Web services can use the service integration bus to provide a single point of control, access, and validation of web service requests and allow control of web services that are available to different groups of web service users.

**About this task**

With bus-enabled web services you can achieve the following goals:

* Create an *inbound service*: Take an internally-hosted service that is available at a bus destination, and make it available as a web service.
* Create an *outbound service*: Take an externally-hosted web service, and make it available internally at a bus destination.

Bus-enabled web services provide a choice of quality of service and message distribution options, along with intelligence in the form of mediations that allow for the rerouting of messages.

To enable web services through service integration technologies, complete the following steps:

**Procedure**

1. Optional: [Learn about bus-enabled web services](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/cjw_learning.html?view=kc).

Explore the concepts that underly service integration bus-enabled web services.

1. [Plan your bus-enabled web services installation](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/cjw_install_plan.html?view=kc#cjw_install_plan).

Determine the bus-enabled web services roles that each server is to perform.

1. Ensure that every server that is to play a bus-enabled web services role is a member of a service integration bus.

For more information, see [Configuring the members of a bus](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjj0006_.html?view=kc#tjj0006_).

1. For every server that is to play a bus-enabled web services role, [install and configure a Service Data Objects (SDO) repository](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_install_sdo.html?view=kc#tjw_install_sdo) on the server.

**Note**For WebSphere® Application Server Version 6.0, you also had to manually install a selection of the following applications:

* + The service integration technologies resource adapter (used to invoke web services at outbound ports).
  + The bus-enabled web services application.
  + One or more endpoint listener applications.

For later versions of WebSphere Application Server, these applications are installed automatically as and when needed. For example, the endpoint listener application is installed automatically when you configure an endpoint listener.

1. [Create a new endpoint listener configuration](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_epl_new_61x.html?view=kc) for each endpoint listener application that you plan to use to receive inbound service requests.
2. Optional: [Create an inbound service](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_in_new.html?view=kc#tjw_in_new).

An inbound service is a web interface to a service that is provided internally (that is, a service provided by your own organization and hosted in a location that is directly available through a service integration bus destination). To configure a locally-hosted service as an inbound service, you associate it with a service destination, and with one or more endpoint listeners through which service requests and responses are passed to the service. You can also choose to have the local service made available through one or more UDDI registries.

1. Optional: [Create an outbound service](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_out_new.html?view=kc#tjw_out_new).

An outbound service is a web service that is hosted externally, and is made available through a service integration bus. To make an externally-hosted service available through a bus, you first associate it with a service destination, then you configure one or more port destinations (one for each type of binding, for example SOAP over HTTP or SOAP over JMS) through which service requests and responses are passed to the external service. You get the port definitions from the WSDL, but you can choose which ones you want to create.

1. Optional: [Apply additional security to your bus-enabled web services](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_security.html?view=kc#tjw_security).

By default, the bus-enabled web services configuration works when WebSphere Application Server security is enabled and your service integration buses are secured. However this level of security does not impose any security restrictions on the users of your bus-enabled web services configuration. To control how your bus-enabled web services configuration is used by each group of your colleagues or customers, use the bus-enabled web services additional security features to enable working with password-protected components and servers, with WS-Security and with HTTPS.

* [**Installing and configuring the SDO repository**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_install_sdo.html?view=kc)  
  Service Data Objects (SDO) is an open standard for enabling applications to handle data from different data sources in a uniform way, as data graphs. Service integration bus-enabled web services use an SDO repository for storing and serving WSDL definitions. Use this task to create and configure your preferred database to store SDO data, and to install and configure an SDO repository on each server that you plan to use for bus-enabled web services.
* [**Configuring web services for a service integration bus**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_services.html?view=kc)  
  Take an internally-hosted service that is available at a bus destination, and make it available as a web service; Take an externally-hosted web service, and make it available internally at a bus destination; Use the web services gateway to map an existing service - either an inbound or an outbound service - to a new Web service that appears to be provided by the gateway.
* [**Administering the bus-enabled web services resources**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_admin.html?view=kc)  
  Use the administrative console to configure the main service integration bus-enabled web services resources: endpoint listeners; JAX-RPC handler lists; WS-Security bindings and configurations; references to UDDI registries.
* [**Creating a new WS-Security binding**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_wss_bind_new.html?view=kc)  
  Create a new WS-Security binding for use with service integration bus-enabled web services. You use WS-Security bindings to secure the SOAP messages that pass between service requesters (clients) and inbound services, and between outbound services and target web services.
* [**Creating a new WS-Security configuration**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_wss_conf_new.html?view=kc)  
  Create a new WS-Security configuration for use with service integration bus-deployed web services. You use WS-Security configurations to secure the SOAP messages that pass between service requesters (clients) and inbound services, and between outbound services and target web services.
* [**Passing SOAP messages with attachments through the service integration bus**](https://www.ibm.com/support/knowledgecenter/SSEQTP_9.0.5/com.ibm.websphere.base.doc/ae/tjw_attach.html?view=kc)  
  The service integration technologies support web services that use a SOAP binding to pass attachments in a MIME message.