

SOAP Web Services: The Generalized Interface (GI) of the Future

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Generalized Interface Basics

The Generalized Interface (GI) is a web services server provided by Administrative Information Services (AIS) for use within the Penn State community. The GI is primarily used to retrieve and update administrative data on the AIS mainframes. The GI currently uses a specification called XML-RPC to communicate with customer's system. Work has begun on a new GI that will support external SOAP communications.

Presentations Definitions:

What follows is a list of definitions as they pertain to this presentation.

Application	A GI application is a group of GI services and related information that will be used as a unit by a customer.
GI	Generalized Interface
GI Management System	A public interface for requesting and modifying GI services and applications.
HTTP	Hypertext Transfer Protocol - Primary communication protocol used for the "Internet."
GI XML-RPC Implementation/ Client	The pre-built code used to call the GI via XMLRPC. An implementation takes different forms based on what development environment it's designed for. For example the implementation for Cold Fusion is a custom tag, for ASP an include file is used and for Java there is a jar file.
Service	Services are the functions that the GI performs. In some clients this is referred to as the method call.
Service Provider	The source of data for a given GI service. For example there is a GI service called getEmployeeData that retrieves information from the IBIS database. The IBIS database on the mainframe would be the service provider in this case.
SOAP	Simple Object Access Protocol – A widely accepted specification for exchanging XML over HTTP. SOAP allows applications on different platforms to communicate over the internet. SOAP 1.2 was released as a W3C recommendation (standard) in June of 2003.
W3C	World Wide Web Consortium – "An international consortium where Member organizations, a full-time staff, and the public work together to develop Web standards." (http://www.w3.org/Consortium/ - 4/25/2006)
Web Service	XML exchanged over the "internet", primarily via HTTP.
WSDL	Web Services Description Language – An XML document that describes a SOAP web service.
XML	Extensible Markup Language – "XML is a cross-platform, software and hardware independent tool for transmitting information." (W3Schools, SOAP Tutorial (n.d.) Retrieved April 27, 2005 from http://www.w3schools.com/xml/xml_what.asp)

XML-RPC	Extendable Markup Language Remote Procedure Call - XML-RPC is a simple specification that defines a method of making remote procedure calls in XML and also defines how to encode the response in XML. This is the current web service specification used by the GI. XML-RPC is the predecessor of SOAP.
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Generalized Interface Resources:

- GI Home Page: http://ais.its.psu.edu/generalized_interface/index.html
The GI home page is a good starting point for gathering information about the GI. It contains links to other resources such as the GI Technical Documentation, Web 2006 Conference Presentation and the GI Management System.

SOAP Resources (General):

- SOAP FAQ: <http://www.w3.org/2003/06/soap12faq.html>
Contains links to fairly detailed specifications about the W3C recommendations about SOAP.
- Basic SOAP Tutorial: <http://www.w3schools.com/soap/default.asp>
A straight forward easy to understand SOAP tutorial

SOAP Resources (Environment Specific):

- PHP: <http://us3.php.net/manual/en/ref.soap.php>
- PHP Alternative SOAP Implementation: <http://dietrich.ganx4.com/nusoap/>
- JAVA:
<http://java.sun.com/developer/technicalArticles/WebServices/SOAP/index.html>
- IBM Web Sphere (JAVA): <http://publib-b.boulder.ibm.com/abstracts/sg246461.html?Open>
- .NET: http://msdn.microsoft.com/webservices/default.aspx?pull=/library/en-us/dv_vstechart/html/vbtchGettingStartedWithXMLWebServicesInVisualStudioNET.asp
- ColdFusionMX7:
<http://livedocs.macromedia.com/coldfusion/7/htmldocs/00001530.htm#1141005>

Publicly Available SOAP Web Services:

- Google : <http://www.google.com/apis/>
- General Directory: <http://www.xmethods.net/>
<http://www.bindingpoint.com/default.aspx>
- Note: Many, many others are available.

WSDL Resources:

- Basic WSDL Tutorial: <http://www.w3schools.com/wSDL/default.asp>
A straight forward easy to understand WSDL tutorial
- Description of basic WSDL tags:
<http://livedocs.macromedia.com/coldfusion/7/htmldocs/00001532.htm#1173645>
This is a good generic description even though it is on the Adobe/Marcromedia/ColdFusion site.