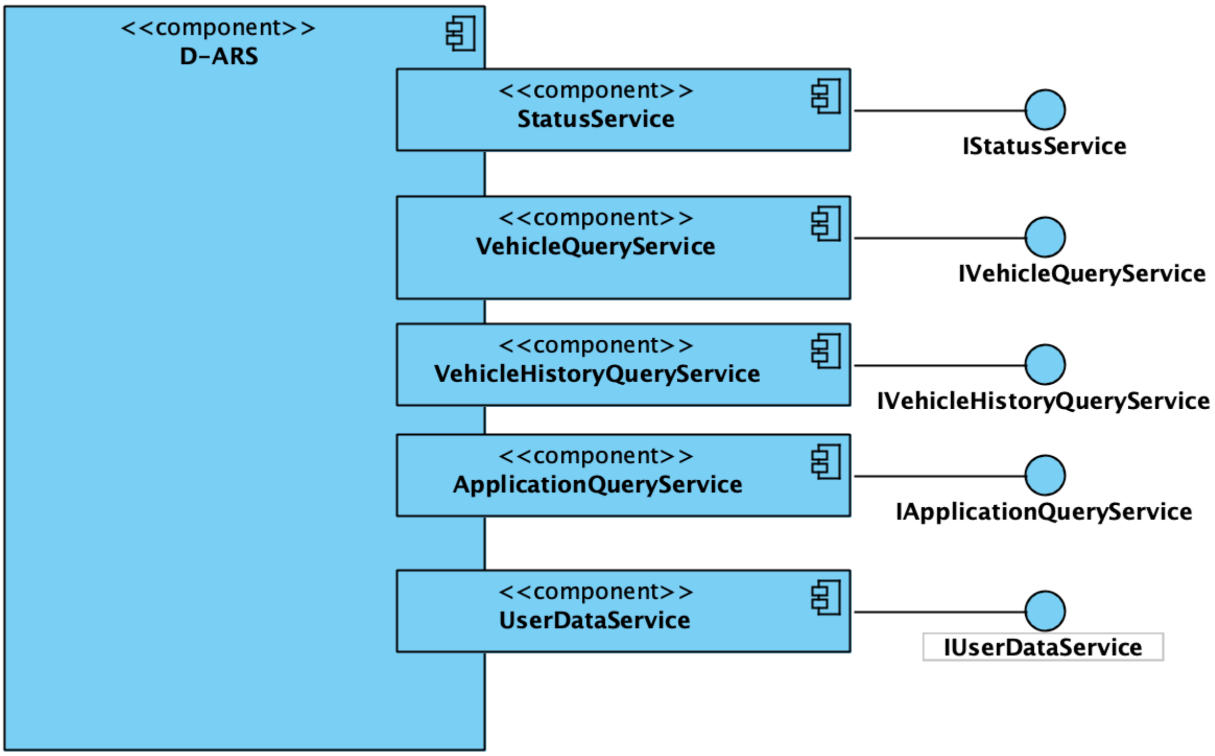

Figure 1 - D-ARS provisioned services

2.1 VehicleQueryService

This is the service which is called to query information of Registered vehicles in an asynchronous or synchronous manner.

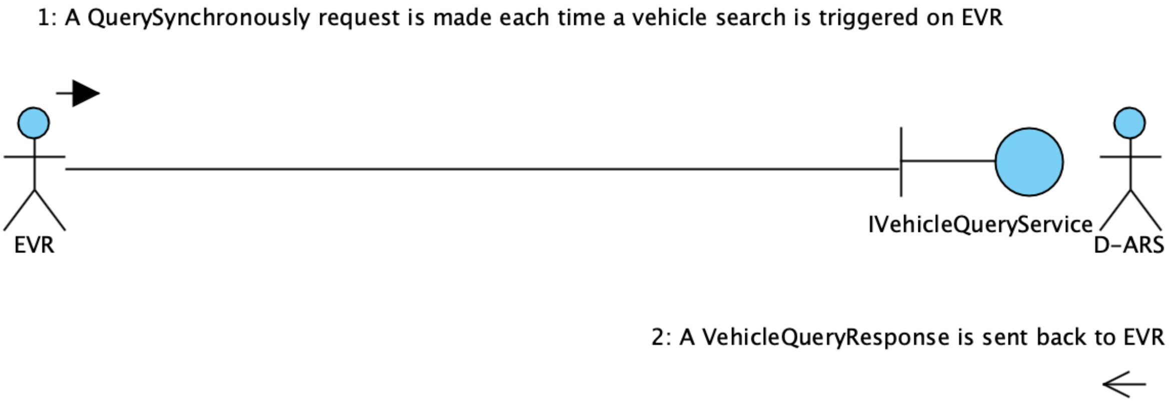
1: A QuerySynchronously request is made each time a vehicle search is triggered on EVR
EVR
IVehicleQueryService
D–ARS
2: A VehicleQueryResponse is sent back to EVR

Figure 2 - VehicleQueryService

2.1.1 IVehicleQueryService interface description

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-
VVR/Vehicle/Query/1.0", SessionMode = SessionMode.Allowed)]
public interface IVehicleQueryService
{
    [OperationContract]
    VehicleQueryResponse QuerySynchronously(string query, bool indicationIfToGet
TotalCount);

    [OperationContract]
    byte[] QuerySynchronouslyWithCompression(string query, bool indicationIfToGe
tTotalCount);

    [OperationContract(IsOneWay = true)]
    void QueryAsynchronouslyWithCompression(string query, bool indicationIfToGet
TotalCount);

    [OperationContract]
    VehicleInfo GetVehicleInformation(string evn);

    [OperationContract]
    VehicleInfo GetVehicleHistoryInformation(long? vehicleId);

}
```

In order to implement the *QueryAsynchronouslyWithCompression(string query, bool indicationIfToGetTotalCount)* it is necessary to take the following into account:

- This method is called in an asynchronous manner: the EVR will invoke the service to send the request; your system must call the VehicleQueryCallback Service on the EVR once the result is ready from your system.

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- It order to do a correct call-back it is mandatory to read out the header information of the incoming message. The message id must be read out, stored and then set in the response message header (In the *RelatesTo* property). Without that the EVR cannot provide the response to the message sent.

2.1.2 XSD schema

The VehicleQueryResponse schema describes the response information for searching/reporting requests and searching the history of a vehicle. Most of the times this data will be transformed into a byte array using the standard compression algorithm GZip.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.dataco
ntract.org/2004/07/ECVVR.Common.DataContracts" xmlns:xs="http://www.w3.org/2001/
XMLSchema" xmlns:tns="http://schemas.datacontract.org/2004/07/ECVVR.Common.DataC
ontracts">
            <xs:import namespace="http://schemas.microsoft.com/2003/10/Serializa
tion/Arrays" />
            <xs:complexType name="VehicleQueryResponse">
                <xs:sequence>
                    <xs:element name="customMetaDataField" nillable="true" type=
"tns:CustomMetaData" />
                    <xs:element name="executionEndField" type="xs:dateTime" />
                    <xs:element name="executionStartField" type="xs:dateTime" />
                    <xs:element name="executionTimeField" nillable="true" type="
xs:string" />
                    <xs:element name="queryField" nillable="true" type="xs:strin
g" />
                    <xs:element name="resultSetField" nillable="true" type="tns:
ResultSet" />
                    <xs:element name="totalNumberOfResultsField" nillable="true"
 type="xs:string" />
                    <xs:element name="totalValidVehicles" nillable="true" type="
xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="VehicleQueryResponse" nillable="true" type="tns:Ve
hicleQueryResponse" />
            <xs:complexType name="CustomMetaData">
                <xs:sequence>
                    <xs:element name="entryField" nillable="true" type="tns:Arra
yOfEntry" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="CustomMetaData" nillable="true" type="tns:CustomMe
taData" />
            <xs:complexType name="ArrayOfEntry">
                <xs:sequence>
                    <xs:element minOccurs="0" maxOccurs="unbounded" name="Entry"
 nillable="true" type="tns:Entry" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfEntry" nillable="true" type="tns:ArrayOfEnt
ry" />
            <xs:complexType name="Entry">
                <xs:sequence>
                    <xs:element name="keyField" nillable="true" type="xs:string"
 />
                    <xs:element name="valueField" nillable="true" type="xs:strin
g" />
                <xs:sequence>
            </xs:complexType>
            <xs:element name="Entry" nillable="true" type="tns:Entry" />
            <xs:complexType name="ResultSet">
                <xs:sequence>
                    <xs:element name="headersField" nillable="true" type="tns:He
aders" />
                    <xs:element name="rowsField" nillable="true" type="tns:Rows"
 />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ResultSet" nillable="true" type="tns:ResultSet" />
            <xs:complexType name="Headers">
                <xs:sequence>
                    <xs:element name="headerField" nillable="true" type="tns:Arr
ayOfHeader" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="Headers" nillable="true" type="tns:Headers" />
            <xs:complexType name="ArrayOfHeader">
                <xs:sequence>
                    <xs:element minOccurs="0" maxOccurs="unbounded" name="Header
" nillable="true" type="tns:Header" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfHeader" nillable="true" type="tns:ArrayOfHe
ader" />
            <xs:complexType name="Header">
                <xs:sequence>
                    <xs:element name="nameField" nillable="true" type="xs:string
" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="Header" nillable="true" type="tns:Header" />
            <xs:complexType name="Rows">
                <xs:sequence>
                    <xs:element name="rowField" nillable="true" type="tns:ArrayO
fRow" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="Rows" nillable="true" type="tns:Rows" />
            <xs:complexType name="ArrayOfRow">
                <xs:sequence>
                    <xs:element minOccurs="0" maxOccurs="unbounded" name="Row" n
illable="true" type="tns:Row" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfRow" nillable="true" type="tns:ArrayOfRow"
/>
            <xs:complexType name="Row">
                <xs:sequence>
                    <xs:element name="columnField" nillable="true" type="q1:Arra
yOfstring" xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
/>
                </xs:sequence>
            </xs:complexType>
            <xs:element name="Row" nillable="true" type="tns:Row" />
        </xs:schema>
```

VehicleInfo data object is used by EVR to display vehicle details. Below you can find the description of the xsd schema for it.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.dataco
ntract.org/2004/07/" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:tns="http
://schemas.datacontract.org/2004/07/">
            <xs:complexType name="VehicleInfo">
                <xs:sequence>
                    <xs:element name="_prevVehicleState" nillable="true" type="t
ns:VehicleInfo" />
                    <xs:element name="additionalAuthorisationsField" nillable="t
rue" type="tns:ArrayOfAdditionalAuthorisation" />
                    <xs:element name="authorisationDateField" type="xs:dateTime"
 />
                    <xs:element name="authorisationExpireDateField" type="xs:dat
eTime" />
                    <xs:element name="authorisedCountriesField" nillable="true"
type="xs:string" />
                    <xs:element name="authorizingNSAField" nillable="true" type=
"xs:string" />
                    <xs:element name="codedRestrictionsField" nillable="true" ty
pe="xs:string" />
                    <xs:element name="eCIssuingBodyInformationField" nillable="t
rue" type="tns:ECIssuingBodyInformation" />
                    <xs:element name="eINField" nillable="true" type="xs:string"
 />
                    <xs:element name="eVNField" nillable="true" type="xs:string"
 />
                    <xs:element name="ecDeclarationDateField" type="xs:dateTime"
 />
                    <xs:element name="ecDeclarationReferenceField" nillable="tru
e" type="xs:string" />
                    <xs:element name="eraTvReferenceField" nillable="true" type=
"xs:string" />
                    <xs:element name="eraTvWebAddressField" nillable="true" type
="xs:string" />
                    <xs:element name="isSuspendedField" type="xs:boolean" />
                    <xs:element name="keeperInformationField" nillable="true" ty
pe="tns:KeeperInformation" />
                    <xs:element name="maintenanceEntityInformationField" nillabl
e="true" type="tns:MaintenanceEntityInformation" />
                    <xs:element name="manufacturingYearField" nillable="true" ty
pe="xs:string" />
                    <xs:element name="nonCodedRestrictionsField" nillable="true"
 type="xs:string" />
                    <xs:element name="nsaCountryField" nillable="true" type="xs:
string" />
                    <xs:element name="ownerInformationField" nillable="true" typ
e="tns:OwnerInformation" />
                    <xs:element name="previousEvnField" nillable="true" type="xs
:string" />
                    <xs:element name="rRSOwnerInformationField" nillable="true"
type="tns:RRSOwnerInformation" />
                    <xs:element name="registrationTypeField" type="tns:Registrat
ionType" />
                    <xs:element name="rrsReferenceField" nillable="true" type="x
```

```
s:string" />
                    <xs:element name="seriesField" nillable="true" type="xs:stri
ng" />
                    <xs:element name="withdrawalDateField" type="xs:dateTime" />
                    <xs:element name="withdrawalModeField" nillable="true" type=
"xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="VehicleInfo" nillable="true" type="tns:VehicleInfo
" />
            <xs:complexType name="ArrayOfAdditionalAuthorisation">
                <xs:sequence>
                    <xs:element minOccurs="0" maxOccurs="unbounded" name="Additi
onalAuthorisation" nillable="true" type="tns:AdditionalAuthorisation" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfAdditionalAuthorisation" nillable="true" ty
pe="tns:ArrayOfAdditionalAuthorisation" />
            <xs:complexType name="AdditionalAuthorisation">
                <xs:sequence>
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pe="xs:dateTime" />
                    <xs:element name="authorisationExpirationDateField" nillable
="true" type="xs:dateTime" />
                    <xs:element name="authorisedCountriesField" nillable="true"
type="xs:string" />
                    <xs:element name="authorizingNSAField" nillable="true" type=
"xs:string" />
                    <xs:element name="codedRestrictionsField" nillable="true" ty
pe="xs:string" />
                    <xs:element name="einField" nillable="true" type="xs:string"
 />
                    <xs:element name="evnField" nillable="true" type="xs:string"
 />
                    <xs:element name="isSuspendedField" type="xs:boolean" />
                    <xs:element name="nonCodedRestrictionsField" nillable="true"
 type="xs:string" />
                    <xs:element name="typeField" nillable="true" type="xs:string
" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="AdditionalAuthorisation" nillable="true" type="tns
:AdditionalAuthorisation" />
            <xs:complexType name="ECIssuingBodyInformation">
                <xs:sequence>
                    <xs:element name="countryCodeField" nillable="true" type="xs
:string" />
                    <xs:element name="emailField" nillable="true" type="xs:strin
g" />
                    <xs:element name="nameField" nillable="true" type="xs:string
" />
                    <xs:element name="registeredBusinessNumberField" nillable="t
rue" type="xs:string" />
                    <xs:element name="streetAndNumberField" nillable="true" type
="xs:string" />
                    <xs:element name="townField" nillable="true" type="xs:string
" />
                    <xs:element name="zipCodeField" nillable="true" type="xs:str
ing" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ECIssuingBodyInformation" nillable="true" type="tns:ECIssuingBodyInformation" />
            <xs:complexType name="KeeperInformation">
                <xs:sequence>
                    <xs:element name="countryCodeField" nillable="true" type="xs:string" />
                    <xs:element name="emailField" nillable="true" type="xs:string" />
                    <xs:element name="nameField" nillable="true" type="xs:string" />
                    <xs:element name="registeredBusinessNumberField" nillable="true" type="xs:string" />
                    <xs:element name="streetAndNumberField" nillable="true" type="xs:string" />
                    <xs:element name="townField" nillable="true" type="xs:string" />
                    <xs:element name="vKMField" nillable="true" type="xs:string" />
                    <xs:element name="zipCodeField" nillable="true" type="xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="KeeperInformation" nillable="true" type="tns:KeeperInformation" />
            <xs:complexType name="MaintenanceEntityInformation">
                <xs:sequence>
                    <xs:element name="countryCodeField" nillable="true" type="xs:string" />
                    <xs:element name="emailField" nillable="true" type="xs:string" />
                    <xs:element name="nameField" nillable="true" type="xs:string" />
                    <xs:element name="registeredBusinessNumberField" nillable="true" type="xs:string" />
                    <xs:element name="streetAndNumberField" nillable="true" type="xs:string" />
                    <xs:element name="townField" nillable="true" type="xs:string" />
                    <xs:element name="zipCodeField" nillable="true" type="xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="MaintenanceEntityInformation" nillable="true" type="tns:MaintenanceEntityInformation" />
            <xs:complexType name="OwnerInformation">
                <xs:sequence>
                    <xs:element name="countryCodeField" nillable="true" type="xs:string" />
                    <xs:element name="emailField" nillable="true" type="xs:string" />
                    <xs:element name="nameField" nillable="true" type="xs:string" />
                    <xs:element name="registeredBusinessNumberField" nillable="true" type="xs:string" />
                    <xs:element name="streetAndNumberField" nillable="true" type="xs:string" />
                    <xs:element name="townField" nillable="true" type="xs:string" />
                    <xs:element name="zipCodeField" nillable="true" type="xs:str
```

```
ing" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="OwnerInformation" nillable="true" type="tns:OwnerInformation" />
            <xs:complexType name="RRSOwnerInformation">
                <xs:sequence>
                    <xs:element name="countryCodeField" nillable="true" type="xs:string" />
                    <xs:element name="emailField" nillable="true" type="xs:string" />
                    <xs:element name="nameField" nillable="true" type="xs:string" />
                    <xs:element name="streetAndNumberField" nillable="true" type="xs:string" />
                    <xs:element name="townField" nillable="true" type="xs:string" />
                    <xs:element name="zipCodeField" nillable="true" type="xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="RRSOwnerInformation" nillable="true" type="tns:RRSOwnerInformation" />
            <xs:simpleType name="RegistrationType">
                <xs:restriction base="xs:string">
                    <xs:enumeration value="Registration" />
                    <xs:enumeration value="Authorisation" />
                </xs:restriction>
            </xs:simpleType>
            <xs:element name="RegistrationType" nillable="true" type="tns:RegistrationType" />
        </xs:schema>
```

2.2 VehicleHistoryQueryService

This service is called to retrieve the complete history of a registered vehicle, as it is recorded in the D-ARS system.

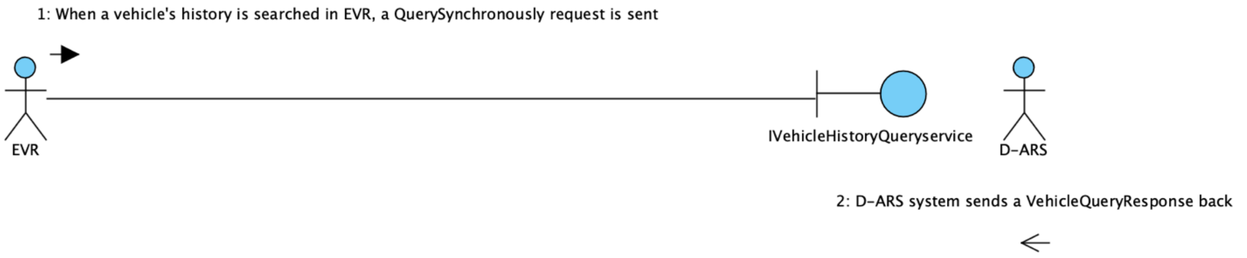

1: When a vehicle's history is searched in EVR, a QuerySynchronously request is sent
EVR
IVehicleHistoryQueryservice
D-ARS
2: D-ARS system sends a VehicleQueryResponse back

Figure 3 - VehicleHistoryQueryService

2.2.1 IVehicleHistoryQueryservice interface description (C#)

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-
VVR/Vehicle/Query/1.0", SessionMode = SessionMode.Allowed)]
public interface IVehicleHistoryQueryService
{

    [OperationContract]
VehicleQueryResponse QuerySynchronously(string query, bool indicationIfToGetTota
lCount);

[OperationContract]
byte[] QuerySynchronouslyWithCompression(string query, bool indicationIfToGetTot
alCount);

}
```

2.2.2 XSD schema

This service uses the VehicleInfo data transfer object to send the historical vehicle information from D-ARS to EVR system. It is exactly the same object defined in section 2.1.2 .

2.3 ApplicationQueryService

This service is called to retrieve the Application of a registered vehicle.

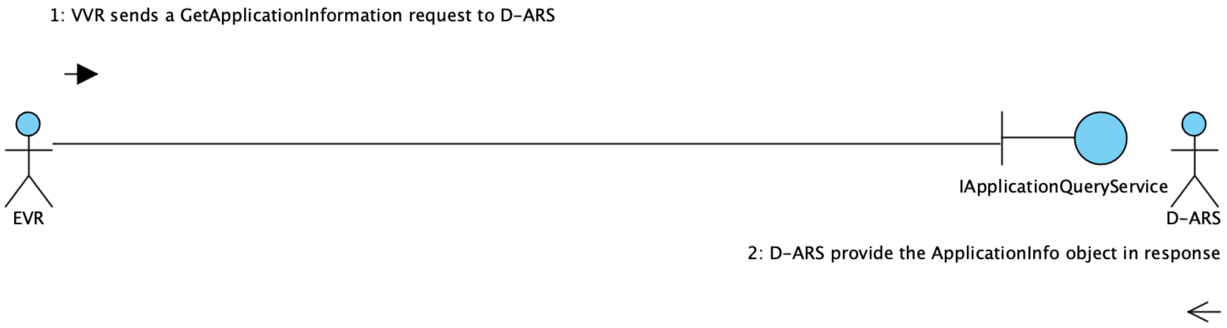

1: VVR sends a GetApplicationInformation request to D-ARS
EVR
IApplicationQueryService
D-ARS
2: D-ARS provide the ApplicationInfo object in response

Figure 4 - ApplicationQueryService

2.3.1 IApplicationQueryService interface description (C#)

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-
VVR/Application/Query/1.0", SessionMode = SessionMode.Allowed)]
public interface IApplicationQueryService
{

[OperationContract]
    ApplicationInfo GetApplicationInformation(string applicationId);
}
```

2.3.2 XSD schema

The ApplicationInfo schema is used to transfer application information to the EVR. The schema describes the transfer object of one application information set.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.datacontract.org/2004/07/" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://schemas.datacontract.org/2004/07/">
            <xs:complexType name="ApplicationInfo">
                <xs:sequence>
                    <xs:element name="affectedVehiclesField" nillable="true" type="tns:ArrayOfVehicleInfo" />
                    <xs:element name="applicationStateField" nillable="true" type="xs:string" />
                    <xs:element name="applicationTypeField" nillable="true" type="xs:string" />
                    <xs:element name="approvalDateField" nillable="true" type="xs:dateTime" />
                    <xs:element name="creationDateField" nillable="true" type="xs:dateTime" />
                    <xs:element name="userField" nillable="true" type="xs:string" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ApplicationInfo" nillable="true" type="tns:ApplicationInfo" />
            <xs:complexType name="ArrayOfVehicleInfo">
                <xs:sequence>
                    <xs:element minOccurs="0" maxOccurs="unbounded" name="VehicleInfo" nillable="true" type="tns:VehicleInfo" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="ArrayOfVehicleInfo" nillable="true" type="tns:ArrayOfVehicleInfo" />
            <xs:complexType name="VehicleInfo">
                <xs:sequence>
                    <xs:element name="_prevVehicleState" nillable="true" type="tns:VehicleInfo" />
                    <xs:element name="additionalAuthorisationsField" nillable="true" type="tns:ArrayOfAdditionalAuthorisation" />
                    <xs:element name="authorisationDateField" type="xs:dateTime" />
                    <xs:element name="authorisationExpireDateField" type="xs:dateTime" />
                    <xs:element name="authorisedCountriesField" nillable="true" type="xs:string" />
                    <xs:element name="authorizingNSAField" nillable="true" type="xs:string" />
                    <xs:element name="codedRestrictionsField" nillable="true" type="xs:string" />
                    <xs:element name="eCIssuingBodyInformationField" nillable="true" type="tns:ECIssuingBodyInformation" />
                    <xs:element name="eINField" nillable="true" type="xs:string" />
                    <xs:element name="eVNField" nillable="true" type="xs:string" />
                    <xs:element name="ecDeclarationDateField" type="xs:dateTime"
```

```
 />
                    <xs:element name="ecDeclarationReferenceField" nillable="tru
e" type="xs:string" />
                    <xs:element name="eraTvReferenceField" nillable="true" type=
"xs:string" />
                    <xs:element name="eraTvWebAddressField" nillable="true" type
="xs:string" />
                    <xs:element name="isSuspendedField" type="xs:boolean" />
                    <xs:element name="keeperInformationField" nillable="true" ty
pe="tns:KeeperInformation" />
                    <xs:element name="maintenanceEntityInformationField" nillabl
e="true" type="tns:MaintenanceEntityInformation" />
                    <xs:element name="manufacturingYearField" nillable="true" ty
pe="xs:string" />
                    <xs:element name="nonCodedRestrictionsField" nillable="true"
 type="xs:string" />
                    <xs:element name="nsaCountryField" nillable="true" type="xs:
string" />
                    <xs:element name="ownerInformationField" nillable="true" typ
e="tns:OwnerInformation" />
                    <xs:element name="previousEvnField" nillable="true" type="xs
:string" />
                    <xs:element name="rRSOwnerInformationField" nillable="true"
type="tns:RRSOwnerInformation" />
                    <xs:element name="registrationTypeField" type="tns:Registrat
ionType" />
                    <xs:element name="rrsReferenceField" nillable="true" type="x
s:string" />
                    <xs:element name="seriesField" nillable="true" type="xs:stri
ng" />
                    <xs:element name="withdrawalDateField" type="xs:dateTime" />
                    <xs:element name="withdrawalModeField" nillable="true" type=
"xs:string" />
                </xs:sequence>
            </xs:complexType>
```

2.4 StatusService

This service is called to retrieve information about the state of the system.

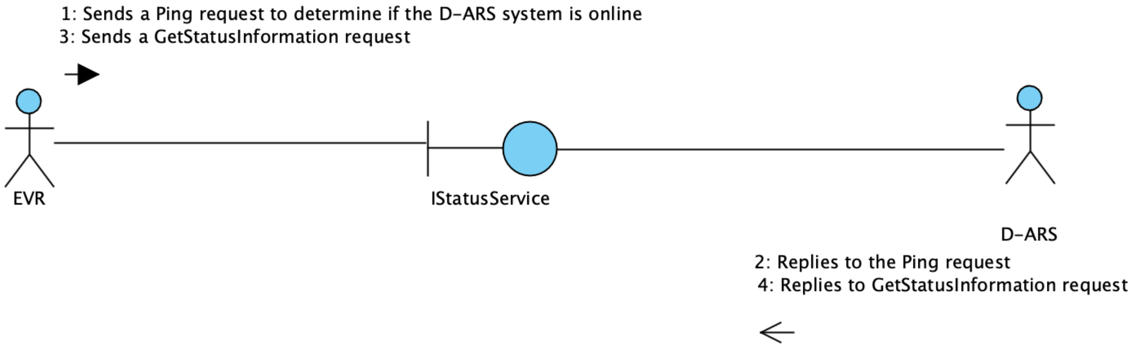

1: Sends a Ping request to determine if the D-ARS system is online
3: Sends a GetStatusInformation request
EVR
IStatusService
D-ARS
2: Replies to the Ping request
4: Replies to GetStatusInformation request

Figure 5 - StatusService

2.4.1 IStatusService interface description (C#)

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-
VVR/Status/1.0", SessionMode = SessionMode.Allowed)]
public interface IStatusService
{

[OperationContract]
void Ping();

[OperationContract]
StatusInformation GetStatusInformation();

}
```

2.4.2 XSD schema StatusInformation.xsd

The status information schema describes the transfer object which is sent across the wire to retrieve information about the hosting machine.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.dataco
ntract.org/2004/07/ECVVR.Common.DataContracts" xmlns:xs="http://www.w3.org/2001/
XMLSchema" xmlns:tns="http://schemas.datacontract.org/2004/07/ECVVR.Common.DataC
ontracts">
            <xs:complexType name="StatusInformation">
                <xs:sequence>
                    <xs:element name="cpuUsageField" nillable="true" type="xs:st
ring" />
                    <xs:element name="isDbConnectionAvailableField" type="xs:boo
lean" />
                    <xs:element name="memoryUsageField" nillable="true" type="xs
:string" />
                    <xs:element name="versionField" nillable="true" type="xs:str
ing" />
                </xs:sequence>
            </xs:complexType>
            <xs:element name="StatusInformation" nillable="true" type="tns:Statu
sInformation" />
        </xs:schema>
```

2.5 UserDataService

This service will be exposed by DARS systems and will allow EVR system to push validated users to D-ARS system.

The GetExportedUsers web service in the D-ARS returns the users that were exported to the D-ARS from the EVR calling the web service. The UserDataTransferObject is used for transferring users from EVR to D-ARS while ExportedUsersTransferObject is used to get information about the users transferred from EVR to the D-ARS.

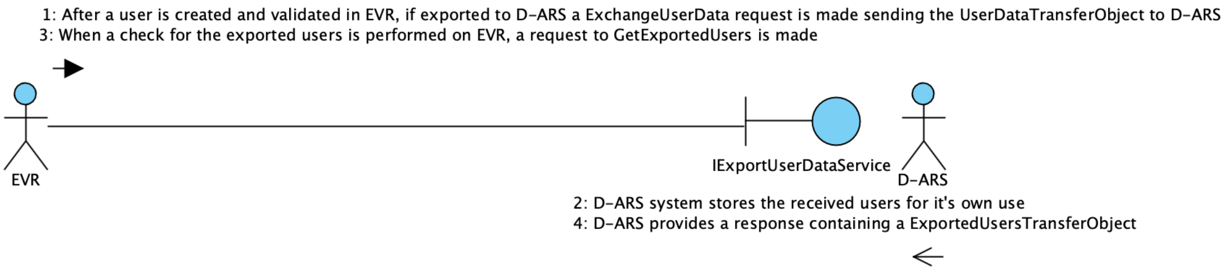

1: After a user is created and validated in EVR, if exported to D-ARS a ExchangeUserData request is made sending the UserDataTransferObject to D-ARS
3: When a check for the exported users is performed on EVR, a request to GetExportedUsers is made
EVR
IExportUserDataService
D-ARS
2: D-ARS system stores the received users for it's own use
4: D-ARS provides a response containing a ExportedUsersTransferObject

Figure 6 - UserDataService

2.5.1 *IExportUserData interface description (C#)*

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-VVR/UserData",
SessionMode = SessionMode.Allowed)]
    public interface IExportUserDataService
    {
        [OperationContract]
        string ExchangeUserData(UserdataTransferObject userdata);

        [OperationContract]
        ExportedUsersTransferObject GetExportedUsers();

        [OperationContract]
        ExportedUsersTransferObject GetExportedUsersForUsers(params string[]
usernames);
    }
```

2.5.2 *XSD schema UserDataTransferObject*

The user data transfer object is used to export validated EVR users to D-ARS.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.dataco
ntract.org/2004/07/" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:tns="http
://schemas.datacontract.org/2004/07/">
      <xs:complexType name="UserdataTransferObject">
        <xs:sequence>
          <xs:element minOccurs="0" name="actionField" type="tns:UserdataTransfe
rObjectAction" />
          <xs:element minOccurs="0" name="commentField" nillable="true" type="xs
:string" />
          <xs:element minOccurs="0" name="countryField" nillable="true" type="xs
:string" />
          <xs:element minOccurs="0" name="creationDate" type="xs:dateTime" />
          <xs:element name="ecmNamesField" nillable="true" type="q1:ArrayOfstrin
g" xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:element minOccurs="0" name="emailField" nillable="true" type="xs:s
tring" />
          <xs:element name="expirationDate" type="xs:dateTime" />
          <xs:element minOccurs="0" name="exportingDate" type="xs:dateTime" />
          <xs:element minOccurs="0" name="firstNameField" nillable="true" type="xs:string" />
          <xs:element name="fleetManagerNamesField" nillable="true" type="q2:ArrayOfstring" xmlns:q2="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:element name="isApprovedField" type="xs:boolean" />
          <xs:element name="isLockedOutField" type="xs:boolean" />
          <xs:element name="keeperNamesField" nillable="true" type="q3:ArrayOfstring" xmlns:q3="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:element minOccurs="0" name="lastActivityDate" type="xs:dateTime" />
          <xs:element minOccurs="0" name="lastLockoutDate" type="xs:dateTime" />
          <xs:element minOccurs="0" name="lastLoginDate" type="xs:dateTime" />
          <xs:element minOccurs="0" name="lastNameField" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="lastPasswordChangedDate" type="xs:dateTime" />
          <xs:element name="ownerNamesField" nillable="true" type="q4:ArrayOfstring" xmlns:q4="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:element minOccurs="0" name="passwordField" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="passwordFormat" type="xs:int" />
          <xs:element minOccurs="0" name="passwordSalt" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="userNameField" nillable="true" type="xs:string" />
          <xs:element name="userRolesField" nillable="true" type="q5:ArrayOfstring" xmlns:q5="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
          <xs:element minOccurs="0" name="vvrExportStatus" type="q6:UserDataExportingStatus" xmlns:q6="http://schemas.datacontract.org/2004/07/System.Web.Security" />
          <xs:element minOccurs="0" name="vvrExportingError" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="organisationCode" nillable="true" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="UserdataTransferObject" nillable="true" type="tns:UserdataTransferObject" />
      <xs:simpleType name="UserdataTransferObjectAction">
        <xs:restriction base="xs:string">
          <xs:enumeration value="add" />
          <xs:enumeration value="update" />
          <xs:enumeration value="delete" />
          <xs:enumeration value="toggleLockStatus" />
          <xs:enumeration value="upsert" />
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="UserdataTransferObjectAction" nillable="true" type="tns:UserdataTransferObjectAction" />
      <xs:complexType name="ExportedUsersTransferObject">
        <xs:sequence>
          <xs:element name="loadedInVVRField" type="xs:boolean" />
          <xs:element name="userdataTransferObjectCollectionField" nillable="true" type="tns:UserdataTransferObjectCollection" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ExportedUsersTransferObject" nillable="true" type="tns:ExportedUsersTransferObject" />
      <xs:complexType name="UserdataTransferObjectCollection">
```

```
        <xs:sequence>
          <xs:element name="userdataTransferObjectField" nillable="true" type="tns:ArrayOfUserdataTransferObject" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="UserdataTransferObjectCollection" nillable="true" type="tns:UserdataTransferObjectCollection" />
      <xs:complexType name="ArrayOfUserdataTransferObject">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="UserdataTransferObject" nillable="true" type="tns:UserdataTransferObject" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfUserdataTransferObject" nillable="true" type="tns:ArrayOfUserdataTransferObject" />
    </xs:schema>
```

3 EVR provided services

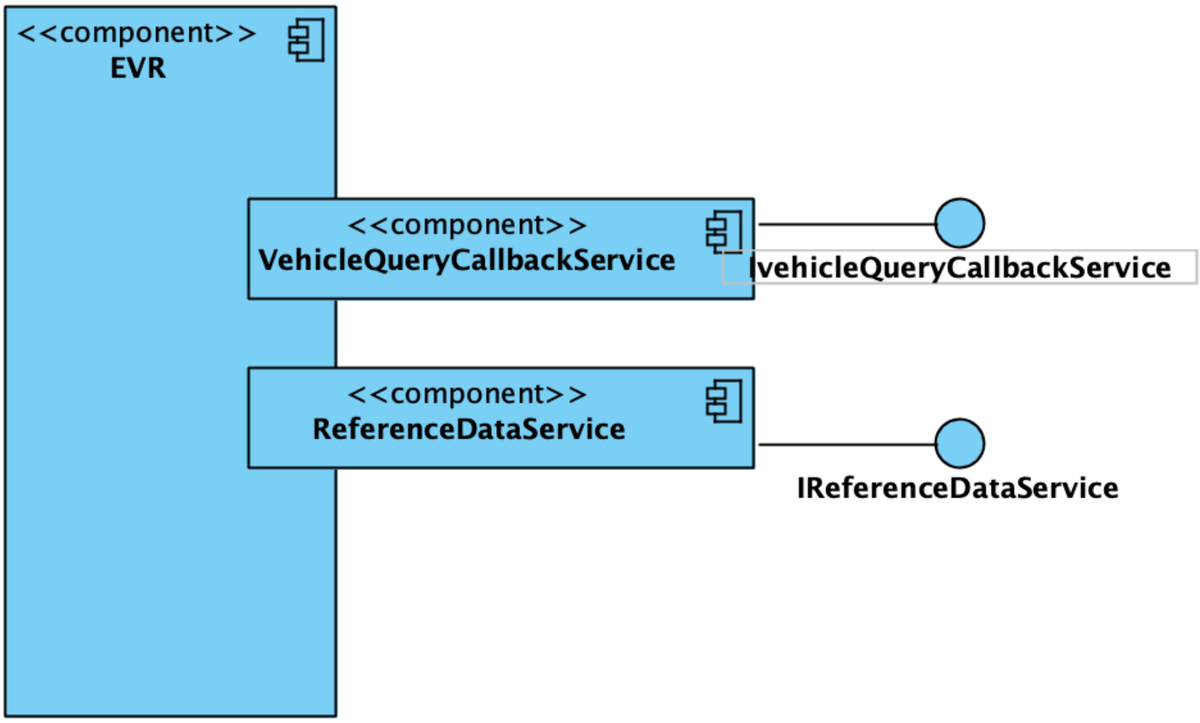


Figure 7 - EVR provided services

3.1 ReferenceDataService

This service is exposed by EVR and it allows D-ARS to retrieve the following reference data:

- Countries
- Zones
- Document types
- Safety authorities
- Coded restrictions
- EVN wizzard reference data

These data come in XML files for most of them, exception made by the EVN wizzard files which come in HTM files. All the files are zipped and send as binary content.

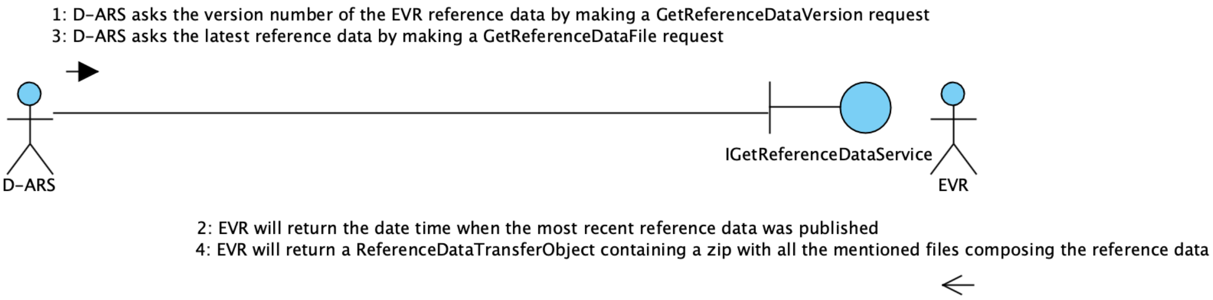

1: D-ARS asks the version number of the EVR reference data by making a GetReferenceDataVersion request
3: D-ARS asks the latest reference data by making a GetReferenceDataFile request
D-ARS
IGetReferenceDataService
EVR
2: EVR will return the date time when the most recent reference data was published
4: EVR will return a ReferenceDataTransferObject containing a zip with all the mentioned files composing the reference data

Figure 8 - ReferenceDataService

3.1.1 *IGetReferenceDataService interface description (C#)*

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-VVR/ReferenceData",
SessionMode = SessionMode.Allowed)]
    public interface IGetReferenceDataService
    {
        [OperationContract]
        ReferenceDataTransferObject GetReferenceDataFile(bool compression);

        [OperationContract]
        DateTime GetReferenceDataVersion();
    }
```

3.1.2 *XSD schema ReferenceDataTransferObject*

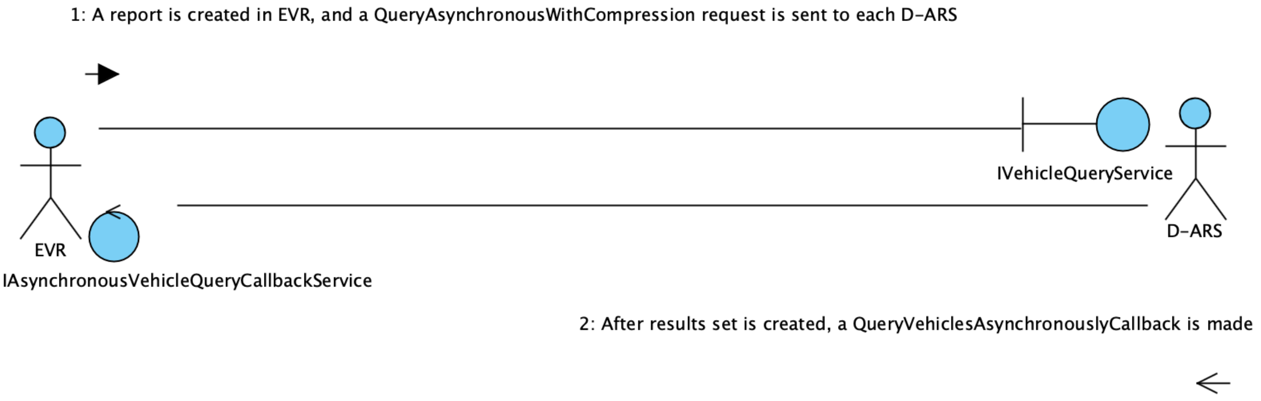
Reference data transfer object is used to send reference data from EVR to D-ARS systems.

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://schemas.dataco
ntract.org/2004/07/" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:tns="http
://schemas.datacontract.org/2004/07/">
```

```
      <xs:complexType name="ReferenceDataTransferObject">
        <xs:sequence>
          <xs:element name="compressedField" type="xs:boolean" />
          <xs:element name="creationDateField" type="xs:dateTime" />
          <xs:element name="fileObjectField" nillable="true" type="tns:ArrayOfFi
leObject" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ReferenceDataTransferObject" nillable="true" type="tns:R
eferenceDataTransferObject" />
      <xs:complexType name="ArrayOfFileObject">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="FileObject" nill
able="true" type="tns:FileObject" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfFileObject" nillable="true" type="tns:ArrayOfFile
Object" />
      <xs:complexType name="FileObject">
        <xs:sequence>
          <xs:element name="binaryContentField" nillable="true" type="xs:base64B
inary" />
          <xs:element name="checksumField" nillable="true" type="xs:base64Binary
" />
          <xs:element name="fileNameField" nillable="true" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="FileObject" nillable="true" type="tns:FileObject" />
    </xs:schema>
```

3.2 VehicleQueryCallbackService

This service is used to allow D-ARS systems to send the results of a report request back to the EVR system.



1: A report is created in EVR, and a QueryAsynchronousWithCompression request is sent to each D-ARS

2: After results set is created, a QueryVehiclesAsynchronouslyCallback is made

Figure 9 - VehicleQueryCallbackService

3.2.1 IAsynchronousVehicleQueryCallbackService interface description (C#)

```
[ServiceContract(Namespace = "http://www.era.europa.eu/EC-
VVR/AsynchronousVehicleQueryCallback", SessionMode = SessionMode.Allowed)]
    public interface IAsynchronousVehicleQueryCallbackService
    {
        [OperationContract(IsOneWay=true)]
        void QueryVehiclesAsynchronouslyCallback(byte[] response);
    }
```

3.2.2 XDS schema QueryAsynchronouslyWithCompressionCallback

```
<xs:schema elementFormDefault="qualified" targetNamespace="http://www.era.europa
.eu/EC-VVR/Vehicle/Query/1.0" xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:element name="QueryAsynchronouslyWithCompressionCallback">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="response" nillable="true" type="xs:b
ase64Binary" />
            <xs:element minOccurs="0" name="countryCode" nillable="true" type="x
s:string" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="QueryAsynchronouslyWithCompressionCallbackResponse">
        <xs:complexType>
          <xs:sequence />
        </xs:complexType>
      </xs:element>
    </xs:schema>
```

4 Organisation's codes

The Agency will implement and and make available inside EVR a module allowing users to search for organisations based on the following attibutes:

- *Organisation Code*
- *Organisation name*
- *Registered business number*
- *Address*
- *Town*
- *Country code*
- *Post code*
- *Email address*

The primary functionality will be the search based on organisation code.
The search will return all the above specified fields plus the Vehicle Keeper Marking number in case of a Keeper organisation. This information can further be used in the process of registering the vehicle by the Keeper (applicant for vehicle registration) using the D-ARS system.

5 Security

The security used to authenticate and to encrypt the data exchange is based on X.509 certificates. The details can be viewed in the WSDL in the attachments. The certificates used should be provided by both communicating parties (one for the EVR and one for the D-ARS).

Security certificates to secure the EVR will be issued by the Agency, the same can be done for the D-ARS in case the organization hosting them don't have a security certificate that could be used.

6 Encoding

All xml messages passed use UTF-8 data encoding. This can be seen in header of the schema files.

7 Annexes

To the current document we annex the following below mentioned files:

- *ApplicationQuery.xml*
- *ReferenceData.xml*
- *Status.xml*
- *UserData.xml*
- *VehicleHistoryQuery.xml*
- *VehicleQuery.xml*
- *VehicleQueryCallback.xml*

All the above are the WSDL files for the respective services. Please be aware that the sample WSDL files contain data specific to where the services are currently hosted and used X509 sercurity certificates.

Additionally we have attached ReferenceData.zip file containing the reference data composed of:

- Countries
- Zones
- Document types
- Safety authorities
- Coded restrictions
- EVN wizzard reference data.