**The Global Reference Architecture (GRA)**

**Open Source Message Switch Initial Query Request Service 1.0.0**

**Service Description Document**

**Version 1.0.0**

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# Introduction

In the context of the GRA and Service-Oriented Architecture **[soa]** in general, a service is the means by which one partner gains access to one or more capabilities offered by another partner. Capabilities generate real-world effects that can be as simple as sharing information or can involve performing a function as part of a complex process or changing the state of other related processes. Government organizations have numerous capabilities and a multitude of partner organizations, both inside and outside of their traditional communities. There are significant benefits for these organizations to share information and have access to each other's capabilities. Achieving interoperability among these organizations requires alignment of business and technical requirements and capabilities. In addition, it is critical to have a consistent way of specifying these requirements and capabilities and sharing them across organizational boundaries. The GRA was developed to facilitate interoperability and to assist in meeting other key requirements common in a complex government information sharing environment. In order to achieve interoperability, a consistent approach must be defined to identify, describe, and package services and their interactions in many different technical environments, across multiple government lines of business, at all levels of government, and with partner organizations.

The GRA defines a service interface as “the means for interacting with a service.” It includes specific protocols, commands, and information exchange by which actions are initiated on the service. A service interface is what a system designer or implementer (programmer) uses to design or build executable software that interacts with the service. That is, the service interface represents the “how” of the interaction. Since the service interface is the physical manifestation of the service, best practices call for service interfaces which can be described in an open-standard, machine-referenceable format (that is, a format which could be automatically processed by a computer).

A Service Specification is a formal document describing the capabilities made available through the service; the service model that defines the semantics of the service by representing its behavioral model, information model, and interactions; the policies that constrain the use of the service; and the service interfaces which provide a means to interacting with the service. A Service Specification is analogous to the software documentation of an Application Programming Interface **[api]**. It provides stakeholders with an understanding of the structure of the service and the rules applicable to its implementation. It gives service consumers the information necessary for consuming a particular service and service providers the information necessary for implementing the service in a consistent and interoperable way.

The main components of a Service Specification are the Service Description, one or more Service Interface Descriptions, and the schemas and the samples used to implement and test the service. A Service Description contains information about all aspects of the service which are not directly tied to the physical implementation of the service; in other words, the service interface. A Service Interface Description is a description of the physical implementation; specifically, the service interface used in a specific implementation of the service. Since a service can leverage multiple Service Interfaces, the Service Specification might contain more than one Service Interface Description.

This document is the Service Description for the OSMS Initial Query Request Service.

# Service Overview

## Purpose

Querying State, local and National data providers for information about persons, vehicles and articles[[1]](#footnote-1) is the primary purpose of the law enforcement message switch. Rather than running a multitude of specific queries from the client software, it is helpful to be able to provide as many identifying characteristics as possible and allow the message switch to federate or “spawn” queries to each system based on the information provided in this initial query. This service enables the querying of people, vehicles and articles, using identifying characteristics, to filter items of interest from selected systems.

## Scope

The scope of this services is more inclusive than other GRA services, because it is meant as a starting point for the message switch to receive whatever information is provided from the client software connector and use that information to spawn queries that provide law enforcement with a broader picture based on the information given. For example; an officer initiates a plate (vehicle registration query (RQ)), the plate query will spawn queries to Nlets, State motor vehicles and NCIC for stolen vehicle, registration details, wanted person, etc. based on the plate and returned owner information.



## Capabilities

This service provides the ability to query the message switch for persons, vehicles and articles of interest using multiple search criteria. In the case that the service consumer doesn’t specify target systems for searching, this service will search all known systems.

## Real-World Effects

This service receives person, vehicle and article search criteria from client software systems, which is a necessary step in order to locate information about persons, vehicles and articles of interest. Furthermore, this service makes possible the delivery of federated queries based on returned information – outlined in separate documents.

## Summary

This service enables humans or machines to query for vehicles in multiple target systems. This service, itself, does not provide a direct response to the query request; however, it is common that the provider of this service would in-turn consume another service that allows for reporting of results based on the initial and federated criteria.

## Description

This service is relevant to any potential service consumer interested in submitting vehicle-related criteria for the purposes of querying for information about a vehicle through the message switch. This service is probably most valuable in a federated query scenario where a consumer submits a request to the message switch, which then distributes the query to data sources that may contain information about the vehicle or vehicles of interest. From there, those data sources can consume a search results service to report results based on searching using the search criteria.

## Security Classification

The highest level of security classification for the information exchanged by this service is Sensitive but Unclassified (SBU). As a result, the service can be assigned a security classification of SBU.

## Service Specification Package Version

This service specification is built according to version 1.0 of the GRA Service Specification Package (SSP).

# Business Scenarios

## Business Scenario

### Primary Flow

The service consumer sends person, vehicle and/or article query criteria to the OSMS Initial Query Request Service, once the service receives this information it initiates a federated search based on the provided criteria.

### Alternate Flow

Not applicable.

# Service Interoperability Requirements

## Service Interaction Requirements

### Summary of Requirements

The following table lists the Service Interaction Requirements established by the GRA Framework, and indicates whether each is mandatory for this service.

|  |  |
| --- | --- |
| GRA Service Interaction Requirements | Mandatory (Yes/No) |
| Service Consumer Authentication | Yes |
| Service Consumer Authorization | Yes |
| Identity and Attribute Assertion Transmission | Yes |
| Service Authentication | Yes |
| Message Non-Repudiation | Yes |
| Message Integrity | Yes |
| Message Confidentiality | Yes |
| Message Addressing | Yes |
| Reliability | No |
| Transaction Support | No |
| Service Metadata Availability | Yes |

### Service Consumer Authentication

The service consumer must provide information in the message sent to this service that the service can use to authenticate the consumer and confirm that the consumer is a member of the federation. Furthermore, consumers of this service must be acting on behalf of a human, so the message that the consumer sends to this service must contain information to prove that the person has authenticated to an authentication mechanism that is trusted within the federation where this service is offered.

### Service Consumer Authorization

This service makes its own access control decisions so consumers are not required to supply authorization information in messages sent to the service.

### Identity and Attribute Assertion Transmission

All messages sent to this service must contain information about the person requesting access to the capabilities provided by this service; the message must also assert the validity of this information.

The service consumer must also make information about itself available to the service. Likewise, the service must make information about itself available to service consumers.

### Service Authentication

A service consumer must be able to verify the identity of the service in trusted manner.

### Message Non-Repudiation

All messages sent to this service must contain information to prove that a particular authorized sender in fact sent the message.

### Message Integrity

All messages sent to this service must contain information for the service to confirm that the message has not changed since it left control of the sender.

### Message Confidentiality

All messages sent to this service must be protected in a manner that prevents anyone except the authorized recipient from reading the message.

### Message Addressing

All messages sent to this service must contain a unique message identifier (this supports correlation of asynchronous request/response) along with information indicating where the message originated, the ultimate destination of the message, a specific recipient to whom the message should be delivered and a specific address or entity to which reply messages should be sent, if they exist.

### Reliability

This service does not require Reliability.

### Transaction Support

This service does not require Transaction Support.

### Service Metadata Availability

Since this service is part of a federation, this metadata about this service must be made available to all federation members

## Service Assumptions

* All messages sent to the OSMS Initial Query Request Service will result in a synchronous acknowledgement of receipt or failed delivery. This acknowledgement will contain just enough information to confirm that the message was delivered and is not considered part of the service model.
* Messages other than the synchronous acknowledgement are returned asynchronously. As such, the sending and receiving jurisdictions’ systems implement a service endpoint to receive these messages.

## Service Dependencies

This service provides the ability to submit an initial message switch query request but this service does not return results of that request. Other message switch services should be used in conjunction with this service to provide results based on criteria sent.

## Execution Context

This section is divided into sub-sections based on the implementation guidelines established in the GRA Execution Context guidelines 1.2

### Reachability

The infrastructure must provide a communication path that allows service consumers to send messages to the service.

### Willingness

The infrastructure must enable encryption of the communication path between service consumer and service provider.

The infrastructure must also provide a mechanism for the service to confirm that the message sent from the consumer has not changed since it left the control of the consumer.

### Awareness

Providers of this service should make details about the service and service interface available to potential service consumers.

### Intermediaries, Connectors, and Adaptors

The infrastructure that implements this service should do so in a manner according to section 3.4 of the GRA Execution Context Guidelines 1.2.

## Policies and Contracts

Consumers of this service will be acting on behalf of a user. Each user must be an authorized user and the message sent to this service from the consumer must provide information so the service can determine whether the user is an authorized user. \*\*\* CJIS Security Policy requirements \*\*\*

## Security

Access to this service must be limited to consumers that have met the authentication and authorization requirements as established by the federation where this service resides. Please refer to the “Service Interaction Requirements” section of this document for specific details about authentication, authorization, and confidentiality.

## Privacy

There are no specific privacy considerations for this service.

## Other Requirements

None

# Additional Information

None

# Service Model

## Information Model

### IEPD Reference

The OSMS Initial Query Request Service uses the *OSMS Query Request* IEPD. This IEPD exists in *the artifacts/service model/information model* directory of the Service Specification Package for this service.

### Data Inputs

**Vehicle Query Request**

The OSMS Query Request message includes basic information about a vehicle and service consumers can use as criteria to search for vehicles of interest. The message consists of the following data elements:

* Vehicle Color
* Vehicle Make
* Vehicle Model
* License Plate Number
* Vehicle Identification Number (VIN)
* Vehicle Model Year Range
* Name of Source System(s) to be searched based on provided criteria (This shall be an optional element. If this element exists, the service should only search the specified systems. If this element is absent, then the service shall search all known systems)

**Driver License Query Request**

The OSMS Query Request message includes basic information about a vehicle and service consumers can use as criteria to search for vehicles of interest. The message consists of the following data elements:

* Name
* Date of Birth
* Sex
* Operator License Number
* Name of Source System(s) to be searched based on provided criteria (This shall be an optional element. If this element exists, the service should only search the specified systems. If this element is absent, then the service shall search all known systems)

**Gun Query Request**

The OSMS Query Request message includes basic information about a vehicle and service consumers can use as criteria to search for vehicles of interest. The message consists of the following data elements:

* Serial Number
* Name of Source System(s) to be searched based on provided criteria (This shall be an optional element. If this element exists, the service should only search the specified systems. If this element is absent, then the service shall search all known systems)

**Article Query Request**

The OSMS Query Request message includes basic information about a vehicle and service consumers can use as criteria to search for vehicles of interest. The message consists of the following data elements:

* Serial Number
* Article Type
* Name of Source System(s) to be searched based on provided criteria (This shall be an optional element. If this element exists, the service should only search the specified systems. If this element is absent, then the service shall search all known systems)

### Data Outputs

This is an asynchronous service so there are no data outputs on this service.

### Data Provenance

The data used to consume this service originates with the requesting agency.

## Behavior Model

### Action Model

|  |  |
| --- | --- |
| **Action Name:** | ***Submit Initial Query Request*** |
| **Action Purpose** | |
| A service consumer will implement this action in order to submit an Initial Query Request. | |
| **Action Inputs** | **Action Outputs** |
| InitialQueryRequest | Not applicable |
| **Action Provenance** | |
| The data provenance for this action is identical to that of the information model for this service. | |

### Process Model

This service only offers one action, “Submit Initial Query Request”. A service consumer will invoke this action on the service and will receive an acknowledgement notifying of a successful connection or failure to connect.

Appendix A—References

*[This section is used to list applicable references]*

| *[Reference name and description]* | *[Fully qualified link/path to the reference information]* |
| --- | --- |

Appendix B—Glossary

*[This section is used to list glossary terms used in the document]*

| *[Glossary term or acronym]* | *[Glossary Term or acronym description]* |
| --- | --- |

Appendix C—Document History

*[This section is used to document the history of the service description document]*

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Editor** | **Change** |
| 8/23/17 | 0.1 | M. Jacobson | Initial draft |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. For the purpose of this document guns are included as articles, even though the gun queries may query different data sources. [↑](#footnote-ref-1)