

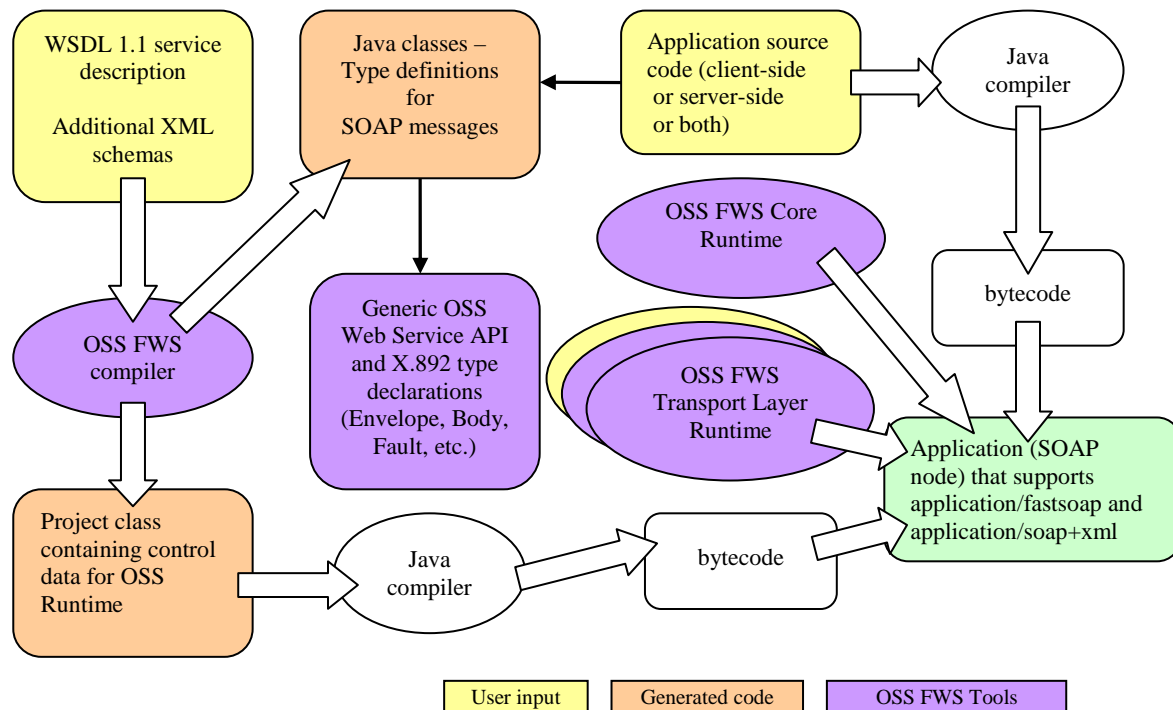
OSS Fast Web Services Tools

High Performance Web Services

The **OSS Fast Web Services (FWS) Tools** are ideal for those who use Web Services in resource-constrained and/or bandwidth-constrained environments. The OSS FWS Tools, which create and process highly efficient binary SOAP messages, are conformant to the W3C WSDL 1.1, SOAP 1.1 and 1.2, WS-I Basic Profile 1.0, and ITU-T X.892 | ISO/IEC 24824-2 Fast Web Services recommendations. XML SOAP messages are also supported ensuring your ability to exchange SOAP messages with XML based peers. The OSS FWS Tools yield messages that average 1/5th the size of XML SOAP messages; our parsing speed is 5 times faster than that of a traditional XML parser.

The Tools consist of three main components: an OSS FWS Compiler, an OSS FWS Runtime, and an optional OSS FWS Transport Layer Runtime.

- The OSS FWS Compiler takes a WSDL 1.1 service description as input, and generates schema-derived files for inclusion in your application.
- The OSS FWS Runtime library is a collection of functions for use in writing efficient Web Services applications in Java, C, or C++.
- The Transport Layer Runtime can be used to send/receive SOAP messages.



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OSS FWS Compiler

The OSS FWS Compiler takes a WSDL 1.1 service description as input, and generates schema-derived files for inclusion in your application. The compiler supports both document/literal and RPC/literal service descriptions as mandated by WS-I Profile. The generated files include definitions for the application-specific content of the SOAP messages described in the WSDL file. The compiler also generates internal information required by the OSS FWS Runtime component to serialize/parse SOAP messages.

It is typical for SOAP toolkits to map operations defined in the WSDL file to the functions of the target language. The FWS compiler can optionally generate the following client and server side functions for a WSDL operation.

Client Functions

- Create a SOAP request Envelope from an operation's input parameters
- Serialize a SOAP request message from an operation's input parameters
- Extract an operation's output parameters from a SOAP response Envelope
- Extract an operation's output parameters from a serialized SOAP response message
- Create, send and receive SOAP request messages using transport layer protocol

Server Functions

- Extract an operation's input parameters from a SOAP request Envelope
- Extract an operation's input parameters from a serialized SOAP request message
- Create a SOAP response Envelope from an operation's output parameters
- Serialize a SOAP response message from an operation's output parameters

Many other useful features are available, such as varying levels of diagnostics and the ability to generate additional output files, i.e. pretty-printed WSDL listings.

OSS FWS Runtime

The OSS FWS Runtime library is a collection of functions/methods which facilitate the writing of efficient Web Services applications in Java, C or C++. The library contains:

- Web Services initialization and termination to load or release Web Services capabilities, and to support multiple Web Services in an application
- Serialization of Envelopes to Fast and XML SOAP messages (versions 1.1 and 1.2)
- Parsing of the XML and Fast SOAP messages, including support of user-provided callback functions to perform application-specific actions, and to control the parser for best performance (versions 1.1 and 1.2 of SOAP messages are supported and detected automatically)
- Creation of an output SOAP message while parsing the input message. Some components of the input message can be relayed as they are, without decoding, while other components can be modified inside the callback functions and added to the output message. This functionality is useful for writing efficient intermediary SOAP nodes.
- Conversion of XML SOAP messages into Fast SOAP messages and vice versa

The functionality of encoding, decoding, copying, comparing, freeing the application-specific messages, changing the XML namespace prefixes, compression with Zlib, support for file and socket input/output etc. is also available to the FWS applications.

OSS FWS Transport Layer

The transport layer runtime library can be used to send and receive SOAP messages. It encapsulates all transport protocol-related functionality.

FWS application code is transport-independent; for example, the same Web Service can be used as a CGI module, or as a standalone Server. It is simply a matter of using a different transport mechanism.

The OSS library supports SOAP HTTP bindings with the implementations of:

- HTTP client
- Simple standalone HTTP server
- ISAPI Extensions for IIS server
- Support for other transport layers (e.g., CGI, Fast CGI) is scheduled for future releases

Transport layers use a simple, open and documented API. Users can plug in their own transport layer instead of using those provided by OSS.

Fast Infoset Add-on

Fast Infoset support is available for the OSS FWS Tools. The Fast Infoset API consists of functions for creating and parsing Fast Infoset encodings as well as for converting XML documents to and from Fast Infoset. Fast Infoset encoding of application-specific payloads within Fast SOAP messages is supported. Now you can exchange XML SOAP, FAST SOAP, and Fast InfoSet SOAP messages.

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