The Global Justice Reference Architecture (JRA) Services

Working Draft Version 1.0

March 2010

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Services

The Global Infrastructure/Standards Working Group (GISWG) has developed a Framework, Profiles, and Guidelines called the Justice Reference Architecture (JRA), which provide guidance to the national justice and public safety community on how to plan and design information sharing technology solutions based on a Service Oriented Architecture (SOA). SOA is a methodology for integrating systems while maintaining as much of their independence and autonomy as possible. That is, it allows multiple systems to share information, but in a way that still allows the systems to change independently. To this end, the JRA focus is on interoperability at the system interface, rather than within the systems themselves.

The benefit of following SOA is greater flexibility and agility…the ability to accommodate policy changes more easily within the IT systems that support (implement, enforce) the policy. Along with this approach to information sharing is the opportunity for greater reuse of components and therefore less waste of resources. These benefits were the foundation for Global's recommendation, in 2004, that justice information sharing nationwide should be based on SOA. There is a well-developed set of standards and methodologies from industry on how to do this; however, fitting the pieces together isn't easy. The purpose of the JRA is to make it easier to implement information sharing solutions and to reduce the learning curve and the resources required to implement SOA.

An SOA separates partner capabilities into distinct units, or *services*, which are accessible over a network so users can combine and reuse them in producing applications, receiving real-time information, reporting, performing investigations, etc. A ***service***, in the context of information exchange, is defined as a distinct function [or unit] that allows the consumer of information to locate and access the information being provided by an information provider. Services communicate with each other by passing data from one service to another, or by coordinating an activity between two or more services.
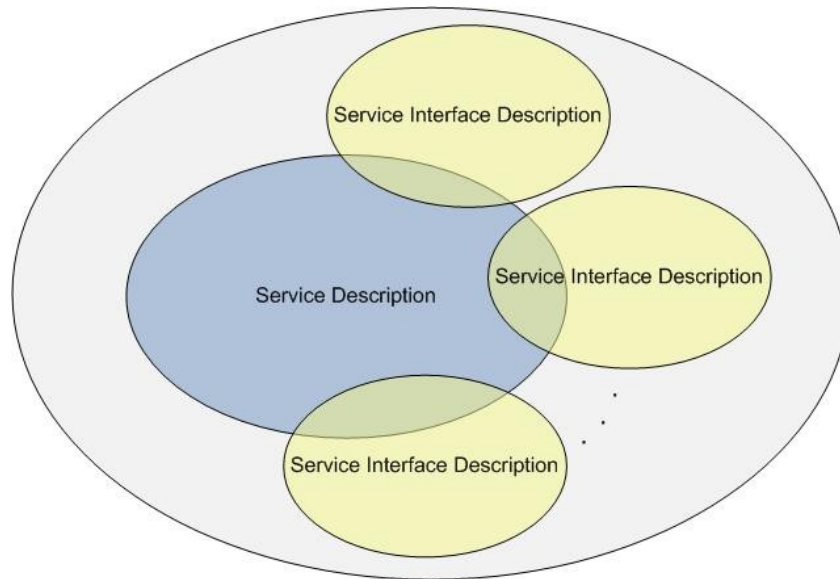
Service Specification

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 interface that provides a means of interaction with the service.

A capability is an activity performed by a service provider yielding a result of measurable value [real-world effect] to the consumer, the provider, or both. A service provides access to one or more capabilities.

Note: The JRA specifies identifying those capabilities which require intersystem communications in that they are outward facing and cross either internal or external governance boundaries.

A service specification is analogous to the software documentation of an Application Programming Interface (API). It provides stakeholders with an understanding of the structure and functionality of the service and the applicability to its implementation interface rules (policies). 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 manner.

The main components of a Service Specification are the Service Description and one or more Service Interface Descriptions.

JRA Service Specification

A Service Description describes all aspects of a service that are not directly tied to the physical implementation or service interface. A Service Interface Description is a description of the physical implementation or service interface used in a specific implementation of a service. Since a service can implement multiple Service Interfaces, the Service Specification might contain more than one Service Interface Description.

The Global JRA defines a service interface as "the means for interacting with a service." It includes the 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. Since the service interface is the physical manifestation

of the service, best practices call for a service interface which can be described in an open-standard, referenced format.

Service Specifications support the two (2) primary use cases of the JRA, which are:

1. To provide the justice information sharing community with an architecture and supporting specifications and guidance such that practitioners can implement SOA more efficiently. As such, the JRA and related documents provide an 80 percent solution that eliminates the need for individual justice practitioners to invent their SOA solutions from scratch and enhances the likelihood of reuse.

2. To provide a framework within which the JRA can be maintained and enhanced and national reference services can be developed to enhance interoperability.

Service Specifications are similar to National Information Exchange Model ([NIEM]) Information Exchange Package Documentation (IEPD), commonly used within the justice community. They document the conceptual, logical, and physical models of a service in the same way NIEM IEPDs document the conceptual, logical, and physical models of a data exchange. Also, as with IEPDs, Service Specifications are a composite set of documentation, models, policies, contracts, and schemas that together provide a clear view of the service capabilities and business and technical requirements. While both Service Specifications and NIEM IEPDs are sets of artifacts which enable justice agencies to effectively share information and are of similar construction, they are not equivalent concepts. From a JRA perspective, NIEM IEPDs are used to describe the information model of a service and, as such, become a part of the Service Specification.

Service Specification Package (SSP)

All components of a Service Specification are compiled in a JRA Service Specification Package (JRA-SSP). The SSP is a portable, self-contained, and self-documented collection of service specification artifacts in .zip format. The SSP is human- and machine-readable and can be used independently or as part of a service registry and/or repository. The Service Descriptions are represented in the SSP as a Service Description Document (SDD) and related artifacts referenced in the document. The Service Interface Descriptions manifest themselves as Service Interface Description Documents (SIDD) and the related artifacts for each service interface, which are referenced in the respective document for this interface. Among the templates provided as part of the SSP are templates for the Service Description Document and the Service Interface Description Document.

Services Task Team (STT)

To promote and facilitate JRA implementation, the US Department of Justice, Bureau of Justice Assistance (BJA), in consultation with the GISWG leadership, formed the Services Task Team (STT), consisting of technical analysts and practitioner representatives from GISWG whose mission is to assist the justice community in indentifying and designing *services* that conform to the JRA. The STT follows the principles for *service* design that have been developed and evolved by the GISWG in the Justice Reference Architecture (JRA). To this end, use of the *Global Justice Reference Architecture (JRA) Framework*, *JRA Guidelines for Identifying and Designing Services [JRA-GIDS],* and the *JRA Service Specification Package (JRA-SSP*] have been instrumental. Feedback from the STT to GISWG has also helped to further modify service design methodologies and JRA documentation.

The goal of the STT is to implement JRA methodologies, guidelines, and specifications for the development of justice *reference service specifications*. *Reference Service Specifications* are considered service specifications that may require additional modification or "tweaking" to satisfy specific policies and requirements associated with *providing* or *consuming* these services in the real world. These *reference service specifications* are intended for use by justice practitioners nationwide to accelerate their own information sharing projects while improving interoperability through a more consistent approach across jurisdictions.

The task of successfully developing service specifications for implementation is grounded in the involvement of justice subject-matter experts (SMEs). SMEs provide the business knowledge on what their business does (in terms of business capabilities), how these capabilities interact, how priority capabilities are determined, and how services are defined in terms of business use cases, information exchanges [messages], and interaction policies. The STT is working with numerous justice practitioner SMEs to develop *reference service specifications* based on the *JRA Service Specification Package [JRA-SSP]*.

To date, the STT has developed the reference service specifications provided on the JRA Web site. The STT is currently working on a *Service Registry*, where a complete catalog of STT reference service specifications will ultimate reside. The registry will also include those Service Specifications developed by other agencies/organizations and reviewed by the STT.

The STT will continue to develop reference service specifications in 2010 based on justice community priorities.