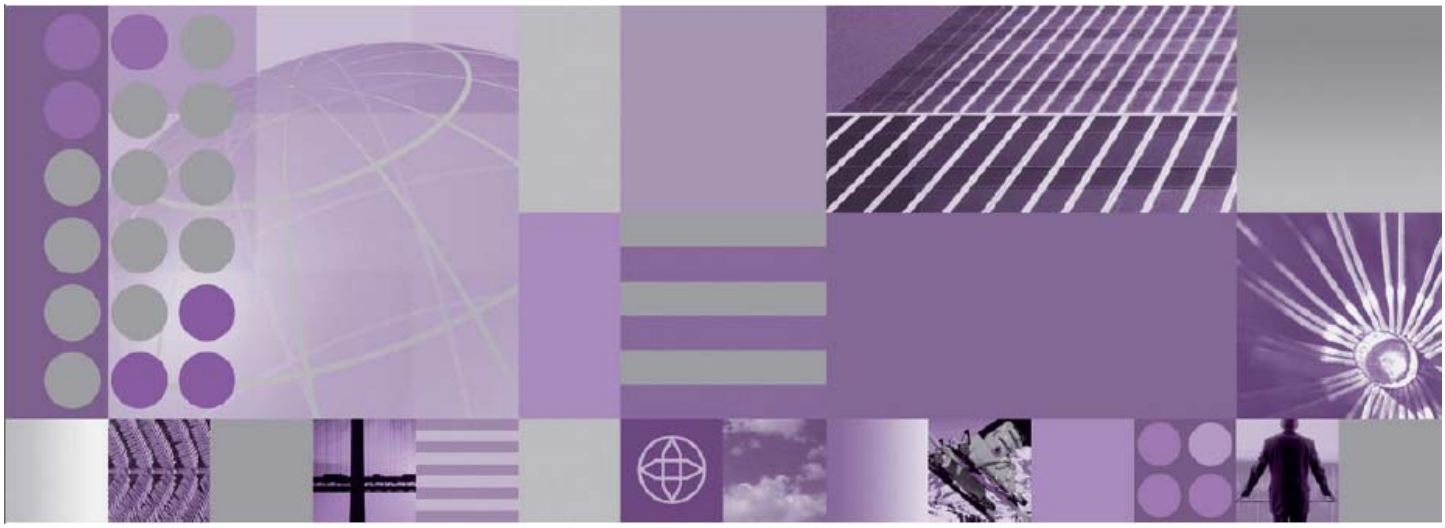


WebSphere adapter for IBM i tutorials

This edition applies to version 6, release 2, and modification 0 of IBM WebSphere Adapter for IBM ‘i’ and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. Introduction to WebSphere Adapter for IBM i - Running an RPG program tutorial

WebSphere® Adapter for IBM® i V6.2 exchanges business data between system i and J2EE applications. The adapter retrieves from and writes to the data queue and runs RPG programs.

The document demonstrates the following scenario:

1. Running an RPG program with the help of Adapter for IBM i

This scenario demonstrates how WebSphere Adapter for IBM i V6.2 performs outbound operations.

Learning objectives

After completing this tutorial, you should be able to perform the following tasks:

Create an adapter project in WebSphere Integration Developer.

Discover services and associated business objects from the enterprise information system (EIS) and make them part of the adapter project.

Create a deployable module that you install on WebSphere Process Server or WebSphere Enterprise Service Bus.

Test the module and validate the results.

Audience

This tutorial is for integration developers who design, assemble, test, and deploy business integration solutions.

Software prerequisites

To use this tutorial, you must have the following applications installed:

WebSphere Integration Developer version 6.2

WebSphere Process Server version 6.2

Chapter 2. Preparing to run through the tutorial

Configuration prerequisites

Before trying any test based on this tutorial, complete the following tasks:

Create a sample RPG program on an IBM i system.

Compile the sample RPG program with the compiler parameter PGMINFO(*PCML) to generate a PCML file.

Extracting the sample files

Replicas of the artifacts that you create when using the external service wizard are provided as sample files for your reference. Use these files to verify that the files you create with the external service wizard are correct.

Note that the values for the i5/OS host name, user name, and password in the sample artifacts are from the IBM test lab. You need to change or set them appropriately for your environment.

Following table lists the artifacts that are shipped as part of samples which user can use to verify when running an RPG program.

1) RPG_Outbound_PI.zip – Project Interchange file which includes generated sample artifacts for running an RPG program

File/artifact name	Description
add2num	
add2num/ISeriesImport.import	Contains the SCA import for the resource adapter.
add2num/ADD2NUM.xsd	Business object definition for the RPG program
add2num/ISeriesImport.wsdl	Contains the WSDL file configured for the resource adapter

2) ADD2NUM_SAVF_PCML.zip – Zip archive includes source of sample RPG program and generated PCML file

File name	Description
ADD2NUMSAV.SAVF	SAVF file which has the source code for RPG sample program. Please refer your i5/OS documentation for how to import this into IBM i system. Alternatively you can manually create a simple RPGLE to add two numbers like the one given below. The RPGLE source view is captured with the help of 'IBM Rational Developer for System i' tool.
ADD2NUM.PCML	PCML for sample RPG

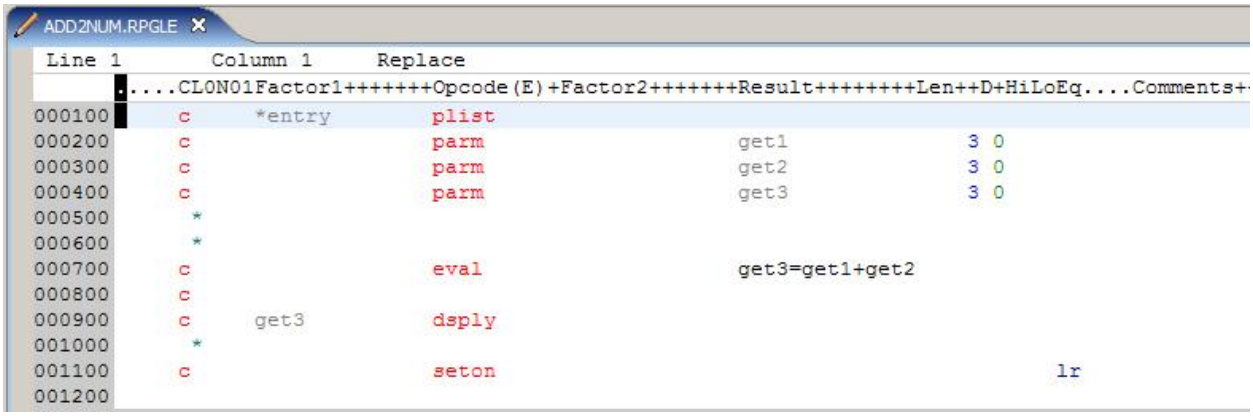


Figure 1 - Sample RPG program as shown in 'IBM Rational Developer for System i' tool's remote editor

Chapter 3. Outbound Processing – Running the RPG program

This tutorial demonstrates how WebSphere Adapter for IBM i V6.2 can be used to run an RPG program on an IBM i system.

Configuring the adapter for outbound processing

Run the external service wizard to specify business objects, services, and the configuration to be used in this tutorial

Creating the project

1. Launch WebSphere Integration Developer by clicking **Start > Programs > IBM WebSphere > Integration Developer 6.2**.

2. In WebSphere Integration Developer, switch to the Business Integration perspective by clicking **Window > Open perspective > Other**. In the Select perspective window, select **Show all**, then select **Business Integration** from the list and click **OK**.

3. Create a new module by clicking **File > New > Module.**

4. In the **Module Name** field, type `add2num`, and click **Finish.**

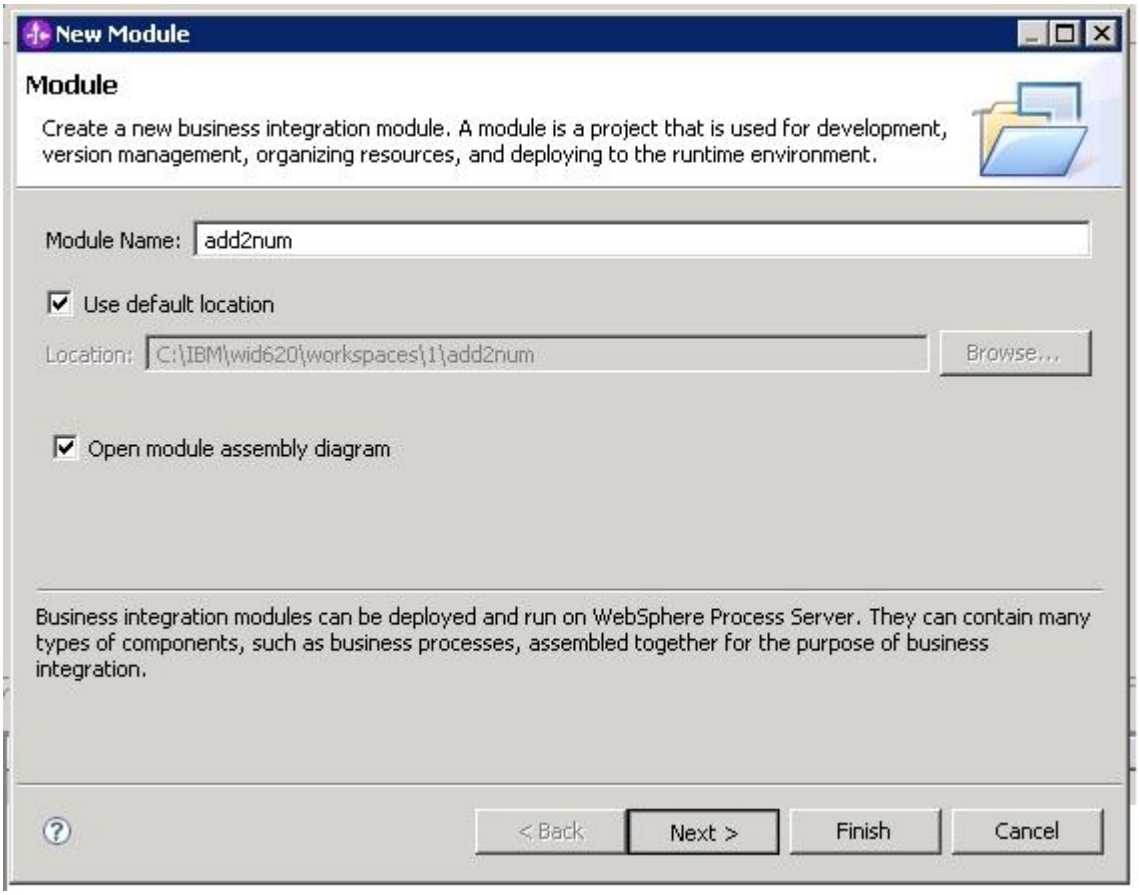


Figure 2

5. If it is not already open, open the Assembly Diagram of the module just created, by double clicking it.

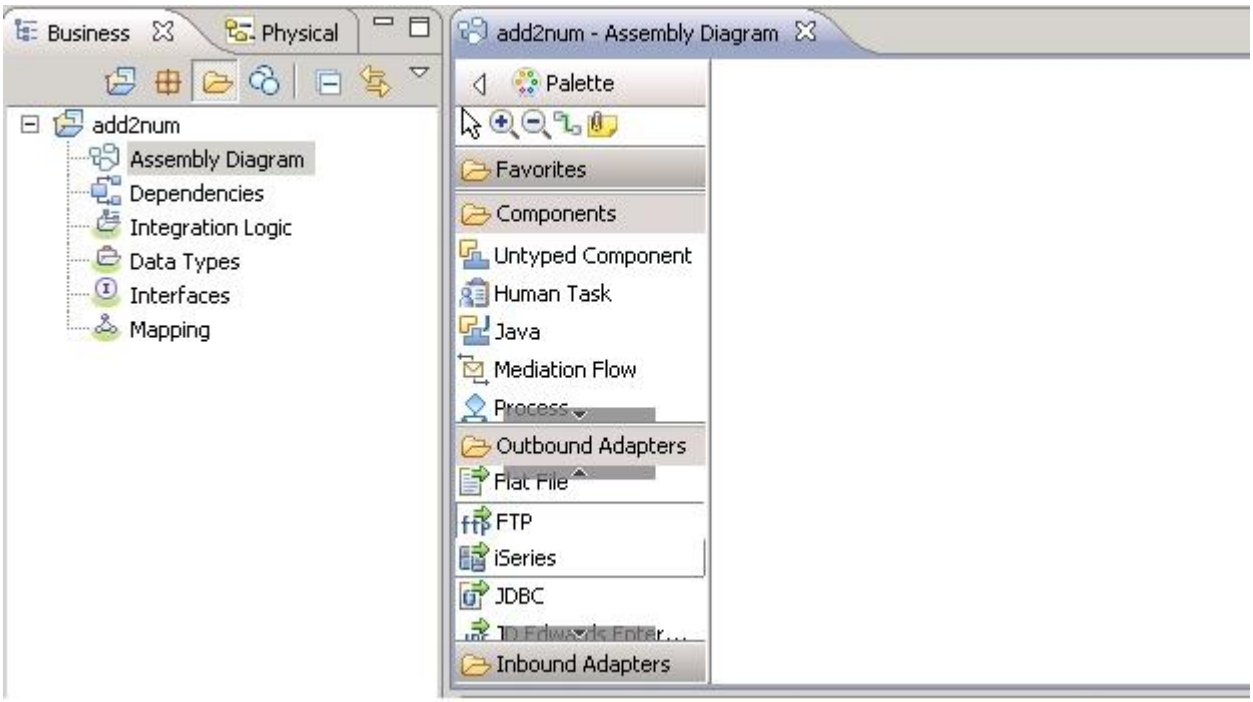


Figure 3

6. From the Outbound Adapters section of the **Palette** section, drag and drop **iSeries** onto the Assembly Diagram editor. A window opens similar to one below.

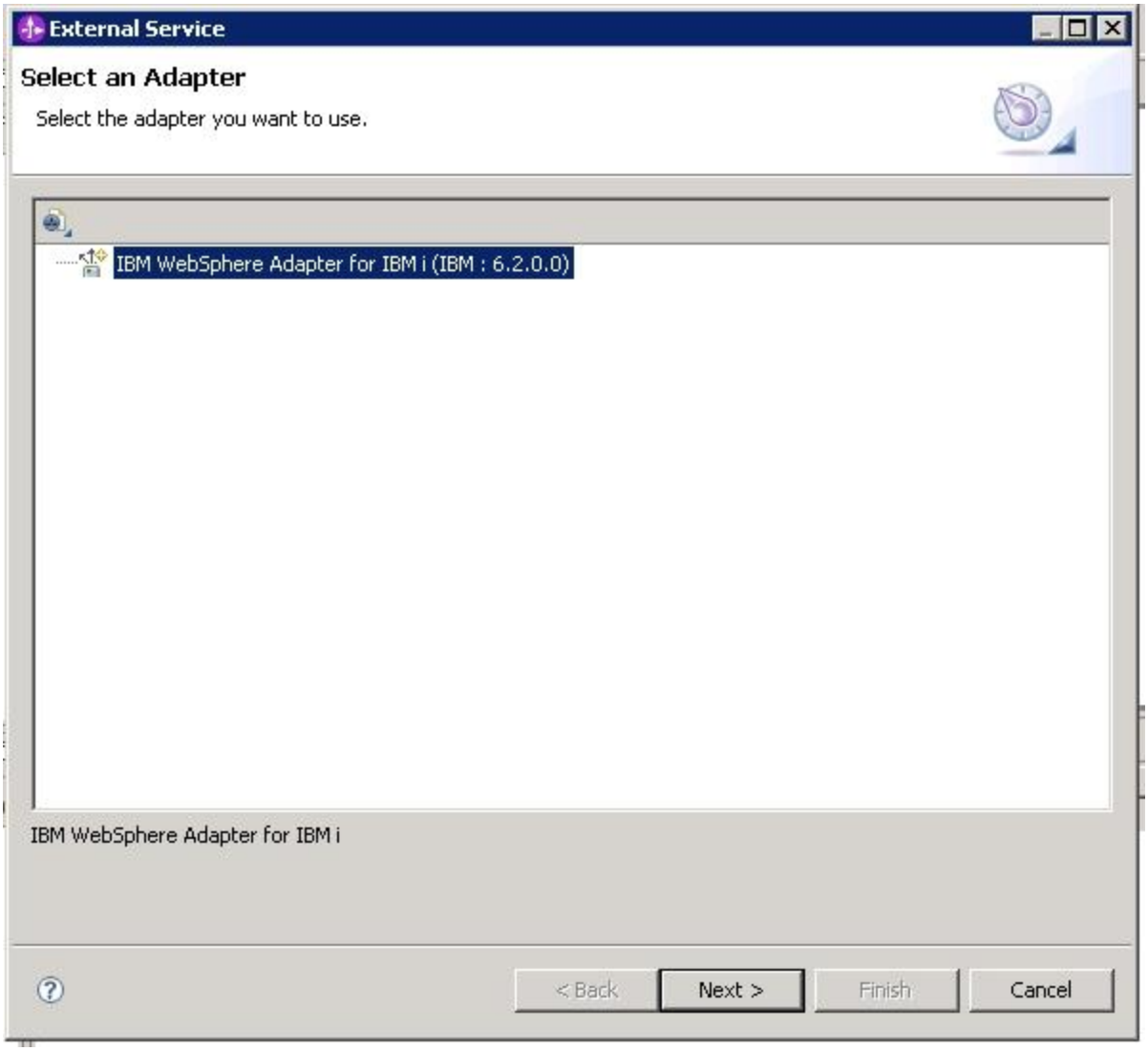


Figure 4

7. Click **IBM WebSphere Adapter for IBM i (IBM : 6.2.0)** and click **Next.**

8. Select an appropriate run time from the **Target runtime** list. (WebSphere Process Server 6.2 is used as the run time in this tutorial.) Click **Next.**

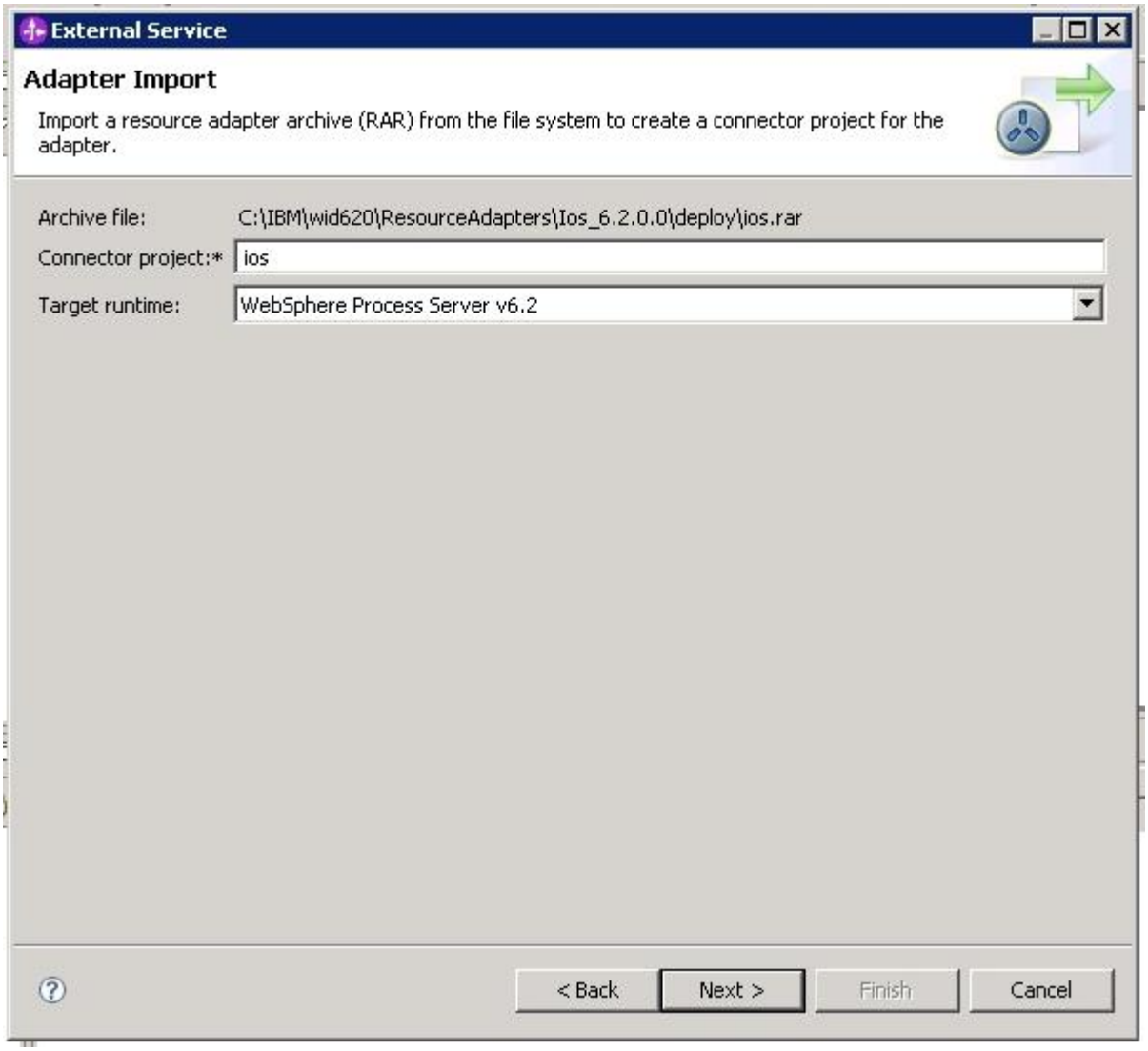


Figure 5

Setting connection properties for the external service wizard

1. In the Discovery Configuration window, enter the IBM i server connection information such as the host name, user name, password, and path to the folder on the IBM i system for object discovery. From the **Object type to discover** list, select **Report Program Generation**.

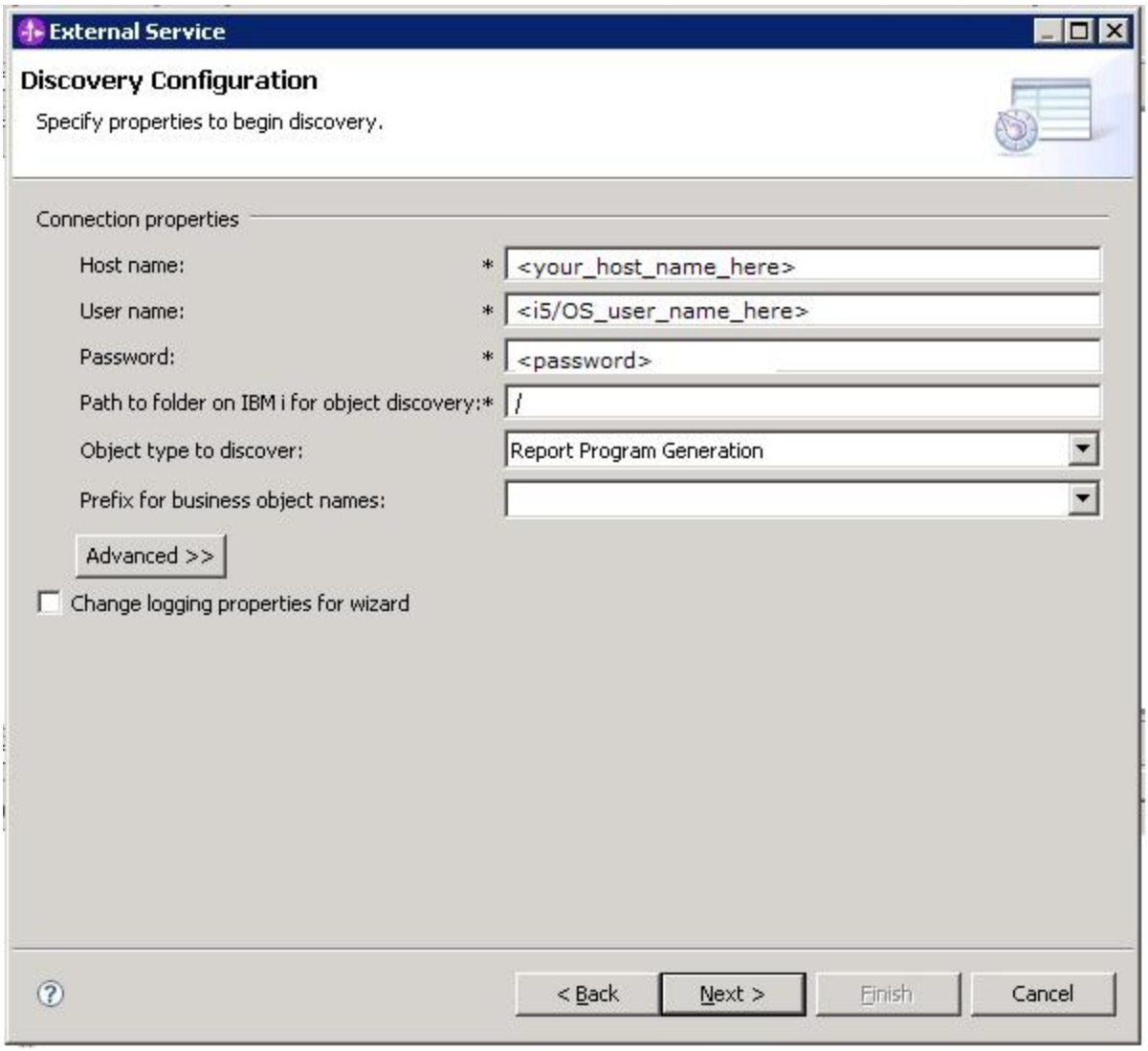


Figure 6

2. After you have entered all properties, click **Next.**

Generating business object definitions and related artifacts

1. In the Object Discovery and Selection window, in the Discovered objects pane, all objects are displayed

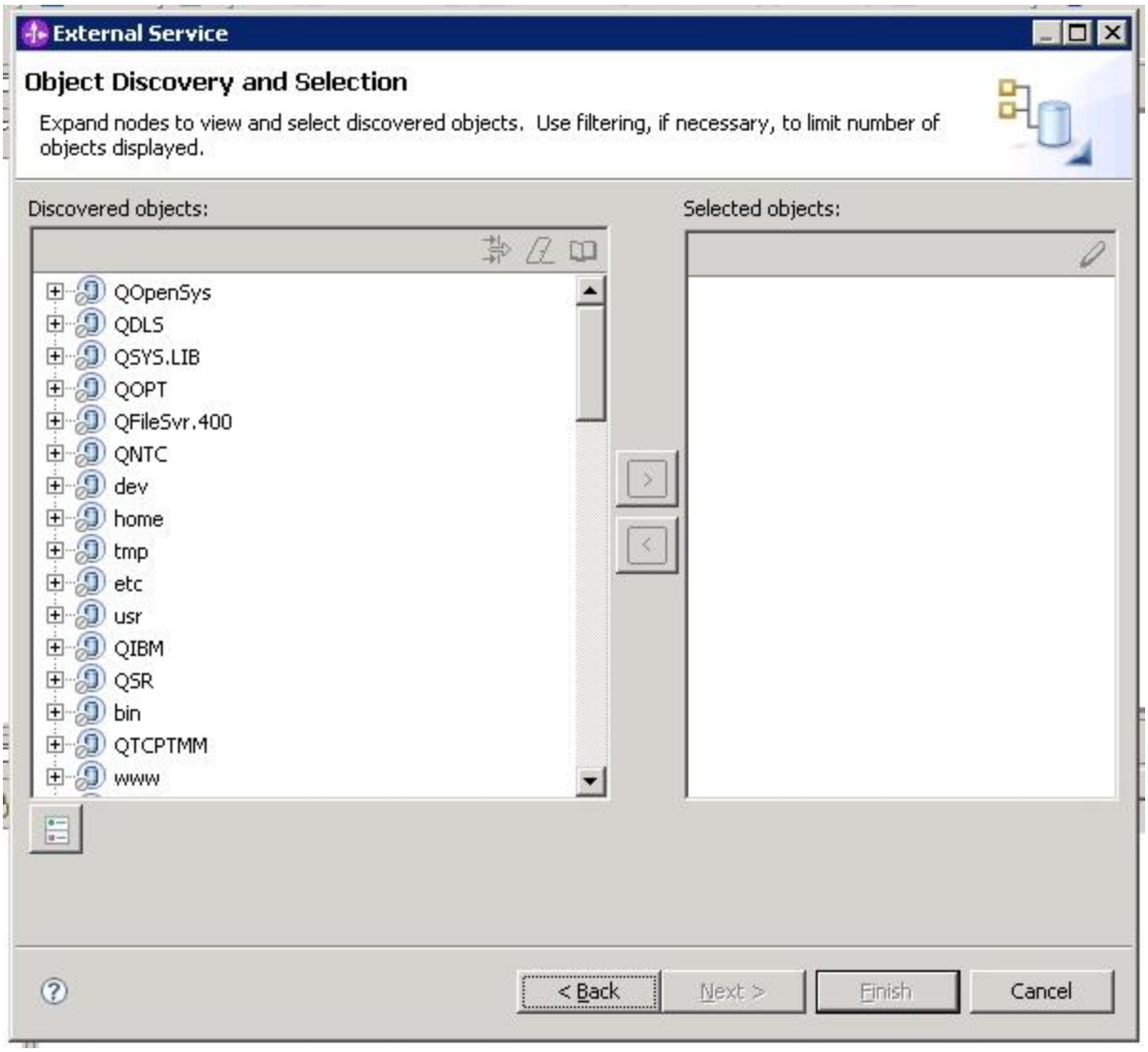


Figure 7

2. In the Discovered Objects pane, select the PCML you want to work with, click the arrow (**>**) button and click **Next**.

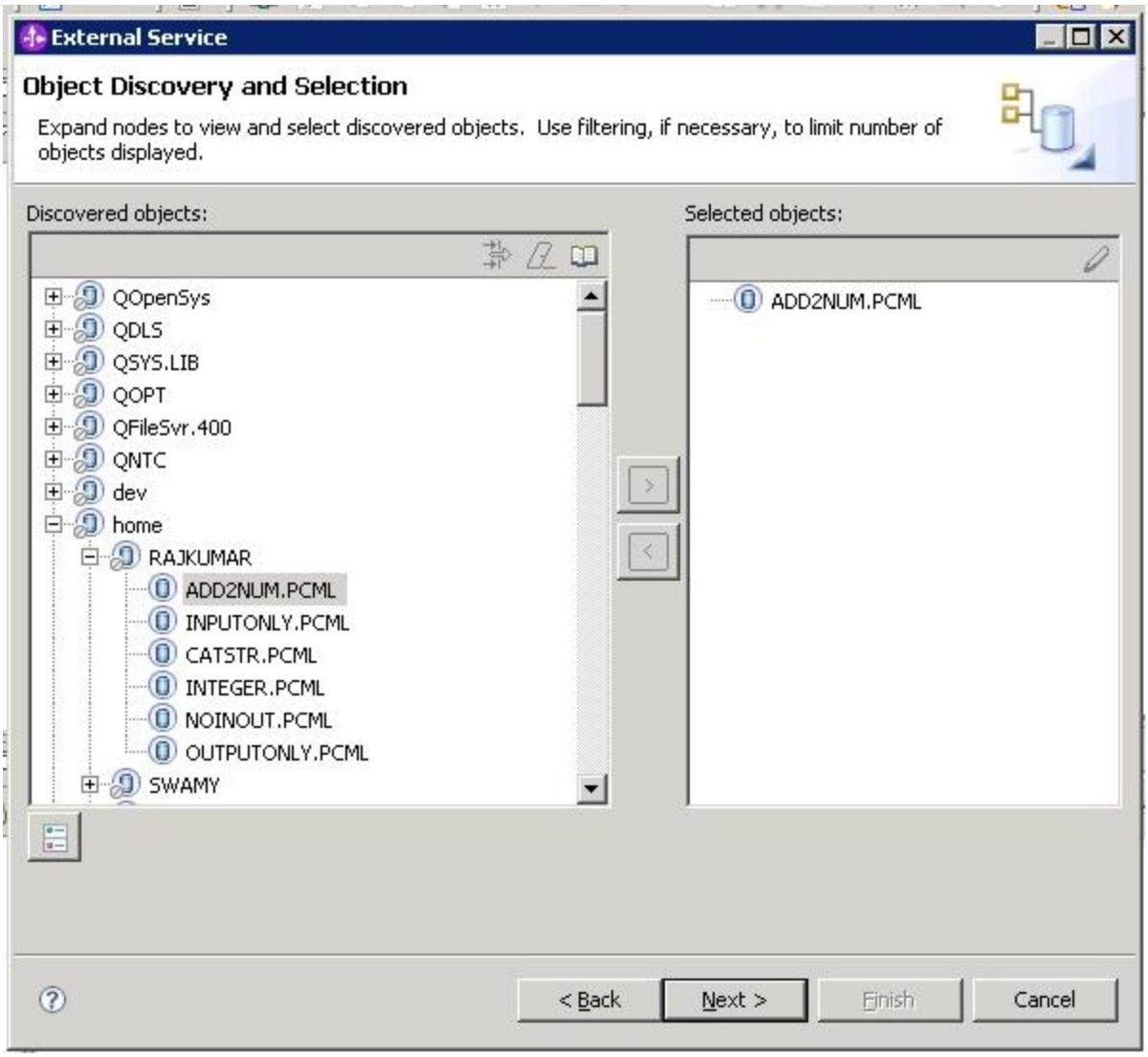


Figure 8

3. In the Configure Composite Properties window, the operation CallPGM is listed in the **Operations for selected business objects** pane. Because this is the only operation supported for calling RPG programs, you cannot use the **Add** and **Remove** options. Click **Next**.

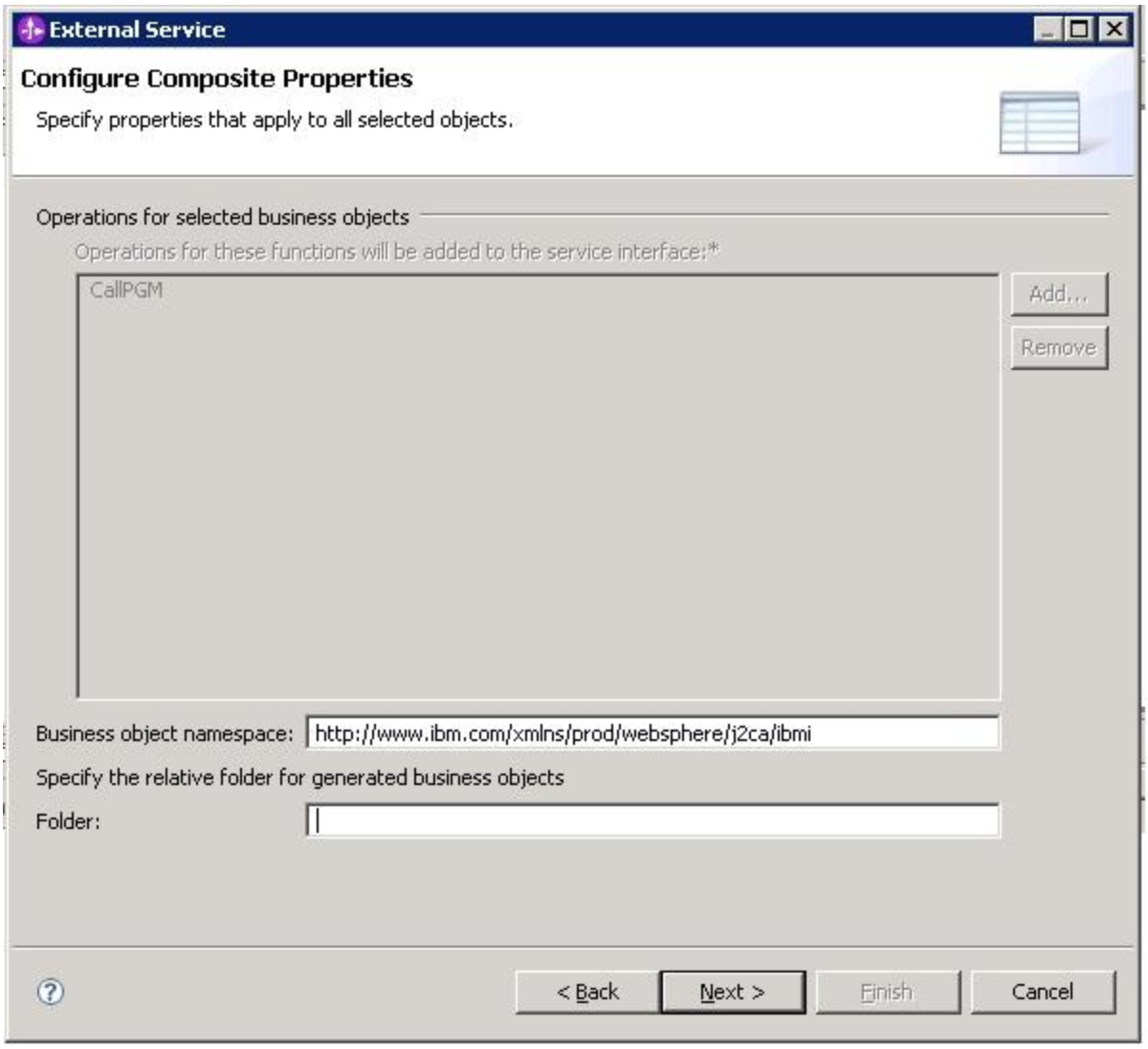


Figure 9

4. Clear the **Specify a Java Authentication and Authorization Services (JAAS) alias security credential** check box. The **Host name** and **user name** fields will already be populated. In the **Password** field, type the password and click **Next.**

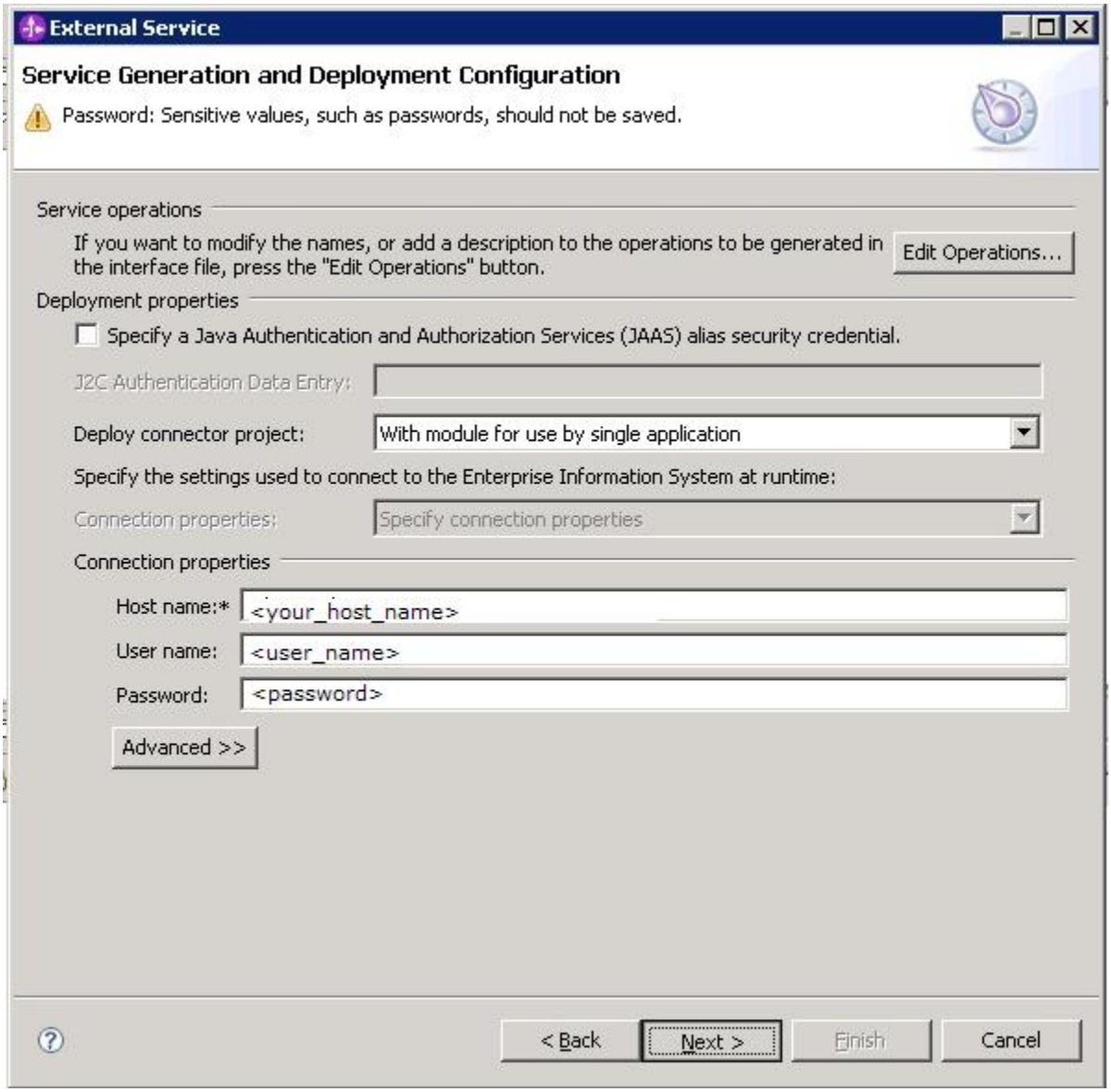


Figure 10

5. A default name is provided for the interface. Click **Finish** to complete the configuration.

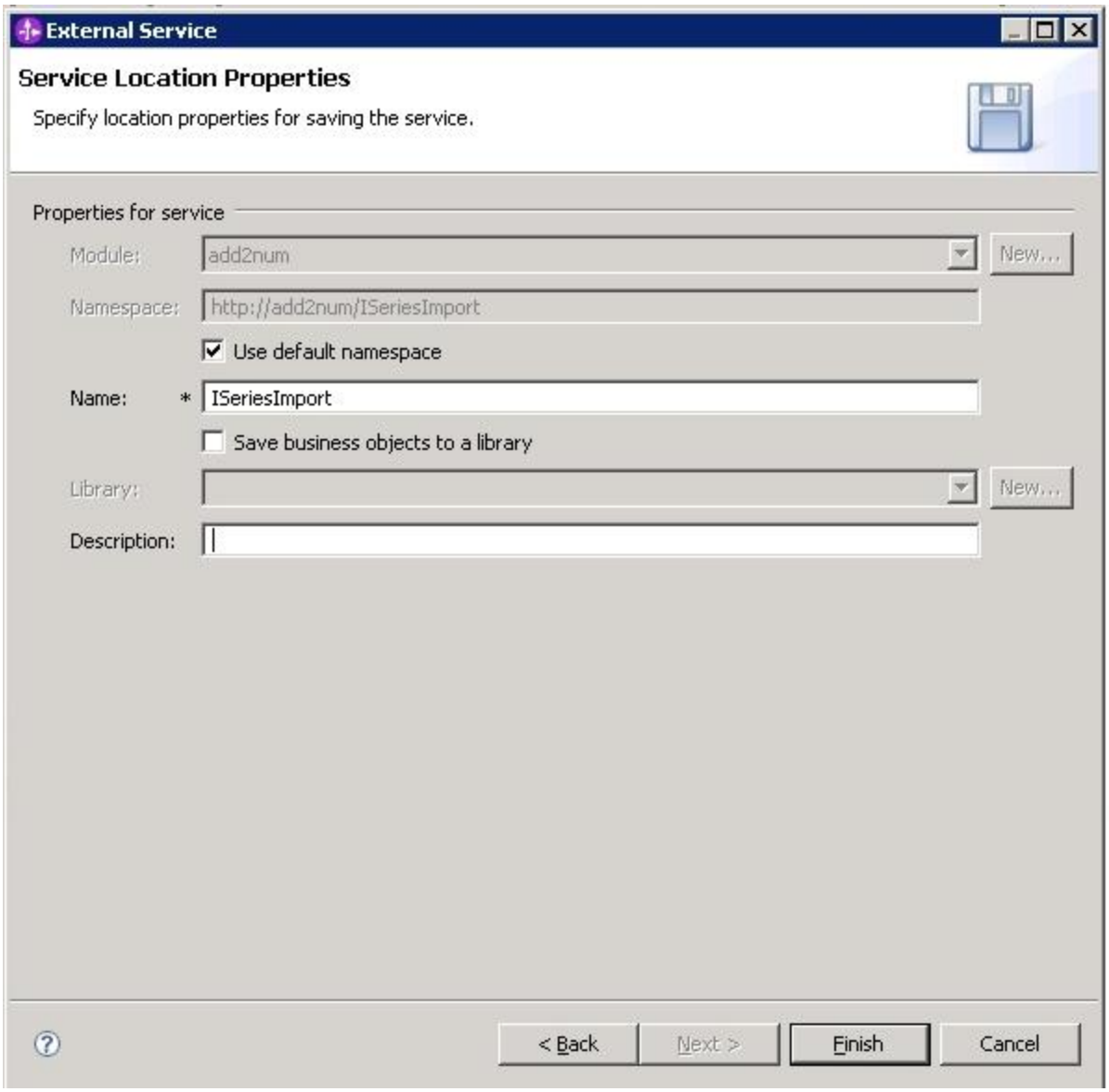


Figure 11

Deploying the module to the test environment

1. The result of running the external service wizard is an SCA module that contains an EIS import or export. Install this SCA module in the WebSphere Integration Developer integration test client. If WebSphere Process Server is not in 'Started' state, start the server.

2. Add the module you created earlier to the server using the server panel in WebSphere Integration Developer. Right-click the server, and then select **Add and remove projects**.

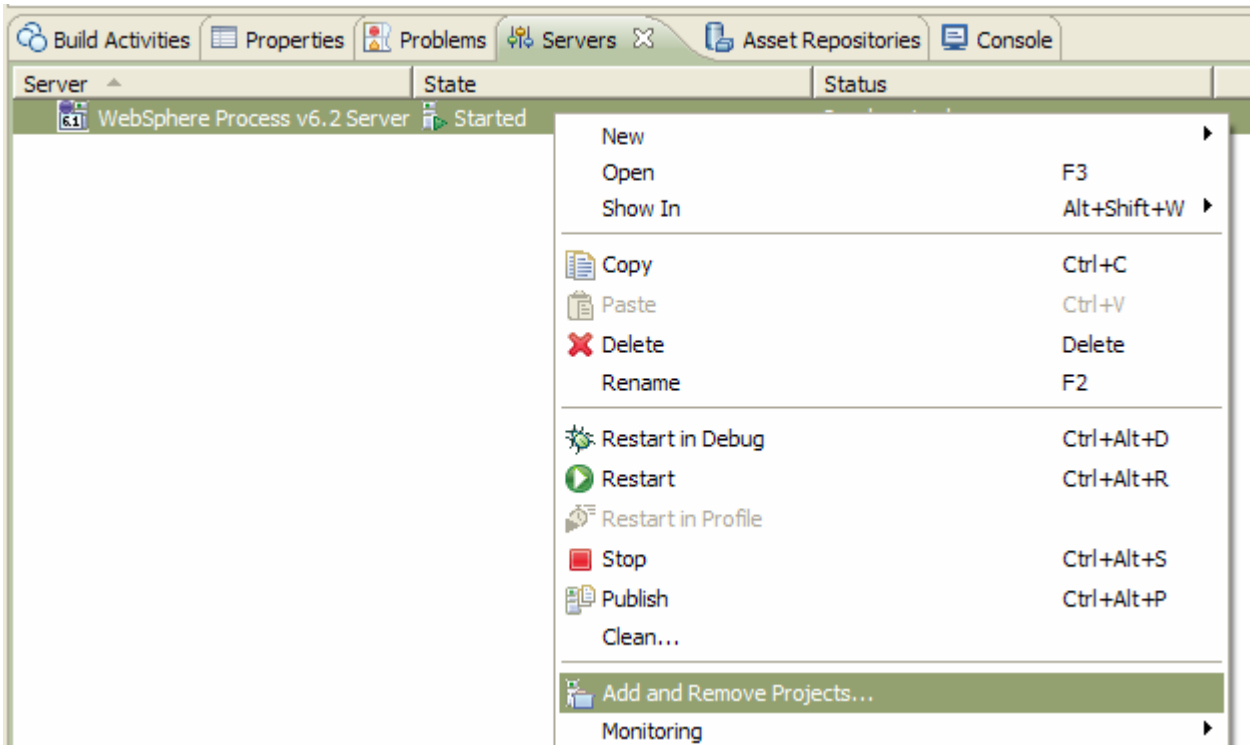


Figure 12

3. Add the SCA module to the server by moving them from left to right pane with the click of 'Add >' button.

4. Click **Finish**.

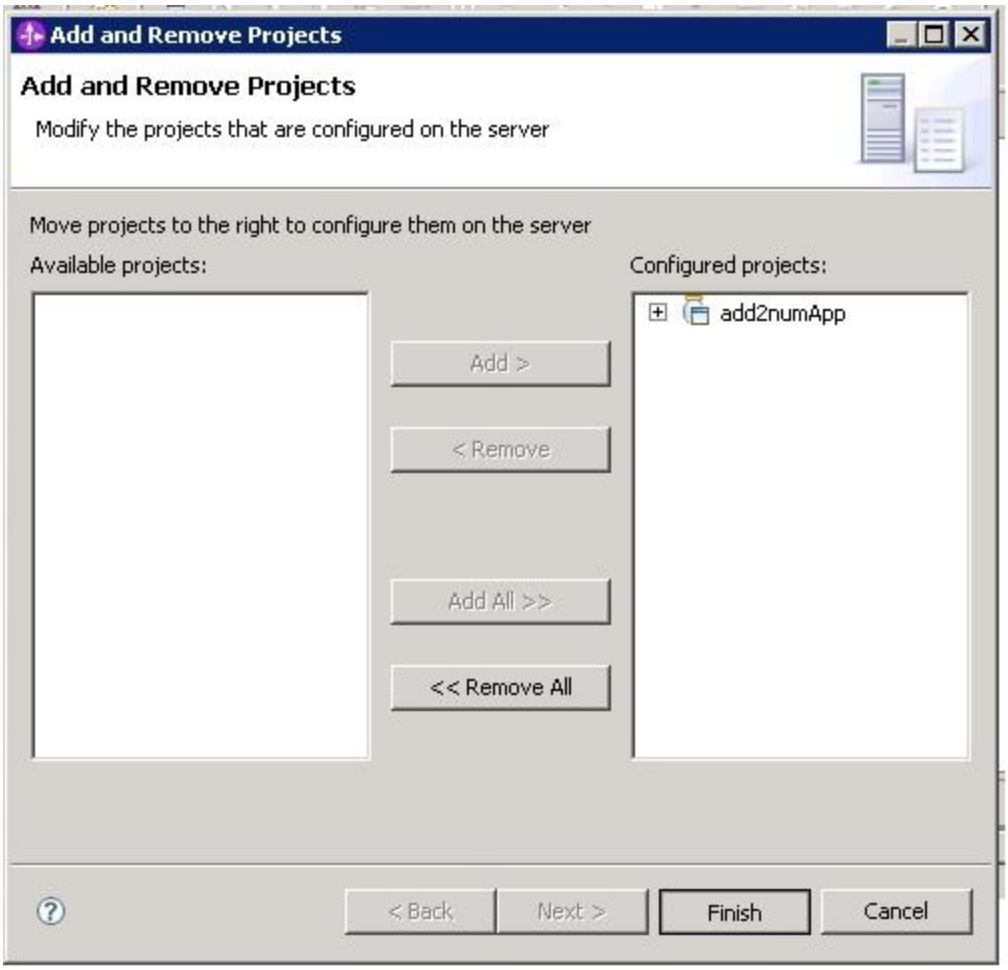


Figure 13

Ensure that the `Application started` message is displayed in your console, as shown in the following figure.

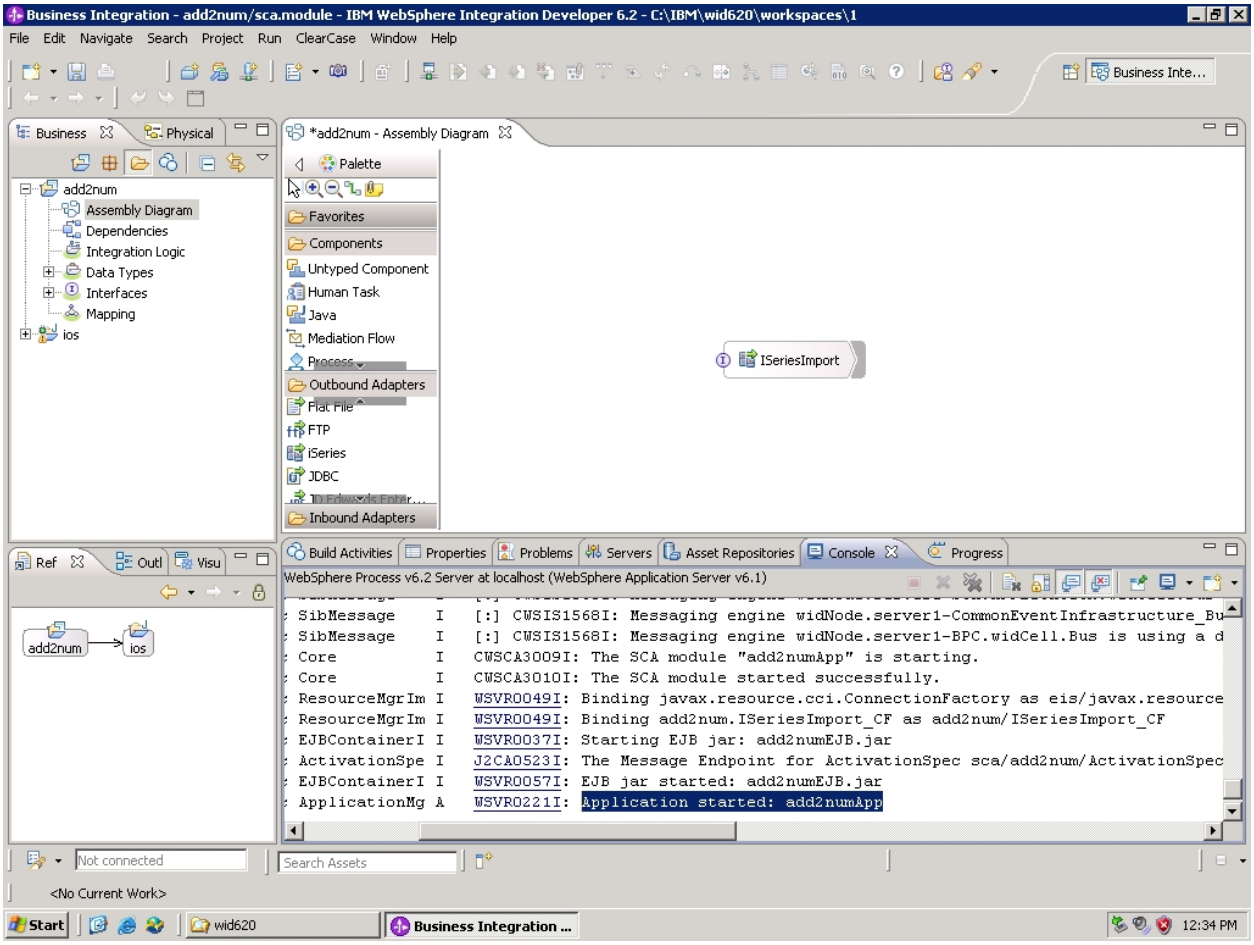


Figure 14

Testing the assembled adapter application

1. Test the assembled adapter application by using the WebSphere Integration Developer integration test client.

2. Right-click the 'ISeriesImport' component, and select '**Test Component'**.

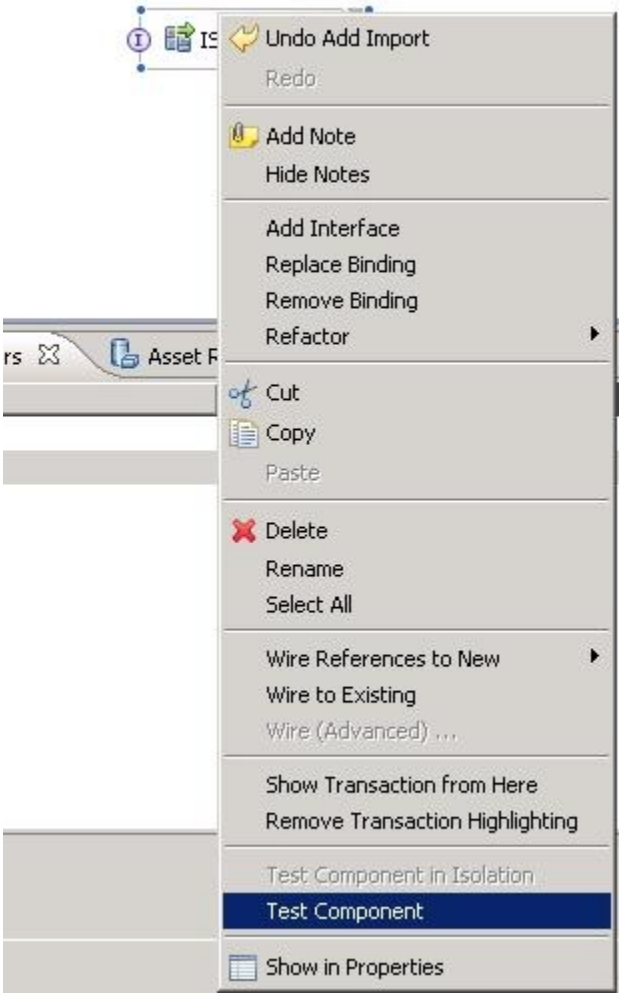


Figure 15

3. In the new editor window that opens, select **callpgmADD2NUM** from the **Operation** list, as shown in the following figure.

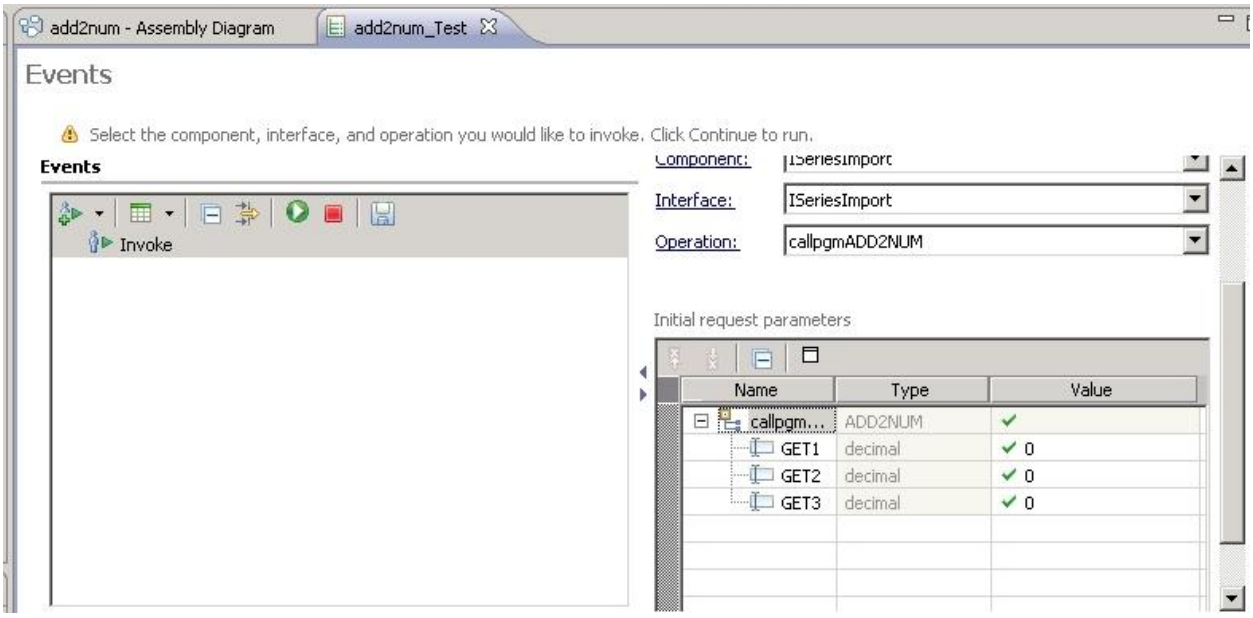


Figure 16

4. Type values for the input business objects and specify the required parameters to carry out the CallPGM operation on the RPG program. For example you can specify 2 and 4 as values for GET1 & GET2 respectively as shown below.

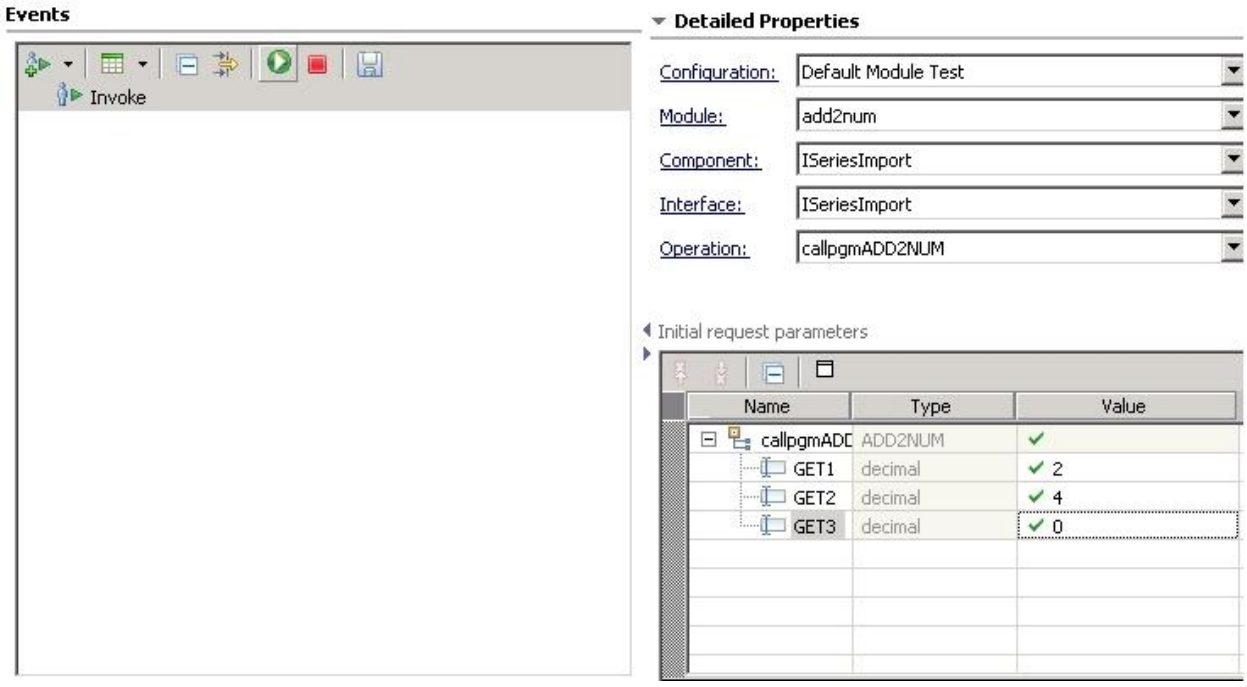


Figure 17

6. Run the service by clicking the continue button  and select the **Use this as the default and do not ask again** check box and click **Finish**.

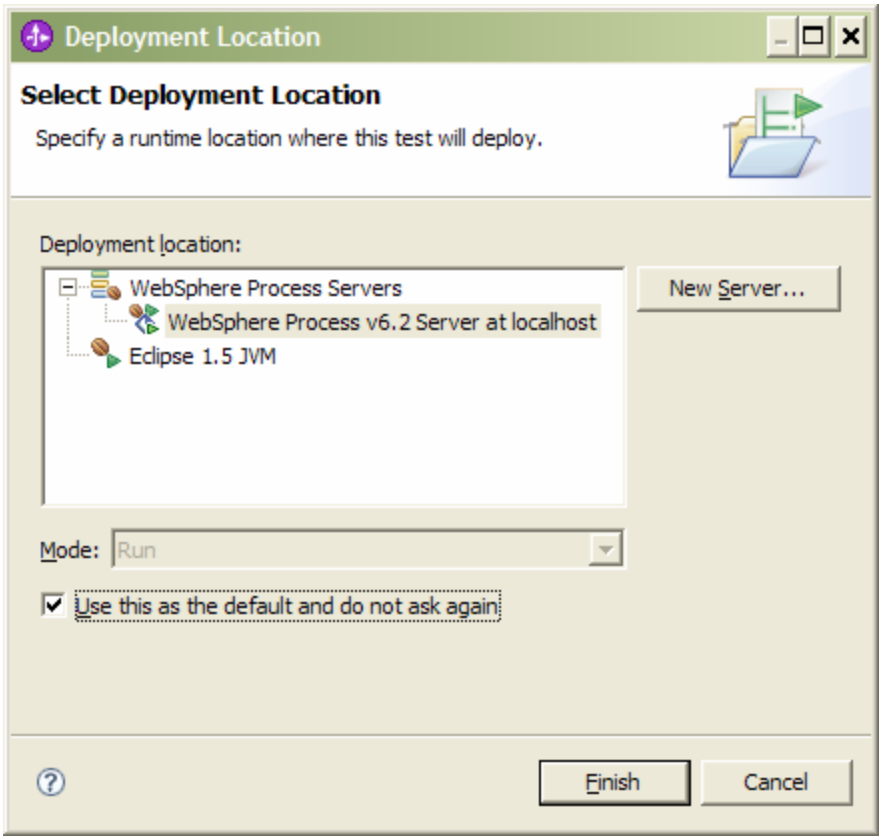


Figure 18

The value returned from the underlying RPG is populated in the same business object (GET3 attribute returns the value of GET1+GET2), as shown in the following figure.

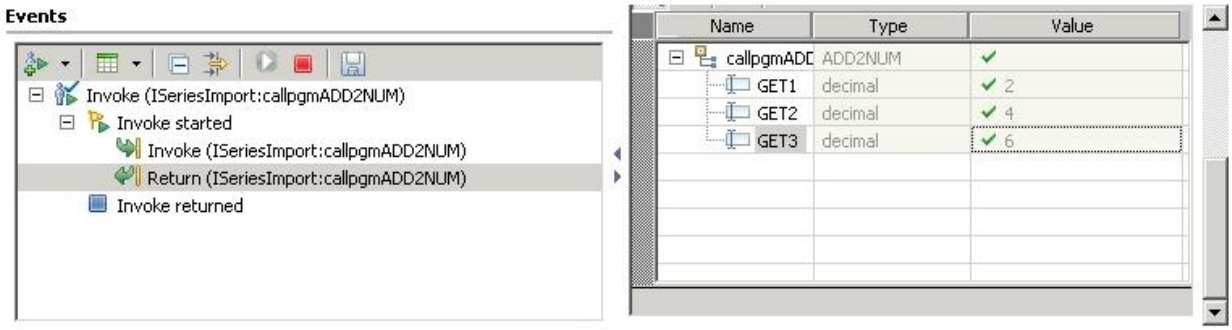


Figure 19

Chapter 4. Introduction to Outbound/Inbound for Data Queues

The WebSphere® Adapter for IBM® i V6.2 exchanges business data between system i and J2EE applications. The adapter retrieves from and writes to the data queue and runs the RPG programs.

The document demonstrates two scenarios:

1. PutQueue and GetQueue outbound operations for data queues

2. Inbound operations for data queues

These scenarios demonstrate how WebSphere Adapter for IBM i V6.2 performs inbound and outbound operations. Everything you need to complete for each tutorial is contained in the tutorial. If you have performed the prerequisite tasks, you can complete each tutorial in under an hour.

Learning objectives

After completing a tutorial, you should be able to perform the following tasks:

- Create an adapter project in WebSphere Integration Developer.
- Discover services and associated business objects from the enterprise information system (EIS) and make them part of the adapter project.
- Create a deployable module that you install on WebSphere Process Server or WebSphere Enterprise Service Bus.
- Test the module and validate the results.

Audience

These tutorials are for integration developers who design, assemble, test, and deploy business integration solutions.

Software prerequisites

To use these tutorials, you must have the following applications installed:

- WebSphere Integration Developer version 6.2
- WebSphere Process Server version 6.2

Chapter 5. Preparing to run through the tutorial

Configuration prerequisites

Before starting this tutorial, create a data queue on an IBM i system.

Extracting the sample files

The artifacts created using the external service wizard will contains the files which are similar to the listed in the below table.

Sample Artifacts here is DTAQOutbound.zip .

Contents of DTAQOutbound.zip	
File name	Description
DTAQOutbound/ISeriesOutboundInterface.import	Contains the SCA import for the resource adapter.
DTAQOutbound/Fifoq.xsd	Business object definition for the Customer business function.
DTAQOutbound/EmptyGetQueueBO.xsd	Business object definition for the business object container.
DTAQOutbound/ISeriesOutboundInterface.wsdl	Contains the WSDL file configured for the resource adapter.

Sample Artifacts here is DTAQInbound.zip

Contents of DTAQInbound.zip	
File name	Description
DTAQInbound/ISeriesInboundInterface.export	Contains the SCA export for the resource adapter.
DTAQInbound/Fifoq.xsd	Business object definition for the Customer business function.
DTAQInbound/ISeriesInboundInterface.wsdl	Contains the WSDL file configured for the resource adapter

Chapter 6. Outbound Processing – Writing the message to (PutQueue) and reading the message from (GetQueue) the data queue.

This tutorial demonstrates how you can use WebSphere Adapter for IBM i V6.2 to put and get a string message from the data queue.

Configuring the adapter for outbound processing

Run the external service wizard to specify business objects, services, and the configuration to be used in this tutorial

Creating the project

1. Launch WebSphere Integration Developer by clicking **Start > Programs > IBM WebSphere > Integration Developer 6.2**.

2. Switch to the Business Integration perspective by clicking **Window > Open perspective > Other**. In the Select perspective window, select **Show all**, then select **Business Integration** from the list and click **OK**.

3. Create a new module by clicking **File > New > Module.**

4. In the **Module Name** field. type `DTAQOutbound`. Click **Next.**

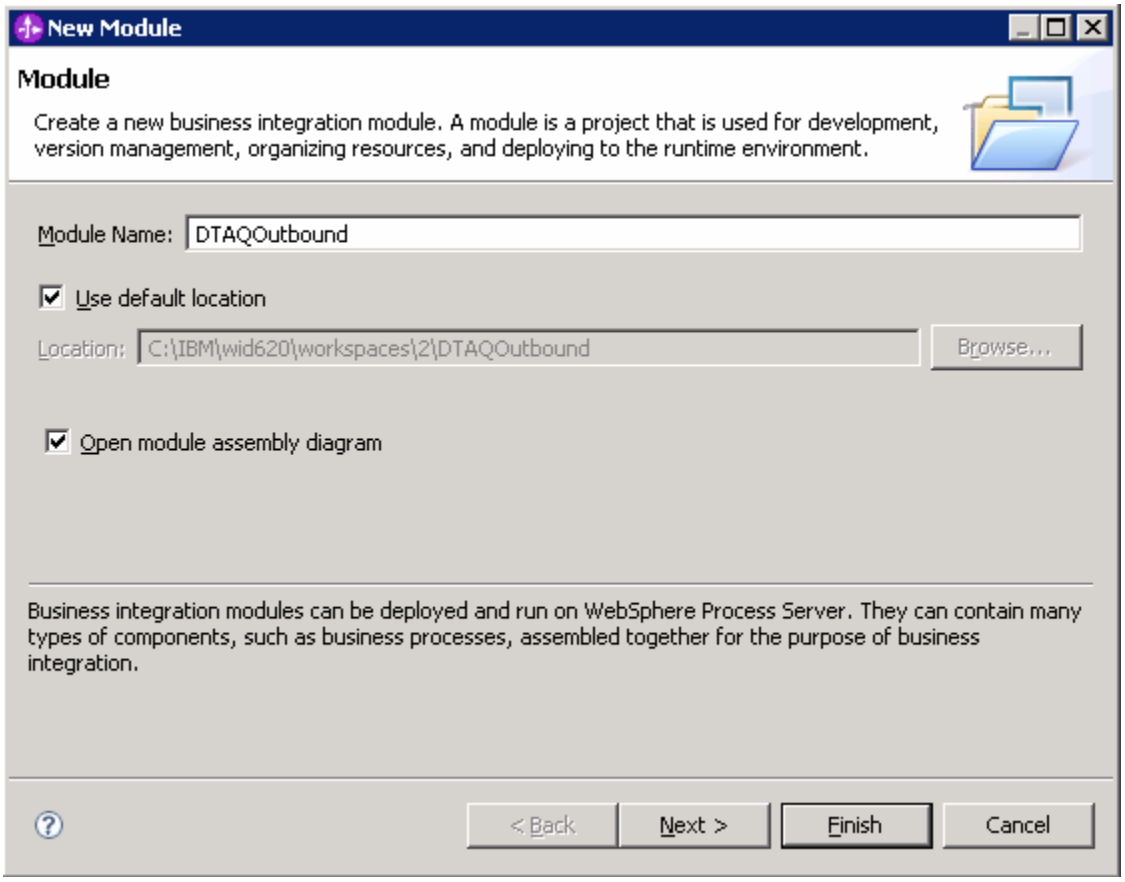


Figure 1

6. Accept the default settings and click **Finish**.

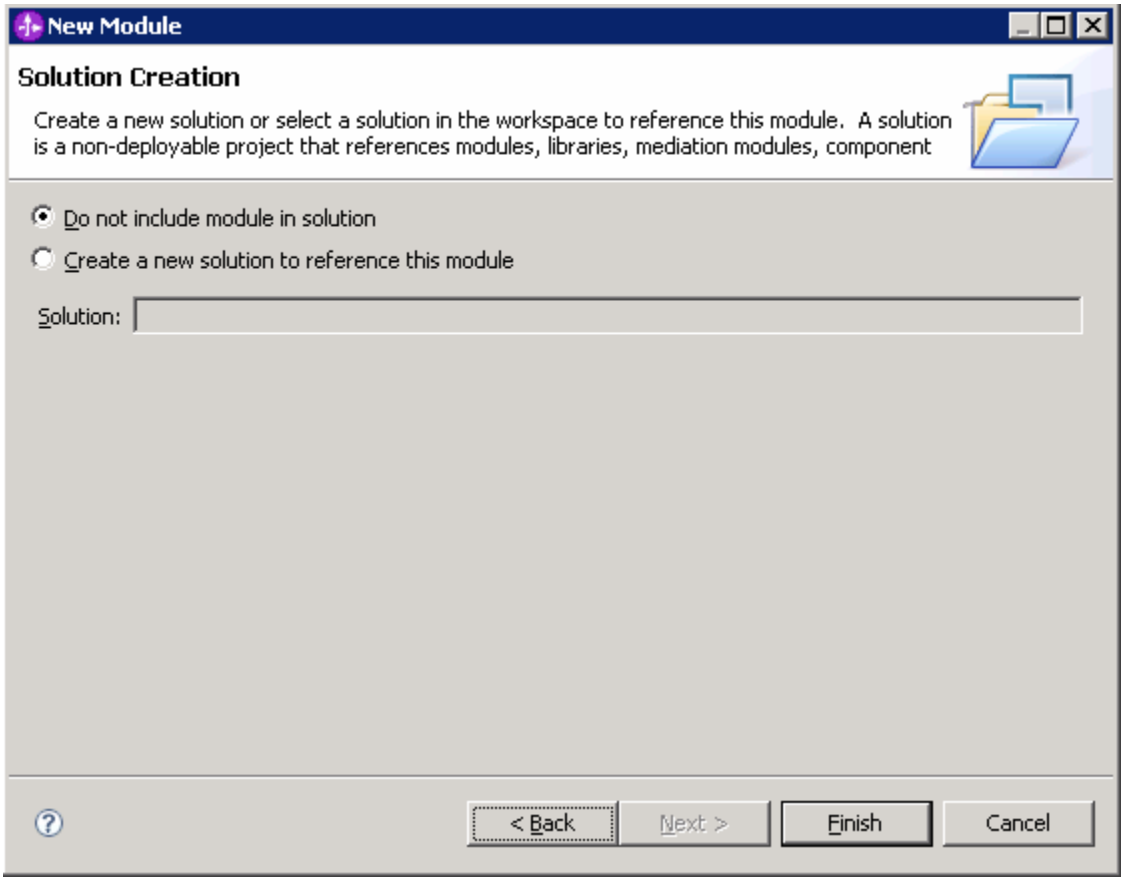


Figure 2

After the module is created, the folder structure will look like that shown in the following figure.

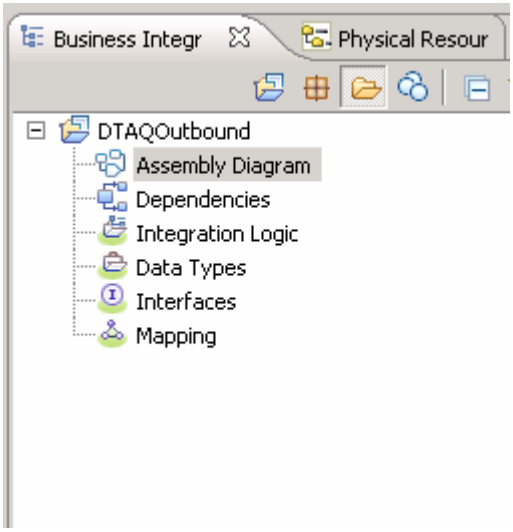


Figure 3

9. Launch the external service wizard by right-clicking the module (DTAQOutbound) and selecting **New > external service**.

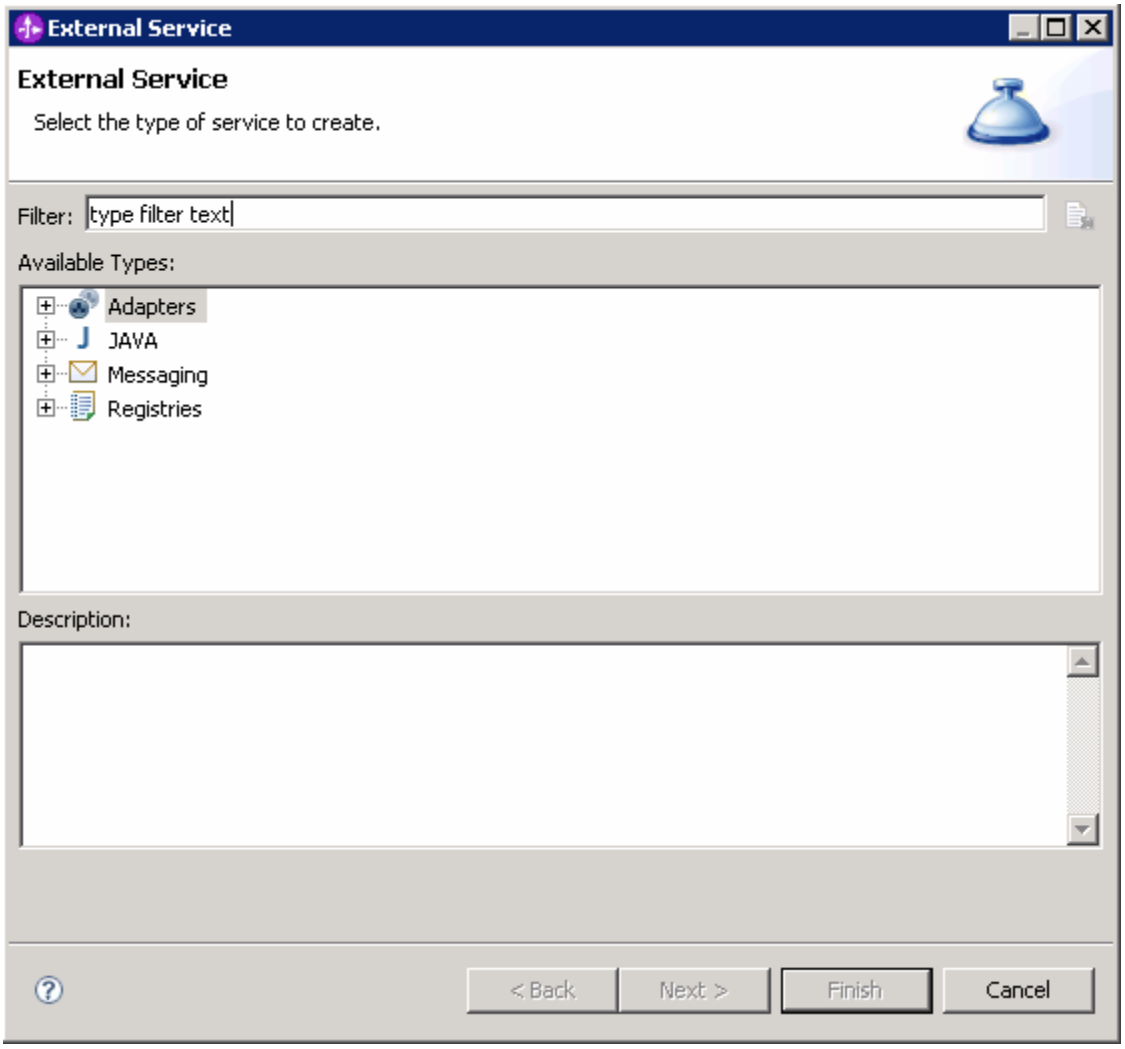


Figure 4

11. In the External Service window, click the + sign for the adapter to expand it and select **iSeries**. Click **Next**.

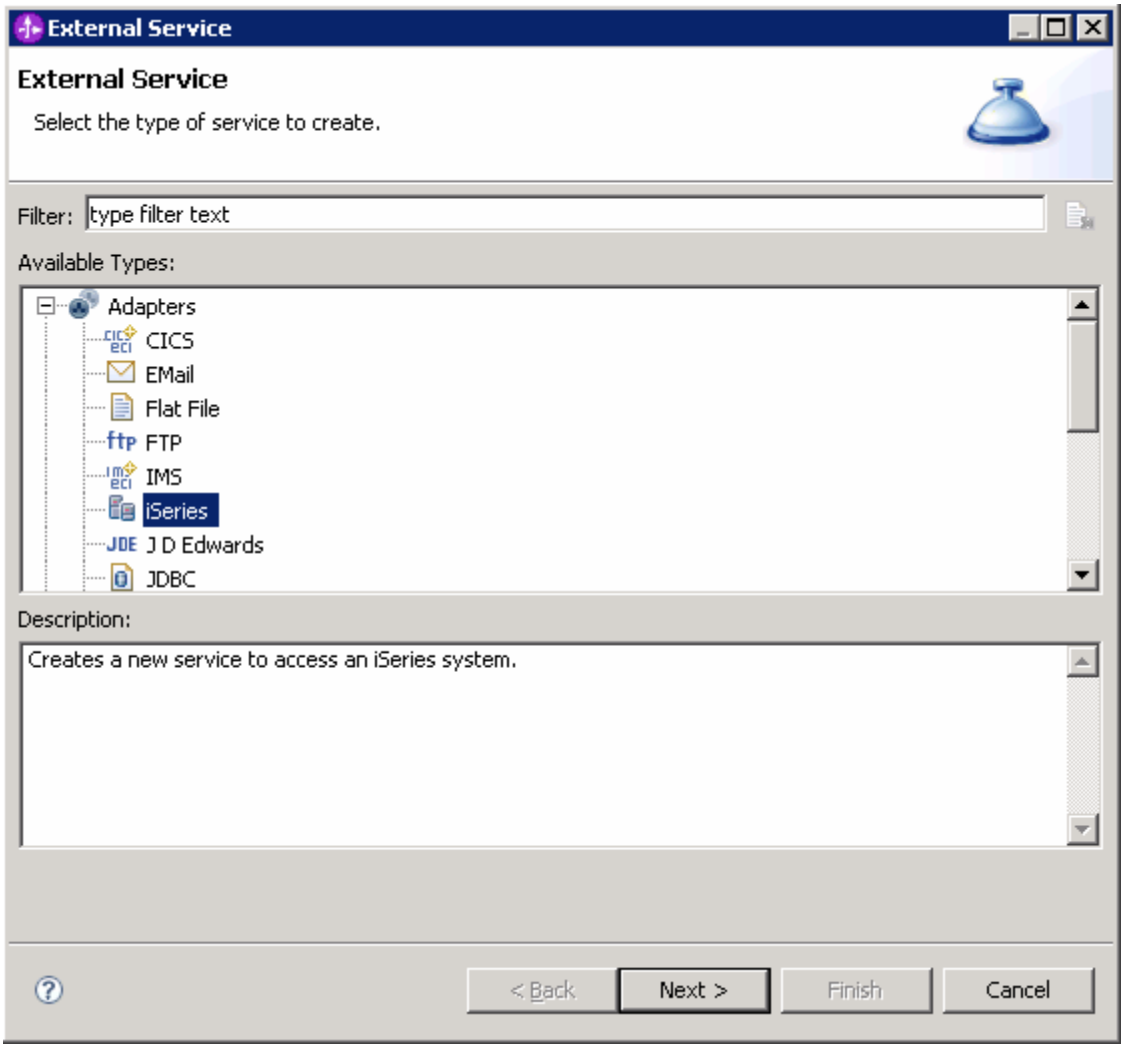


Figure 5

12. Select **IBM WebSphere Adapter for IBM i (IBM : 6.2.0.0)** and click **Next**.

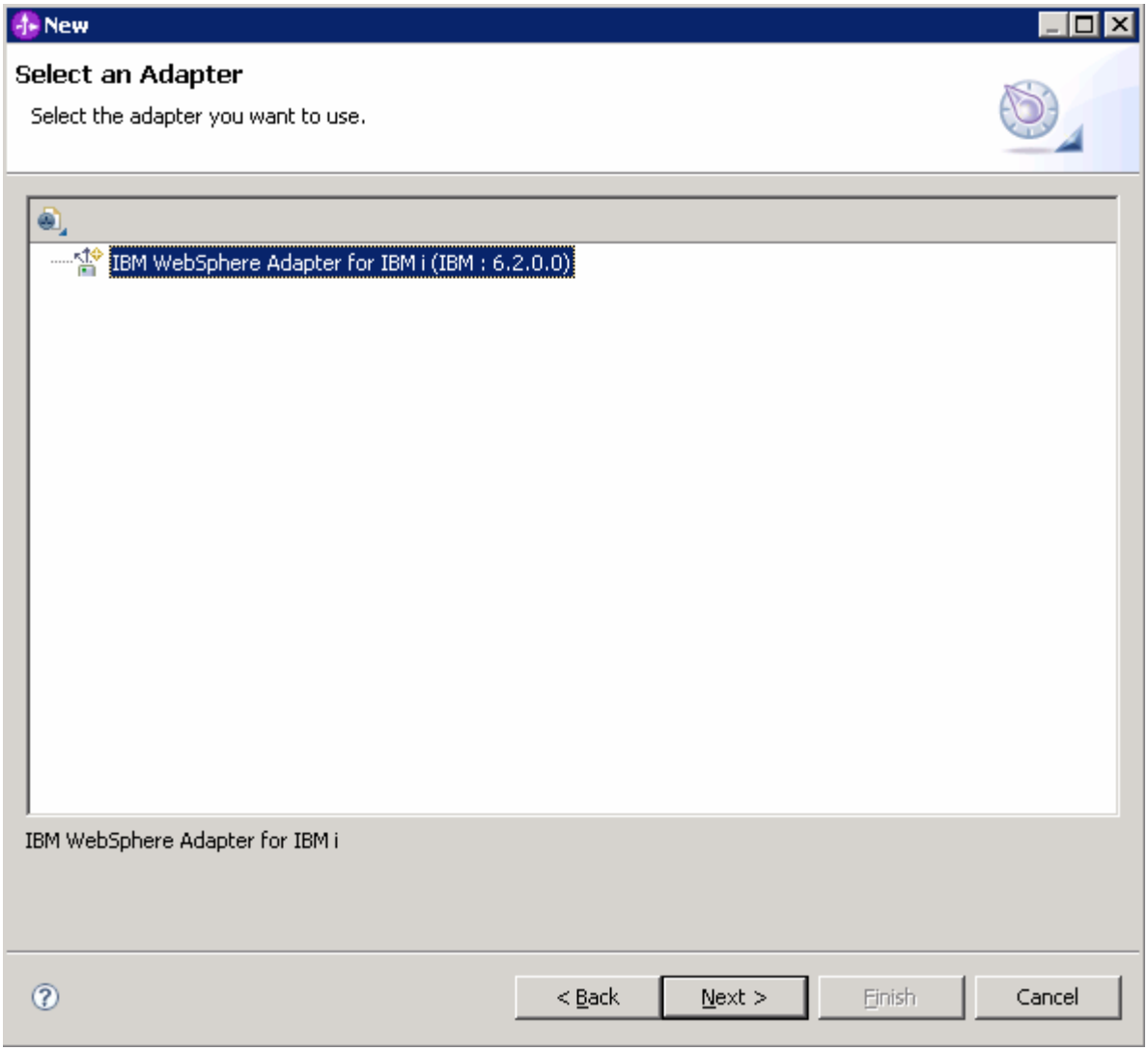

New
Select an Adapter
Select the adapter you want to use.
IBM WebSphere Adapter for IBM i (IBM : 6.2.0.0)
IBM WebSphere Adapter for IBM i
< Back
Next >
Finish
Cancel

Figure 6

13. Ensure that the ios RAR file is selected in the **Connector project** field, and in the **Target runtime** field select **WebSphere Process Server v6.2**. Click **Next**.

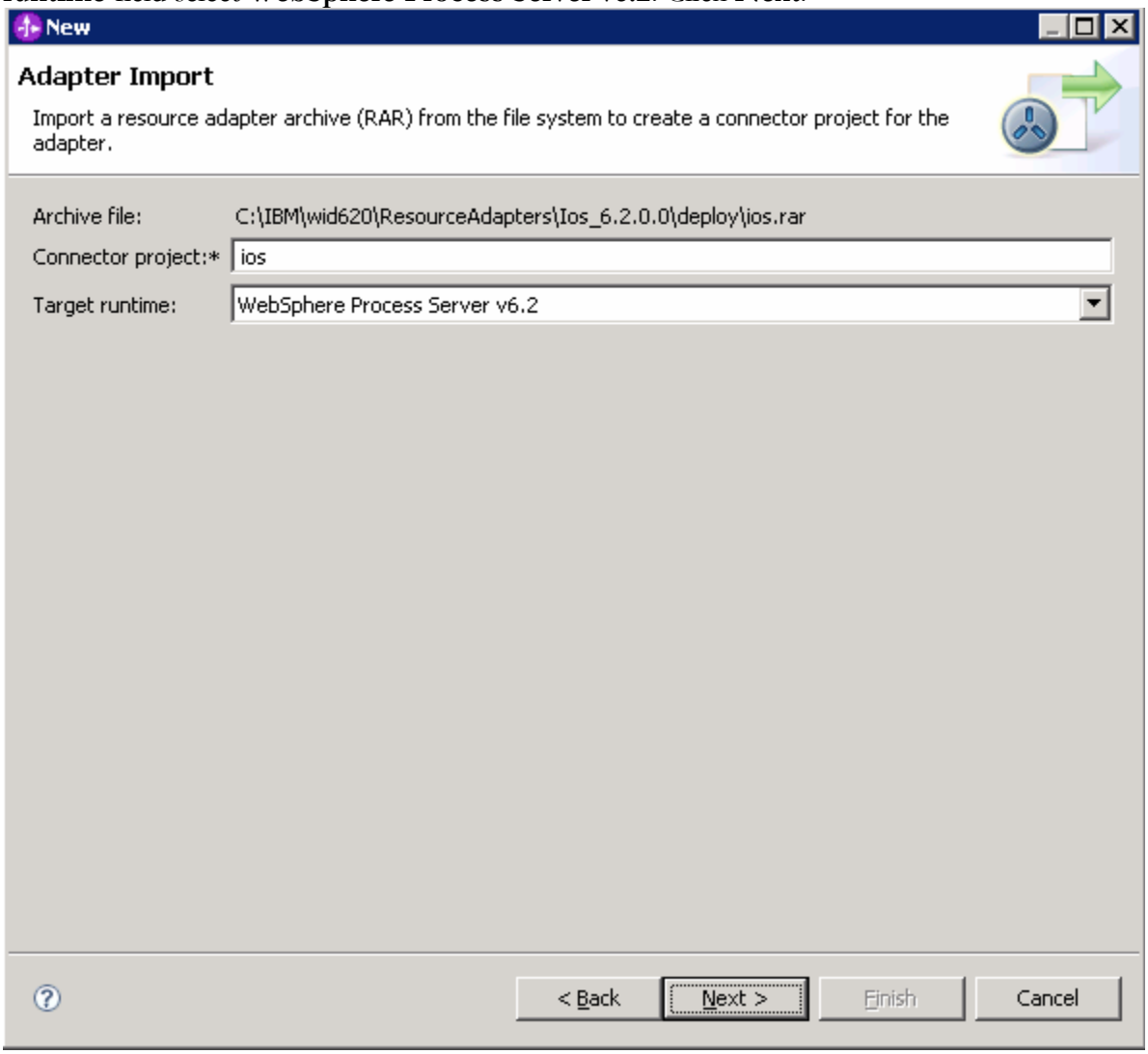


Figure 7

14. In the Processing Direction window, select **Outbound**. Click **Next**.

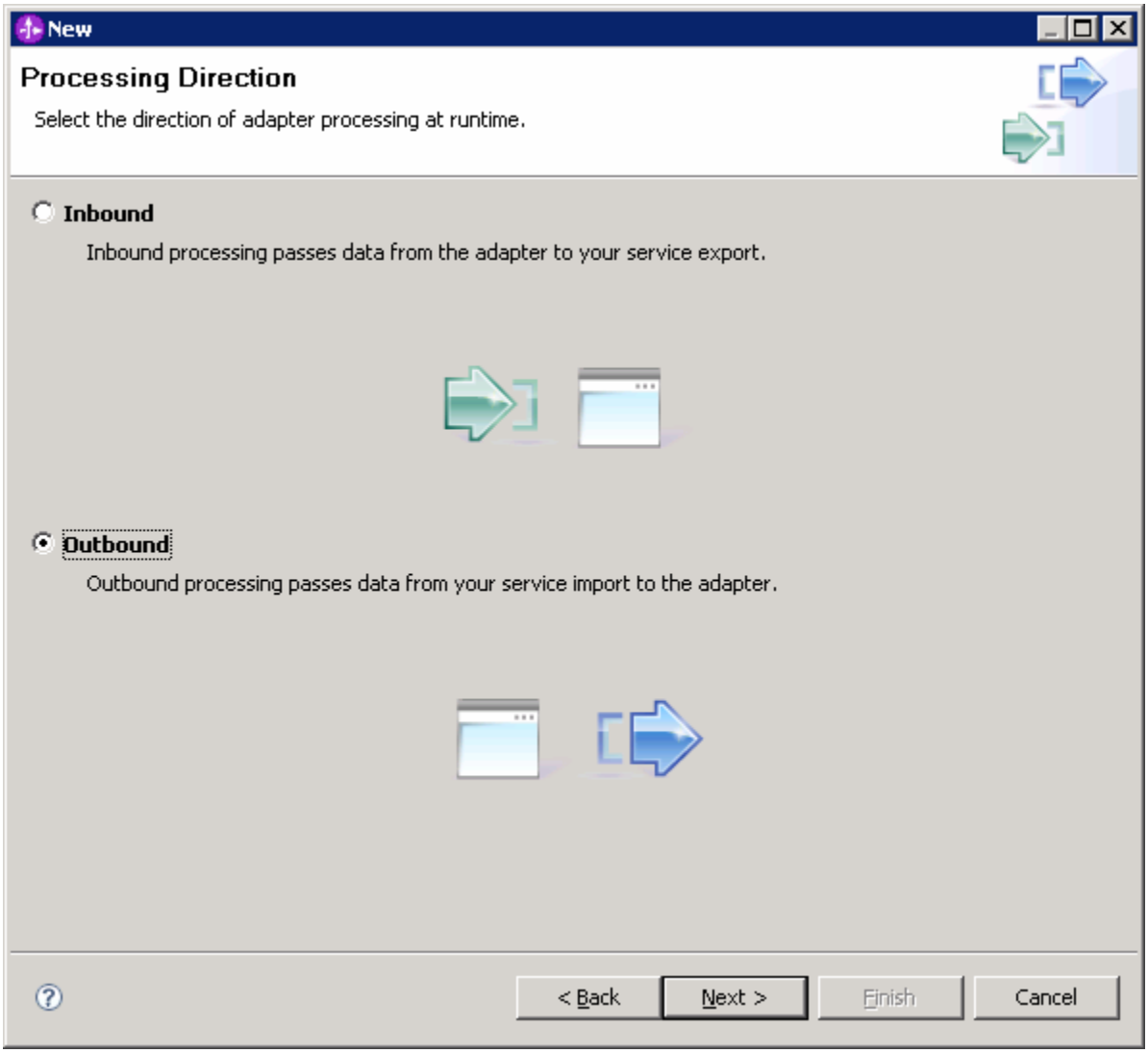


Figure 8

Setting connection properties for the external service wizard

1. Type the IBM i server connection information such as the host name, user name, password, and path to the folder on the IBM i system for object discovery. From the **Object type to discover** list select **Data Queue**.

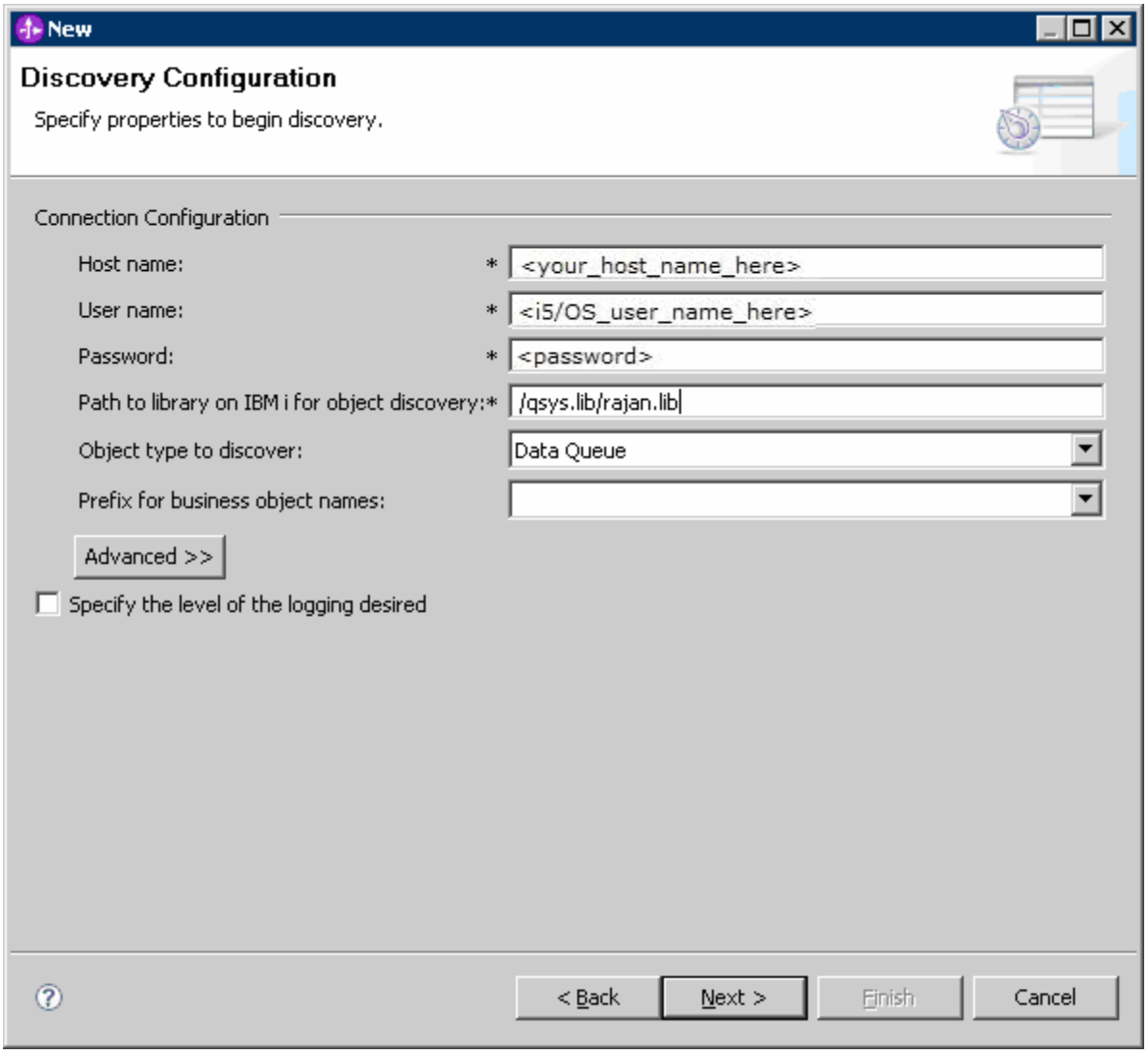


Figure 9

2. After you have entered all properties, click **Next.**

Generating business object definitions and related artifacts

In the Object Discovery and Selection window, in the Discovered objects pane, all data queues are displayed.

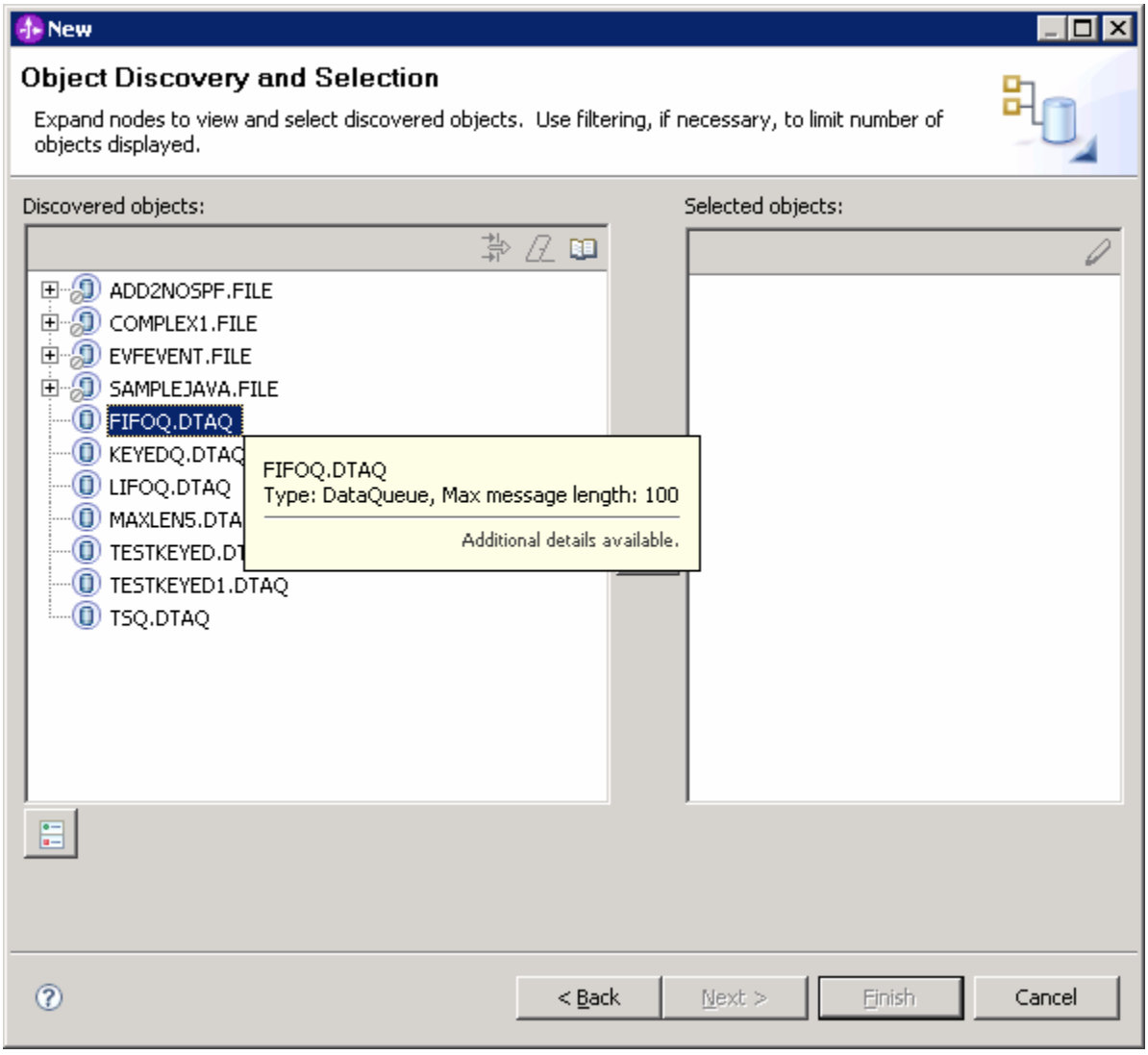


Figure 10

1. Select the data queue from the Discovered objects pane and move it to the **Selected objects** pane. Click **Next**.

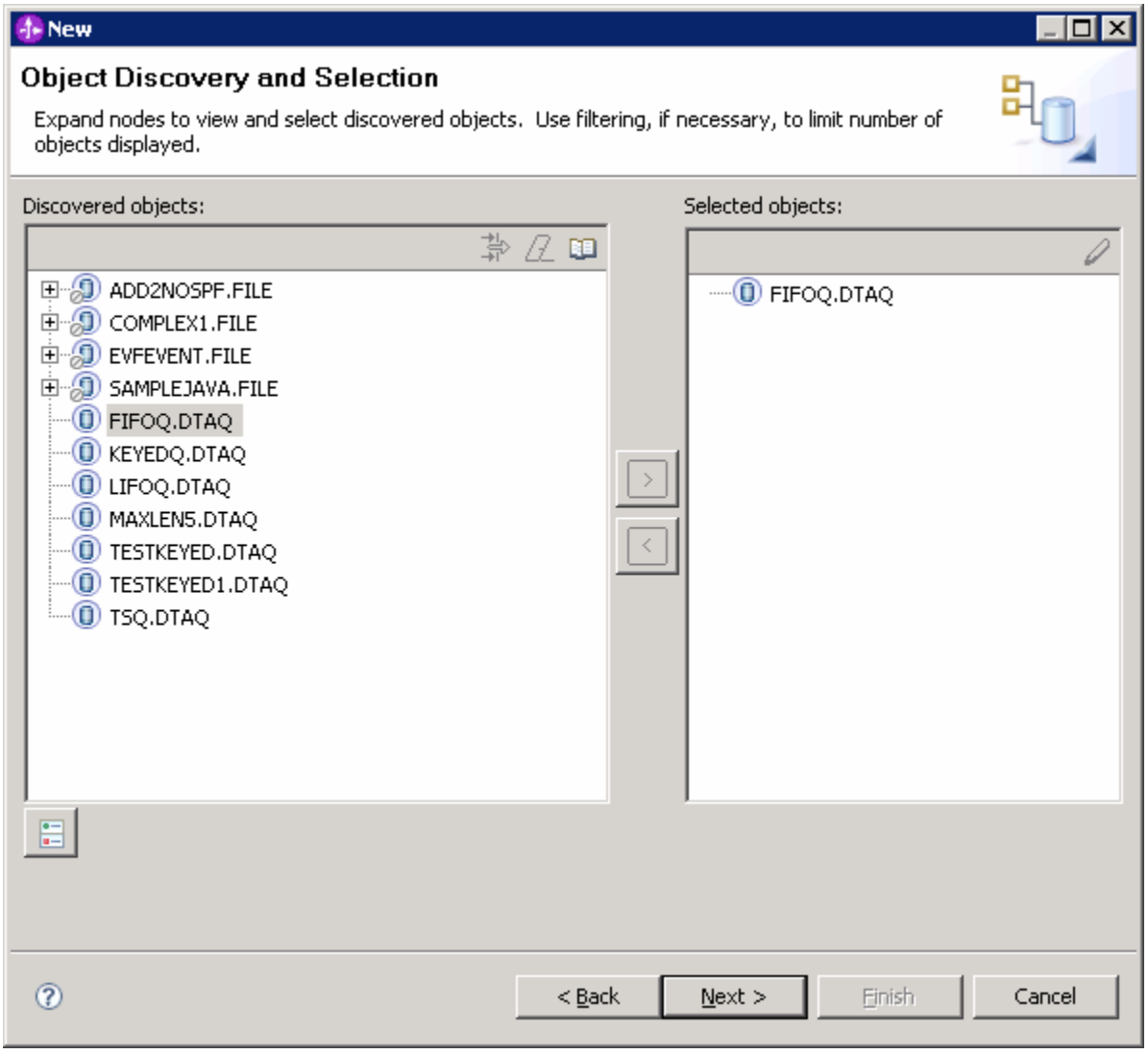


Figure 11

2. In the Configure Composite Properties window, the operations PutQueue and GetQueue are listed in the **Operations for selected business objects** pane. Click on Next button.

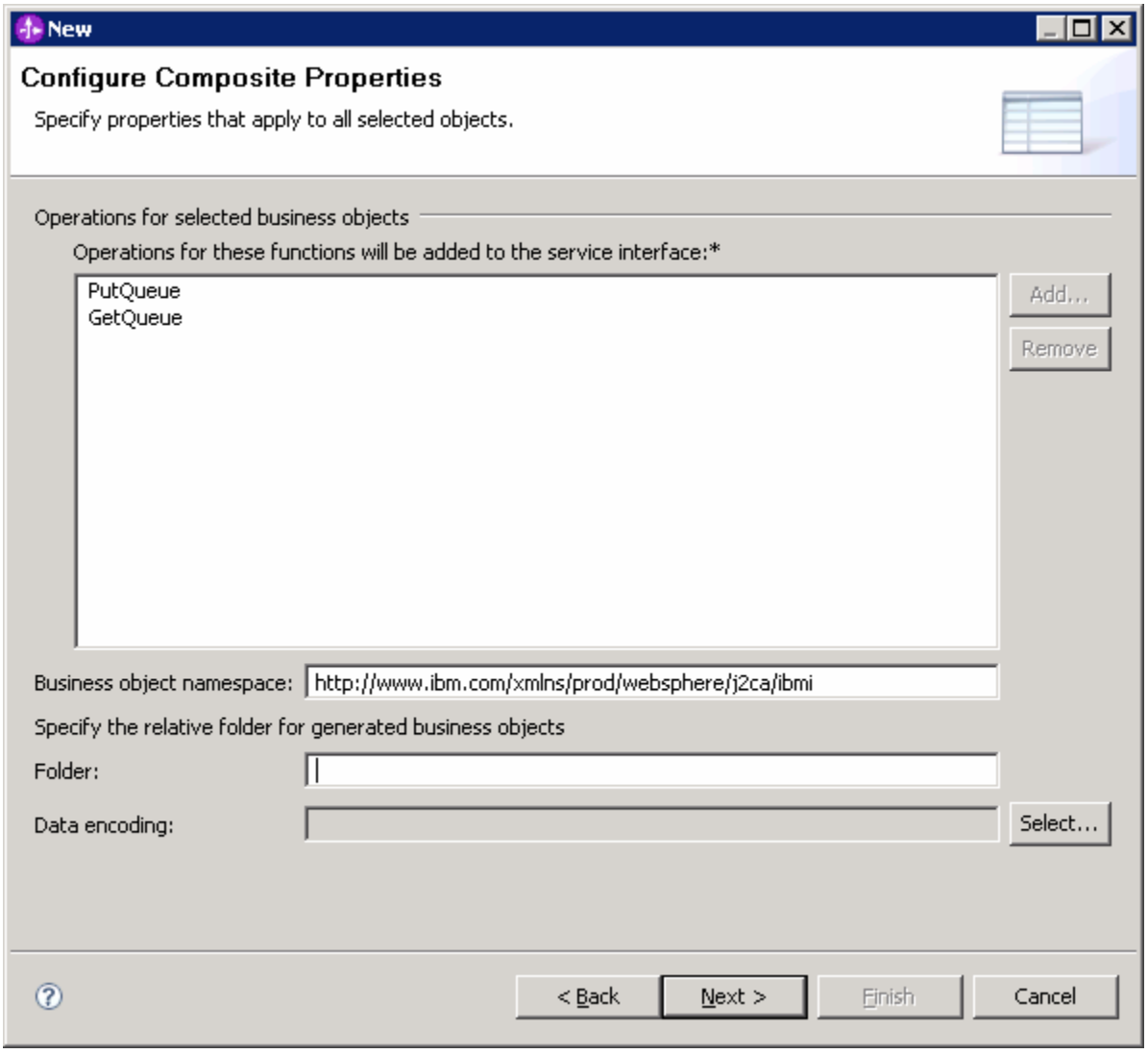


Figure 12

3. Clear the **Specify a Java Authentication and Authorization Services (JAAS) alias security credential** check box. The **Host name** and **user name** fields will already be populated. Type the password in the **Password** field and click **Next**.

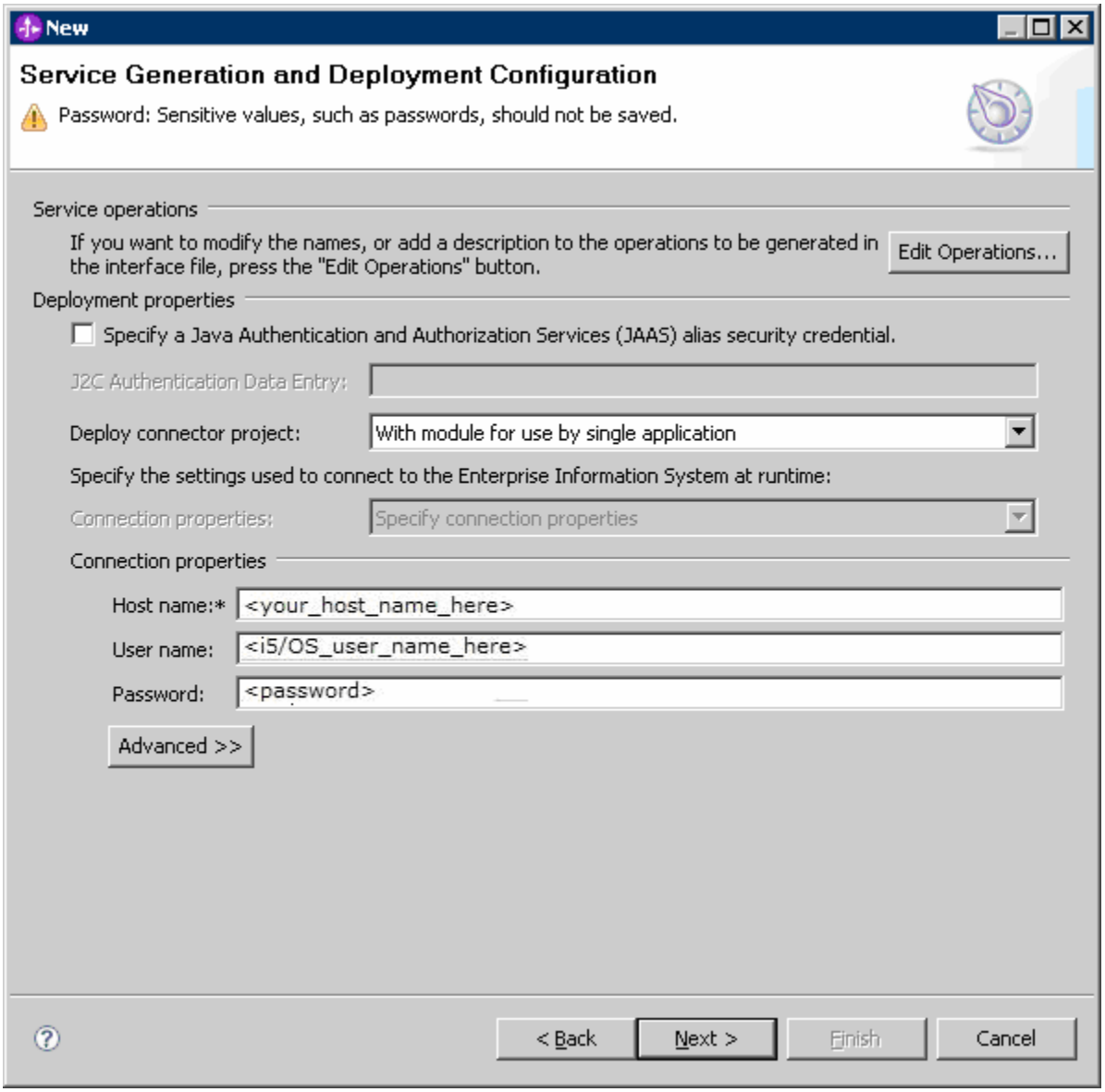


Figure 13

4. A default name is provided for the interface. Click **Finish** to complete the configuration.

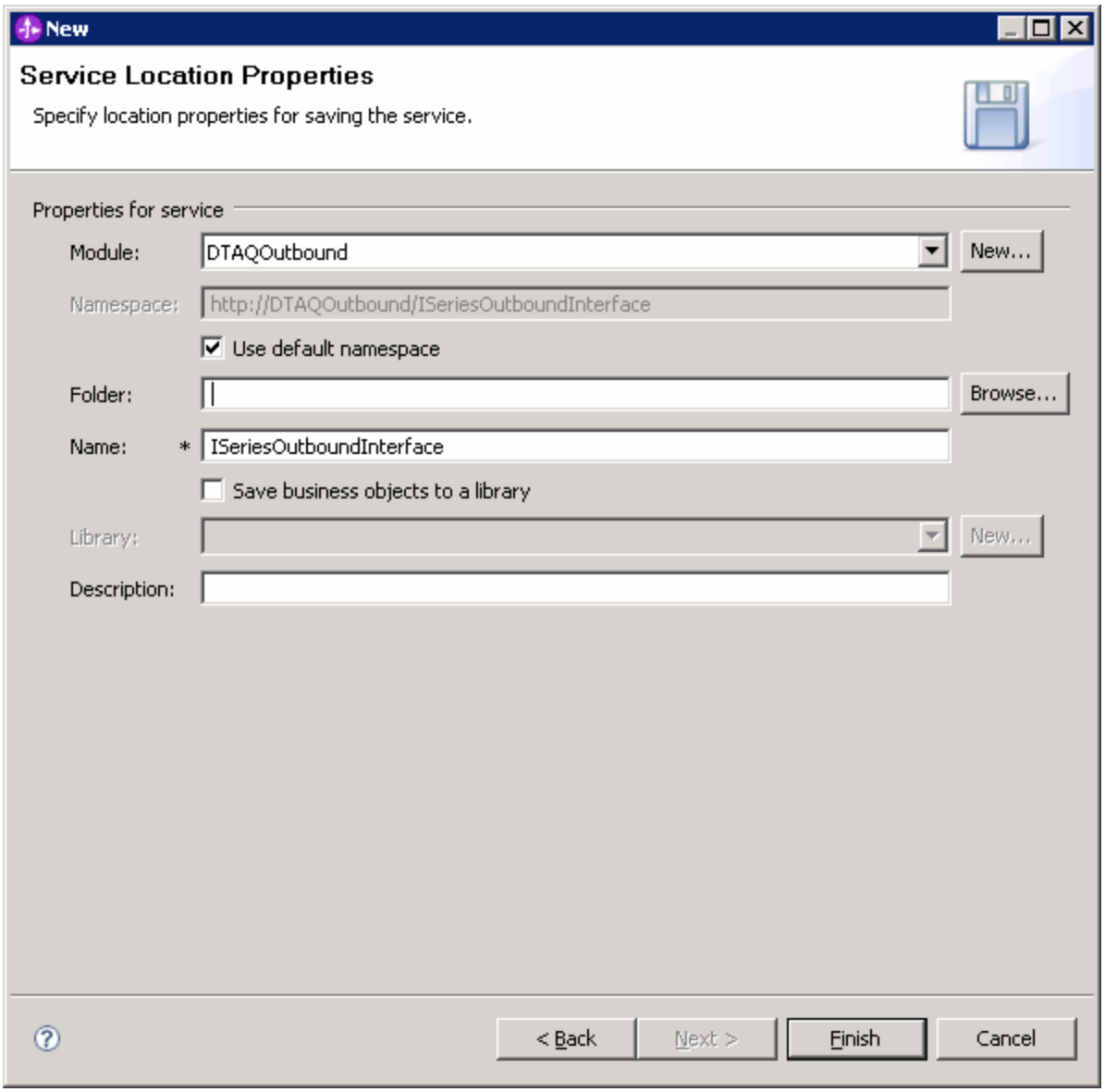


Figure 14

6. Verify the results by checking the artifacts generated in business integration view for the module as shown in below screen..

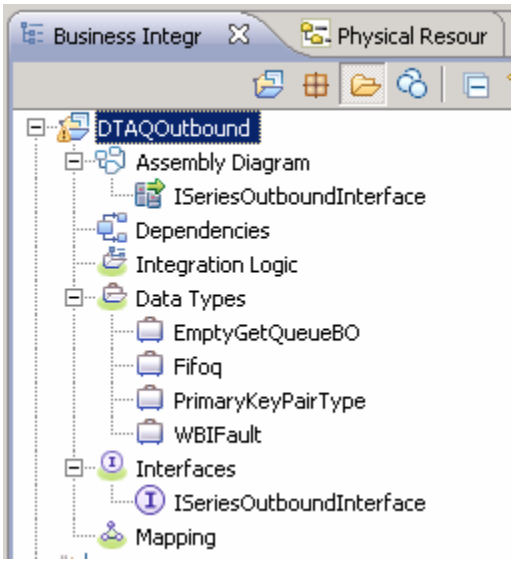


Figure 15

Deploying the module to the test environment

The result of running the external service wizard is an SCA module that contains an enterprise information system (EIS) import or export. Install this SCA module in the WebSphere Integration Developer integration test client.

1. Start WebSphere Process server.

2. Add the module you created earlier to the server by using the server panel in WebSphere Integration Developer. Right-click the server, and then select **Add and remove projects**.

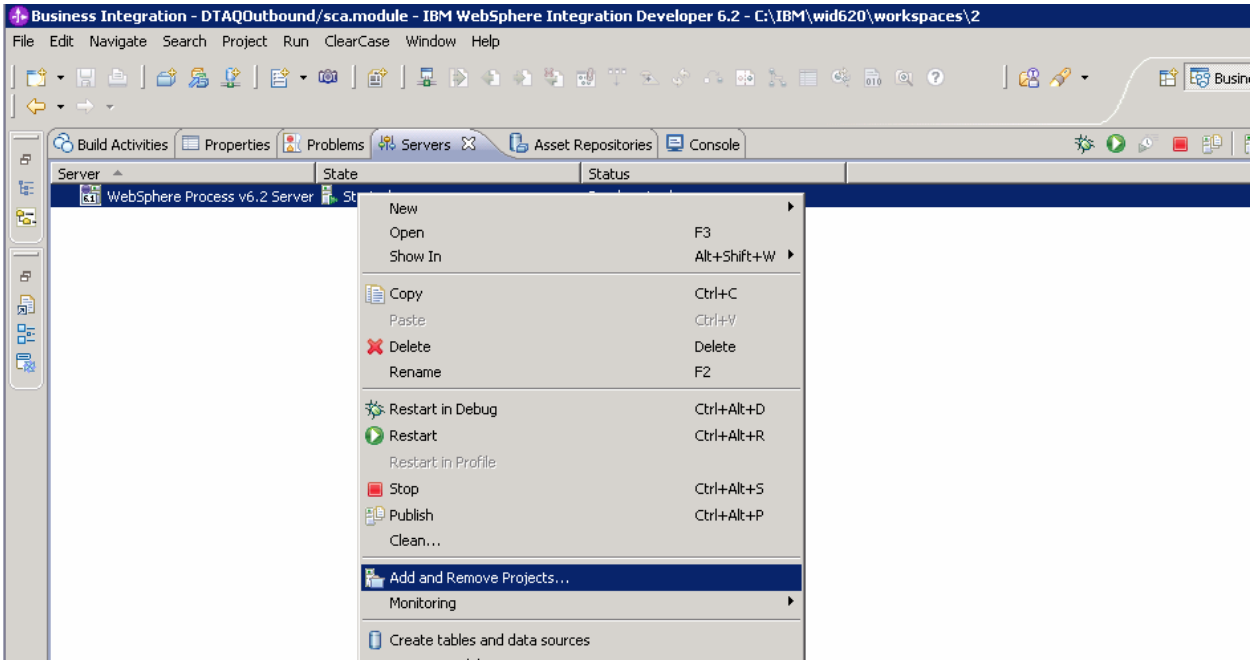


Figure 16

3. Select the DTAQOutbound module and click on Add button, then click **Finish**.

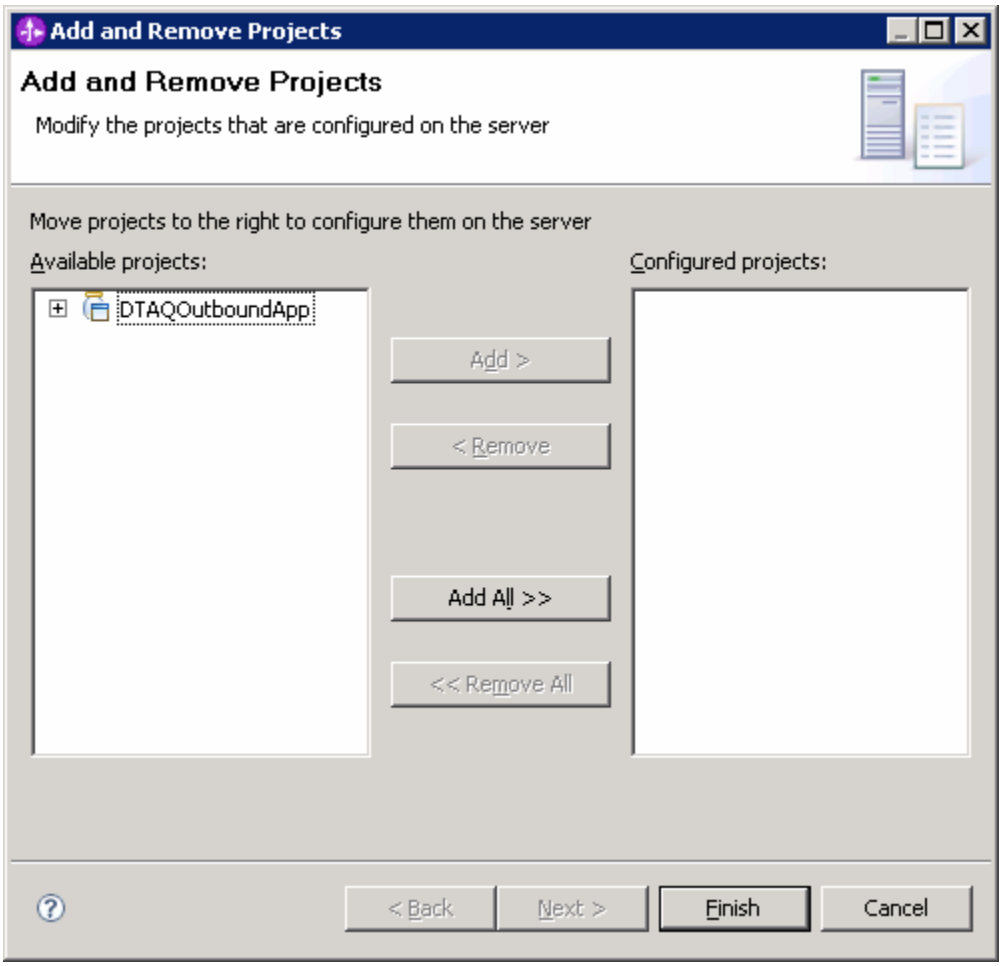


Figure 17

4. In the Adding/Removing Projects window, click **OK**.

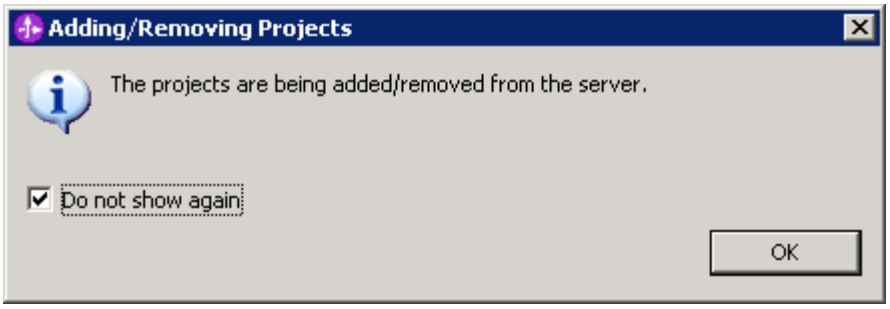


Figure 18

Testing the assembled adapter application

1. Test the assembled adapter application by using the WebSphere Integration Developer integration test client.

2. Open the test component by right-clicking **ISeriesOutboundInterface** then selecting **Test Component.**

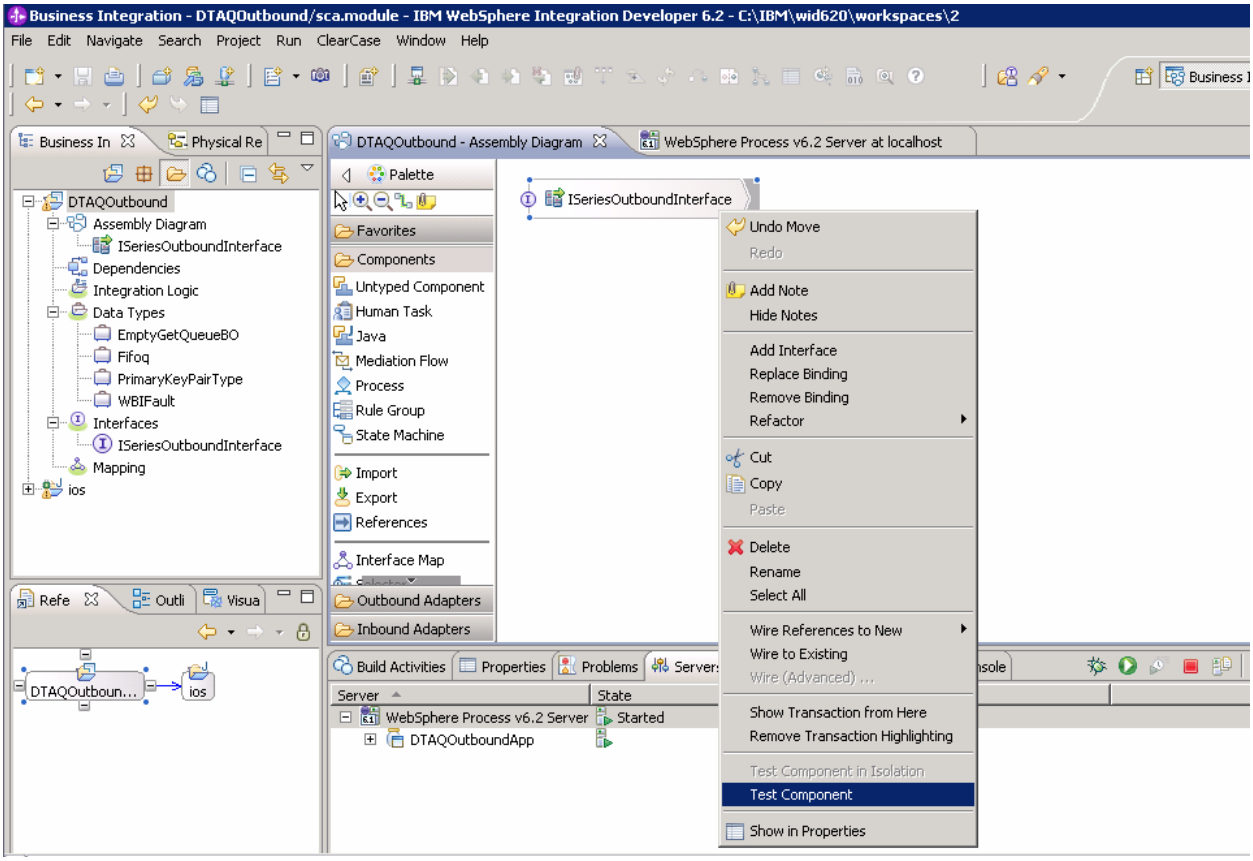


Figure 19

3. Select putqueueFifoq from the operation as from the operation.

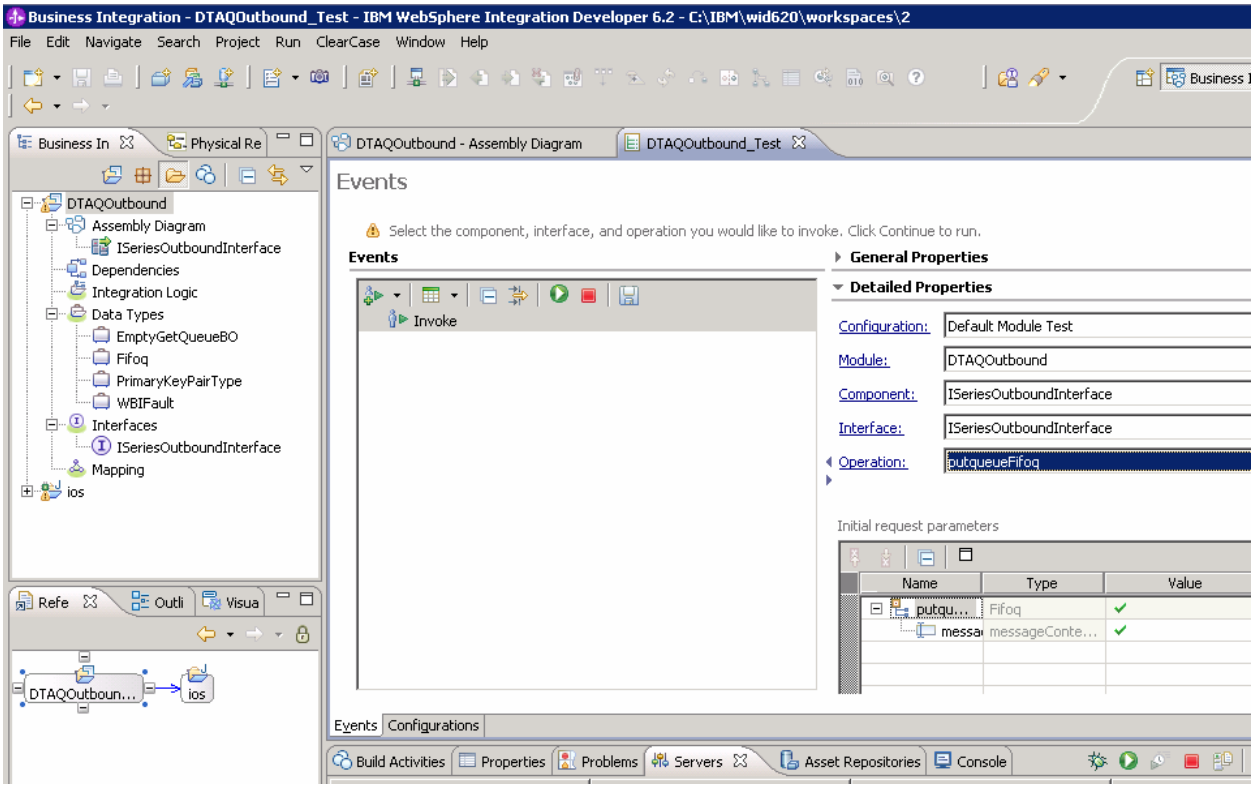


Figure 20

4. Go to the Initial request parameters and enter the text ‘test message’ for messageContent request field..

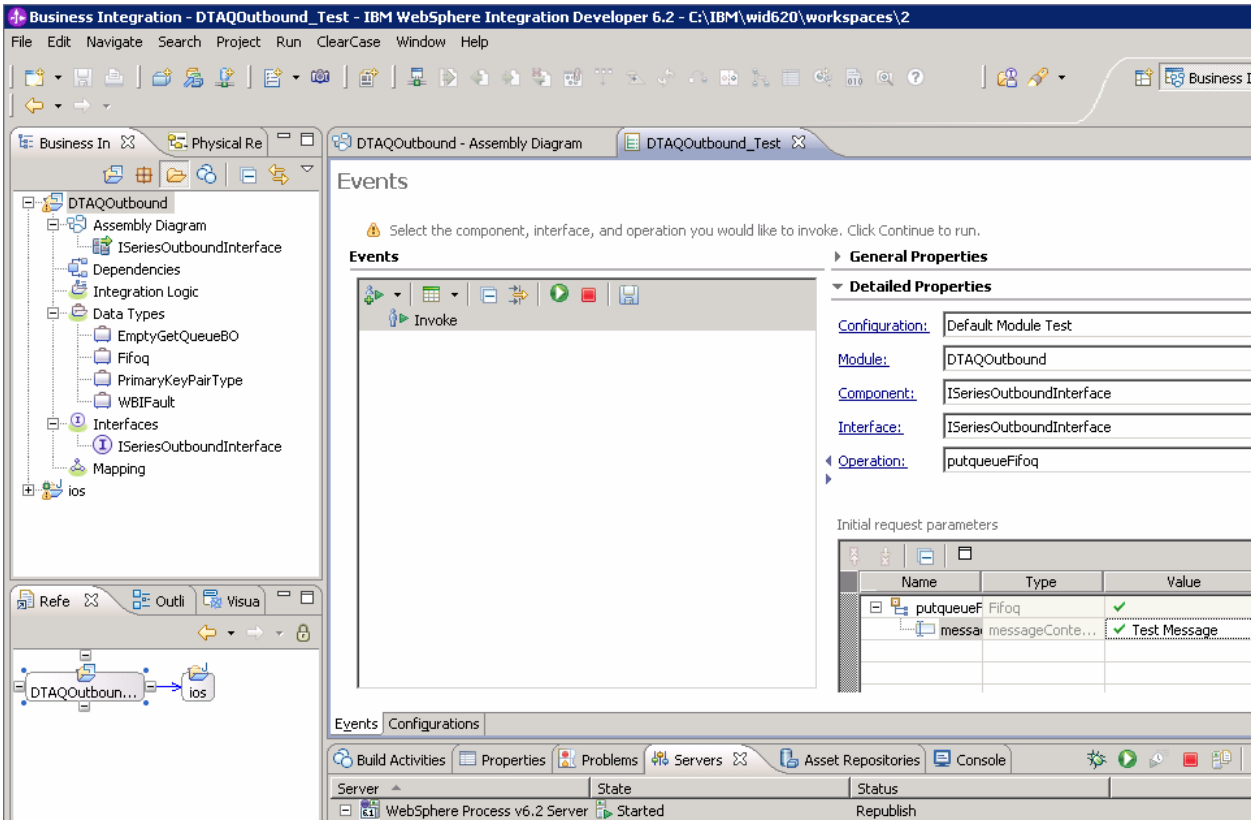


Figure 21

6. Run the service by clicking the continue button and selecting the **Use this as the default and do not ask again** check box. Click **Finish**.

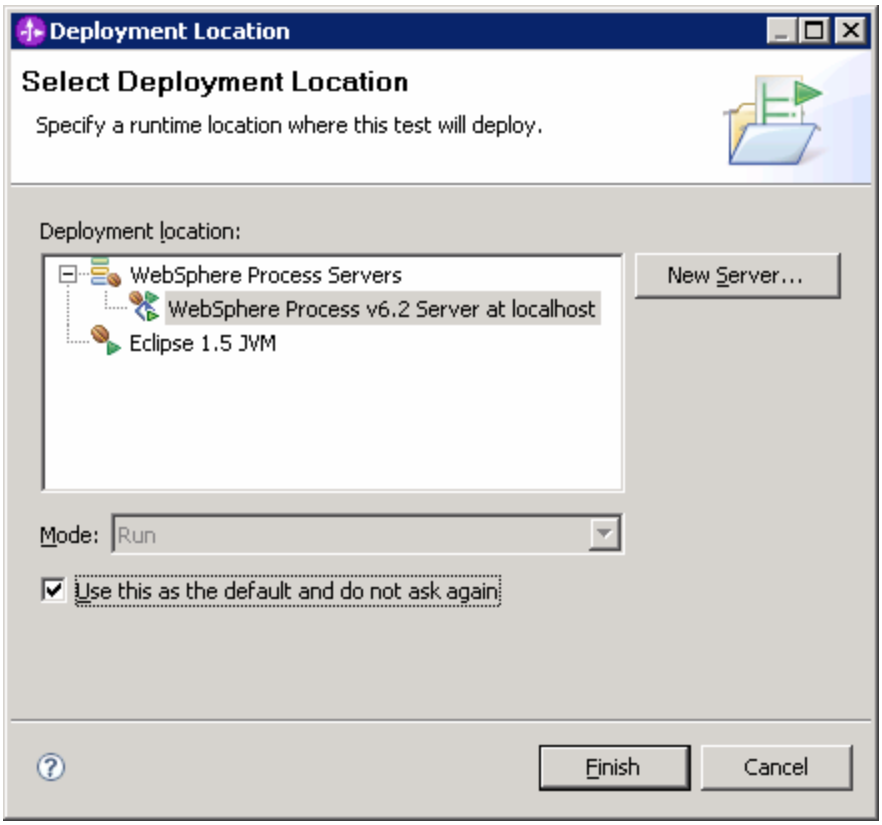


Figure 22

7. If security is set up, the User Login – Default Module Test window opens. Click **OK**.

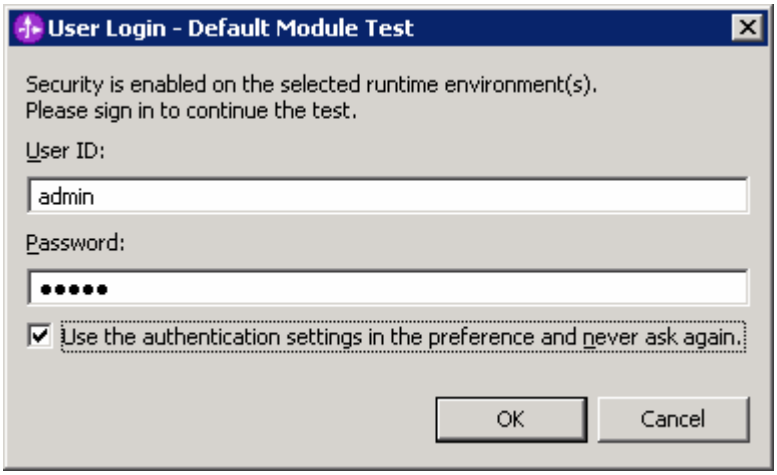


Figure 23

8. The result will be displayed as show in below screen.

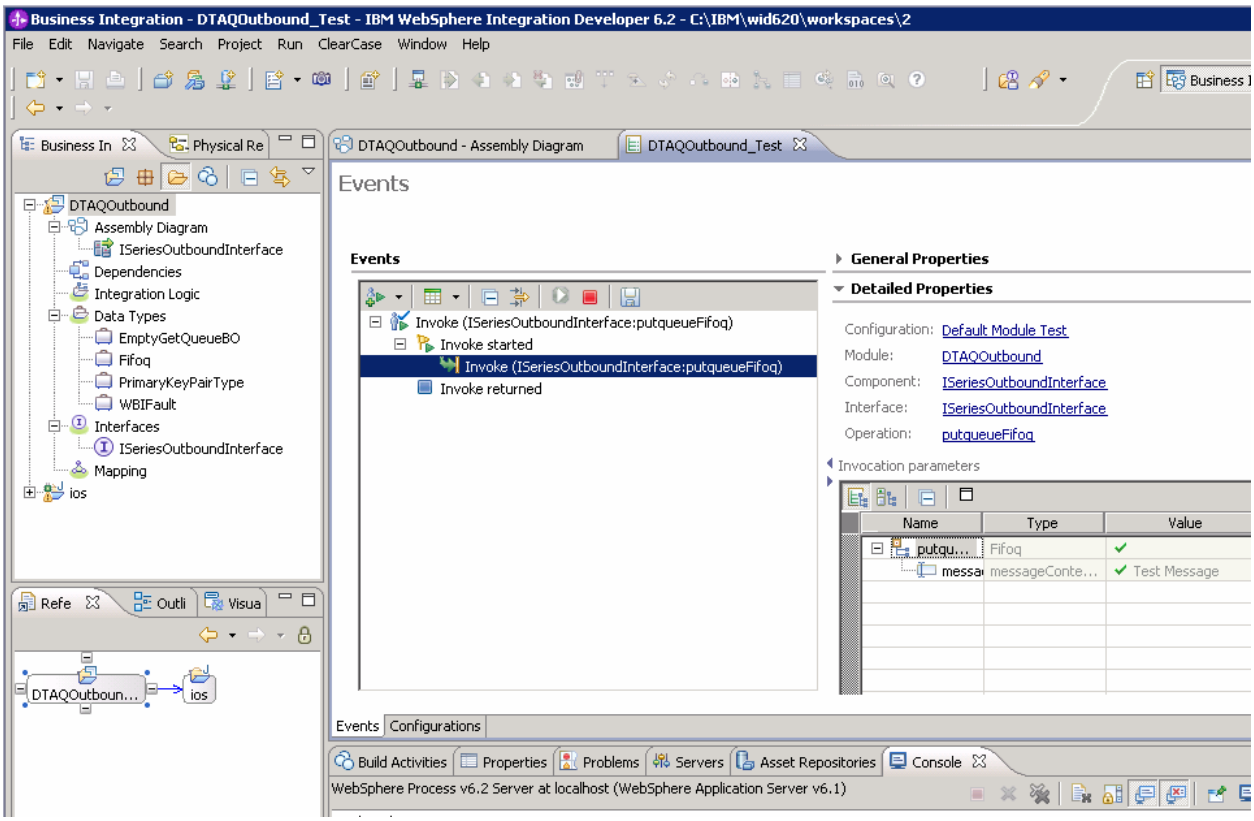


Figure 24

9. To test the GetQueue operation on the data queue, click the  button. This opens another test component. In the **Operation** field, elect **getqueueFifiq** and click  .

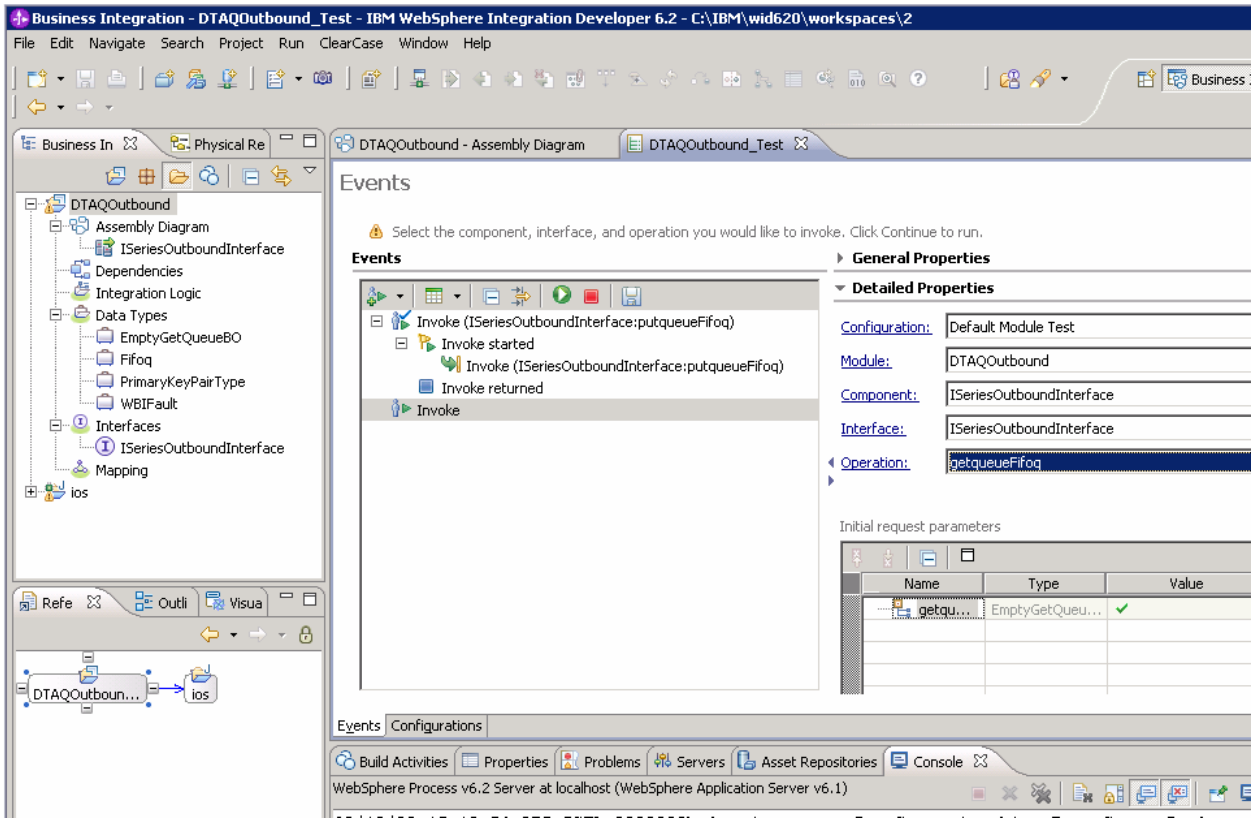


Figure 25

The message from the data queue is displayed as return message.

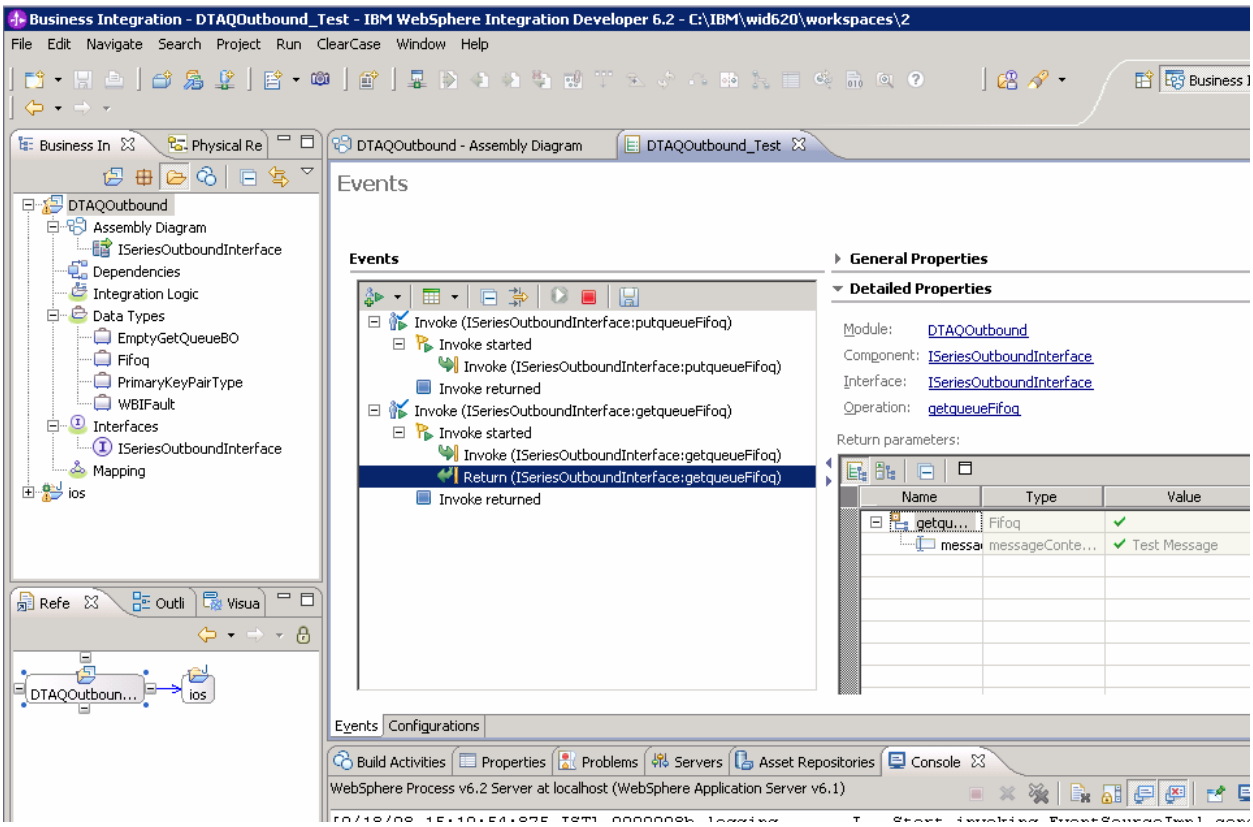

Business Integration - DTAQOutbound_Test - IBM WebSphere Integration Developer 6.2 - C:\IBM\wid620\workspaces\2
File Edit Navigate Search Project Run ClearCase Window Help
Business In
Physical Re
DTAQOutbound
Assembly Diagram
ISeriesOutboundInterface
Dependencies
Integration Logic
Data Types
EmptyGetQueueBO
Fifoq
PrimaryKeyPairType
WBIFault
Interfaces
ISeriesOutboundInterface
Mapping
ios
Refe
Outli
Visua
DTAQOutboun...
ios
DTAQOutbound - Assembly Diagram
DTAQOutbound_Test
Events
Events
Invoke (ISeriesOutboundInterface:putqueueFifoq)
Invoke started
Invoke (ISeriesOutboundInterface:putqueueFifoq)
Invoke returned
Invoke (ISeriesOutboundInterface:getqueueFifoq)
Invoke started
Invoke (ISeriesOutboundInterface:getqueueFifoq)
Return (ISeriesOutboundInterface:getqueueFifoq)
Invoke returned
General Properties
Detailed Properties
Module: DTAQOutbound
Component: ISeriesOutboundInterface
Interface: ISeriesOutboundInterface
Operation: getqueueFifoq
Return parameters:
Name
Type
Value
getqu...
Fifoq
messa
messageConte...
Test Message
Events
Configurations
Build Activities
Properties
Problems
Servers
Asset Repositories
Console
WebSphere Process v6.2 Server at localhost (WebSphere Application Server v6.1)

Figure 26

Chapter 7. Inbound processing on a data queue

This tutorial demonstrates how you can use WebSphere Adapter for IBM i V6.2.0.0 to poll the data queue and send the messages to the endpoint application.

Configuring the adapter for inbound processing

Run the external service wizard to specify business objects, services, and the configuration to be used in this tutorial.

Creating the project

1. Launch WebSphere Integration Developer by clicking **Start > Programs > IBM WebSphere Integration Developer 6.2**.

2. In WebSphere Integration Developer, switch to the Business Integration perspective by clicking **Window > Open perspective > Other**. In the Select perspective window, select **Show all**, then select **Business Integration** from the list and click **OK**.

3. Create a new module by clicking **File > New > Module.**

4. In the **Module Name** field, type `DTAQInbound` and click **Next**

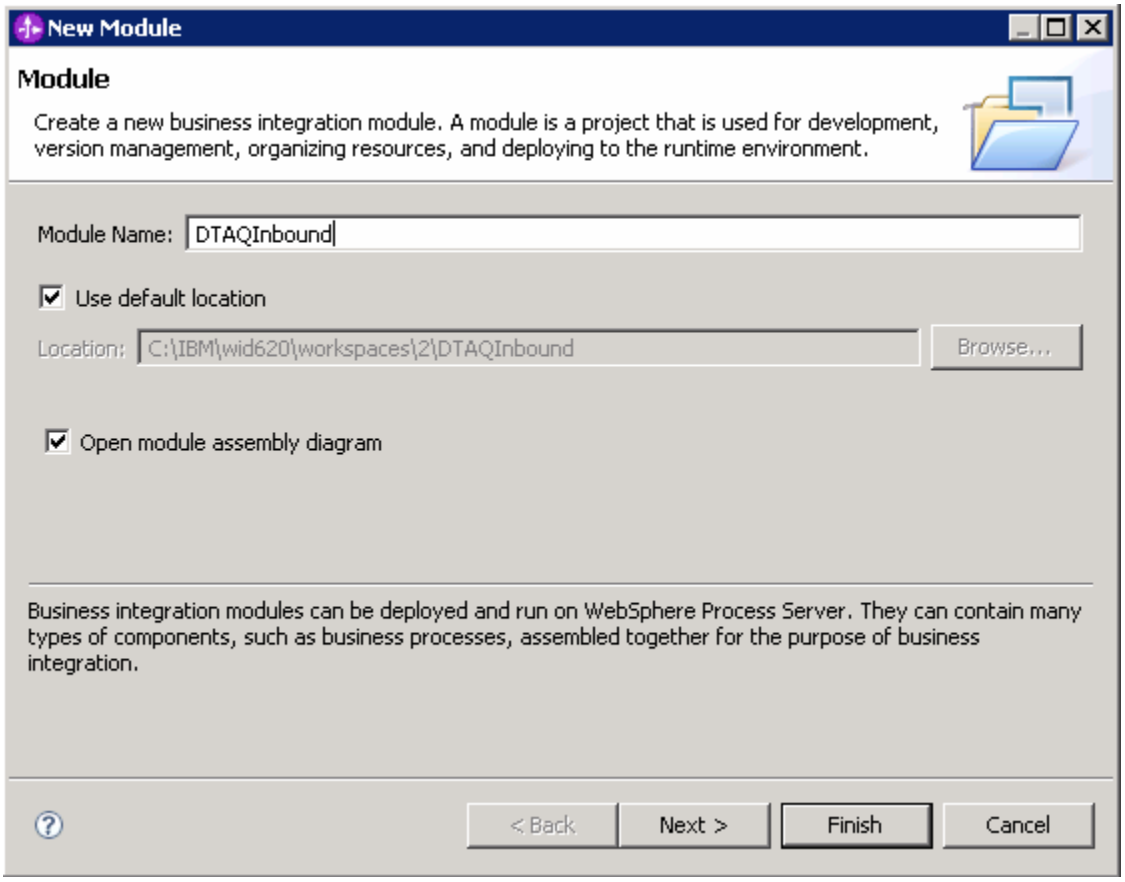


Figure 27

5. In the Solution Creation window, click **Finish**.

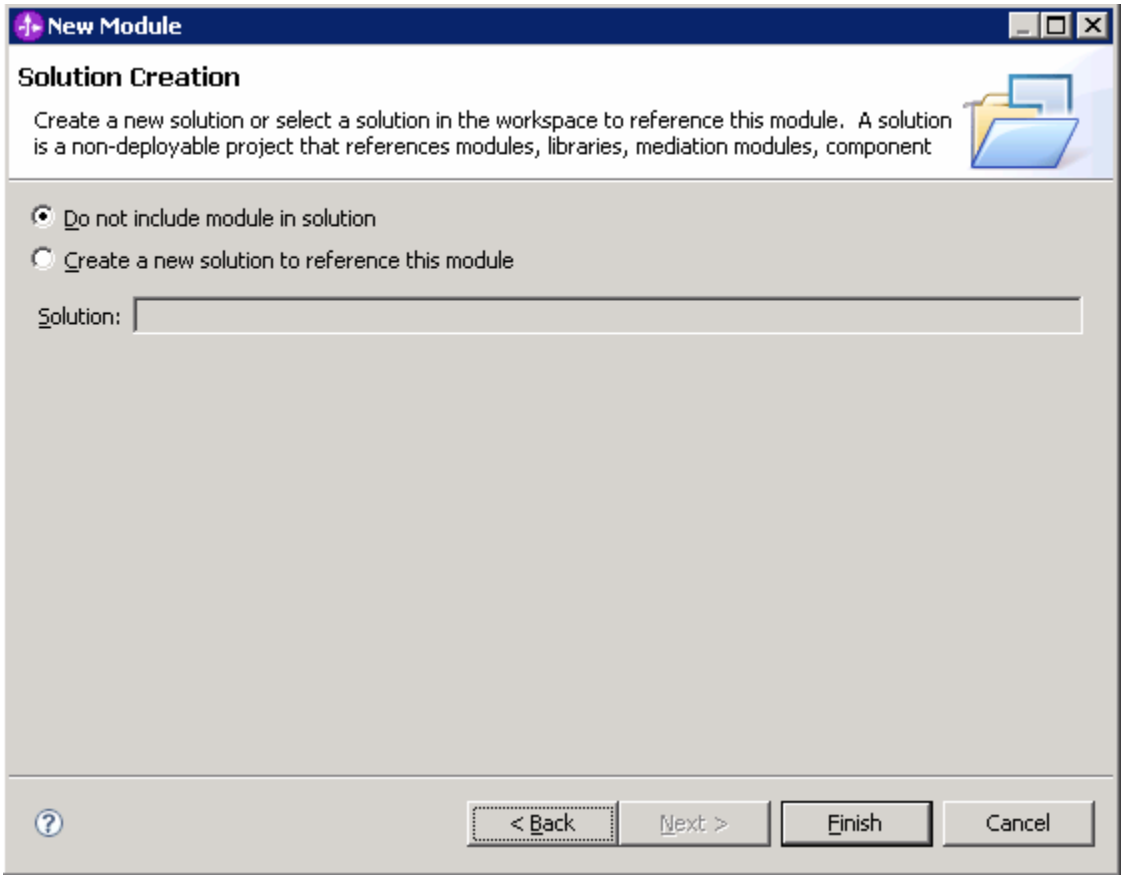


Figure 28

6. After the module is created, the folder structure will look like that shown in the following figure.

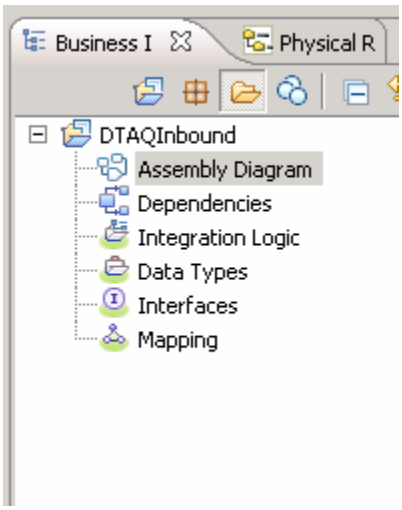


Figure 28

7. Launch the external service wizard by right-clicking the DTAQInbound module and selecting **New > External Service**.

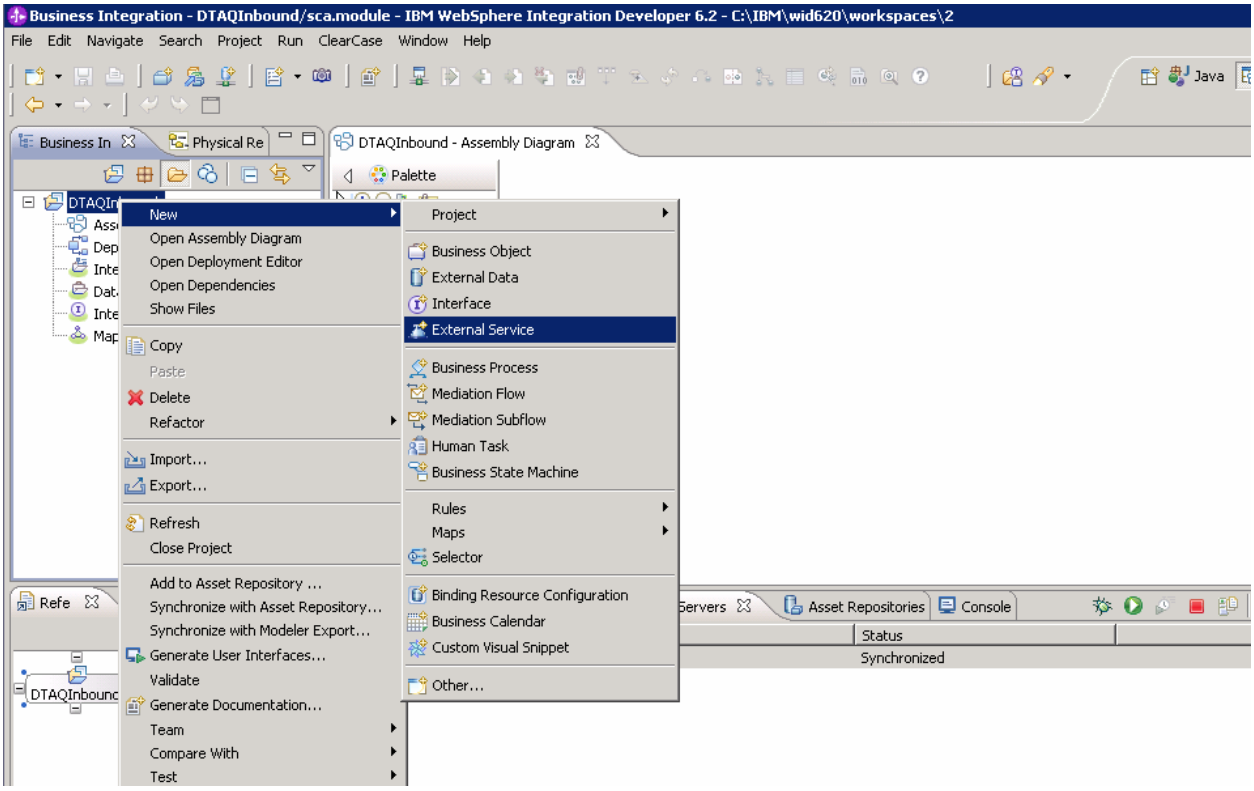
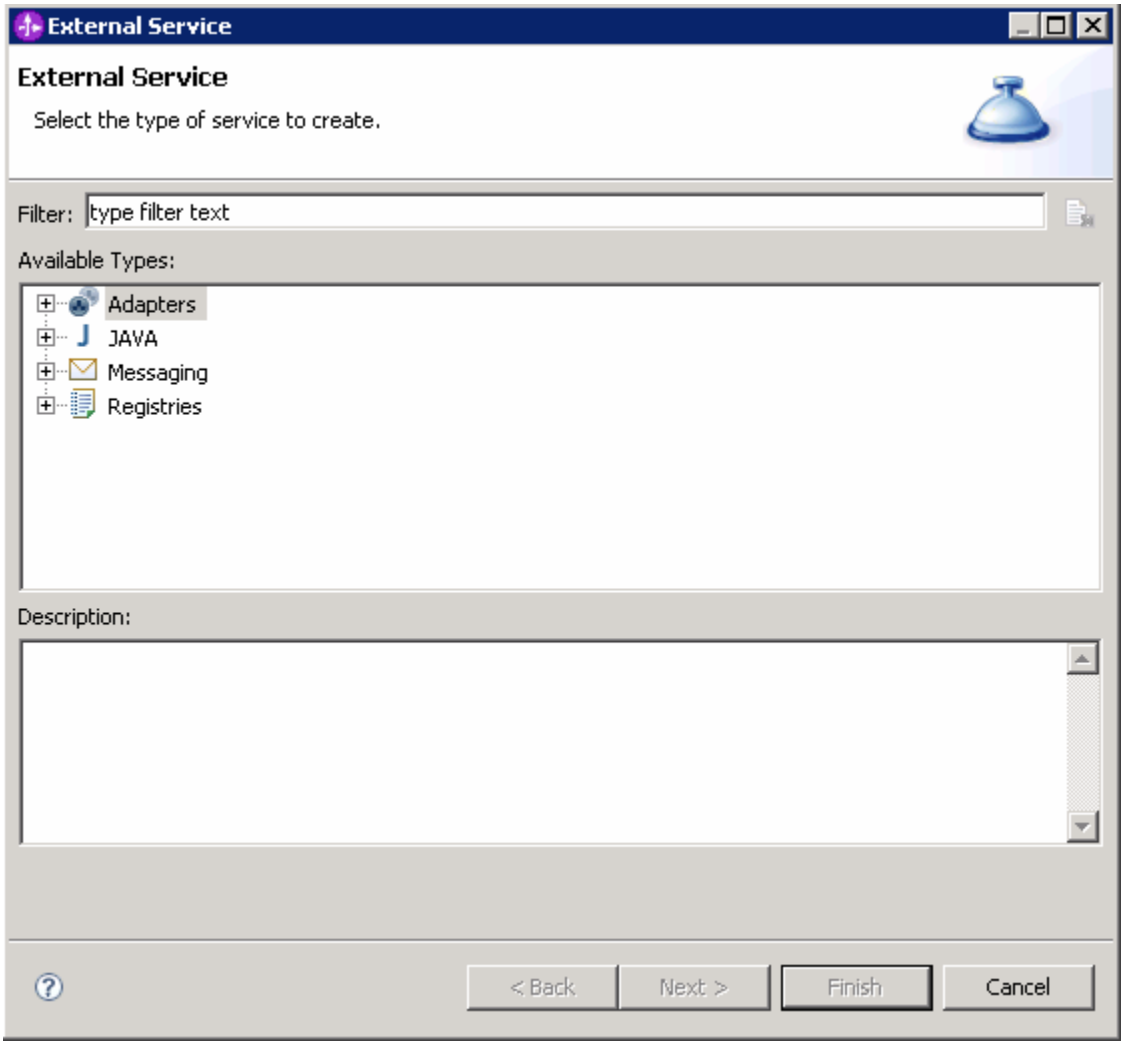


Figure 29

8. In the External Service window, click the + sign for the adapter to expand it and select **iSeries**. Click **Next**.

9. Select **iSeries** and click **Next.**


External Service
External Service
Select the type of service to create.
Filter:
type filter text
Available Types:
Adapters
JAVA
Messaging
Registries
Description:
< Back
Next >
Finish
Cancel

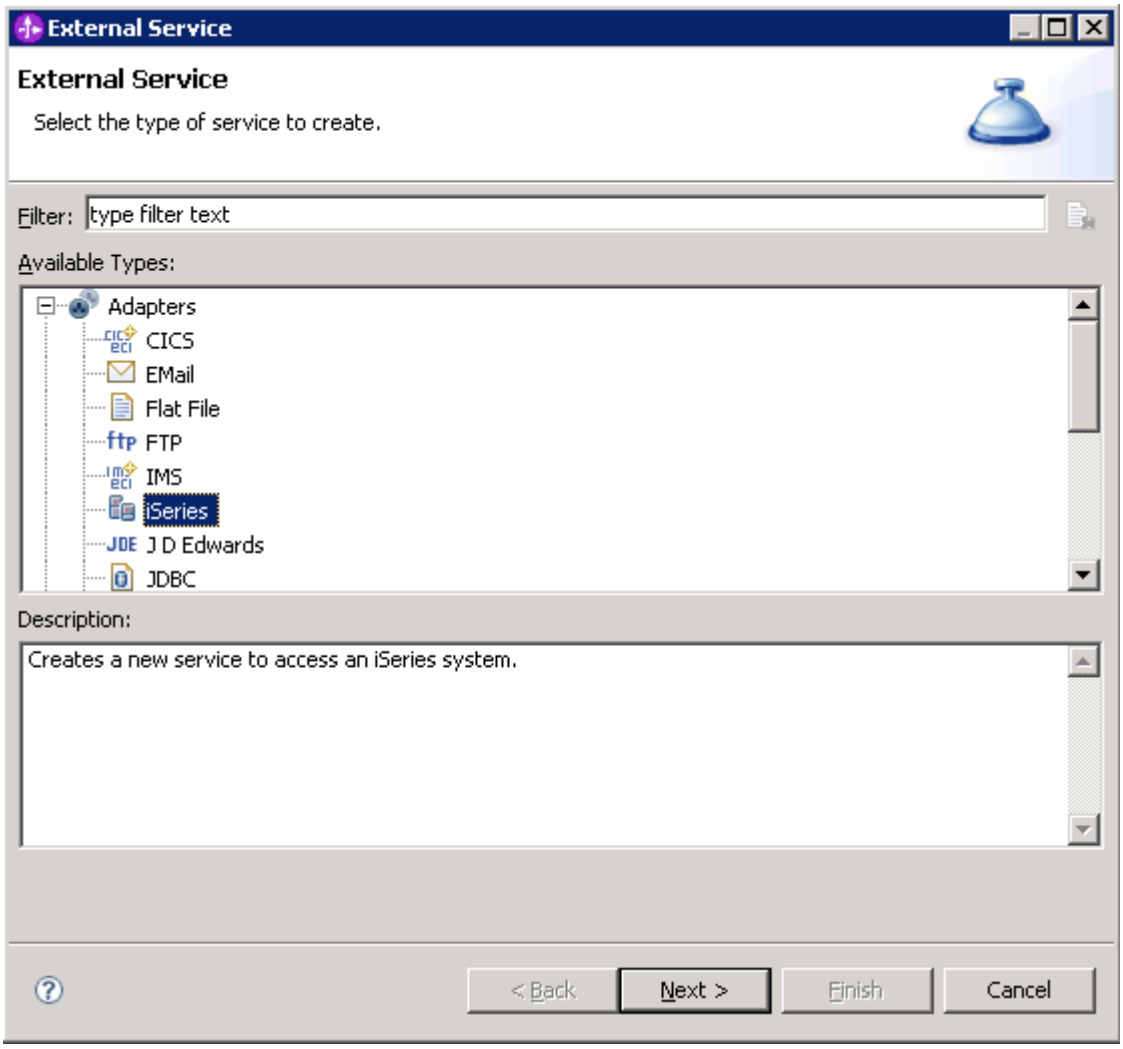


Figure 30

9. Click **IBM WebSphere Adapter for IBM i** and click **Next.**

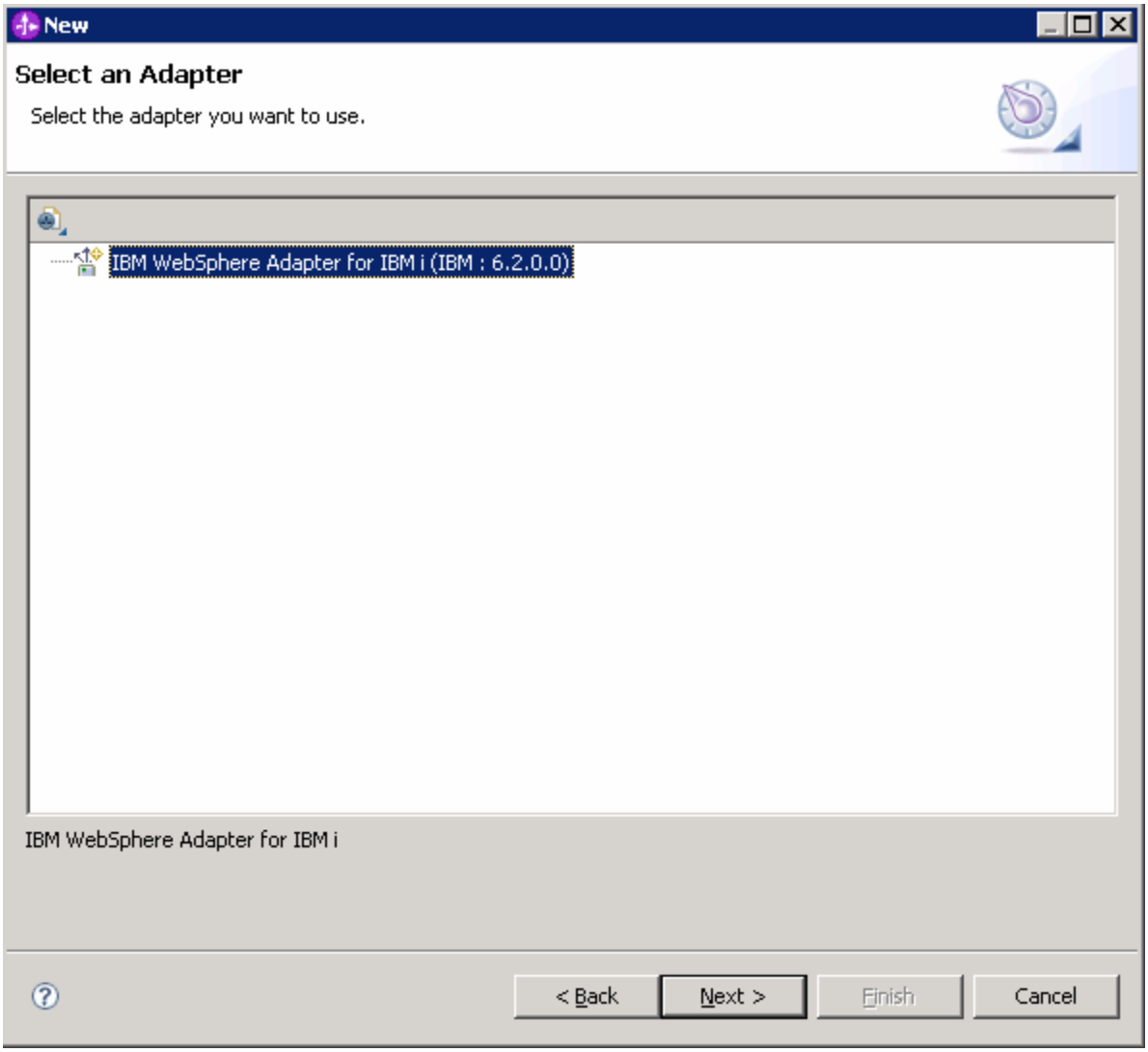


Figure 31

10. Ensure that the ios RAR file is selected in the **Connector Project** field, and from the **Target runtime** list, select **WebSphere Process Server v6.2.** Click **Next.**

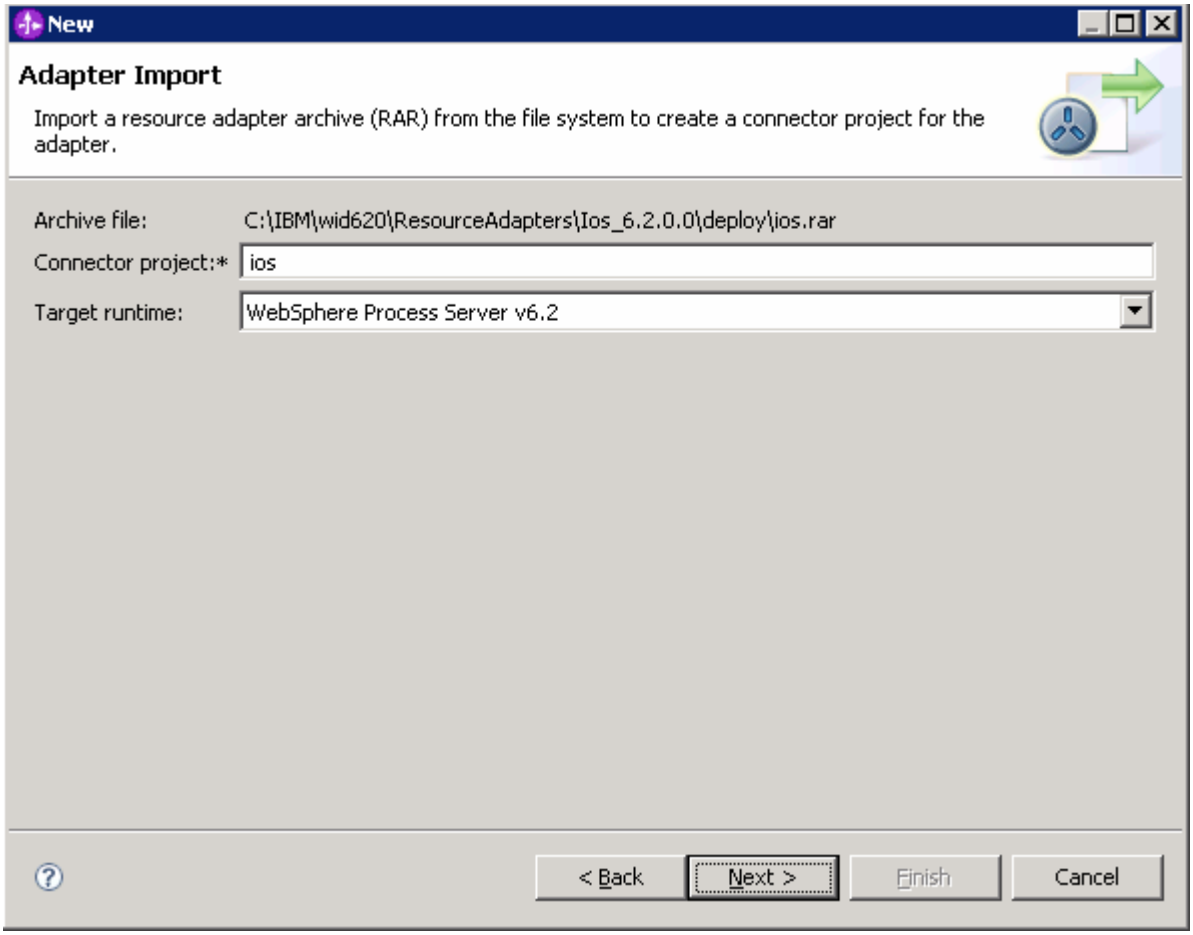


Figure 32

11. Select the **Inbound** check box and click **Next.**

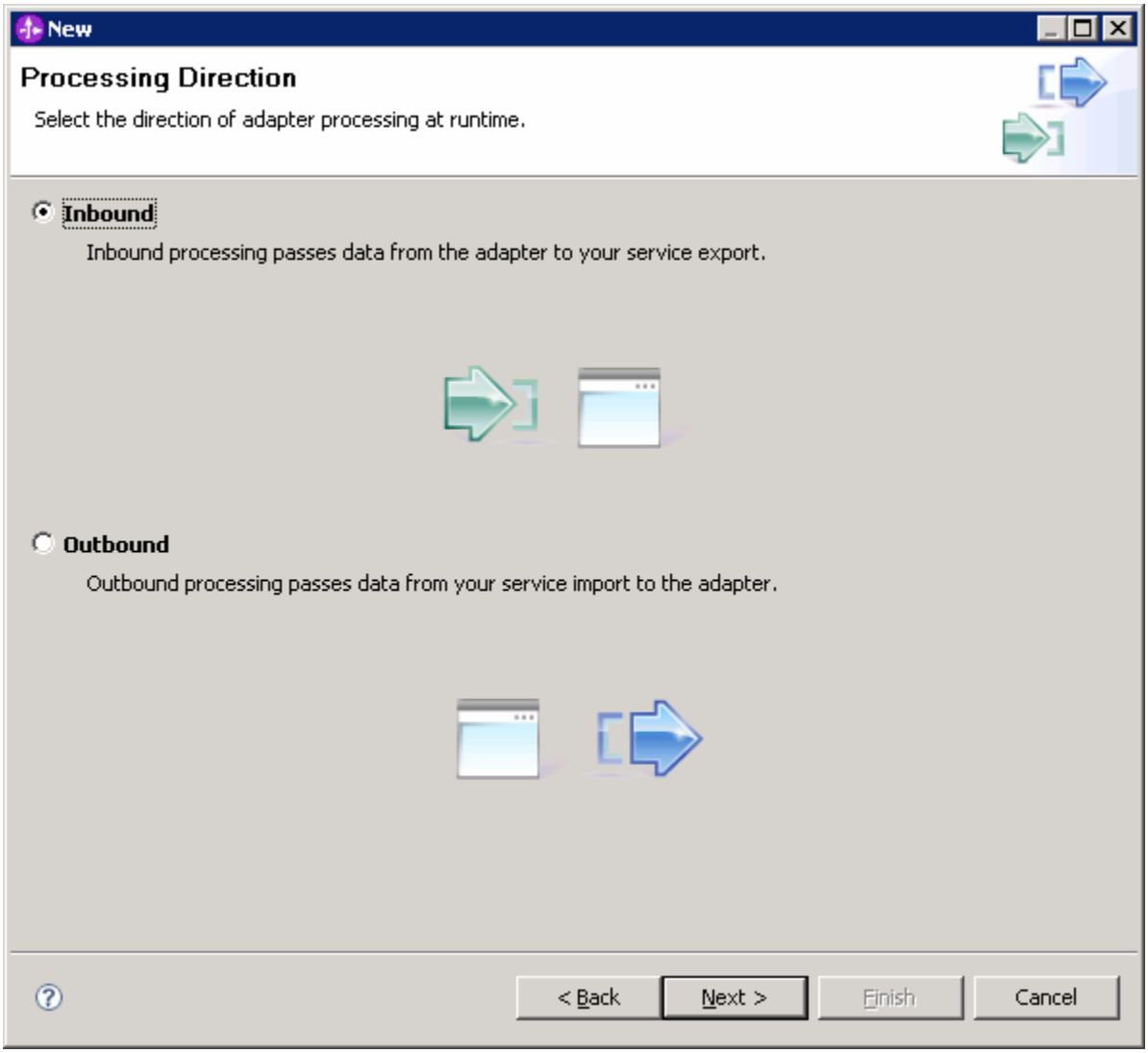


Figure 33

Setting connection properties for the external service wizard

1. Enter the IBM i server connection information such as the host name, user name, password and path to the folder on the IBM i for object discovery. The **Object type to discover selection** filed will be disabled.

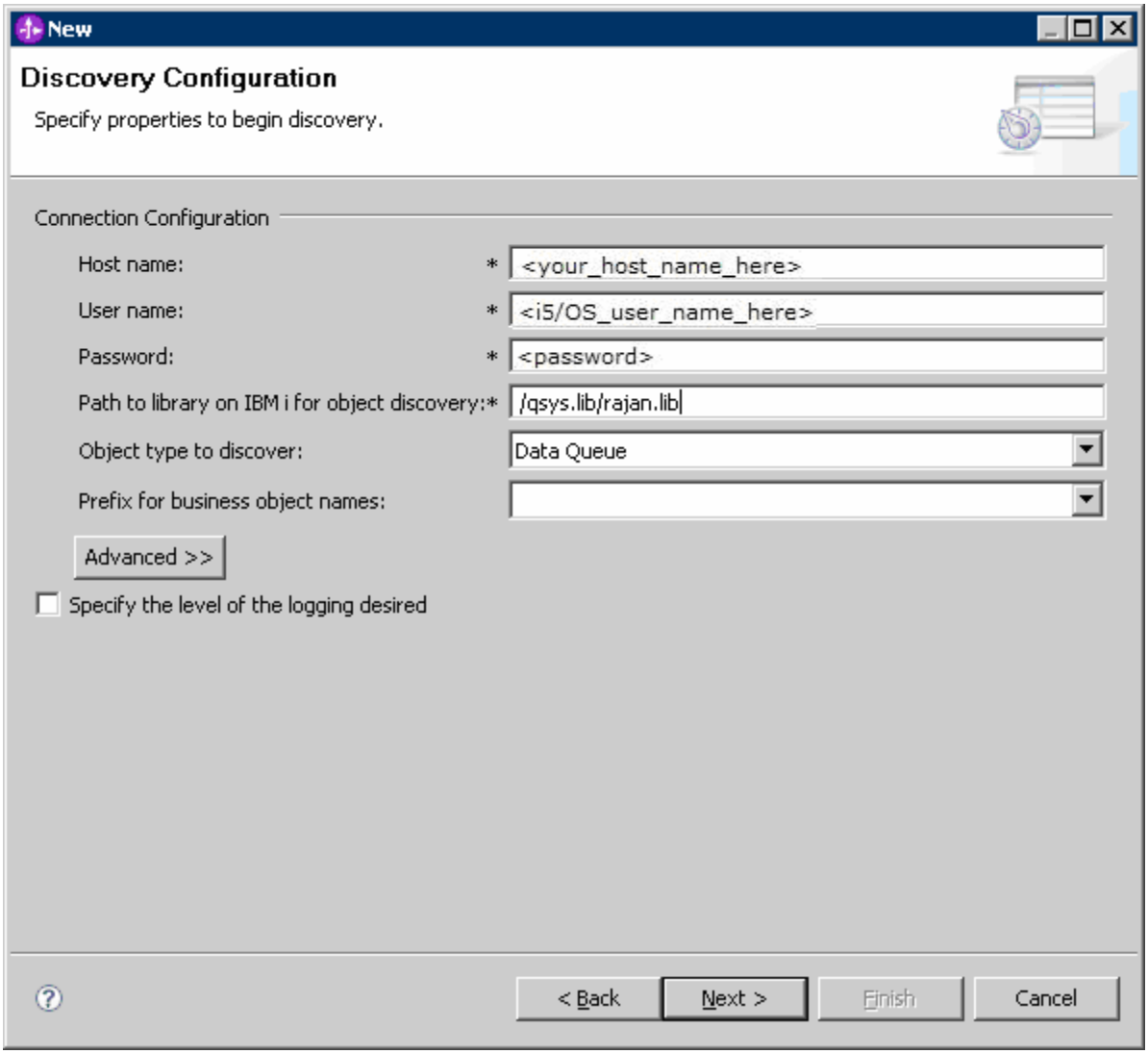


Figure 34

2. After all properties are entered, click **Next**.

On the metadata tree panel, all data queues will be displayed.

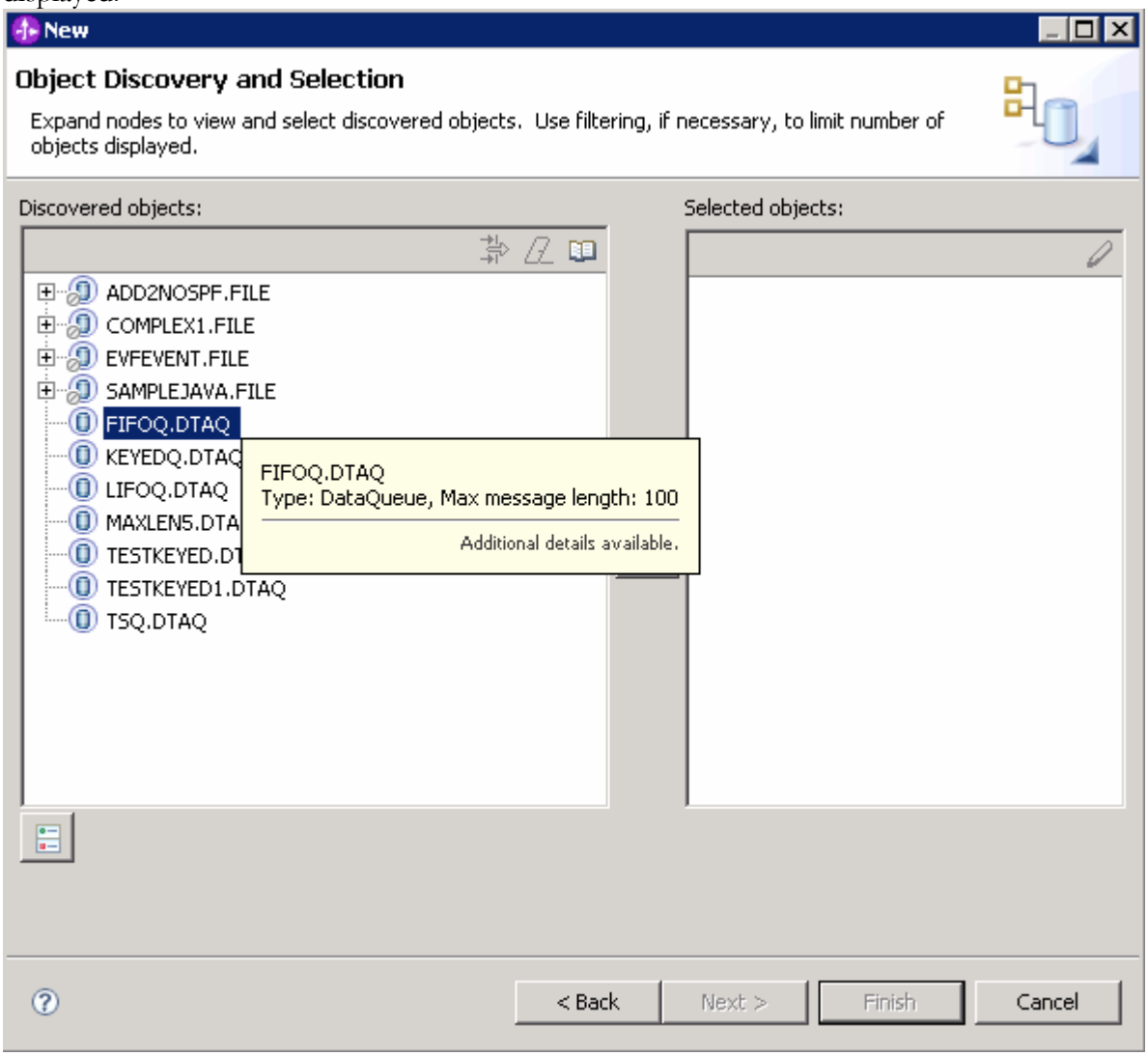


Figure 35

2. Select the data queue from the **Discovered objects pane**, and move it to the **Selected objects** pane. Click **Next**.

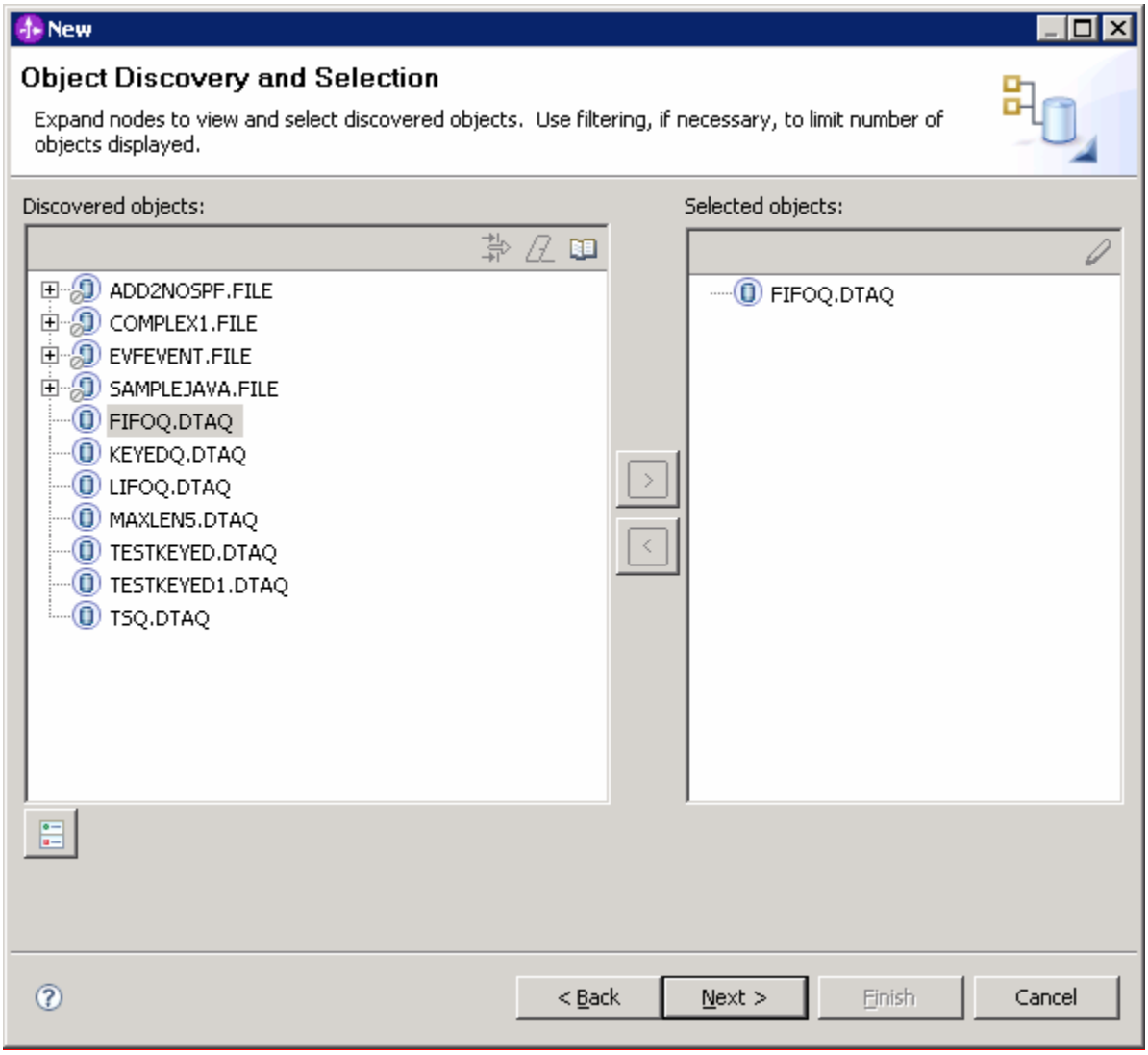


Figure 36

3. In the Configure Composite Properties window, the Emit operation is displayed in the **Operations for selected business objects** pane. Click **Next**.

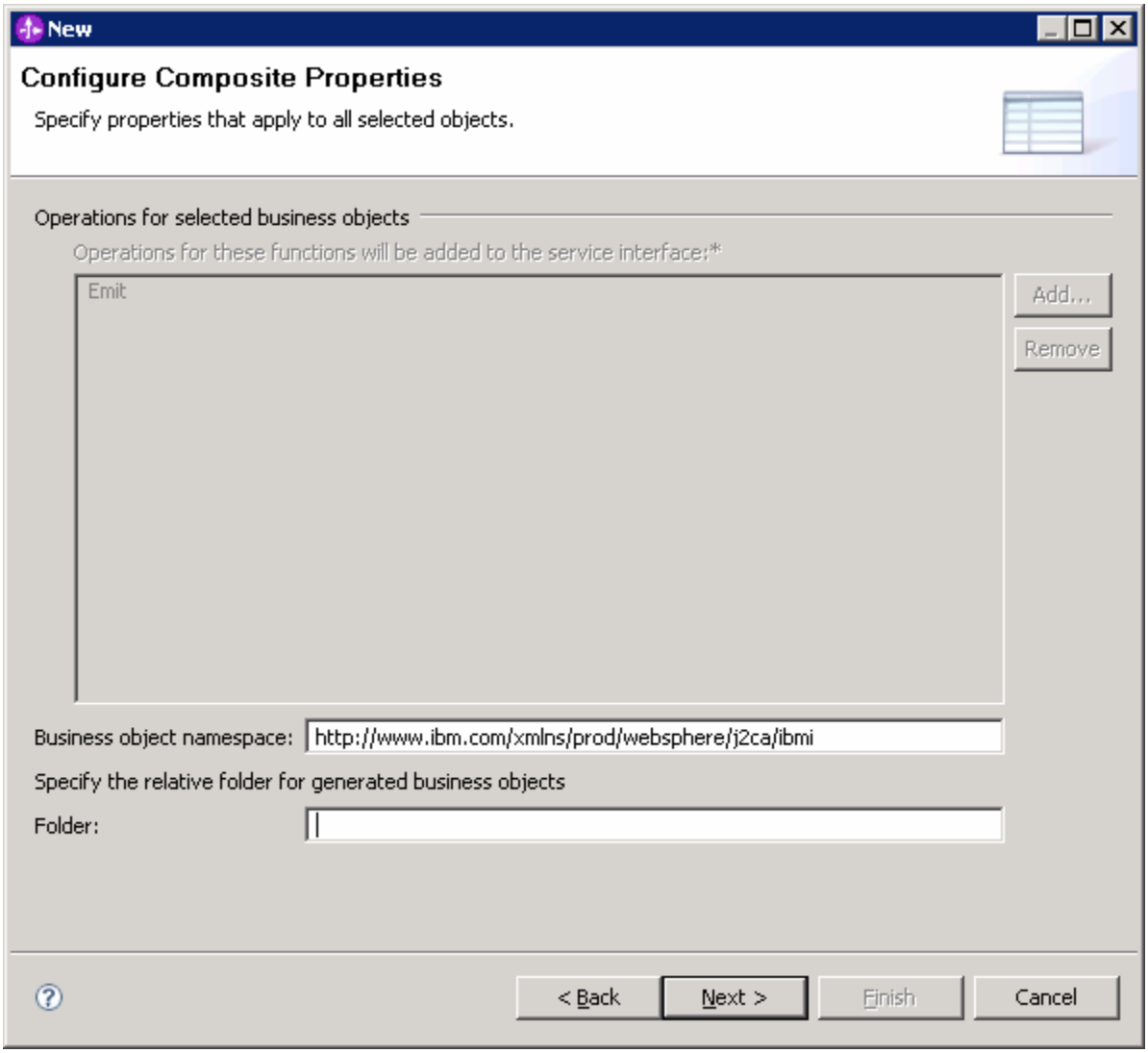


Figure 37

4. Clear the option **Specify a Java Authentication and Authorization Services (JAAS) alias security credential** check box. The **Host name**, **user name** and **Poll Queue Path** fields will already be populated. The Poll Queue Path field is disabled. Type the password, payload staging queue path and control language program path in the appropriate fields, and click Next.

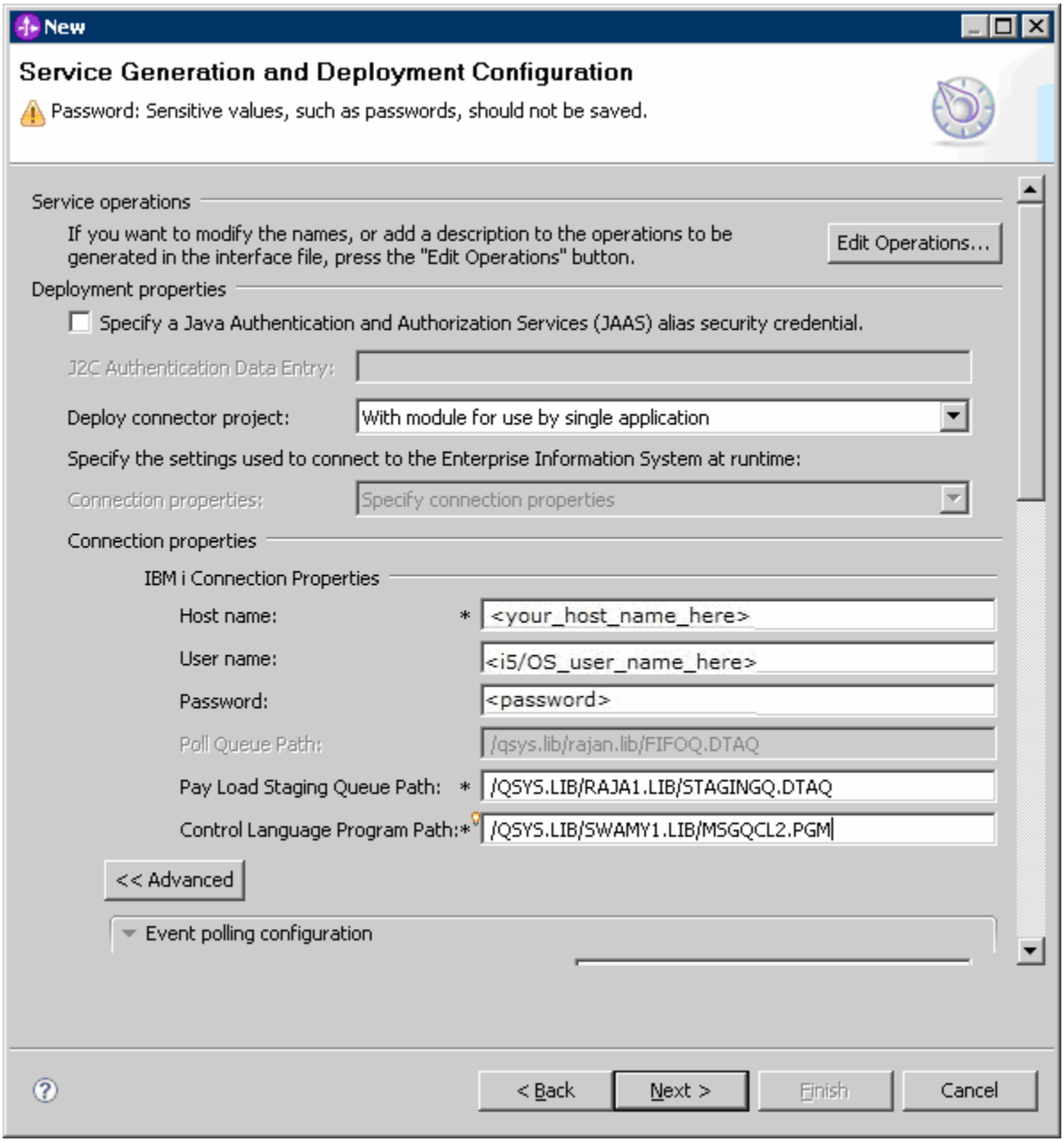

New
Service Generation and Deployment Configuration
Password: Sensitive values, such as passwords, should not be saved.
Service operations
If you want to modify the names, or add a description to the operations to be generated in the interface file, press the "Edit Operations" button.
Edit Operations...
Deployment properties
Specify a Java Authentication and Authorization Services (JAAS) alias security credential.
J2C Authentication Data Entry:
Deploy connector project:
With module for use by single application
Specify the settings used to connect to the Enterprise Information System at runtime:
Connection properties:
Specify connection properties
Connection properties
IBM i Connection Properties
Host name: * <your_host_name_here>
User name: <i5/OS_user_name_here>
Password: <password>
Poll Queue Path: /qsys.lib/rajan.lib/FIFOQ.DTAQ
Pay Load Staging Queue Path: * /QSYS.LIB/RAJA1.LIB/STAGINGQ.DTAQ
Control Language Program Path:* /QSYS.LIB/SWAMY1.LIB/MSGQCL2.PGM
<< Advanced
Event polling configuration
< Back
Next >
Finish
Cancel

Figure 38

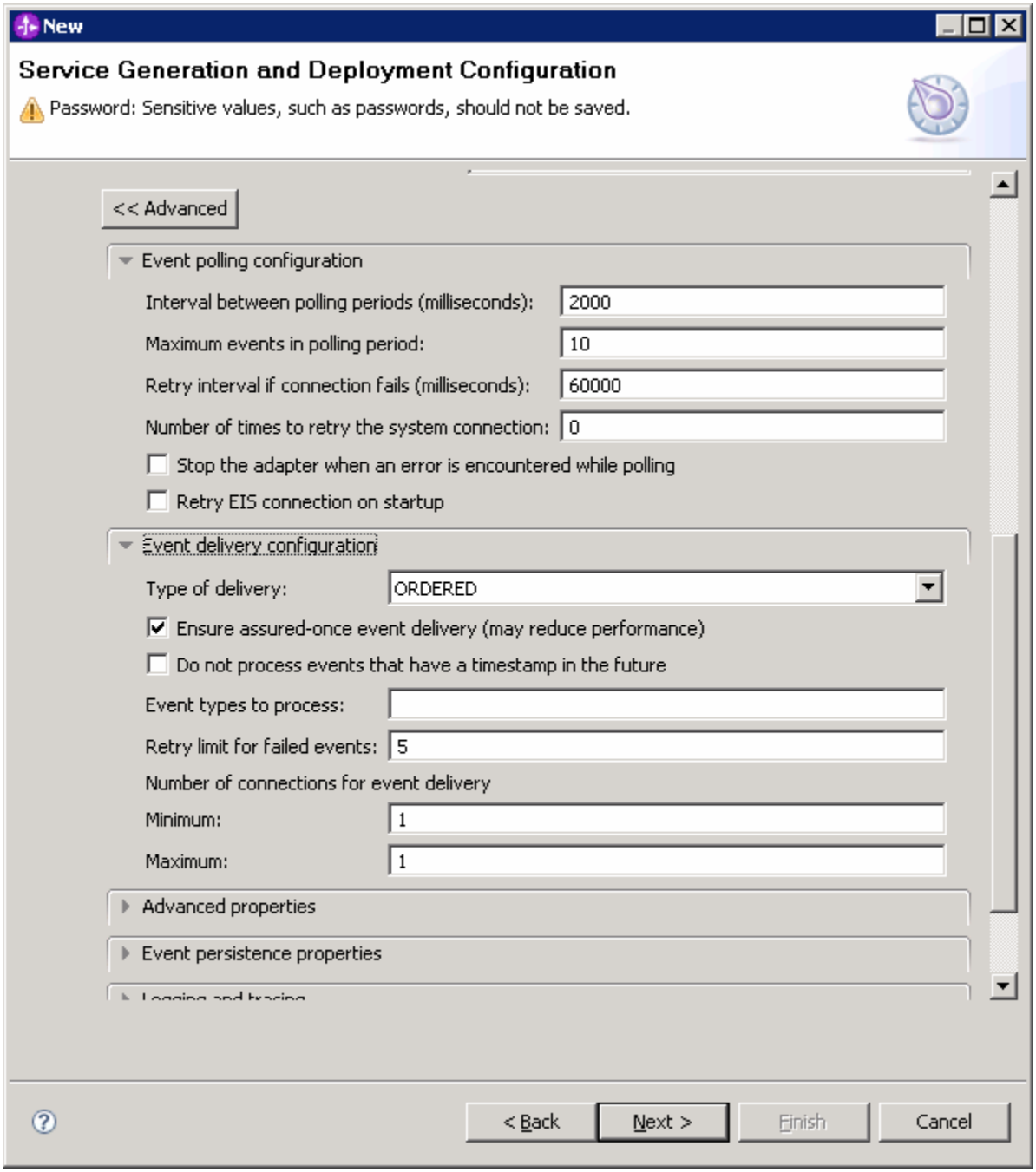

New
Service Generation and Deployment Configuration
Password: Sensitive values, such as passwords, should not be saved.
<< Advanced
Event polling configuration
Interval between polling periods (milliseconds):
2000
Maximum events in polling period:
10
Retry interval if connection fails (milliseconds):
60000
Number of times to retry the system connection:
0
Stop the adapter when an error is encountered while polling
Retry EIS connection on startup
Event delivery configuration
Type of delivery:
ORDERED
Ensure assured-once event delivery (may reduce performance)
Do not process events that have a timestamp in the future
Event types to process:
Retry limit for failed events:
5
Number of connections for event delivery
Minimum:
1
Maximum:
1
Advanced properties
Event persistence properties
< Back
Next >
Finish
Cancel

Figure 39

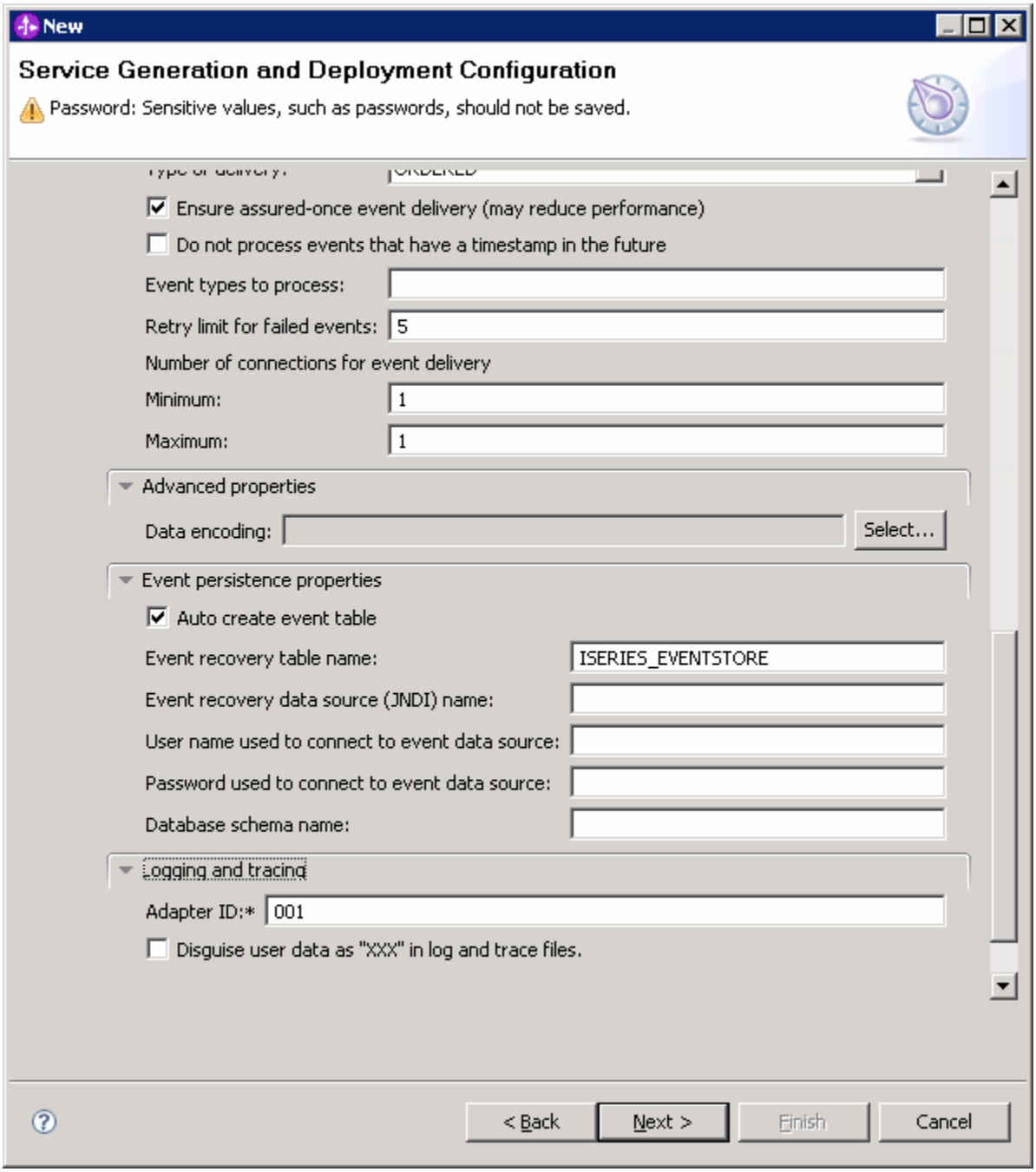


Figure 40

5. A default name is provided for the interface. Click **Finish** to complete the configuration.

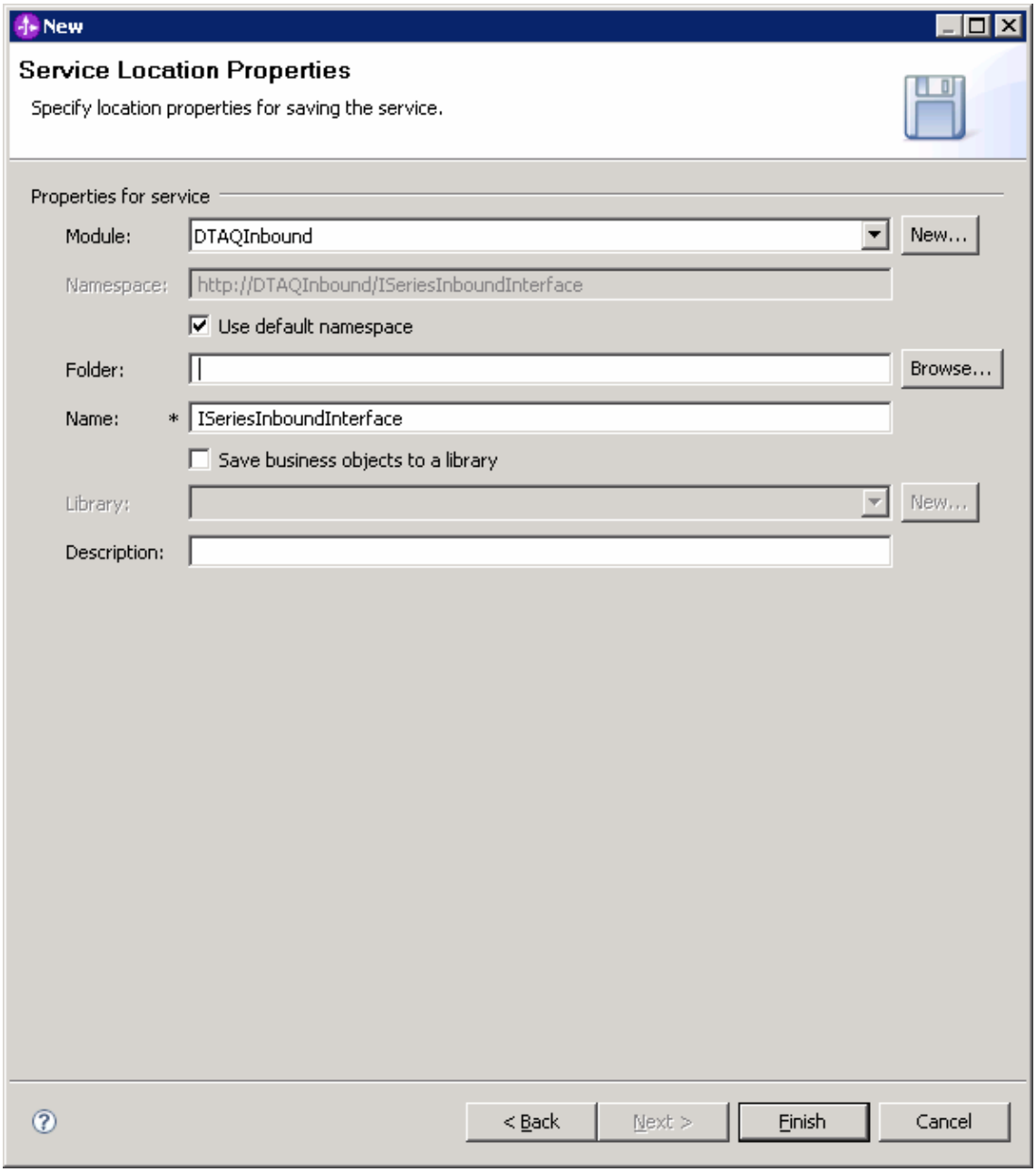


Figure 41

6. Verify the results by checking the artifacts generated in business integration view for the module as shown in below screen..

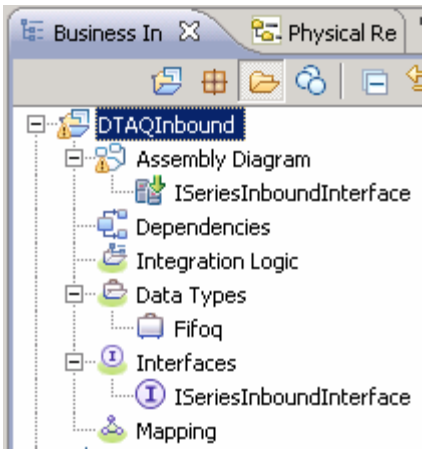


Figure 42

7. Drag and drop the Java Component from the Palette and draw a wire from **ISeriesInboundInterface** to **Component1.**

8. Implement the java component with the logic for processing the event..This can be done by double clicking the Component1.

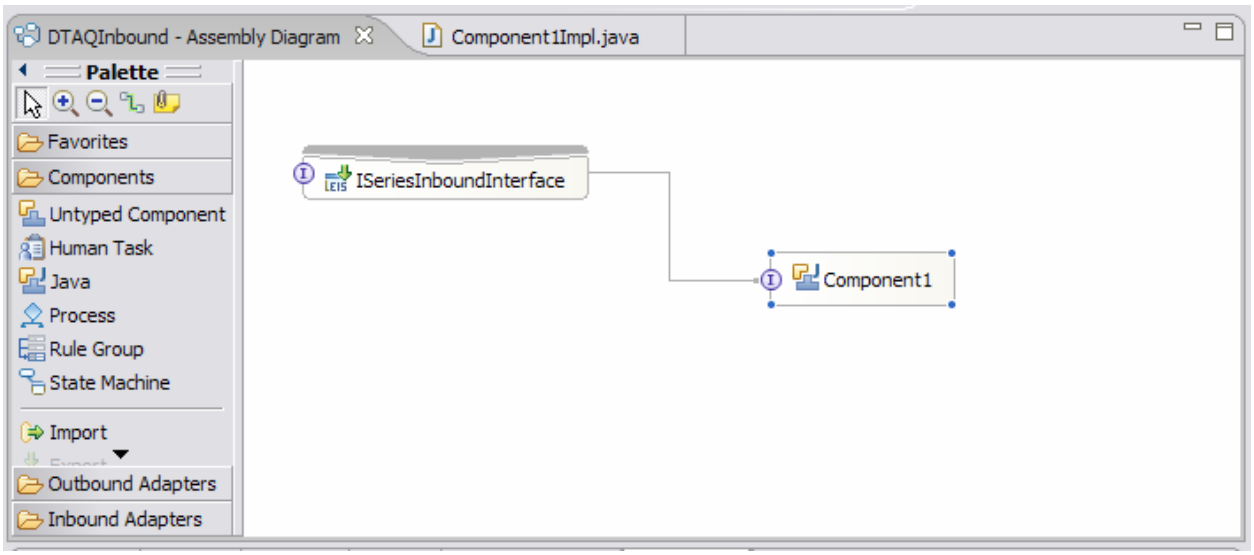
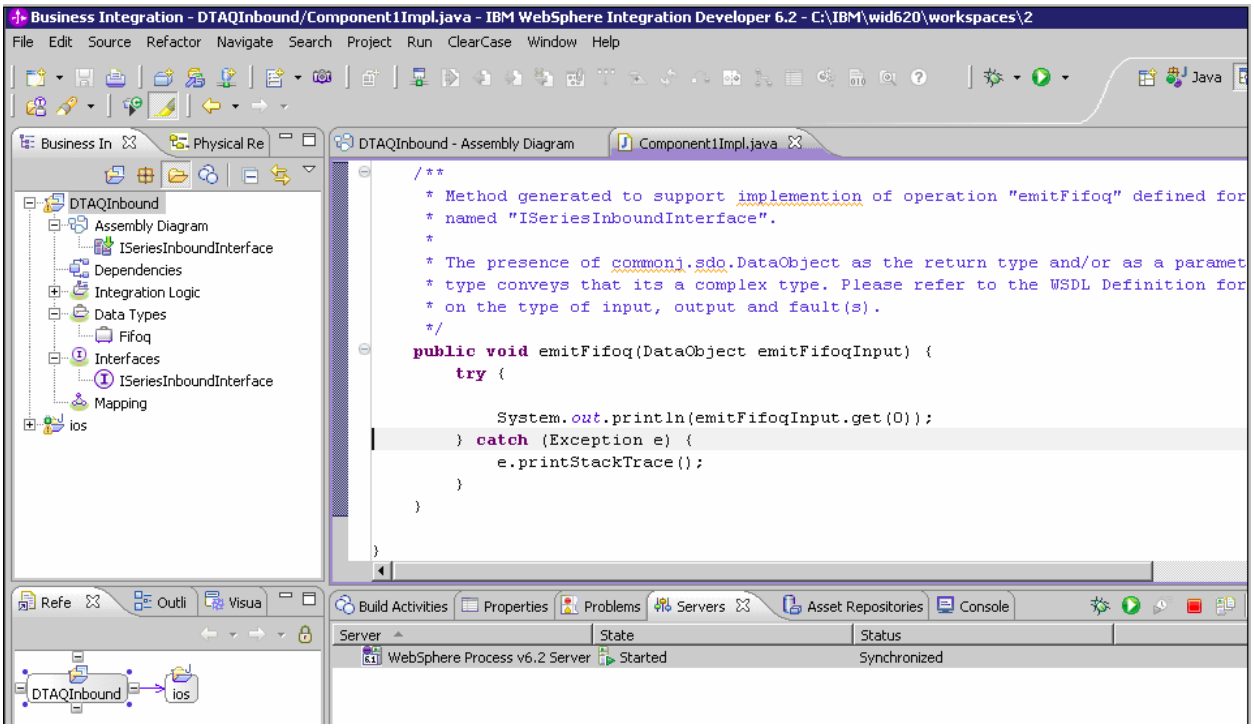


Figure 43

The below screen will be opened after double clicking the component1.



Deploying the module to the test environment

The result of running the external service wizard is an SCA module that contains an enterprise information system (EIS) import or export. Install this SCA module in the WebSphere Integration Developer integration test client.

1. Start WebSphere Process Server.

2. Add the module you created earlier to the server using the server panel in WebSphere Integration Developer. Right-click the server, and then select **Add and Remove Projects**.

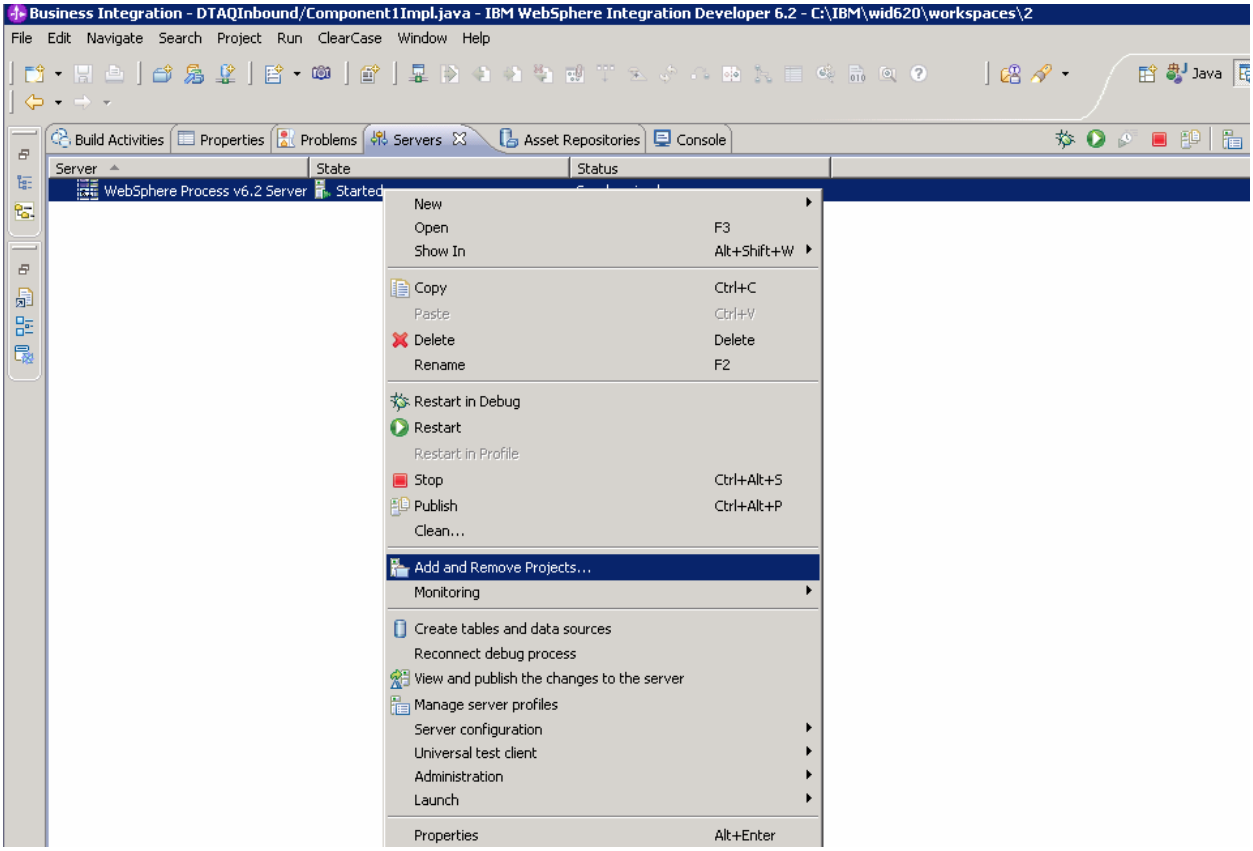


Figure 44

2. Select the DTAQInbound module and click on add button, then click **Finish**

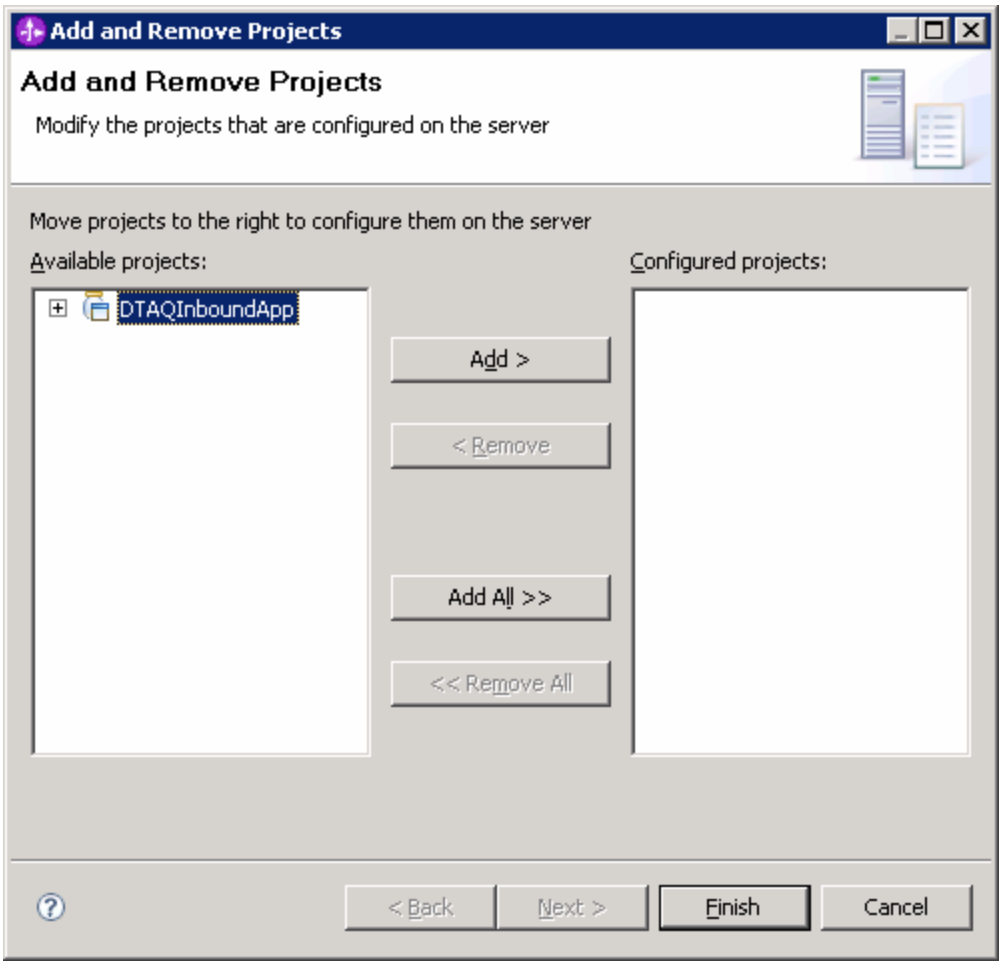

Add and Remove Projects
Add and Remove Projects
Modify the projects that are configured on the server
Move projects to the right to configure them on the server
Available projects:
DTAQInboundApp
Add >
< Remove
Add All >>
<< Remove All
Configured projects:
< Back
Next >
Finish
Cancel

Figure 45

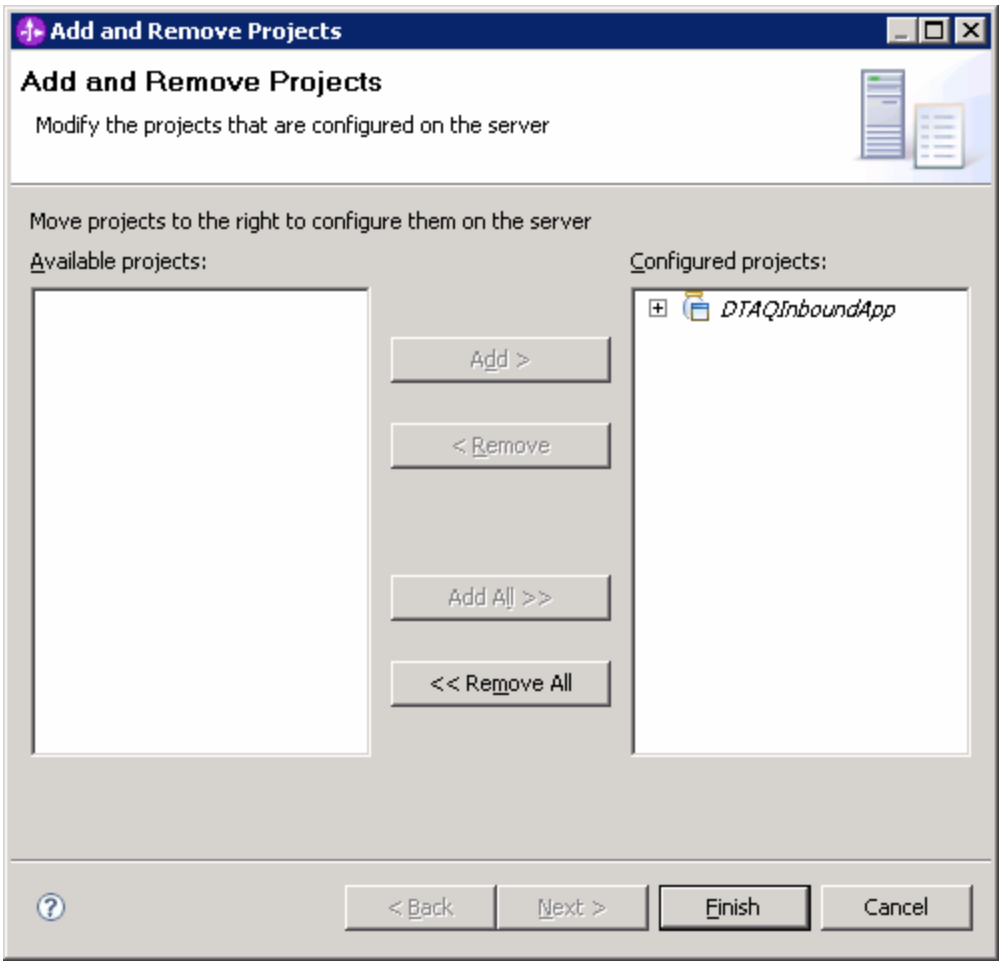


Figure 46

Testing the assembled adapter application

Test the assembled adapter application using the WebSphere Integration Developer integration test client.

1. Right click the adapter module, **DTAQInbound** then select **Test > Attach.**

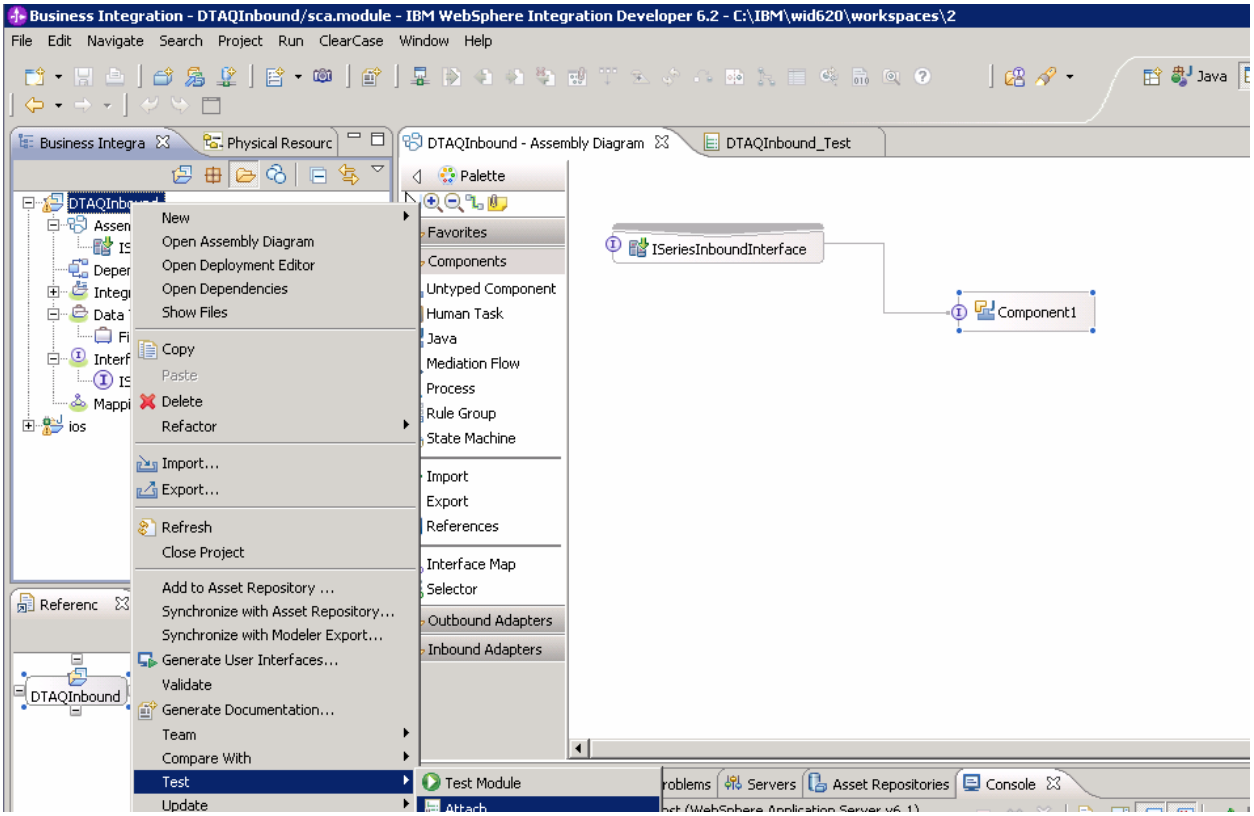


Figure 47

This will open the following screen.

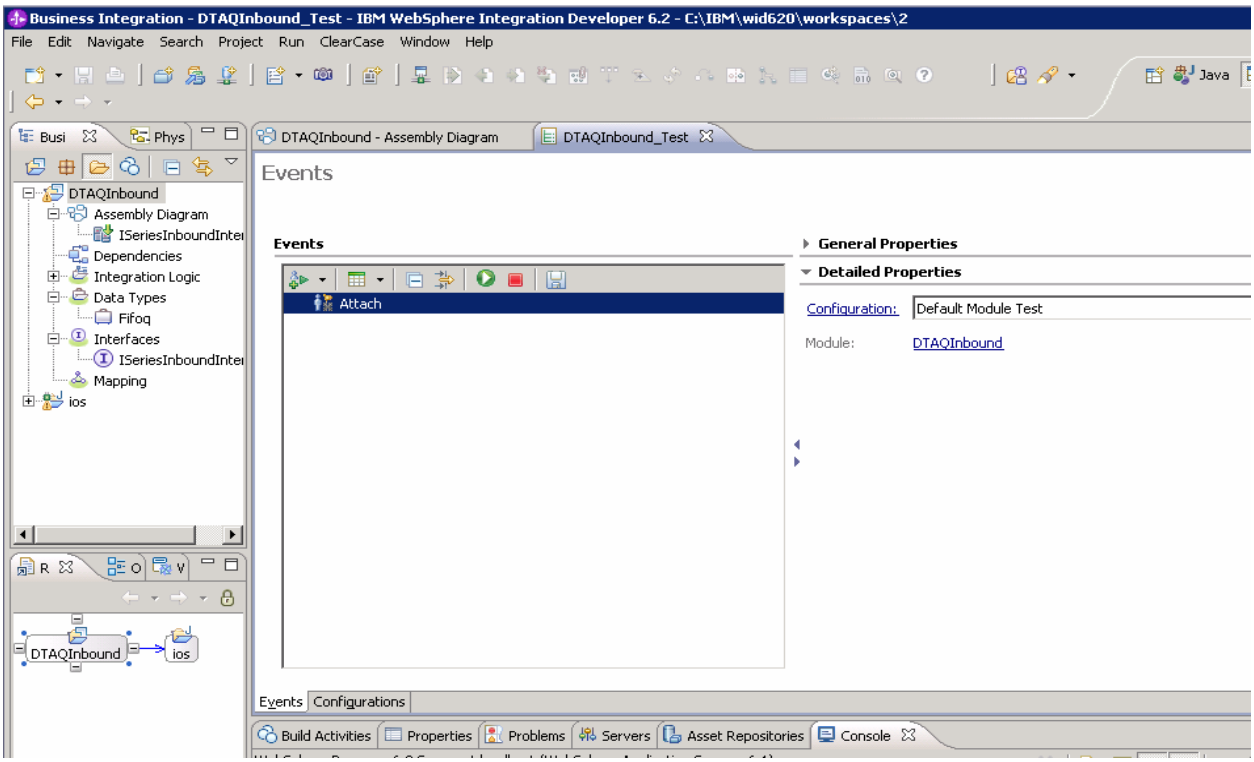


Figure 48

2. Run the service by clicking the continue button  which will deliver the event to the endpoint.

3. Verify this by checking for the endpoint messages in System.Out file of WebSphere Process Server or by viewing the server console output in WebSphere Integration Developer, as shown in the following screen or WebSphere Process Server logs.

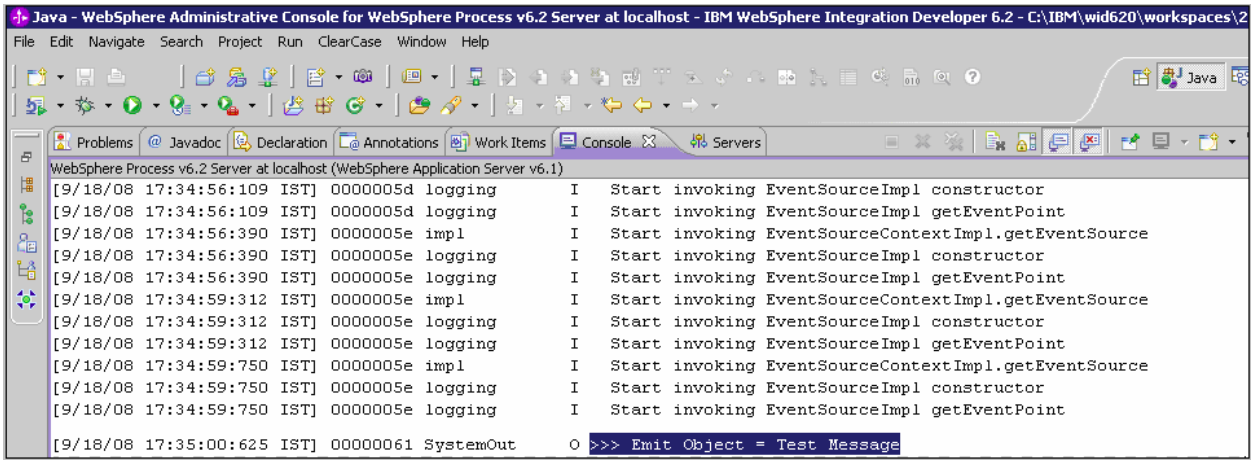


Figure 49

Chapter 8. Introduction to Outbound/Inbound for Keyed Data Queues Tutorial

WebSphere® Adapter for IBM® i V6.2 exchanges business data between system i and J2EE applications. The adapter retrieves data from and writes to the data queue and runs RPG programs.

The document demonstrates two scenarios:

1. PutQueue and GetQueue outbound operations for keyed data queues

2. Inbound operations for keyed data queues

These tutorials demonstrate how WebSphere Adapter for IBM i V6.2 performs inbound and outbound operations. To gain practical knowledge in setting up and deploying the adapter, complete one or more of the tutorials. Everything you need to complete each tutorial is contained in the tutorial. If you have performed the prerequisite tasks, you can complete each tutorial in less than an hour.

Learning objectives

After completing a tutorial, you should be able to perform the following tasks:

Create an adapter project in WebSphere Integration Developer.

Discover services and associated business objects from the enterprise information system (EIS) and make them part of the adapter project.

Create a deployable module that you install on WebSphere Process Server or WebSphere Enterprise Service Bus.

Test the module and validate the results.

Audience

These tutorials are for integration developers who design, assemble, test, and deploy business integration solutions.

Software Prerequisites

To use these tutorials, you must have the following applications installed:

WebSphere Integration Developer version 6.2

WebSphere Process Server version 6.2

Chapter 9. Preparing to run through the tutorial

Configuration prerequisites

Before doing any tutorial testing, complete the following task:

1. Create a keyed data queue on an IBM i system.

Extract the sample files

Replicas of the artifacts that you create when using the external service wizard are provided as sample files for your reference. Use these files to verify that the files you create with the external service wizard are correct.

Note that the values for the i5/OS host name, user name, and password in the sample artifacts are from the IBM test lab. You need to change or set them appropriately for your environment.

Following table lists the artifacts that are shipped as part of samples which user can use to verify when handling Keyed Data Queue.

1) DTAQOutbound.zip - Project Interchange file which includes generated sample artifacts for handling messages on Keyed Data Queues.

File name	Description
KDTAQOutbound	
KDTAQOutbound/ISeriesOutboundInterface.import	Contains the SCA import for the resource adapter.
KDTAQOutbound/Keyedq.xsd	Business object definition for the Customer business function.
KDTAQOutbound/EmptyGetQueueBO.xsd	Business object definition for the business object container.
KDTAQOutbound/ISeriesOutboundInterface.wsdl	Contains the WSDL file configured for

	the resource adapter

2) KDTAQInbound.zip - Project Interchange file which includes generated sample artifacts for polling messages on a Keyed Data Queue.

File name	Description
KDTAQInbound	
KDTAQInbound/ISeriesInboundInterface.export	Contains the SCA export for the resource adapter.
KDTAQInbound/Keyedtaqkeyedq.xsd	Business object definition for the Customer business function.
KDTAQInbound/ISeriesInboundInterface.wsdl	Contains the WSDL file configured for the resource adapter

Chapter 10. Outbound Processing –Writing (PutQueue) the message to and reading (GetQueue) the message from the keyed data queue

This tutorial demonstrates how WebSphere Adapter for IBM i V6.2 can be used to put and get a string message from the keyed data queue.

Configuring the adapter for outbound processing

Run the external service wizard to specify business objects, services, and the configuration to be used in this tutorial

Creating the project

1. Launch WebSphere Integration Developer by selecting Start > Programs > IBM WebSphere > Integration Developer 6.2.

2. In WebSphere Integration Developer, switch to the Business Integration perspective. To do this, click **Window > Open perspective > Other**. In the Select perspective window, select **Show all**, then select **Business Integration** from the list and click **OK**.

3. Create a new module by selecting **File > New > Module.**

4. Type `KDTAQOutbound` in the **Module Name** field, , and click **Finish.**

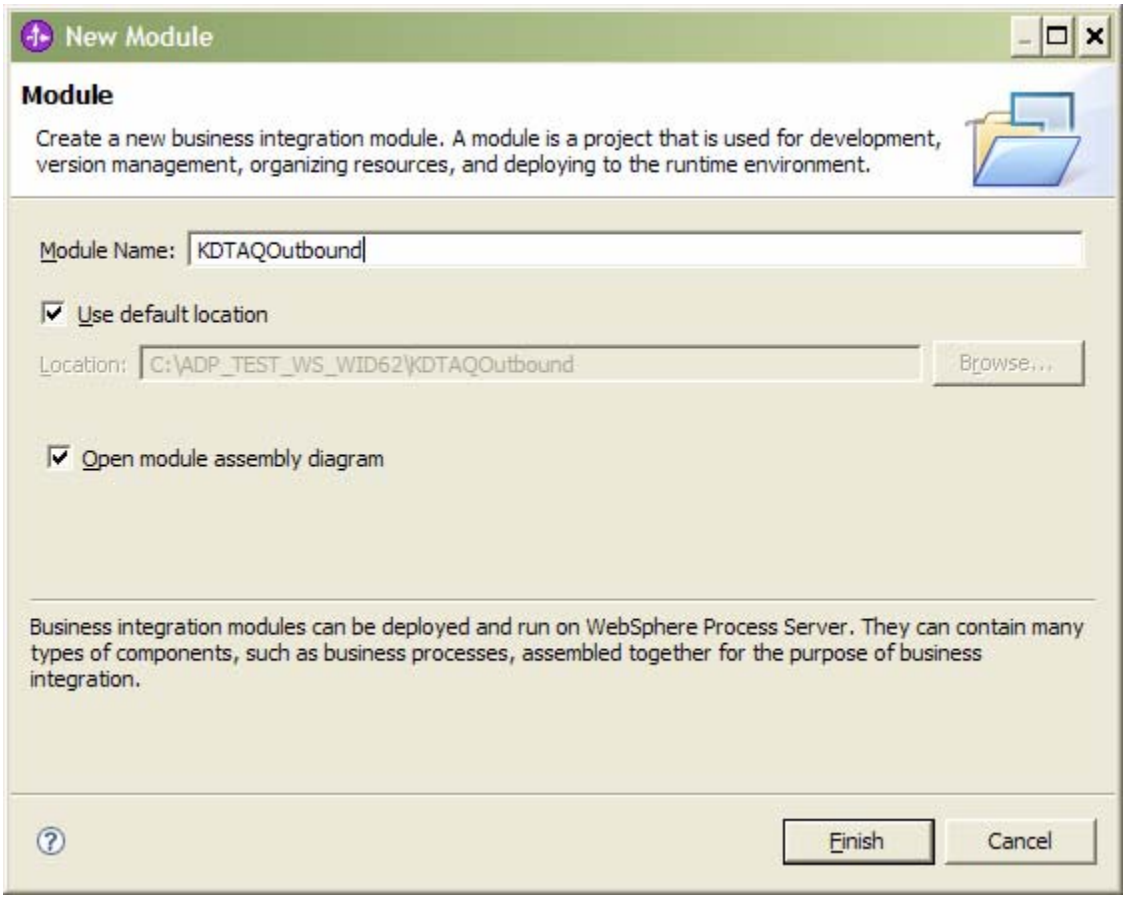


Figure 1

5. Launch the external service wizard by selecting File > New > Other > Business Integration > External Service.

6. Ensure that **Adapters** is selected and click **Next.**

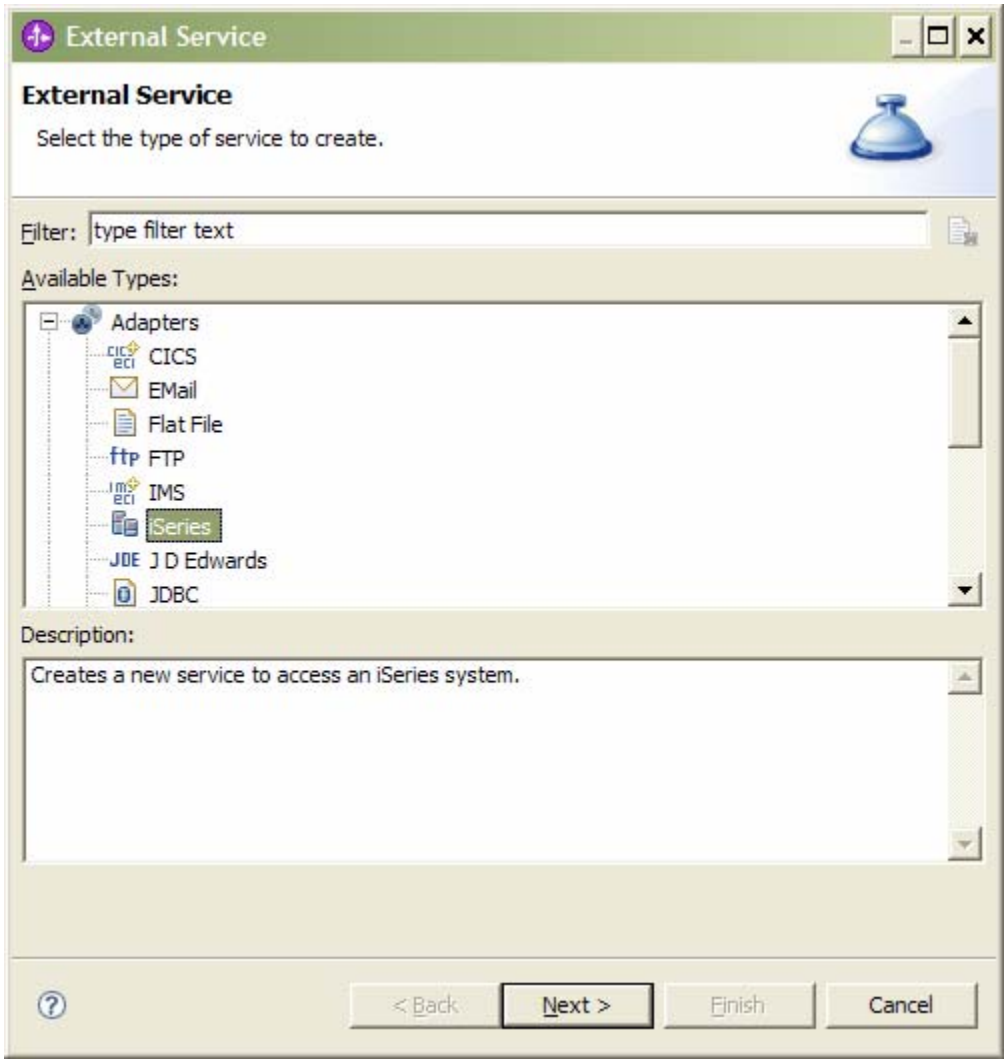


Figure 2

7. Click IBM WebSphere Adapter for IBM i and click Next.

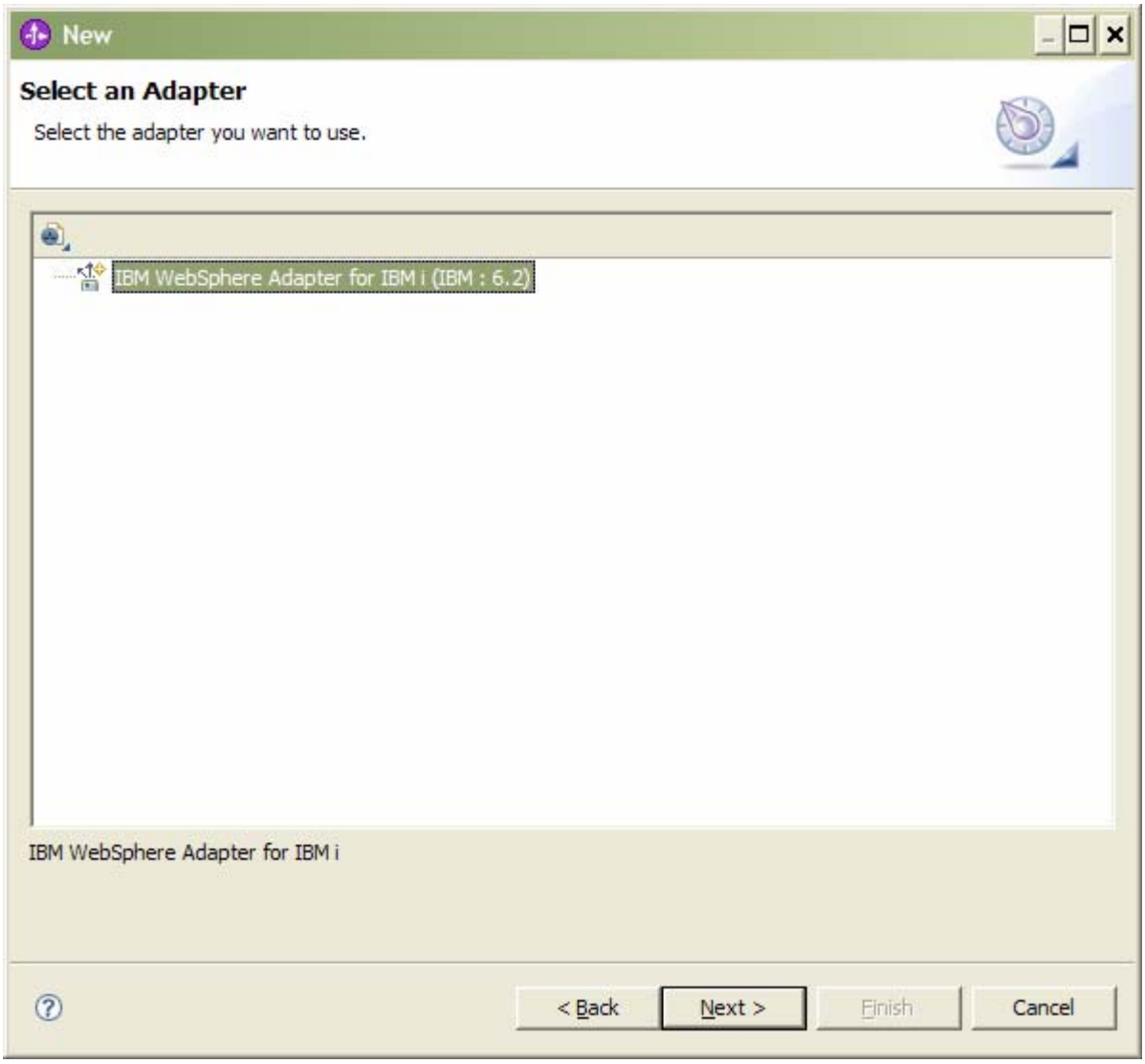


Figure 3

8. Ensure that **ios.rar** is selected and click **Next.**

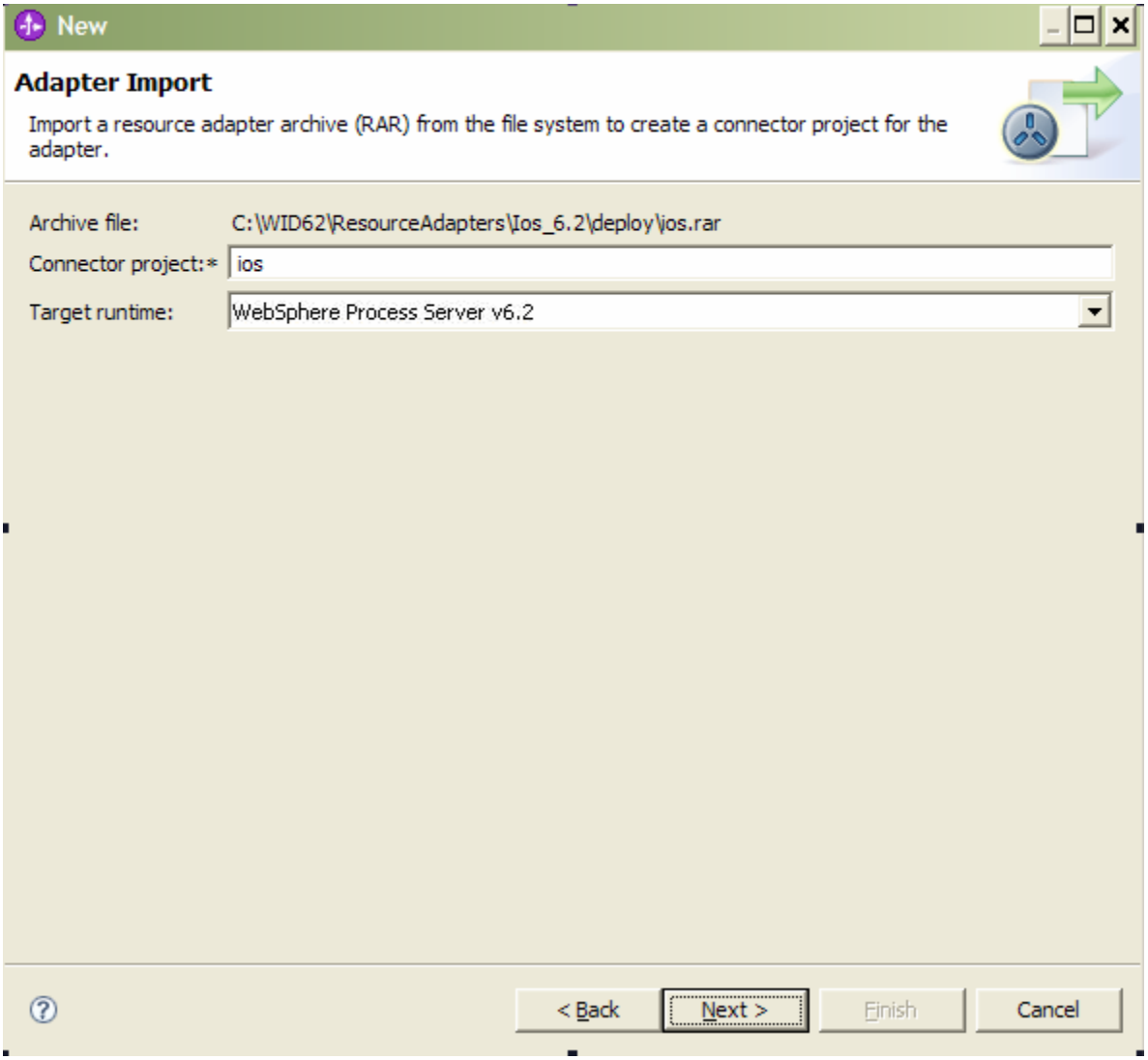


Figure 4

9. Select **Outbound** and click **Next**

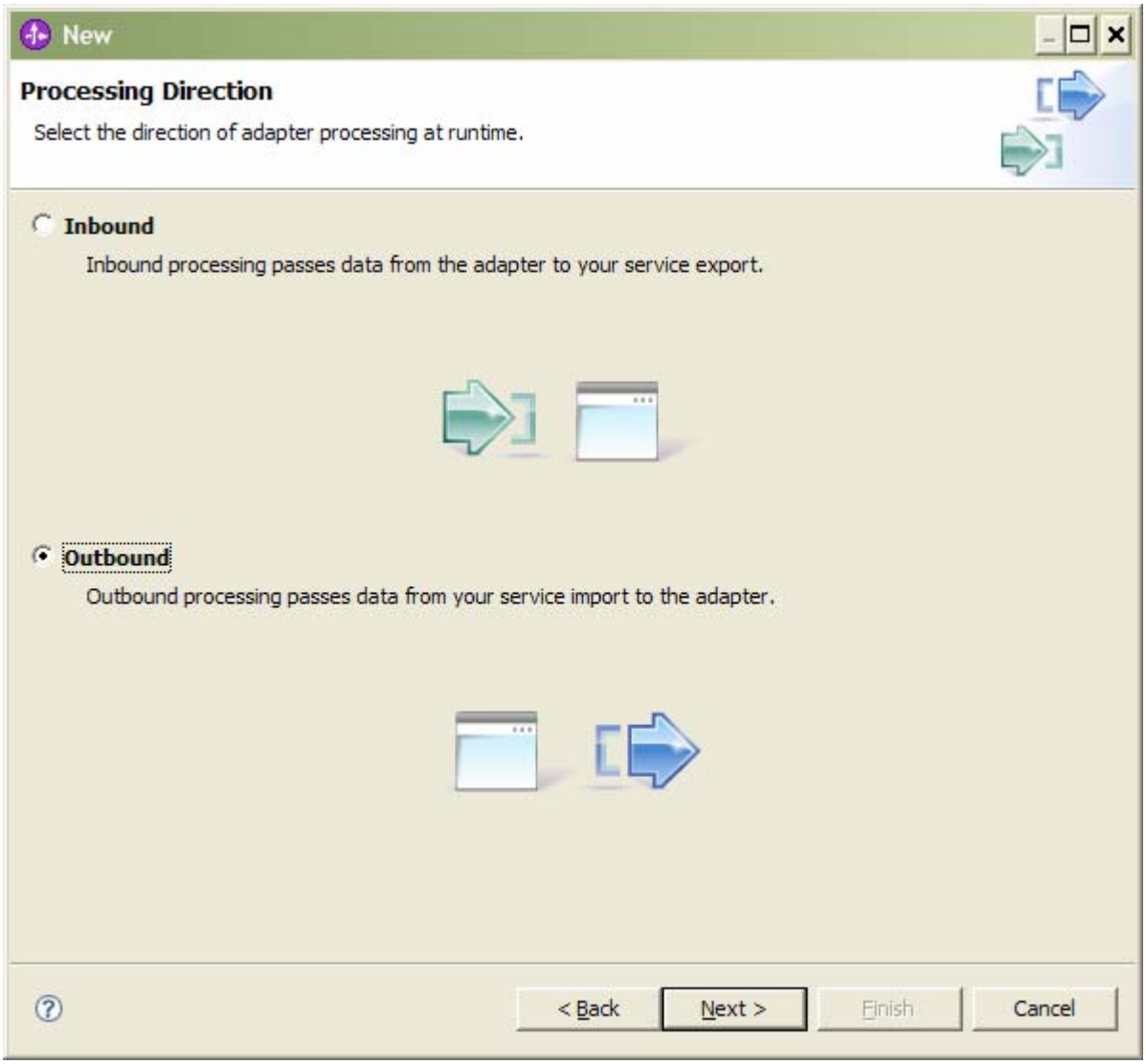


Figure 5

Setting connection properties for the external service wizard

1. In the Discovery Configuration window, enter the IBM i server connection information such as the host name, user name, password, path to the folder on IBM i for object discovery and the object type to discover to keyed data queue.

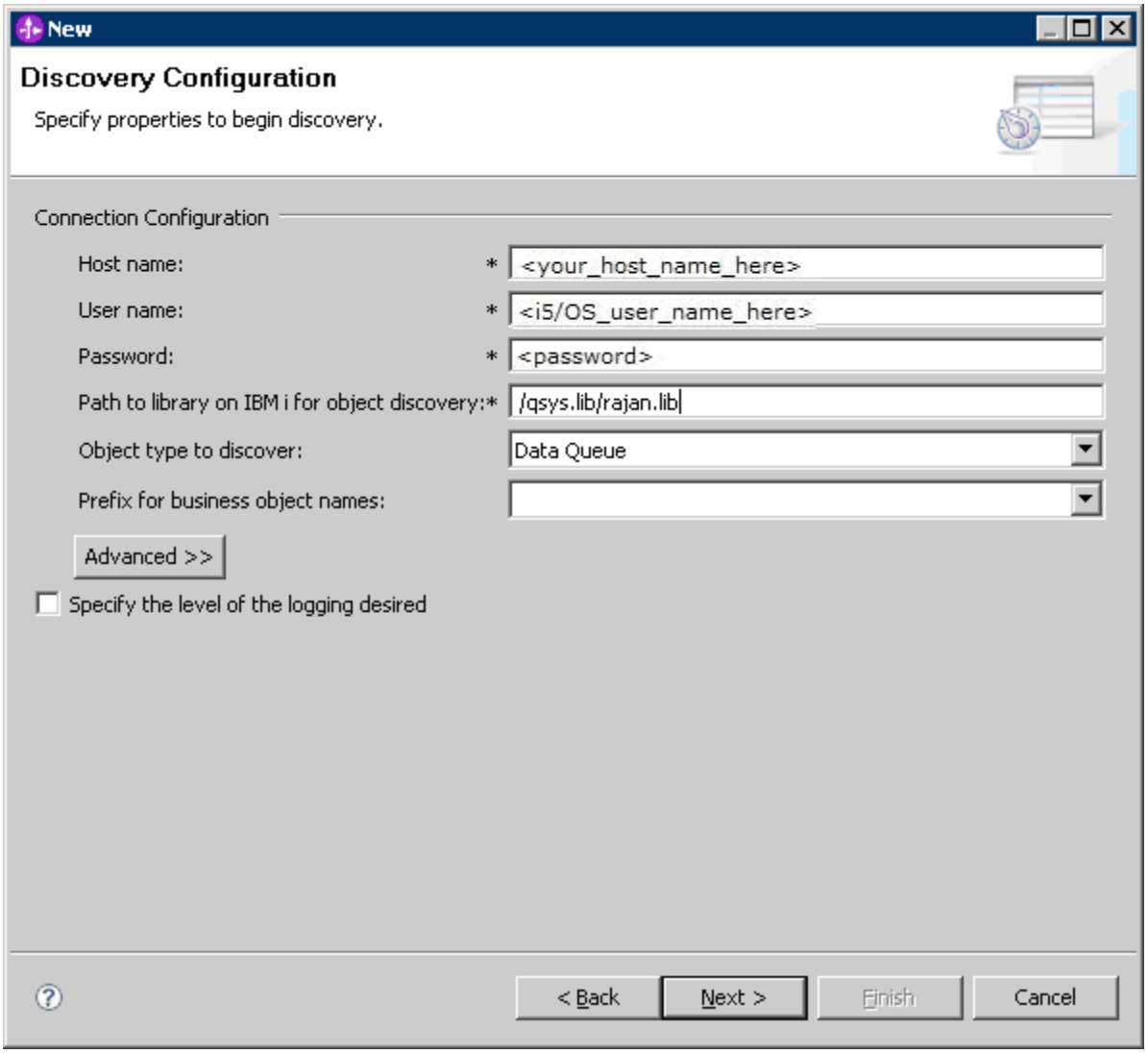


Figure 6

2. After all properties are entered, click **Next.**

Generating business object definitions and related artifacts

1. On the **Object Discovery and Selection** panel, all data queues will be displayed for the path to selected folder location.

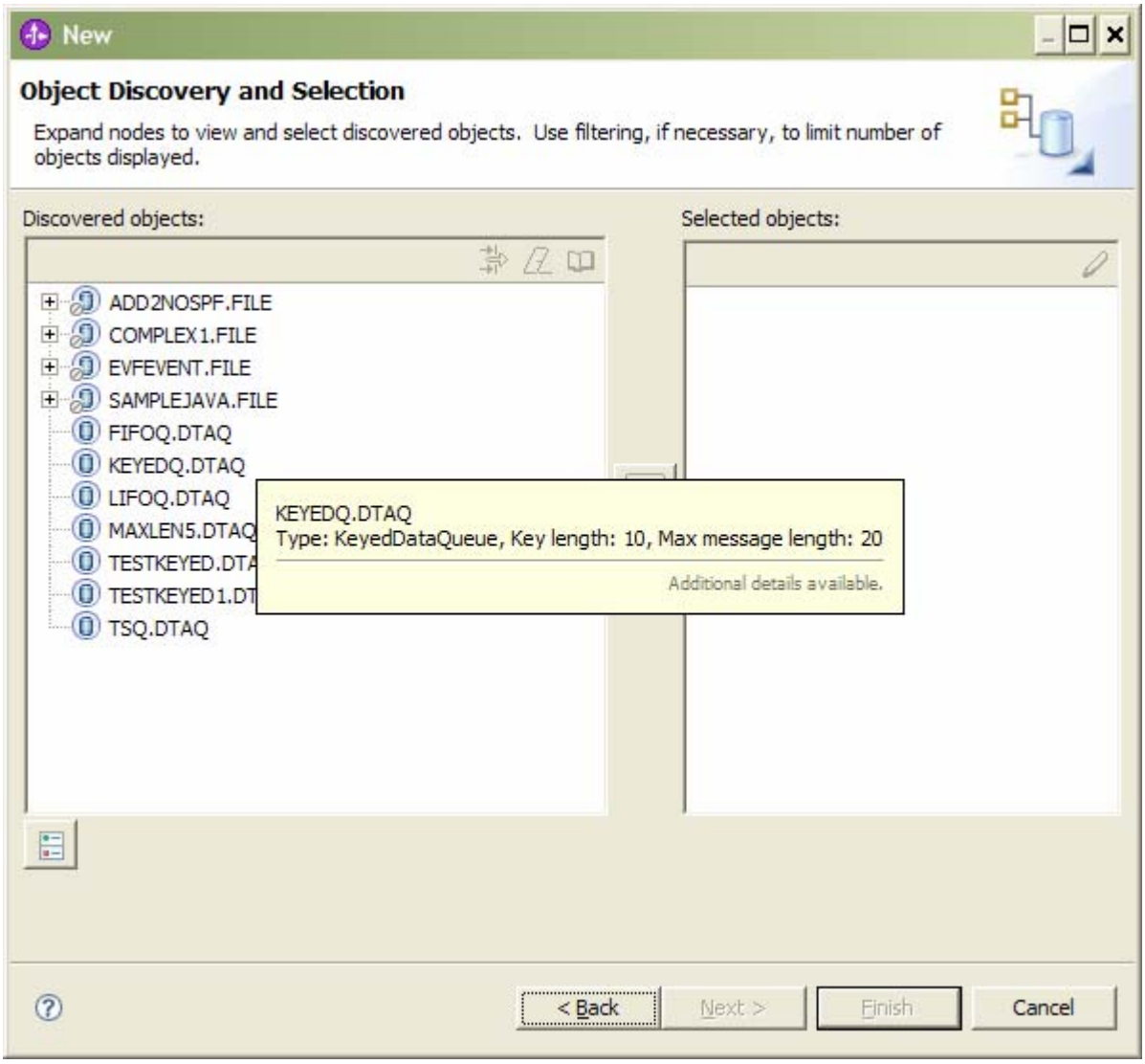


Figure 7

2. Select the keyed data queue from the left Discovered object pane and click **Next** to move it to the Selected objects pane.

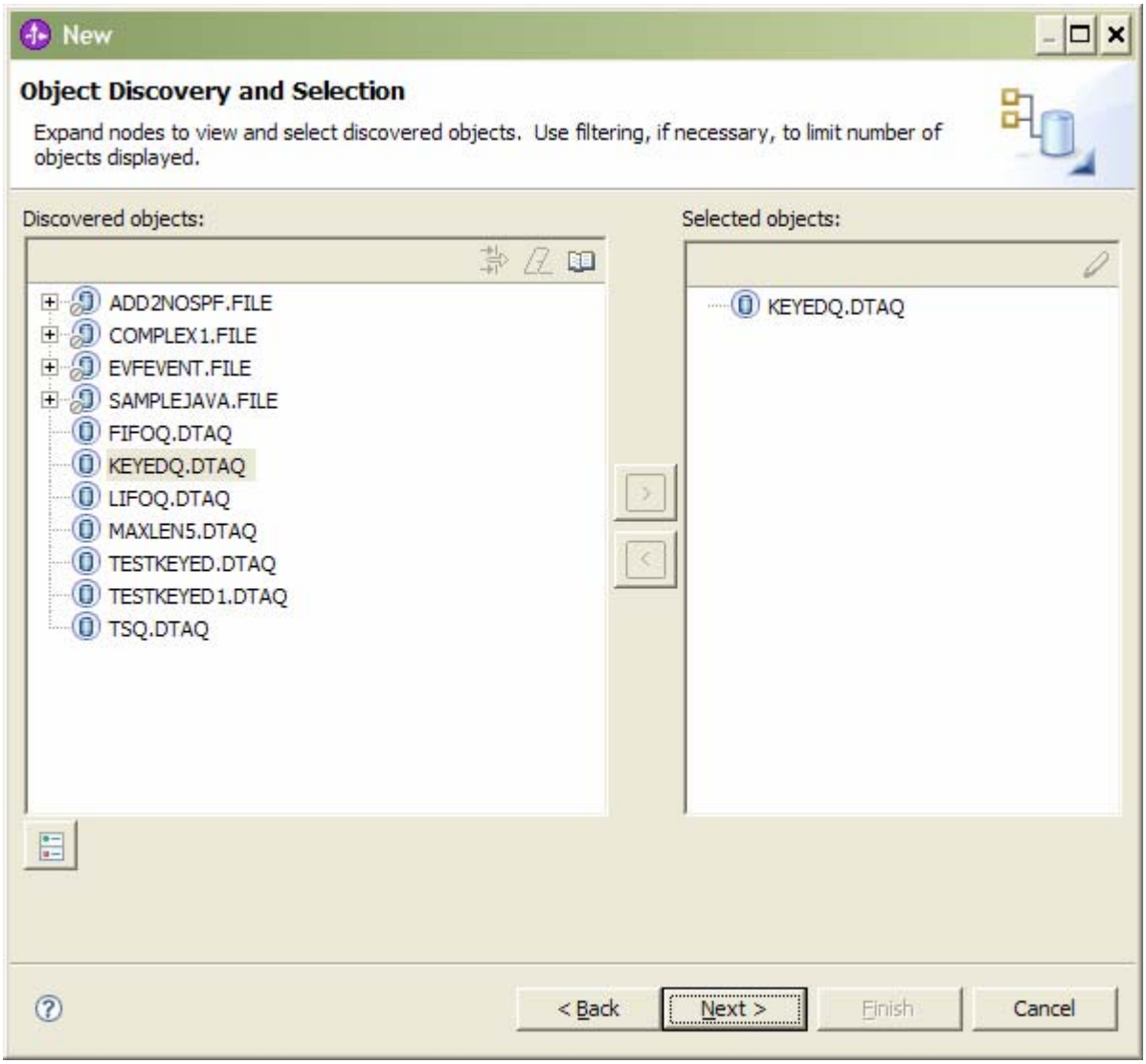


Figure 8

3. In the Configure Composite Properties window, the operations PutQueue and GetQueue are listed in the **Operations for selected business objects** pane. Select the operations for the data queue by clicking the **Add** button. Click **Next**.

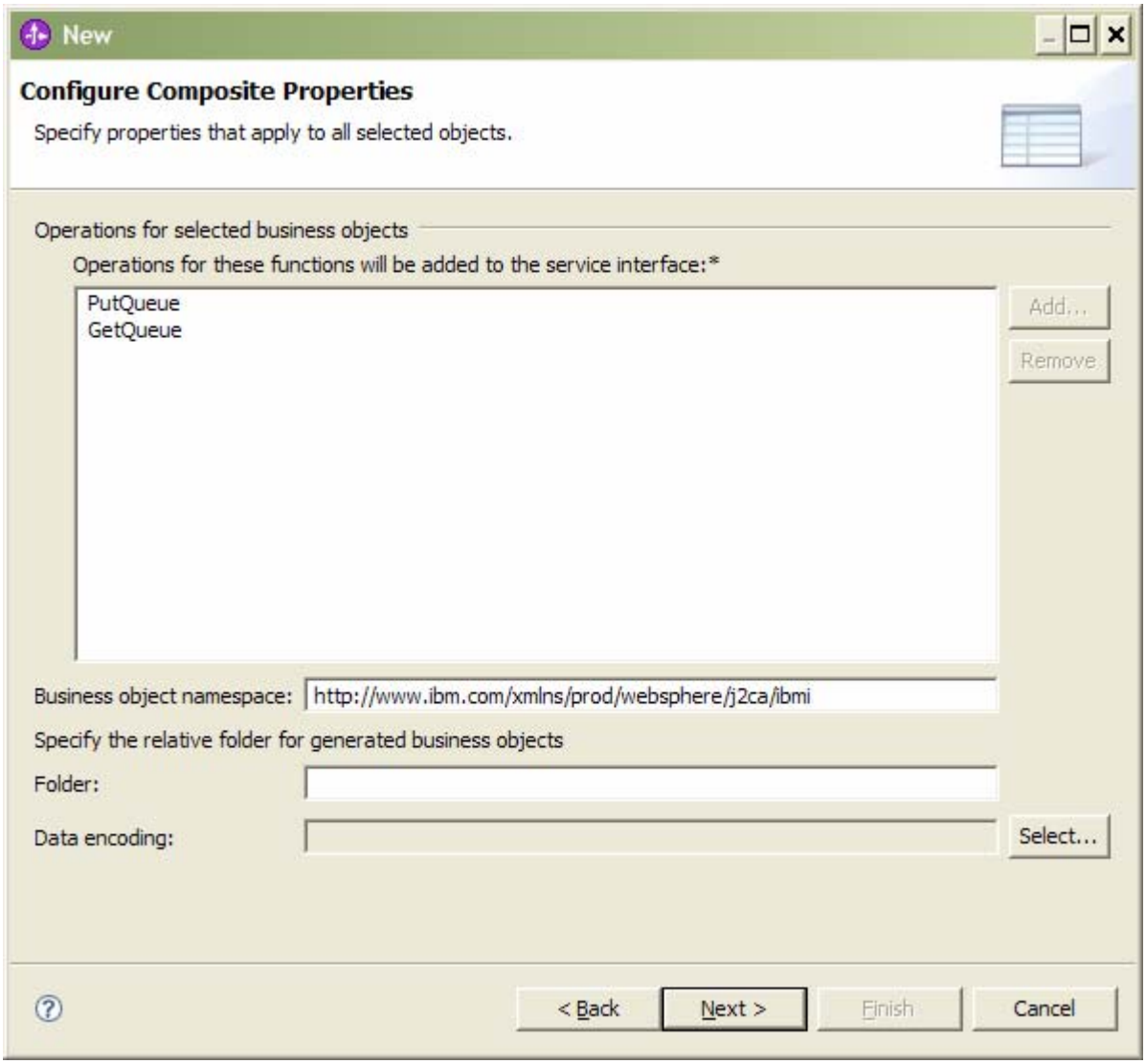


Figure 9

4. Clear the Specify a Java Authentication and Authorization Services (JAAS) alias security credential check box. The Host name and user name fields will be populated. Type the password in the Password field and click Next.

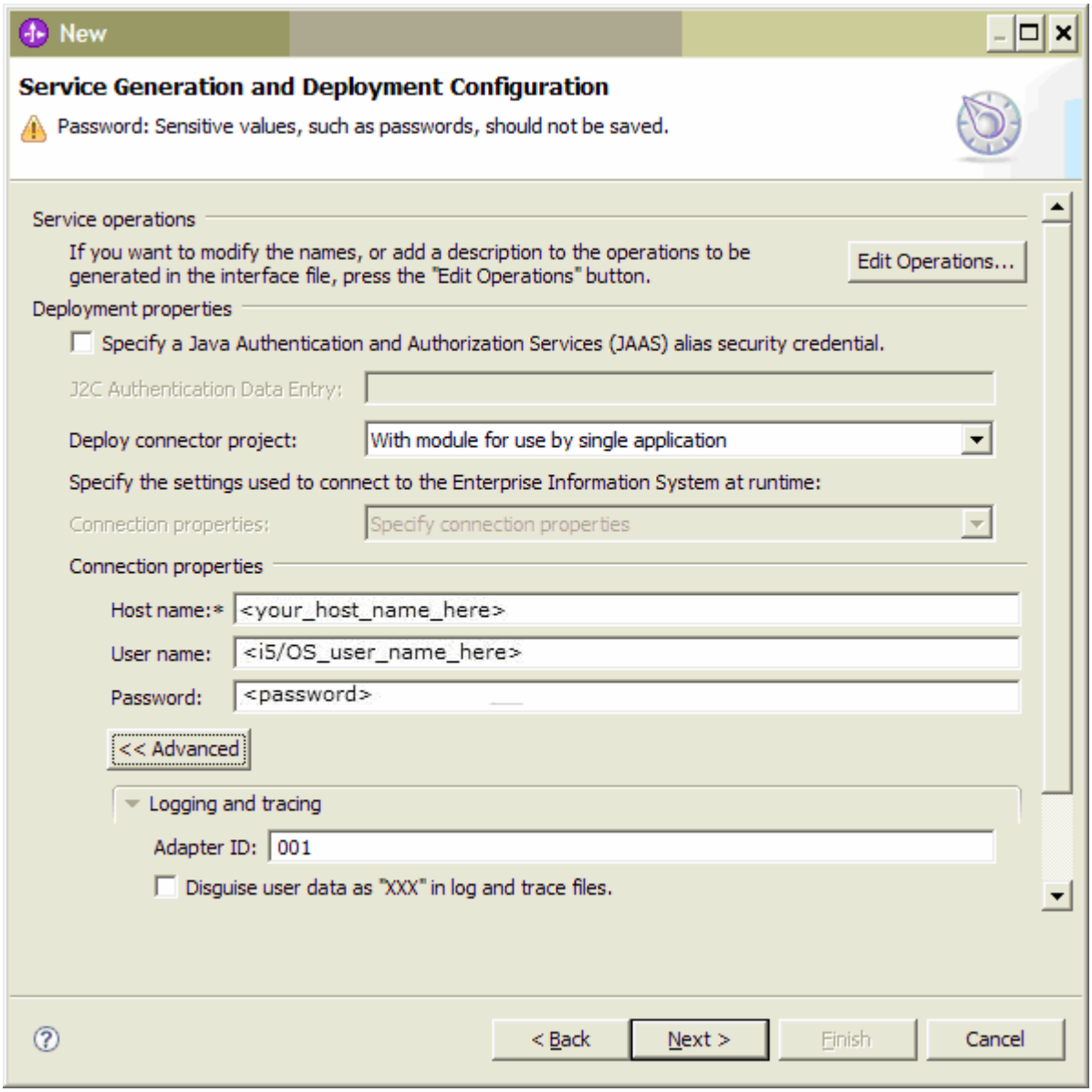


Figure 10

5. A default name is provided for the interface. Click **Finish** to complete the configuration.

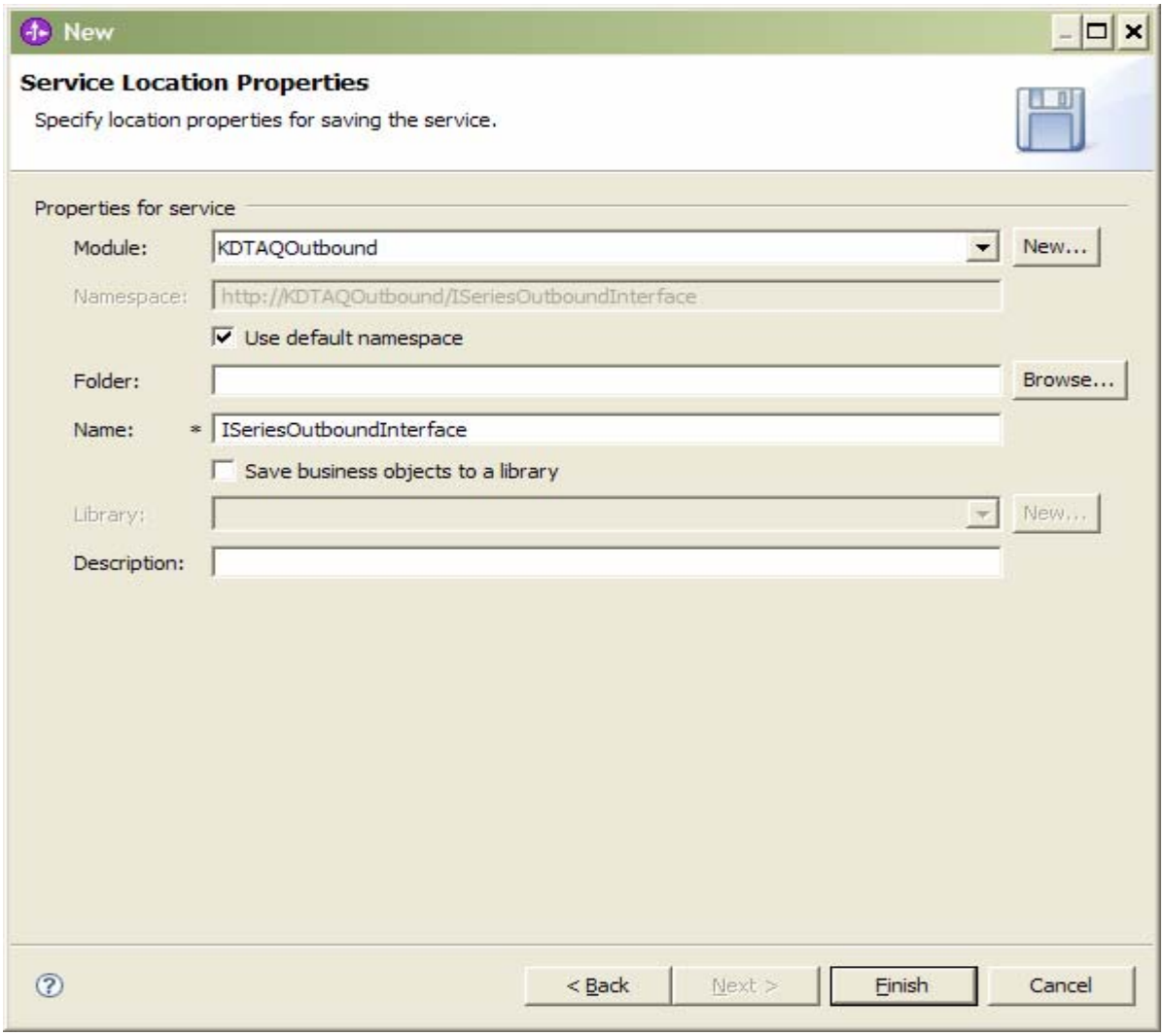


Figure 11

6. The generated module components look as shown below.

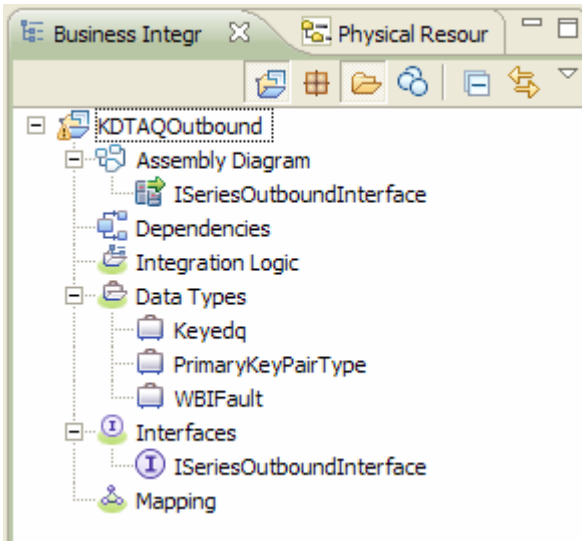


Figure 12

Deploying the module to the test environment

The result of running the external service wizard is an SCA module that contains an EIS import or export. Now you will install this SCA module in the WebSphere Integration Developer integration test client.

1. Add the module you created earlier to the server by using the server panel in WebSphere Integration Developer. Right-click the server, and then select **Add and Remove Projects**.

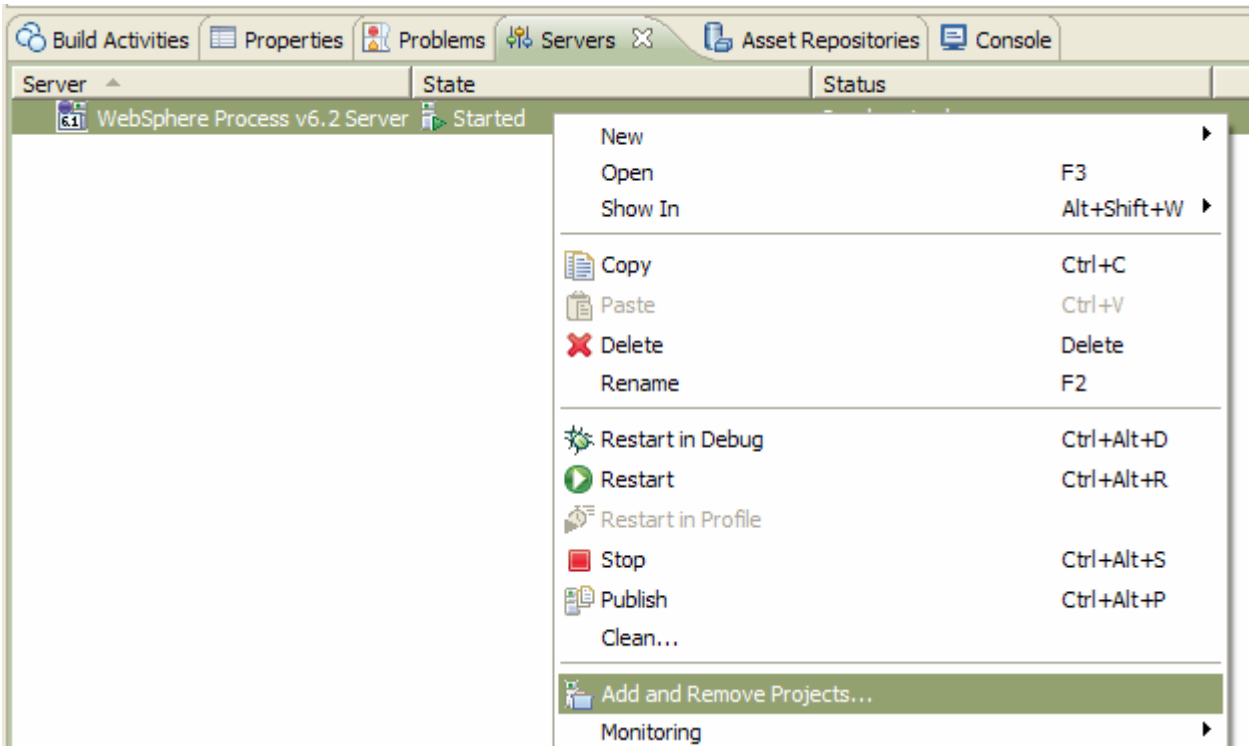


Figure 13

2. Add the SCA module to the server by selecting it and clicking Add. Then click **Finish**

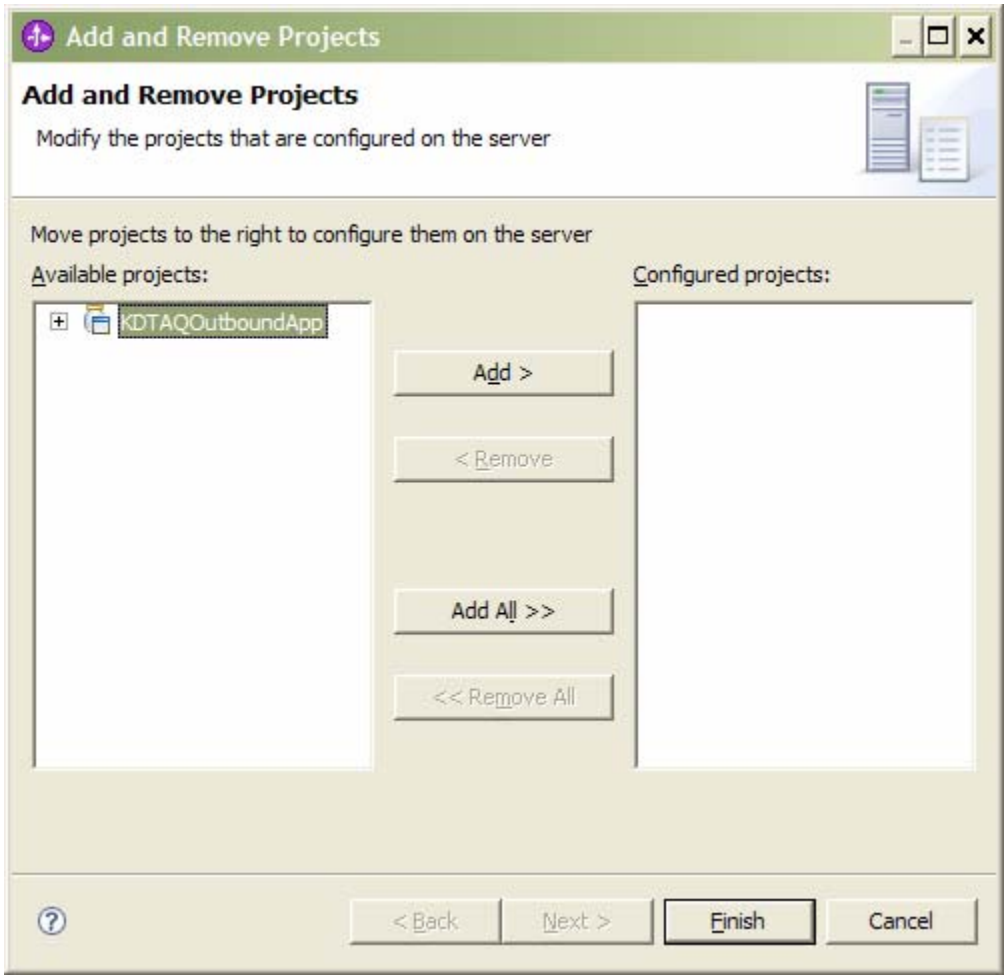

Add and Remove Projects
Add and Remove Projects
Modify the projects that are configured on the server
Move projects to the right to configure them on the server
Available projects:
KDTAQOutboundApp
Add >
< Remove
Add All >>
<< Remove All
Configured projects:
< Back
Next >
Finish
Cancel

Figure 14

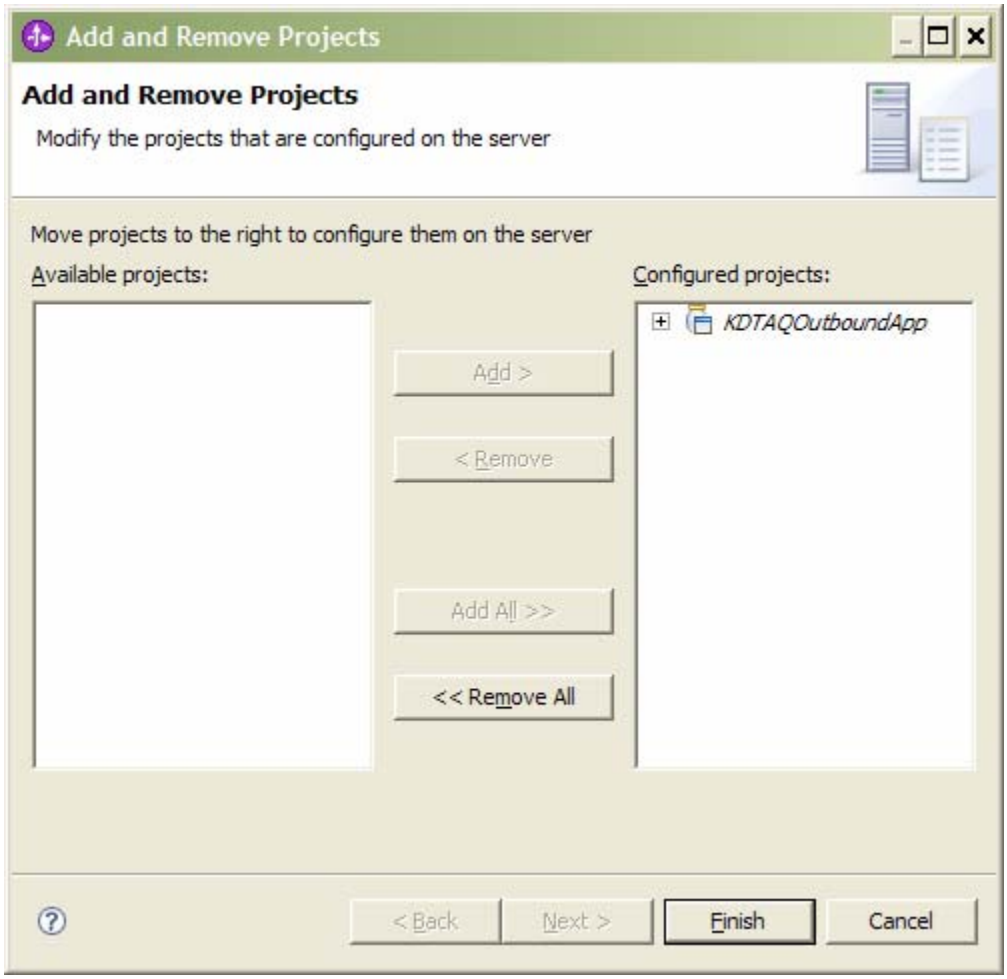


Figure 15

Testing the assembled adapter application

1. Test the assembled adapter application using the WebSphere Integration Developer integration test client.

2. Select the service you want, and click **Test > Test Module**.

3. Select the operation as **putqueueKeyedq** from the operation list.

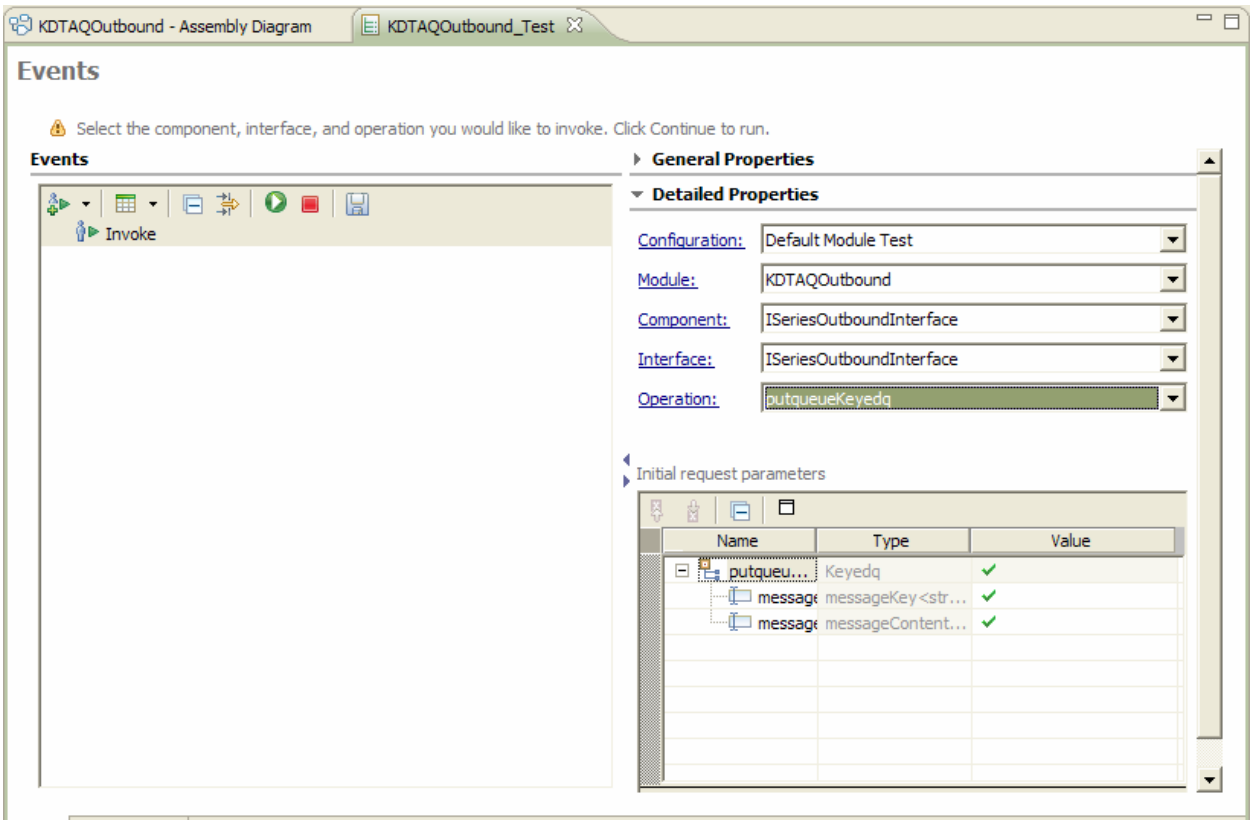


Figure 16

4. Populate values for input business objects, by selecting the operation **putQueueKeyedq.**

5. Specify the required parameters (messageKey, messageContent) to perform the PutQueue operation on the Keyedq data queue.

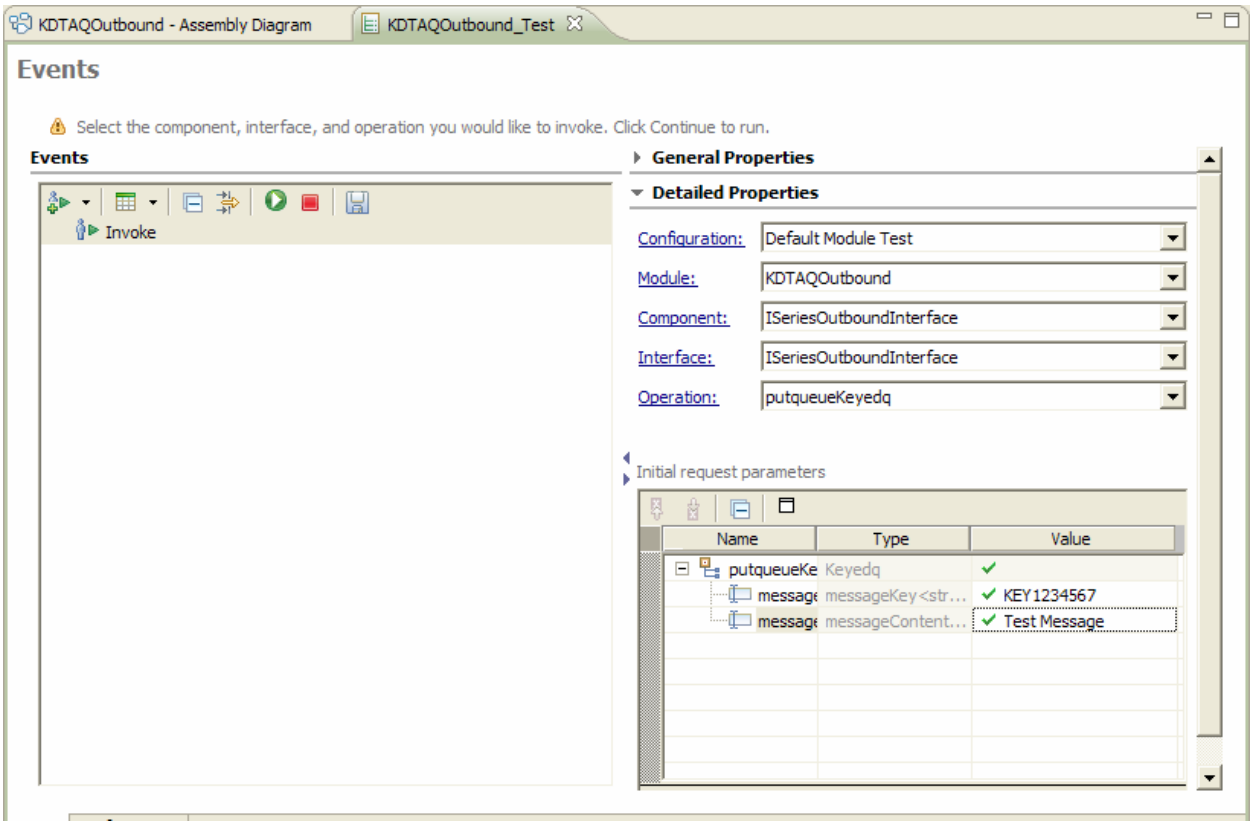


Figure 17

6. Run the service by clicking the continue icon (). Select the **Use this as the default and do not ask again** check box and click **Finish**.

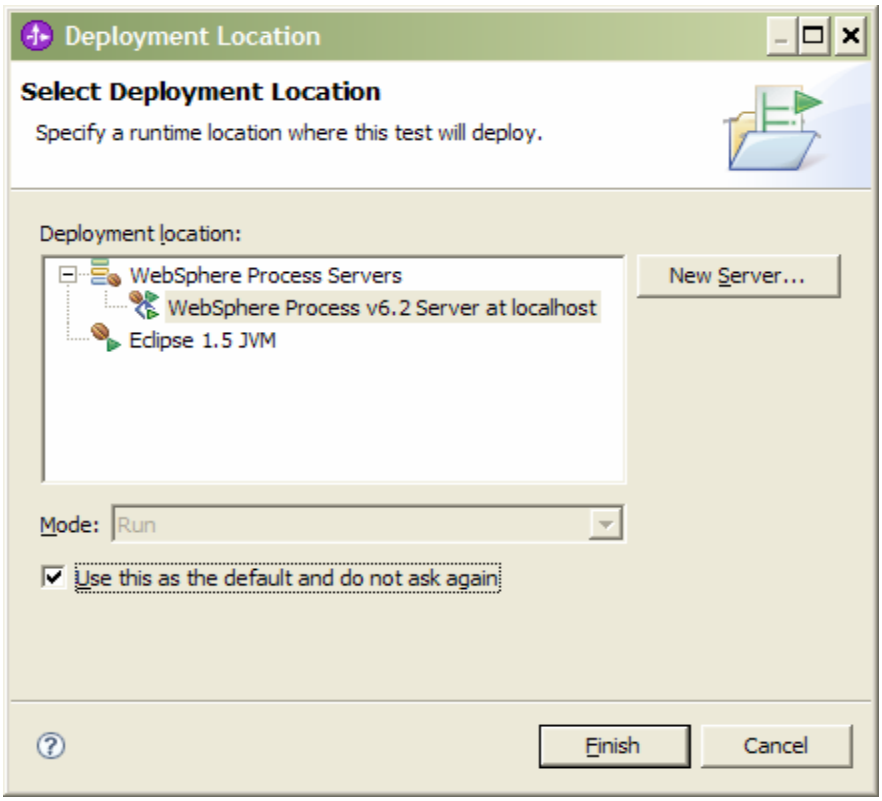


Figure 18

The output looks as shown below.

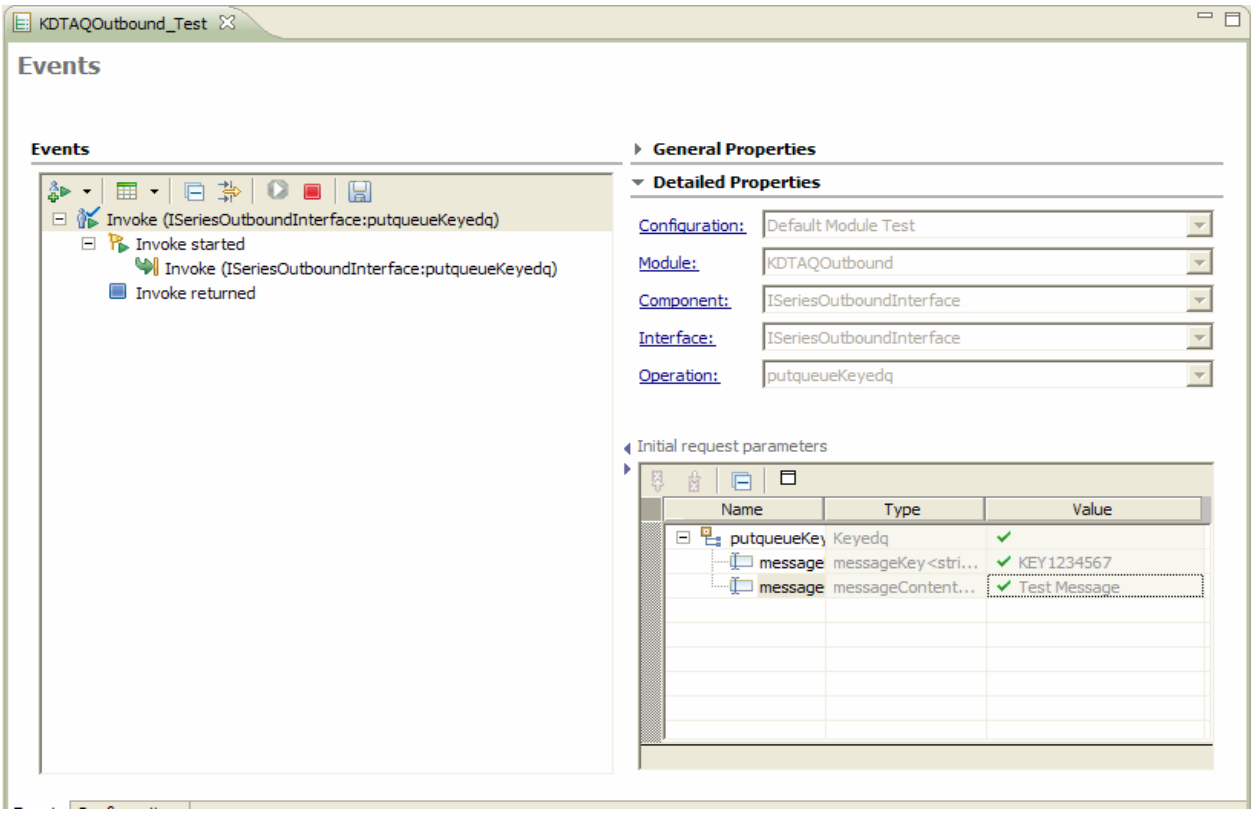


Figure 19

7. To test the GetQueue operation on data queue click the  button. Another test component is opened. Select the **putqueueKeyedq** from the **Operation** list and click  .

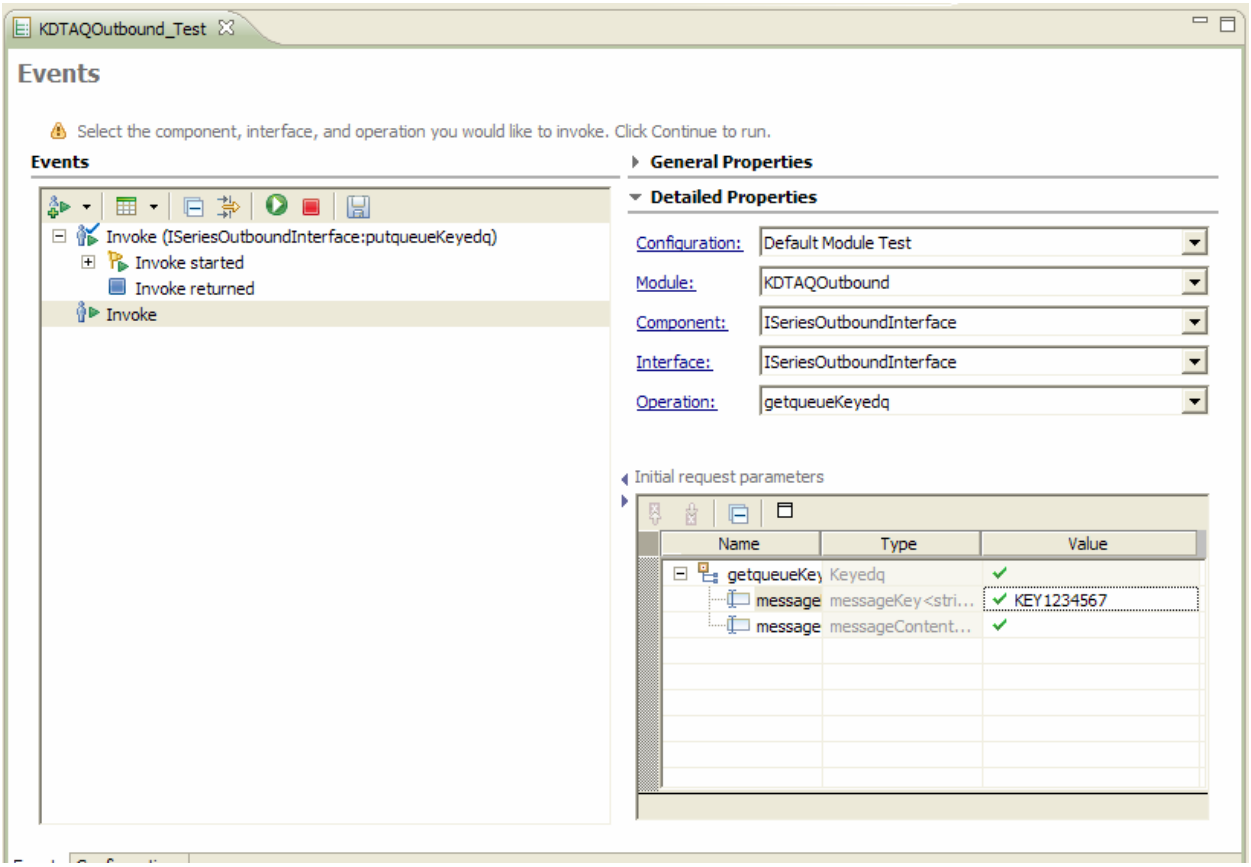


Figure 20

The message from the data queue is displayed as return message, as shown in the following figure

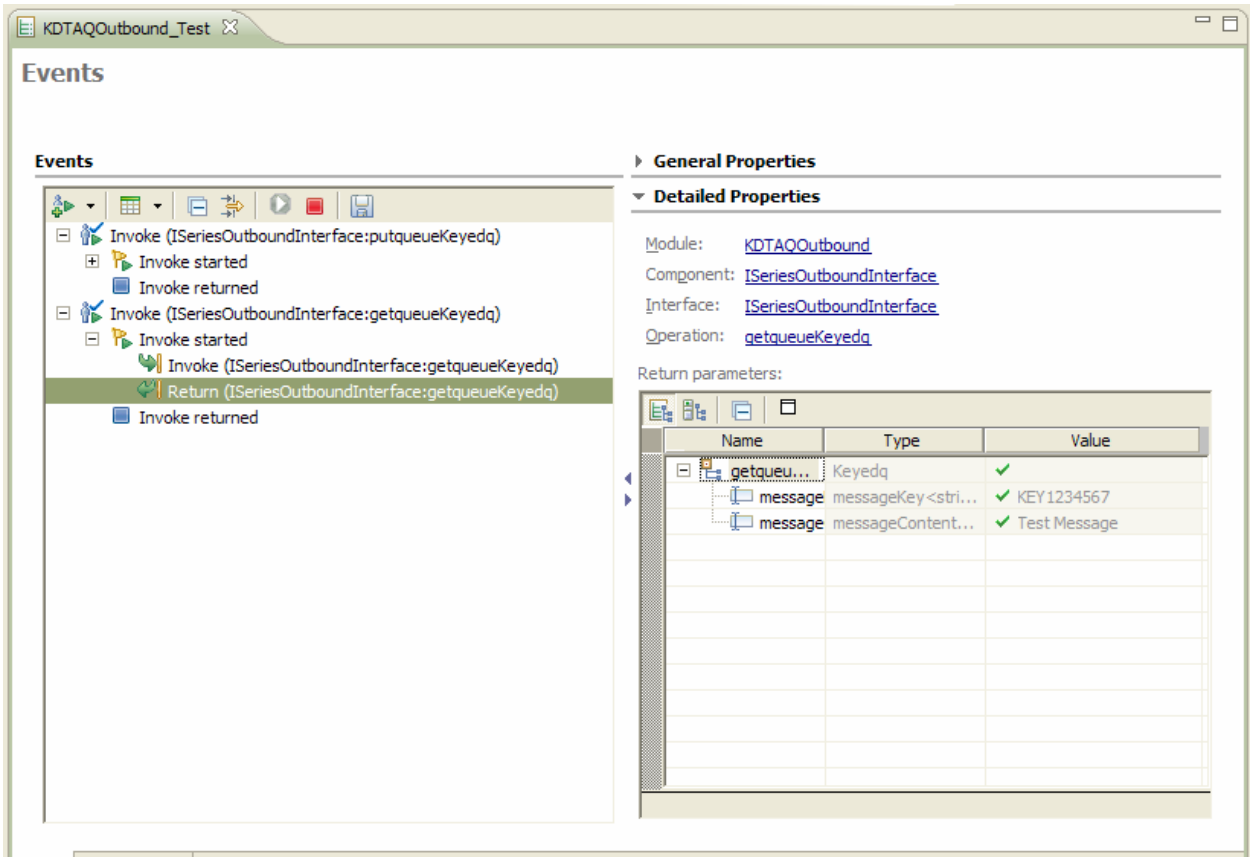

KDTAQOutbound_Test
Events
Events
Invoke (ISeriesOutboundInterface:putqueueKeyedq)
Invoke started
Invoke returned
Invoke (ISeriesOutboundInterface:getqueueKeyedq)
Invoke started
Invoke (ISeriesOutboundInterface:getqueueKeyedq)
Return (ISeriesOutboundInterface:getqueueKeyedq)
Invoke returned
General Properties
Detailed Properties
Module: KDTAQOutbound
Component: ISeriesOutboundInterface
Interface: ISeriesOutboundInterface
Operation: getqueueKeyedq
Return parameters:
Name
Type
Value
getqueu...
Keyedq
message
messageKey<stri...
KEY1234567
message
messageContent...
Test Message

Figure 21

Chapter 11. Inbound processing on the keyed data queue

This tutorial demonstrates how WebSphere Adapter for IBM i V6.2.0.0 can be used to poll the keyed data queue and send the messages to the endpoint application.

Configuring the adapter for inbound processing

Run the external service wizard to specify business objects, services, and the configuration to be used in this tutorial.

Creating the project

1. Launch WebSphere Integration Developer by clicking Start > Programs > IBM WebSphere > Integration Developer 6.2.

2. In WebSphere Integration Developer, switch to the Business Integration perspective by clicking **Window > Open perspective > Other**. In the Select perspective window, select **Show all**, then select **Business Integration** from the list and click **OK**.

3. Create a new module by clicking **File > New > Module.**

4. Type **KDTAQInbound** in the Module Name field and click **Finish.**

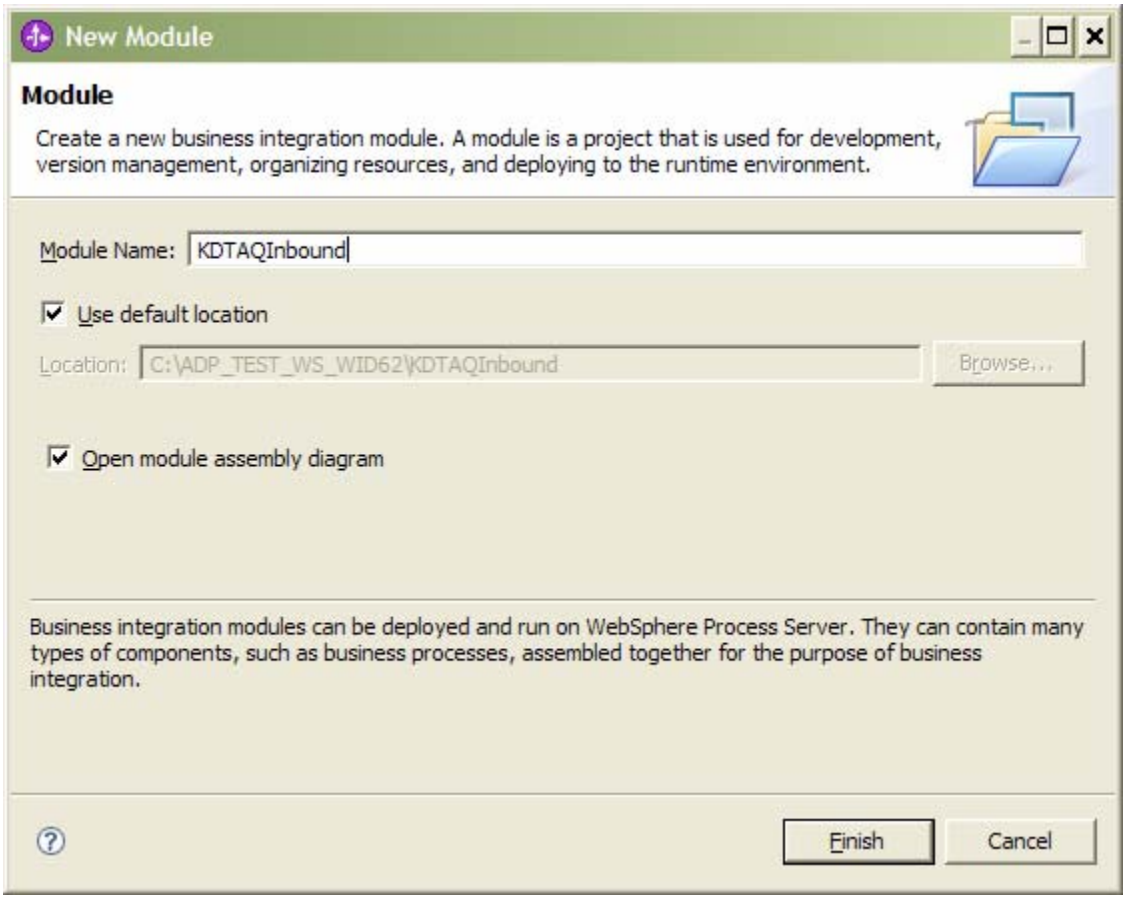


Figure 22

The following window shows the components generated.

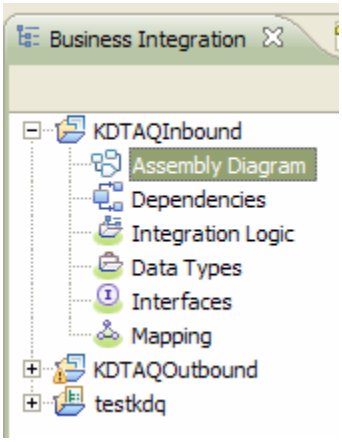


Figure 23

5. Launch the external service wizard by selecting File > New > Other > Business Integration > External Service.

6. Ensure that **Adapters** is selected, select **iSeries** and click **Next**

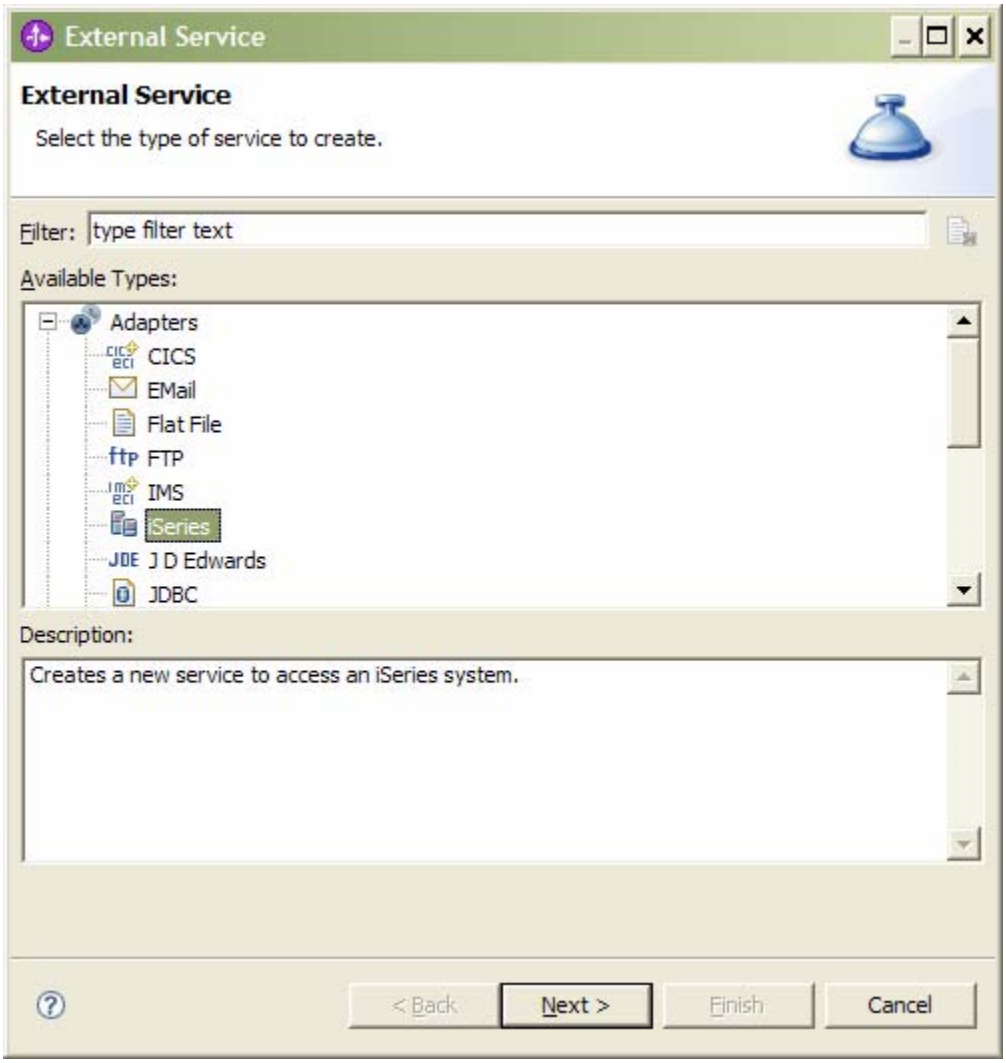


Figure 24

7. Click IBM WebSphere Adapter for IBM i (IBM : 6.2) and click Next

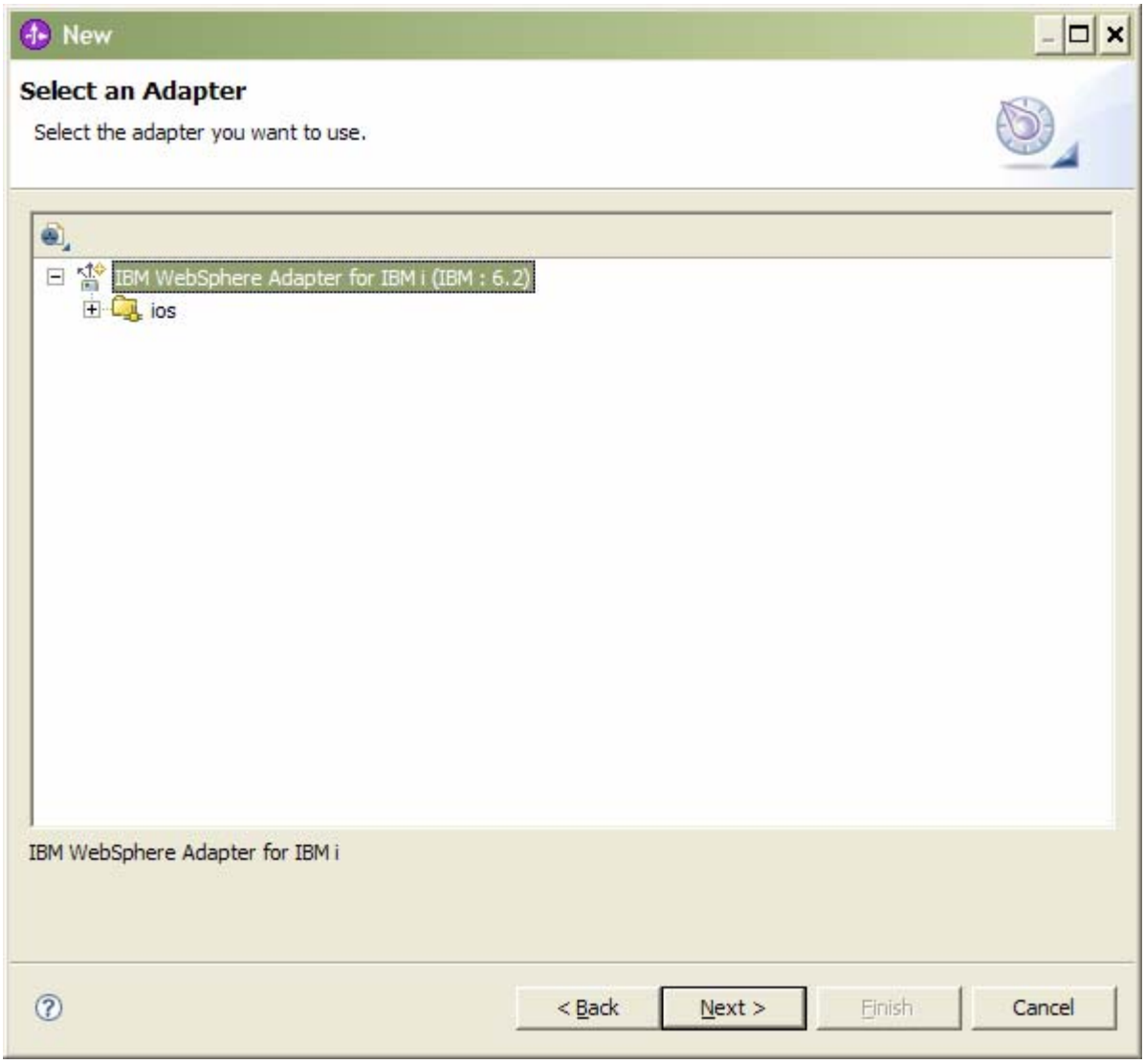


Figure 25

8. Ensure that the ios RAR file is selected and click **Next.**

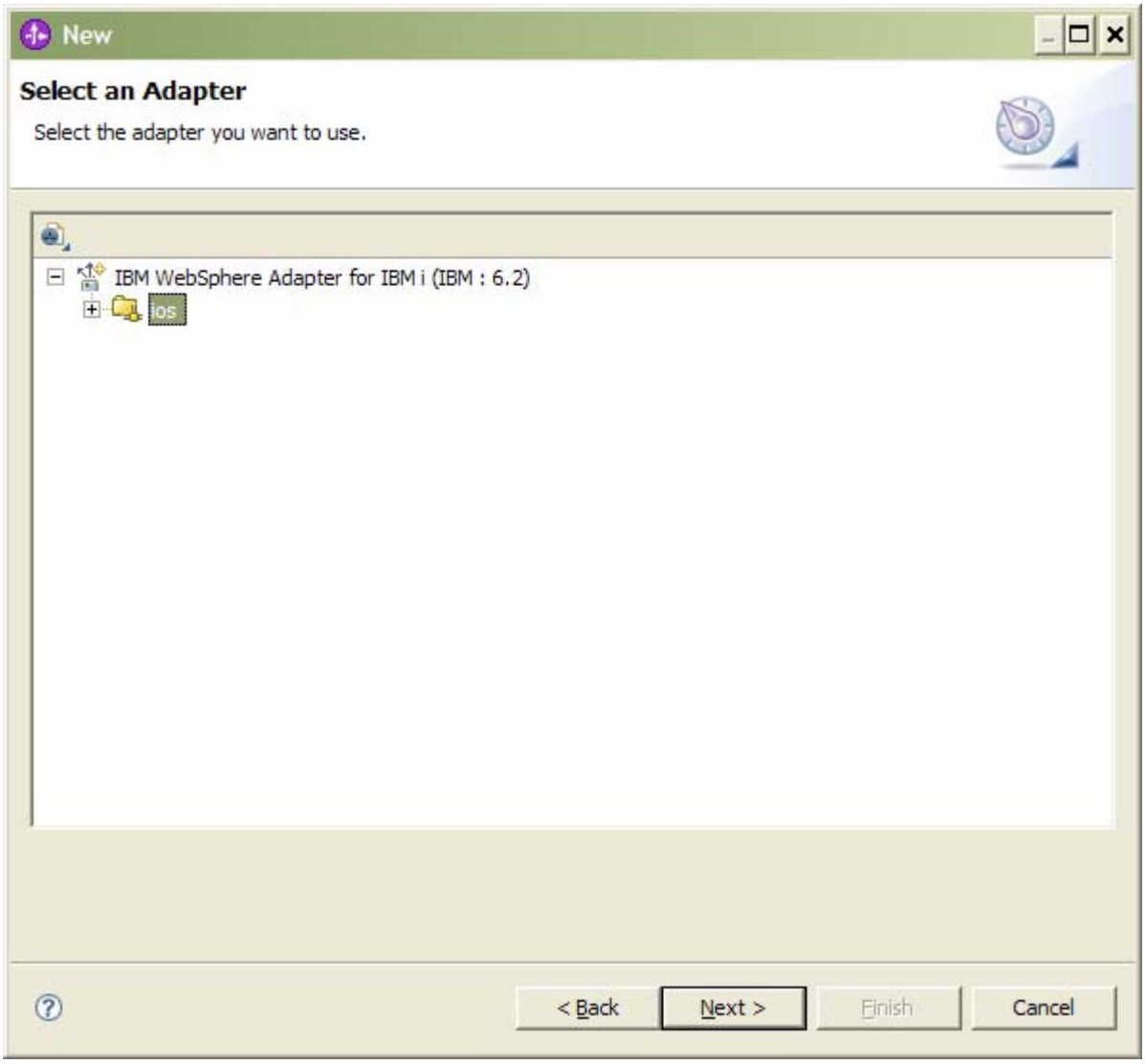


Figure 26

9. Select **Inbound** and click **Next.**

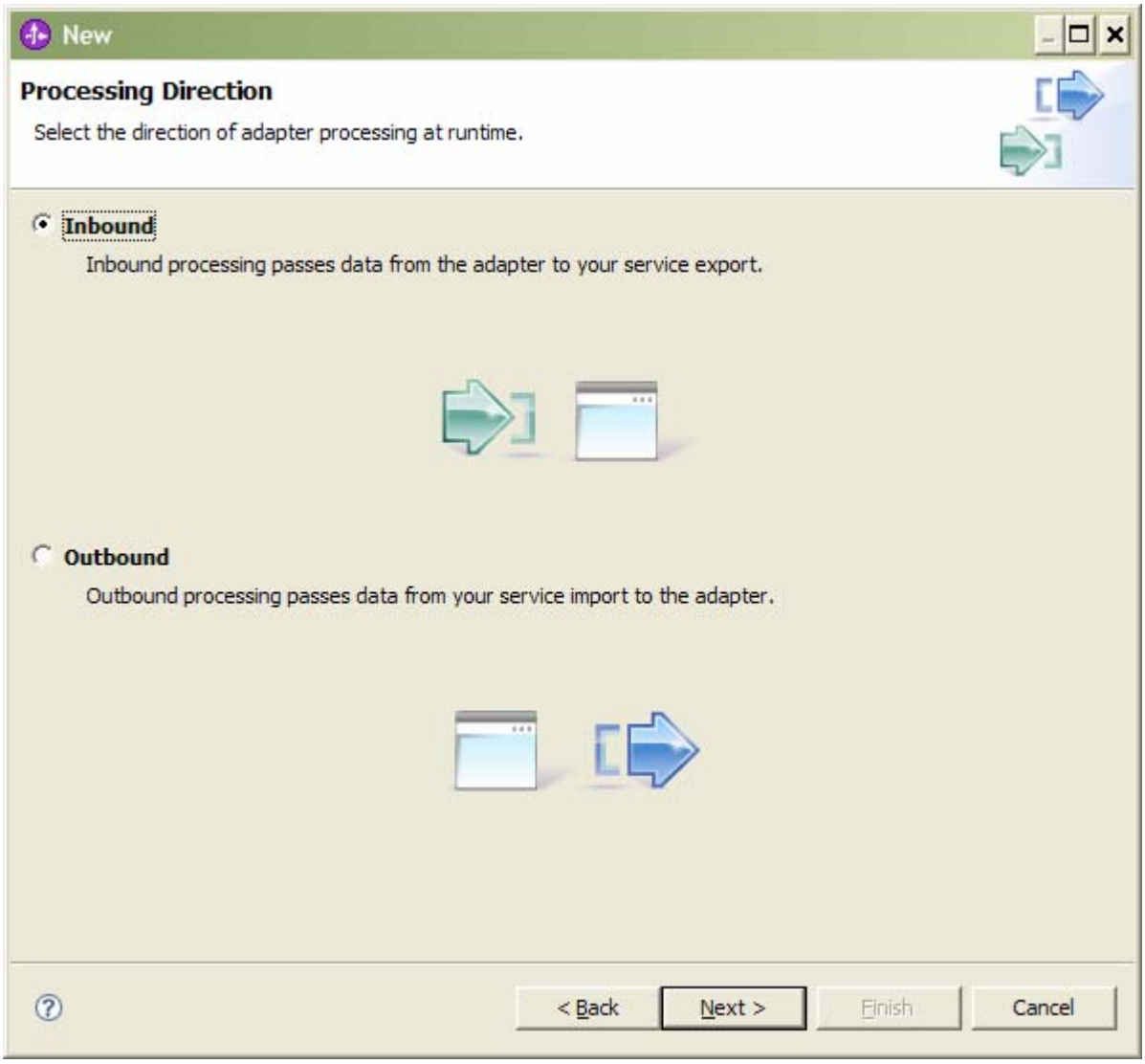


Figure 27

Setting connection properties for the external service wizard

1. Enter the IBM i server connection information such as the host name, user name, password and path to the folder on the IBM i system for object discovery. The **Object type to discover** field will be disabled.

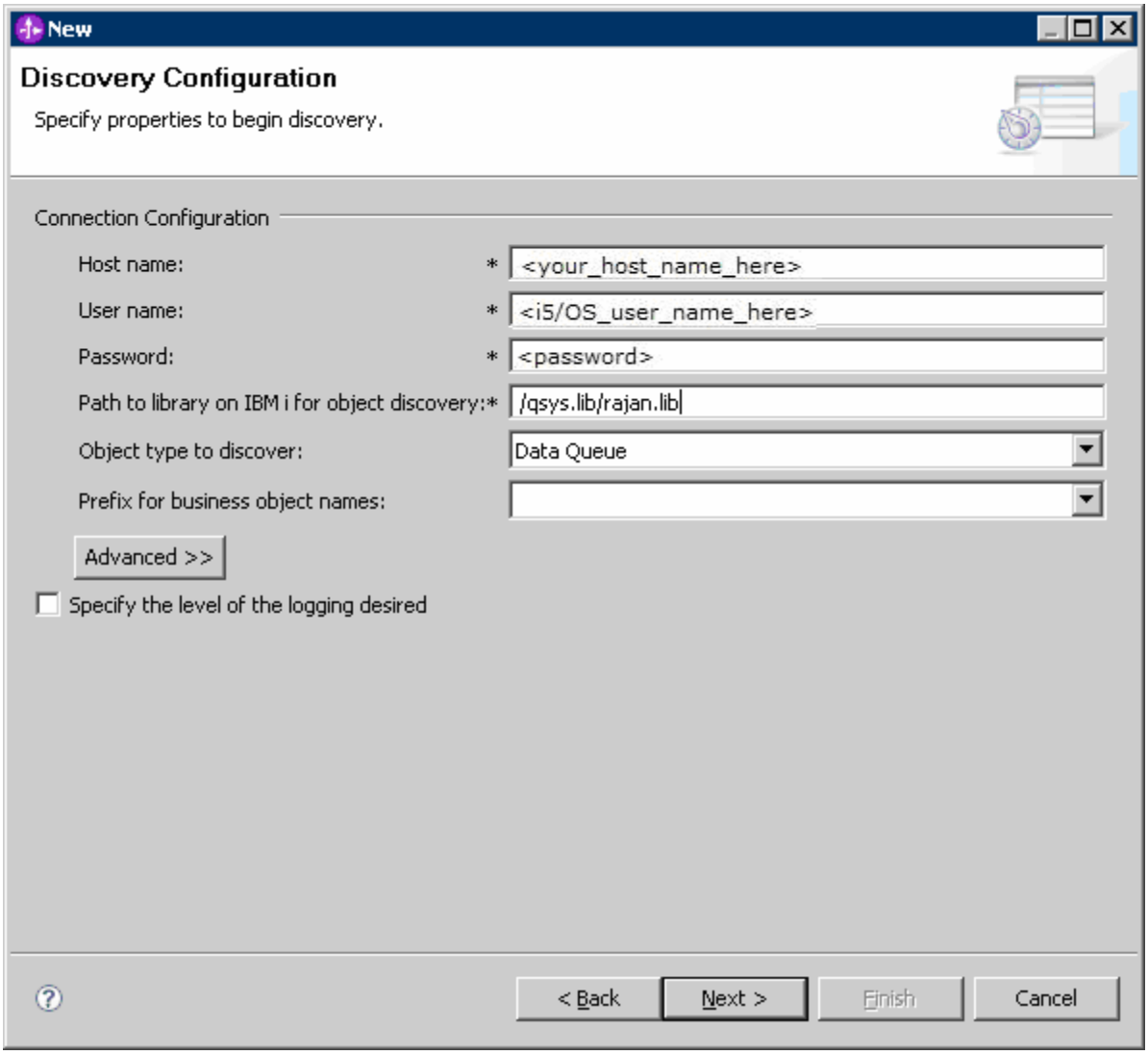


Figure 27

2. After you have entered all properties, click **Next**.

Generating business object definitions and related artifacts

1. In the Discovered objects pane, all data queues are be displayed so that you can select the path to the folder.

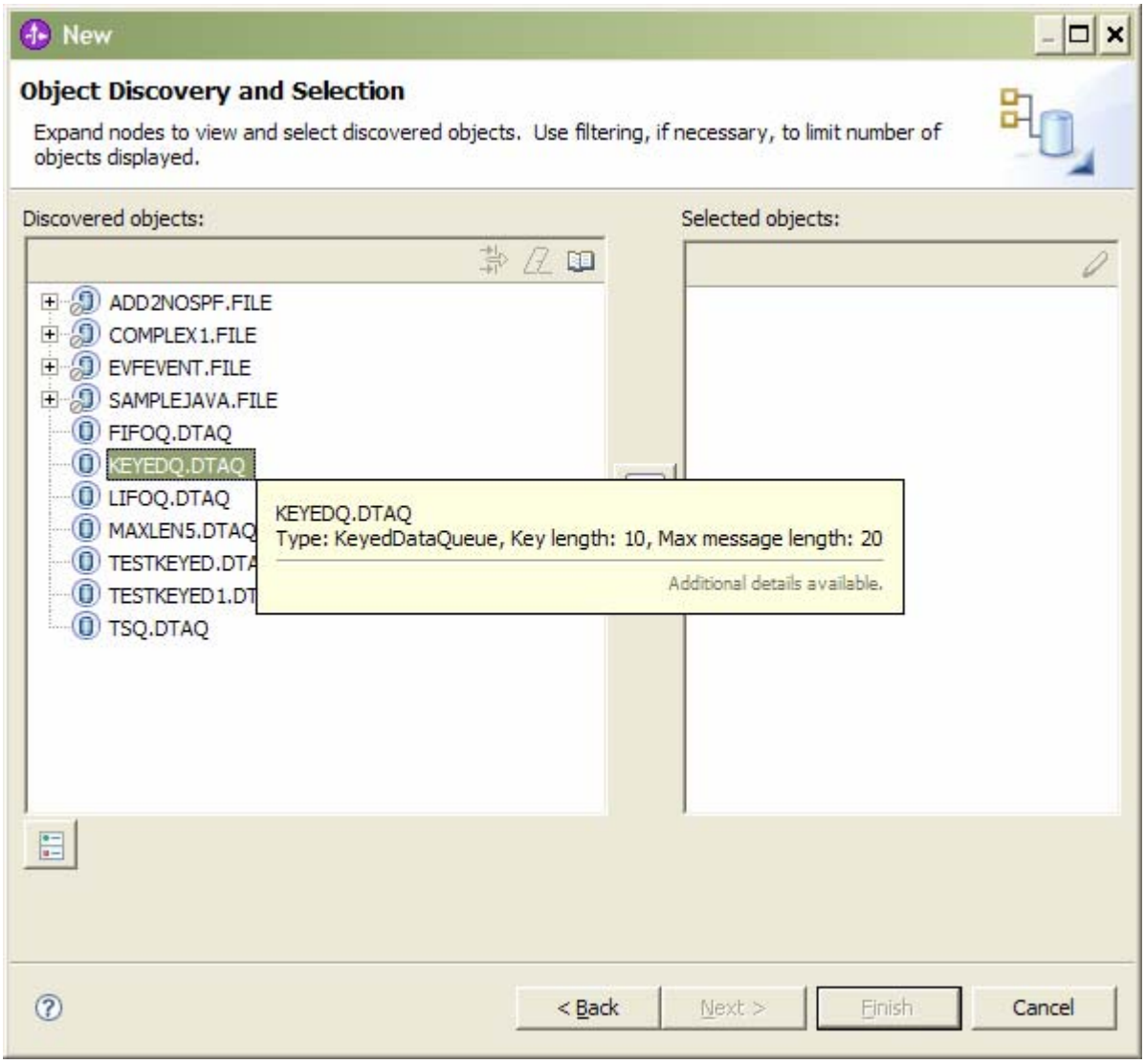


Figure 28

2. Select the keyed data queue from the **Discovered objects** pane and click the **>** button to move it to the **Selected objects** pane. Click Next.

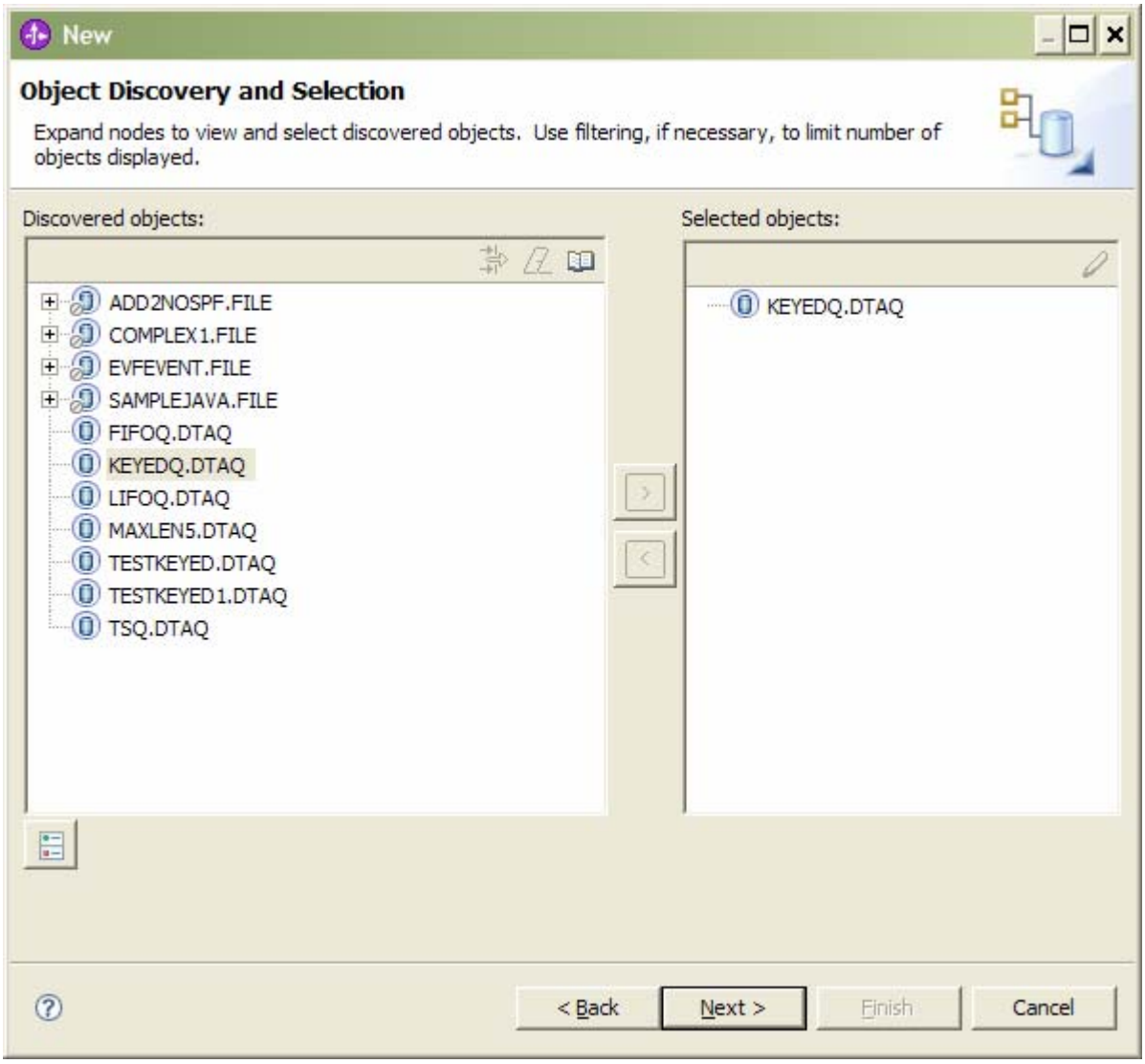


Figure 29

3. In the Configure Composite Properties window, the Emit operation is displayed and is disabled. Click **Next**.

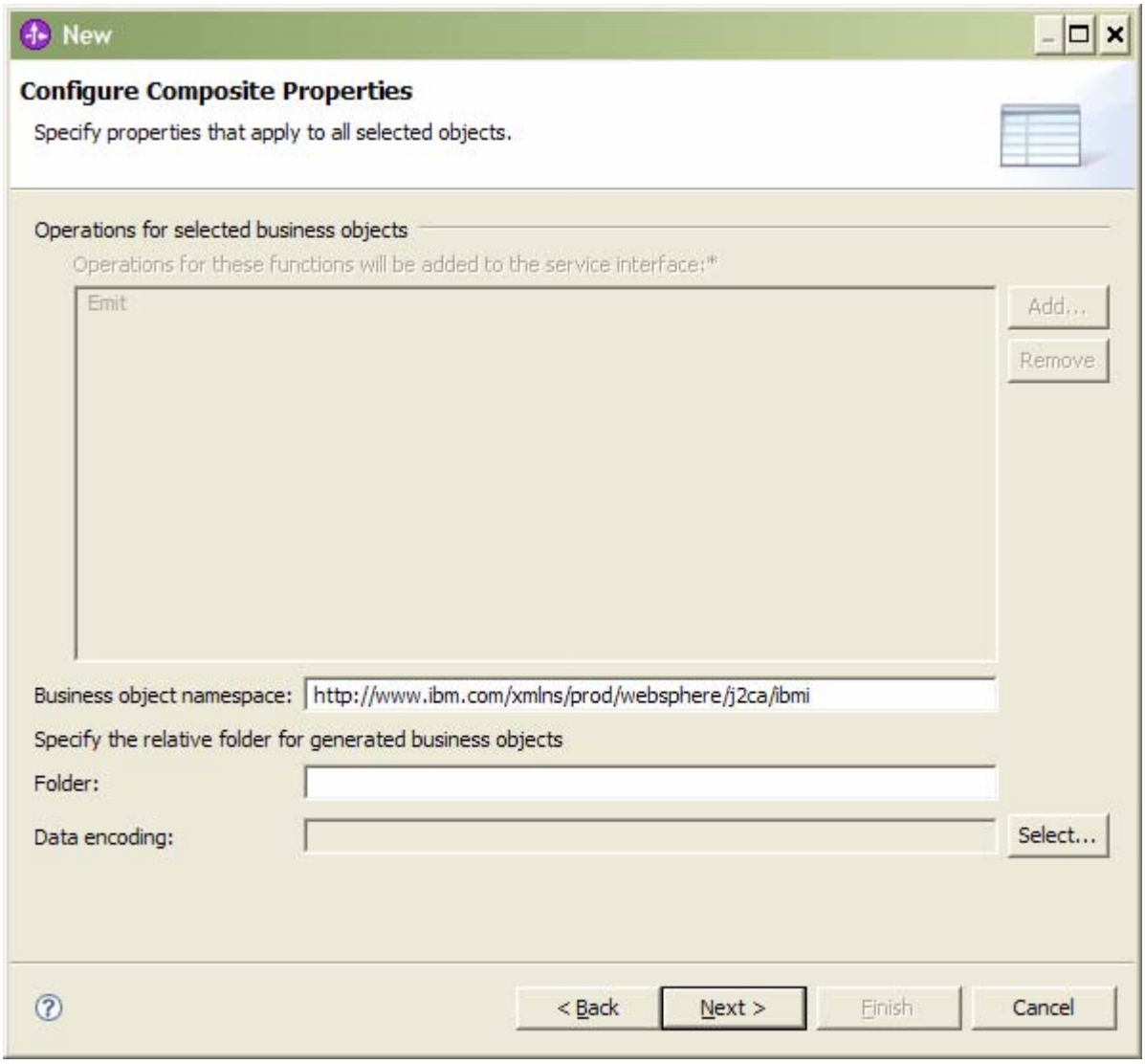


Figure 30

4. Clear the **Specify a Java Authentication and Authorization Services (JAAS) alias security credential**. The **Host name**, **user name,** and **Poll Queue Path** fields will be populated in this window. The poll queue path field, however, is disabled. Type the password, in the **Payload Staging Queue Path** field and **Polling Control Language Program path** fields and click **Next.**

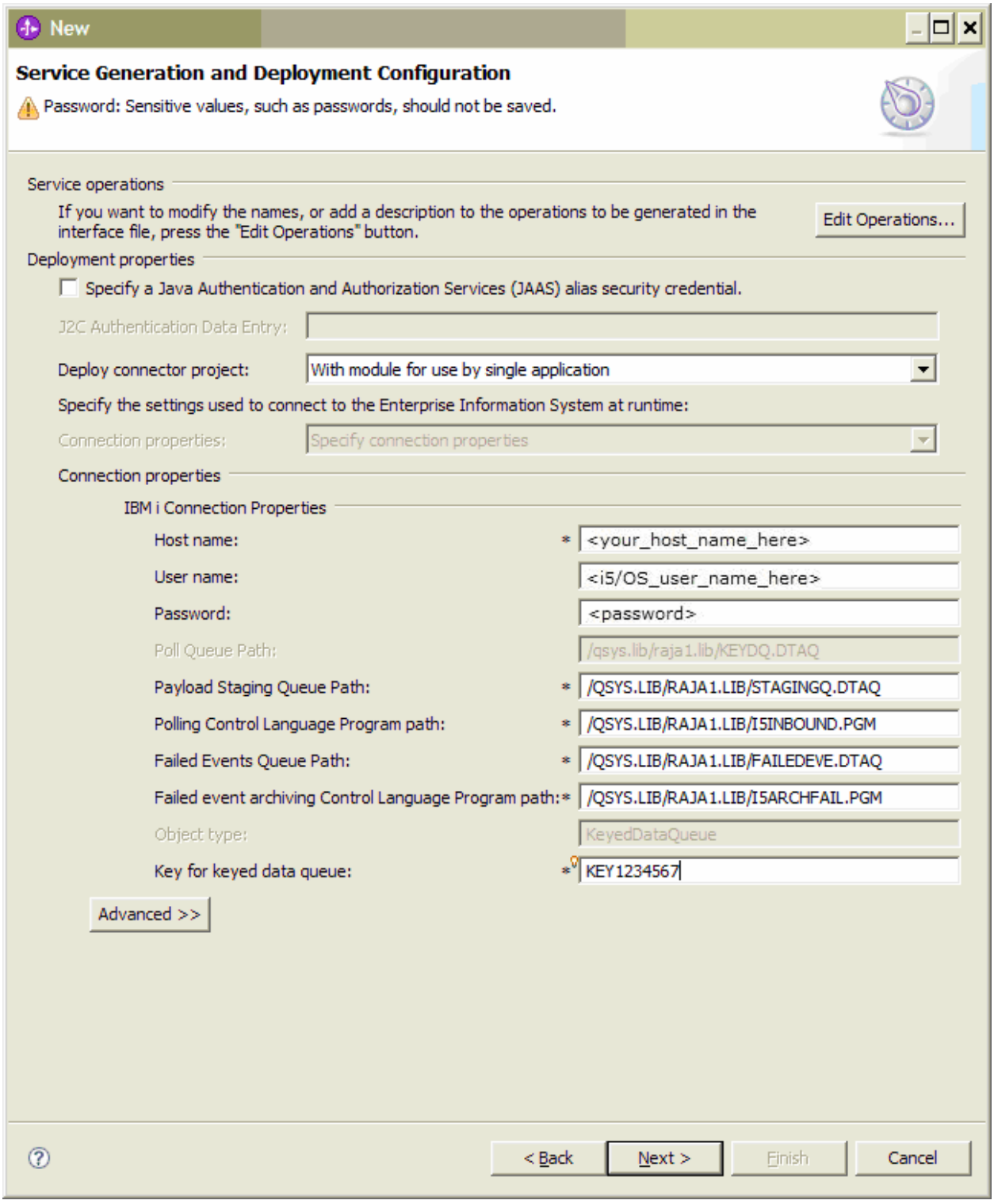


Figure 31

The advanced properties looks as shown below.

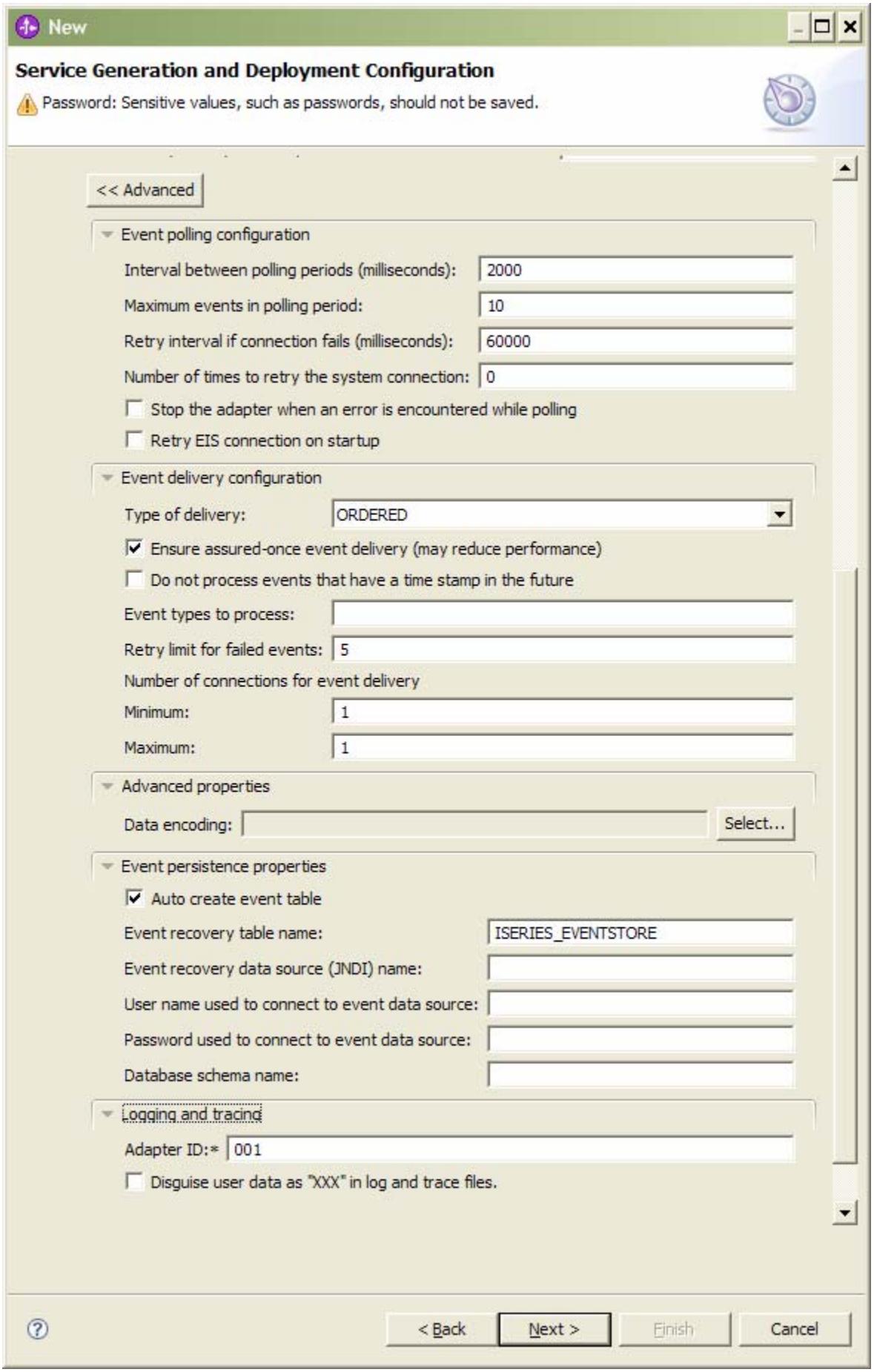

New
Service Generation and Deployment Configuration
Password: Sensitive values, such as passwords, should not be saved.
<< Advanced
Event polling configuration
Interval between polling periods (milliseconds): 2000
Maximum events in polling period: 10
Retry interval if connection fails (milliseconds): 60000
Number of times to retry the system connection: 0
Stop the adapter when an error is encountered while polling
Retry EIS connection on startup
Event delivery configuration
Type of delivery: ORDERED
Ensure assured-once event delivery (may reduce performance)
Do not process events that have a time stamp in the future
Event types to process:
Retry limit for failed events: 5
Number of connections for event delivery
Minimum: 1
Maximum: 1
Advanced properties
Data encoding:
Select...
Event persistence properties
Auto create event table
Event recovery table name: ISERIES_EVENTSTORE
Event recovery data source (JNDI) name:
User name used to connect to event data source:
Password used to connect to event data source:
Database schema name:
Logging and tracing
Adapter ID:* 001
Disguise user data as "XXX" in log and trace files.
< Back
Next >
Finish
Cancel

Figure 32

5. A default name is provided for the interface. Click **Finish** to complete the configuration.

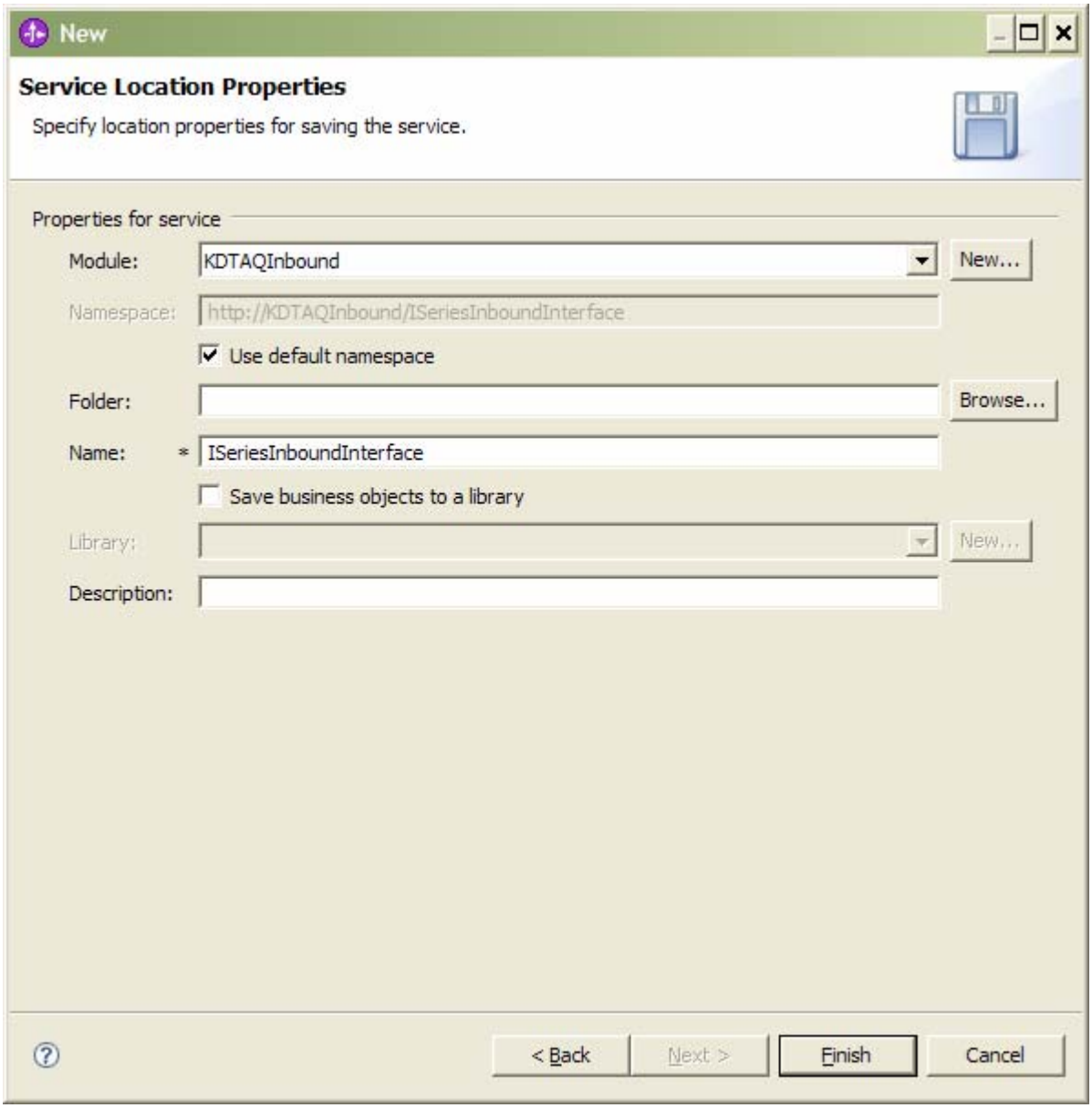


Figure 33

6. The generated module contains the following components in it.

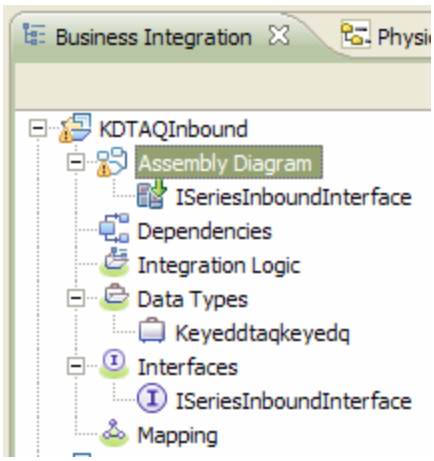


Figure 34

7. Generate a Java™component and draw a wire from **ISeriesInboundInterface** to **Component1.**

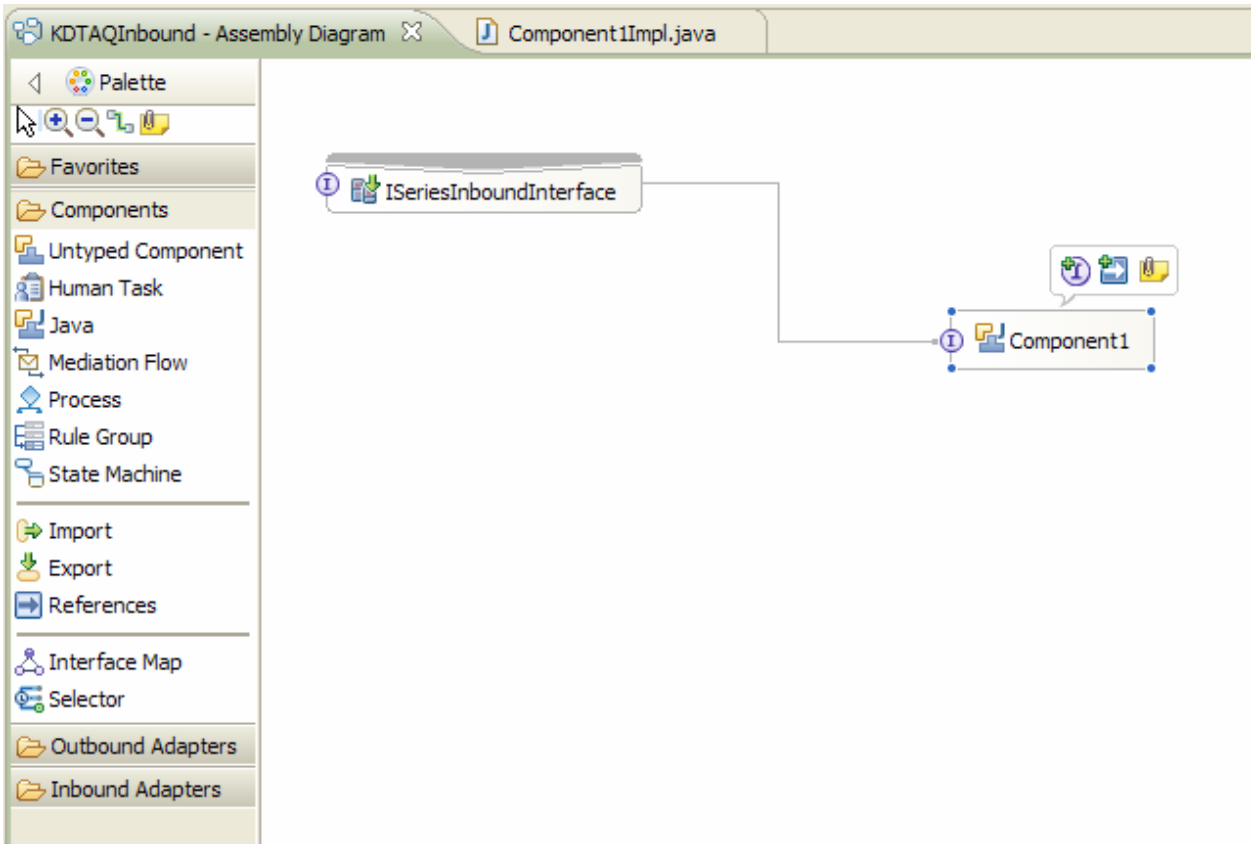


Figure 35

8. Generate implementation for the java component interface as shown below. You can choose "default package" when asked for package for the implementation.

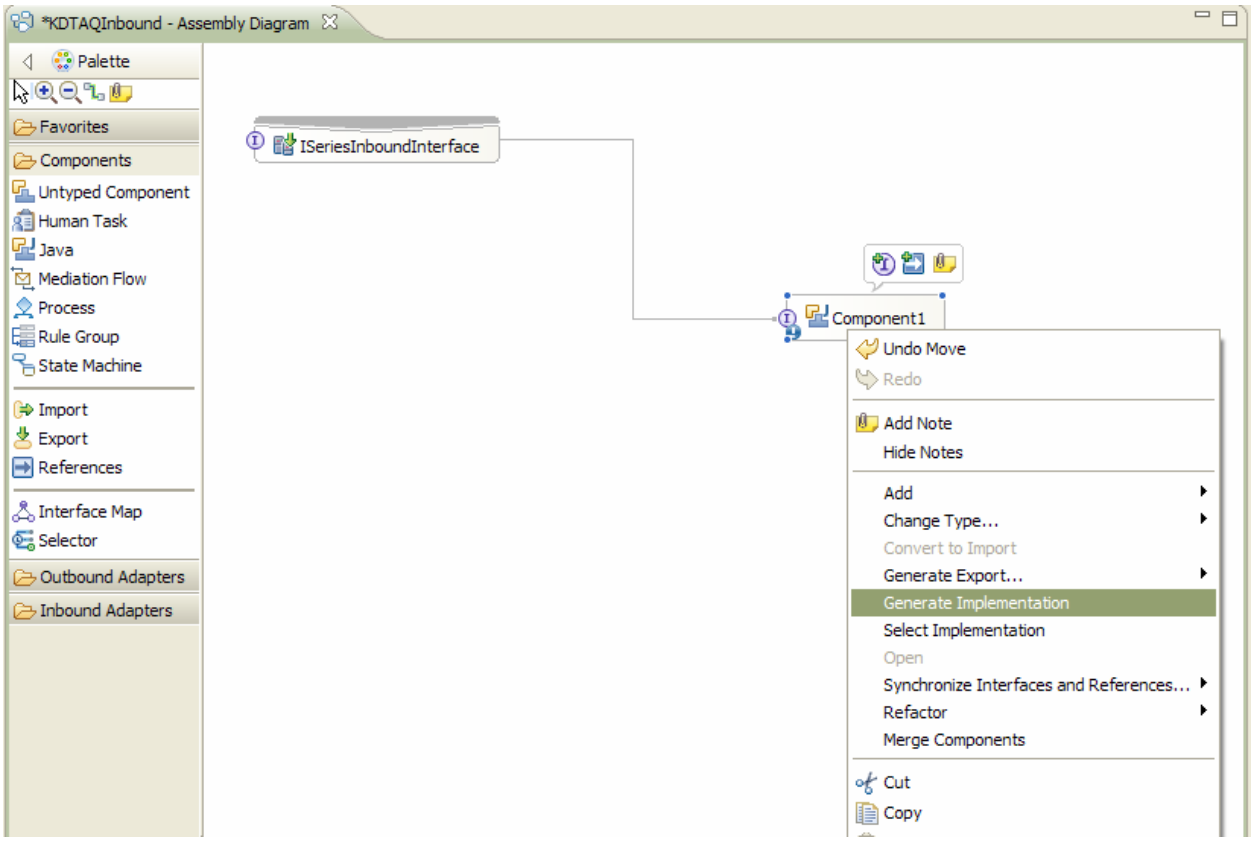


Figure 36

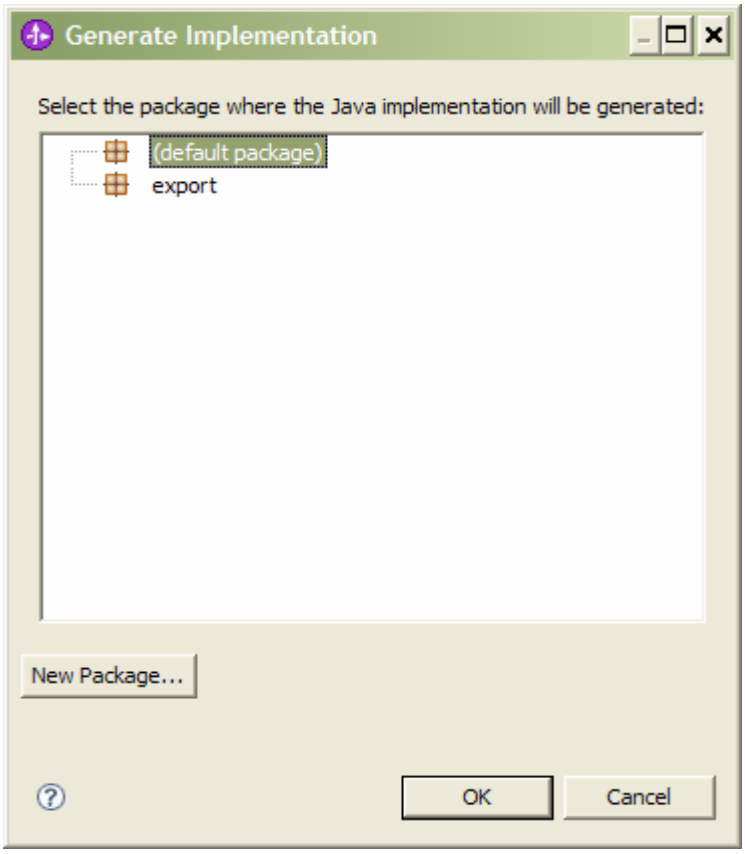


Figure 37

The generated Java implementation is shown in the following screen capture.

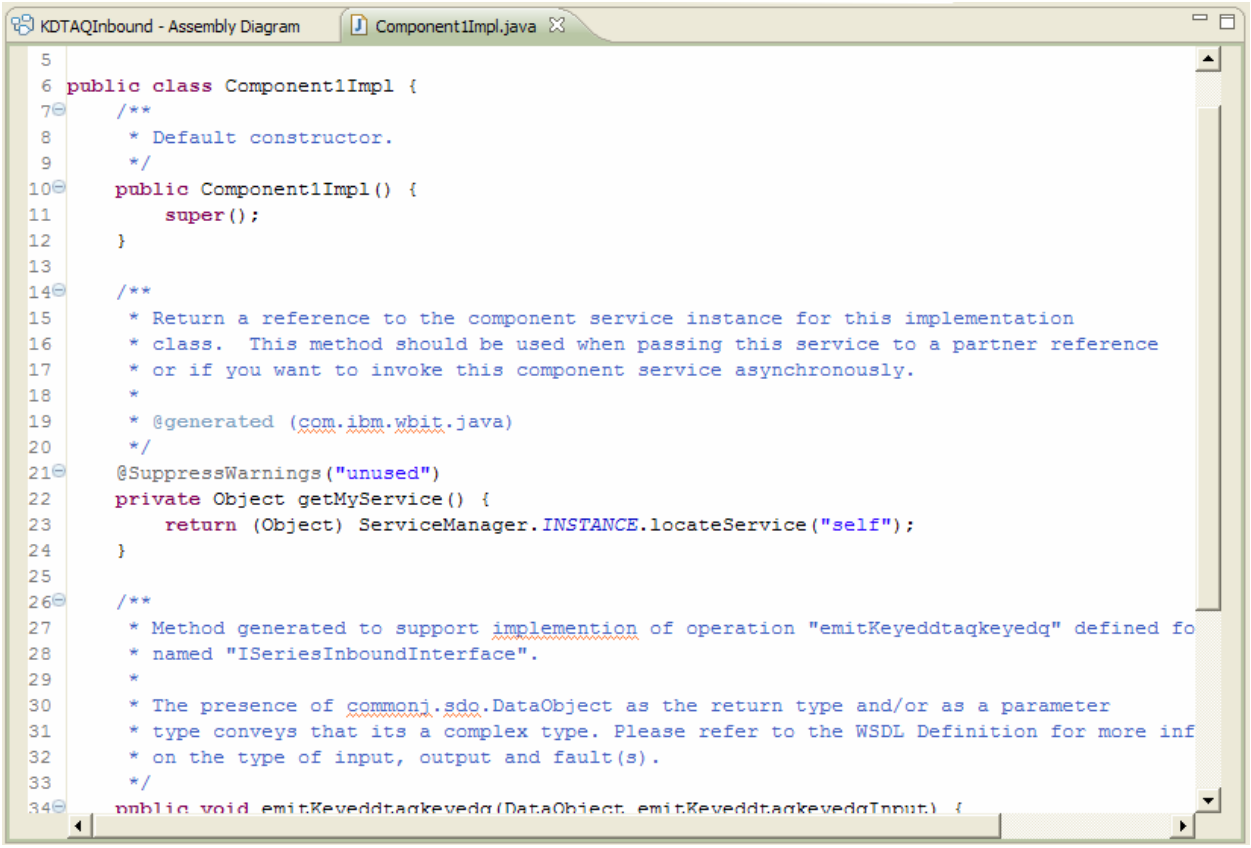


Figure 38

Deploying the module to the test envirnment

The result of running the external service wizard is an SCA module that contains an EIS import or export. Install this SCA module in the WebSphere Integration Developer integration test client.

1. Start WebSphere Process Server.

2. Add the module you created earlier to the server by using the server panel in WebSphere Integration Developer. Right-click the server, and then select **Add and Remove Projects**.

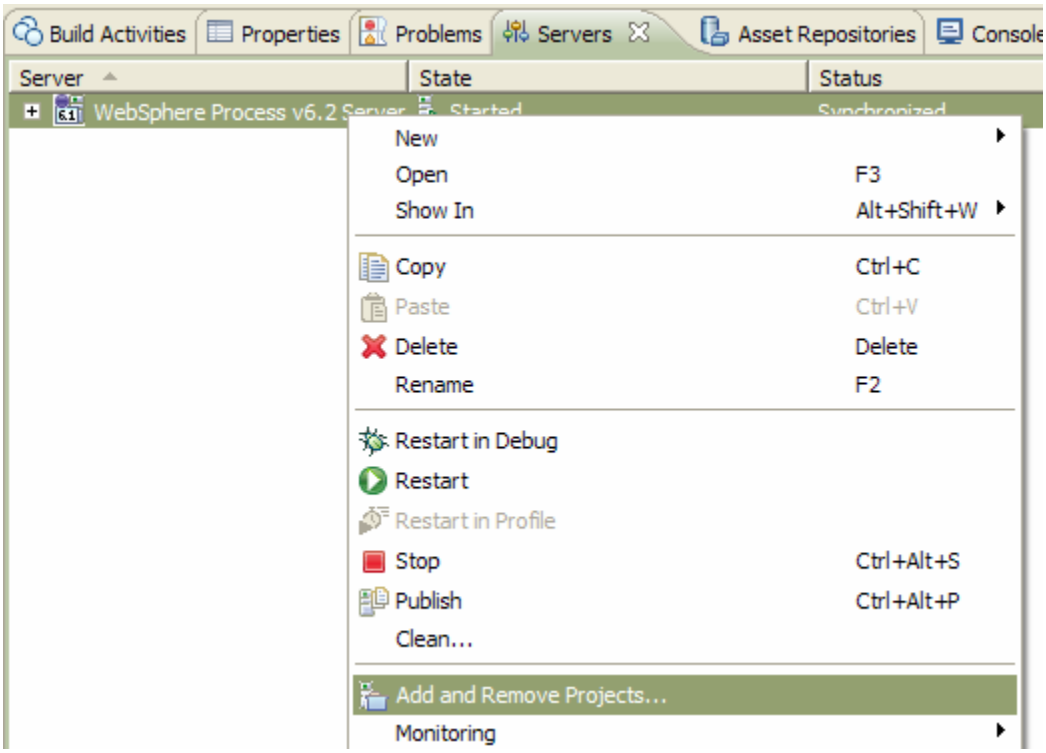


Figure 39

2. Add the SCA module from the left frame to the right frame by selecting it and clicking **Add** Then click **Finish.**

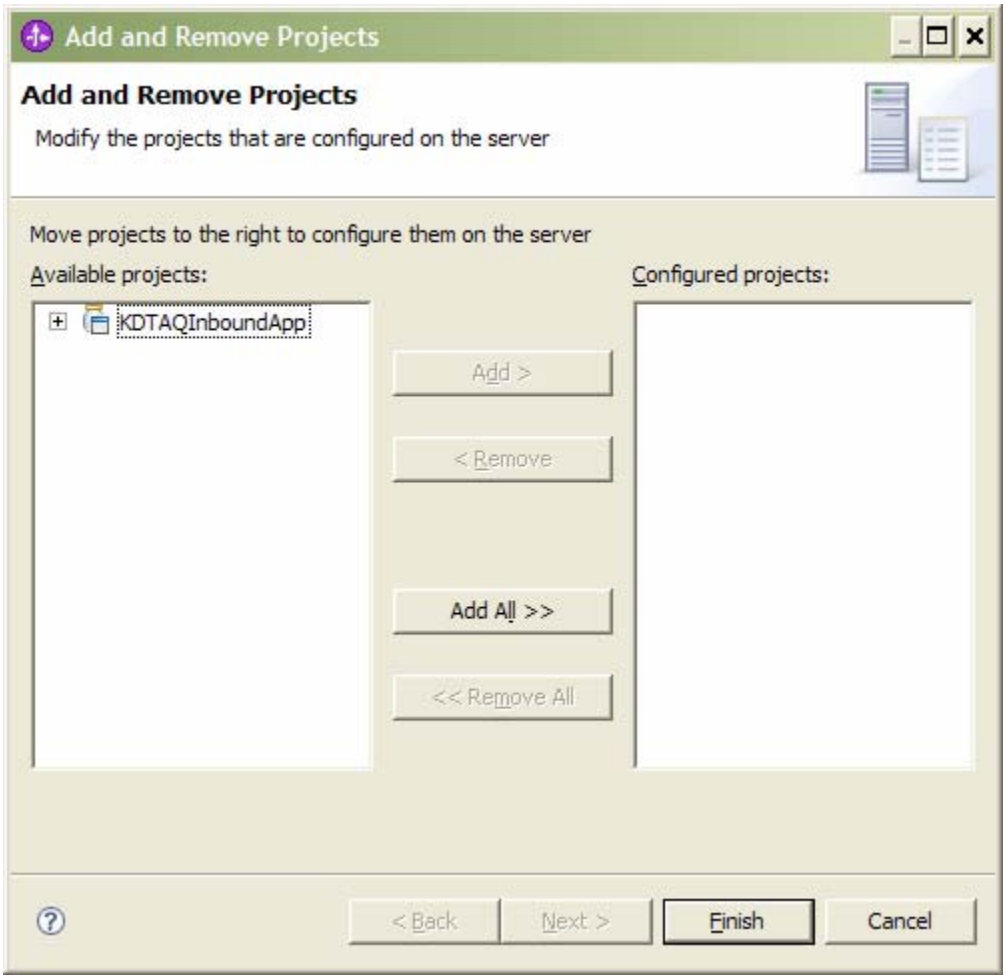

Add and Remove Projects
Add and Remove Projects
Modify the projects that are configured on the server
Move projects to the right to configure them on the server
Available projects:
KDTAQInboundApp
Add >
< Remove
Add All >>
<< Remove All
Configured projects:
< Back
Next >
Finish
Cancel

Figure 40

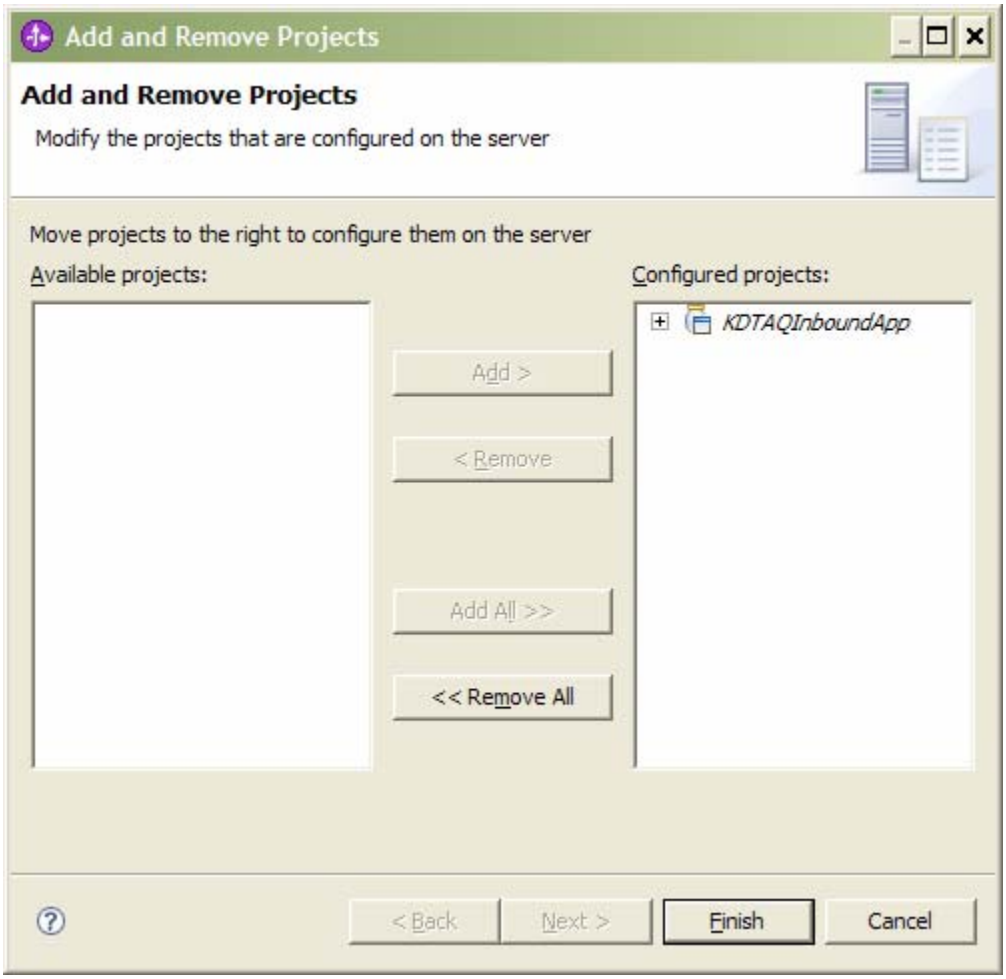


Figure 41

Testing the assembled adapter application

Test the assembled adapter application by using the WebSphere Integration Developer integration test client.

1. Right-click the adapter module, **DTAQInbound**, then select **Test > Attach.**

The relevant business object is delivered to the endpoint

2. Verify that the business object has been delivered by either checking for the endpoint messages in the System.Out file of WebSphere Process Server or by viewing the server console output in WebSphere Integration Developer.

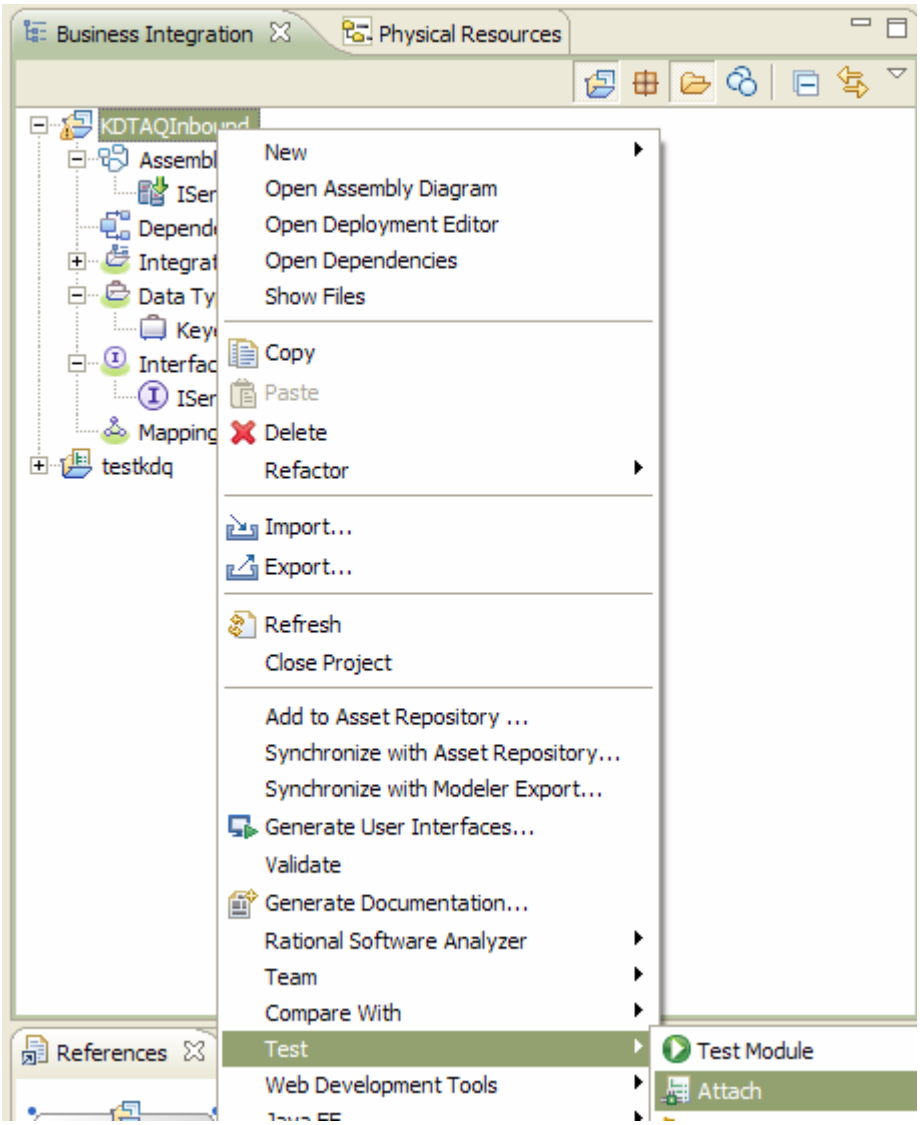


Figure 42

This will open the following screen.

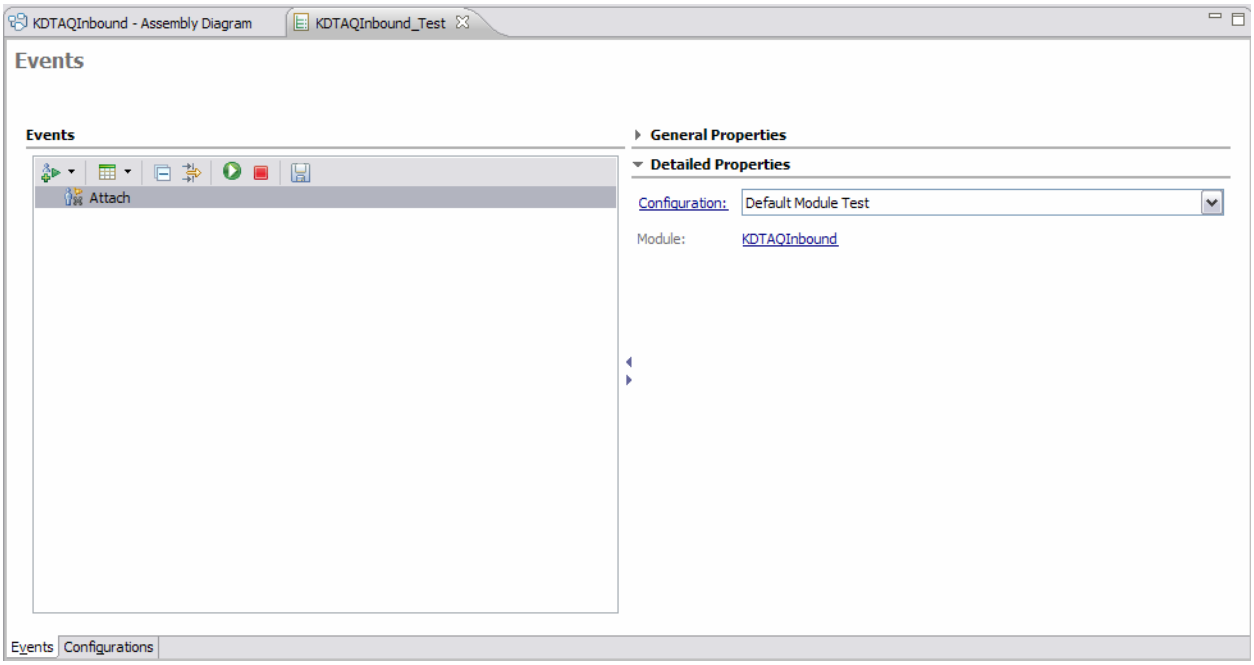


Figure 43

2. Run the service by clicking the continue button  which will deliver the event to the endpoint.

3. Verify this by checking for the endpoint messages in System.Out file of WebSphere Process Server or by viewing the server console output in WebSphere Integration Developer, as shown in the following screen or WebSphere Process Server logs.

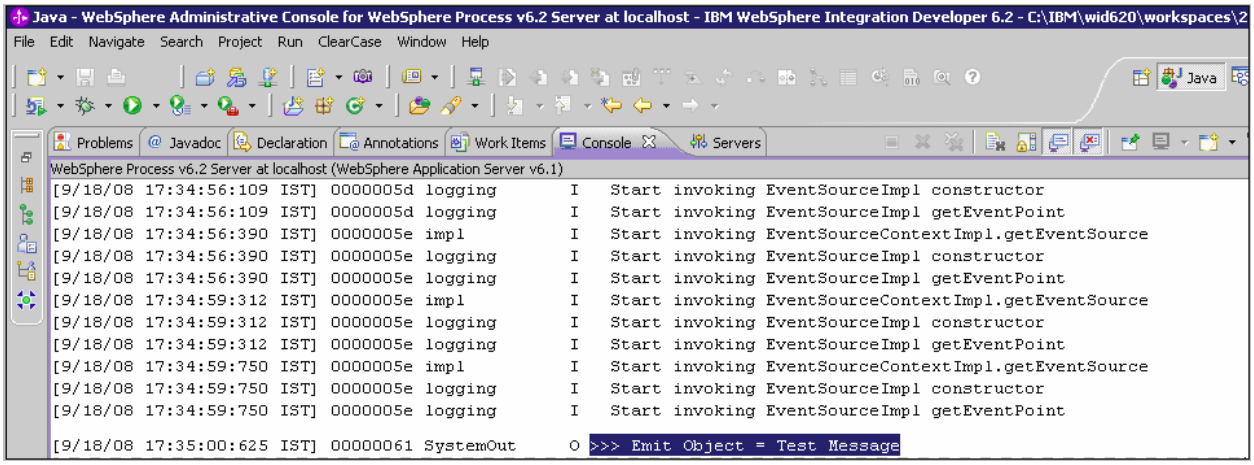


Figure 44

Notices

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