Integrated

Microsoft Dynamics® AX

Application Integration Framework (AIF) BizTalk adapter configuration for data exchange, Part II

White Paper

This document provides hands-on instructions to read, update, and delete a sales order from BizTalk. This document extends the [Microsoft Dynamics AX 2009 AIF BizTalk configuration white paper](#).

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http://www.microsoft.com/dynamics/ax/

Microsoft Dynamics®

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Introduction

This document provides instructions for configuring the Application Integration Framework (AIF) for data exchange using the BizTalk adapter. This document extends the white paper "Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange" by providing step-by-step instructions for the following scenarios:

- Read a sales order from BizTalk.

- Update a sales order from BizTalk.

- Delete a sales order from BizTalk.

Audience

This white paper is designed for BizTalk developers and Microsoft Dynamics AX system administrators who are responsible for installing, configuring, and troubleshooting integration with external systems using AIF and BizTalk Server.

Prerequisites

To benefit from this white paper, you should have knowledge in the following areas:

- The white paper Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange (referred to here as Part I) or equivalent experience in data exchange using the AIF and BizTalk. Step-by-step instructions and visual navigation provided in Part I are not repeated in this document.

- Microsoft Dynamics AX Application Integration Framework (AIF) setup and configuration

- Microsoft BizTalk Server 2006 R2 administration, including troubleshooting BizTalk applications

- BizTalk Server application development

- Microsoft Visual Studio 2005

- XML schema of the documents exchanged

You also need to have a test environment set up to follow the hands-on instructions. Setup of test environment is covered in a later section of this document.

For information about configuration and maintenance of the AIF, see the Server and Database Administration Guide. For information about the AIF for software developers, see "Integrating Other Applications with Microsoft Dynamics AX" in the Microsoft Dynamics AX SDK Help.

Scenario Walkthrough

This white paper provides step-by-step instructions for document exchange between the AIF and BizTalk server using synchronous mode. For detailed explanations of concepts and screen shots in the scenarios presented below, see the white paper Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange. For developer help, see the Microsoft Dynamics AX Developer Center. For administrative help, see the Microsoft Dynamics AX library on TechNet. For tips and tricks, see the AIF team's blog.

- **Read a sales order from BizTalk**. In this scenario, BizTalk will take an XML document from an inbound file folder and send it to the AIF. The document contains the entity key (sales order number) for a sales order. The AIF reads the sales order and sends the sales order to BizTalk. BizTalk sends the sales order to an outbound file folder.

  In the Visual Studio project, the orchestration to read a sales order from BizTalk will be called ReadSOSync.

- **Update a sales order from BizTalk**. In the AIF, an update is a two step process. First, you need to read a sales order, then you update the sales order. For more information, see the "Updating Data With AIF" topic on MSDN.

  In this scenario, you will use the ReadSOSync orchestration to read a sales order. You will then modify the quantity in the sales order document and save it. You will place the modified document in an inbound file folder. BizTalk will send the document from the inbound file folder to the AIF. The AIF will update the sales order. The AIF response for the update operation does not have a return value by default. Therefore, the orchestration will use custom code to provide a return value in the response to BizTalk. BizTalk sends the response to an outbound file folder.

  In the Visual Studio project, the orchestration to read a sales order from BizTalk will be called UpdateSOSync.

- **Delete a sales order from BizTalk**. In this scenario, BizTalk will take an XML document from an inbound file folder and send it to the AIF. The document contains the entity key (sales order number) for a sales order. The AIF deletes the sales order. The AIF response for the delete operation does not have a return value by default. Therefore, the orchestration will use custom code to provide a return value in the response to BizTalk. BizTalk sends the response to an outbound file folder.

  For more information about the delete action, see "Example: Delete Action " topic on MSDN.

  In the Visual Studio project, the orchestration to delete a sales order from BizTalk will be called DeleteSOSync

The following actions occur when you send an XML document from BizTalk to AIF.

1. You place an XML document in an inbound file folder. In general, the format of this sales order can be Electronic Data Interchange (EDI) or another non-AIF format. For the scenarios described in this white paper, we are using the documents based on the AIF schema. This is a manual step in the walkthrough. However, you may have an automated process placing the sales order in the production environment. For more information on AIF messages and actions, see the AIF messages topic on MSDN.

2. BizTalk Server monitors the file folder and sends the document to the AIF. In synchronous mode, BizTalk Server will bypass the AIF gateway queues and go directly to the AIF document services.

3. Microsoft Dynamics AX processes the requested action (read, update, or delete). The AIF returns a response to BizTalk for the read operation with a return value by default. The orchestration will use custom code to provide a return value in the response for update and delete operations.

4. BizTalk Server sends the response to the outbound file folder.

5. You test the sales order to confirm valid test results.

The next sections of this white paper provide step-by-step instructions and code to configure and test the document exchange. You can use this walkthrough to develop an understanding of how different components interact in this process and to test the results of the exchange. The objective of this document is limited to providing a hands-on experience with configuring the data exchange using the BizTalk adapter.

Before you begin

Consider the following points before you begin:

- **The test environment:** This walkthrough uses the Microsoft Dynamics AX 2009 Pre-sales Demonstration Toolkit that is available for download at PartnerSource. PartnerSource is a secure portal that is available to partners who focus on Microsoft Dynamics and related business products. This Pre-sales Demonstration Toolkit includes two Virtual PC images. The first image, VPC 1, uses a server name of AX-SRV-01 and the second image, VPC 2, uses a server name of AX-SRV-03.

  This walkthrough uses a modified version of VPC 1. For this walkthrough, it is assumed that you have BizTalk Server, BizTalk adapter, and Visual Studio.NET installed and configured on VPC 1.

- **Setting up your own test environment:** If you create your own test environment for this walkthrough, it should include the following components. For installation instructions, see Microsoft Dynamics AX Installation Guide.

  - Microsoft Dynamics AX 2009 base components with the Application Integration Framework (AIF)

  - Microsoft BizTalk Server 2006 R2, either Standard or Enterprise edition

  - Microsoft Visual Studio 2005, Professional Edition

  - AIF BizTalk adapter installed on the BizTalk Server host

- **Assumption:** All the references to folder path and program navigation are based on the test environment set up in VPC 1.

- **Login ID:** You need to know the login ID for various services, steps, and users. In some cases, you will also need to know the password. The test environment uses **contoso\administrator** as the user ID for all of the following steps or services. Password for the administrator account is "pass@word1". The services or steps listed below are explained in later sections.

  - The domain administrator account and password.

  - The domain account and password used for the Business Connector proxy account.

  - The domain account used for Microsoft Dynamics AX Application Object Server and BizTalk services.

  - The domain account and password for the Admin user in Microsoft Dynamics AX 2009.

  Note: Using the same account for various services and users is a deviation from security best practices and is done here for ease of learning and troubleshooting. In a production environment, follow the documented best practices for Microsoft Dynamics AX, BizTalk Server, and Visual Studio.

- **Navigation in Windows:** Navigation to frequently mentioned tools and programs is as follows:

  - BizTalk Server 2006 administration console: **Start > All Programs > Microsoft BizTalk Server 2006 > BizTalk Server Administration**

  - Microsoft Dynamics AX 2009 configuration: **Start > Administrative Tools > Microsoft Dynamics AX 2009 Configuration**

  - Microsoft Dynamics AX 2009 server configuration: **Start > Administrative Tools > Microsoft Dynamics AX 2009 Server Configuration**

- Viewing and managing services: **Start > Administrative Tools > Services**

- Event Viewer: **Start > Administrative Tools > Event Viewer**

- Microsoft Dynamics AX 2009 client: **Start > All Programs > Microsoft Dynamics AX 2009 > Microsoft Dynamics AX 2009**

- **Navigation in the Microsoft Dynamics AX client:** Navigation to frequently mentioned tools and forms is as follows:

  - AIF configuration: **Basic > Setup > Application Integration Framework**

  - AIF queue manager, exceptions, or document history: **Basic > Periodic > Application Integration Framework**

  - Batch jobs and tasks: **Basic > Inquiries > Batch job**

  - Sales order: **Accounts receivable > Common Forms > Sales Order Details**

Step-by-step instructions

There are a number of tasks that you need to complete for successful processing and testing of the document exchange using the AIF adapter. The walkthrough provides step-by-step instructions for the following tasks in next sections.

- Configure AIF for the BizTalk adapter

- Build and deploy the Visual Studio project

  - Create an orchestration to read a sales order

  - Create an orchestration to update a sales order

  - Create an orchestration to delete a sales order

  - Create a strong name key

  - Build and deploy the Visual Studio project

- Configure orchestration in BizTalk Server

  - Configure the DeleteSOSync orchestration

  - Configure the ReadSOSync orchestration

  - Configure the UpdateSOSync orchestration

- Configure AIF batch jobs, tasks, and recurrence schedule

- Read the sales order and test results

- Update the sales order and test results

- Delete the sales order and test results

- Troubleshooting

Configure AIF for the BizTalk adapter

Make sure that the AIF is properly configured for the BizTalk adapter. You need to complete the following tasks to configure the AIF for the BizTalk adapter. For detailed instructions and visual navigation, see the Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange white paper.

- Configure the transport adapter.

- Configure the channel.

- Configure services.

- Configure local endpoints.

- Configure endpoints. Configuration of endpoints is slightly different in this white paper than the instructions provided in Part I.

Configure the endpoint using the following steps:

1. Make sure that the **Endpoint Action Policies** form contains **SalesSalesOrderService.read**, **SalesSalesOrderService.update**, and **SalesSalesOrderService.delete** actions as shown in the following screen shot. You may have additional actions enabled. However, this white paper will only use the three actions mentioned in this step. For more information on the endpoint action policy, see the Configure endpoint action policy topic on TechNet.
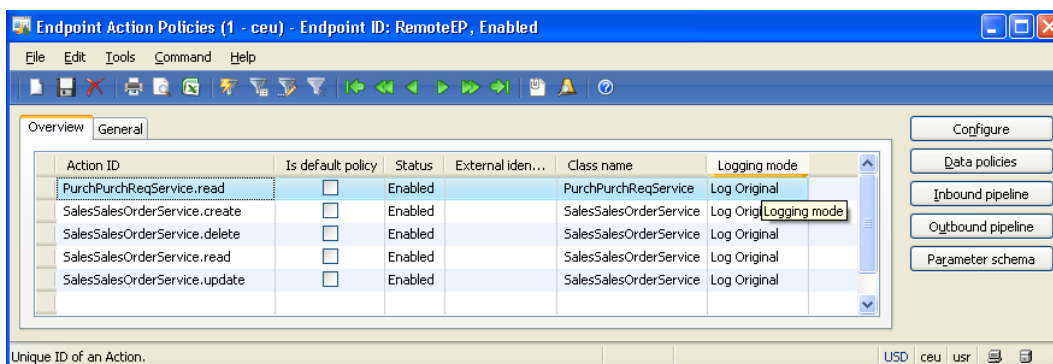
2. For ease of learning, enable only the necessary fields instead of enabling all fields when you configure the data policies for this walkthrough. Enable fields for read and update actions using the following steps. Data policy does not apply to the delete action since there is no sales order document to exchange.

   a) **Enable fields for the read action**. In the **Endpoint action data policies** form, click the **Set** button and then click **Disable all**. Sort the data in descending sequence by the **Required** field. To sort the data, click on the column heading for the **Required** field. Navigate to and enable the **SalesId** field (**SalesOrder/SalesTable/SalesId**) to include the sales order ID in the document. Navigate to and enable the **_DocumentHash** field. The _DocumentHash field is required to implement concurrency in the update operation. For more information, see "Concurrency When Updating Data" on Microsoft Developer Network (MSDN). Sort the data in descending sequence by the **Enabled** field. Your form should resemble the following screen shot diagram.

b) **Enable fields for the update action**. For the update action, you do not require the SalesId field. Enable required fields and the _DocumentHash field. Your form should resemble the following screen shot diagram.
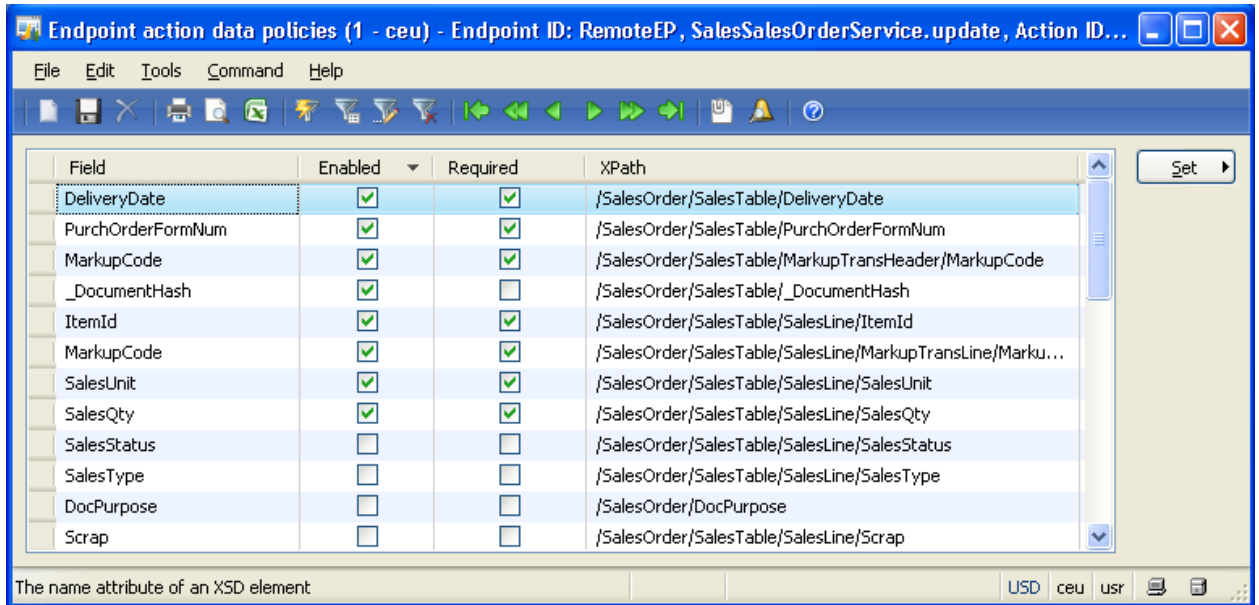
c) You do not need to make changes to data policy for the delete action as it does not exchange a sales order document.

APPLICATION INTEGRATION FRAMEWORK (AIF) BIZTALK ADAPTER CONFIGURATION FOR DATA EXCHANGE, PART II

Build and deploy the Visual Studio project

This section provides step-by-step instructions to create and deploy a Visual Studio project for creating the asynchronous orchestrations.

Create a BizTalk project and add references

1. Launch Microsoft Visual Studio 2005.

2. Click **File > New > Project …** to launch the **New Project** window.

3. Select **Empty BizTalk Server Project**.

4. Enter values for the following fields.

    - **Name =** AIFSOWalkthrough

    - **Location =** Desktop (or any location of your choice)

5. Click **OK**.

Create an orchestration to read a sales order

This section provides step-by-step instructions to create and configure the synchronous orchestration to read a sales order. Use the following steps to create the orchestration.

- Add the adapter metadata

- Rename the orchestration

- Add shapes to the orchestration.

- Configure Multi-part Message Types

- Create messages and set properties

- Create and configure ports

- Configure shapes

Add the adapter metadata

1. Right-click **AIFSOWalkthrough** in the **Solution Explorer** pane and select **Add > Add Generated Items…**.

2. In the **Add Generated Items – AIFSOWalkthrough** window, **select Add Adapter Metadata** and click **Add button**.

3. When the **Add Adapter Wizard** opens, select **Microsoft Dynamics AX 2009**.

    a) Enter these field values:

      - **SQL Server** = AX-SRV-01

      - **Database =** BizTalkMgmtDb

    b) Click **Next.**

4. In the **BizTalk Adapter for Microsoft Dynamics AX Schema Import Wizard**, enter values for **Server Name** and **TCP/IP Port**. The server name refers to the Application Object Server (AOS) and the port refers to the port being used by the AOS. The port is usually set to 2712. You can look at the Microsoft Dynamics AX 2009 Server Configuration utility to obtain the server name and TCP/IP port. For more information, see the Server and Database Administration Guide.

    a) For this walkthrough, enter the following values:

      2. **Server name** = AX-SRV-01

3. **TCP/IP Port** = 2712

   b) Click **Next.**

5. Expand **SalesOrderService** and check **delete: sync**, **read: sync**, and **update: sync**. Click **Finish**. This orchestration will only use the read operation. The update and delete operations will be used later in the walkthrough. This document uses synchronous data exchange for ease of learning. The "Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange" white paper provides instructions for using synchronous and asynchronous orchestrations.

6. In the **Solution Explorer** pane**,** right-click the **References** node, select **Add references** and then click the **Browse** tab. Add **Microsoft.Dynamics.BizTalk.Adapter.Schemas.dll** from C:\ Program Files \ Microsoft Dynamics AX \ 50 \ Client \ Bin.

Rename the orchestration

Rename the orchestration to provide a meaningful name for the orchestration.

1. In the **Solution Explorer** pane, right-click **BizTalk Orchestration.odx** and rename it to ReadSOSync.odx.

2. Double-click **ReadSOSync.odx**. Select **Orchestration View** pane. Right-**click Orchestration Properties** and select **Properties Window**.

3. Select **Properties** tab. In the **Typename** field, enter **ReadSOSync**.

4. The **Solution Explorer** should now look similar to the following diagram.
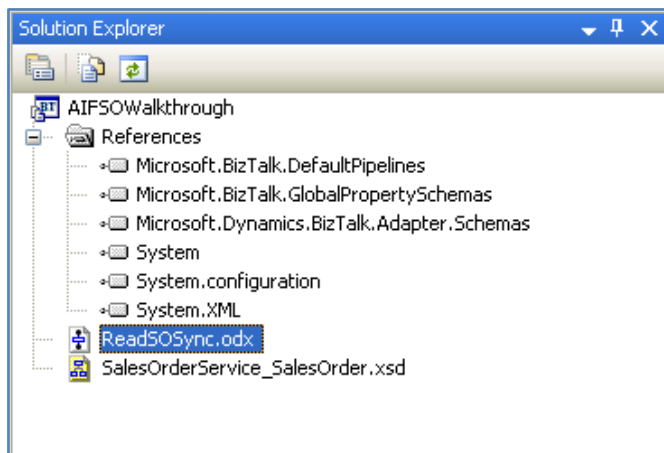
Add shapes to the orchestration

This section provides instructions to add shapes to the orchestration.

1. Open **ReadSOSync.odx**.

2. Using the **Toolbox**, drag and drop the following shapes in the sequence shown:

    a) Receive

    b) Message Assignment

    c) Send

    d) Receive

    e) Message Assignment

    f) Send

Configure Multi-part Message Types

This section provides instructions to configure the multi-part message types. The ReadSOSync orchestration will use the read request and read response message types. The UpdateSOSync orchestration will use the update request and update response message types. The DeleteSOSync orchestration will use the delete request and delete response message types.

As discussed in the earlier section, the AIF does not provide a return value in the response for the update and delete operations. You will need to customize the orchestration to provide a return value in the response for the update and delete operations. Therefore, you will customize the UpdateSOSync and the DeleteSOSync orchestrations to provide a return value. Configure the Multi-part Message Types using the following steps:

1. Configure **SalesOrderService_read_Request**. Select **Orchestration View**. Expand **Types > Multi-part Message Types > SalesOrderService_read_Request**.

    a) Right-click **_entityKeyList** and select **Properties** Window.

    b) In the **Type** field, expand **Schemas** and click **<Select from Referenced Assembly...>** from the list.

    c) In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} Dynamics.Ax5** in the left pane. Select **EntityKeyList** in the right pane.

2. Configure **SalesOrderService_read_Response**. Expand **Types > Multi-part Message Types > SalesOrderService_read_Response**. Right-click **ReturnValue** and select **Properties Window**. Confirm that the **Type** field is set to **AIFSOWalkthrough.SalesOrderService_SalesOrder**.

3. Configure **SalesOrderService_update_Request**. You need to customize the orchestration to send a return value in the response from the update operation. To accomplish this task, you need to add **MessageParts** to the message type. The update request message uses **MessageParts**, instead of using **_entityKeyList** and **_salesSalesOrder**, to receive an update request. The update response uses **MessageParts** to provide the response.

    a) Expand Types **> Multi-part Message Types > SalesOrderService_update_Request**.

    b) Right-click **_entityKeyList** and select **Properties Window**.

    c) Set **Identifier** = updateRequestMessageParts.

    d) In the **Type** field, expand **Schemas**, and then **click <Select from Referenced Assembly...>** from the list.

e) In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** in the right pane.

f) In the **Orchestration View** pane, expand **Multi-part Message Types** and then expand **SalesOrderService_update_Request**. Right-click **_salesSalesOrder** and click **Delete**.

4. Configure **SalesOrderService_update_Response**. In this step, you will add **MessageParts** to the message type. The UpdateSOSync orchestration will use the **MessageParts** to provide a response from the update operation later in this document.

   a) Navigate to **Types > Multi-part Message Types > SalesOrderService_Update_Response**.

   b) Right-click SalesOrderService_Update_Response and then click New Message Part.

   c) Set **Identifier** = updateResponseMessageParts.

   d) In the **Type** field, expand **Schemas**, and then click **<Select from Referenced Assembly...>** from the list.

   e) In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** from the right pane.

5. Configure **SalesOrderService_delete_Request**. As discussed earlier, you need to customize the orchestration to send a return value in the response from the delete operation. To accomplish this task, you need to add **MessageParts** to the message type. The delete request message uses **MessageParts**, instead of **_entityKeyList**, to receive a delete request. The delete response uses **MessageParts** to provide the response.

   a) Expand Types > Multi-part Message Types > SalesOrderService_delete_Request.

   b) Right-click **_entityKeyList** and select **Properties Window**.

   c) Set **Identifier** = deleteRequestMessageParts.

   d) In the **Type** field, expand **Schemas**, and then **<Select from Referenced Assembly...>** from the list.

   e) In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** in the right pane.

6. Configure **SalesOrderService_delete_Response**. In this step, you will add **MessageParts** to the message type. The DeleteSOSync orchestration will use the **MessageParts** to provide a response from the delete operation.

   a) Navigate **to Types > Multi-part Message Types > SalesOrderService_delete_Response**.

   b) Right-click **SalesOrderService_delete_Response** and then click **New Message Part**.

   c) Set **Identifier** = deleteResponseMessageParts.

   d) In the **Type** field, expand **Schemas**, and then click **<Select from Referenced Assembly...>** from the list. In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** in the right pane.

Create messages and set properties

This section provides instructions to create messages that are used in this orchestration and to set the message properties.

1. Click **Orchestration View** tab.

    a) Right-click **Messages** node and click **New Message**. This step will create a new message with an identifier of Message_1.

    b) Repeat the preceding step and create three new messages: Message_2, Message_3, and Message_4.

2. Right-click **Message_1** and select **Properties Window**. Set the properties for this message as follows:

    - **Identifier** = Message_EK_InfromFile

    - In the **Message Type** field, expand **Schemas**, and then click **<Select from Referenced Assembly...>** from the list. In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5** in the left pane. Select **EntityKeyList** in the right pane. Click **OK**.

3. Set the properties for **Message_2** as follows:

    - **Identifier** = Message_ ReadSORequest_BTStoAX

    - In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_read_Request** from the list.

4. Set the properties for Message_3 as follows:

    - **Identifier** = Message_ ReadSOResponse_AXtoBTS

    - In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_read_Response** from the list.

5. Set the properties for **Message_4** as follows:

    - **Identifier** = Message_ SOReturn_OuttoFile

    - In the **Message Type** field, expand **Schemas**, and then select **AIFSOWalkthrough.SalesOrderService_SalesOrder** from the list.

Create and configure ports

This section provides instructions to create and configure ports that are used in the orchestration.

1. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to the **Receive_1** shape. Instructions to complete the **Port Configuration Wizard** are as follows.

    a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

    b) Set **Name** to Port_EKList_InfromFile and click **Next**. BizTalk uses this port to receive the entity key list from the inbound file folder.

    c) Set **Port Type Name** to PortType_EKList_InfromFile and click **Next**.

    d) In the **Port direction of communication** field, select **I'll always be receiving messages on this port** from the list. Click **Next**.

    e) Click **Finish**.

2. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape near shape **Send_1**. Instructions to complete the **Port Configuration Wizard** are as follows.

    a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

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b) Set **Name** to Port_SalesOrderServiceSync and click **Next**. BizTalk uses this port to send a read request to the AIF and receive a read response from the AIF.

c) Click the **Use an existing Port type** radio button.

d) Click **AIFSOWalkthrough.SalesOrderService_Sync**.

e) Click **Next**.

f) In the **Port direction of communication** field, select **I'll be sending a request and receiving a response** from the list and click **Next**.

g) Click **Finish**.

h) Confirm that **Port_SalesOrderServiceSync** contains delete, read, and update operations on the **Port Surface**.

3. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to shape **Send_2**. Instructions to complete the Port Configuration Wizard are as follows.

a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

b) Set **Name** to Port_SendSO_OuttoFile and click **Next**. BizTalk uses this port to send the sales order to the outbound file folder.

c) Set **Port Type Name** to PortType_SendSO_OuttoFile and click **Next**.

d) In the **Port direction of communication** field, select **I'll always be sending messages on this port** from the list. Click **Next**.

e) Click **Finish**.

Configure shapes

This section provides instructions to configure the shapes that we added earlier to the orchestration. Use the following steps in the **Orchestration** window to configure shapes.

1. Right-click the shape **Receive_1** and select **Properties Window**.

a) Set property values as follows:

- **Activate** = True (from the list)
- **Message =** Select Message_EK_InfromFile (from the list)
- **Name =** Receive_EK

Note: You need to click anywhere outside the **Name** field for the name of the shape to change from **Receive_1** to **Receive_EK**. This applies to all the shapes.

b) Connect **Port_EKList_InfromFile** with shape **Receive_EK** by dragging the **Port Connector Line** in Visual Studio.

2. Configure shape **ConstructMessage_1**.

a) Set property values as follows:

- **Message_Constructed** = Select Message_ReadSORequest_BTStoAX (from the list)
- **Name =** ConstructMessage_EK

b) Double-click **MessageAssignment_1** within shape **ConstructMessage_EK.** Copy or type the following code into the **BizTalk Expression Editor**. Note that the code makes references to the local and remote endpoints. Make sure the values entered in the code are those entered on the AIF configuration forms.

```
Message_ReadSORequest_BTStoAX._entityKeyList = Message_EK_InfromFile;
Message_ReadSORequest_BTStoAX(DynamicsAx5.DestinationEndpoint) = "LocalEP";
```

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```
Message_ReadSORequest_BTStoAX(DynamicsAx5.SourceEndpoint) = "RemoteEP";
Message_ReadSORequest_BTStoAX(DynamicsAx5.Action) =
"http://schemas.microsoft.com/dynamics/2008/01/services/SalesOrderService/read";
```
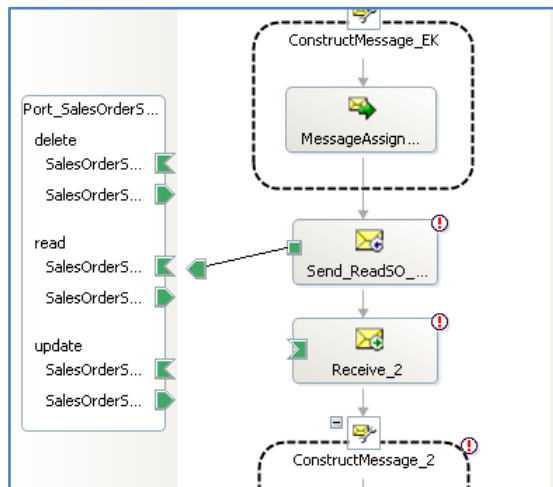
    c) Click **Apply** and then click **OK**.

3. Configure shape **Send_1**.

    a) Set property values as follows:

- **Message** = Select Message_ReadSORequest_BTStoAX (from the list)
- **Name =** Send_ReadSO_Request

    b) Connect shape **Send_ReadSO_Request** with the message type **SalesOrderService_read_Request** as shown in the following screen shot.

4. Configure shape **Receive_2**.

    a) Set property values as follows:

- **Message** = Select Message_ReadSOResponse_AXtoBTS (from the list)
- **Name =** Receive_ReadSO_Response

    b) Connect shape **Receive_ReadSO_Response** with the message type **SalesOrderService_read_Response** in port **Port_SalesOrderServiceSync** by dragging the **Port Connector Line** in Visual Studio.

5. Configure shape **ConstructMessage_2**. In this step, the orchestration constructs the message that will be placed in the outbound file folder.

    a) Set property values as follows:

- **Message_Constructed** = Select Message_SOReturn_OuttoFile (from the list)
- **Name =** ConstructMessage_SalesOrder

    b) Double-click MessageAssignment_1 within shape ConstructMessage_SalesOrder. Copy or type the following code into the **BizTalk Expression Editor**.

```
Message_SOReturn_OuttoFile = Message_ReadSOResponse_AXtoBTS.ReturnValue;
```

    c) Click **Apply** and then click **OK**.

6. Configure shape **Send_2**.

    a) Set property values as follows:

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- **Message** = Select Message_SOReturn_OuttoFile (from the list)
- **Name =** Send_SalesOrder_ToFile

b) Connect shape **Send_SalesOrder_ToFile** with the port **Port_SendSO_OuttoFile** by dragging the **Port Connector Line** in Visual Studio.

c) Your orchestration should look similar to the following screen shot.
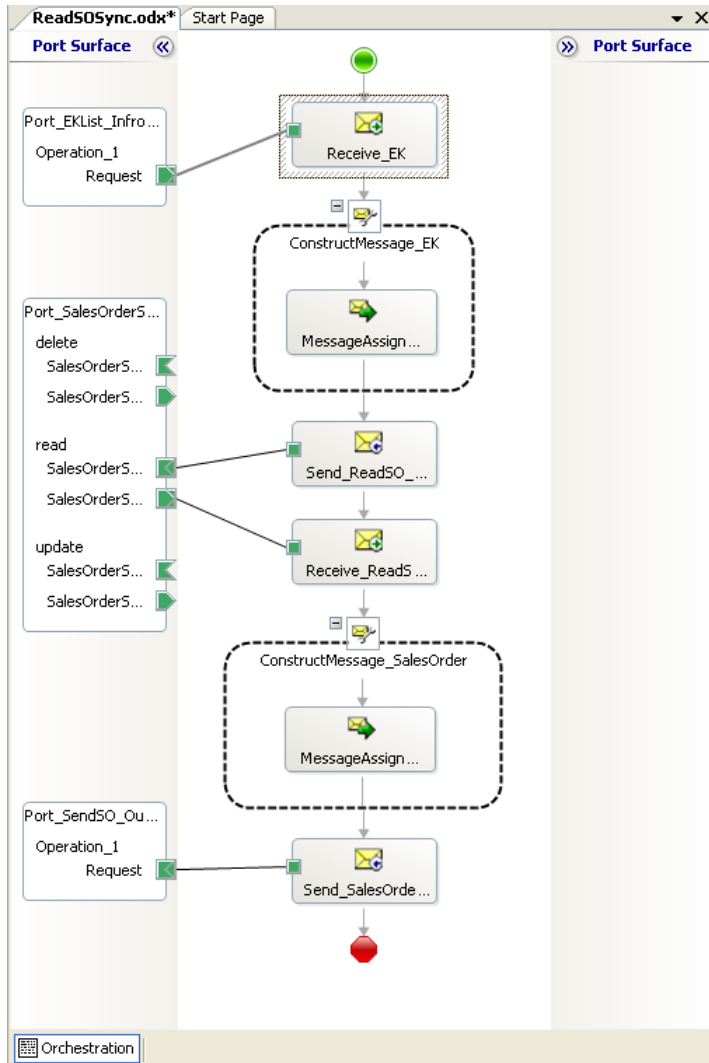
7. Save the project.

Create an orchestration to update a sales order

This section provides step-by-step instructions to create and configure the synchronous orchestration to update a sales order. Use the following steps to create the orchestration.

- Add the orchestration

- Add shapes to the orchestration.

- Create messages and set properties

- Create and configure ports

- Configure shapes

Add the orchestration

When you created the ReadSOSync orchestration, you already selected the update operation. You do not need to add the adapter metadata again. You need to add an orchestration to the project.

1. In the **Solution Explorer** pane, right-click **AIFSOWalkthrough**. Select **Add** and click **New Item**.

2. When the **Add New Item – AIFSOWalkthrough** window opens, select **BizTalk Orchestration**.

   a) In the **Name** field, enter UpdateSOSync.

   b) Click **Add**.

Add shapes to the orchestration

Open **UpdateSOSync.odx.** Using the **Toolbox**, drag and drop the following shapes in the order shown:

1. Receive

2. Message Assignment

3. Send

4. Receive

5. Message Assignment

6. Send

Create messages and set properties

This section provides instructions to create messages that are used in this orchestration and set the message properties.

1. Click **Orchestration View** tab.

   a) Right-click **Messages** node and click **New Message**. This step will create a new message with an identifier of Message_1.

   b) Repeat the preceding step and create three new messages: Message_2, Message_3, and Message_4.

2. Right-click **Message_1** and select **Properties Window**. Set the properties for this message as follows:

   - **Identifier** = Message_ReceivedUpdateRequestMessageParts_InfromFile

   - In the **Message Type** field, expand **Schemas**, and then click **<Select from Referenced Assembly...>** from the list. In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** in the right pane. Click **OK**.

3. Set the properties for **Message_2** as follows:

    - **Identifier** = Message_ UpdateSORequest_BTStoAX

    - In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_update_Request** from the list.

4. Set the properties for Message_3 as follows:

    - **Identifier** = Message_ UpdateSOResponse_AXtoBTS

    - In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_update_Response** from the list.

5. Set the properties for **Message_4** as follows:

    - **Identifier** = Message_ UpdateResponse_OuttoFile

    - In the **Message Type** field, expand **.NET Classes** and then select **System.String.**

Create and configure ports

This section provides instructions to create and configure ports that are used in the orchestration.

1. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to the **Receive_1** shape. Instructions to complete the **Port Configuration Wizard** are as follows.

    a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

    b) Set **Name** to Port_ReceiveUpdateRequestMessageParts_InfromFile and click **Next**. BizTalk uses this port to receive the update request document from the inbound file folder.

    c) Set **Port Type Name** to PortType_ ReceiveUpdateRequestMessageParts_InfromFile and click **Next**.

    d) In the **Port direction of communication** field, select **I'll always be receiving messages on this port** from the list. Click Next.

    e) Click **Finish**.

2. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape near shape **Send_1**. Instructions to complete the **Port Configuration Wizard** are as follows.

    a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

    b) Set **Name** to Port_SalesOrderService_Update and click **Next**. BizTalk uses this port to send an update request to the AIF and receive an update response from the AIF.

    c) Click the **Use an existing Port type** radio button.

    d) Click **AIFSOWalkthrough.SalesOrderService_Sync**.

    e) Click **Next**.

    f) In the **Port direction of communication** field, select **I'll be sending a request and receiving a response** from the list and click **Next**.

    g) Click **Finish**.

    h) Confirm that **Port_SalesOrderService_Update** contains delete, read and update operations on the **Port Surface**.

3. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to shape Send_2. Instructions to complete the Port Configuration Wizard are as follows.

    a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

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b) Set **Name** to Port_SendUpdateResponse_OuttoFile and click **Next**. BizTalk uses this port to send the sales order to the outbound file folder.

c) Set **Port Type Name** to PortType_ SendUpdateResponse_OuttoFile and click **Next**.

d) In the **Port direction of communication** field, select **I'll always be sending messages on this port** from the list. Click **Next**.

e) Click **Finish**.

Configure shapes

This section provides instructions to configure the shapes that you added earlier to the orchestration. Use the following steps in the **Orchestration** window to configure shapes.

1. Right-click the shape **Receive_1** and select **Properties Window**.

    a) Set property values as follows:

    - **Activate** = True

    - **Message** = Select Message_ReceivedUpdateRequestMessageParts_InfromFile (from the list)

    - **Name =** Receive_UpdateRequest

    Note: You need to click somewhere outside of the **Name** field for the name of the shape to change from **Receive_1** to the new name. This applies to all the shapes.

    b) Connect **Port_ReceiveUpdateRequestMessageParts_InfromFile** with shape **Receive_UpdateRequest** by dragging the **Port Connector Line** in Visual Studio.

2. Configure shape ConstructMessage_1.

    a) Set property values as follows:

    - **Message_Constructed** = Select Message_UpdateSORequest_BTStoAX (from the list)

    - **Name =** ConstructMessage_UpdateRequest

    b) Double-click **MessageAssignment_1** within shape **ConstructMessage_UpdateRequest**. Copy or type the following code in **BizTalk Expression Editor**. Note that the code makes references to the local and remote endpoints. You created these endpoints earlier using the AIF configuration forms in Microsoft Dynamics AX. Make sure the values are those entered on the AIF configuration forms.

    ```
    Message_UpdateSORequest_BTStoAX.updateRequestMessageParts =
    Message_ReceivedUpdateRequestMessageParts_InfromFile;
    Message_UpdateSORequest_BTStoAX(DynamicsAx5.DestinationEndpoint) = "LocalEP";
    Message_UpdateSORequest_BTStoAX(DynamicsAx5.SourceEndpoint) = "RemoteEP";
    Message_UpdateSORequest_BTStoAX(DynamicsAx5.Action) =
    "http://schemas.microsoft.com/dynamics/2008/01/services/SalesOrderService/updat
    e";
    ```

    c) Click **Apply** and then click **OK**.

3. Configure shape **Send_1**.

    a) Set property values as follows:

    - **Message** = Select Message_UpdateSORequest_BTStoAX (from the list)

    - **Name =** Send_UpdateSO_Request

b) Connect shape **Send_UpdateSO_Request** with the message type **SalesOrderService_Update_Request** in port **Port_SalesOrderService_Update** by dragging the **Port Connector Line** in Visual Studio as shown in the following screen shot.
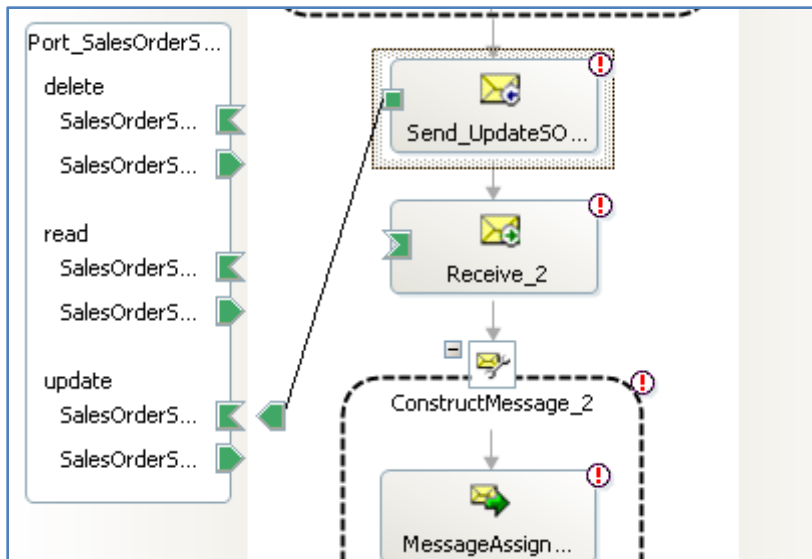
4. Configure shape **Receive_2**.

a) Set property values as follows:

- **Message** = Select Message_UpdateSOResponse_AXtoBTS (from the list)

- **Name =** Receive_UpdateSO_Response

b) Connect shape **Receive_UpdateSO_Response** with the message type **SalesOrderService_Update_Response** in port **Port_SalesOrderService_Update** by dragging the **Port Connector Line** in Visual Studio.

5. Configure shape **ConstructMessage_2**. In this step, the orchestration constructs the message that will be placed in the outbound file folder.

a) Set property values as follows:

- **Message_Constructed** = Select Message_UpdateResponse_OuttoFile (from the list)

- **Name =** ConstructMessage_UpdateResponse.

b) Double-click **MessageAssignment_1** within shape ConstructMessage_UpdateResponse. Copy or type the following code into the **BizTalk Expression Editor**.

```
Message_UpdateResponse_OuttoFile =  System.String.Format("Update successful for
message Id '{0}'",
Message_UpdateSOResponse_AXtoBTS(DynamicsAx5.RequestMessageId));
```

c) Click **Apply** and then click **OK**.

6. Configure shape **Send_2**.

a) Set property values as follows:

- **Message** = Select Message_UpdateResponse_OuttoFile (from the list)

- **Name =** Send_UpdateResponse_ToFile

b) Connect shape **Send_UpdateResponse_ToFile** with the port **Port_SendUpdateResponse_OuttoFile** by dragging the **Port Connector Line** in Visual Studio.

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c) Your orchestration should look similar to the following screen shot.
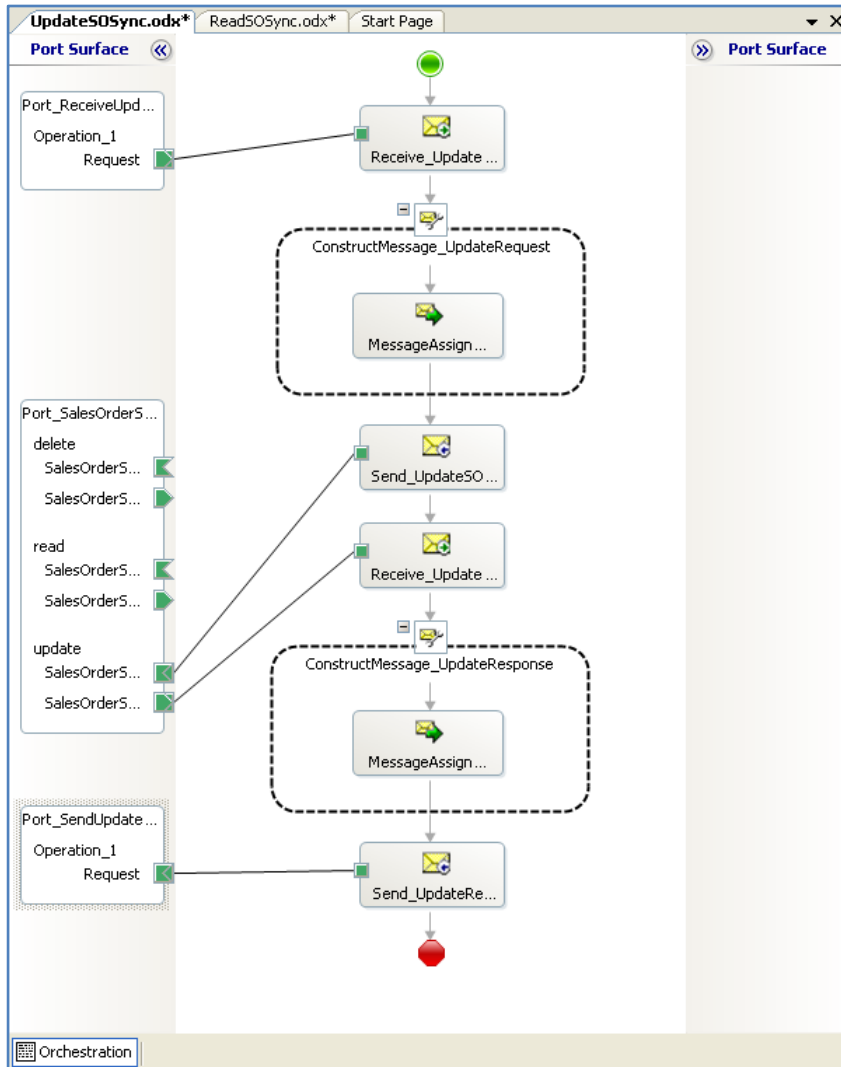
7. Save the project.

Create an orchestration to delete a sales order

This section provides step-by-step instructions to create and configure the synchronous orchestration to delete a sales order. Use the following steps to create the orchestration.

- Add the orchestration
- Add shapes to the orchestration.
- Create messages and set properties
- Create and configure ports
- Configure shapes

Add the orchestration

When you created the ReadSOSync orchestration, you already selected the delete operation. So you only need to add an orchestration to the project.

1. In the **Solution Explorer** pane, right-click **AIFSOWalkthrough**. Select **Add** and click **New Item**.

2. When the **Add New Item – AIFSOWalkthrough** window opens, select **BizTalk Orchestration**.

   a) In the **Name** field, enter DeleteSOSync.

   b) Click **Add**.

Add shapes to the orchestration

Open **DeleteSOSync.odx.** Using the **Toolbox**, drag and drop the following shapes in the order shown:

1. Receive
2. Message Assignment
3. Send
4. Receive
5. Message Assignment
6. Send

Create messages and set properties

This section provides instructions to create messages that are used in this orchestration and set the message properties.

1. Click **Orchestration View** tab.

   a) Right-click **Messages** node and click **New Message**. This step will create a new message with an identifier of Message_1.

   b) Repeat the preceding step and create three new messages: Message_2, Message_3, and Message_4.

2. Right-click **Message_1** and select **Properties Window**. Set the properties for this message as follows:

   - **Identifier** = Message_ReceivedDeleteRequestMessageParts_InfromFile

   - In the **Message Type** field, expand **Schemas**, and then click <**Select from Referenced Assembly...>** from the list. In the **Select Artifact Type** window, expand **References > Microsoft.Dynamics.BizTalk.Adapter.Schemas > {} DynamicsAx5.Message** in the left pane. Select **MessageParts** in the right pane. Click **OK**.

3. Set the properties for **Message_2** as follows:

- **Identifier** = Message_ DeleteSORequest_BTStoAX

- In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_delete_Request** from the list.

4. Set the properties for Message_3 as follows:

- **Identifier** = Message_ DeleteSOResponse_AXtoBTS

- In the **Message Type** field, expand **Multi Part Message Types** and select **AIFSOWalkthrough.SalesOrderService_delete_Response** from the list.

5. Set the properties for **Message_4** as follows:

- **Identifier** = Message_ DeleteResponse_OuttoFile

- In the **Message Type** field, expand **.NET Classes**, and then select **System.String.**

Create and configure ports

This section provides instructions to create and configure ports that are used in the orchestration.

1. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to the **Receive_1** shape. Instructions to complete the **Port Configuration Wizard** are as follows.

   a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

   b) Set **Name** to Port_ReceiveDeleteRequestMessageParts_InfromFile and click **Next**. BizTalk uses this port to receive the delete request document from the inbound file folder.

   c) Set **Port Type Name** to PortType_ ReceiveDeleteRequestMessageParts_InfromFile and click **Next**.

   d) In the **Port direction of communication** field, select **I'll always be receiving messages on this por**t from the list. Click **Next**.

   e) Click **Finish**.

2. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape near shape **Send_1**. Instructions to complete the **Port Configuration Wizard** are as follows.

   a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

   b) Set **Name** to Port_SalesOrderService_Delete and click **Next**. BizTalk uses this port to send a delete request to the AIF and receive a delete response from the AIF.

   c) Click the **Use an existing Port type** radio button.

   d) Click **AIFSOWalkthrough.SalesOrderService_Sync**.

   e) Click **Next**.

   f) In the **Port direction of communication** field, select **I'll be sending a request and receiving a response** from the list and click **Next**.

   g) Click **Finish**.

   h) Confirm that **Port_SalesOrderService_Delete** contains delete, read and delete operations on the **Port Surface**.

3. From the **Toolbox**, drag a **Port** shape on the **Port Surface** to the left side of the orchestration. Drop the port shape parallel to shape **Send_2**. Instructions to complete the **Port Configuration Wizard** are as follows.

   a) Click **Next** on the **Welcome to the Port Configuration Wizard** window.

b) Set **Name** to Port_SendDeleteResponse_OuttoFile and click **Next**. BizTalk uses this port to send the sales order to the outbound file folder.

c) Set **Port Type Name** to PortType_SendDeleteResponse_OuttoFile and click **Next**.

d) In the **Port direction of communication** field, select **I'll always be sending messages on this port** from the list. Click **Next**.

e) Click **Finish**.

Configure shapes

This section provides instructions to configure the shapes that you added earlier to the orchestration.

1. Configure shape **Receive_1**.

   a) Select **Orchestration** window. Right-click the shape **Receive_1** and select **Properties Window**. Set property values as follows:

      - **Activate** = True

      - **Message** = Select Message_ReceivedDeleteRequestMessageParts_InfromFile (from the list)

      - **Name =** Receive_DeleteRequest

      Note: You need to click somewhere outside of the **Name** field for the name of the shape to change from **Receive_1** to the new name. This applies to all the shapes.

   b) Connect Port_ReceiveDeleteRequestMessageParts_InfromFile with shape Receive_DeleteRequest by dragging the Port Connector Line in Visual Studio.

2. Configure shape **ConstructMessage_1**

   a) Set property values as follows:

      - **Message_Constructed** = Select Message_DeleteSORequest_BTStoAX (from the list)

      - **Name =** ConstructMessage_DeleteRequest

   b) Double-click **MessageAssignment_1** within shape **ConstructMessage_DeleteRequest.** Copy or type the following code into the **BizTalk Expression Editor**. Note that the code makes references to the local and remote endpoints. Make sure the values entered in the code are those entered on the AIF configuration forms.

      ```
      Message_DeleteSORequest_BTStoAX.deleteRequestMessageParts =
      Message_ReceivedDeleteRequestMessageParts_InfromFile;
      Message_DeleteSORequest_BTStoAX(DynamicsAx5.DestinationEndpoint) = "LocalEP";
      Message_DeleteSORequest_BTStoAX(DynamicsAx5.SourceEndpoint) = "RemoteEP";
      Message_DeleteSORequest_BTStoAX(DynamicsAx5.Action) =
      "http://schemas.microsoft.com/dynamics/2008/01/services/SalesOrderService/delet
      e";
      ```

   c) Click **Apply** and then click **OK**.

3. Configure shape **Send_1**.

   a) Set property values as follows:

      - **Message** = Select Message_DeleteSORequest_BTStoAX (from the list)

      - **Name =** Send_DeleteSO_Request

b) Connect shape **Send_DeleteSO_Request** with the message type
SalesOrderService_Delete_Request in port **Port_SalesOrderService_Delete** by dragging
the **Port Connector Line** in Visual Studio as shown in the following screen shot.
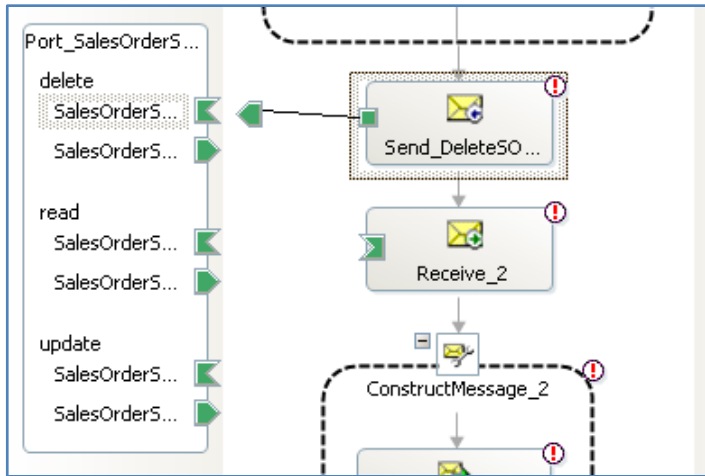
4. Configure shape **Receive_2**.

a) Set property values as follows:

- **Message** = Select Message_DeleteSOResponse_AXtoBTS (from the list)

- **Name =** Receive_DeleteSO_Response

b) Connect shape **Receive_DeleteSO_Response** with the message type
SalesOrderService_Delete_Response in port **Port_SalesOrderService_Delete** by
dragging the **Port Connector Line** in Visual Studio.

5. Configure shape **ConstructMessage_2**. In this step, the orchestration constructs the message
that will be placed in the outbound file folder.

a) Set property values as follows:

- **Message_Constructed** = Select Message_DeleteResponse_OuttoFile (from the list)

- **Name =** ConstructMessage_DeleteResponse

b) Double-click **MessageAssignment_1** within shape **ConstructMessage_DeleteResponse**.
Copy or type the following code into the BizTalk Expression Editor.

```
Message_DeleteResponse_OutToFile =  System.String.Format("Delete successful for
message Id '{0}'",
Message_DeleteSOResponse_AXtoBTS(DynamicsAx5.RequestMessageId));
```

c) Click **Apply** and then click **OK**.

6. Configure shape **Send_2**.

a) Set property values as follows:

- **Message** = Select Message_DeleteResponse_OuttoFile (from the list)

- **Name =** Send_DeleteResponse_ToFile

b) Connect shape **Send_DeleteResponse_ToFile** with the port
Port_SendDeleteResponse_OuttoFile by dragging the **Port Connector Line** in Visual
Studio.

c) Your orchestration should look similar to the following screen shot.
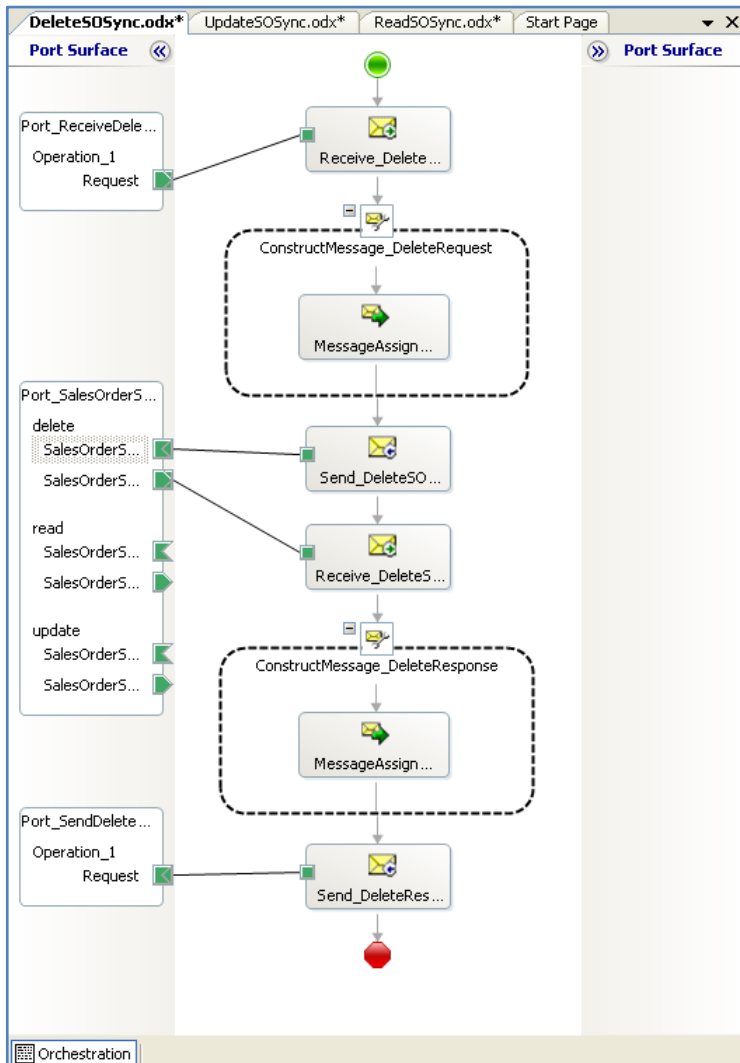
7. Save the project.

Create a strong name key

You will need to create and assign a strong name key to compile the Visual Studio project.

1. Open a command prompt window and navigate to C:\Program Files\Microsoft Visual Studio 8\SDK\v2.0 \Bin.

2. Type **sn –k "c:\ AIFSOWalkthrough.snk"** and press Enter. Make sure you get a message that a key pair was written as shown in the following screen shot.
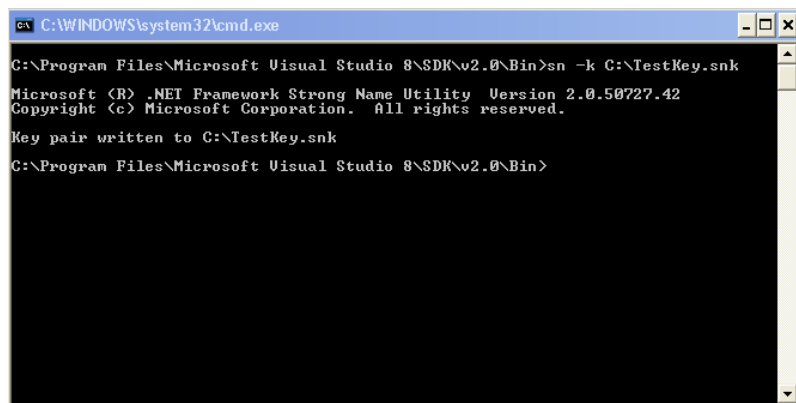
Build and deploy the Visual Studio project

You are now ready to build the Visual Studio project and deploy it to the BizTalk Server.

1. In Visual Studio 2005 navigate to **Project > AIFSOWalkthrough Properties**.

2. Expand **Common Properties** and click **Assembly** in the left pane. Locate and click **Assembly Key File** in the right pane**.** Click the ellipses in the **Assembly Key File** field. Navigate to the location of the strong name key file that was created in the preceding section and select the file (C:\AIFSOWalkthrough.snk).

3. In the left pane, expand **Configuration Properties** and click **Deployment.** Set the following property values:

   - **Server** = AX-SRV-01

   - **Application Name** = AIFSOWalkthrough. The value you set in this field will be used as the BizTalk application.

4. Click **Apply** and then click **OK**.

5. In the **Solution Explorer** pane, right-click **AIFSOWalkthrough**.

   a) Click **Deploy**.

   b) Check the status bar to confirm that the deployment is successful.
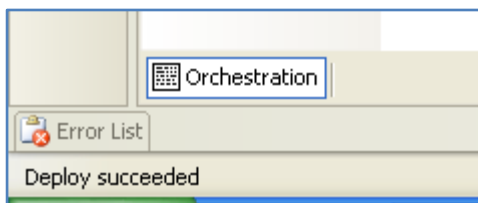
Configure orchestration in BizTalk Server

This section provides instructions to configure the synchronous orchestrations in the BizTalk Server 2006 Administration Console. To begin:

1. Launch the **BizTalk Server 2006 Administration Console**. If the administrative console is already launched, you need to right-click the BizTalk group and click **Refresh**.

2. Navigate to **AIFSOWalkthrough** by expanding parent nodes as shown in the following screen shot. Right-click **AIFSOWalkthrough** and select **Configure**.
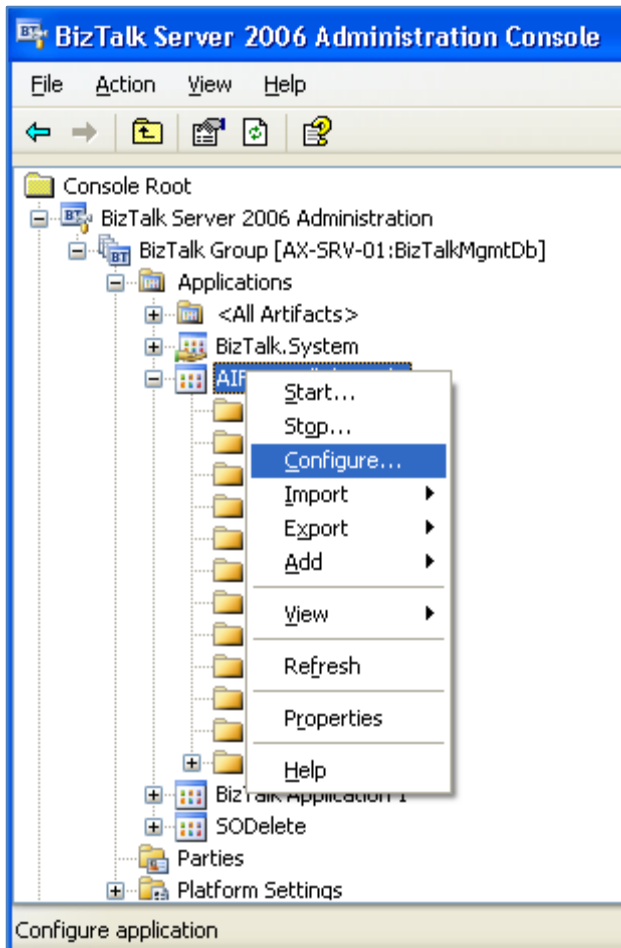
Configure the DeleteSOSync orchestration

1. Click **DeleteSOSync**. This is the **DeleteSOSync.odx** orchestration in the Visual Studio 2005 project.

2. In the **Host** field, select **BizTalk Server Application** from the list.
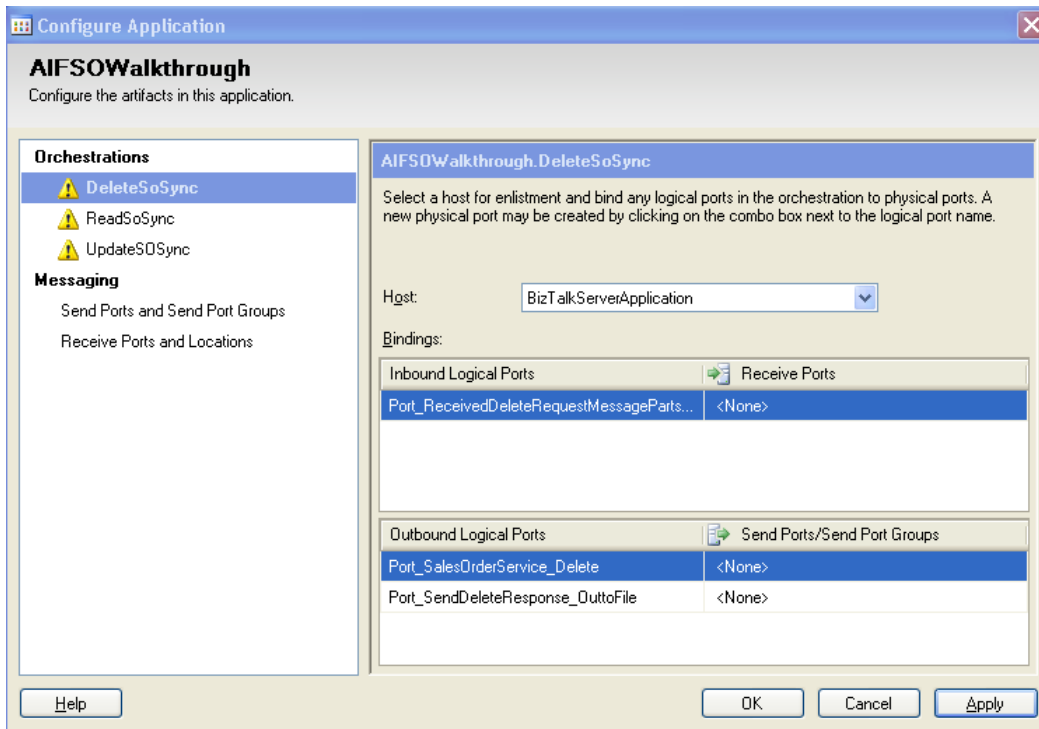
Configure receive port Port_ReceiveDeleteRequestMessageParts_InfromFile

1. In the **Configure Applications** window, click **<None>** in the **Port_ReceiveDeleteRequestMessageParts_InfromFile** field and select **<New Receive Port...>** from the list.

2. In the **Receive Port Properties** window, set the **Name** to ReceivePort1_SODelete then click **Receive Locations** (in the left pane).

3. In the **Receive Locations** pane, click **New**. Set properties as follows:

   a) **Name =** Receive Location SODelete Inbound

   b) In the **Type** field, select **File** from the list and click **Configure.**

   c) In the **File Transport Properties** window, click **Browse**.

   d) Create a new folder that will be used as the inbound folder. Name the folder **SODelete**. Select **SODelete** and click **OK**.

   e) Click **OK** to continue.

4. Set **Receive pipeline** to **XMLReceive**, click **Apply** and then click **OK**.

5. Click **OK** to return to the **Configure Application** window.

Configure send port Port_SalesOrderService_Delete

In this step, you will configure the AIF BizTalk adapter for the send port.

1. In the **Configure Application** window, click **<None>** in **Port_SalesOrderService_Delete** field and then select **< New Send Port...>** from the list.

2. In the **Send Port Properties** window, set property values as follows:

   - **Name** = SendPort1_AX_Adapter

   - In the **Type** field, select **Microsoft Dynamics AX 2009** from the list and then click **Configure**.

3. In the **Microsoft Dynamics AX 2009 Transport Properties** window, set the following property values:

   - **Authentication Type** = Select **Proxy Us**er from the list

   - **Gateway User** = contoso\administrator

   - **Proxy User** = contoso\administrator

   - **Proxy User Password** = Password of the proxy user ("pass@word1" for this walkthrough).

   - **AOS Port** = 2712

   - **AOS Server** = AX-SRV-01

   - Click **Apply** and then click **OK**.

4. In the **Send Port Properties** window, click **Apply** and then click **OK**.

Configure send port Port_SendDeleteResponse_OuttoFile

In this step, you will map an outbound file folder with the send port. You can either create a unique file folder for each send port or you can reuse the same folder for all the send ports. This document will reuse the same outbound folder for all the send ports that use the file system.

1. In the **Configure Application** window, click **<None>** in the **Port_ SendDeleteResponse_OuttoFile** field and then select **<New Send Port... >** from the list.

2. In the **Send Port Properties** window, set property values as follows:

   a) **Name** = SendPort1_SODelete

   b) In the **Type** field, select **File** from the list and then click **Configure**. In the **File Transport Properties** window, click **Browse**. Create a new folder that will be used as the outbound folder. Name the folder **SOOut**. Select **SOOut** and click **OK**.

   c) Set the **File name** field to SODelete%MessageID%.xml. All the messages coming from this port to the folder will be prefixed with "SODelete". This way, you can identify different messages coming from different send ports.

3. Click **OK** to continue.

4. Set **Send pipeline** to **XMLTransmit**, click **Apply**, and then click **OK**.

5. Click **OK** to return to the **Configure Application** window.

Configure the ReadSOSync orchestration

1. In the **Configure Application** window, click **ReadSOSync**. This is the **ReadSOSync.odx** orchestration in the Visual Studio 2005 project.

2. In the **Host** field, select **BizTalk Server Application** from the list.

Configure receive port Port_EKList_InfromFile

1. In the **Configure Application** window, click <None> in the Port_EKList_InfromFile field and select <New Receive Port…> from the list.

2. In the **Receive Port Properties** window, set the **Name** to ReceivePort_SORead, then click **Receive Locations** in the left pane.

3. In the **Receive Locations** pane, click **New**. Set properties as follows:

   a) **Name =** Receive Location SORead

   b) **Type** = Select **File** from the list and click **Configure**

   c) In the **File Transport Properties** window, click **Browse**. Create a new folder that will be used as the receive folder. Name the folder **SORead**. Select **SORead** and click **OK**.

   d) Click **OK** to continue.

4. Set **Receive pipeline** to **XMLReceive**, click **Apply** and then click **OK**.

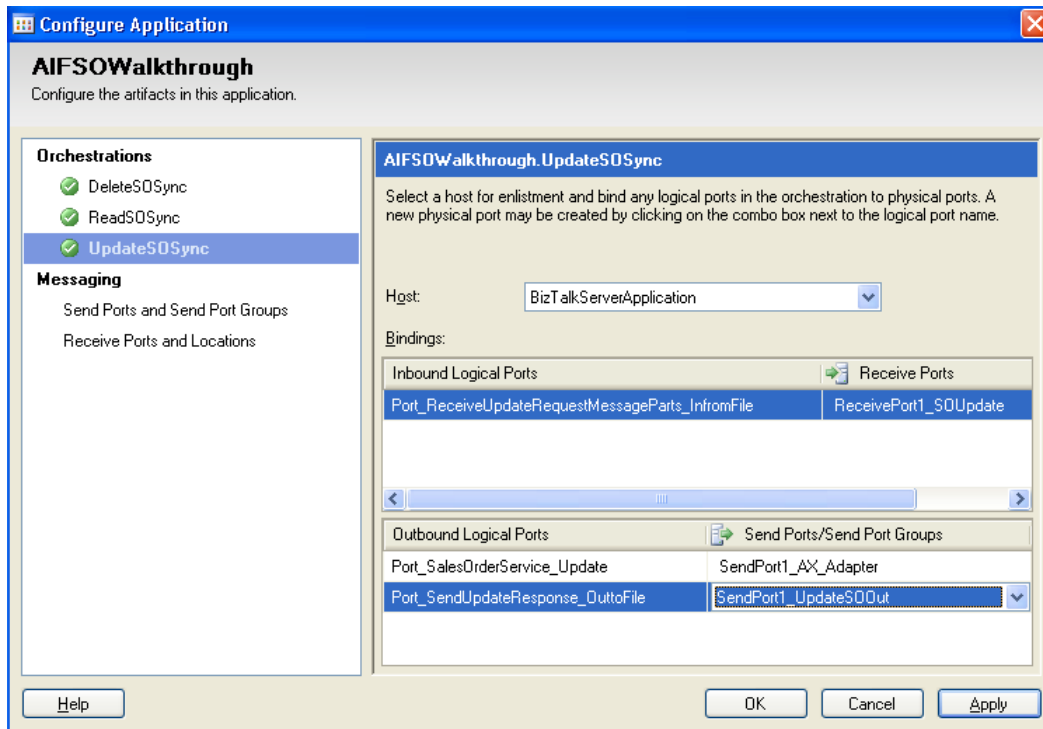5. Click **OK** to return to the **Configure Application** window.

Configure send port Port_SalesOrderServiceSync

In the **Configure Application** window, click **<None>** in **Port_SalesOrderServiceSync** field and then select **SendPort1_AX_Adapter** from the list. Within a given application, you can have only one instance of the AIF BizTalk adapter defined as a send port.

Configure send port Port_SendSO_OuttoFile

1. In the **Configure Application** window, click **<None>** in the **Port_SendDeleteResponse_OuttoFile** field and then select **<New Send Port... >** from the list.

2. In the **Send Port Properties** window, set property values as follows:

   a) **Name** = SendPort1_SORead

   b) In the **Type** field, select **File** from the list and then click **Configure**.

   c) In the **File Transport Properties** window, click **Browse**. Locate and select folder **SOOut** and click **OK**.

   d) Set the **File name** field to SORead%MessageID%.xml. All the messages coming from this send port to the file folder will be prefixed with "SORead".

   e) Click **OK** to continue.

3. Set **Send pipeline** to **XMLTransmit** and click **Apply** and then click **OK**.

4. Click **OK** to return to the **Configure Application** window.

Configure the UpdateSOSync orchestration

1. In the **Configure Application** window, click **UpdateSOSync**. This is the **UpdateSOSync.odx** orchestration in the Visual Studio 2005 project.

2. In the **Host** field, select **BizTalk Server Application** from the list.

Configure receive port Port_ReceiveUpdateRequestMessageParts_InfromFile

1. In the **Configure Application** window, click **<None>** in the Port_**ReceiveUpdateRequestMessageParts _InfromFile** field and select **<New Receive Port...>** from the list.

2. In the **Receive Port Properties** window, set the **Name** to ReceivePort1_SOUpdate then click **Receive Locations** in the left pane.

3. In the **Receive Locations** pane, click **New**. Set properties as follows:

   a) **Name =** Receive Location SOUpdate

   b) In the **Type** field, select **File** from the list and click **Configure.** In the **File Transport Properties** window, click **Browse**. Create a new folder that will be used as the receive folder. Name the folder **SOUpdate**. Select **SOUpdate** and click **OK**.

4. Click **OK** to continue.

5. Set **Receive pipeline** to **XMLReceive**, click **Apply** and then click **OK**.

6. Click **OK** to return to the **Configure Application** window.

Configure send port Port_SalesOrderService_Update

In the **Configure Applicatio**n window, click **<None>** in **Port_SalesOrderService_Update** field and then select **SendPort1_AX_Adapter** from the list. Within a given application, you can create only one instance of the AIF BizTalk adapter as a send port.

Configure send port Port_SendSO_OuttoFile

1. In the **Configure Application** window, click **<None>** in the **Port_ SendUpdateResponse_OuttoFile** field and then select **<New Send Port... >** from the list.

2. In the **Send Port Properties** window, set property values as follows:

   a) **Name** = SendPort1_SOUpdate

   b) In the **Type** field, select **File** from the list and then click **Configure**.

   c) In the **File Transport Properties** window, click **Browse**. Locate and select folder **SOOut** and click **OK**.

   d) Set the **File name** field to SOUpdate%MessageID%.xml.

   e) Click **OK** to continue.

3. Set **Send pipeline** to **XMLTransmit** and click **Apply** and then click **OK**.

4. Click **OK** to return to the **Configure Application** window.

5. Your **Configure Application** window should look similar to the following screen shot.

6. Click **OK** to close the **Configure Application** window and return to the **BizTalk 2006 Administrative Console**.

Enable the receive locations.

This section and the following section provide instructions to work with receive locations, send ports, and the orchestration individually. Alternatively, you can right-click the application and then select **Start** to automatically start all related receive locations, send ports, and the orchestration.

Click the **Receive Locations** node in the **BizTalk Server 2006 Administration Console**. Select the three locations that you created earlier. Right-click the selection and click **Enable**.
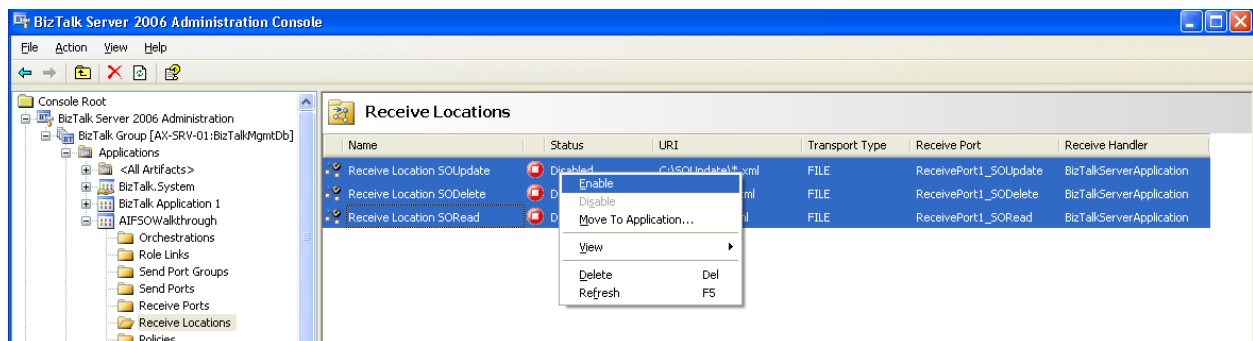
Start the send ports.

Click the **Send Ports** node in the left pane. Select the four send Ports that you created earlier. Right-click the selection and click **Start.**
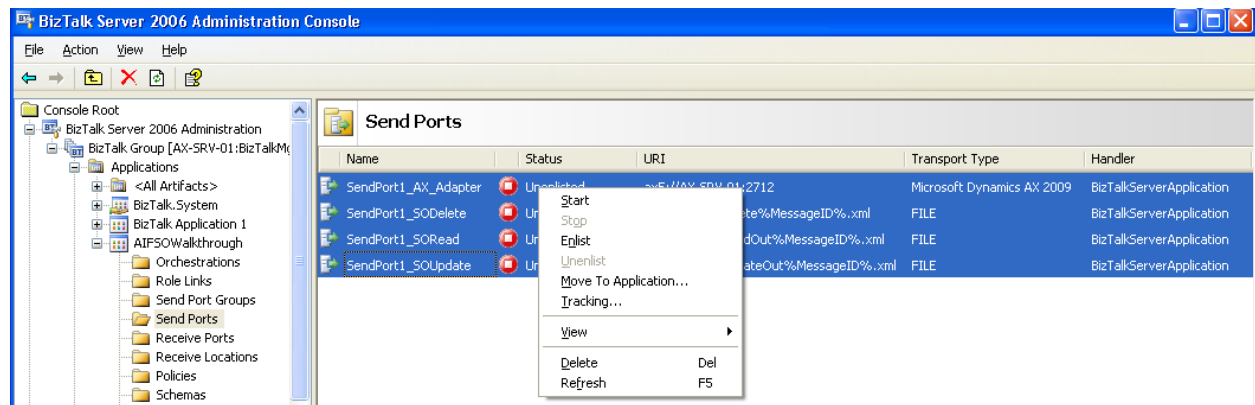
Start the orchestration.

Select the **Orchestrations** node. Select the three orchestrations that you configured earlier. Right-click the selection and click **Start**.

APPLICATION INTEGRATION FRAMEWORK (AIF) BIZTALK ADAPTER CONFIGURATION FOR DATA EXCHANGE, PART II
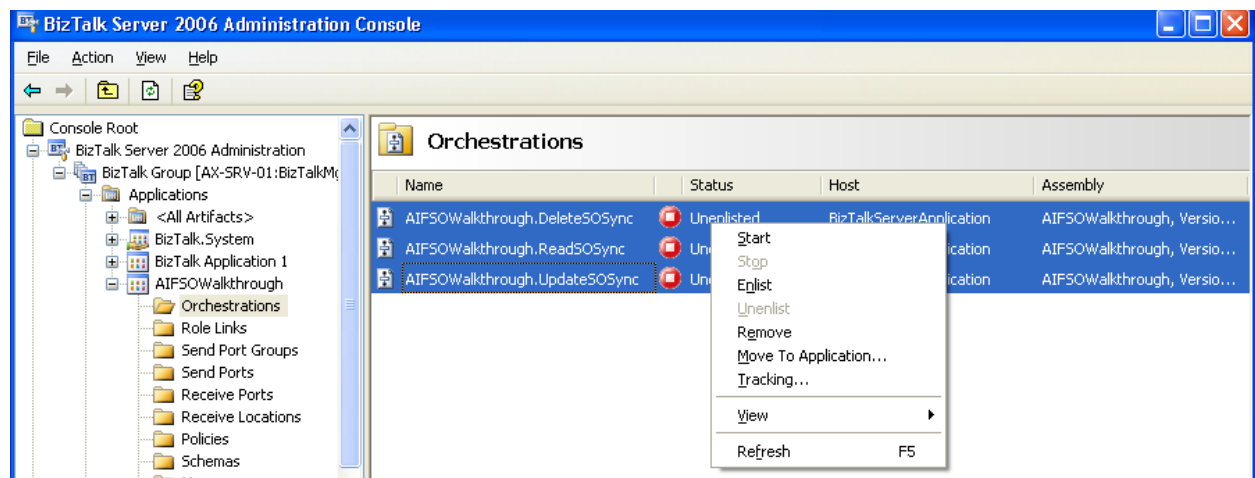
Restart the host instances.

Select **Platform Settings > Host Instances** in the left pane. Right-click **BiztalkServerApplication** and click **Restart**.
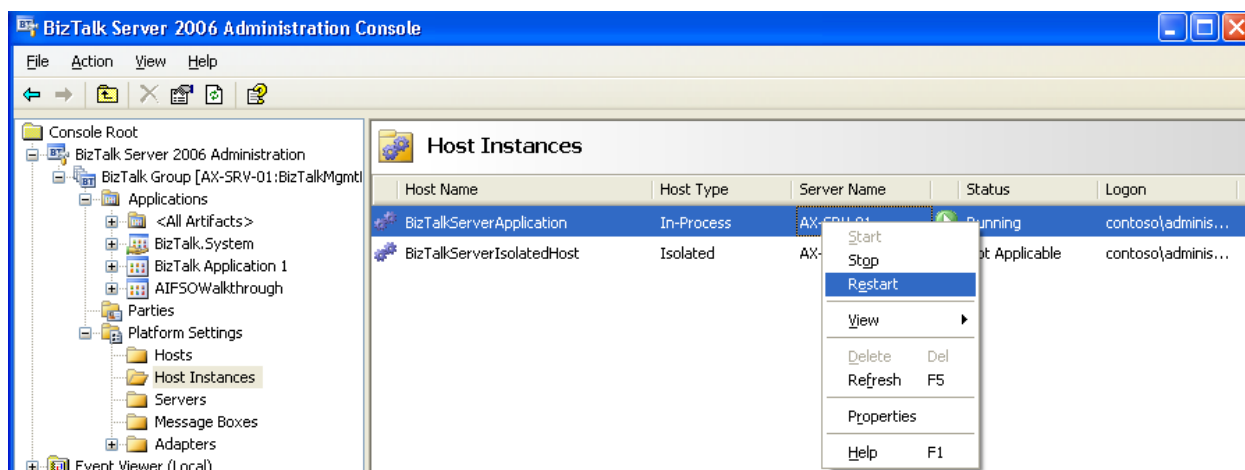
Configure AIF batch jobs, tasks, and recurrence schedule

You must configure AIF batch jobs and batch tasks to process the documents. You also need to define an appropriate recurrence schedule for AIF jobs. For the purpose of this white paper, we have set the recurrence schedule at one minute. See the Configuring the Application Integration Framework (AIF) BizTalk adapter for data exchange white paper for instructions to configure AIF batch jobs, tasks, and recurrence schedule.

Read the sales order and test results

This section provides instruction to test the asynchronous orchestration that reads a sales order from BizTalk.

Create an XML document for the asynchronous test

In this walkthrough, BizTalk sends the following XML document to the AIF to read the sales order. There is no endpoint or action information in this XML file—that information is added to the message in the BizTalk orchestration. You need to create an XML document for a sales order that exists in your test system as shown in the following screen shot. Save the XML document with an appropriate name. For the purposes of this white paper, save the document as ReadSalesOrder.xml.
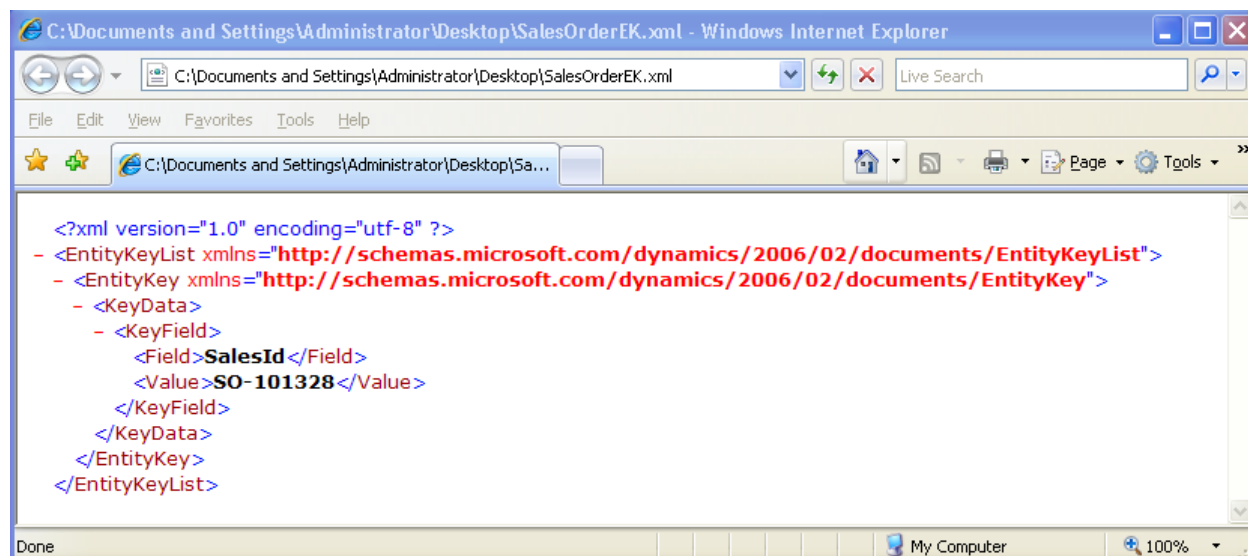

Read the sales order in synchronous mode

Copy the XML file to the folder C:\SORead. This is the folder that you have configured for the synchronous orchestration ReadSOSync. BizTalk Server will monitor the folder and will pick up the file. When you refresh the folder C:\SORead, you should see nothing in it.

Test the sales order read operation

The AIF processes the incoming XML from BizTalk Server and sends a sales order containing all the enabled fields to BizTalk Server in an XML document. BizTalk Server places the XML document in the outbound folder C:\SOOut. You can use the XML file in the outbound folder and the Microsoft Dynamics AX client to validate the test results as follows:

1. Verify that BizTalk has placed the sales order in the outbound folder by checking the C:\TestOut folder. In this walkthrough, you have configured C:\TestOut as the outbound folder for all the orchestrations. You should see an XML document with a name such as SORead{E3999436-2CB8-4BE2-BFCB-30085776256F}.xml. This XML document provides the sales order as shown in the following screen shot.
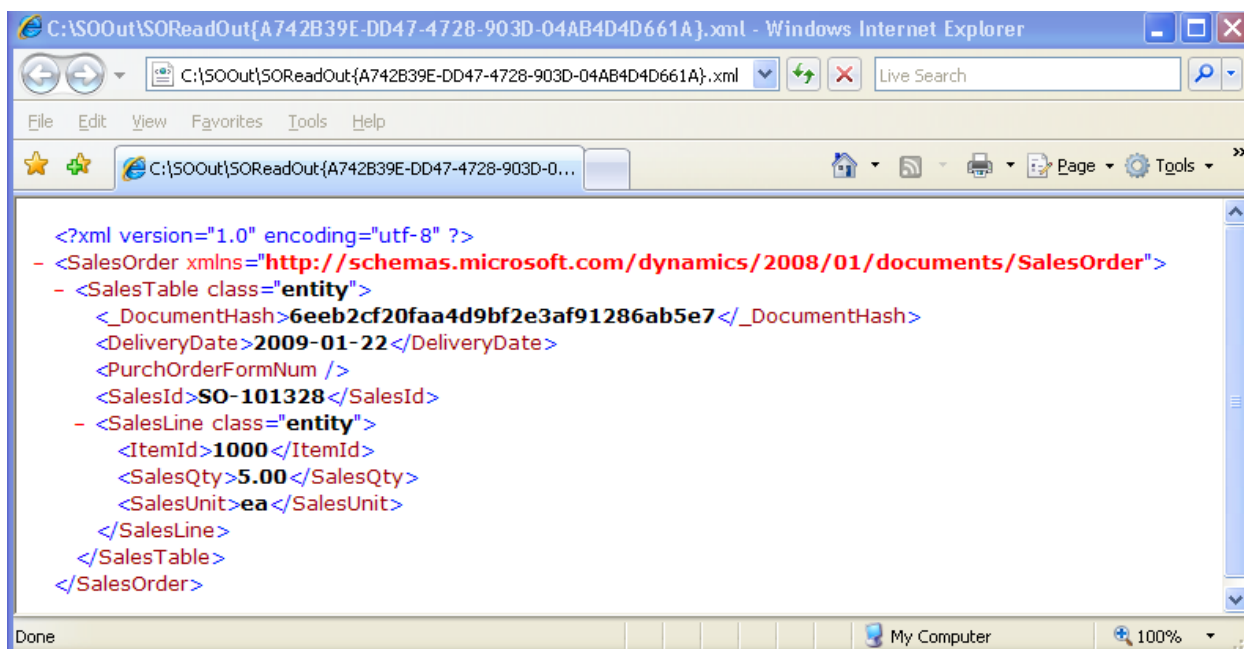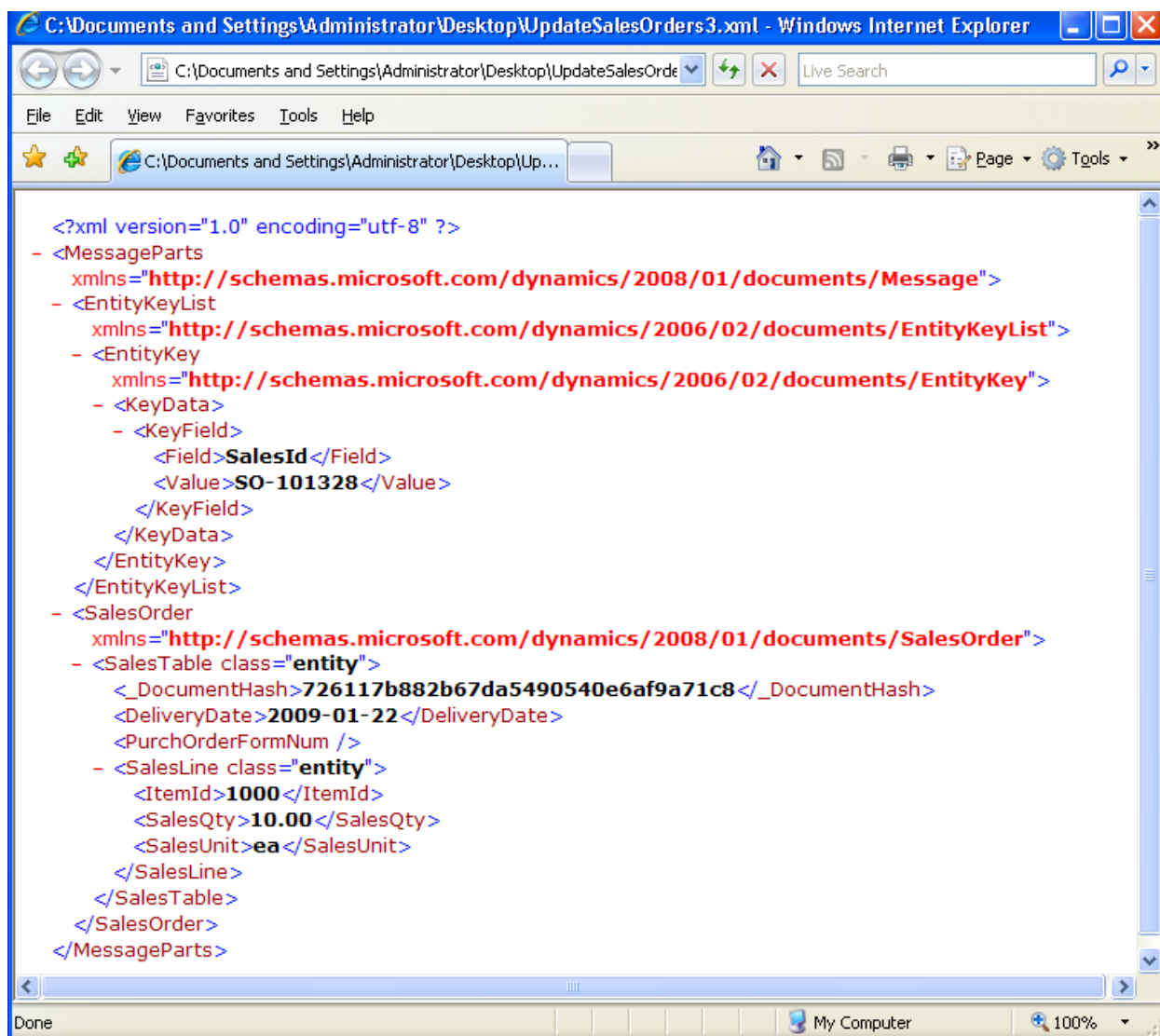
2. In the Microsoft Dynamics AX client, navigate to **Accounts receivable > Common Forms > Sales Order Details**. Confirm that the sales order document provides valid results.

Update the sales order and test results

This section provides instructions to create a process to test the synchronous orchestration that updates a sales order from BizTalk. Now that you have read a sales order from the AIF with a document hash, you are ready to update the sales order from BizTalk.

Create an XML document for the update operation

When creating a BizTalk application in Visual Studio, you changed the multi-part message types to use the MessageParts element. Therefore, you now need to format the sales order to use the MessageParts element. You also need to determine the fields that you update for this sales order. For the purpose of this exercise, you will change the quantity field from 5 to 10. The following screen shot shows the XML that you can use to test the update operation. For the purposes of this white paper, save the document as UpdateSalesOrder.xml. Make sure to copy the document hash from the sales order document you received from the AIF in the preceding step. If the document hash you send does not match the document hash in Microsoft Dynamics AX, the AIF will reject your update.

Update the sales order in synchronous mode

Copy the XML file to folder C:\SOUpdate. This is the folder that you have configured for the synchronous orchestration UpdatetSOSync. BizTalk Server will monitor the folder and will pick up the file. When you refresh the folder C:\SOUpdate, you should see nothing in it.

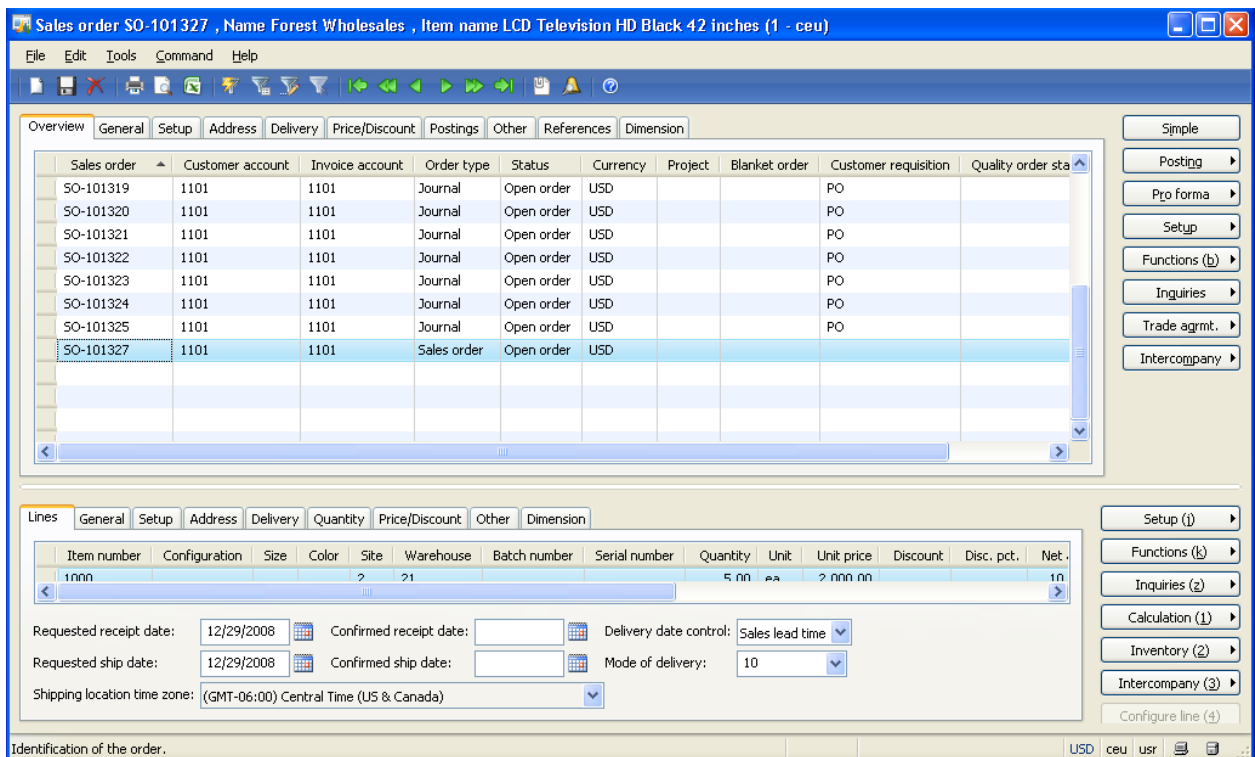## Test the update and the return value

The AIF processes the incoming XML from BizTalk Server and updates the sales order. The orchestration uses the custom code to send a return value in the response to BizTalk. BizTalk Server places the XML document in the outbound folder C:\SOOut. You can use the XML file in the outbound folder and the Microsoft Dynamics AX client to validate the test results as follows:

1. Verify that BizTalk has placed the sales order in the outbound folder by checking C:\TestOut folder. In this walkthrough, you have configured C:\TestOut as the outbound folder for all orchestrations. You should see an XML document with a name such as SOUpdate{E3999436-2CB8-4BE2-BFCB-30085776256F}.xml. The document should resemble the following screen shot.
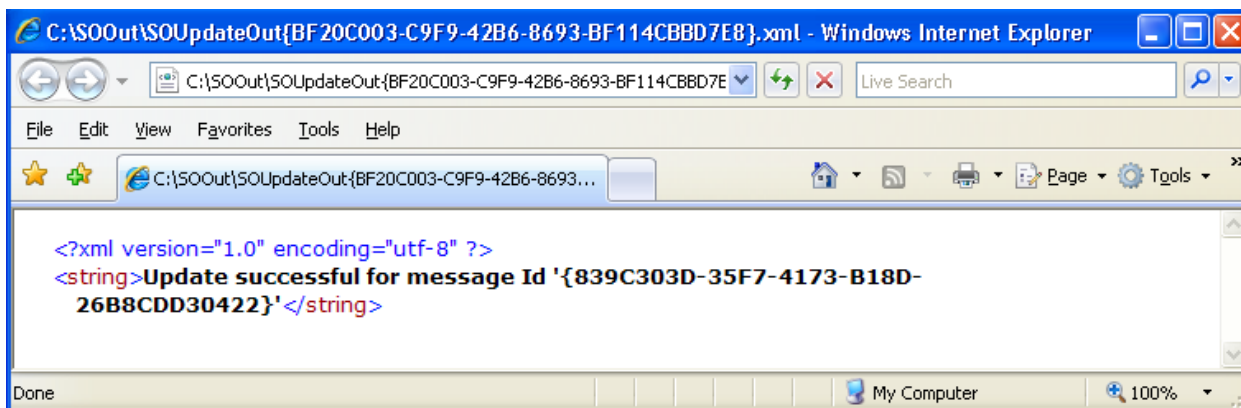
2. In the Microsoft Dynamics AX client, navigate to **Accounts receivable > Common Forms > Sales Order Details**. Confirm that the quantity is updated in the sales order.

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Delete the sales order and test results

This section provides instructions to test the orchestration that deletes a sales order from BizTalk.

Create an XML document for the delete operation

When you created a BizTalk application in Visual Studio, you changed the multi-part message types to use the MessageParts element. To delete a sales order, you need to send the sales order within the MessageParts element as shown in the following screen shot. Create an XML document from the following screen shot and save it DeleteSalesOrder.xml.
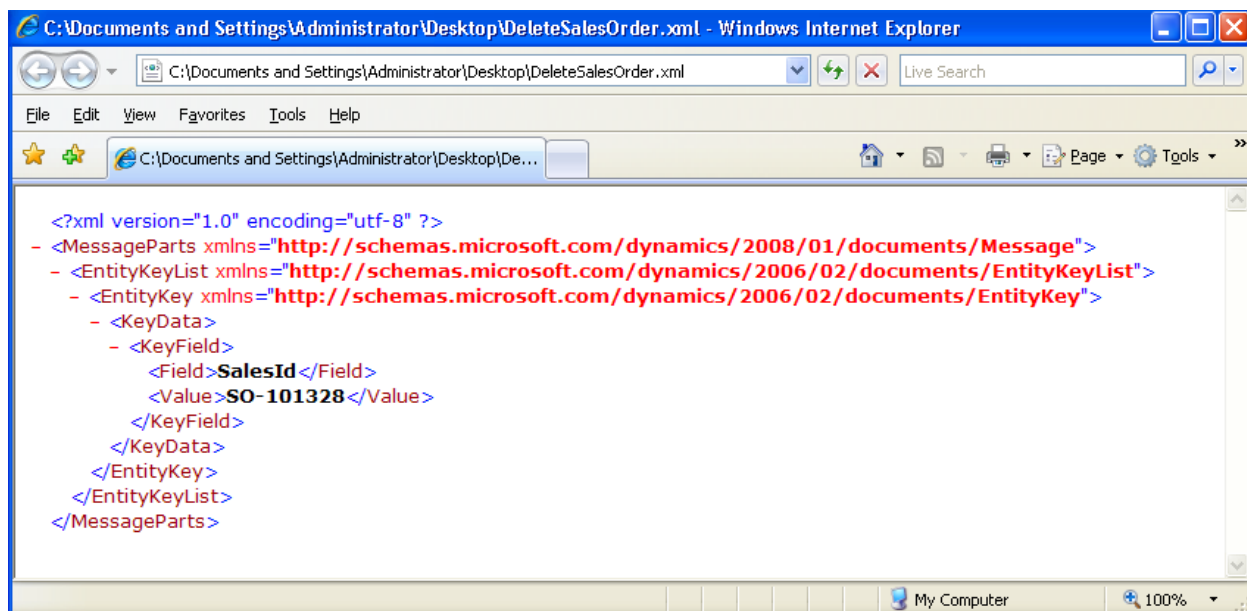
Delete the sales order in synchronous mode

Copy the XML file to folder C:\SODelete. This is the folder that you have configured for the synchronous orchestration DeleteSOSync. BizTalk Server will monitor the folder and will pick up the file. When you refresh the folder C:\SODelete, you should see nothing in it.

Test the delete and the return value

The AIF processes the incoming XML from BizTalk Server and deletes the sales order. The AIF does not automatically provide a return value in the response for the delete operation. The orchestration uses custom code to provide a return value in the response . BizTalk Server places the XML document in the outbound folder C:\SOOut. You can use the XML file in the outbound folder and the Microsoft Dynamics AX client to validate the test results as follows:

1. Verify that BizTalk has placed the sales order in the outbound folder by checking C:\TestOut folder. In this walkthrough, you have configured C:\TestOut as the outbound folder for all orchestrations. You should see an XML document with a name such as SODelete{E3999436-2CB8-4BE2-BFCB-30085776256F}.xml. The document should resemble the following screen shot.
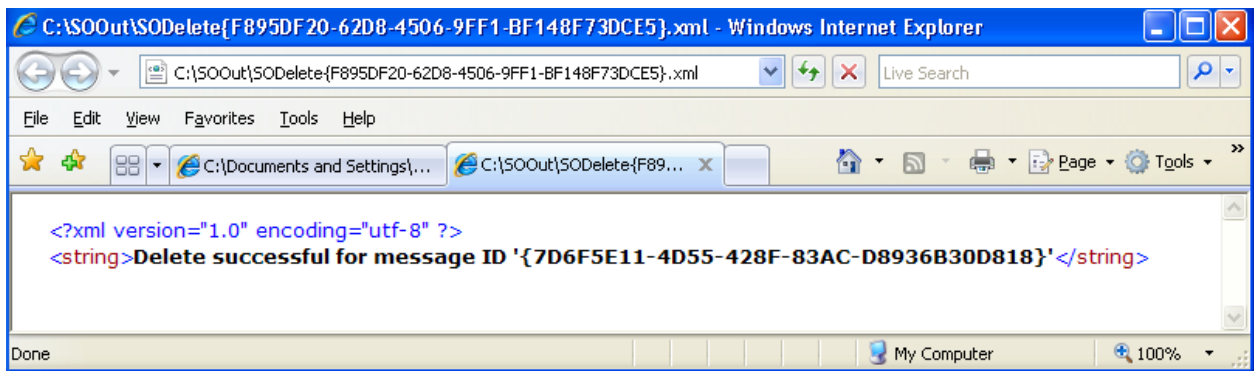
2. In the Microsoft Dynamics AX client, navigate to **Accounts receivable > Common Forms > Sales Order Details**. Confirm that sales order SO-101328 is deleted.

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Troubleshooting

If you get an error message, check your configuration settings in Microsoft Dynamics AX, BizTalk Server, and the Visual Studio project. Also check the XML schema of your document and make sure all the required fields are included. This section provides information on additional tools that you can use to troubleshoot error messages.
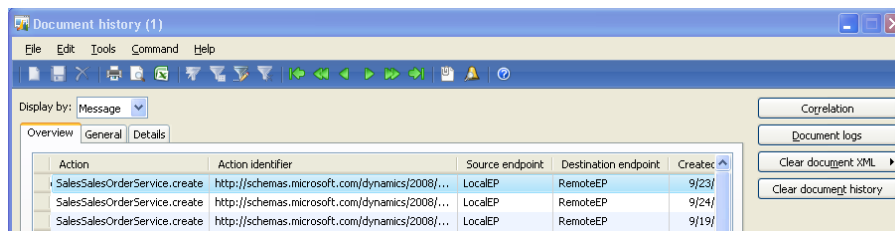
Microsoft Dynamics AX client

Errors might typically result from an invalid XML schema or improper settings of the AIF configuration. You can use the following tools to determine the source of the error.

1. Check the AIF **Exceptions** form. To launch the form, select **Basic > Periodic > Application Integration Framework > Exceptions.** Use this form to view exceptions including processing errors, warnings, and informational messages that are related to document exchanges and other AIF events.

   For more information, see "The error log and queue management" in the Server and Database Administration Guide.
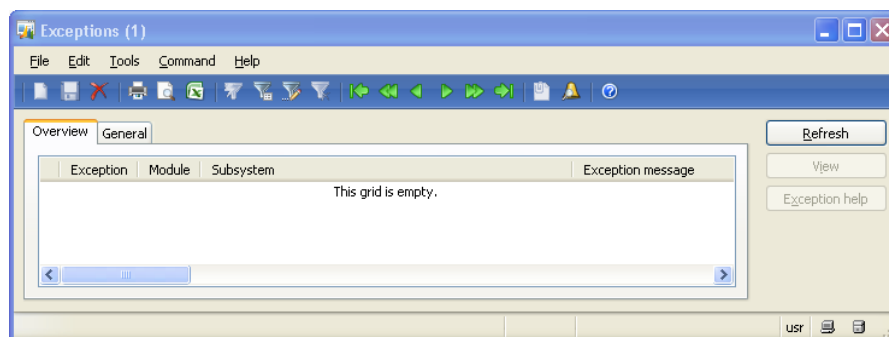
2. Check the AIF **Document history** form. To launch the form, select **Basic > Periodic > Application Integration Framework > Document history.** Use this form to track the history of documents that are transferred. To save copies of the XML code for these documents, click **Document logs**. For more information, see the topic "Viewing the document log" in the Server and Database Administration Guide.

Windows event log

Launch the Windows **Event Viewer** and check the **Application** and **System** logs to view error messages from BizTalk Server, Visual Studio and Microsoft Dynamics AX. Check the configuration settings in the Visual Studio and BizTalk Server Administration Console. For more information on specific error messages, refer to the system documentation for these products.

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