

Course Guide

IBM Sterling B2B Integrator Fundamentals

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Course Overview

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Introduction

Purpose	This lesson provides an overview of the objectives and lessons that make up this course.
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Course Objectives	<p>This course has been designed to enable you to:</p> <ul style="list-style-type: none">■ Run a business process■ Create a business process using the Graphical Process Modeler■ Explain how to create a service configuration■ Explain how to track an executable business process■ Discuss the basics of Sterling B2B Integrator.
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Training Environment	<p>To make hands-on training more effective, please take note of how to use:</p> <ul style="list-style-type: none">■ Student workstations■ Laptops■ Training Server
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Instructor Note: Welcome the participants.

Introduce yourself to the class.

Conduct an ice-breaker, if applicable.

Have the class introduce themselves, including information about their experience with the product.

Introduction

(Continued)

Course Prerequisites

This course assumes you have the following foundation knowledge:

- J2EE Framework and N-Tiered Architectures
 - Database schemas and related concepts
 - SQL Scripting
 - Sterling B2B Integrator Basics
 - Specialty or advanced GIS/Sterling B2B Integrator knowledge in the following areas:
 - EDI Processing
 - AS2 Implementation
 - Secure Transports
 - Web Services
 - Trading Partner Management
 - XML
-

Course Agenda

Course Agenda

You will complete the following lessons in this course:

Course Overview

- Course introduction
- How to use the training materials
- Lesson review

Lesson 1: About IBM®Sterling B2B Integrator

- User interfaces
- Overview of menus and navigation
- The Administration Interface
- Components
- Lesson review

Lesson 2: Basic BPML Concepts

- What is BPML?
- IBM®Sterling B2B Integrator BPML activities
- Process rules
- Element editors
- Lesson review

Lesson 3: XPath Basics

- What is XPath
- XPath Visualizer
- Basic XPath Syntax and Expressions

(Continued on next page)

Course Agenda

(Continued)

Course Agenda (Continued)

- XPath Expression Builder
- Lesson review

Lesson 4: Graphical Process Modeler (GPM)

- Opening the Graphical Process Modeler (GPM)
- Overview of Menus and Navigation
- Element editors
- Navigation Pane
- Stencils
- Lesson review

Lesson 5: Creating and Maintaining a Business Process Using the GPM

- Creating a business process
- Implementing a business process using the GPM
- Assigning Rules and Conditions
- Implementing a Business Process
- Check in the Business Process
- Manually Running a Business Process
- Modifying a Business Process
- Check out a Business Process
- Version Control
- Editing a Business Process
- Disabling a Business Process
- Lesson review

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Course Agenda

(Continued)

Course Agenda (Continued)

Lesson 6: Troubleshooting Maintaining a Business Process

- Viewing Active and Recent Business Processes
- Searching for Business Processes and Other Information
- Restarting or Resuming a Business Process
- Viewing Execution Information
- Terminating a Business Process
- Lesson review

Lesson 7: Introduction to Service Management

- List and explain the four basic service types
- Explain how to create a service configuration
- Describe how the File System adapter works
- Explain Bootstrapping
- Describe how OnFault Processing works
- Explain how the Command Line adapter functions
- Describe and demonstrate the use of a Lightweight JDBC adapter
- Describe how the Invoke Business Process service works

Lesson 8: Case Study

- Analyzing a business problem
- Creating a business process to solve the business problem

(Continued on next page)

Course Agenda

(Continued)

Course Agenda (Continued)

Lesson 9: IBM®Sterling B2B Integrator Mapping

- The IBM®Sterling B2B Integrator Map Editor
- The IBM®WebSphere Transformation Extender
- XML Encoder Object Mapping Function
- Websphere Transformation Extender Function

Lesson 10: Typing Map

- State the purpose of the typing map and the typing Service
- Create a typing map

Lesson 11: Tracking System Health

- Troubleshooting and reconciling business processes
- Archiving business process data
- Restoring business process data archived offline
- Managing Resources
- Deleting a Business Process
- Lesson review

Lesson 12: Best Practices

- Implement best practices for Assign Service
- Implement best practices for Invoke Sub-Process Service
- Implement best practices for Release Service

Lesson 13: Case Study

- Analyzing a business problem
- Creating a business process to solve the business problem

(Continued on next page)

Course Agenda

(Continued)

Course Agenda (Continued)

Lesson 13: Course Wrap Up

- Objectives
 - Getting Additional Help
 - Additional Training
 - Course Evaluation
-

References

Online Documentation

Online documentation and printable guides can be accessed through:

- The system's Online Help
- IBM Knowledge Center

Appendices

For your convenience, the following appendices are included in this manual:

- *Appendix A: Quiz Answers*
-

About Sterling B2B Integrator

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■ The Administrator Interface	1-9
■ Exercise 1–1: Starting Sterling B2B Integrator	1-18
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Background

Introduction	This lesson provides you an overview on Sterling B2B Integrator.
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Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ List typical business integration problems■ Explain the basics of Sterling B2B Integrator■ List the benefits of Sterling B2B Integrator■ Identify Sterling B2B Integrator user interfaces
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Instructor Note: Inform students that in this lesson we begin with the background on Sterling B2B Integrator and how to use this software in an environment.

Overview of Sterling B2B Integrator

What is Sterling B2B Integrator?

Sterling B2B Integrator is the next generation end-to-end enterprise integration server for dynamic real-time and near-real time business collaboration and commerce automation. It is a business process-centric transaction engine for modeling and managing processes. It handles complex routing, translation, flexible integration, and real-time interaction with multiple internal systems and external trading partners. Major highlights include:

- Powerful, advanced translation and routing capabilities for high performance EDI translation and complex XML transformations and filtering.
- Process engine that is optimized for high-speed synchronous and asynchronous complex multi-step message exchanges (XML-based, real-time EDI, B2B standards such as ebXML, and user-defined private processes)
- Component-based Java 2 Enterprise Edition (J2EE) architecture for distributed enterprise scaling, reliability, transaction management, and plug-in extensibility for emerging B2B standards and integration adapters.
- Layered business-process-centric architecture employs industry standard BPML meta-language; insulates (preserves) business process specifications from potential fluid low-level technologies.
- Integrated universal transformation capability of IBM WebSphere Transformation Extender with business process management features of Sterling B2B Integrator.
- Configured to transfer files in and out of WebSphere MQ File Transfer Edition Network.

(Continued on next page)

Overview of Sterling B2B Integrator (Continued)

Typical Business Process Problems

Business managers are under tremendous stress to reduce costs and increase efficiency in communication/information transfer between their companies and clients, as well as internally from department to department.

The lack of application integration, both internally and externally, results in many problems:

- Slow response time, leaving customers dissatisfied
- Reliance on excessive manual processing, increasing costs and human error
- Inability to adopt new standards, causing missed opportunities
- Restrictive architecture of systems, limiting expansion

While business managers struggle with these issues, IT Managers/Directors are also trying to streamline and improve business processes without incurring high expenses. In many cases, they are using legacy systems with high investments and do not want to abandon for a new system. However, they lack the time and staff to overhaul the existing system and need to have fast, dependable service from a trustworthy provider.

(Continued on next page)

Overview of Sterling B2B Integrator (Continued)

Benefits of Sterling B2B Integrator

Because Sterling B2B Integrator was built from the ground up to meet B2Bi needs, it provides:

- Simplified management
- Consistent integration deployment methodology
- Capability to model and deploy complex end-to-end processes

Every company wants application integration so they can meet their business goals. Some of these business goals are to:

- Reduce operational costs
 - Increase operational efficiencies
 - Improve customer satisfaction
 - Increase revenues
 - Retain or increase competitive position
 - Improve responsiveness
-

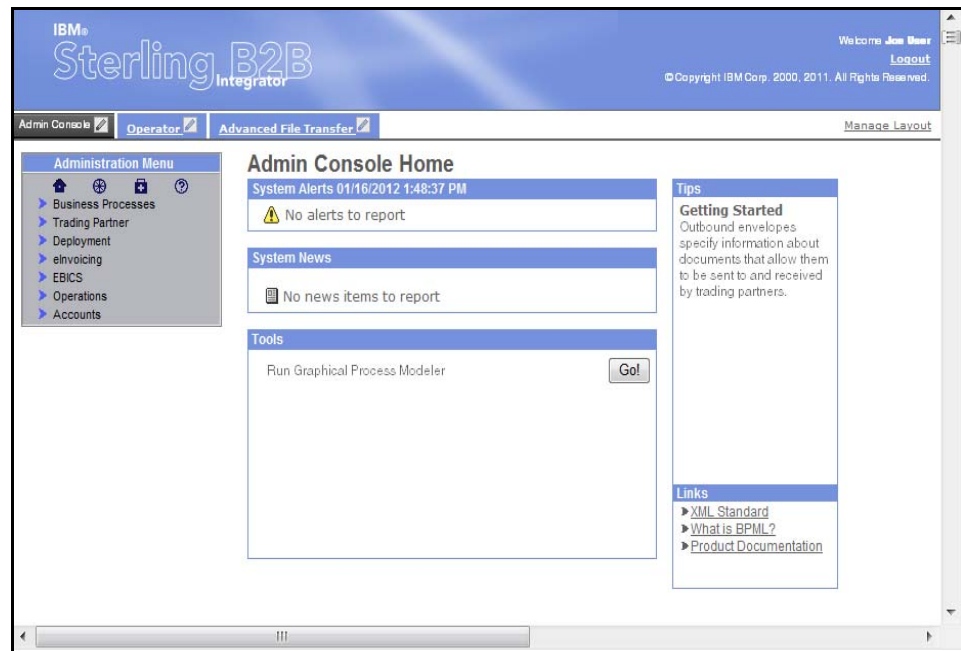
User Interfaces

Overview The three main user interfaces that are available within Sterling B2B Integrator are:

- The Administration Interface
- The Sterling B2B Integrator Map Editor
- The Graphical Process Modeler

The Administration Interface

The Administration Interface that is shown here is a web-based interface for System Administration.

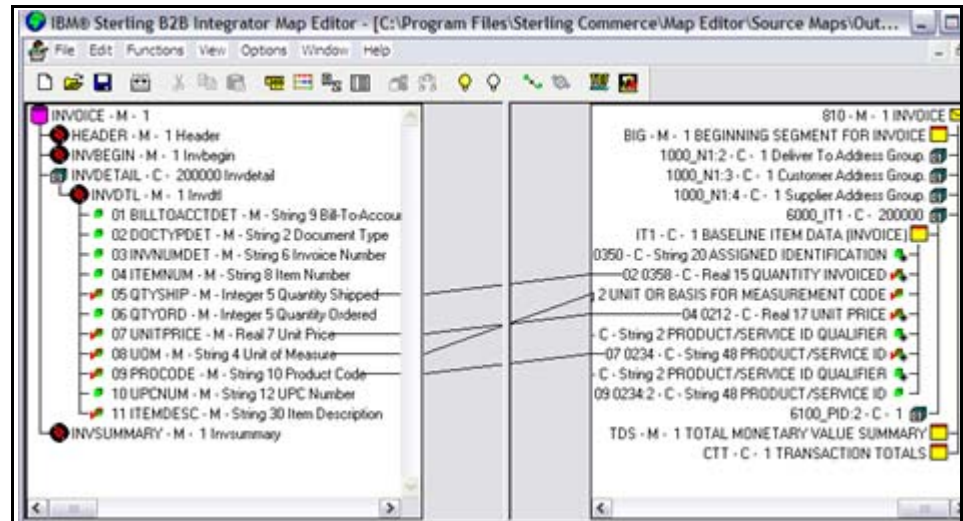


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User Interfaces

(Continued)**Overview
(Continued)****The Sterling B2B Integrator Map Editor**

The Sterling B2B Integrator Map Editor is shown in the following figure. It is used to represent the translation of one type of input data to a different type of output data.



(Continued on next page)

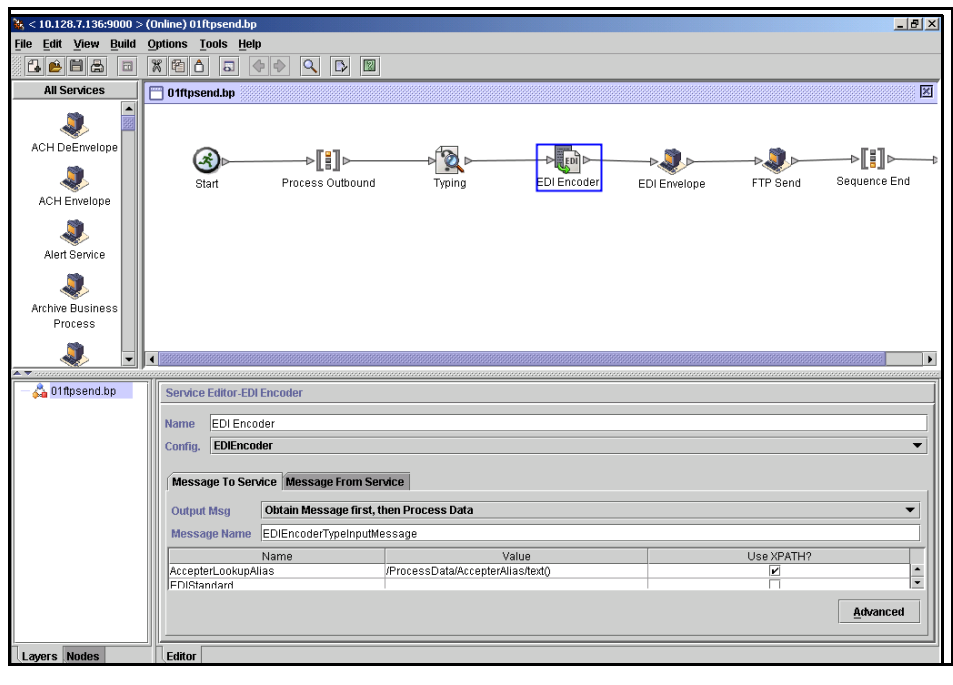
User Interfaces

(Continued)

Overview
(Continued)

The Graphical Process Modeler

The Graphical Process Modeler is shown in the following image. It is used to represent a business process as a graphical model.



Instructor Note: Use this time as a demo and navigation session - navigate through the system with them.

The Administrator Interface

Overview The Sterling B2B Integrator administration interface allows you to set up, configure, and maintain the system. There are six main areas in the Sterling B2B Integrator Administration Interface:

- Business Process
- Trading Partners
- Deployment
- eInvoicing
- Operations
- Accounts



Important!	When using browser buttons within Sterling B2B Integrator, do not use the back arrow or back button of Internet Explorer.
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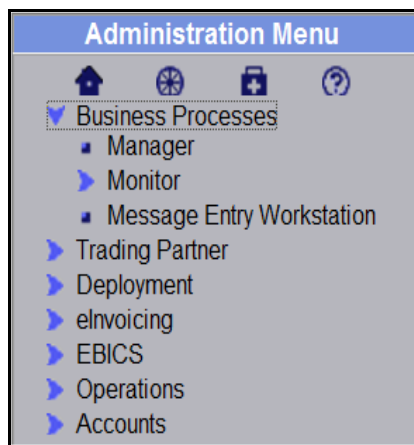
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The Administrator Interface

(Continued)

Business Processes

The Business Process menu of Sterling B2B Integrator allows you to manage and monitor business processes.



Business Process Manager

The Business Process Manager screen provides the options that you need to create and locate business process definitions. This screen is used to:

- Download Java WebStart
- Run the Graphical Process Modeler
- Create new process definitions
- Search for process definitions
- List process definitions

(Continued on next page)

The Administrator Interface

(Continued)

Business Processes (Continued)

Business Process Monitor - Current Processes

The Business Process Monitor -Current Processes screen displays a summary of the processes in Sterling B2B Integrator. Each color indicates the status of the business process:

- Green - No errors or warnings during processing
- Red - Errors or warnings that are encountered during processing

From this screen, you can:

- Review detailed processing information
- View business process definitions
- Obtain document information

Important!	If you are using Internet Explorer, this screen automatically refreshes every minute. If using Firefox or Chrome, you must manually refresh the screen. You can stop the automatic refresh activity by clearing the automatic refresh check box.
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The Administrator Interface

(Continued)

Business Processes (Continued)

Business Process Monitor Central Search screen

The Business Process Monitor Central Search screen provides you the ability to locate and view business processes based on specific search criteria:

- Business Process Name
- Status
- Start Date From
- Start Date To

Business Process Monitor Advanced Search screen

The Business Process Monitor Advanced Search screen provides you the ability to locate and view business processes based on specific search criteria:

- Location (Live tables, Archive tables, Restore tables)
- Business Process ID
- Business Process Name
- System Business Process Name
- State
- Status
- Start Date From
- Start Date To

(Continued on next page)

The Administrator Interface

(Continued)

Business Processes (Continued)

Business Process Monitor Current Activities Search screen

The Business Process Monitor Current Activities Search screen takes you to the Service Activity page. This page is used primarily to look at adapters and the status of large file transfers. This page provides you the ability to search for service activities with the following criteria:

- Service Type
- Service Name
- Service Activity Type
- Not Updated Since: Date/Time
- Started Before: Date/Time

Business Process Monitor Advanced Search - Documents Screen

The Business Process Monitor Advanced Search - Documents screen allows you to see the most recent documents that are processed without specifying any search options. Current documents give you the ability to monitor current document processing at a glance from the page in Sterling B2B Integrator. The Documents page provides you the ability to search for documents with the following criteria:

- Start Date From
- Sender ID
- Type
- Receiver ID
- Status
- Tracking ID

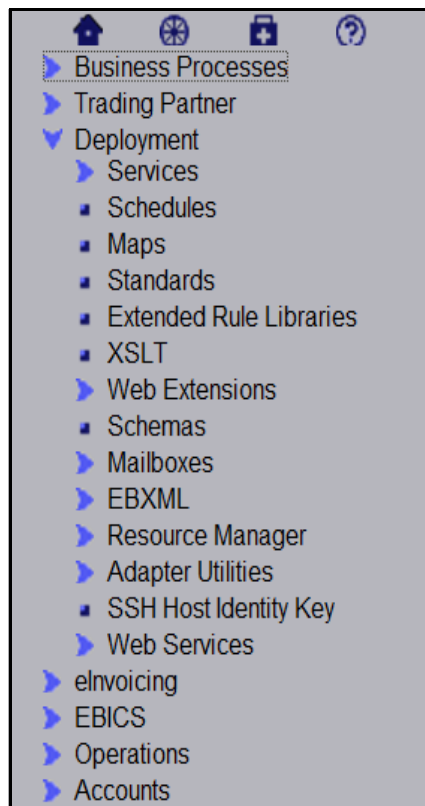
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The Administrator Interface

(Continued)

Deployment

The Deployment menu allows you to configure services and maps. Details of the Trading Partner, Operations, and Accounts menus is elaborated on in further classes.



(Continued on next page)

The Administrator Interface

(Continued)

Deployment (Continued)

Services

The Services menu provides options to install/setup and configure the services for Sterling B2B Integrator.

Schedules

The Schedules option allows you to schedule business processes to run at specified times. It also allows you to delete schedules without actually deleting a business process or a service.

Maps

The Maps option allows you to download/install the Map Editor, check in/out maps, and find maps.

Standards

Standards define data translation specifications for documents. The Standards Download page allows you to download and install the standards that are required for data translation the Map Editor.

Extended Rule Libraries

The Extended Rule Libraries page allows you to check in new or updated Extended Rule Libraries. You can also, search for an Extended Rule Library and list all Extended Rule Libraries or list the specific Extended Rule Libraries searched based on the first letter of the name.

XSLT

The XSLT option allows you to create and manipulate extensible style sheets.

(Continued on next page)

The Administrator Interface

(Continued)

Deployment (Continued)

Web Extensions

Web Extension allows you to download and install the **Web Template Translator** application; create, edit, check-in, and check-out web templates; and download and install web designer extensions to create XForms.

Schemas

The **Schema** screen allows you to load an XML schema or DTD into the system.

Mailboxes

The Mailboxes option allows you to organize, store, and manage trading partner documents and transactions.

EBXML

The EBXML option allows you to manage and locate Business Process Specification Schema (BPSS) and Collaboration Protocol Agreements (CPA).

Resource Manager

The Resource Manager allows you to create and locate resource tags, and import or export resources.

(Continued on next page)

The Administrator Interface

(Continued)

Deployment (Continued)

Adapter Utilities

The Adapter Utilities screen allows you to create DTDs and locate existing DTDs for Siebel Systems. This menu option is displayed in the Deployment menu if the respective service were already installed. Additionally, a Service Development Kit is available from this menu item.

SSH Host Identity Key

The SSH Host Identity Key allows you to create the necessary keys for SSH and SCP protocols.

Web Services

A Web Service Configuration allows you to locate and configure certain services and business processes to be exposed as web services.

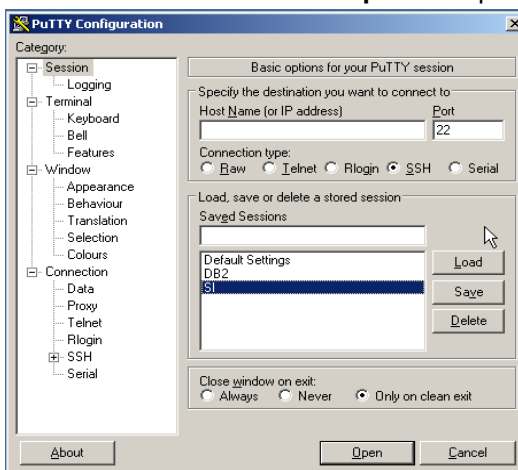
Instructor Note: Now, take a closer look at the components in Sterling B2B Integrator and explain how the Sterling B2B Integrator functions between the enterprise and the Trading Partners.

Exercise 1–1 Starting Sterling B2B Integrator

Instructions

You are required to start the Sterling B2B Integrator to open and view the Sterling B2B Integrator user interfaces. Follow the steps that are listed to start the Sterling B2B Integrator:

1. Open the windows image with the user name and password given to you.
2. Access Sterling B2B Integrator server through Putty.
3. Select **SI** in the **Saved Sessions** and click **Open**. The putty session opens.



4. Login as **root** with the password **root123**.
5. Go to the installation directory with the following command.

```
cd /opt/IBM/SterlingIntegrator/install/bin
```

(Continued on next page)

Instructor Note: Provide the students with the login details for windows image.

Exercise 1–1 Starting Sterling B2B Integrator (Continued)

Instructions

6. Execute the following command.
`./hardstop.sh`
7. On successful completion of the command, execute the following command.
`./run.sh`



Caution

B2Bi's database is set to autostart. In the VM environment sometimes it does not autostart. If after running `./run.sh` you get JDBC connection errors goto the DB2 Start section otherwise proceed to step 8

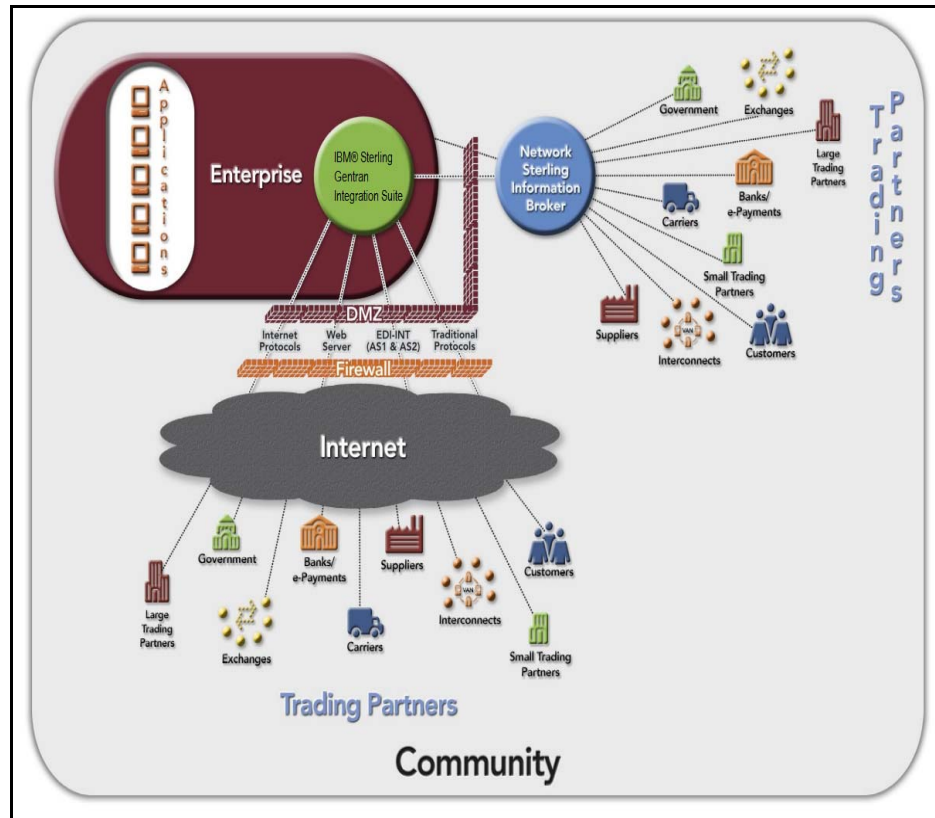
DB2 Start

1. From the same **PuTTY** window, enter `su db2inst1` and click **Enter** to switch the user from root to db2inst1.
 2. Enter `db2start`, and click **Enter**. Upon successful start, the message '<db2start> processing was successful' is displayed.
 3. Enter `exit` and click **Enter** to exit user db2inst1 and return to the root user. Enter `./run.sh` again to start B2Bi.
 8. Enter the passphrase as **password** when it prompts for a passphrase. A message indicating the successful start of Sterling B2B Integrator will be displayed.
 9. Connect to the Sterling B2B integrator Dashboard through the browser with the link `http://192.168.40.100:9000/dashboard/`.
 10. Sign in as **admin** with the password as **password**. The **Admin Console Home** page opens.
-

Components

Overview of Components

The following diagram illustrates the main components and communication paths between them.

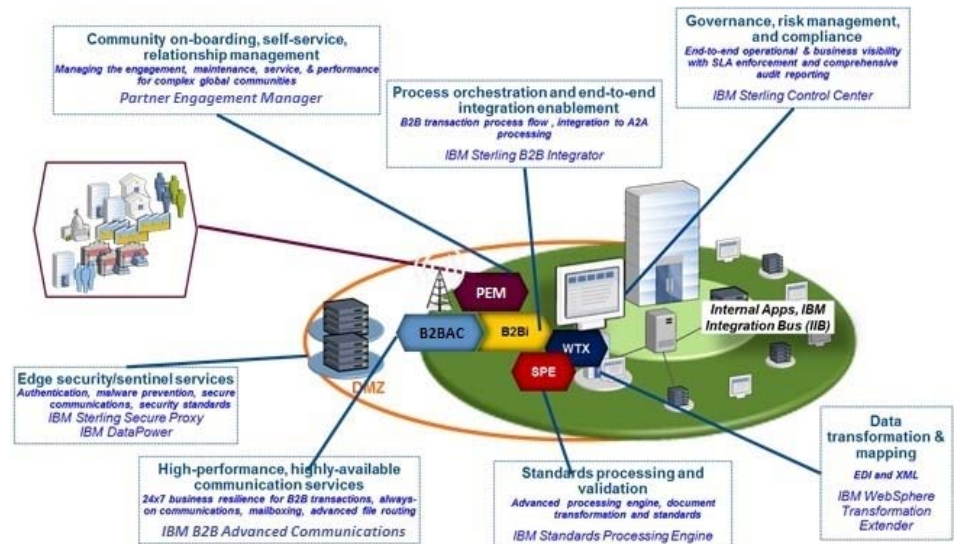


Instructor Note: Explain the different components and communication channels with the help of the diagram.

B2B Components

(Continued)

IBM B2B Strategy



IBM's B2B strategy includes the following Components:

Global Mailbox

IBM® Global High Availability Mailbox is a robust and reliable way to store message data from partners in any geography. As a component of IBM Sterling B2B Integrator, Global Mailbox enables customers who have licensed to optionally pay for an add-on component that provides high availability mailboxing to exchange files. This HA mailboxing capability allows clients to deploy a B2B platform that can sustain continuous operations plus offers differentiating disaster recovery capabilities.

(Continued on next page)

B2B Components

(Continued)

IBM B2B Strategy (Continued)

Global Mailbox provides data storage across geographically distributed locations. Data is routed to the nearest available server, and then replicated quickly across data centers so that the data is available even if a data center is not accessible. Applications that are enabled for Global Mailbox listen for mailbox events to trigger application level actions, such as to initiate further processing.

Partner Engagement Manager (PEM)

IBM Partner Engagement Manager (IBM PEM) is a multi-enterprise B2B engagement portal that enables collaboration, interaction, monitoring, and visibility of activity flows between sponsor organizations and their partners, customers, and suppliers.

ITX Advanced (Standards Processing Engine)

The Standards Processing Engine portfolio is the next evolution of the IBM® Universal Transformation strategy for transforming documents. It contains modular, comprehensive solutions that are based on industry standards. The solutions provide support for WebSphere® Transformation Extender, Sterling B2B Integrator, and XSLT translation maps, providing document processing that is modular, scalable, and extensible.

Control Center

IBM Control Center V6.0 is a centralized monitoring and management system that lets operations personnel continuously monitor business activities across the enterprise for IBM Sterling products and for many FTP servers and manage the configurations and licenses of Sterling Connect:Direct servers.

(Continued on next page)

B2B Components

(Continued)

IBM B2B Strategy (Continued)

Secure Proxy

Sterling Secure Proxy acts as an application proxy between Sterling Connect:Direct® nodes or between a client application and a Sterling B2B Integrator server. It provides a high level of data protection between external connections and your internal network. Define an inbound node definition for each trading partner connection from outside the company and an outbound node definition for every company server to which Sterling Secure Proxy will connect.

IBM Advanced Communications

B2B Advanced Communications provides secure, optimized, and dynamic end-to-end information flows supporting the viewing of a single exchange, configuring and managing of trading partners, and support for both AS2 and AS4 protocols

Lesson Review

Completed Objectives

This lesson was designed to enable you to:

- List typical business integration problems
 - Explain the basics of Sterling B2B Integrator
 - List the benefits of Sterling B2B Integrator
 - Identify Sterling B2B Integrator user interfaces
-

Basic BPML Concepts

Contents

■ Background	2-2
■ What is BPML?	2-3
■ Sterling B2B Integrator BPML Activities	2-8
■ Activities Supported by BPML	2-15
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■ Exercise 2–1: Viewing BPML Code	2-30
■ Element Editors	2-31
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Background

Introduction	This lesson provides an overview of the components that make up the Business Process Modeling Language (BPML).
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Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ Define BPML■ Discuss the activities that perform BPML functions■ Differentiate between services and adapters as they relate to Sterling B2B Integrator■ Explain how Sterling B2B Integrator uses BPML
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What is BPML?

Overview

BPML is short for Business Process Modeling Language. It is an **XML-based** language for describing a business process and telling it how to run. Not very much XML knowledge is required to comprehend BPML. You should know the basics of XML. For example, you must know about the elements and attributes, usage of start, end, and empty tags, and other basic XML concepts. Since it is based on XML it uses its components and basic structure but not its rules and additional capabilities.

An understanding of XPath (an XML Search language) is necessary to search and access document content. Advanced features such as DTD structure or various entity references are not needed. For more information about XPath, see Lesson 4, XPath Basics.

Services and Adapters

Services and adapters are software components that can be used to accomplish integration or business tasks. Business processes make calls to services and adapters to accomplish your business tasks. For a business process to interact with these components, you must include services as steps in your business process. A service is a component of Sterling B2B Integrator, such as a translator. Services that access disk or other applications (reach outside of Sterling B2B Integrator) are known as adapters.

(Continued on next page)

(Continued)

Primary Document/Process Data	Moving forward there are two main concepts that are crucial to your understanding of Sterling B2B Integrator and business processes. You do not have to have a complete understanding of them immediately but do start to pay attention to them as you are introduced to BPML and start building your own Business Processes.
--------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 2–1:

Process Data Acts as a virtual memory for the business process. Is always in XML Information can be assigned to it or retrieved from it to be used as variables in your business process.	Primary Document Document being worked on. Such as an EDI doc to be translated. Can be any type of data Is an object link in Process data. A service/adaptor will always work on Primary Document.
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(Continued)

What is BPML?

(Continued)

Messages

Message exchange

Message exchange is a key ingredient in collaborative e-business protocols. BPML engages a message-based business process in which everything that interacts with a process does so through the exchange of messages. In Sterling B2B Integrator, business processes interact with services/adapters and other business processes.

Exchanging messages with services and adapters

In Sterling B2B Integrator, whenever a business process runs an adapter or service, there is an exchange of two messages. First, the business process sends a message to the service/adapter that contains the parameters that the service needs to run. The values of these parameters can either be constants, or they may come from process data. After a service is completed successfully, it sends its results back to the business process in a second message. The business process can select some of the contents of the message and place them into process data. Note that this message exchange occurs synchronously (the process must wait for the response message before continuing).

Exchanging messages between business processes

In Sterling B2B Integrator, messages are exchanged with business processes by way of the produce and consume BPML activities. The produce activity sends a message and the consume activity receives a message from a process.

When the produce activity runs, it sends a message to the specified consuming processes; the produce does not wait for the message to actually be consumed. If the receiving process for the message is not correctly running a consume activity, then the message is queued until a matching consume activity runs. The message exchange is thus considered asynchronous.

While BPML supports this message exchange, it is a best practice in Sterling B2B Integrator to use the Invoke Business process service to start a child or parallel process and pass message information.

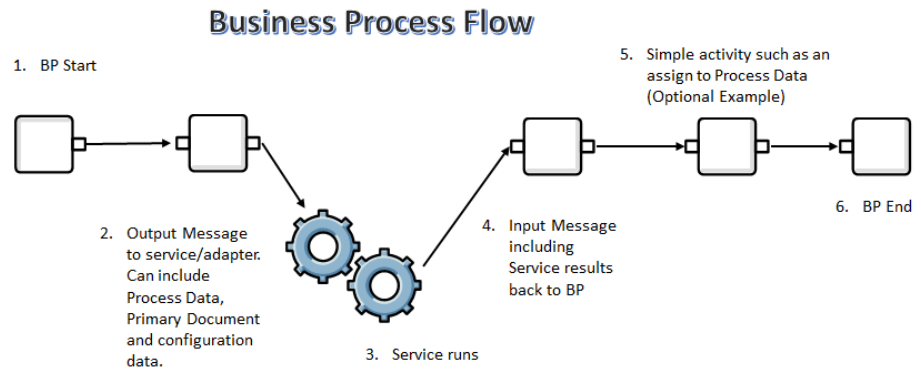
(Continued on next page)

What is BPML?

(Continued)

Message Exchange Example

This diagram shows a message exchange from the business process context to an adapter or service. While we usually think of the work being done from the point of view of the service, the message flow is always from the point of view of the BPML code being executed.



Sterling B2B Integrator BPML Activities

Overview

Activities perform BPML functions. BPML functions include operations that allow for the control of the flow of data through a business process. For example, the choice activity allows data to flow through the system that is based on the result of a decision.

BPML supports three main types of activities:

- Simple
- Complex
- Process

Remember!	Sterling B2B Integrator views Process activities as a kind of Simple activity.
------------------	--------------------------------------------------------------------------------

Simple Activities

Use simple activities such as produce, consume, and assign to perform only one function. For example, the produce activity sends a message to another process. The assign activity is used only for setting a value.

Example:

```
<assign to="X">7</assign>
```

This assign command merely sets a value named X to 7.

(Continued on next page)

Sterling B2B Integrator BPML Activities (Continued)

Complex Activities	Use complex activities, such as sequence, all, and choice to model the flow of control. Complex activities can consist of one or more simple activities or another complex activity. These types of activities can be sequential, parallel, or conditional.
---------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Sequence Activity	A sequence activity runs all of the activities that are contained in it when a process is run. The activities are run in the order they are listed in the sequence.
--------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------

Example BPML:

```
<process name="default">
  <sequence>
    <assign to="Recipient">joe@acme.com</assign>
    <spawn name=Send_Email"/>
  </sequence>
</process>
```

In this case, the sequence has two activities, Assign and Send E-mail. When the process is run, the system first runs Assign then runs Send E-mail because that is the order the activities are listed in the sequence.

(Continued on next page)

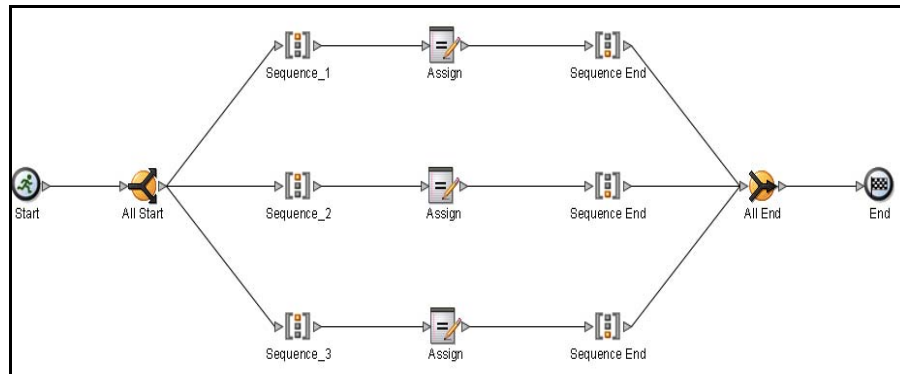
Sterling B2B Integrator BPML Activities (Continued)

The All Activity

The All activity is a complex activity that does not complete until all its sub, or child activities are run. In Sterling B2B Integrator, All runs all of its child activities simultaneously.

- Use the All activity in any position where an activity can appear.
- You must specify two or more sub activities.

The following figure illustrates a sample model.



(Continued on next page)

Sterling B2B Integrator BPML Activities (Continued)

The All Activity (Continued)

Example BPML:

```
<all>
  <sequence name="Subflow1_Start">
    <Subflow1>.....</Subflow1>
  </sequence>
  <sequence name="Subflow2_Start">
    <Subflow2>.....</Subflow2>
  </sequence>
  <sequence name="Subflow3_Start">
    <Subflow3>.....</Subflow3>
  </sequence>
</all>
```

This All activity has three child activities: Subflow1, Subflow2 and Subflow3. Sterling B2B Integrator attempts to run all three simultaneously. Since, running a main sequence corresponds to running children of the sequence, Sterling B2B Integrator performs all the activities in all three subflows simultaneously.

There is no requirement that the operations along the children of All move together in lockstep. However, nothing runs after the All until every activity in the All is completed.

Using the BPML All Activity Properly

The BPML activity, All (represented in the GPM by the All Start and All End icons), runs two or more complex child activities within a business process simultaneously. Because there are performance implications to using the All activity, use it only if you expect branches of your business process model to take significant amounts of time (in seconds or minutes) to complete (very few services take this long).

Do not use the All activity to run two or more instances of the same subprocess simultaneously. The system will handle the proper load balancing.

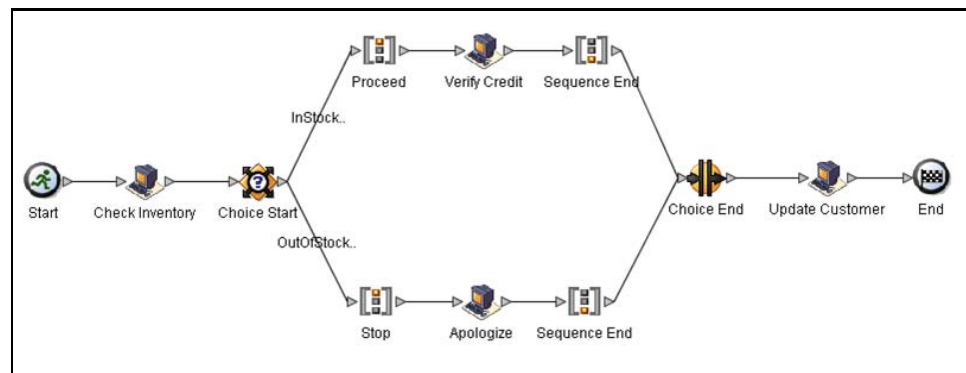
Sterling B2B Integrator BPML Activities (Continued)

The Choice Activity

The Choice activity is one of three types of complex activities. (The others are Sequence and All) A Choice activity is used to make decisions in the business process model and runs only one of the child activities it contains. The Choice activity makes it possible to model branch processing.

- Use the Choice activity any place where an activity can appear.
- Use a choice to model process branching.

The following figure illustrates an example model.



Process branching depends on a decision that is taken by the process and specifying which activity to run. One or more rules must be evaluated in order to make the decision. The select element is required and includes one or more case elements. Each case links the outcome of a rule to an activity. If the rule evaluates to true, or if the rule evaluates to false when the negative attribute is true, that activity is a candidate for execution.

Multiple cases can reference the same activity. However, the activity will run exactly once. If an activity is not referenced, it will never run. If it is determined that no activity is candidate for running, the choice completes immediately. Use a choice with a single activity to model a deferred activity. If two or more activities are candidates for running, only one is run.

(Continued on next page)

Sterling B2B Integrator BPML Activities (Continued)

The Choice Activity (Continued)

In Sterling B2B Integrator, the order in which the case elements displays is the order in which they are evaluated. The first case which evaluates to true determines the child activity to run. The following figure shows an example BPML.

```
<process name="ProcessCustomerOrder">
  <rule name="BookInStock">
    <condition>foundBook = true </condition>
  </rule>
  <sequence>
    <operation name="Check Inventory">
      <participant name="InventoryService">
        <output message="checkStockRequest">
          <assign to='ISBN'>1-56592-488-6</assign>
        </output>
        <input message name="checkStockResponse">
          <assign to="foundBook" from="InStock" />
        </input>
      </operation>
    <choice>
      <select>
        <case ref="BookInStock" activity="proceed"/>
        <case ref="BookInStock"
          negative="true" activity="stop"/>
      </select>
      <sequence name="proceed">
        <operation name='Verify Credit Card'>
          </operation>
        </sequence>
      <sequence name="stop">
        <operation name='Apologize'> ... </operation>
      </sequence>
    </choice>
    <operation name='Update customer'> ... </operation>
  </sequence>
</process>
```

Focusing on the choice activity, it contains multiple edges, each of which has a rule. For now, think of a rule as something that is either true or false. In this case, before the process continues it checks to see whether the required book is in stock. The BookInStock rule is true if the book is in stock, otherwise it is false.

(Continued on next page)

Sterling B2B Integrator BPML Activities (Continued)

The Choice Activity (Continued)

Example BPML:

```
<rule name="BookInStock">  
  <condition>foundBook = true </condition>  
</rule>
```

When the choice is run, Sterling B2B Integrator checks each of the edges of the choice element and runs the path of the first rule it finds to be true. The Sterling B2B Integrator completes that activity, the choice itself is complete, and it runs no other activities in the choice after that point.

In this particular case, one of the choices results in an activity being run. It is possible; however to have choices where no activity is run because no rule was found to be true. An edge of a choice may have multiple rules; the process continues in a path if any of the rules in that path are found to be true.

In summary, the choice activity is used to make decisions in the business process. Rules that are associated with a choice conduct this decision making.

Activities Supported by BPML

Overview

This section provides a reference of the BPML activities that Sterling B2B Integrator recognizes. The activities are listed in alphabetical order for ease of reference.

All

The All activity is a complex activity that does not complete until all its sub activities are completed. Sub activities run in parallel.

Assign

The assign activity is a process activity that performs an assignment. You can use this activity any place where an activity can appear.

Choice

The choice activity is a complex activity that completes after one, or none of its sub activities completes. At most, one sub activity runs.

(Continued on next page)

Activities Supported by BPML

(Continued)

Overview (Continued)

Input

The input element accepts a message that is delivered to the process.

- Use the input element in the operation activity to accept a message that is delivered from a participant to the process (process input).
- Use the message attribute to reference the relevant message definition.
- Use the assign element to perform assignment from the message contents to the process data. You can use multiple assignments for multi-part messages.

Example:

```
<input message>  
  <assign/>  
</input>
```

Join

Use the join activity to make a process wait for the completion of the processes referred to by the **ref** attribute (an XPath expression for referencing an element in process data that holds process instance information).

Example:

```
<join ref>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

**Overview
(Continued)****OnFault**

The onFault activity associates a fault handling the activity with a complex activity. Use it to recover from faults and allow process to continue. For more information about the onFault activity, see Using the onFault activity.

Operation

In Sterling B2B Integrator, the operation activity is used to call a service. Use it any place where an activity can appear.

- An operation involves a synchronous request/response message exchange with a possible fault message.
- When an operation is invoked, it delivers a request message and waits for a response message. If a fault is communicated, the operation faults.
- Use the operation activity to invoke an operation on a service.

The operation activity produces the outgoing message through assignment and waits for the incoming message to complete the activity. The participant element (or service) is mandatory. The output element must precede the input element.

Example:

```
<operation name="this is optional">
  <participant name="service name"/>
  <output message="what to send out">
    <assign />
  </output>
  <input message="what comes back">
    <assign />
  </input>
</operation>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

**Overview
(Continued)**

Output

The output element constructs a message that is delivered by the process to a participant. The message attribute references the relevant message definition.

- Use the assign element to construct the contents of the message by assignment from the process data.
- Use multiple assignments for multi-part messages, no assignments are required for empty messages.

Example:

```
<output message>  
  <assign/>  
</output>
```

Participant

The participant element defines or references a participant of the process. Sterling B2B Integrator recognizes this element only when it is used in the operation activity.

- Use the participant element to reference a participant within an activity.
- You must use the name attribute when defining the participant as a simple activity. Defining the participant as a simple activity defines a static participant.

Example:

```
<participant name>  
</participant>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

Overview (Continued)

Process

Use the process element to define a top-level process. The top-level activity relates to Start and End activities.

Example:

```
<process name>
  <rule name/>*
  <activity name/>
  / (simpleActivity | complexActivity)
</process>
```

Produce

Use the produce activity to send a message to a business process instance. The name attribute in the participant element must refer to an element in process data that provides the necessary information to contact a process instance.

As mentioned previously, it is a best practice to use the Invoke Service instead of Produce, Consume and Spawn BPML.

Example:

```
<produce name?>
  <participant name />
  (output message >
    <assign />*
  </output>
</produce>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

Overview (Continued)

Release Service

The Release Service is a system service that is used to remove extraneous data from the process data.

This service comes without predefined parameters, therefore you must use the Advanced Service Editor to create a parameter that called TARGET and assign a value to it. The value identifies the process data which is no longer needed.

TARGET is the name of the parameter the Release service expects in the "Message TO Service." The value that assigned to the parameter is an XPath expression which selects the nodes from the Process Data is to be released. Even though it is an XPath expression you do not need to check the "Use XPATH" check box.

Example:

If you put the following 'input' message into the Release service, it removes all the DOC-SPLIT tags from process Data.

```
<input>
<assign to="TARGET">/ProcessData/*[starts-with(name(),
'DOC-SPLIT')]</assign>
</input>
```

In this case, starts-with(name(), 'DOC-SPLIT') is an XPath expression that says, in effect, "Release all nodes in ProcessData with a name that starts with 'DOC-SPLIT'."

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(Continued)

Repeat

Use the repeat activity to run a portion of the business process multiple times. The **ref** attribute is the name of the activity to be run again. The referenced activity must be an ancestor of the repeat activity.

In most business processes the activity being repeated will be a sequence. The steps between the sequence start and end would be repeated if the sequence name is called by the repeat function. It is commonly used with a choice statement that when the choice criteria is met the repeat activity will be skipped and end the loop.

Example:

In this example the repeat function is named "Repeat" and the activity being repeated is a sequence name "ForEachDoc".

```
<repeat name="Repeat" ref="ForEachDoc"/>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

**Overview
(Continued)****Rule**

The rule element defines a rule, the conditions by which the rule is met and the dependency on other rules.

- The condition element formulates an expression. The condition is met if the expression evaluated to true; or when the negative attribute is true, if the expression evaluates to false.
- Multiple conditions appearing inside a rule imply logical order. This notation is for convenience in reading. Other forms of logical composition are fully supported in the XPath language.
- The select element in a choice determines which line activity will run based on a number of cases. See the choice activity for more information.

Example:

```
<rule name?>
  <condition/>+
</rule>
<condition>
  expression
</condition>
<select>
  <case activity ref negative?/>*
</select>
```

(Continued on next page)

Activities Supported by BPML

(Continued)

Overview (Continued)

Sequence

The sequence activity is a complex activity that completes after all its sub activities are completed. All sub activities are expected in sequence. Use it any place where an activity can appear. A sequence models a compound state that transitions through a series of sub states, one for each sub activity. A transition is triggered upon the completion of a previous activity. This activity completes when the last sub activity is completed.

Example:

```
<sequence>
activity+
</sequence>
```

Spawn

Use the spawn activity to create a new instance of a business process. The ref attribute must contain the name of a valid business process within the Sterling B2B Integrator system. The new business process instance process data is a copy of the parent process data when the spawn activity ran. The child process and parent process are completed independent of each other; if one process completes (either normally or due to a fault), it has no effect on the other. After the spawn activity completes, an element in process data with the same name as the spawned process contains the instance information.

Example:

```
<spawn ref />
```

Process Rules

Introduction

A rule is an expression that evaluates single or multiple conditions that are based on information known to the process or information communicated to the process. The conditional expressions allow for diverse business process decisions both internal to the process and external to the environment.

Complex activities often require that a process select one of several alternative activities or even, on occasion, discriminate the information upon which it acts.

Rules can be built into activities that affect activity selection through branching and repeating actions and message consumption. In addition, rules can contain multiple conditions.

As the process acts upon rules, process branching may occur. Process branching is a result of a decision made by the process itself. This models the manner in which information created and collected through a process instance drives process running.

Rules express single or multiple conditions that are based on information known to the process or information communicated to the process. The contents of the condition activity must correspond to an expression that can be evaluated as either true or false. BPML mandates that these expressions be XPath expressions.

Rules for Choice activities

Complex activities often require that a process select one of several alternate activities or even, on occasion, discriminate the information upon which it acts. Rules can affect activity selection using the choice activity.

(Continued on next page)

Process Rules

(Continued)

Process Data

Process data is a context that exists for each process instance and can be used to hold or reference information that is accumulated during the life of the process. Process data is a private area that the process definition writer uses to store data that can be accessed by the running business process.

Data entering the system can be of many types, including a document and/or a set of name/value pairs and may be as complex and rich as XML itself. For example, when you run a business process from the User Interface, you can select an input file to use as a document. When a business process is started, it has data it puts into the document, and it can also set name/value pairs in the process data.

Important!

Services often use Process Data to store those name/value pairs that services down the line in the business might need.

Using the Assign element

As a process runs, it obtains information from participants and communicates it to other participants. In Sterling B2B Integrator, participants can be services, adapters, or other processes.

An incoming document may contain a great deal of data, but the process participants may only need a small portion of that data. Therefore, the process needs to be selective about what it actually shares with different participants.

The process decides what information is relevant and uses the Assign element to share that subset. This takes a known value and includes it in an output message. In a similar manner, it can take a value from an input message and make it available for the process.

The direction in which an assignment is done depends on the context in which the Assign element appears; if it is part of the input, the assignment is from message to process; if it is part of the output, the assignment is from process to message.

(Continued on next page)

Process Rules

(Continued)

Using the Assign activity

The Assign activity sets something in the process data equal to a fixed value, either a number or a string; additionally, it can incorporate XPath expressions.

When using the assign element in an operation, you must know the parameters for the service. An example of this is the map name that the translator needs.

- The assignment source and target contexts depend on the manner in which the assign element is used.
- When the assign element appears within the output element, it performs assignment from the process data to the outgoing message. The To attribute corresponds to the path within the message and is used to construct the message contents.
- When the assign element appears within the input element, it performs assignments from the incoming message to the process data. The To attribute corresponds to a value within the process data.
- When the assign activity appears as an activity, it performs assignment from a constant to the process data. The To attribute corresponds to a path within the process data. The From attribute can be used to extract information from a previously assigned value.
- Sterling B2B Integrator does not recognize nested assigns.

(Continued on next page)

Process Rules

(Continued)

Using the Assign activity (Continued)

Example:

The schema for the assign activity as an independent activity is:

```
<assign to="x"> 3 </assign>
```

The schema for the assign element within an operation is:

```
<operation name="name">  
  <participant name="name of specific service"/>  
  <output message="output message from service"/>  
  <input message="input message for service">  
    <assign to='z' from ="x"/>  
  </input>  
</operation>
```

(Continued on next page)

Process Rules

(Continued)

Fault handling

A fault is an error that occurs while running any step of a process regardless of whether it is the result of a local error or an error in a service/adaptor. Fault handling allows the process to recover and proceed. A process may simply communicate the failure to its participants, or it could engage in recovery or select a different path to run. Generally, our main goal in setting up a fault handling procedure is to track any error and inform the operator.

Faults are propagated upwards through a process from the faulting activity to its parent activity. If the parent activity does not have an appropriate onFault to handle the error, it is propagated up to its parent, and so forth. If several activities are running in parallel, only the activity with the fault is affected. However, when the top-level activity fails, the process is aborted. Any activity associated with the process will complete, but the process will still abort.

Using the onFault activity

Errors are handled in BPML by the onFault activity. An onFault activity is associated with the complex activity it is contained in, and is only run if an activity in the complex activity results in an error.

- The fault handling activity runs if the activity faults before completing. The faulting activity completes if the fault handling activity completes successfully.
- Use multiple onFault activities to handle fault codes. A set of onFault activities must use unique fault codes and at most one activity may omit the code attribute.
- The onFault activity without a code runs only if no fault with a matching code is found in the correct complex activity.

(Continued on next page)

Process Rules

(Continued)

**Fault handling
(Continued)****Example:**

```
<onFault code?>
  activity+
</onFault>
```

Exceptions

An exception indicates a possible failure condition. A service may need to generate a workflow exception when a required input parameter is:

- Missing.
- Invalid.
- Disabled. For example, a map or a workflow definition is disabled.

Use the following syntax to construct an exception:

```
new WorkflowException (String errorText, int reasonCode)
```

Workflow exception reason codes are:


- `public final static int GENERAL_PARM_ERROR = 0;` (Default). Use this in situations that require, for example, missing properties files.
- `public final static int MANDATORY_PARM_MISSING = 1;`
- `public final static int INVALID_VALUE_FOR_PARM = 2;`
- `public final static int RESOURCE_DISABLED = 3;`
- `public final static int NO_DOCUMENT = 4`

The workflow engine places the error text string for the workflow exception into the status report.

Exercise 2–1 Viewing BPML Code

Scenario You need to view the BPML code of existing business process that declares multiple attributes.

Steps to view the BPML code

1. Click **Go!** in the Admin Console Home page to open the Graphical Process Modeler.
2. Click the **Open** icon  to open the business process.
3. Browse to the Exercise folder on the Desktop and select the **DeclareMultipleAttributes.bp** file in the local system.
4. Click **View** in the menu bar and **Source**. The BPML code is displayed in the workspace.

```
<process name="default">
  <sequence name="Sequence Start">
    <operation name="Assign">
      <participant name="AssignService"/>
      <output message="AssignServiceTypeInputMessage">
        <assign to="," from="*"></assign>
        <assign to="partnername">IBMPartner2</assign>
        <assign to="item">Ipad</assign>
        <assign to="description">Ipad with new features</assign>
        <assign to="price">40000</assign>
        <assign to="quantity">5</assign>
      </output>
      <input message="inmsg">
        <assign to="," from="*"></assign>
      </input>
    </operation>
  </sequence>
</process>
```

Element Editors

Overview BPML activities are installed and configured automatically when you install the GPM. However, some BPML activities, services, and service types may require you to perform additional configuration in the GPM, depending on the task your process model needs to accomplish. You can locate these configuration parameters in one of five different element editor types: Property, Service, Edge, Produce, and Consume. Each element editor provides configuration parameters specific to an activity or a service.

Use this editor:	To configure:
Property	Activities that require additional information such as Choice, Assign, and Sequence.
Service	Services that require additional information before they can function.
Edge	Rules for the connections that run from a Choice Start activity to the next activity in the process model.
Produce	The message and name of the receiving participant or activity.
Consume	The message a business process should expect and the name of the participant sending that message.

Element editor allows for the configuration of the BPML operations and services that are placed in the business process.

Quiz

- | | |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Questions | <ol style="list-style-type: none">1. How many branches within a Choice can be executed as a result of a case statement?<ol style="list-style-type: none">a. Oneb. Twoc. Threed. Unlimited2. Services and adapters are used to exchange messages between business processes.<ol style="list-style-type: none">a. Trueb. False3. The All activity does not complete until all the sequences are complete.<ol style="list-style-type: none">a. Trueb. False4. Which of these elements are available in Operations of services/adapters? Select all the correct answers.<ol style="list-style-type: none">a. Outputb. Participantc. Inputd. Message To Servicee. Message From Service |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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Lesson Review

Completed Objectives

This lesson was designed to enable you to:

- Define BPML
 - Discuss the activities that perform BPML functions
 - Differentiate between services and adapters as they relate to Sterling B2B Integrator
 - Explain how Sterling B2B Integrator uses BPML
-

XPath Basics

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■ Exercise 3–1: Testing XPath Expressions using XPath Visualizer	3-5
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Background

Introduction	This lesson provides an overview of the features that make up the XML Path Language (XPath).
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Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ Define XPath■ Explain the basic XPath features used to access document content■ Use XPath Visualizer■ Utilize XPath Syntax and Expressions■ Use XPath Expression Builder to build XPath expressions
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What is XPath?

Introduction

XML Path Language (XPath) is a common syntax and semantics for functionality that shared between XSL Transformations and XPointer. The primary purpose of XPath is to address parts of an XML document. In support of this primary purpose, it also provides basic facilities for manipulation of strings, numbers, and booleans. XPath uses a compact, non-XML syntax to facilitate use of XPath within URIs and XML attribute values. XPath operates on the abstract, logical structure of an XML document, rather than its surface syntax.

XPath expressions can also represent numbers, strings, or Booleans, so XSLT style sheets carry out simple arithmetic for numbering and cross-referencing figures, tables, and equations. String manipulation in XPath allows XSLT perform tasks like making the title of a chapter uppercase in a headline, but mixed case in a reference in the body text.

XPath Version

As of 2016 there are multiple versions of XPath. 3.0 being the latest version. Sterling IBM B2B Integrator supports XPath 1.0. This is still the most widely adopted of the versions.

The Structure of an XML Document

An XML document is a tree made up of nodes. Some nodes contain other nodes. One root node ultimately contains all other nodes. XPath is a language for picking nodes and sets of nodes out of this tree. There are seven kinds of nodes:

- The root node
 - Element nodes
 - Text nodes
 - Attribute nodes
 - Comment nodes
 - Processing instruction nodes
 - Namespace nodes
-

XPath Visualizer

Introduction

XPath Visualizer is a full blown visual XPath Interpreter for the evaluation of any XPath expression and visual presentation of the resulting nodeset or scalar value.

The XPath Visualizer's value as an XSLT and XPath learning and authoring tool results from its ability to present the results of any XPath expression in an immediate, appealing, and straightforward visualization. It allows the user to define their own dynamic `xsl:variable` and `xsl:key` elements and to use variable references and the `key()` functions in their XPath expressions.

A visual interpreter is good aid that can help you learn and test XPath queries and their results. It is not a necessary tool for the operation of Sterling B2B Integrator.

Note: Although this software is old as far as technology is considered it is one of the only XPath interpreters that only supports XPath version 1.0. Newer interpreters can also include newer versions of the XPath standard. This may or may not cause the results during testing to be different than the results in B2Bi.

Remember!	XPath Visualizer is a third-party software, and Sterling B2B Integrator Customer Support does not support it.
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Exercise 3–1 Testing XPath Expressions using XPath Visualizer

Scenario	This exercise will have you test XPath expressions using XPath Visualizer.
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Instructions	<p>You can use the following steps to test XPath expressions in XPath Visualizer.</p> <ol style="list-style-type: none">1. Go to Data Files folder in the desktop and open the XPathVisualizer folder.2. Locate and click xpathmain.html.3. When the page launches in IE click Enable Blocked Content at bottom of page to enable XPath Visualizer to run correctly.4. Browse to ClassLabfiles\Cookbook.xml in the Data Files folder.5. Click the Select Node to open the document.6. Locate the XPath Syntax and Expressions section on the following page.7. Type one or more XPath expressions from each section to learn about the different search capabilities.
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Instructor Note: The XPath Visualizer is available in the Data Files. Ensure that you make this accessible to the participants.

XPath Syntax and Expressions

Introduction

XML Path, or XPath, is a language that is designed to operate on XML data. It is a powerful, easy language to learn. To explain XPath syntax and expressions, use the following XML document:

```
<?xml version="1.0" encoding="UTF-8"?>
<cookbook title="Easy Dinners My Kids Will Actually Eat">
  <notes>These are real recipes</notes>
  <recipe name="Shrimp Scampi">
    <ingredient>1 lb. peeled, deveined shrimp</ingredient>
    <ingredient>.5 cups melted butter</ingredient>
    <ingredient>.5 cups vegetable oil</ingredient>
    <ingredient>1 clove garlic, minced</ingredient>
    <ingredient>1 tblsp lemon juice</ingredient>
    <ingredient>dash cayenne pepper</ingredient>
    <notes info="cooking">Toss ingredients together and broil for 10
minutes or until shrimp are cooked, stirring often.</notes>
    <sides>Rice or buttered noodles</sides>
  </recipe>
  <recipe name="Taco Pie">
    <ingredient>1 lb. Lean ground beef</ingredient>
    <ingredient>1 pkg. Corn bread or corn muffin mix</ingredient>
    <notes>Prepare as indicated on package</notes>
    <ingredient>1 pkt taco seasoning</ingredient>
    <notes>Following instructions on seasoning pkt to prepare taco
beef.</notes>
    <ingredient>2 cups shredded cheddar cheese</ingredient>
    <notes info="cooking">Spread prepared beef in casserole dish. Blanket
with cheese. Cover with corn bread batter. Bake at 350 for 30 minutes,
or until cornbread is done.</notes>
    <sides>salad, fruit cocktail, etc.</sides>
  </recipe>
  <ingredient>Sprig of parsley for garnish.</ingredient>
  <ingredient reason="just to make their eyes water">dash cayenne pepper</ingredient>
</cookbook>
```

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XPath Syntax and Expressions

(Continued)

Locating Nodes

Example 1:

```
/cookbook/recipe/ingredient
```

This statement selects all "ingredient" elements within all "recipe" elements in the "cookbook" document. When a statement begins with a single "/", view the expression as searching an absolute path within the document.

Example 2:

```
//notes
```

This statement selects all "notes" elements in the document, regardless of their level. When an expression starts with "//", all nodes that are matching the criteria are selected throughout the document.

Using Wildcards

The following table lists few of the examples for using wildcards.

Example	Description
<code>/cookbook/recipe/*</code>	This statement selects all child elements of the "recipe" element within the "cookbook" document.
<code>/cookbook/*/notes</code>	This statement selects all "notes" elements that are grandchildren of the "cookbook" element. Hence, the first "notes" element would not be selected.
<code>/*/*/notes</code>	This statement selects all "notes" elements that have two ancestors.
<code>//*</code>	This statement selects all elements in the document, regardless of level.

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XPath Syntax and Expressions

(Continued)

Selective Searching

Square brackets are used to specify an occurrence of a node within a document. Use parentheses when the argument is specified with the string characters instead of a number.

The following table lists few of the examples for selective searching.

Example	Description
<code>/cookbook/recipe[2]</code>	This statement selects the second "recipe" element within the "cookbook" element.
<code>/cookbook/notes[last()]</code>	This statement selects the last "notes" element within the "cookbook".
<code>/cookbook/recipe[notes]</code>	This statement selects all "recipe" elements in the cookbook that have a "notes" element within them.
<code>/cookbook/recipe[ingredient='dash cayenne pepper']</code>	This statement selects all "recipe" elements in the cookbook that include an "ingredient" element whose value is "dash cayenne pepper".
<code>/cookbook/recipe[ingredient='dash cayenne pepper']/notes</code>	This statement selects all "notes" elements of all "recipe" elements within the cookbook, that have an "ingredient" element whose value is "dash of cayenne pepper". Hence, the final "notes" node is not selected, as it is not part of a "recipe".

(Continued on next page)

XPath Syntax and Expressions

(Continued)

Using the "And" Operator in Searches

The following table lists few examples for using the "And" operator in searches.

Example	Description
/cookbook/recipe/ingredient/cookbook/recipe/notes	This statement selects all "ingredient" and all "notes" nodes of the "recipe" element within the cookbook.
//ingredient//notes	This statement selects all "ingredient" and all "notes" elements in the cookbook.
//ingredient //notes//sides	This statement selects all "ingredient", all "notes", and all "sides" elements in the cookbook.
/cookbook/recipe/notes //ingredient	This statement selects all "notes" elements within "recipe" nodes in the cookbook, as well as all "ingredient" elements in the entire document.

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XPath Syntax and Expressions

(Continued)

Searching Attributes

You can search the attributes that are contained in a node by using the reserved character "@" as a prefix to the search argument. The following table lists few examples for searching attributes.

Example	Description
//@info	This statement selects all attributes named "info".
//recipe[@name]	This statement selects all "recipe" elements that have an attribute named "name".
//recipe[@*]	This statement selects all "recipe" elements that have an attribute of any name.
//recipe[@name='Taco Pie']	This statement selects all "recipe" elements that have an attribute named "name" that have a value of "Taco Pie".

Searching for Content

You can search a business process for a specific occurrence of a string within the data.

Example:

```
/cookbook/recipe [1]/ingredient [1]/text( )
```

This statement selects the string in the first ingredient in the first recipe. In this example, it returns the following string:

```
1 lb. peeled, deveined shrimp
```

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XPath Syntax and Expressions

(Continued)

Numeric Expressions

XPath also support mathematical and numeric relational expressions, including equality and Boolean. Operators are as follows:

The following table lists the parameters that are shown in the previous example:

Operator	Description	Example
+	Addition	2+4
-	Subtraction	5-3
*	Multiplication	2*3
div	Division	12 div 6
mod	Modulus	7 mod 3 (remainder is the modulus)
=	Like or Equal	Cost = 10.00
!=	Not Equal	Cost != 50.00
<	Less Than	Cost < 50.00
<=	Less Than or Equal To	Cost <=49.00
>	Greater Than	Cost > 10.00
>=	Greater Than or Equal To	Cost >=11.00
or	Or	Cost >=11.00 or Cost <=49.00
and	And	Cost > 10.00 and Cost < 50.00
sum	Sums numeric values in elements	sum(Order/Cost)
count	Counts occurrences of specific nodes in data	count(Order/LinItem)

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XPath Syntax and Expressions

(Continued)

Strings	Returns the value of an element and an object. It is helpful when the value you extract must be passed as a parameter to another service within a business process.
Substring	Substring allows you to locate and extract part of the content of an element without the entire element.
String-length	String-length returns an integer value that is number of bytes of data exist within an element.

Exercise 3–2 Viewing Results in XPath Visualizer

Scenario You have received a purchase order from your customer in a standard XML format. Use XPath Visualizer to search, select, and perform simple manipulations with the data available in the purchase order.

Instructions Follow the steps to use the XPath Visualizer.

1. Browse to **Lab Files** folder and select **Sample_Order.xml** using XPath visualizer.
2. Click **Process File** to open this xml document in XPath Visualizer.
3. Type each XPath expression to find the results:
 - `//Item/Price/text()`
 - `string(//Item/Price)`
 - `string(//Item[2]/Price)`
 - `sum(//Line_Items/Item/Qty)`
 - `count(//Line_Items/Item)`
 - `(//Line_Items/Item[3]/Qty)*(//Line_Items/Item[3]/Price)`
 - `//Item[@LI]`
 - `/*/Item[@LI="2"]`
 - `substring(/Purchase_Order/Ord_Num/text(),4,4)`
 - `string-length(//Line_Items/Item[3]/Part_Num/text())`
 - `/Purchase_Order/*/comment()[1]`
 - `//Line_Items/*/*[local-name()='Price']/text()`
 - `//Line_Items/*[local-name()='concat('ItemSplit_',//Line_Items/count/text())]/text()`

Note: In the Sample_Order.xml file the Count value is declared as 2, so the second link 'http://www.supplier2.com' is selected. On changing the value of the 'Count' in the Sample_Order.xml file the corresponding link is selected. Changing the Count value can be automated by loop functionality of Repeat activity.

Instructor Note: Students to do this exercise, walk around and help where appropriate. Inform students that the local-name functionality returns the non-qualified data of the node specified. Also, inform that the comment functionality identifies the comments in the XML file. Make sure that all students complete this before continuing with next topic.

XPath Expression Builder

Overview

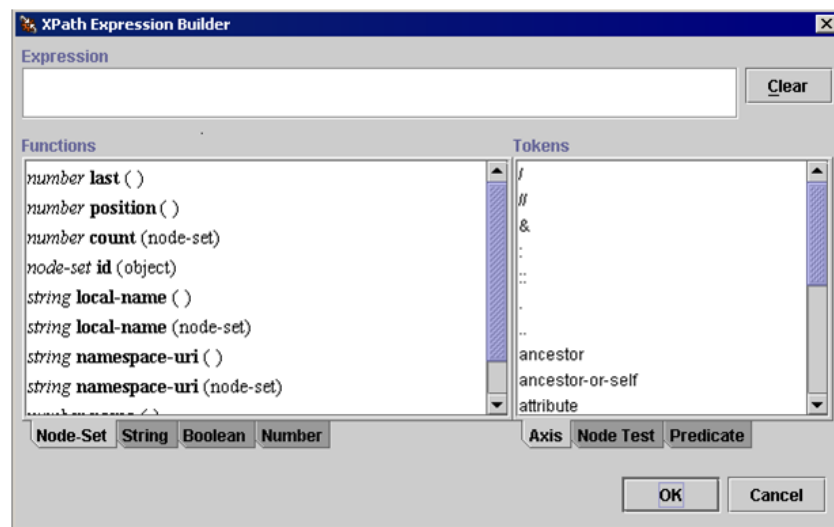
The XPath Expression Builder allows you to:

- Easily create complex rules within a business process; for example, a rule to locate a specific node or source content within an XML document.
- Create and define your own name and value for sending the name-value pairs through business process data.
- Describe the path for sending name-value pairs.

The XPath Expression Builder supports:

- Four expression types: Node-Set, String, Boolean, and Number
- Three token sets: Axis, Node Test, and Predicate

The following figure shows the XPath Expression Builder. The functions for the Node-Set expression type and the Axis token set are visible.



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XPath Expression Builder

(Continued)

Expression Types

The following table describes the functions of the four expression types:

Expression Type	Function
Node-Set	<ul style="list-style-type: none">■ Defines a set of sequential context-nodes that form a complete location path.■ Specifies what information to process or return for the set of context-nodes.
String	<ul style="list-style-type: none">■ Performs basic string operations, such as finding the length of a string, comparing a string, or changing letters from upper- to lower case.■ Modifies the text content of XML elements or attributes.■ Converts an argument of any type.
Boolean	Specifies a Boolean argument (using either the true or false state) that can include predicates and return the result.
Number	<ul style="list-style-type: none">■ Specifies a numeric function for summing groups of numbers.■ Finds the nearest integer to a number.■ Performs basic arithmetic operations.

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XPath Expression Builder

(Continued)

Token Sets

The following table describes the three token sets:

Expression Type	Function
Axis	Defines the direction of your search by using keywords, including: <ul style="list-style-type: none">■ Attributes■ Child elements (default)■ Descendants of the child elements■ Parent elements■ Ancestor elements
Node Test	Indicates the name of the node for which to search. Insert the name of the node test after the resolution operator (::) that follows the axis.
Predicate	Inserts a relational operator to test each node in the set of context-nodes of a location path. Predicates can employ Boolean operators.

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XPath Expression Builder

(Continued)

Displaying XPath Expression Builder

After starting the GPM, you can open the XPath Expression Builder through the following features:

- Rule Manager – Assign rules and conditions.
 - Service editor – Assign name-value pairs that represent source content and location in business process data.
-

Quiz

- | | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Questions | <ol style="list-style-type: none">1. <code>"/ProcessData/Order/OrderNumber"</code> is an example of:<ol style="list-style-type: none">a. An absolute pathb. A relative path2. In xPath, <code>"/text()"</code> and <code>"string"</code> perform the same function<ol style="list-style-type: none">a. Trueb. False3. Which of the following is an example of an indexed search using XPath?<ol style="list-style-type: none">a. <code>"/ProcessData/Order/item/text()"</code>b. <code>"/ProcessData/Order/item[3]/price"</code>c. <code>"/ProcessData/Order/*"</code>d. <code>"/ProcessData/Order/item"</code>4. Which reserved character is used to denote an attribute in XPath searches?<ol style="list-style-type: none">a. *b. \$c. @d. & |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

Lesson Review

Completed Objective

This lesson was designed to help you to:

- Define XPath
 - Explain the basic XPath features used to access document content
 - Use XPath Visualizer
 - Utilize XPath Syntax and Expressions
 - Use XPath Expression Builder to build XPath expressions
-

Graphical Process Modeler (GPM)

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Background

Introduction	This lesson describes the elements that make up the Graphical Process Modeler (GPM).
---------------------	--------------------------------------------------------------------------------------

Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ Install the Graphical Process Modeler■ Use the Graphical Process Modeler■ Understand Stencil Elements■ Understand Element Editors■ Understand Basic BPML Operations
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Graphical Process Modeler

Overview

To help you build process models that accurately define your business processes, Sterling B2B Integrator offers the Graphical Process Modeler (GPM). The GPM is a stand-alone graphical interface tool that is used in Sterling B2B Integrator to create and modify business processes. The GPM converts the graphical representation of business processes to well-formed BPML (source code) and saves you the effort of writing code.

Important!	The GPM recognizes BPML coded in a text editor. Therefore, you can open a bpml file in a text editor and view its graphical representation in the GPM.
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Downloading and Installing the Graphical Process Modeler

Java Web Start

Sterling B2B Integrator requires that the correct version of Java is installed on the client machine to open and work with the GPM. This is usually the same version as what is required for Windows server. Always confirm with IBM Knowledge Center the correct Java for your release.

System Requirements

Java Web Start requires approximately 5.5 MB of disk space on the client computer. The minimum recommended available disk space for Java Web Start and the GPM is 100 MB.

Exercise 4–1 Opening Graphical Process Modeler

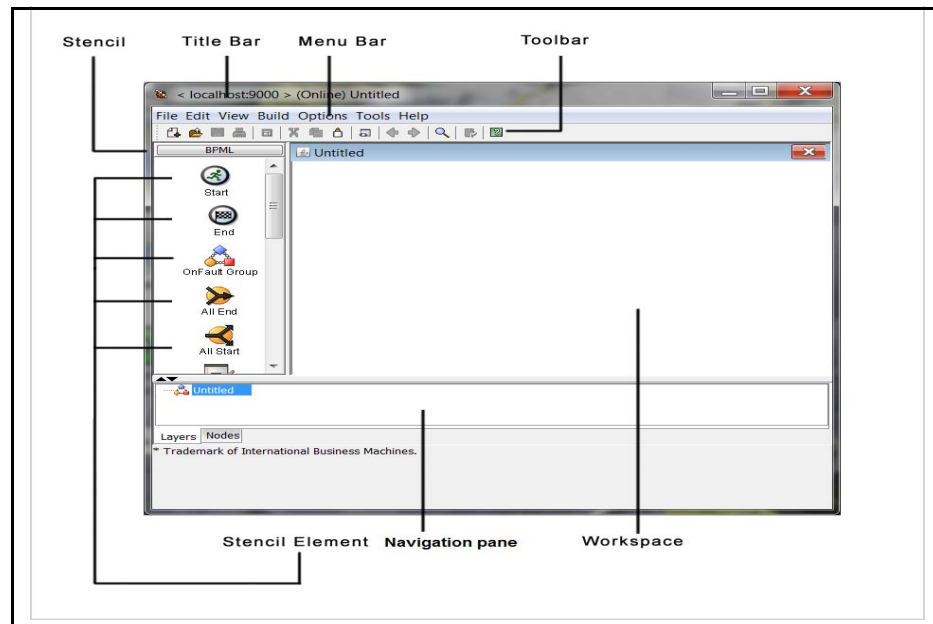
Scenario	You are required to log in to the Graphical Process Modeler with a login Id that has permission to create and manage business processes.
Instructions	<p>You can follow the steps that are listed to open the Graphical Process Modeler.</p> <ol style="list-style-type: none">1. Open the Admin Console Home page.2. Click Go! under Tools to open the Graphical Process Modeler.3. Click Run in the Warning-Security pop-up window.4. Enter the User Id as admin and Password as password.5. Click Ok. The Graphical Process Modeler opens. <p>You can also open the Graphical Process Modeler with the following steps:</p> <ol style="list-style-type: none">1. Click Business Processes under Administration menu in the Admin Console Home page.2. Select the Manager sub menu option. The Business Process Manager page opens.3. You can click Go! next to Run Graphical Process Modeler under the Graphical Modeling.4. Click Run in the Warning-Security pop-up window.5. Enter the User Id as admin and Password as password.6. Click Ok. The Graphical Process Modeler opens. <p>Note: The system may prompt you with a warning to allow Java Web Start to run. Please allow it to run.</p> <p>Note: If system prompts to restart after installation, close down any programs that are open and restart your computer. You can now start the GPM.</p>

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Elements of the Graphical Process Modeler

Overview This section provides an overview of the major elements of the Graphical Process Modeler (GPM), such as menus, stencils, and workspace.

The following figure shows a standard GPM interface. A new business process model document is open, and the BPML and All Services stencils are visible.



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Instructor Note: Ask the students click File > New and follow along while you demonstrate.

Elements of the Graphical Process Modeler (Continued)

Anatomy of the Graphical Process Modeler

The following table lists the various elements of the Graphical Process Modeler along with their description.

Element	Description
The Menu bar	The menu bar provides access to the following menus: File, Edit, View, Build, Options, Tools, and Help.
The Tool bar	The tool bar contains shortcuts to the following functions: New, Open, Save, Print, Open Stencil, Cut, Copy, Paste, Source Manager, Previous, Next, Zoom, Properties, and Help.
The Stencils pane	The Stencils Pane provides the available stencils. To access different stencils, click the BPML Operations or All Services.
The workspace	The workspace shows the business process currently being built or edited.
The Navigation pane	The Navigation Pane shows a high-level organizational view of sub flows, activities, and services in the business process.
The Output window	The Output window shows BPML validation or error messages.
The Editor window	The Editor window shows the element editors, which are used to configure BPML activities and services.

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Elements of the Graphical Process Modeler (Continued)

The Menu Bar

The menu bar in the GPM is simple and complies with most Windows menu conventions. The following table describes the menu commands available in the GPM:

Menu	Description
File	The File menu allows you to: <ul style="list-style-type: none">■ Create a new business process model.■ Open an existing business process model.■ Close, save, and print a business process model.■ Exit the GPM.
Edit	The Edit menu allows you to cut, copy, paste, delete, clear all, and select all elements from the workspace. The Edit menu also allows you to: <ul style="list-style-type: none">■ Add an annotation to an element. To add an annotation, you must first select an element icon.■ Access element editors that contain configurable or non-configurable parameters. To view parameters, you must first select an element icon from the workspace.
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Elements of the Graphical Process Modeler (Continued)

The Menu Bar (Continued)

Menu	Description
View	<p>The View menu allows you to customize the GPM interface. In the View menu, click the option that you want to display or hide. When the option has a check mark next to it; then that menu option will be displayed. Options to display or hide are:</p> <ul style="list-style-type: none">■ Source – Allows you to switch between the graphical representation and the BPML source code of a business process model on the workspace. The GPM does not allow you to edit or copy BPML source code.■ Toolbar – Displays the bar containing shortcut command buttons.■ Status Bar – Displays the bar at the bottom of the page. When you point to a menu option or tool bar button, the status bar displays a description of what that option does.■ Output – Opens and closes the Output pane, which displays the error, validation, and system messages. This pane opens automatically when the GPM encounters an error during validation.■ Navigation – Opens and closes the Navigation pane, which contains two tabs: Layers and Nodes. Layers provide a navigation structure in which you can determine the layer that you are currently working with. Nodes display all the nodes that exist on the layer that is currently shown on the workspace. For more information, see Navigation Pane on page 38.■ Zoom – Allows you to change the magnification of a business process model. Zoom sets the magnification to 50%, 75%, 100%, 150%, or 200%.
Continued on next page	

Elements of the Graphical Process Modeler (Continued)

The Menu Bar (Continued)

Menu	Description
View	<ul style="list-style-type: none"> ■ Grid – Displays grid markers or a ruler. The grid points allow you to align elements on the workspace. ■ Stencil – Shows the menu that lists stencils. Stencils contain labeled elements icons that represent BPML activities and services that you use to create business process models. From the Stencil menu, you can also close stencils as needed. ■ Refresh Services – Updates the GPM to include services and adapters that are recently configured. ■ Go To – Allows you to return to the previous flow view or move to the next flow view. ■ Auto Layout – Automatically aligns elements on the workspace.
Build	<p>The Build menu command instructs Sterling B2B Integrator to validate a business process model against BPML syntax. After you complete the business process model, you must validate the business process before you can run it in Sterling B2B Integrator. The GPM might prompt you to perform a validation when you save the business process model. To disable or enable this prompt, select Preferences from the Options menu.</p> <p>Sterling B2B Integrator prompts you to validate a business process model during check-in; you can choose to delay the validation process.</p>
Continued on next page	

Elements of the Graphical Process Modeler (Continued)

The Menu Bar
(Continued)

Menu	Description
Options	<p>The Options menu allows you to specify GPM preferences. The Options are:</p> <ul style="list-style-type: none">■ General – Allows you to specify whether the GPM should always validate on save or show the Validate on Save dialog box.■ Source Manager – Allows you to specify Expert Mode, for the Source Manager. When you select Expert Mode, one dialog box with all the parameters needed to add a business process model to Sterling B2B Integrator. When Expert Mode is not selected, a series of dialog boxes appears for the parameters when adding a business process.■ File Location – Allows you to specify a default directory to save all business process documents (.bp files) on your client computer.■ Locale – Allows you to specify your location.■ Service Editor – Allows you to choose override default service configuration values, which make the values that are defined in the Administrator UI as editable in the GPM. <p>To specify your preferences, select Options > Preferences, and then select the appropriate tabs.</p>
Continued on next page	

Elements of the Graphical Process Modeler (Continued)

The Menu Bar (Continued)

Menu	Description
Tools	<p>The tools menu provides extended capabilities for building a business process model. Options are:</p> <ul style="list-style-type: none">■ Rule Manager – Opens a dialog box that allows you to build and add XPath syntax to define business process rules and conditions.■ Source Manager – Opens a dialog box that shows the business processes and versions of business processes that are available in Sterling B2B Integrator. Source Manager allows you to check business processes in to and out of Sterling B2B Integrator.■ Add Sub Flow – Add a sub flow to a business process model. When adding a sub flow, the sub layers appears in the Navigation pane.
Help	<p>The Help menu provides:</p> <ul style="list-style-type: none">■ Connection to the Sterling Products web page■ Help topics for using the GPM■ Product version release and copyright information

(Continued on next page)

Elements of the Graphical Process Modeler (Continued)

- Stencils** The categorized stencils provide access to icons that represent services and adapters that are available in the GPM. These icons are used to create business processes that will run inside Sterling B2B Integrator.
- Using the labeled icons that represent services, you can indicate integration points and activities such as:
- BPML activities that control the flow of a business processes
 - Adapters that control the transmission of data between Sterling B2B Integrator and external applications
 - Services that carry out a specific activity (for example, translating file formats)
 - Customized services that are created and configured to meet a specific business need within the organization.

(Continued on next page)

Elements of the Graphical Process Modeler (Continued)

Stencils (Continued)

The Applications Stencil

The Applications stencil allows you to display stencil types that contain adapters that are installed to connect to external applications. You can display the following types of application stencils:

- ERP (Enterprise Resource Planning applications)

ERP applications adapters are:

- SAP® Suite adapter
- Oracle EBusiness Suite Adapter configuration service
- Oracle EBusiness Suite Message service

- IBM (IBM applications)

IBM applications adapters are:

- IBM® Sterling Connect:Direct® Server adapter
- IBM® Sterling Connect:Enterprise® UNIX Server adapter
- IBM® Sterling Information Broker
- IBM® Sterling Gentran adapter







(Continued on next page)

Elements of the Graphical Process Modeler (Continued)

Stencils (Continued)




BPML Stencil

Some BPML activities bracket other activities. That is, you must use these activities in pairs, at the beginning and end of the activities they enclose. When looking at BPML code they look like start and end tags. The following table lists the BPML icons with the description:

Icon	Description
 Start	The Start activity indicates the beginning of a business process. Every business process model must begin with Start.
 End	The End activity indicates the end of a business process. Every business process model must finish with End.
 OnFault Group	The OnFault Group activity is a sub flow that is used to associate a fault-handling activity with a complex activity. Use it to recover from faults and allow the process to continue.
 All Start	The All Start activity is a parent activity in a business process. All Start indicates that a business process is simultaneously executing all the child activities that are contained within the parent activity.
 All End	The All End activity indicates that all child activities within the parent activity are completed. Use All End to finish All Start.
 Choice Start	The Choice Start activity is a parent activity in a business process. Choice Start indicates a decision and runs one child activity as a result of that decision. You must assign a name to Choice Start using the Property editor and assign rules using the Rule Manager.
Continued on next page	

Elements of the Graphical Process Modeler (Continued)

Stencils (Continued)




Icon	Description
 Choice End	The Choice End activity indicates that the child activity that ran as a result of the parent activity is completed. Use Choice End to finish Choice Start.
 Sequence Start	The Sequence Start activity is a parent activity in a business process. Sequence Start runs a series of child activities in the order in which they are listed within the parent activity. When using Sequence Start, you must assign a name using the Property editor.
 Sequence End	The Sequence End activity indicates that the last child activity in a series of child activities in the parent activity is finished. Use Sequence End to finish Sequence Start.

(Continued on next page)

Elements of the Graphical Process Modeler (Continued)

Stencils (Continued)

The following table describes the BPML icons that allow extensive operations within a business process:




Icon	Description
 Assign	The Assign activity sets a value in the business process data that is equal to a fixed value. Inside an input or output element, the activity identifies a message that it should receive from a participant or identifies the contents of a message it should send to a participant. Configuration parameters allow you to indicate a fixed value or input/output message.
 Consume	The Consume activity reads a specific input message and stores that message in the business process data. Configuration parameters allow you to indicate a name for an instance of the Consume activity and the name of the message this activity should read.
 Produce	The Produce activity generates a message from the business process data and delivers it to a designated participant or activity. Configuration parameters allow you to indicate the message and name of the receiving participant or activity.

(Continued on next page)

Instructor Note: Inform students that the invoke service is commonly used instead of the Produce and Consumer activities.

Elements of the Graphical Process Modeler (Continued)

Stencils (Continued)

Icon	Description
 Spawn	The Spawn activity runs a nested business process. Configuration parameters allow you to indicate a name for an instance of the Spawn activity and the name of the activity the Spawn activity should run.
 Join	The Join activity merges the results of a completed nested business process into the business process data. Configuration parameters allow you to indicate a name for the business process for which the Join activity is waiting.
 Repeat	The Repeat activity runs a BPML operation one or more additional times. Configuration parameters allow you to indicate a name for an instance of the Repeat activity and the name of the activity the Repeat activity should run again.

For more information about activities, see Lesson 3, Basic BPML Concepts.

(Continued on next page)

Elements of the Graphical Process Modeler (Continued)

Services and Adapters	<p>In the GPM, services and adapters are represented by labeled icons within stencils. For example, when you install the MQSeries v1.0 adapter, the MQ Series Adapter icon displays in the Messaging stencil.</p> <p>To add a service to a business process model, click and hold the mouse button on the service, and then drag it onto the workspace.</p>
Title Bar	<p>The title bar displays the file name of the business process model document currently open in the GPM.</p>
Toolbar	<p>The toolbar displays the buttons that provide quick access to commonly used commands. Unavailable buttons become available after you select a service on the workspace.</p>
Workspace	<p>The workspace is the area on the GPM interface to which you can drag icons to build a business process model. You can also view the BPML source code of a business process model in the workspace.</p> <p>To view BPML source code, from the View menu, select Source.</p>

Exercise 4–2 Working with Stencils

Scenario	Use the following information to open and view the stencil elements and then close the stencils.
Instructions	<p>For ease of understanding, the procedure is chunked into two parts as listed:</p> <ul style="list-style-type: none">■ Opening a Stencil■ Closing a Stencil
Opening a Stencil	<p>You can use the following steps to open and view a stencil.</p> <ol style="list-style-type: none">1. Open the Graphical Process Modeler.2. Click File > New.3. Click View > Stencil > All Services to display the All Services Stencil.4. Click View > Stencil > BPML to display the BPML Stencil.5. Click All Services to display Stencil elements.
Closing a Stencil	<p>You can use the following steps to close a stencil.</p> <ol style="list-style-type: none">1. Select Stencil from the View menu.2. Complete one of the following steps:3. Click Close Current Stencil to close the current stencil (topmost).4. Click Close All Stencils to close all stencil.

(Continued on next page)

Element Editors

Overview	BPML activities and a few services are pre-configured when you install Sterling B2B Integrator. However, some BPML activities and services require you to perform additional configuration in the GPM, depending on the task your business process model must accomplish. You specify these configuration parameters in one of five different element editor types: Property, Service, Edge, Produce, and Consume. Each element editor provides configuration parameters specific to an activity or a service.
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Element Editors

(Continued)

Property Editor	The Property editor displays BPML icons that require additional information; such as choice start, assign, and consume icons.
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Using the Property editor, you can also define values to indicate errors. If you define values that indicate errors and the business processes encounters these values while running, Sterling B2B Integrator generates a report that describes the error.

Service Editor	The Service editor displays service parameters for each service and adapter. You can use the Service editor to:
-----------------------	-----------------------------------------------------------------------------------------------------------------

- Perform additional configuration for services and adapters with active parameters.
- Apply values using the preset values in the GPM to define conditions for configuration parameters.
- Create your own name-value pairs, adding XPath expressions when needed, to define the path to name-value pairs that appear in business process data.

If your business process requires a service that is not available, contact your system administrator.

(Continued on next page)

Element Editors

(Continued)

**Service Editor
(Continued)**

The following table describes the parameters that display in the element editor for services and adapters. In addition to parameters specific to each service or adapter, you must configure these parameters

Field	Description
Name	Name of the type of service that you are using in your business process model.
Continued on next page	

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Element Editors

(Continued)

Service Editor (Continued)

Field	Description
Config	Service configuration to use in your business process model. Note: After you select a service configuration, additional configuration parameters display.
Output Msg	(Message to service) Sends one of the following types of information: <ul style="list-style-type: none"> ■ Message Only – Send only service configuration information to a service. ■ Obtain message First, then Process Data – Send service configuration information, name-value pair in the Service editor, and business process data. If duplicate information exists between the service configuration and business process data, the business process data overrides the service configuration information. ■ Obtain Process Data First, then Message – Send service configuration information, name-value pair in the Service editor, and business process data. If duplicate information exists between the service configuration and business process data, the service configuration information overrides the business process data. Note: When sending name-value pairs, you must indicate in the Service editor the name and value that describes the path for sending the name-value pairs.
Input Msg	(Message from a service) When a service sets variables in business process data: <ul style="list-style-type: none"> ■ Allow message write – Do not save the variables. ■ Allow process data write – Save the variables.

(Continued on next page)

Element Editors

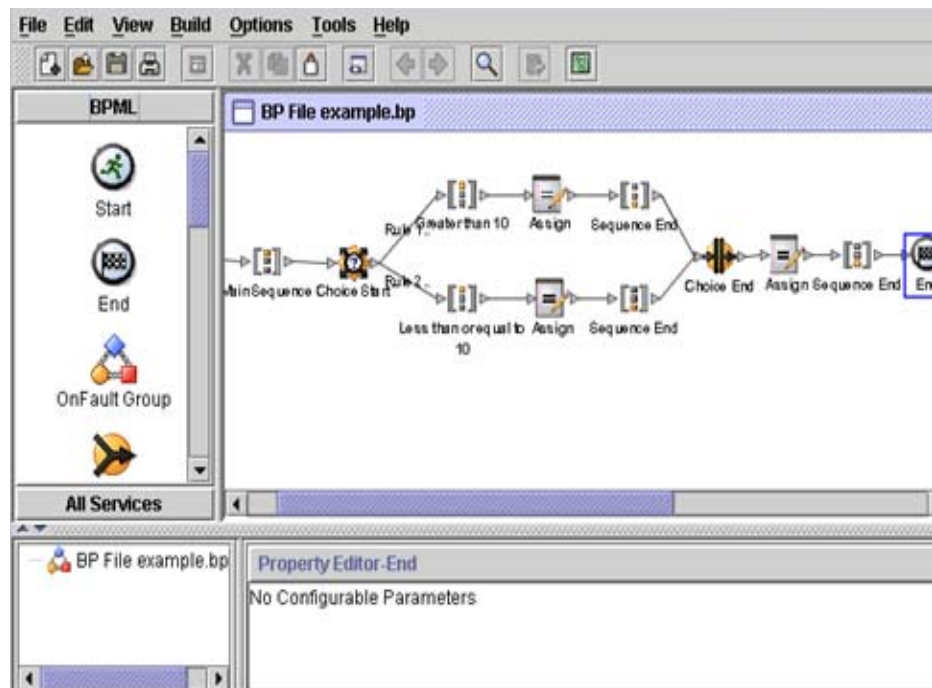
(Continued)

Edge Editor	The Edge editor lists rules that were created on the Rule Manager. You can assign these rules to links that run from a Choice Start icon to the next icons in the business process model.
Produce Editor	A Produce editor displays configuration parameters that allow you to indicate the message and name of the receiving participant or activity.
Consume Editor	The Consume editor allows you to indicate the message a business process should expect and the name of the participant sending that message.

Navigation Pane

Introduction

The Navigation pane contains two tabs: Layers and Nodes. When used together, the Layers and Nodes tabs allows you to quickly navigate through a business process model. The following figure shows the location of the Navigation pane:



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Navigation Pane

(Continued)

Layers	The Layers tab provides a relationship structure that shows each layer of a business process, including sub flows (nested layers). To expand the structure, click the root of the layer. When you expand the view, all the activities in the layer display on the workspace. A layer view is especially helpful when adding activities that handle processing errors within a business process.
Nodes	The Nodes tab provides an alphabetical structure displaying nodes (activities) that make up each layer in a business process. Select a layer from the Layers tab and then click the Node tab to view icons that make up the node in the Node tab and on the workspace. Selecting properties for an icon on the Node tab displays the configurable parameters for the node in the applicable element editor.

Quiz

- | | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Questions | <ol style="list-style-type: none">1. Which service editor option allows you to send service configuration information to another service?<ol style="list-style-type: none">a. Configb. Message From Servicec. Input Msgd. Output MSG2. Which of the following GPM elements opens the Edge Editor?<ol style="list-style-type: none">a. OnFaultb. Consumec. Spawnd. Line off a Choice Element3. You can open a bpml file in the GPM and view its graphical representation.<ol style="list-style-type: none">a. Trueb. False |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

Lesson Review

Completed Objectives

This lesson was designed to allow you to:

- Install the Graphical Process Modeler
 - Use the Graphical Process Modeler
 - Understand Stencil Elements
 - Understand Element Editors
 - Understand Basic BPML Operations
-

Using the GPM

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Background

Introduction	This lesson provides instructions for using the Graphical Process Modeler (GPM) to create an executable business process.
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Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ Define a business process and the life cycle of the business process■ Create a business process■ Implement a business process■ Check in a business process model■ Enable a business process model■ Manually run a business process model■ Check out a business process■ Modify a business process■ Check in a modified business process■ Disable a business process
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Business Processes

What is a Business Process?

Business processes are like road maps. Just as you use a road map to determine the best route through the countryside, Sterling B2B Integrator uses business processes to find the best route through critical business systems, such as purchasing, inventory status, and invoicing.

By analyzing and documenting your business and technical needs, you can determine your business processes. You can then reword those business processes to fit your business needs.

The Lifecycle of a Business Process

This section provides an overview of how Sterling B2B Integrator works. It follows Sterling B2B Integrator through:

- Analyzing a business process
- Defining a business process with services
- Compiling a business process
- Check In a business process
- Starting a business process
- Archiving a business process
- Restoring a business process
- Deleting a business process

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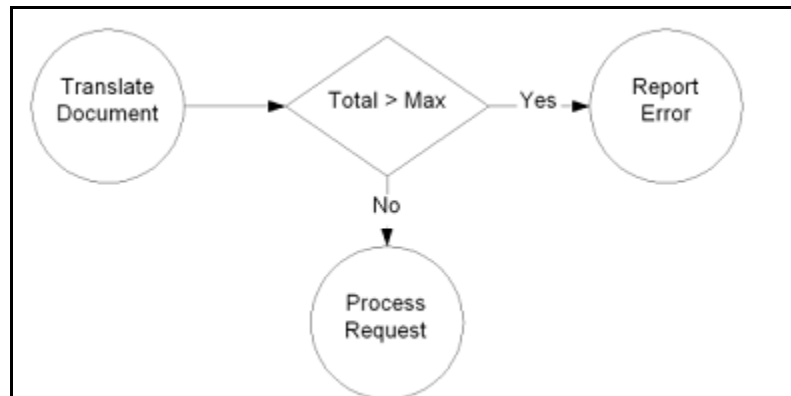
Business Processes

(Continued)

Defining a Business Process

Sterling B2B Integrator is a framework that runs customer-specific business processes. All operations that are carried out on documents and their order is set by an XML-based business process model.

Defining a business process might look like the following diagram. The circles represent activities and the diamond represents a decision point.



Since Sterling B2B Integrator stores business process definitions in XML, there are a couple of ways for a business process analyst to define them:

- Graphical Business Process Modeler included with Sterling B2B Integrator
- Simple text editor

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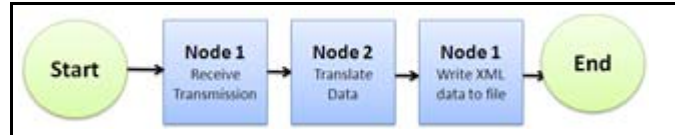
Business Processes

(Continued)

Defining a Business Process (Continued)

Nodes in a business process model

Nodes in a business process model are the graphical representation of the steps the business process goes through as it runs and processes the data involved. The following figure is a simple example.



Services

Flexibility is key to the business analysts who works with the IT staff to determine how business processes needs to be written. Sterling B2B Integrator allows you to write subprocesses with multiple reusable components or as one large service that does a complete process on its own. One way to look at services is to look at where they get the information they process and where they pass it when the processing is complete:

- Internal services are located inside Sterling B2B Integrator; they accept parameters and produce results, but they do not interact with any system outside Sterling B2B Integrator.
- Input services receive data from an outside system.
- Output services send data to an outside system.

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Business Processes

(Continued)

Defining a Business Process (Continued)

Adapters

Input and output services are known collectively as adapters. Adapters interact with the “world” outside Sterling B2B Integrator.

Business Process Context

- The service accepts a business process state and produces a modified business process state, or business process context (BPC). BPC also be referred as WFC, or Workflow Context.

Compiling a Business Process

After you create a business process model, you must validate and compile the process before you can run it. Validating ensures that all activities in the business process model are properly configured.

Compiling the business process allows Sterling B2B Integrator to determine the “Start” node ahead of time so business processes are more easily instantiated and run. Since the start pointer for the next activity (node) is stored in the current activity (node) information, compiling the business process also eliminates repeated parsing of XML and reduces the number of queries to the database.

Validating and compiling are done when you validate when saving or using the Validate button inside the GPM. Sterling B2B Integrator will not allow you check-in a non-validated business process.

When writing BPML or copy and pasting bpml text in the Administration interface you will have to validate before being able to move on during the check-in process.

Note: Because a business process is validated does not mean it will run without errors at run-time. It will only verify that the BPML is syntactically correct. It can not verify that the business process will interact with other systems or files correctly.

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Business Processes

(Continued)

Checking In a Business Process

Before you can use a business process within Sterling B2B Integrator, you must first check it into the system. You can check in a business process model from within the GPM interface or through the Sterling B2B Integrator interface. This is the process of adding the Business Process from where you are developing it to the server where it will be executed.

Both the Sterling B2B Integrator interface and the GPM provide a Source Manager feature that you use to check in a business process. The two Source Managers differ slightly, but both allow you to check in new business process definitions and new versions of previously checked-in process models. Both display the current list of business process models and versions.

Each time that you check in a business process, you create a version of the business process, either the first version of a new process model, or a new version of a previously checked-in business process model. Sterling B2B Integrator saves each checked in version so that you retain a copy of every iteration of a process model that you check in. You cannot check in a version of a business process that is checked out and locked (protected) by another user.

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Business Processes

(Continued)

Starting a Business Process

Business processes can be started either manually or automated by the system. Automated can be:

Scheduled- Set to run a specific times or intervals

Invoked- Called or started by another business process.

Bootstrapped- Similar to Invoked, but called from an adapter or event instead of a business process. Such as an adapter monitoring a file folder and kicking off a business process when a file is found.

Dynamic bootstrapping is the selection of the appropriate business process to run when data enters. Input data must enter Sterling B2B Integrator by way of an input adapter. This adapter takes the received data, puts the data and any metadata it finds into an Initial Business Process Context (IBPC), and begins bootstrapping. A business process definition is selected based on the data and/or metadata and instantiated as needed.

Archiving a Business Process

Archiving your business process data not only protects your critical data but also conserves database storage, improving the efficiency of Sterling B2B Integrator.

(Continued on next page)

Business Processes

(Continued)

Restoring a Business Process

After you have archived business process data to an offline location, you can restore that data and view it in Sterling B2B Integrator.

Deleting a Business Process

In Sterling B2B Integrator, you can delete individual business processes (except business processes used by Sterling B2B Integrator). Some reasons that you might delete a business process are:

- Change in Business activities and, as a result, a business process can no longer accomplish the activities.
- You need to remove versions of a business process to reduce the database size.

Note: A business process can not be deleted if there is still a record of an instance in the database. All instances of a bp must be purged from the database otherwise tracking could be impacted.

For example if a bp was executed and is set to not be purged for 3 days, that business process model could not be deleted until 4 days later. This is because there is still an instance record of that bp executing in the database for 3 days after it ran.

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Instructor Note: Students do this exercise, walk around, and help where appropriate. Make sure that all students have completed before moving on to connecting the icons in the next exercise.

Business Processes

(Continued)

Creating a Business Process

After analyzing your business needs, determining your business processes, and documenting the results, you must create business process models that represent those business processes. You can then implement and run the business processes with Sterling B2B Integrator.

Important!	Because a business process must be validated to run successfully in Sterling B2B Integrator, you must ensure that you validate the BPML code in each business process before you add the process to Sterling B2B Integrator. The sections in this lesson include steps to validate a business process
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Instructor Note: Students do this exercise, walk around, and help where appropriate. Make sure that all students have completed before moving on to connecting the icons in the next exercise.

Business Processes

(Continued)

Implementing a Business Process Using the GPM

You can implement a business process in Sterling B2B Integrator with the Graphical Process Modeler (GPM) by following the appropriate steps here:

1. Create a business process model, including:
 - Configuring additional parameters
 - Adding sub flows
 - Assigning rules and conditions
 - Assigning name-value pairs that represent data to locate in process data
 - Configuring the Correlation service to generate correlations for business processes and document exchange
 2. Validate and save the business process model document.
 3. Add the business process to Sterling B2B Integrator.
-

Exercise 5–1 Moving Activities to the Workspace

Scenario You are required to create a business process to check for the quantity of Gizmo items from the inventory XML report. If the quantity is less than the minimum inventory level then the process should display a message to order more items and if the quantity is greater than minimum inventory level then the process should display a message not to order more items.

Instructions **Procedure to Move Activities to Workspace**

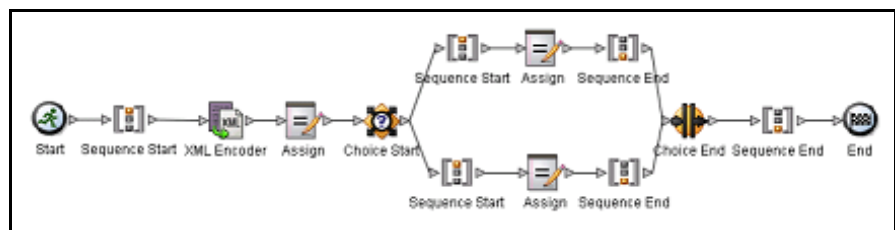
Follow the steps that are listed to move the activities to the workplace.

1. Open the Graphical Process Modeler.
2. Click New.
3. Bring up the Stencils if not already showing.
 - BPML Services
 - All Services
4. Move the following operations and services to your workspace by dragging the icons from the Stencil to the workspace:
 - Start (1)
 - End (1)
 - Sequence Start (3)
 - Sequence End (3)
 - Assign (3)
 - Choice Start (1)
 - Choice End (1)
 - XML Encoder (1)

Exercise 5–2 Connecting Activities

Scenario You need to connect the activities that determine the order in which the activities are run within the Business Process.

- Instructions** Follow the steps that are listed to connect the activities within the business process.
1. Click the triangle at the right of the **Start** node and keep the mouse button down.
 2. Drag the mouse to the left triangle of the **Sequence Start** node and release the mouse button. This creates a link between the nodes.
 3. Connect the activities from the previous exercise as shown in the following figure.



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Exercise 5–2 Connecting Activities

(Continued)

Instructions (Continued)

4. (Optional) Select **View > Autolayout** to visually align the business process model. Autolayout will evenly space all of the icons. This could move icons off your screen.
5. Select **Save** and save the business process model document (.bp file) to your client computer. You do not need to validate this business process model because you have not configured any parameters yet.

Remember!	Give the business process model a name that helps identify the business process.
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Important!	If you do validate you will receive an error that ... is not configured or other errors. This is normal as you have not configured anything. You will configure the icons in later lessons.
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6. Select a directory on your client computer in the Save dialog box, and name your file **BasicInventoryProcess**, and click **Save**.

You are now ready to configure parameters, add sub flows as necessary, and assign rules and conditions for your business process model. These topics will be covered in the next lesson.

Important!	Certain activities and services require configuration within the GPM. You can perform the configuration with the five element editors in the GPM: Property, Service, Edge, Produce, and Consume.
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Viewing the Element Editor and Configuring Additional Parameters

Example Procedure to Configure Additional Parameters

These are the steps you would take to view an element editor and configure additional parameters.

1. Select an icon on the workspace and click **Edit > Properties** to display the applicable element editor. For example, when you select the Assign icon, the Property editor opens and provides parameters to configure for the Assign activity.
 2. Configure the parameters in the element editor.
 3. Configure the parameters in the applicable element editor for each remaining icon on the workspace as necessary.
 4. Right-click the **Editor** tab and select **Close Editor Tab**.
 5. Validate and save the business process model.
-

Sub-Flow

Subflows in the GPM

When you create a subflow, you create a layer in the business process model when viewed in the GPM. You can expand the view to work with the components of the subflow by using the Layers tab in the Navigation pane.

While a subflow layer provides more design space in the GPM, it does not create a separately-saved business process model. Nor does it create a child business process that is called from a parent.

Subflows are only available in the GPM and are not supported in the actual BPML code. If you were to look at the source code of a business process that contains a subflow you would only see an additional sequence tag. Also if you modify the BPML code manually and then later load in the GPM the subflow information will not show as a separate layer but as a sequence in the main layer.

Exercise 5–3 Adding Sub Flows

Scenario	You are required to add a sub flow that creates a layer in a business process model where you can define more details about an activity in a business process. As you design the business process model, identify where sub flows are possible and design them.
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Instructions	<p>You can follow the steps that are listed to add a sub flow:</p> <ol style="list-style-type: none">1. Select Add Sub Flow from the Tools menu. In the Navigation pane, the business process model expands to list the sub flow.2. Delete the XML Encoder and first Assign service from the business process by clicking the icon and pressing the delete key.3. Insert the sub flow icon between the Sequence Start and the Choice Start icons within the business process model.4. Link the icons.
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Exercise 5–3 Adding Sub Flows

(Continued)

Instructions (Continued)

5. Select the **sub flow** icon, right-click, and select **Properties** to display the Property editor to rename the sub flow. Type **SubFlow1** in the Value field. When you click out of the Property editor, the sub flow icon displays the new name.
 6. Click the **sub flow** in the Navigation pane to display a new workspace that includes unlinked Start and End icons.
 7. Create a business process model for the sub flow.
 - a. Add the XML Encoder and Assign icons within the subflow.
 - b. Arrange the icons.
 - c. Link each icon, including the Start and End icons.
 - d. Align the business process model.
 8. Click the parent business process in the Navigation pane (the one that the sub flow is part of) to return to the main process.
 9. Save the business process model.
-

Assigning Rules and Conditions

Introduction

To indicate a decision point in a business process model, you must:

- Assign a rule that describes the decision.
- Provide the conditions under which the decision is true or false.

When running a business process that processes XML documents, you must use XPath to describe rules and conditions for processing the XML document.

Specifically, you must create XPath expressions that:

- Identify particular elements (or nodes) and their positions in both the input and output documents.
- Identify particular elements in the input document for copying into an output document or for further processing.
- Define any constraints of name-value pairs for elements.
- Calculate values that depend on other values.

You can then assign rules that represent the decision to complete activities in the business process. The following table shows sample names and rules for simple syntax:

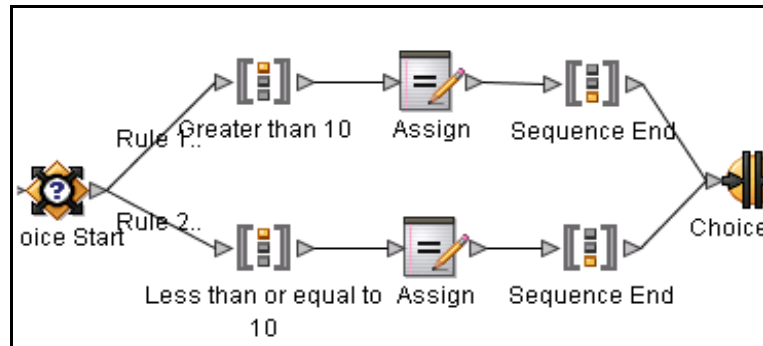
Name	Rule
rule1	X>10
rule2	X<=10
rule3	X<10

(Continued on next page)

Assigning Rules and Conditions

(Continued)**Introduction
(Continued)**

The following figure shows the part of a sample business process model where a decision must occur in a business process. The Choice Start and Choice End icons are included and rule names appear midway through edges (links) in the business process model.

**Rule Manager**

The Rule Manager is a tool in the GPM that is used to create rule conditions that will be evaluated in your business process. A rule is written in XPath and evaluates XML data in Process Data.

Edge Editor

The Edge Editor is used to assign the rules you created to a choice in your bp. Bring up the Edge Editor by double clicking a line coming off of your Choice Start. You must have a rule already created because the Edge Editor only allows you to select a rule and then say if it is true or false. This is why the name of the selected rule appears on the line.

(Continued on next page)

Assigning Rules and Conditions

(Continued)

Creating a Rule

You can create a rule that is defined by simple syntax or complex syntax. For ease of understanding, this procedure is chunked into two parts:

- Create a rule defined by simple syntax
- Create a rule defined by complex syntax using XPath

Create a Rule Defined by Simple Syntax

You can create a rule that is defined by simple syntax in the following manner.

1. Select **Rule Manager** from the Tools menu.
2. Click **Add** and type a name that describes the rule.
3. Type the syntax in the Expression field, and then click **OK**.
4. Repeat steps 1-3 until you finish creating rules that are defined by simple syntax.

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Assigning Rules and Conditions

(Continued)

Create a Rule Defined by Complex Syntax using XPath

You can follow the steps listed to create a rule defined by complex syntax using XPath.

1. Select **Rule Manager** from the Tools menu.
 2. Click **Add** and type a name that describes the rule.
 3. Click the button to the right of the Expression field to display the XPath Expression Builder.
 4. Display the expression type that you want to perform, double-click the function to add it to the Expression field, and then type values to complete the expression type as needed.
 5. Display the token set attribute to complete the function of the expression type and double-click the attribute to add it to the Expression field.
 6. Repeat steps 1-5 until you finish defining this XPath expression and click **OK**.
 7. Repeat steps 3-6 until you finish creating rules that are defined by complex XPath.
-

Exercise 5–4 Using Rules

Scenario	The rule manager allows for the definition of expressions that evaluate to true and false. The rules can be used for conditional execution of activities within the Business Process.
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Instructions	<p>You can follow the steps that are listed to use a rule.</p> <ol style="list-style-type: none">1. Click Tools > Rule Manager from the GPM main menu.2. Click Add to bring up the Rule Editor.3. Populate the Name box with Inventory Count.4. Type the following string in the Expression box: count(INVENTORY/PRODUCT) > 105. Click OK in to add the rule to the list of rules in the Rule Manager.6. Click OK on the Rule Manager window to save the rules.
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Exercise 5–5 Assigning a Rule

Scenario	You are required to assign rules and define conditions.
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- | | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <p>You can follow the listed steps to assign rules and define conditions.</p> <ol style="list-style-type: none">1. Click the edge (link) between the Choice Start and the Sequence Start icon on the top to display the Edge editor.2. Click Add to display the name and value columns in the Edge editor.3. Click in the field and select Inventory Count under the Name column.4. Select True for the selected rule under the Value column. When you click out of the Edge editor, you see the rule name on the edge.5. Click the edge (link) between Choice Start and the icon instance on the bottom to display the Edge editor.6. Click Add to display the name and value columns in the Edge editor.7. Click in the field and select Inventory Count under the Name column.8. Select Not true for the selected rule under the Value column. When you click out of the Edge editor, you see the rule name on the edge.9. Save the business process model. Do not Validate during the Save. |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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Exercise 5–6 Viewing and Configuring the Different Element Properties

Scenario You are required to view and configure the different element properties.

- Instructions**
1. Double-click the first **Sequence Start** operation in the model to open the Property Editor and type the following text in the Value column for the Name field: **Main Sequence**.
 2. Click **Sub Flow** in the Navigation Pane.
 3. Click the **Assign** activity that immediately follows XMLEncoder in the subprocess and enter the following information:

Name	Value
Constant	N/A
To	TotalPrice

4. Click the **XMLEncoder** Service to open the Service Editor and complete the following:
 - Select **XMLEncoder** from the Config drop-down list box.
 - Select **Use existing XML document** from the drop-down list box in the Value column for the **mode** field.
 - Select **Yes** from the drop-down list box in the Value column for the **output_to_process_data** field.
5. Click **BasicInventoryProcess** from the Navigation Pane, so the BasicInventoryProcess BP is displayed on the workspace.
6. Click the **TOP** Sequence Start and type the following text in the Value column for the Name field: Greater than 10.

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Exercise 5–6 Viewing and Configuring the Different Element Properties (Continued)

**Instructions
(Continued)**

7. Click the **BOTTOM** Sequence Start and type the following text in the Value column for the Name field: Not Greater than 10.
8. Click the **Assign** activity (Greater than 10) and enter the following information:

Name	Value
Constant	Do Not Order More Items
To	Result

9. Click the **Assign** activity (Not Greater than 10) and enter the following information:

Name	Value
Constant	Order More Items
To	Result

Exercise 5–7 Saving and Validating a Business Process

Scenario Validating a Business Process ensures that all activities are completed properly and the BPML generated from the graphic is syntactically correct. The output window at the bottom of the Graphical Process Modeler shows any error messages. Saving without validating saves the current graph so that you can open it in the GPM later. Without validation, you cannot execute the Business Process.

Instructions You can follow the steps that are listed to save and validate a business process.

1. Select **File > Save**.
2. Click **Yes** when asked to validate the process model upon saving.
3. Complete the **Save** dialog:
 - a. Select the folder location.
 - b. In the FileName field, enter BasicInventoryProcess.
 - c. Select **OK**.
4. If, the process model is not valid the output window appears at the bottom of the Graphical Process Modeler with a display of the error messages. Correct the errors and try saving the Business Process again.

Implementing a Business Process

Introduction

After creating or modifying a business process model, you must validate, check in, and test it before running it in Sterling B2B Integrator. Use a test environment for checking in and testing your processes before you run them in your production environment.

The first time that you check in a business process, you create a business process definition; a uniquely named copy of the process model stored in Sterling B2B Integrator. The business process model that is stored in Sterling B2B Integrator is independent of any .bp file of the process that you have saved in a local directory.

At any time, you can modify an existing process model and check in a new version to Sterling B2B Integrator, or save the modified copy of the process in Sterling B2B Integrator as a new process altogether. Version management is an important part of business process maintenance.

Checking in a Business Process

You can check in a business process model from within the GPM interface or through the Sterling B2B Integrator interface.

Both the Sterling B2B Integrator interface and the GPM provide a Source Manager feature that you use to check in a business process. The two Source Managers differ slightly, but both allow you to check in new business process definitions and new versions of previously checked-in process models. Both display the current list of business process models and versions.

Each time that you check in a business process, you create a version of the business process, either the first version of a new process model, or a new version of a previously checked-in business process model. Sterling B2B Integrator saves each checked in version so that you retain a copy of every iteration of a process model that you check in. You cannot check in a version of a business process that is checked out and locked (protected) by another user.

The check in procedure differs depending on your goal and the application you are using.

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Implementing a Business Process

(Continued)

Determining Processing Options During Check-in

During the check-in procedure, Sterling B2B Integrator prompts you to select various processing options for a business process model. These options are related to archiving, document storage and tracking, persistence levels and other instructions that are related to your business needs. The settings that you choose can affect system performance. Before you check in a business process model, have an idea of what the appropriate selections are for your installation.

The following table describes the options:

Field	Description
Process Type	Type a name that identifies the business process model. This is the business process definition name that is stored in Sterling B2B Integrator.
Description	Type a description that helps identify the business process that you are creating. This is stored in Sterling B2B Integrator with the business process definition you are checking in. If the process model is an updated version of a business process, you may want to use a meaningful version number or some other content to identify the version.
Continued on next page	

Implementing a Business Process (Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Set Queue	Sterling B2B Integrator allows you to set performance optimizations by queue, defining queue levels to allocate resources. Select the previously allocated queue level that you want for this business process model for processing.
Use BP Queuing	If selected, the bp is placed in a bp queue for processing. This is the default and recommended method. To run the bp in BP in Non-BP Queued mode, clear the check box. In BP Non-Queued mode, however, the Persistence Level for the BP is zero by default, so the process cannot be manually restarted or resumed. Also some services are unable to operate with zero persistence
Enable Transaction	<p>Select this option to instruct Application to treat the entire process as a single transaction so that either all of the steps complete, or, in the event of an error, none of them do. When an error occurs, no data is committed; data returns to its pre-process state.</p> <p>Note: Enabling transactions applies only to services that support transaction mode. See the reference information for specific services to determine whether this option is supported. By default, this transaction mode is not enabled.</p> <p>Note: If transaction management is already built into the process model (the model includes Start and End Transaction services), do not select this option or the process will fail.</p>
Continued on next page	

Implementing a Business Process (Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Commit All Steps When There Is An Error	<p>Select this option to have the business process commit all work to the database, at the time an error is generated. With this option, you can either roll back or commit all work before the error in the onfault block is called.</p> <p>If you select this option, all steps before the error are committed to database and the business process keeps running on the onfault block path. If you do not select this option, all steps before the error will be rolled back and the onfault block path is called. By default, this option is not enabled.</p> <p>Note: This option is valid when the BPML is configured with an onfault block and Enable Transaction is selected</p>
Category	You can optionally enter a category name to which this process model belongs, creating the category. The category does not affect processing; categories are for future product enhancements.
Continued on next page	

Implementing a Business Process

(Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Persistence Level	<p>Select the level of data to retain for generating a status report that describes each step that the business process completes. The levels are:</p> <ul style="list-style-type: none"> ■ Full - Retain all data for this business process, including associated documents, activities, and all process data. ■ Step Status (Engine May Override) - The recommended persistence level for most process models because it helps optimize performance while providing a level of recovery suitable for most business needs. Persists process data and documents for service steps according to the persistence level supported by the service in the step. ■ BP Start Stop (Engine May Override) - Choose this level if you know that you do not need persisted status data for successful processing. Because service level settings override the selection, you may have additional data in a recovery scenario. * Persists process data and documents for service steps according to the persistence level supported by the service in the step. ■ System Default - Assume that for the data, configuration is already defined in Sterling B2B Integrator to retain data. Persists data according to the global persistence setting configured in the properties file. ■ Step Status Only - Choose this level if you need only status information for each step and your recovery needs do not depend on additional data being saved. ■ BP Start Stop Only - Choose this level if your recovery needs do not depend on data being saved for the processing steps.
Continued on next page	

Implementing a Business Process (Continued)

**Determining
Processing Options
During Check-in
(Continued)**

Field	Description
	<ul style="list-style-type: none"> ■ Zero - This level does not persist any business process data for recovery or process tracking. Choose this level only if you are certain that you will not need the data. Note: Zero persistence is available only if the process is running in Synchronous start mode. ■ Error Only - Choose this level if you do not need tracking data for your process when it is successful and your recovery does not depend on process step data being saved. ■ BP Start Stop Only (No Errors) - The first step of a business process is persisted in full, and last step is persisted in minimal. However, when the business process runs into an error which makes it stop running, no error step is persisted. The business process stays in ACTIVE state. If the process runs into an error, and there is an onfault step in the business process, the business process will complete. ■ Override None No IC - Does not retain any details while the business process is running or in the current process, and will not retain any details after the business process is run.
Event Reporting Level	<p>Select the level of event reporting that you would like to retrieve for this business process when it runs. The levels are:</p> <ul style="list-style-type: none"> ■ Full - Generate events for the business process, including the business process start and end time, start and end times for all services or adapters running as a result of this business processes, and any resulting errors and exceptions. ■ Minimal - Generate events for the business process, including the business process start and end time and any resulting errors and exceptions. ■ None - Do not generate any event reporting.
Continued on next page	

Implementing a Business Process

(Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Recovery Level	<p>Select the level of recovery for this business process if the business process should halt during execution. The levels are:</p> <ul style="list-style-type: none"> ■ Auto Resume - Resume the business process at the point at which the business process halts. ■ Auto Restart - Restart the business process from the beginning. ■ Terminate - Terminate the business process. ■ Manual - Require you to resume or restart the business process manually.
Document Storage	<p>Select the level of document storage for documents that process when the business process runs. The levels are:</p> <ul style="list-style-type: none"> ■ Database - Store documents in the database. ■ File system - Store documents in the file system. ■ Archiving and purging from the file system may require special handling. ■ System Default - Store documents in the file system or database, according to how you configured archiving and purging in Sterling B2B Integrator. ■ Inherited - If this is a subprocess, use the same storage type indicated for the parent business process.
Continued on next page	

Implementing a Business Process (Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Enable BP Execution Setting	<p>This option displays only when you are using a clustered Application environment. Select this option to display the available choices for specifying the node to run the process on. If you do not specify a node, the system uses any available node. To select a node:</p> <ol style="list-style-type: none"> 1. In the Select Node field, select the node on which you want the process to run. 2. In the Execution Node Specific field, specify whether the process must run on the selected node or can use others. Options are: <ul style="list-style-type: none"> ■ Preferred Node - Run the process on the selected node unless the node is unavailable (inactive for some reason). ■ Mandatory Node - Always run the process on the selected node (if the node is unavailable for some reason, the process will fail). <p>Note: The Execution Role Specific field is reserved for future use.</p>
Deadline Setting	<p>Deadline setting indicates how much time the process may take to complete. Select the appropriate setting. Settings are:</p> <ul style="list-style-type: none"> ■ Do not set deadline - Allows you to run the business process without a deadline. ■ Complete by Deadline - Allows you to specify a deadline time, in hours and minutes, by which the business process must complete process once it starts. ■ First Notification: Hours and Minutes - Allows you to specify whether to receive notification before a business process deadline. ■ Second Notification: Hours and Minutes - Allows you to specify whether to receive another notification before a business process deadline.
Continued on next page	

Implementing a Business Process

(Continued)

Determining Processing Options During Check-in (Continued)

Field	Description
Document Tracking	<p>Enable or disable this selection.</p> <p>Select this option if you want the documents that are involved in this process model to be trackable according to the configured document tracking settings. Document tracking at the business process level is disabled by default, and this setting overrides the global document tracking setting. If you are not using Application document tracking features, leave the option disabled, to reserve system resources for other tasks.</p>
Set OnFault Processing	<p>Enable or disable this selection.</p> <p>Select this option to enable the on-fault activity that is specified in the process to immediately execute in the event of a system error.</p>
Life Span	<p>Use these options to:</p> <p>Indicate the length of time that data is pertaining to each instance of this business process model will remain in the system after the process is completed, to be available for monitoring, tracking, and reporting activities.</p> <p>Specify whether to archive or purge the process-related data when the life span expires.</p> <ul style="list-style-type: none"> ■ Process Specific - Number of days or hours, or days and hours combined, that data for each instance of this business process model are permitted to remain in the system. ■ Expired Business Processes should be - Select either Archived or Purged for expired data. Archived data is stored in your file system. ■ System Default - Select this option if you want the data for instances of this business process model to expire and be archived after two days. This option is configurable.

Implementing a Business Process

(Continued)

Enabling Document Tracking

Enabling Document Tracking makes the document activity for this business process available from the Advanced Search menu. Access Document Tracking from **Business Process > Monitor > Advanced Search > Documents**.

Setting onFault Processing

The onFault element is used to handle errors. You can include onFault elements in any complex activity for which it may be necessary to recover from faults so that the process can continue. The onFault element contains activities for handling faults.

Setting the Persistence Level

The persistence level options allow you to specify, at the business process level, the types of data to retain in the database for the process whenever it runs. Persisted data can be crucial to process recovery in the event of errors and is useful for monitoring and tracking activities, including generating status reports. Persisted data includes any of the following types of data. Status information for the steps in the process is composed of:

- General status information for the steps (start and stop time, step name)
- Error information for failed steps
- Data describing the start and stop conditions of the process
- Process data
- Documents that are associated with the process

The types of data persisted for a process depends on the activities the process involves (such as whether the process has documents that are associated with it) and your persistence level settings.

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Implementing a Business Process

(Continued)

Setting the Persistence Level (Continued)

Persistence can also be set globally (at the system level) for all processes; by default it is set to FULL persistence, although it may have been customized for your installation. If your installation uses the default FULL setting for the system, you generally do not need to change persistence at the business process level unless you are seeking performance improvements. For the process model you are checking in, your selection here overrides the global persistence level that is set in the properties file.

Important!	Two exceptions might affect your persistence selection. First, remember that some services support only a limited selection of persistence settings, regardless of the level of persistence you assign to the process model. Second, any persistence overrides configured in the BPML for steps in the process model override the setting that you make here for the specified step or steps.
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Choose the option that provides the type of data you need for monitoring, tracking, and recovery in the event of a failure. Remember that persisting data can slow system processing by filling up the database. Consider your archive and purge settings in addition to the amount and type of data you intend to persist.

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Implementing a Business Process

(Continued)

Choosing Document Storage

Document storage type is the storage type that you want for documents that process when the business process runs. The levels are:

- **Database** - Store documents in the database.
- **File system** - Store documents in the file system. This option can be best for large documents. Using this method, you must handle archiving and purging the documents from your file system.
- **System Default** - Store documents in the file system or database, according to how you configured archiving and purging in Sterling B2B Integrator.
- **Inherited** - If it is a subprocess, use the same storage type indicated for the parent business process.

When you check in a business process, Sterling B2B Integrator gives you the opportunity to select the location for storing the business process.

Setting the Process Instance Life-Span

When you check in a business process, Sterling B2B Integrator gives you the opportunity to set the Life Span of specific instances generated by that business process. The Life Span setting tells Sterling B2B Integrator how long the instance should remain in the active system. In addition, when the business process instances expire, you can set them to either automatically archive or purge themselves from the system.

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Implementing a Business Process

(Continued)

Setting the Expired Characteristics of a Process Instance

When you check in a business process, Sterling B2B Integrator gives you the opportunity to determine whether the specific instance of the business process needs to be Archived or Purged. This must be set up in the business process. Archive moves instances of business processes that have been run and any associated data from the live system to a storage area. Once in the storage area the business process instance (and data) is available to be moved to offline media for storage. Purge permanently removes business process instances that have run and any associated data. Archive and purge help to limit the amount of information that is kept in the live system. It is important to note, data that must be kept long term should be archived and stored in a safe media.

Enabling a Business Process

You must enable a business process that is checked in to the system before it can be available to run. Enabling a process model tells the system that this process is available to run. You cannot enable a business process unless it was validated at check-in. Business processes checked in through the Administration UI are automatically validated.

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Implementing a Business Process

(Continued)

Creating Permissions

Select this option to have a permission selection created for this business process model automatically. The permission can be assigned to user accounts to allow or restrict user access to running the process. Permissions are optional. If none are assigned, the process is available for all users.

Setting the Default Version of a Business Process

When you check a process model into the system, you can also set it as the default process. The default process is the process version that Sterling B2B Integrator uses when running a request of a new process instance that does not have explicit version information. The detail information about the versions of business processes is discussed in the later part of this lesson.

Disabling a Business Process

Only business processes set as the default version can run. A business process that was checked in to the system can be disabled, or made not available for execution, if it is not set as the default version. When a business process version is disabled, the system will not start new instances of the process.

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Implementing a Business Process

(Continued)

Check in the Business Process

You can check in a business process model from within the GPM interface or through the Sterling B2B Integrator interface.

Both the Administration Interface or User Interface and the GPM provide a Source Manager feature that you use to check in a business process. The two Source Managers differ slightly, but both allow you to check in new business process definitions and new versions of previously checked-in process models. Both display the current list of business process models and versions.

Each time when you check in a business process, you create a version of the business process, either the first version of a new process model, or a new version of a previously checked-in business process model. Sterling B2B Integrator saves each checked in version so that you retain a copy of every iteration of a process model that you check in. You cannot check in a version of a business process that is checked out and locked (protected) by another user.

There are three ways to check in a business process. The Business Process Manager provides two different methods. You can check in a business process by using either the:

- Graphical Process Modeler
 - Business Process Manager
-

Exercise 5–8 Check in a Business Process using Graphical Process Modeler

Scenario You are required to check in a business process using GPM.

Instructions You can follow the steps that are listed to check in a business process with GPM.

Important!	If you are not already in the Graphical Process Modeler, complete steps 1 and 2. Otherwise, skip to step 3.
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1. Click **Business Process > Manager** on the Sterling B2B Integrator Administration menu bar.
2. Click Go! on the Sterling B2B Integrator Business Process Manager page, and click next to **Graphical Modeling: Run Graphical Process Modeler**.
3. Click **Tools > Source Manager** in the Graphical Process Modeler.
4. Log on to the Source Manager with the Sterling B2B Integrator login and password.
5. Click **Process > Add**.
6. Type the Process Name **BasicInventoryProcess** and click **Next**.

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Exercise 5–8 Check in a Business Process using Graphical Process Modeler (Continued)

**Instructions
(Continued)**

7. Browse out and select your BP file using the **Browse** Button.
8. Type **Basic Inventory BP** as the description. Click **Next**.

Important!	For the following fields, your view may differ, depending on whether you specified Expert Mode for the Source Manager through the GPM. If you did not specify Expert Mode, click Next to display the following fields.
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9. Set the Queue to **4**, the Persistence Level to **System Default**, the Event Reporting Level to **None** and the Recovery Level to **Manual**. Set the Document Storage to **System Default** and click **Next**.
10. Check the option, **Do Not Set Deadline**.
11. Accept the System Defaults for Archive on the next two screens by clicking **Next**.
12. Check **Validate**.
13. Check **Enable Process**.
14. Do not check **Enable Document Tracking** and **Set onFault Processing**.
15. Click **Finish**.
16. Click **OK**.

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Exercise 5–9 Checking in a Business Process using Business Process Manager

Scenario You are required to check in a business process using the business process manager.

- Instructions** You can follow the steps that are listed to check in a business process using the business process manager:
1. Go to **Business Process > Manager** from the Sterling B2B Integrator Administration menu.
 2. Go to **Create Process Definition** and click **Go!**
 3. Type the Process Name **BasicInventoryProcess1**.
 4. Click the radio button for **Check in Business Process created by the graphical modeling tool** under Select an input mode for defining the new process and click **Next**.
 5. Click **Browse** to locate the bp file on the Process Check-in screen and then click **Open**.
 6. Type a **description**, and then click **Next**.
 7. Uncheck **Document Tracking** and **onfault processing** on the Process Levels screen, set the Priority Level to **4**, the Persistence Level to **System Default**, the Recovery Level to **Manual**, the Event Reporting Level to **None** and the Document Storage to **System Default**. Click **Next**.
 8. Leave the amount of time set to **System Default** on the Life-Span Screen.
 9. Click **Next**.
 10. Click **Finish** on the Process Confirm screen.

Important!	The Enable Business Process checkbox is checked.
-------------------	--------------------------------------------------

Exercise 5–10 Run a Business Process Manually

Scenario Sterling B2B Integrator runs most business processes automatically. There are times however; when it is necessary to run a business process manually. This exercise describes the procedure for manually running a business process. When you build a new business process, it is important to test it before moving it into production. You can do this by manually running the business process.

Instructions You can follow the steps that are listed to manually run a business process.

1. Click **Business Process > Manager**.

The Business Process Manager screen will be appears.



(Continued on next page)

Exercise 5–10 Run a Business Process Manually (Continued)

**Instructions
(Continued)**

2. Type **BasicInventoryProcess** in the Search text box and click **Go!**
 3. Click the **Execution Manager** icon for BasicInventoryProcess.
 4. Click the **execute** icon.
 5. Click **Browse** and go to **Class Labfiles** to locate the test data. Your instructor will provide the details of the location of the lab files.
 6. Locate the file **InventoryOf3.xml** in the Class labfiles located in the Datafiles folder on the Desktop, and click **Open**.
 7. Click **Go!** Observe the separate Execute Business Process window while the business process runs.
 8. Close the **Execute Business Process** window when the Business Process has completed running.
 9. Repeat steps 4-9 using **InventoryOf11.xml** as the input document.
 10. Click **Return**.
-

Exercise 5–11 Obtaining Results

Scenario Follow along to see the record of your executed business process instance data. We'll learn more about tracking business process instance data later in this course.

Instructions Follow the steps that are listed to view the record of your executed business process instance data.

1. Click **Business Process > Monitor > Current Processes**.

The Business Process Monitor screen displays the current processes.



The screenshot shows the IBM Sterling B2B Integrator interface. The top navigation bar includes links for Admin Console, Channels, Operator, Community Management, and Advanced File Transfer. The left sidebar contains an Administration Menu with options like Business Processes, Monitor, and Trading Partner. The main content area is titled 'Monitor' and displays a table of current processes. The table has columns for Status, ID, Name, State, Started, Ended, Deadline, Parent/Child, and Ex. Two processes are listed, both with a status of 'Completed' and a name of 'BasicInventoryProcess'. The first process has a started time of 12:26:52 PM and an ended time of 12:26:53 PM. The second process has a started time of 12:25:19 PM and an ended time of 12:25:20 PM. A checkbox for 'Automatically refresh every minute' is checked. The last update timestamp is 03/02/2011 10:19:26 AM.

Status	ID	Name	State	Started	Ended	Deadline	Parent/Child	Ex
Completed	12656	BasicInventoryProcess	Completed	3/04/05 12:26:52 PM	3/04/05 12:26:53 PM	None	None	
Completed	12650	BasicInventoryProcess	Completed	3/04/05 12:25:19 PM	3/04/05 12:25:20 PM	None	None	

(Continued on next page)

Exercise 5–11 Obtaining Results

(Continued)

Instructions (Continued)

2. Locate first instance of **BasicInventoryProcess** in the list.
 3. Click corresponding **Business Process ID** to view the Business Process Detail page.
 4. Click the **Info** icon in the Document column of step 2, the Assign Service.
 5. Click the **Info** icon in the Instance Data column of step 3.
 6. Click the **Info** icon in the Instance Data column of step 4.
 7. Click **Return**.
 8. Repeat steps 2-6 with second instance of **BasicInventoryProcess**.
 9. Click **Return** when complete.
-

Modifying a Business Process

Introduction

To modify or reuse a business process that is currently checked in to Sterling B2B Integrator:

1. Check out the business process.

The check-out process allows you to save the business process to your client computer. You can then open the checked-out business process file in the GPM and modify the business process model.

2. Modify or Edit the business process as needed.
3. Check the new version in to Sterling B2B Integrator when finished.

(Continued on next page)

Modifying a Business Process

(Continued)

Checking Out a Business Process

When you need to modify or reuse a business process that is currently checked in to Sterling B2B Integrator and enabled for modification, you can check out the business process from Sterling B2B Integrator. The check-out process allows you to save the business process to your client computer. You can then modify the business process document to create new versions of a business process or a new business process. If you have logged in to Sterling B2B Integrator using Source Manager in the GPM, you can check out a business process using Source Manager. Source Manager also allows you to check out one or many business processes at the same time.

You may want to check out a business process when:

- A business analyst creates or modifies the business processes and has limited access to the host.
- An employee modifies the business processes from a remote location.
- A business process exists on a test environment and is ready for use in the production environment.
- Sterling B2B Integrator checks out a copy of the selected process version, not the original version.

If the selected business process is enabled, it remains enabled until it is replaced by a newer version.

(Continued on next page)

Modifying a Business Process

(Continued)

Making Changes to an Existing Business Process Model

To change a process model that was checked into Sterling B2B Integrator, you first need to check out the process. This locks the process so that no other users will make simultaneous changes. The checked out version of a process model remains locked to other users until that user checks in the process.

The GPM is the preferred method to change a business process model, although advanced users prefer to change using BPML. When you choose to work in the BPML, and then reopen the process model in the GPM, it will open the process using the default layout options. Since the default layout can appear differently than your specified layout, it is recommend to work in the process modeler.

Exercise 5–12 Editing a Business Process Using the Graphical Process Modeler

Instructions

You can use the following procedure to edit the particular business process.

1. Click **Tools > Source Manager** in the Sterling B2B Integrator Graphical Process Modeler.
2. Log on to the Source Manager with your Sterling B2B Integrator login and password.
3. Scroll through the list of business processes until you find **BasicInventoryProcess**.
4. Select **BasicInventoryProcess** process and click the **Check out a Process** icon.
5. Click **OK** to accept the location where BasicInventoryProcess.bp will be saved.

Important!	The Lock check box indicates that a user is operating on the business process.
-------------------	--------------------------------------------------------------------------------

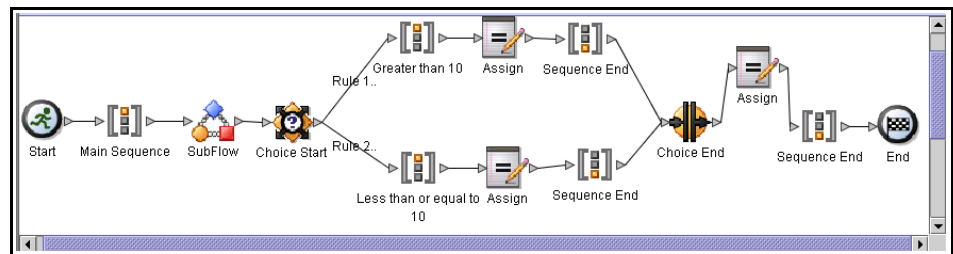
6. Click **Open file** icon in the Sterling B2B Integrator Graphical Process Modeler, and select the location where **BasicInventoryProcess** was saved.

(Continued on next page)

Exercise 5–12 Editing a Business Process Using the Graphical Process Modeler (Continued)

Instructions (Continued)

7. Modify the business process model by adding **Assign** BPML activity.
 - Click and drag Assign to the workspace from the BPML Operations stencil.
 - Break the link after Choice End and before Sequence end.
 - Connect the new Assign to Choice End and the Sequence End respectively.



8. Right-click the **Assign** activity, then click **Properties**.
9. In the Property Editor:
 - Type **count(INVENTORY/PRODUCT)** in the **from** field
 - Type **TotalCount** in the **to** field

Important!

The **to** field cannot have any spaces.

10. Click **File > Save**.

(Continued on next page)

Exercise 5–12 Editing a Business Process Using the Graphical Process Modeler (Continued)

**Instructions
(Continued)**

11. Click **Yes** on the Validate on save window.
12. Check in the process model.
13. Run the process model with either Inventory documents.

Important!	Be certain to validate again and enable during check-in; otherwise you cannot run the process.
-------------------	------------------------------------------------------------------------------------------------

14. Observe **Info** icon of the Instance Data column of step 4.
-

Exercise 5–13 Editing a Business Process Using BPML

Instructions

You can use the following procedure to edit a particular business process.

1. Click **Business Process > Manager** on the Sterling B2B Integrator Administration page.
2. Type **BasicInventoryProcess** in the Search Process Name field.
3. Click **Go!**
4. Click the **Source Manager** icon for the BasicInventoryProcess business process definition.
5. Click the **Edit** icon for the version of business model you are planning to edit.
6. Type a **Description** for versioning.
7. Change the following line:

```
<condition>count (INVENTORY/PRODUCT) &gt; 10</condition>
```

to the following:

```
<condition>count (INVENTORY/PRODUCT) &gt; 15</condition>
```

(Continued on next page)

Exercise 5–13 Editing a Business Process Using BPML

(Continued)

8. Click **Validate** and click **Next**.
 9. Accept the Process Levels defaults. Click **Next**.
 10. Accept the default settings on the Deadline settings screen. Click **Next**.
 11. Accept the default settings on the Life Span screen. Click **Next**.
 12. Select the current version as the **Default**. Click **Next**.
 13. Click **Finish**.
 14. Run the process model with **InventoryOf11.xml** document.
 15. Observe the process. It now instructs you to “Order More Items”.
-

Exercise 5–14 Checking out the Business Process with Edited BPML

- | | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <hr/> <ol style="list-style-type: none">1. Select the BasicInventoryProcess in Source Manager, and select Process > Check out.2. Go to your working folder on your local system when prompted to save the process to your client computer, and click Save.3. Return to the GPM when the save is complete, and select File > Open.<ul style="list-style-type: none">■ Go to your working folder , and choose BasicInventoryProcess. Click Open. Notice the changes to the names of the Sequence Starts.4. Click Tools > Rule Manager.5. Click your rule, and select Edit. <p>Note that your rule now test for 15 instead of 10.</p> <hr/> |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Version Control

Versioning

Sterling B2B Integrator maintains a record of each business process, when it is checked in, when it is checked out, and when it is modified. This simple process keeps two users from inadvertently overwriting each other's modified processes.

As each business process definition is checked into the system, a versioning record begins. Furthermore, as a different version of a process is checked in, you specify the default version of that process. This is how Sterling B2B Integrator knows which version of a process to run when new data enters the system or when a specific version is not explicitly requested.

Important!	You must also validate and enable the business process upon check-in for that version to become the default.
-------------------	--------------------------------------------------------------------------------------------------------------

The Execution Manager allows you to manually select which version of a business process to execute. This is useful when you are building a new version of business process and want to compare results. In addition, Sterling B2B Integrator can then keep track of which version of a process was running for a particular business process instance.

Important!	It is recommended that you use the description for setting the versions.
-------------------	--------------------------------------------------------------------------

Exercise 5–15 Viewing a Business Process Definition Version from within the GPM Source Manager

- | | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <hr/> <p>Use the following procedure to examine the version information for a particular business process.</p> <ol style="list-style-type: none">1. Click Tools > Source Manager in the Sterling B2B Integrator Graphical Process Modeler.2. Log on to the Source Manager.3. Scroll through the list of business processes until you find BasicInventoryProcess.4. Expand the view of BasicInventoryProcess to see the list of versions for this business process definition.5. Close the Source Manager. <hr/> |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Exercise 5–16 Viewing a Business Process Definition Version from within Sterling B2B Integrator

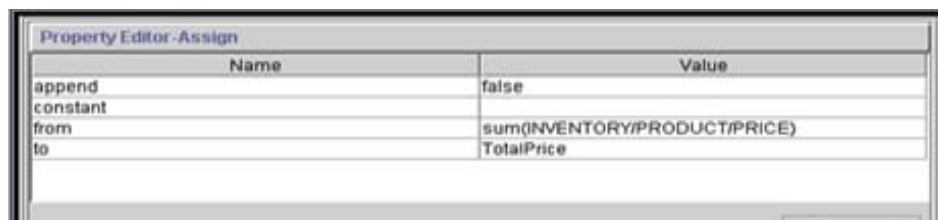
- | | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <hr/> <p>Use the following procedure to examine the version information for a particular business process.</p> <ol style="list-style-type: none">1. Click Business Process > Manager on the Sterling B2B Integrator Administration home page.2. Type BasicInventoryProcess in the Search Process Name field.3. Click Go!4. Click the Source Manager icon for the BasicInventoryProcess business process definition.5. Observe the version information in the Source Manager; specifically the Date and Change History columns. <hr/> |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Exercise 5–17 Completing the Process

Instructions

In this exercise, an XPath expression needs to be added in the sub flow within the BasicInventoryProcess bp .

1. Open the GPM, if not already open.
2. Click **Tools > Source Manager** in the Sterling B2B Integrator Graphical Process Modeler.
3. Log on to the Source Manager with your Sterling B2B Integrator login and password.
4. Scroll through the list of business processes until you find **BasicInventoryProcess**.
5. Select **BasicInventoryProcess** process and click the **Check out a Process** icon.
6. Click **OK** to accept the location for where BasicInventoryProcess.bp was saved.
7. Click **Open file** icon in the GPM and select the location of where BasicInventoryProcess.bp was saved.
8. Click the **Sub Flow** in the Navigation Pane. Click the **Assign** activity in the model to open the Property Editor for the operation.
9. Remove the text in the Value column for the Constant field.
10. Type the following XPath expression text in the Value column for the From field: `sum (INVENTORY/PRODUCT/PRICE)`.



Name	Value
append	false
constant	
from	sum(INVENTORY/PRODUCT/PRICE)
to	TotalPrice

(Continued on next page)

Exercise 5–17 Completing the Process (Continued)

Instructions (Continued)

11. Click **File > Save**.
12. Click **Yes** on the Validate on save window. You should receive a success message where your editors have displayed.
13. Check in the process model.
14. Run the process model with either Inventory documents.
15. Obtain the results from running the business process.

If you encounter any errors or have questions on this exercise, contact your instructor.

Important!	Be certain to validate again and enable during check-in, otherwise you cannot run the process.
-------------------	------------------------------------------------------------------------------------------------

Quiz

Questions

1. Which of the following statements are true regarding subflows? Select all correct answers.
 - a. An internal service is used to call other business processes.
 - b. A BPML activity is used to make choices about the data.
 - c. A graphical tool creates another layer in your business process.
 - d. A layer allows you to add more details about an activity in the business process.
2. The business process that is checked in to Sterling B2B Integrator is independent of any .bp file that you have saved in a local directory.
 - a. True
 - b. False
3. Which is the language used to create rules in a business process?

(Continued on next page)

Quiz

(Continued)

Questions (Continued)

4. Match the Persistence Level with their appropriate descriptions.

	Persistence Level		Description
1	BP Start Stop (Engine May Override)	a	Choose this level if you do not need tracking data for your process when it is successful and your recovery does not depend on process step data being saved.
2	Step Status Only	b	Choose this level if you know that you do not need persisted status data for successful processing.
3	BP Start Stop Only	c	Choose this level if you need only status information for each step and your recovery needs do not depend on additional data being saved
4	Error Only	d	Choose this level if your recovery needs do not depend on data being saved for the processing steps.

Lesson Review

Completed Objectives

This lesson was designed to help you to:

- Define a business process and the lifecycle of the business process
 - Create a business process
 - Implement a business process
 - Check in a business process model
 - Enable a business process model
 - Manually run a business process model
 - Modify a business process
 - Check out a business process
 - Check in a modified business process
 - Disable a business process model
-

Troubleshooting a Business Process

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Background

Introduction

A business process instance is a unique copy of a business process that is created when the business process is run within Sterling B2B Integrator. By monitoring business process instances, you can confirm whether they carry out their intended purposes.

Lesson objectives

This lesson is designed to help you to:

- Check the status of a business process
 - Search a business process
 - View business process details
 - Restart and resume a business process
 - View execution information
 - Terminate a business process
-

Viewing Active and Recent Business Processes



Overview

Sterling B2B Integrator provides general and detailed processing information. You can view processing information to monitor active and recent business processes instances to determine whether any further action is required.

Viewing General Processing Information

The Monitor page refreshes automatically and displays the 10 most recent instances of business processes to run and their processing information.

When monitoring active and recent instances, Sterling B2B Integrator shows two status indicators to indicate the required further action:

Status Indicator	Active Business Process	Recent Business Process
	Encountering no errors or warnings at this point of the execution.	Encountered no errors during execution.
	Waiting for other activities to complete before continuing execution. Encountering errors or warnings during execution.	Encountered errors or warnings during execution.

Viewing Detailed Processing Information

The Business Process Detail page provides you with a progress report on a specific business process instance. From the Business Process Detail page, you can also perform activities, such as stopping or restarting an instance.

Exercise 6–1 View General Processing Information

Instructions You can view general processing information by following the steps that are listed:

1. Select **Monitor > Current Processes** from the Sterling B2B Integrator Business Process menu.
2. Use the following fields and columns to view general processing information about instances and perform other activities in the Monitor page, as appropriate:

Field/Column	Description
Automatically refresh every minute	Default time to refresh the list of the 10 most recent instances. To disable this feature, clear the check box.
Status	Indicator of the status of an active or recently run instance.
ID	Number that is assigned by Sterling B2B Integrator to identify an instance. Click the number to display the Business Process Detail page.
Name	Name of an instance. Click the name to view the BPML code that makes up the instance.
State	Current state of an instance. The following list shows possible states in the order of precedence during branch processing: <ul style="list-style-type: none">■ Active/Running■ Completed■ Terminated■ Waiting■ Interrupted■ Halting/Halted
Continued on next page	

Exercise 6–1 View General Processing Information (Continued)

**Instructions
(Continued)**

Field/Column	Description
Started	Date and time an instance started.
Ended	Date and time an instance ended.
Deadline	Deadline by which the instance must run, as specified when setting up a schedule for the business process.
Expires	Information about when an instance expires. Click Info to display the expiration information, including whether the data for the instance is archived after it expires.
Parent/Child	Parent or child business process that is referenced when running an instance. Click the up arrow to view a parent business process. Click the down arrow to view a child business process.

Exercise 6–2 Viewing Detailed Processing Information

Instructions You can view detailed processing information by following the steps that are listed:

1. Select **Monitor > Current Processes** from the Sterling B2B Integrator Business Process menu.
2. Click the number that identifies the instance in the ID column in the Monitor page.
3. Use the following fields to review detailed processing information and perform activities in the Business Process Detail page, as appropriate:

Field/Column	Description
Name	Name of the instance for which you are viewing details. Click the name to view the BPML code that makes up the instance.
Instance ID	Number that is assigned by Sterling B2B Integrator to identify this instance.
Status	Current status of this instance. Possible status levels are: <ul style="list-style-type: none">■ Success■ Error
Continued on next page	

Field/Column	Description
State	Current state of this instance. The following list shows possible states in the order of precedence during branch processing: <ul style="list-style-type: none">■ Active/Running■ Completed■ Terminated■ Waiting■ Interrupted■ Halting/Halted
User	Identification of the user who ran the process.
Continued on next page	

Exercise 6–2 Viewing Detailed Processing Information (Continued)

Instructions (Continued)

Field/Column	Description
Action	<p>List of actions to complete for this instance, including an activity to generate an XML report. The actions available in this field are determined by whether the instance is currently active or stopped. Possible activities are:</p> <ul style="list-style-type: none">■ Restart – Continues running an instance.■ Stop – Stops running an instance.■ Terminate – Cancels an instance and all remaining active and waiting subprocesses.■ XML report – Generates an XML report that describes the instance. <p>If you terminate an active instance, the State field indicates with messages in the following order: Halting > Halted > Terminated.</p>
Step	Current step of this instance.
Service	Name of the service that is running for a current step. Click the service name to view settings for a service in this instance.
Status	<p>Current status of the steps in this instance. Possible status levels are:</p> <ul style="list-style-type: none">■ Success■ Error
Advanced Status	Service-specific details about any errors that occurred for a step in this instance, when applicable. Click the message to display information.
Continued on next page	

Exercise 6–2 Viewing Detailed Processing Information (Continued)

**Instructions
(Continued)**

Field/Column	Description
Started	Date and time the step of the instance started.
Ended	Date and time the step of the instance ended.
Status Report	Status report that provides the results of the step. To view the status report, click info.
Document	Business process document that this service is processing (that is, the primary document). To view the document, click info.
Instance Data	Contents of the process data that are generated after a specific step in this instance. In addition, this field links to any messages that are going to or coming from a service. To view the information, click info.

Searching for Business Processes and Other Information

Overview

In Sterling B2B Integrator, you can use the Central Search page to search for information about:

- Additional live (active) business process instances that do not display in the Monitor page
- EDI Correlation matches

In the Central Search page, you can specify the search criteria to locate business process instances by business process name, status, or by date and time.

Searching for Business Process Instances (Advanced)

You can perform an advanced search for the following information:

- BPSS business flow transactions
- Active, archived, and restored business processes
- Document Tracking
- EDI records for business process instances that included EDI interchange processing
- Correlation name-value pairs that you defined using the Correlation service in a business process or services, such as EDI and CII services, where Sterling B2B Integrator generates correlations
- EDIINT transactions

Sterling B2B Integrator also allows you to search for business process instances by:

- Location of business process
 - Business process ID
 - Business process name
-

Exercise 6–3 Searching for Business Process Instances (Central Search)

-
- | | |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <p>You can perform a basic search for business process instances by following the steps that are listed:</p> <ol style="list-style-type: none">1. Select Monitor > Central Search from the Sterling B2B Integrator Business Process menu.2. Enter the yesterday date in the form MM/DD/YYYY in the Start Date From dialog box, and time 01:00:00 (HH:MM:SS).3. Click Go!4. Click the number link that indicates the number of matches in Sterling B2B Integrator in the Central Search Results page. <p>The Monitor page opens, listing the business process instances that match your search criteria.</p> |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

Exercise 6–4 Searching for Business Process Instances (Advanced)

Instructions

You can follow the steps that are listed to perform an advanced search for business process instances:

1. Select **Monitor > Advanced Search > Business Processes** from the Sterling B2B Integrator Business Process menu.
2. Specify any combination of the following search criteria in the Business Process Monitor Advanced Search page, as appropriate:

Field	Description	Action
Search Location		
Select the area to search from	Instances that are maintained in a specific location.	Select one of the following options: Live Tables – Display live (active) instances. Restored Tables – Display data for instances that is restored from an offline location.
Search Using Business Process ID		
Process ID	ID assigned by Sterling B2B Integrator to identify an instance.	Type the ID for an instance.
Search Using Business Process Name		
Business Processes	List of instances that are currently maintained in Sterling B2B Integrator.	Select an instance from the list.
Continued on next page		

Exercise 6–4 Searching for Business Process Instances (Advanced) (Continued)

**Instructions
(Continued)**

Field	Description	Action
System Business Processes	Sterling B2B Integrator system business processes (that is, business processes that complete or have completed system operations).	Select a system business process from the list.
State	Current or final state of an instance.	The default value is ALL (displays all instances). Maintain the default value or select one of the following options: <ul style="list-style-type: none">■ Completed■ Waiting■ Active■ Halted■ Halting■ Interrupted■ Terminated
Continued on next page		

Exercise 6–4 Searching for Business Process Instances (Advanced) (Continued)

**Instructions
(Continued)**

Field	Description	Action
Status	Current or final status of an instance.	The default value is ALL (displays all instances). Maintain the default value or select one of the following options: <ul style="list-style-type: none">■ Success■ Error
Start date/time range	Instances running or completed within the specified start dates and times.	Type a starting date and time range and select A.M. or P.M.

(Continued on next page)

Exercise 6–4 Searching for Business Process Instances (Advanced) (Continued)

**Instructions
(Continued)**

- Click **Go!** The Monitor page opens, listing the business process instances that match your search criteria.

The following table lists the other available Advanced Search options:

Advanced Search Option	Search by:
BPSS Correlation	Location, Transaction Type, Trading Partner, Status, or Date/Time
Correlation	Type, Location, and Name/Value pairs
Documents (Document Activity search)	Location, Sender, Receiver, Type, Status, Tracking ID, Correlations, or Document ID
EDI Correlation	Location, Test Mode, Interchange, Group, or Transaction level specifics
EDIINT	Contracts, Status, Type, or dates

Searching for Current Service Activities

Introduction

This section allows you to search for service activity by service type, service name, activity type, Not Updated Since date, or Started Before date.

Follow the steps that are listed to perform a search of service activity:

1. Select **Monitor > Current Activities** from the Sterling B2B Integrator Business Process menu.
 2. Enter yesterday date in the form MM/DD/YYYY in the Not Updated Since dialog box, and time **01:00** (HH:MM).
 3. Click **Go!**
 4. View the list of the business process instances that match your search criteria in the Service Activity Search Results page.
-
-

Restarting or Resuming a Business Process

Introduction

The Restart Business Process page opens after you select Resume or Restart in the Action field from the Business Process Detail page. This page has three options that allow you to determine how to run a business process again if it is stopped running: Resume, Simple Restart, and Advanced Restart.

Important!	Resume appears only if the instance stopped in mid-execution.
-------------------	---------------------------------------------------------------

The Troubleshooter page allows you to start running multiple business processes at the same time.

Resume

The Resume function restarts a business process from the last error step. The business process retains its original ID. Use this function when the error is related to services. For example, if a service is disabled unexpectedly, a business process using that service stops at that point. After the service is restored and active, you can resume the business process.

(Continued on next page)

Restarting or Resuming a Business Process (Continued)

Simple Restart

The Simple Restart function starts a new instance of a business process from the beginning. The new business process receives a new ID. Use this function when the error is related to an unplanned interruption of the business process. For example, if you have interrupted a business process while bringing down a server for non-routine maintenance, you can restart the business process after the server is restored by using the Simple Restart function. This ensures a complete execution of the transaction.

Advanced Restart

The Advanced Restart function runs the original document using a different version of the business process or another business process. The new instance receives a new ID. Use this function when the error is related to the business process BPML code. For example, if a business process has incorrectly routed a document through sequential services, you can modify the business process and enable a new version to correct the error. You then use the new version of the business process to run the original document.

Exercise 6–5 Resuming a Business Process or Performing a Simple Restart

Instructions	<p>You can follow the steps that are listed to resume a business process or to perform a simple restart:</p> <ol style="list-style-type: none"><li>1. Select Monitor > Current Processes from the Sterling B2B Integrator Business Process menu.<li>2. Click the number that identifies the instance in the ID column in the Monitor page.<li>3. Select Restart in the Activities field in the Business Process Detail page, then click Go! The Restart Business Process screen opens.<li>4. Click Go! for the Simple Restart.<ul style="list-style-type: none"><li>■ To resume the business process from the point at which it stopped, in the Resume area, click Go! The instance retains its original business process instance ID.<li>■ To restart the business process from the beginning, in the Simple Restart area, click Go! The new business process receives a new instance ID. <p>A new page opens for the selected activity. Ensure that the business process runs to completion. If the resumed or restarted business process fails, you must find and correct those errors before the business process can run to completion.</p>
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Exercise 6–6 Performing an Advanced Restart

Instructions

You can follow the steps that are listed to perform an advanced restart.

1. Select **Monitor > Current Processes** from the Sterling B2B Integrator Business Process menu.
2. Click the number that identifies the instance in the **ID column** of the Monitor page.
3. Select **Restart** in the Action field list in the Business Process Detail page, and click **Go!**
4. Select the business process that you want to use for this instance in the Advanced Restart area.
5. Click **Go!** in the Advanced restart area.

The business process restarts in a new window, using the selected business process. The new business process receives a new instance ID.

6. View any system information or reports that are provided as the business process runs.


Ensure that the business process runs to completion. If the restarted business process fails, use the reports and system information to identify the problem.

Viewing Execution Information

Overview

When you restart or resume a business process, Sterling B2B Integrator opens the Execute Business Process page. This page lists the service, status, advanced status, start and end times, troubleshooting reports, and documents for each step that are completed within a recently run business process.

Important!

The Information icon  indicates that a troubleshooting report or document is available.

Terminating Business Processes

If a business process stops running, you can also use the System Troubleshooter page to review the business process and terminate it when you see a status of waiting, interrupted, or halted. The System Troubleshooter page allows you to terminate processing for multiple business processes. Note the difference between terminated business process and halted business process.

Halted	Terminated
The Business process stops because of an error occurred during execution and no on-fault is provided.	The business process stops because of manual intervention.
The business process can be resumed from the step where it stopped.	The business process can be restarted and cannot be resumed from the step where it stopped.

Walk-through: Terminating a Business Process

Task	You are required to review the business process and terminate, if necessary.
-------------	------------------------------------------------------------------------------

Instructions	<p>You can follow the mentioned procedure to review the business process and terminate, if necessary.</p> <ol style="list-style-type: none">1. Select System > Troubleshooter from the Operations menu.2. Check the status for Business Process Usage in the System Troubleshooter page, under System Status. When running business processes show any of the following statuses, the status becomes an active link:<ul style="list-style-type: none">■ Active/Running■ Interrupted■ Interrupted_Man - Manually■ Interrupted_Auto - Automatically■ Halted3. Click the status link. For example, if Business Process Usage displays: Interrupted: 9 (where 9 is the number of interrupted business processes)4. Click Interrupted to display the Interrupted Business Processes dialog box.5. Click the check box under Select in the dialog box; next to the business processes to terminate.6. Select Terminate from Activities and click Go!7. Click OK when Sterling B2B Integrator prompts you to verify that you are sure you want to terminate the business processes.8. Review the report to verify that Sterling B2B Integrator terminated the business processes.
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Important!	You cannot terminate business process with a status of Halting.
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Exercise 6–7 Terminating a Halted Business Process via Operations, System, Troubleshooter

Instructions

In this exercise, we will run the BasicInventory business process without an input file which will create a Halted business process and terminate that process via the Operations > System > Troubleshooter screen.

1. Type **BasicInventoryProcess** in the Search text box from the Business Process Manager screen and click **Go!**
2. Click the **Execution Manager** icon for BasicInventoryProcess.
3. Click the **execute** icon.
4. DO NOT specify an input file name and click **Go!**
5. Observe the separate Execute Business Process window while the business process runs.
6. Close the **Execute Business Process** window when the Business Process has completed running.
7. Click the **Business Process Usage** link from Operations > System > Troubleshooter.
8. Click the link that is to the right of the Halted status.
9. Select or check the box next to BasicInventoryProcess.
10. Select **Terminate** from the Activities drop-down list and click **Go!**
11. Click **OK** to confirm that you want to terminate the business process.
The Sterling B2B Integrator system returns a message, “Request to terminate the business process has been successfully submitted.”
12. Close the **Terminating Business Processes Report** and the Business Process Usage windows.

Exercise 6–8 Terminating a Halted Business Process via Business Process Monitor, Current Processes

Instructions

In this exercise, we will run the BasicInventory business process without an input file which will create a Halted business process and terminate that process via the Business Process Monitor > Current Processes screen.

1. Type **BasicInventoryProcess** in the Search text box from the Business Process Manager screen and click **Go!**
2. Click the **Execution Manager** icon for BasicInventoryProcess.
3. Click the **execute** icon.
4. DO NOT specify an input file name and click **Go!**
Observe the separate Execute Business Process window while the business process runs.
5. Close the **Execute Business Process** window when the Business Process has completed running.
6. Locate the Halted **BasicInventoryProcess.bp** from Business Process Monitor > Current Processes and click the business process ID link.
7. Select **Terminate** from the Action drop-down list from the Business Process Detail screen, and click **Go!**
8. Click **OK** to confirm that you want to terminate the business process.
The Sterling B2B Integrator system returns a message, “Request to terminate the business process has been successfully submitted.”
9. Click **Return** to return to the Business Process Monitor page. Notice that the state of BasicInventoryProcess is now Terminated.

Quiz

Questions

1. In current processes, if the status shows a green traffic light, the state will always be completed successfully.
 - a. True
 - b. False
 2. Which field in the Execute Business Process page has the process data that are generated in each step?
 3. When does the Parent/Child column of the Process Monitor indicate "none"?
 - a. This process does not invoke any process and no other process invoked this process.
 - b. This process failed to read in a designated file.
 - c. This process failed to write output to the designated directory.
 - d. This process failed has not received input file to invoke the other process.
 4. The Terminated business process can be resumed from the step where it stopped.
 - a. True
 - b. False
 5. At what state should a business process be, for it to be archived? Select all that apply.
 - a. Completed
 - b. Terminated
 - c. Halted
 - d. Interrupted
-

Lesson Review

Completed Objectives

This lesson was designed to help you to:

- Check the status of a business process
 - Search a business process
 - View business process details
 - Restart and resume a business process
 - View execution information
 - Terminate a business process
-

Introduction to Service Management

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Background

Introduction	This lesson provides an overview of service management parameters.
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Lesson objectives	<p>This lesson is designed to help you to:</p> <ul style="list-style-type: none">■ List and explain the four basic service types■ Explain how to create a service configuration■ Explain Bootstrapping■ Describe how the file system adapter works■ Describe how OnFault Processing works■ Explain how the Command Line adapter functions■ Describe and demonstrate the use of a Lightweight JDBC■ Describe how the Invoke Business Process service works
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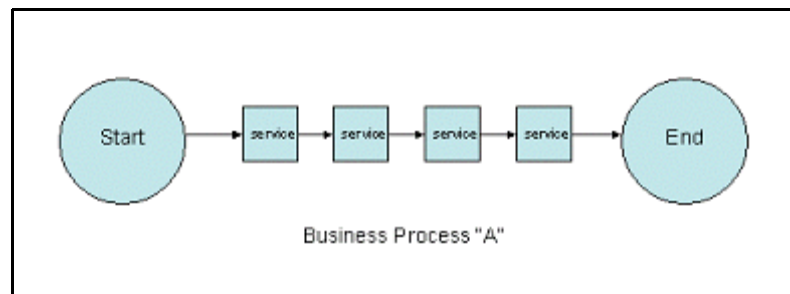
Difference Between Services and Adapters

Introduction to Services

What makes Sterling B2B Integrator so flexible is the capabilities of its services. A service is a small program that B2Bi can call to accomplish tasks in a bp. Usually, the high-level purpose of a service is to achieve some pre-defined type of integration activity, such as:

- Communicating with external applications or middleware (by way of special services called adapters)
- Performing data manipulations, such as translation, transformation, splitting, and joining
- Routing data based on payload, content, or meta data
- Publishing data to interested subscribers, which can trigger a new business process instance or allow an executing process to continue
- Executing one or more B2B protocols
- Spawning a pre-defined business process (nested process)

Services that communicate with external systems are called adapters. Input Services and Output Services are adapters. A service that runs inside Sterling B2B Integrator and does not touch outside systems will retain the service title in its name.



(Continued on next page)

Difference Between Services and Adapters (Continued)

Introduction to Services (Continued)

Consider that a business process involves determining how many open orders a specific customer might have. The activities might include:

- Looking up the customer number
- Retrieving all orders for that number from an orders database
- Removing all but pending orders from that table
- Reporting the information in printed form

Each of these activities could be accomplished through a service.

Sterling B2B Integrator includes a wide variety of services, of which some are internal, while others are external and configurable. It provides a base which is a set of services, which can be deployed and then extended as your needs evolve and new technologies emerge. Custom services can also be developed to support your unique needs.

Adapters (Reach Outside Sterling B2B Integrator)

Adapters can appear at any point of a business process and are often used to initiate business processes. For example, a File System Adapter could poll a directory to detect any new files (purchase orders) and initiate a business process that processes the input. If the adapter is set up to perform only one particular task, its usage is limited. When we look at setting up adapters for use, we will create instances of adapters to define their settings.

(Continued on next page)

Difference Between Services and Adapters (Continued)

Service Types

These are the basic service types in Sterling B2B Integrator:

- Internal Services that are totally inside Sterling B2B Integrator. While internal services accept parameters and produce results, they do not directly interact with outside systems. These types of services will usually retain “Service” in their name. For example the Translation Service.
- Input Services that receive data from outside systems.
- Output Services that send data to outside systems.

Input and output services are collectively known as adapters. Adapters interact with the world outside of the Sterling B2B Integrator J2EE environment.

Adapters can appear in the middle of business process definitions or at the end. For a complex application adapter, for example the SOAP adapter, calls to the adapter are actually calls to an underlying Sterling B2B Integrator-defined SOAP business process. As you can see, services themselves can be implemented as business processes.

Service Configurations

The services you include in your business process model may require configuration in order for your process to run correctly. You configure some parameters in Sterling B2B Integrator interface (this is called creating a service configuration), some in either the interface or the GPM, and some exclusively in the GPM. A few require manual editing in the BPML code. The reference documentation for each service describes the parameters for the service and indicates where to perform the parameter configuration.

Generally, you can configure service parameters either during initial service configuration in Sterling B2B Integrator interface, or during business process creation using the GPM. You can modify service configuration parameters at any time.

File System Adapter

Overview

The File System adapter (FSA) is functionally the simplest of all the Sterling B2B Integrator adapters. It collects files from a disk and can be used to initiate business processes. It also extracts files from Sterling B2B Integrator back to a disk. It can retrieve and send any type of file, but it does not actually read the file.

How the File System Adapter Works

Use the File System adapter to collect (import) files from a file system into a business process and extract (export) files from a business process to a file system. You can configure the File System adapter to start a business process after files are collected from the file system or include the File System adapter in a business process flow. In addition, you can schedule the File System adapter to run at specific time intervals.

You can set a file system adapter configuration to collect, extract, or both. However, each instance of a File System adapter in a business process will either **collect or extract**, it can not do both at the same time. Normally, you should use only the extraction side of the File System adapter in a business process as the collection is usually done by a bootstrapped configuration designed to kickoff a bp rather than being part of one.

The FSA works with the file system of the server where the configuration is active. In a clustered environment the adapter can only run on a specific node, unless there is a type of shared file storage. Other file systems can be used but they must be mounted as part of the local system

Collection

When a FSA is set to Collection there are two types of modes, each one causing different behavior:

- Bootstrapped - Is designed to have the FSA monitor a folder based on a schedule and start a business process when a file is collected.
- Non-Bootstrapped - Is designed to be part of a business process and collect a file as part of the bp flow.

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File System Adapter

(Continued)

How the File System Adapter Works (Continued)

Extraction

The activity engine calls the extraction portion of the file system adapter when the file system adapter is placed in a business process. When called, the adapter handles extraction requests in a parallel, asynchronous manner.

When the adapter is called in a workflow context, it:

1. Creates a thread.
2. Checks to see whether the instance is enabled for extraction.
 - If disabled, it creates an audit entry and nothing further is done.
 - If enabled, it:
 - Queries the service controller for the properties that are defined in the activity information portion of the workflow.
 - Extracts the data to the specified folder. The file that is created is given with the specified name.
 - Tries to shut down the RMI server.

When a FSA is used to extract a file to disk in a bp it will extract Primary Document. The adapter can be configured to use the original name of the file picked up prior or have the adapter create a new one based on a setting or variables.

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File System Adapter

(Continued)

Configuring a File System Adapter

After you install the adapter, you need to create an instance configuration in Sterling B2B Integrator before you can use the adapter.

1. You can configure the file system adapter in the following manner.
2. Select **Deployment > Services > Configuration** from the Sterling B2B Integrator interface.
3. Locate the **Create** section on the Services Configuration screen. Click **Go!** for New Service.
4. Click the **List view** icon on the Select Service Type screen.
5. Scroll through the list and select **File System Adapter** as the type of service you want to configure and click **Save**.
6. Click **Next** to proceed.
7. Provide a unique and meaningful name to the service configuration.
8. Provide a meaningful description for reference value.
9. Select **None** in the Select a group area.
10. Click **Next** to proceed.
11. Select the folder or subfolder on the SAME computer as the installation of Sterling B2B Integrator for collection, as this is safer. However, the folders or subfolders can exist on a different computer as long as the Sterling B2B Integrator computer can access it, including all necessary permissions.



Caution

Do not specify a folder that contains the programs or any files you do not want to lose. The file system adapter does not copy the files that it collects for processing.

If you wish to collect only files with a specific file extension within the specified folder, use the Filename filter field. You can also use this field to specify a single file to be collected (that is, File1.txt). Additionally, you can use the Filename filter field with wildcards to collect a subset of files within a folder (that is, *.txt).

(Continued on next page)

File System Adapter

(Continued)

Configuring a File System Adapter (Continued)

- a. Do you want to collect only from the folder or also from subfolders?
 - Yes - collects files from the folder and all subfolders
 - No - collects files only from the folder specified
 - b. Do you want to use absolute filename for the document name?
 - Yes - keep the absolute file path name of the files collected when assigning the document name
 - No - default
 - c. Do you want this adapter to start a business process?
 - Yes - the business process will be specified on the next screen
 - No - no business process will be started
 - d. Click **Next** to proceed.
12. If you specified that the file system adapter collection should begin a business process, you must select the business process for it to initiate.
- a. Select the correct business process.
 - b. Select the type of document storage you want to use.
 - System Default
 - Database
 - File System
13. Specify whether to obscure the file contents when collecting. Does not work with "attachFile" or "importFile".
- Yes - File contents will be obscured
 - No - File contents will not be obscured

(Continued on next page)

File System Adapter

(Continued)

Configuring the File System Adapter (Continued)

Important!	This field displays only as an option if Start a business process once files are collected is set to Yes. Additionally, if you specify this parameter using the configuration, you cannot override this value using the Graphical Process Modeler Obscure option. However, you can override this parameter using BPML. Will the file contain Obscure File Contents?
-------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- a. Specify a User Parameter 1: A user parameter that is passed to the bootstrapped workflow and placed in process data as UserParm1.
- b. Specify a User Parameter 2: A user parameter that is passed to the bootstrapped workflow and placed in process data as UserParm2
- c. Specify a User Parameter 3: A user parameter that is passed to the bootstrapped workflow and placed in process data as UserParm3
- d. Specify a User Parameter 4: A user parameter that is passed to the bootstrapped workflow and placed in process data as UserParm4
- e. Specify a User Parameter 5: A user parameter that is passed to the bootstrapped workflow and placed in process data as UserParm5

Important!	These fields display only as an option if Start a business process once files are collected is set to Yes. Additionally, if you specify this parameter using the configuration, you cannot override this value using the Graphical Process Modeler userParmX option. However, you can override this parameter using BPML.
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- f. Click **Next** to proceed.
-

File System Adapter

(Continued)

Configuring a File System Adapter (Continued)

14. This screen allows you to select who runs it and how it is invoked.
 - a. Choose a login ID for the Run As User: dialog box.
 - b. Use 24 Hour Clock Display? - If selected, the adapter will use the 24-hour clock instead of the default 12-hour clock.
 - c. Under Schedule: you can choose:
 - Do not use schedule - This is for adapter instances that will be used in business processes
 - Run based on timer - Schedule the adapter to collect data based on a specific time period and at startup.
 - Run daily - Schedule the adapter to run at the same time every day
 - Run based on day(s) of the week - Schedule the adapter to run on specific day (s) of the week. You can specify any date exclusions.
 - Run based on day(s) of the month - Schedule the adapter to run on a specified day(s) of the month at a certain time.
 - d. Click **Next**.

(Continued on next page)

File System Adapter

(Continued)

Configuring a File System Adapter (Continued)

15. Select the folder for the file system adapter to write files to as part of a business process for extraction.
 - a. Assign a File name to be given for the extracted files.
 - b. Specify whether to Unobscure the file contents when extracting. Does not work with "exportFile".
 - Yes - File contents will be unobscured
 - No - File contents will not be unobscured

Important!	This parameter is read-only in the Graphical Process Modeler.
-------------------	---------------------------------------------------------------

- c. Select a file naming convention:
 - Use the original file name as the extracted file name - keeps the names of the files. Go to step 12.
 - Assign a specific name - Give the file the name specified on the following screen in step 11.
 - d. Click **Next** to proceed.
16. Confirm that all the information entered is correct on the Confirm screen. If needed, use **Back** to return to previous screens to change information. Once all the entries are correct, click **Finish**.

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File System Adapter

(Continued)

Configuring File System Adapter in the Graphical Process Modeler

When the file system adapter is placed into a business process, you must select a configuration instance. The following table describes the fields that are used to configure the File System adapter in the Graphical Process Modeler. This table contains only the fields that are configured in the Graphical Process Modeler. The values in parentheses represent the corresponding BPML values.

Field	Description
Config (participant name)	Name of the adapter configuration. Required. No default.
Action	Action that the File System adapter is to perform. Required. No default. Valid values: <ul style="list-style-type: none">■ Collection (FS_COLLECT) - Files are collected or picked up from the specified folder.■ Extraction (FS_EXTRACT) - Files are extracted or written to the specified folder.
appendOnExtract	Whether to append the data if the extract file exists. Normally, files are overwritten when extracting. This parameter allows you to append the data to the existing files instead. Valid values: <ul style="list-style-type: none">■ Yes (true) - Data is appended to existing files.■ No (false) - Existing files are overwritten. Default
attachFile	Used to attach a file to a workflow as the primary document. The adapter does not perform any I/O and does not delete the file. Any valid filename is a valid value.
Continued on next page	

File System Adapter

(Continued)

**Configuring File
System Adapter in
the Graphical
Process Modeler
(Continued)**

Field	Description
checkDelete	Determines whether checking for deletion is possible before collecting files. Valid values: <ul style="list-style-type: none">■ Yes (true) - Default■ No (false)
collectMultiple	Used to collect multiple files in non-bootstrap mode. Collected files are placed into process data. <ul style="list-style-type: none">■ Yes (true)■ No (false) - Default
collectMultiplePDname	Used when collecting multiple files to specify which file will be the primary document. Any valid filename is a valid value.
	Continued on next page

File System Adapter

(Continued)

**Configuring File
System Adapter in
the Graphical
Process Modeler
(Continued)**

collectMultiplePrefix	Specifies a prefix to be added to the document name. When multiple documents are created in process data, the documents are named Document1 through DocumentX. Multiple instances could overwrite the documents. You can use this prefix to differentiate the documents in different instances. For example, One instance could use the prefix Inst1_ and another instance could use the prefix Inst2_. The first instance would produce files named Inst1_DocumentX and the second instance would produce files named Inst2_DocumentX. The actual file name is placed as an attribute (filename=) in the document tag. The default value is FSA_.
collectZeroByteFiles (true/false)	Whether to collect zero-byte files. Valid values: <ul style="list-style-type: none">■ Yes (true) - Zero-byte files are collected.■ No (false) - Zero-byte files are ignored. Default.
Continued on next page	

File System Adapter

(Continued)

Configuring File System Adapter in the Graphical Process Modeler (Continued)

Field	Description
concatenateFiles	Used when the collectMultiple option is true and when the File System adapter is set in a non-bootstrap mode. The content of multiple non-zero byte files is concatenated into a single file, and is placed as the primary document. Optional. Valid values: <ul style="list-style-type: none"> ■ Yes (true). Default. ■ No (false)
dbCollect	If you set this field to true and the field deleteAfterCollect is set to true (which is the default), a database record will be written for every file collected. Before a file is collected, the database is checked to see whether the file has already been collected. Optional. Valid values: <ul style="list-style-type: none"> ■ Yes (true) ■ No (false). Default
dbPurgeCollectMi	Used when dbCollect is set to Yes (true) to specify the number of minutes, from the time the database record is written, before the record is purged. Set this value slightly higher than the scheduled collection interval to prevent duplication before purging. Optional. Valid value is any valid (positive) integer value. Default is 1440 (one day).
Continued on next page	

File System Adapter

(Continued)

Configuring File System Adapter in the Graphical Process Modeler (Continued)

Field	Description
deleteAfterCollect	Whether to delete the file after collection. Valid values: <ul style="list-style-type: none">■ Yes (true) - File is deleted from the Collection folder after it is collected. Default.■ No (false) - File is left in the folder after it is read into Application
fileModTimeThreshold	Sets the file modification time threshold (in seconds) for files to be collected. A file is collected only if the modification time of the file is older than the number of seconds specified. This prevents premature collection of a file. Defaults to 30 seconds if you do not specify a value.
Continued on next page	

File System Adapter

(Continued)

Configuring File System Adapter in the Graphical Process Modeler (Continued)

Field	Description
filter	<p>Collect only files that match a specified filter within the collection folder. Optional.</p> <p>Examples include:</p> <ul style="list-style-type: none"> ■ *.txt (collects only .txt files) ■ *.dat (collects only .dat files) ■ EDI.* (collects only files named EDI with any file extension) ■ EDI.txt (collect only files named EDI with a file extension of .txt) <p>Note: If there are multiple files in the collection folder and you leave this field blank, one of the following occurs:</p> <p>If the adapter is configured to start a business process, it processes all files placed in the collection folder.</p> <p>If the adapter is within a business process, it collects only the first file in the collection folder.</p> <p>Note: If you specified this option using the File System adapter configuration, this field will be read-only.</p>
genReport	<p>Determines whether a workflow status report is generated for all files regardless of whether they were successfully collected or not. Optional.</p> <p>Valid values:</p> <ul style="list-style-type: none"> ■ Yes (true) - Status report will be generated whether file collection was successful or unsuccessful. Default ■ No (false) - Status report will only be generated if file collection is unsuccessful
maxCollect	Sets the maximum number of files to collect. The default is -1 (unlimited)

Continued on next page

File System Adapter

(Continued)

Configuring File System Adapter in the Graphical Process Modeler (Continued)

Field	Description
maxThreads	Used for performance tuning to set the maximum number of threads that are used when collecting files. The default is 10 threads.
noFilesSetSuccesses	Used to determine the workflow status when no files are available to collect in non-bootstrap mode. Optional. Valid values: <ul style="list-style-type: none"> ■ Yes (true) - The workflow status is set to Success even if no files exist in the specified collection folder during collection. ■ No (false) - The workflow status is set to Error if no files exist in the specified collection folder during collection. The default is No (false)
sortBy	When collectMultiple option is true and the File System Adapter is configured in a non-bootstrap mode, the files are sorted by File name or Modified date as selected in the Graphical Process Modeler. The default setting places the files the way they were placed in the Collection folder. Optional. Valid Values: none.
streamBufSize	Used for performance tuning to override the default buffer size of 5k (5120). Optional. Valid value is any integer.
subCharsOnExtract	If the document name contains invalid filename characters, you can use this field to have them replaced with something else. An example would be if the document name was a GUID that contains colons `:` which are invalid in a Windows filename. In this case, you would enter ":_ " to replace all occurrences of the colon with an underscore. Optional. Must be entered in two character pairs without delimiters or spaces. The first character is the one to be replaced, the second is the replacement itself.

Instructor Note: Inform students with the Linux login details and, help the students in using linux box. Share the location details of all the data files that are used in the exercises.

Exercise 7–1 File System Adapter

Instructions

For ease of understanding, this procedure is chunked into three parts that are as listed:

- Create the Service Configuration
- Create a Business Process
- Check in and Test the Business Process

Important!	Example: Create two new directories in the Linux home directory(/home/train1): /home/student/fscoll /home/student/fsext
-------------------	---------------------------------------------------------------------------------------------------------------------------------------

Create Folders

You need to create extraction and collection folders on the Linux server.

1. Open Putty and login to SI instance using root account
2. Go to the student directory with the following command:
`cd /home/student`
3. Create two new folders using the following commands:

```
mkdir fscoll fsext
```

(Continued on next page)

Exercise 7–1 File System Adapter

(Continued)

Create the Service Configuration

You can create the service configuration in the following manner.

1. Log in to admin console.
2. Click **Deployment > Services > Configuration** on the Admin console.
3. Click **Go!** in the new service box.
4. Type **File System Adapter** in the Service Type: dialog box and click **Next**.
5. Use **FS_Test** for a name and Test file system adapter for a description. Do not create or select a group. Click **Next**.
6. Specify **/home/student/fscoll** for the collection folder.
 - a. Leave the filename filter blank.
 - b. Collect files from sub-folders within and including the collection folder: **No**
 - c. Use the absolute file path name for the document name: **No**
 - d. Start a business process once files are collected: **No**
 - e. Click **Next**.
7. Specify **/home/student/fsext** for the extraction folder.
 - a. Unobscure File Contents?: **No**
 - b. File naming convention: Assign a specific name
 - c. Click **Next**.
8. Enter **%^output.txt** for the output filename and click **Next**.
9. Ensure that the service is enabled for business processes and click **Finish**.

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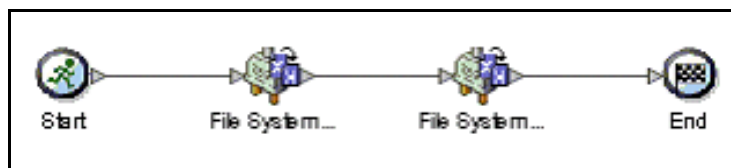
Exercise 7–1 File System Adapter

(Continued)

Create a Business Process

You can create a business process by following the steps that are listed:

1. Open the Graphical Process Modeler. If it is already open, click **View > Refresh Services**.
2. Click **File > New**.
3. Drag a **Start**, **End**, and two **File System Adapter** stencils into the work area, and connect them as shown in the following figure.



4. Open the Service editor for the first file system adapter and choose **FS_Test** for the configuration.

- Choose **Collection** for the action.

Open the Service editor for the second file system adapter, and choose **FS_Test** for the configuration.

- Choose **Extraction** for the action.

Important!

Some fields can only be configured in the Graphical Process Modeler such as concatenate and sort by filename or modification date.

(Continued on next page)

Exercise 7–1 File System Adapter

(Continued)

Create a Business Process (Continued)

5. Click **File > Save As**, and save the business process as **TestFSAdapter**. If you are asked to validate on save, then validate the business process.
6. Copy file1.txt from Desktop/Data files/Class Labfiles to **/home/student/fscoll** command line.

Note: You can use Filezilla to transfer the file. There is a preconfigured connection for root and student using the arrow next to the QuickConnect button. Choose the root user connection.

(Continued on next page)

Instructor Note: Help the students to upload the file from desktop to the command line using FileZilla. You can use the following login details to connect to the command line: Host: 192.168.40.100, Username: root, Password: password. and Port: 22

Exercise 7–1 File System Adapter

(Continued)

Check in and Test the Business Process

You can follow the steps that are listed to check in and test the business process.

1. Open the Admin console and choose **Business Process > Manager**.
2. Click **Go!** next to Create Process Definition.
3. Enter **TestFSAdapter** for the Process Name.
4. Select the **Check in Business Process created by the graphical modeling tool** radio button.
5. Click **Next**.
6. Click **Browse** and go to your saved business process. Select it and click **Open**.
7. Use **File system collect and extract** for a description and click **Next**.
8. Use the default settings for the remaining parameters. Make sure that the Business Process is enabled when you click **Finish**.
9. Search for your new business process, **TestFSAdapter** from the Business Process Manager screen.
10. Click **Execution Manager** when you get the results screen.
11. Choose **execute** in the execution manager screen and click **Go!**.

Note: No need to give a file when clicking Go! because the FSA will collect a file.

► Execute Business Process

Name: TestFSAdapter Instance ID: 7546 User: admin

Completed
Status: Success

Step	Service	Status	Advanced Status	Started	Ended	Status Report	Document	Instance Data
2	FS_Test	Success	None	04/13/2016 5:16:04 PM EDT	04/13/2016 5:16:04 PM EDT	i info	i info	i info
1	FS_Test	Success	1 file(s) collected.	04/13/2016 5:16:04 PM EDT	04/13/2016 5:16:04 PM EDT	i info	i info	i info
0	INITIATING_CONTEXT from user 'admin'	Success	None	04/13/2016 5:16:04 PM EDT	04/13/2016 5:16:04 PM EDT	None	None	None

* Inline Invocation

Bootstrapping

Introduction

A business processes can be scheduled to run at a fixed date and time. However, the trigger for a business process may be the arrival of data from outside Sterling B2B Integrator, such as a JMS queue. Bootstrapping is defined as the act of initiating a business process. If the Sterling B2B Integrator Scheduler bootstraps a business process, no outside activity is needed, although the business process may, and probably will, make use of external systems in the course of its operation. Some adapters can be configured to bootstrap a business process when they receive data.

Here are some additional facts about bootstrapping:

1. There can be a many-to-many relationship between bootstrapping adapters and business processes. That is, an adapter which bootstraps can initiate more than one business process.
2. Many adapters can be configured to start the same business process.
3. The business process that is bootstrapped can be selected dynamically. That is, the bootstrapping process can examine data, or use other criteria, to determine which business process to bootstrap.
4. The bootstrapping adapter can be at the beginning of a business process or can occur in the middle of a business process.
5. When creating a service to bootstrap, a system generated business process is built that uses the service by way of the Scheduler. The business process is normally named `Schedule_<service_configuration_name>`.

(Continued on next page)

Bootstrapping

(Continued)

Introduction (Continued)

Example:

Consider that a purchase order is being processed.

1. Someone needs to approve the purchase order.
 2. The order is sent to the approver and the business process waits for the order to return.
 3. The approver receives the order, approves, or disapproves it, and sends it back to Sterling B2B Integrator.
 4. When it receives the order, Sterling B2B Integrator is designed to be returned to the business process at the point where it was sent out so that it may continue on to the next step in the business process.
-

Exercise 7–2 Modify the File System Adapter

Instructions

You are required to complete the following activity to modify the File System Adapter to schedule a bootstrapping collection:

1. Click **Deployment > Services > Configuration** on the Admin console.
2. Search for the File System Adapter you configured earlier in this lesson. (In this example, search for **FS_Test**)
3. Click **edit** to make changes to the adapter configuration.
4. Type an appropriate description on the Name screen. Do not create or select a group. Click **Next**.
5. On the Collection screen, specify the appropriate settings for collecting data.
 - a. The Collection folder: parameter is mandatory. It is the name of the directory from which you want to collect files. Verify `/home/student/fscoll`
 - b. Leave the filename filter blank.
 - c. Collect files from subfolders within and including the collection folder: No
 - d. Use the absolute file path name for the document name: No
 - e. Start a business process once files are collected: **Yes**
 - f. Click Next.
6. Select **BasicInventoryProcess** from the drop-down menu on the Business Process screen, which you created in the previous exercise and click **Next**.

(Continued on next page)

Exercise 7–2 Modify the File System Adapter (Continued)

Instructions (Continued)

7. On the Schedule Type screen, choose **Run based on timer** option.
8. On the Schedule Settings screen, choose to run every 0 hours, 1 minute and click **Next**.
9. Accept the default settings at both Schedule Exclusions and Date Exclusions screens.
10. On the Extraction screen, verify **/home/student/fsext** in the Extraction folder: box and select Assign a specific name from the File naming convention radio buttons.
11. Click **Next**. The Extraction: User defined screen opens.
12. Type **%^Myoutput.txt** and click **Next**.
13. Review your selections on the Confirm screen
14. Click **Finish**.
15. Copy either Inventoryof xml file from datafiles to /home/student/fscoll
16. Allow one or two minutes for processing: From the **Admin Console**, select **Business Processes > Monitor > Current Processes**.
17. Monitor for a **BasicInventoryProcess** execution.
18. Click the Process ID number for the process. Verify that step 0 is your FSA.

Business Process Detail

Name: [BasicInventoryProcess](#) Instance ID: 8236 Status: Success State: Completed User: admin
 Deadline: None Contract ID: None

Action:

Steps 1-5 of 5

Step	Service	Status	Advanced Status	Started	Ended	Status Report	Document	Instance Data
0	FileSystemAdapter-FS_Test	Success	None	04/14/2016 11:28:24 AM	04/14/2016 11:28:24 AM	None	info	info
1	XML Encoder Service	Success	None	04/14/2016 11:28:24 AM	04/14/2016 11:28:24 AM	None	info	info
2	Assign Service	Success	None	04/14/2016 11:28:24 AM	04/14/2016 11:28:24 AM	None	info	info
3	Decision Engine Service	Success	1	04/14/2016 11:28:24 AM	04/14/2016 11:28:24 AM	None	info	info
4	Assign Service	Success	None	04/14/2016 11:28:24 AM	04/14/2016 11:28:24 AM	None	info	info

Exercise 7–3 Edit the File System Adapter

- Scenario** You need to edit the File System Adapter so it doesn't bootstrap and stop the scheduled execution. If a FSA is set to bootstrap it will not error on "No files to Collect".
1. Go to **Deployment > Schedules** in the UI.
 2. Accept the default of "**All**" in the last pane that is titled, "List Schedules", and click **GO!**
 3. Disable the Schedule by unchecking "**Enabled**" next to **FS_Test** in the list.
 4. Click **Deployment > Services > Configuration** on Admin console.
 5. Search for the **File System Adapter** you configured earlier in this lesson. (In this example, search for **FS_Test**)
 6. Click **edit** to make changes to the adapter configuration.
 7. Type an appropriate description on the Name screen. Do not create or select a group. Click **Next**.
 8. Specify the appropriate settings for collecting data on the Collection screen:
 - a. The Collection folder: parameter is mandatory. It is the name of the directory from which you want to collect files. Verify **home/student/fscoll**.
 - b. Leave the filename filter blank.
 - c. Collect files from subfolders within and including the collection folder: **No**
 - d. Use the absolute file path name for the document name: **No**
 - e. Start a business process once files are collected: **No**
 - f. Click **Next**.
 9. Review your selections on the Confirm screen and click **Save** and **Finish**.
-

OnFault Processing

Introduction

The onFault element is used to handle errors. You can include onFault elements in any complex activity for which it may be necessary to recover from faults so that the process can continue. The onFault element contains a fault handling activity. In a business process, a fault can occur in a complex activity that is not handled by an onFault element at that level of the process. When the fault code does not match the onFault element at a level, Sterling B2B Integrator begins to look for the correct onFault element. When no code attribute exists and no match to a defined attribute exists for an onFault element at a level, Sterling B2B Integrator moves to a general onFault (no code attribute) element. If it doesn't find a fault code, Sterling B2B Integrator halts the process.

OnFaults are commonly tied to sequences. This could be a sequence that covers the entire business process flow or a smaller sequence such as a choice or repeating loop. Each onFault can also be setup to trigger on different error conditions. This could be specific error or setup to be generic and trigger on any error.

For each onFault condition you build a subroutine to run if an error condition is met. It is common to build some type of alert bp like email people or a file drop off bp and then invoke those bp's through the subroutine. This way you can reuse common bp's instead of building the steps into every onFault.

SMTP Send Adapter

Overview

The SMTP Send Adapter allows documents to be sent to any valid email address using an accessible (SMTP-aware) mail server. It does this by enabling Sterling B2B Integrator to mail (send) documents using SMTP, within Sterling B2B Integrator, to the designated mail server. The mail server system examines the document and does further processing, including the actual sending of the email.

This adapter can be used when messages and documents need to be sent during the execution of a business process.

How the SMTP Send Adapter Works

The SMTP Send Adapter can mail (send) documents to the mail server of trading partners. The document is then mailed to the recipient designated in the To field of the configuration. This adapter picks up the document to be sent from the primary document in the business process.

Exercise 7–4 OnFault Processing Using SMTP Send Adapter

Scenario The SMTP Send Adapter is designed to send a file as an email attachment. If an email notification of No Files to Collect is required, we must capture the Previous Not Success Advanced Status, which is issued from the SMTP adapter. The DOMToDoc XPath expression retrieves this notification from process data and writes into the PrimaryDocument to give the required input file to the SMTP Send Adapter.

Note: A valid mail host name and email id is provided to create business process as required in this exercise.

Setting the OnFault Service

In order to use your updated configuration of the File System Adapter, inside the Graphical Process Modeler, click **View > Refresh Services** to get an updated configuration for the FSA instance in the business process.

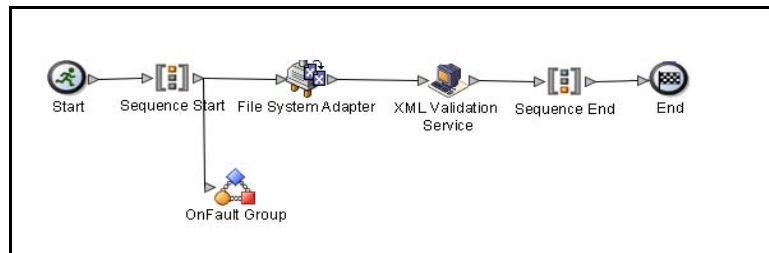
1. Open the **Graphical Process Modeler**.
2. Create a business process that is comprised of the following:
 - (1) Start
 - (1) End
 - (1) Sequence Start
 - (1) Sequence End
 - (1) File System Adapter
 - (1) OnFault Group
 - (1) XML Validation Service

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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Setting the OnFault Service (Continued)

3. Arrange and connect the services as shown in the following figure.



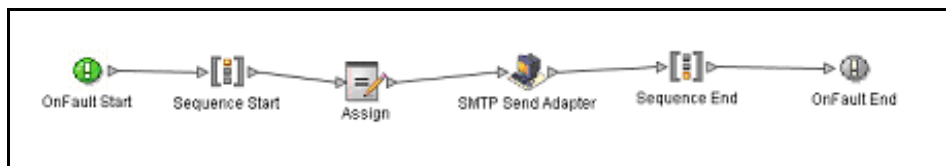
4. Click the **File System adapter** and configure as follows:
- Select **FS_Test** from the Configuration drop-down menu
 - Set the Action parm to **Collection**.
5. Click the **XML Validation Service** and select **XML Validator_WellFormed** from the Configuration drop-down menu.
6. Click the **OnFault Group** activity.
- Type **No files to collect** under the Error Value parm (must match).
 - Rename Default to **First Fault**.
 - Select **add** to create a second fault. Under the name type **Second Fault**.
 - Leave blank under error value (this will be an error catch-all.)
7. Locate and click the **First Fault** in the Navigation pane.
- Between the OnFault Start and OnFault End, add
 - (1) Assign
 - (1) SMTP Send Adapter
 - (1) Sequence Start/End

(Continued on next page)

Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Setting the OnFault Service (Continued)

8. Arrange and connect the services as shown in the following figure.



- Click the **Assign** under the value for append type false.
- Under the value for from type:

`DOMToDoc(Prev_NotSuccess_Adv_Status, 'PrimaryDocument')`

- Under value for to type '.' (just a period no quotes).

Important!

The SMTP Send Adapter is designed to send a file. Since there is no input file to send we must capture the Previous Not Success Advanced Status of No files to Collect from process data and write into PrimaryDocument to give the SMTP Send Adapter the required input file. DOMToDoc is an engine call that moves data from ProcessData (DOM) to Primary Doc (Doc). The period (.) means current Primary Doc. So steps b and c say copy everything in Process Data under tag Prev_NotSuccess_Adv_Status and copy to Primary Doc.

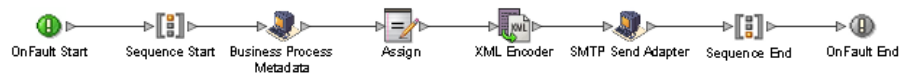
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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Setting the OnFault Service (Continued)

- d. Click the SMTP Send Adapter, select the SMTP Send Adapter from the Configuration drop-down menu.
 - e. Type the valid host name **192.168.40.1** under xport-smtp-mailhost.
 - f. Type your email address **student01@ibm.com** for xport-smtp-mailto.
9. Locate and click the **Second Fault** in the Navigation pane.
- a. Between the OnFault Start and OnFault End, add;
 - Sequence start/end (1)
 - Business Process Metadata service
 - Assign
 - XML Encoder service
 - SMTP Send Adapter

Link together as shown in the following figure.



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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Setting the OnFault Service (Continued)

- b. Click Business Process Metadata service and choose **BPMetaDataInfoService** as the configuration and accept the default values for all other parameters.
- c. Set the properties as follows on the Assign:

Name	Value
To	Server
From	substring-before(//WFC_ID/text(),':')

- d. Choose **XMLEncoder** on the XML Encoder as the configuration and set the properties as follows:

Parameter	Value
Mode	Create Document using xPath
OutputToProcessData	Yes
root_element	ErrMsg
xPath	//ProcessData/* Note: Do not select the xpath check box. This field is looking for an xpath statement.

(Continued on next page)

Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Setting the OnFault Service (Continued)

- e. Choose **SMTP Send Adapter** as the configuration on the SMTP Send adapter, and set the properties as follows:

Parameter	Value
Xport_SMTP_mailhost	192.168.40.1
Xport_SMTP_mailport	25
Xport_SMTP_mailto	student01@ibm.com
Xport_SMTP_mailsubject	concat('Process #',//WORKFLOW_ID/text(),' on server ',//Server/text(),' has encountered an error') Note: Type this all on one line and click “use xPath”.

- f. Save and validate this business process name the process **onFault_test**.

Important!	The XPath statement that you entered for the subject line concatenates literal values that are placed in single quotes, and variable values from ProcessData. WORKFLOW_ID is an element that is created in ProcessData by the BP Metadata service, and contains the process instance id of your execution. The tag Server was created by an XPath statement in the Assign. That statement searched a tag in ProcessData named WFC_ID that was created by the Error service. The substring-before statement located a colon in the value and extracted everything before that byte. Since the data held before the colon is the name of the server Sterling B2B Integrator is running on, the value extracted will be the server name.
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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Check in and Test the Business Process

You can check in and test the business process in the following manner.

1. Open the Admin console and choose **Business Process > Manager**.
2. Click **Go!** next to Create Process Definition.
3. Enter **OnfaultSMTP_test** for the Process Name.
4. Make sure that the radio button titled **Check in Business Process created by the graphical modeling tool** is selected.
5. Click **Next**.
6. Click **Browse** and go to your saved business process. Select it and click **Open**.
7. Type **Checking onfault using SMTP** for the description and click **Next**.
8. Use the default settings for the remaining parameters. Make sure that the Business Process is enabled and click **Finish**.

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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Testing the Business Process

You are required to run the business process three different times and follow the steps that are listed to test the business process.

Receive Email from First Fault

- Execute the business process without an input file.
- You will receive an email containing message with no files to collect.

Receive Email from second Fault

- Copy file1.txt to /home/student/fscoll and execute the business process.
- You will receive an email containing the Process Data.

Receive No Email

- Copy inventoryOf3.xml to /home/student/fscoll and execute the business process.
- The business process will complete without any error and you will not receive any email.

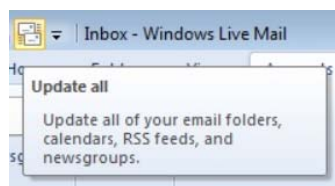
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Exercise 7–4 OnFault Processing Using SMTP Send Adapter (Continued)

Viewing Emails in Windows Live Mail

You can follow the steps to view the emails in the Outlook Express.

1. Open Windows Live Mail by going to **Start > All Programs > Windows Live Mail**.
2. Enter the username as **student1@ibm.com**.
3. Enter the password as **password1**.
4. Click **Update all** in the upper left corner to check for the emails.



Sample Email



Command Line 2 Adapter

Overview

The Command Line 2 adapter is a second-generation adapter that allows Sterling B2B Integrator to run a program from a command line in a business process. This includes executable programs, scripts, or operating system (OS) commands external to Sterling B2B Integrator.

The Command Line 2 adapter operates only in a remote implementation. This does not necessarily mean that it must run remotely. The Command Line 2 adapter runs in a separate JVM (Java Virtual Machine), which may be on the computer where Sterling B2B Integrator is installed or on a remote computer. The Command Line 2 adapter supports large files up to 12 GB and provides better memory allocation than the Command Line adapter. The Command Line 2 adapter will eventually replace the Command Line adapter.



Caution

Use the Command Line 2 adapter only for non-interactive programs that run from the command line. This adapter is not intended to work with browser-based or other Graphical UI-based programs. Such programs introduce an interactive element into a business process, which is typically setup to be automated.

Use the Command Line 2 adapter to invoke a program that:

- Encrypts and decrypts data that you want to send or receive securely over the Internet
- Manipulates data, such as change every occurrence of one letter to another
- Pages someone
- Initiates a business process
- Initiates a remote system

These are just a few examples out of many possible uses.

(Continued on next page)

Instructor Note: Inform students to change the path name in the scripts according to their folder structure using Vi Editor or opening in notepad. Guide the students to modify the script.

If the script is not running you can try to convert the file for Unix in Gedit as CR/LF my have been inserted by Windows. Make sure that the students have replaced the right path in the scripts.

Command Line 2 Adapter

(Continued)

How the Command Line 2 Adapter Works

The following steps summarize how the Command Line 2 adapter is typically used in a business process:

1. The adapter writes the content of the current primary document to a file in the working directory that is specified as the value of the working directory parameter. The name of this file is specified by the value of the inputFile parameter.
2. Sterling B2B Integrator runs an executable program that picks up the file and sends it to the legacy system.
3. The legacy system returns a file, which now includes the customer billing information, and the adapter retrieves it. The file that is returned is specified by the value of the outputName parameter.
4. The adapter reads the file contents into the primary document.
5. Sterling B2B Integrator performs the next operation in the business process.

Implementing the Command Line 2 Adapter

You can implement a Command Line 2 adapter to do the following:

- Execute commands using the command line from within a business process.
- Invoke the Command Line 2 adapter on a schedule and then start a new business process using the output from the adapter.

Important!	This can be used if you want to schedule a command-line program that accesses a legacy database on a regular schedule and then uses the output in a business process.
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Command Line 2 Adapter

(Continued)

Before You Begin

Before you begin to implement the Command Line 2 adapter, complete the following tasks:

1. If running Sterling B2B Integrator version 5.2.4.1 or later you have to enable the CLA2 adapter on the local machine. Prior versions CLA2 starts as part of startup script. (Remote installs are unchanged)
 1. Edit *Sandbox.cfg* in the properties directory by adding the line:
LAUNCH_CLA2_SERVER=true
 2. Shutdown B2Bi and run setupfiles.sh
2. Create and test the command-line program or command to make sure that it works.
3. Determine the working directory where you will be processing your commands.

Process Overview

To implement the Command Line 2 adapter, complete the following tasks:

1. Create a Command Line 2 adapter configuration.
2. Configure the Command Line 2 adapter.
3. Create and enable a business process that includes the Command Line 2 adapter.

Important!	If you are configuring a Command Line 2 adapter to start a business process, create the business process before configuring the adapter.
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4. Test the business process and the adapter.
 5. Run the business process.
-

Exercise 7–5 Command Line 2 Adapter

- | | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <p>For ease of understanding, the instructions are chunked into three parts that are as listed:</p> <ul style="list-style-type: none">■ Create the Service Configuration■ Create a Business Process■ Check in and Test the Business Process |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Create the Service Configuration

You can create the service configuration in the following manner.

1. Open **copy.sh** (found in Datafiles) and replace the copy command with the following command:

```
cp /home/student/fscoll/Trigger.XML /home/student/fsext
```

Note: Verify whether the path in the command is according to your folder path.

2. Upload the copy.sh script to **/home/student** and **Trigger.xml** file to **/home/student/fscoll**.
3. Log in to admin console.
4. Click **Deployment > Services > Configuration** on Admin console.
5. Click **Go!** in **New Service**.
6. Type in **Command Line Adapter 2** and click **Next**.
7. Enter the following required information, and click Next.
 - a. Enter **CLA2_Test** for Name.
 - b. Enter **Command Line 2 Test** for Description.
 - c. Click **None** for Select a group.

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Instructor Note: There are two scripts; copy.sh, and list.sh. The steps for configuring command line 2 adapter uses copy.sh. If you have enough time, you can ask the students to try configuring the list.sh script too. You can also ask the students to create a script to rename the existing file and configure it on command-line adapter.

Exercise 7–5 Command Line 2 Adapter

(Continued)

Create the Service Configuration (Continued)

8. Enter the following required information about the Services Configuration Properties screen, and click **Next**.
 - a. Enter **localhost** for Remote Name.
 - b. **9052** for Remote Port.
 - c. Enter **/home/student/copy.sh** for Command Line.
 - d. Enter **/home/student/** for Working Directory.
 - e. Leave Authentication active along with default certificate.
 - f. Choose **No** for Turn on debugging messages.
 - g. Click **Yes** for Wait on process to continue?
 - h. This service does NOT invoke a business process. Click **Next**.
9. The command-line process DOES NOT require an input file. Click **Next**.
10. DO NOT use the output generated by the command-line process.
11. Choose **Do not use schedule** and click **Next**.
12. Ensure that the service is enabled for business processes and click **Finish**.

Note: Similarly, you can configure Command Line 2 adapter for list.sh or script that you want to execute through business process.

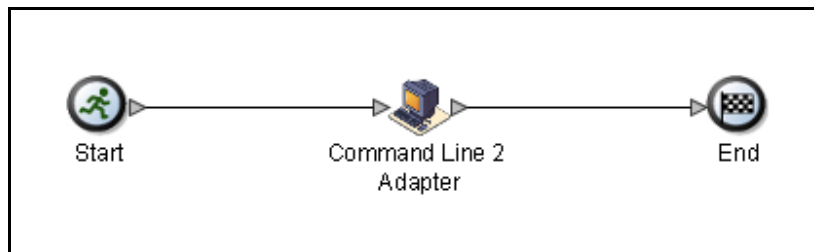
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Exercise 7–5 Command Line 2 Adapter (Continued)

Create a Business Process

You can create a business process in the following manner.

1. Open the Graphical Process Modeler. If it is already open, click **View > Refresh Services**.
2. Click **File > New**.
3. Drag a **Start**, **End**, and **Command Line 2 Adapter** into the workspace and connect them as shown.



4. Double-click the **Command Line 2 Adapter** to open its properties editor.
5. Choose **CLA2_Test** from the **config** drop-down box.
6. Save and validate your business process. Name it **CLA2_Test**

(Continued on next page)

Exercise 7–5 Command Line 2 Adapter (Continued)

Check in and Test the Business Process

You can follow the steps that are listed to check in and test the business process.

1. Open the admin console and choose **Business Process > Manager**.
 2. Click **Go!** next to Create Process Definition.
 3. Name the process **CLA2_Test**.
 - a. Make sure that the **Check-in Business Process created by the graphical modeling tool** radio button is selected.
 - b. Click **Next**.
 4. Click **Browse** and go to your saved business process. Select it and click **Open**.
 5. Give it a suitable description and click **Next**.
 6. Use the default settings for the remaining parameters. Make sure that the business process is enabled when you click **Finish**.
 7. Search for your new business process from the Business Process Manager screen.
 8. Click **Execution Manager** when you get the results screen.
 9. Choose **execute** in the execution manager screen. There is no input file.
 10. Click **Go!**
 11. Monitor the progress of the business process and after successful completion of business process the Trigger.xml file is copied to the fsxt folder.
-

The Invoke Business Process Service

Overview	<p>The Invoke Business Process Service is used to start an instance of a subprocess (child) from within the current instance of the business process (parent).</p> <p>Note: The Invoke Business Process Service is also referred to as the Invoke Sub-process Service.</p>
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How the Invoke Business Process Service Works	<p>The Invoke Business Process Service, when used, instantiates an instance of a subprocess, passing the current workflow context and the primary document to the new instance.</p> <ul style="list-style-type: none">■ When the Invoke Business Process Service is set to synchronous mode, the parent suspends processing until it receives data from the child. In synchronous mode, the parent is notified when the child encounters errors.■ When the Invoke Business Process Service is set to asynchronous mode, the parent and child process data simultaneously and independently of each other. Therefore, the parent does not receive notification when the child encounters errors.■ When the Invoke Business Process Service is set to run a subprocess inline, the subprocess runs as part of the parent process, sharing the same process data.■ When the Invoke Business Process Service is set to run in embedded mode, the subprocess runs with no persistence, meaning that no record of the process is recorded in Sterling B2B Integrator and no tracking is done.
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The Invoke Business Process Service (Continued)

Implementing the Invoke Business Process Service

To implement the Invoke Business Process Service, complete the following tasks:

1. Create and enable a business process that includes the Invoke Business Process Service.
2. Test the business process and the service.
3. Run the business process.

Important!	The Invoke Business Process service does not require you to build a configuration as all of the configuring is done in the GPM/BPML. If you do build a configuration all that is entered is a name and description. But it can then be used as any other configuration. Commonly developers just use the pre-built InvokeBusinessProcessService configuration and configure in the GPM/BPML.
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The Invoke Business Process Service (Continued)

Graphical Process Modeler Configuration

The following table describes the fields that are used to configure the Invoke Business Process Service in the Graphical Process Modeler:

Important!	The names in parentheses represent the corresponding field names in the Graphical Process Modeler. This information is provided for your reference.
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Field	Description
Config	Name of the service configuration.
COPY_SERVICE_PARS	Invoke Business Process Service parameters passed to the subprocess. Valid values are True (default) and False.
Business Process Definition Name (WFD_NAME)	Business process that is used in the service configuration. Valid values include all the business processes installed.
PASS_STATUS_REPORT	Pass status report to parent. Valid values are: <ul style="list-style-type: none">■ ON_SUCCESS■ ON_ERROR■ ALWAYS■ NEVER Default is ON_ERROR. Required.
Continued on next page	

The Invoke Business Process Service (Continued)

Graphical Process Modeler Configuration (Continued)

Field	Description
Invoke Mode (1=Async, 2=Sync) (INVOKE_MODE)	<p>Mode in which to run the subprocess. Optional. Valid values are:</p> <ul style="list-style-type: none"> ■ async = asynchronous (default) ■ sync = synchronous ■ inline = In-line ■ embedded = starts business process in SYNC mode with Enable Transaction on, and runs the subprocess in the same transaction as the Invoke Sub-Process service. The subprocess is run with no persistence. <p>Note: When persistence level is error only, sync invoke mode is not supported.</p>
List of ParmS to override (PARM_LIST)	Parameters to override
Type of Error On Which to Notify Parent Process (NOTIFY_PARENT_ON_ERROR)	<p>Errors the subprocess reports to the parent business process (synchronous mode only). Valid values include:</p> <ul style="list-style-type: none"> ■ Continue parent only if a service-generated error occurs in the subprocess. ■ Continue parent only if a system-generated error occurs in the subprocess. ■ Continue parent if any type of error occurs in the subprocess. ■ Halt subprocess if any error occurs (for potential correction and resume). This option does not notify the parent of the error from the subprocess, and the subprocess is halted.

Exercise 7–6 Invoke Business Process Service

Instructions

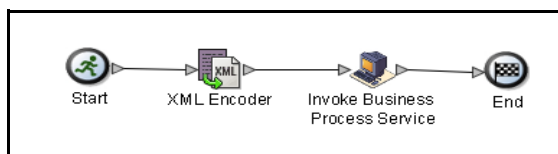
For ease of understanding, this procedure is chunked into two parts that are as listed:.

- Create a Business Process
- Check in and test the business process

Create a Business Process

You can create a business process in the following manner.

1. Open the Graphical Process Modeler. If it is already Open, click **View > Refresh Services**.
2. Click **File > New**.
3. Drag a **Start**, **End**, an **XML Encoder Service** and an **Invoke Business Process Service** into the workspace and connect them as shown.



4. Double-click on the **XML Encoder** to open its properties editor.
5. Choose **XMLEncoder** from the config drop-down box.
 - Mode: Use existing XML document
 - Output_to_process_data: Yes

(Continued on next page)

Exercise 7–6 Invoke Business Process Service (Continued)

Create a Business Process (Continued)

6. Double-click the **Invoke Business Process Service** to open its properties editor.
7. Choose Invoke Business Process Service from the config drop-down box.
8. Specify the following values in the Properties Editor:
 - Invoke_mode: Async
 - Wfd_name: Select your Basic Inventory process.
9. Save the file as **INVOKE_Test**.

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Exercise 7–6 Invoke Business Process Service (Continued)

Check in and Test the Business Process

You can check in and test the business process in the following manner.

1. Choose **Business Process > Manager**, and open the admin console.
2. Click **Go!** next to Create Process Definition.
3. Name the process **Async**.
 - a. Make sure that the **Check-in Business Process created by the graphical modeling tool** radio button is selected.
 - b. Click **Next**.
4. Click **Browse** and navigate to your saved business process. Select it and click **Open**.
5. Give an appropriate description. Click **Next**.
6. Use the default settings for the remaining parameters. Make sure that the Business Process is enabled when you click **Finish**.
7. Search for your new business process from the Business Process Manager screen.
8. Click **Execution Manager** when you get the results screen.
9. Choose **execute** in the execution manager screen.
10. Click **Browse** and choose the **InventoryOf11.xml**.
11. Click **Go!**
12. Monitor the progress of the business process.

(Continued on next page)

Lightweight JDBC Adapter

Overview

The Lightweight Java Database Connectivity (JDBC) adapter allows you to retrieve data from a JDBC-compliant database or update a JDBC-compliant database as part of a business process within Sterling B2B Integrator, using one of the following methods:

- XPath queries for dynamic SQL queries (where the definition of the SQL statement is not known when the business process is defined)
- Constants, when lookups are not necessary

How is the Lightweight JDBC Adapter Different?

Unlike the JDBC adapter, the Lightweight JDBC adapter does not use a map, where the SQL statements are fixed. The Lightweight JDBC adapter allows you to specify parameters in the SQL statement that are supplied at run time.

The Lightweight JDBC adapter executes a query, and you receive an XML document that contains the results. Then you can either:

- Load the XML document into process data.
- Carry the XML document forward into another service in the business process.

Use the Lightweight JDBC adapter if you simply want to get data, and need the flexibility of specifying various SQL queries. Use the JDBC adapter if you plan to always execute the same SQL statement, or if you have complex output and you want to manipulate the data from a database and control the structure of the output.

Important!	The Lightweight JDBC adapter processes only one result set if you script multiple queries to run in stored procedures.
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Lightweight JDBC Adapter

(Continued)

How the Lightweight JDBC Adapter Works

The Lightweight JDBC adapter can start a business process, or it can be used in the middle or at the end of a business process. This service can be scheduled to run at weekly or timed intervals.

The following steps summarize how the Lightweight JDBC adapter might be used in a business process:

1. Using the parameters that are specified in the Graphical Process Modeler for the Lightweight JDBC adapter configuration, the adapter executes a query.
2. The adapter receives the query results from an SQL database query.
3. The adapter generates a primary document that contains the query results in XML format.
4. The adapter sends the query results to the next step in the business process.

Setting Up the Lightweight JDBC Adapter

To use the Lightweight JDBC adapter, you must complete this process:

1. Set up a connection to an external database.
2. Create and enable a Lightweight JDBC adapter configuration.
3. Create a business process using the Lightweight JDBC adapter, and enable it.

Important!	If you want to use XPath queries, you will first need to load the data these queries will reference into process data. For example using the XML Encoder service or DocToDOM in your business process.
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Lightweight JDBC Adapter

(Continued)

Setting Up the Lightweight JDBC Adapter (Continued)

4. Double-click the **Lightweight JDBC Adapter** icon in the Graphical Process Modeler, and in the Service Editor, specify the parameters or queries the adapter configuration will use.
5. Test the business process and the adapter.

Creating a Lightweight JDBC Adapter Configuration

To create a Lightweight JDBC adapter configuration:

1. Select **Services > Configuration** from the Sterling B2B Integrator Deployment menu.
2. Click **Go!** under Create, next to New Service.
3. Type **Lightweight JDBC Adapter** in the Service Type dialog box and click **Next**.
4. Complete the fields specific to the adapter and click **Finish**.
5. Specify additional parameters using the Service Editor in the Graphical Process Modeler.

Code Lists

JDBC connections between Sterling B2B Integrator and outside databases are very powerful, useful tools. However, creating that connection can be complicated. For some tasks, you may not need such advanced functionality. In these cases, you can make use of the Sterling B2B Integrator function; the code list.

Code lists are created as tables through the Sterling B2B Integrator UI, but are held as records within the Sterling B2B Integrator database, in a table named `codelist_xref_item`. These records can be accessed through JDBC adapters in your business process, and also through maps you create. Like any other table, you can select, update, and insert records, and call stored procedures or functions when working with code lists.

Lightweight JDBC Configuration

Introduction

The following table describes the fields that are used to configure the Lightweight JDBC adapter in Sterling B2B Integrator:

Important!	The field names in parentheses represent the corresponding field names in the Graphical Process Modeler. This information is provided for your reference.
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Field	Description
Name	Unique and meaningful name for adapter configuration. Required.
Description	Meaningful description for the adapter configuration, for reference purposes. Required.
Start a new business process (StartNewWorkflow)	Whether to start a new business process. Valid values are: <ul style="list-style-type: none">■ This Lightweight JDBC adapter configuration will start a new business process.■ This Lightweight JDBC adapter configuration will not start a new business process.
Run As User	Specify the user that this schedule runs under. Click the icon next to the field for a list of users from which to select.
Do not use schedule	If the field is selected, this service does not start a business process and does not run on a schedule.
Run service based on timer every	Valid values are the hour and minutes at which to run the service. Indicate whether you want the service to run at startup.
Continued on next page	

Lightweight JDBC Configuration

(Continued)

**Introduction
(Continued)**

Field	Description
Run service daily at	Valid values are the hour and minutes at which to run the service, daily. Indicate whether you want the service to run at startup.
Run service weekly on	Valid values are the day of the week, the hour, and the minutes at which to run the service. Indicate whether you want the service to run at startup.
Business Process	Select the business process that will be started by this service.
Pool Name	Specify the database pool name. Optional.
XML Result Root Tag (result_name)	Root tag element. The name of the tags in the XML document for query results that will be attached to the process data by the adapter. Required.
XML Result Row Tag (row_name)	Row tag element containing all the column tags. The column tag names are not configurable. The tag names are generated by the column name returned in the result set. Required.
Continued on next page	

Lightweight JDBC Configuration

(Continued)**Introduction
(Continued)**

Field	Description
Query Type (query_type)	<p>Result set or the number of rows affected by an action query returned by the SQL statement. Valid values are SELECT and ACTION. Required.</p> <ul style="list-style-type: none">■ SELECT – Returns results. The rows affected by the query, if available, are returned into the row tag itself, for example, <root><row>5</row></root>.■ ACTION – Returns the number of rows affected. For example, if you are updating records in a database, the number of rows updated is returned.■ Stored procedure/function – Required if value in paramtype1 field is Cursor.
SQL Statement (sql)	Hard-coded SQL query that will query a database. It must be in valid SQL syntax. Optional.
Business process (InitialWorkflowId)	Business process you want the Lightweight JDBC adapter to start, if any. Required if you selected This Lightweight JDBC adapter configuration will start a new business process. Otherwise, optional.

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Lightweight JDBC Configuration

(Continued)

Graphical Process Modeler Configuration

The following table describes the fields that are used to configure the Lightweight JDBC adapter in the Graphical Process Modeler:

Field	Description
Config	Name of the service configuration.
param1 - param20	XPath query that searches the process data tree for a match. If defined as XPath, you must also select the XPath check box in the Service Editor of the Graphical Process Modeler for the parameter. Optional.
paramtype1 - paramtype20	<p>Parameter type that corresponds to the parameter's number, for example, param1 and paramtype1. Every parameter specified must have the corresponding parameter type. Valid values are:</p> <ul style="list-style-type: none">■ Character Stream■ Cursor■ Date■ Double■ Float■ Integer■ Long■ String <p>Cursor runs stored database functions. If specified, this must be paramtype1. If you want to pass any other parameters to the database stored function, those must start in the paramtype2 field.</p>

Restrictions on Submitting Stored Functions

Overview

The following restrictions and guidelines apply when submitting stored functions to a database using the JDBC adapter:

- If the stored procedure is a procedure and not a function, the first argument to the procedure must be an output parameter. Even if the procedure has no data to return, it must declare the first argument as an output Cursor.
- The output argument must be in the first position.
- The first parameter type must be Cursor type.
- You must provide a value for the first parameter, even though it is not used.
- The Query type must be declared as Stored Procedure/Function type.
- The SQL query must be defined as an anonymous block with a begin and end statement.
- When defining the Integer data type using the Graphical Process Modeler (GPM), selecting Integer will produce Double in the BPML. If you need an Integer type, edit the BPML through the Sterling B2B Integrator interface and replace Double with Integer.

Important!	If you edit the file at a later time using the Graphical Process Modeler, this edit overwrites your earlier changes and sets the value back to Double.
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Exercise 7–7 Creating a Code List

Scenario	The ERP system generates XML files that must be routed to different business processes within Sterling B2B Integrator. The files are all placed into a single directory on disk. The required processes are in place, but must create a method for dynamically selecting those processes, which are based on the file name. The process names are stored into a table (code list) and retrieve them during processing, invoking them as appropriate.
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Instructions	For ease of understanding, this procedure is chunked into two parts: <ul style="list-style-type: none">■ Create the code list■ View the code list
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Create the Code list	<p>You can create a codelist in the following manner.</p> <ol style="list-style-type: none">1. Go to Trading Partner > Code Lists from the Sterling B2B Integrator UI.2. Click GO! to create a new codelist.3. Name your new codelist SelectProcess. Leave Sender and Receiver Identities blank.4. Click Next.
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Exercise 7–7 Creating a Code List

(Continued)

Create the Code list (Continued)

- Click **Add New Code**.
- Fill the first set of parameters given in the following table and click **Save**. Repeat the step 5 and fill other two set of parameters in the table.

Sender Code	Receiver Code	Description
InventoryOf11.xml	BasicInventoryProcess	Qty check for 15 process
InventoryOf3.xml	BasicInventoryProcess1	Qty check for 10 process
Trigger.xml	CLA2_Test	Command Line Adapter 2 process

Note: Ensure that the business processes entered in the Receiver Code are checked in and the exact name is typed as it is case-sensitive.

- When you have finished filling in the codes, click **Next**, and then **Finish**.

Important	Ensure that you delete all Non-default versions of the code list if you have to make edits. The LWJDBC can't read default flags like the GUI can and will give all versions as results.
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Viewing the Codelist

You can view the codelist as it appears in the DB by following the steps that are listed.

- Go to **Operations > System > Support Tools > SQL Manager**.
 - Type **select * from codelist_xref_item where list_name = 'SelectProcess'** in the SQL Manager window.
 - Click **execute**.
-

Exercise 7–8 Lightweight JDBC Adapter with Codelist

Scenario	You are required to create a business process with Lightweight JDBC Adapter which verifies the input file process name with the receiver code entered in code list and proceeds further in invoking the business process. This functionality will provide security that the input file with different process name cannot be processed and executed.
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Instructions	<p>For ease of understanding, this procedure is chunked into two parts that are as listed:</p> <ul style="list-style-type: none">■ Configuring Lightweight JDBC Adapter■ Creating a Business Process
---------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Configuring the Lightweight JDBC Adapter

You can configure the Lightweight JDBC adapter in the following manner.

1. Log in to admin console.
2. Click **Deployment > Services > Configuration** on admin console.
3. Click **Go!** under New Service.
4. Click **Lightweight JDBC Adapter**, and click **Next**.
5. Use **LWJDBC_Test** for a name, and **LWJDBC adapter** for a description, and click **Next**.
6. Accept the default settings and make sure **Will not start a new Business Process** is selected. Click **Next**.

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Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Configuring the Lightweight JDBC Adapter (Continued)

7. Specify the following values in the Parameters screen:

Property	Value
Pool Name	DB2pool
XML Result Root Tag	Document
XML Result Row Tag	Query
Query Type	(Leave Blank)
SQL Statement	(Leave Blank)

Note: If Oracle database is used in the Sterling B2B Integrator instance then you will get an option to choose oraclePool.

8. Click **Next**.
9. Ensure that the service is enabled for business processes and click **Finish**.

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Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business Process

You can create a business process by following the steps that are listed:

1. Open the Graphical Process Modeler. If it is already open, click **View > Refresh Services**.
2. Select **File > New**.
3. Drag the following activities onto your workspace:
 - a. Start (1)
 - b. End (1)
 - c. Sequence Start/Sequence End (1)
 - d. Assign (2)
 - e. File System Adapter (1)
 - f. XML Encoder (2)
 - g. Lightweight JDBC Adapter (1)
 - h. Invoke Business Process Service (1)

(Continued on next page)

Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business Process (Continued)

4. Connect the stencils as shown:



5. Click the **Sequence Start** and rename it as **Start**.
a. Click the **File System Adapter** and set the properties as shown:

Property	Value
Configuration	FS_Test
Action	Collection
Collect Multiple	No
Delete After Collect	Yes

(Continued on next page)

Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business Process (Continued)

6. Click the first **XML Encoder** and set the properties as shown in the following table:

Property	Value
Configuration	XML Encoder
mode	Use Existing XML Document
output_to_process_data	Yes
exhaust_input	Yes

7. Click the first **Assign** and set the properties as shown:

Property	Value
from	//PrimaryDocument/@SCIOBJECTID
to	DocHolder

(Continued on next page)

Exercise 7-8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business
Process
(Continued)

8. Click the **Lightweight JDBC Adapter** and set the properties as shown:

Property	Value
Configuration	LWJDBC_Test
param1	//FileName/text() (Click “use xPath”)
param2	SelectProcess (Do NOT click “use xPath”, this parameter will be used as a literal value)
paramtype1	string
paramtype2	string
query_type	select
sql	select RECEIVER_ITEM from CODELIST_XREF_ITEM where SENDER_ITEM = ? and LIST_NAME = ? (place this statement all on one line)

(Continued on next page)

Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business Process (Continued)

9. Click the second **XML Encoder** and set the properties as shown:

Property	Value
Configuration	XML Encoder
mode	Use Existing XML Document
output_to_process_data	Yes
exhaust_input	Yes

10. Click the second **Assign** and set the properties as shown:

Property	Value
from	//DocHolder/@SCIObjID
to	PrimaryDocument

11. Click the **Invoke Business Process Service** and set the properties as shown:

Property	Value
Configuration	InvokeBusinessProcessService
INVOKE_MODE	Inline
WFD_NAME	string(//Document/Query/RECEIVER_ITEM) (Click “use xPath”)

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Exercise 7–8 Lightweight JDBC Adapter with Codelist (Continued)

Creating a Business Process (Continued)

-
12. Save and validate the business process with the name **LWJDBC_Test**.
 13. Check in the process in dashboard with the name **LWJDBC_Test**.
 14. From the UNIX command-line, copy **InventoryOf3.xml**, **InventoryOf11.xml** and **Trigger.xml** into the **/home/fscoll** directory.
 15. Navigate to **/home/student**. Verify and delete if you still have the **Trigger.xml** in fsext folder that was copied from the Command Line 2 Adapter exercise.
 16. Run your process 3 times, without input file.
-

Result:

The three business processes; BasicInventoryProcess, BasicInventoryProcess1 and CLA2_Test are executed based on the input file.

Wait Service

Overview	The Wait service allows a business process to wait for a period of time before moving on to the next step in the process. The Wait service does not hold its active thread during this wait time, which can reduce resource consumption.
How the Wait Service Works	The Wait service performs a function similar to the Sleep service: it allows you to pause a business process for a set length of time. However, unlike the Sleep service, the Wait service does not retain an active processing thread, which frees the thread for other processing jobs. Use the Wait service when you need to put a business process in a Wait state for at least one minute. If you need to put a business process in a wait state for less than a minute, use the Sleep service.
Implementing the Wait Service	A configuration of the Wait service is installed with Sterling B2B Integrator.

Exercise 7–9 Wait Service

-
- Scenario** This exercise is designed to demonstrate:
- The use of the All Start and how Sterling B2B Integrator handles business process contexts during processing.
 - The use of the Repeat activity, and how to properly construct a loop with an index.
 - The use of the Wait Service to pause a process during execution.

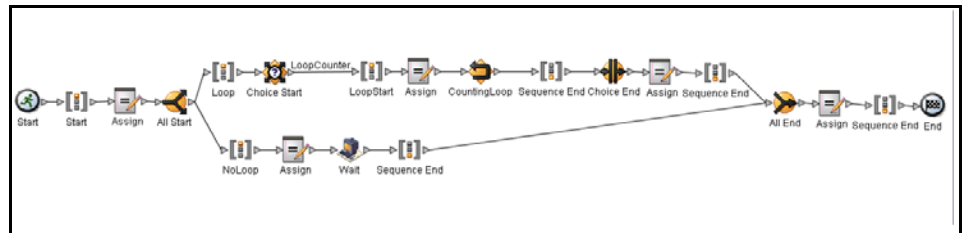
-
- Instructions** You can create the business process in the following manner.
1. Open the Graphical Process Modeler, if it is not already open.
 2. Click **New** to start a new business process.
-

(Continued on next page)

Exercise 7–9 Wait Service

(Continued)**Instructions
(Continued)**

3. Move the following operations and services to your workspace by dragging the icons from the Stencil to the workspace:
 - (1) Start
 - (1) End
 - (4) Sequence Start
 - (4) Sequence End
 - (5) Assign
 - (1) All Start
 - (1) All End
 - (1) Choice Start
 - (1) Choice End
 - (1) Repeat Activity
 - (1) Wait
4. Connect the activities in the order as shown in the following figure.

**(Continued on next page)**

Exercise 7–9 Wait Service

(Continued)

Instructions (Continued)

5. Rename the Sequence Starts as follows:
 - a. First Sequence Start = **Start**
 - b. First Sequence Start in top branch of All Start = **Loop**
 - c. Second Sequence Start in top branch of All Start = **LoopStart**
 - d. Sequence Start in bottom branch of All Start = **NoLoop**
6. Click the first **Assign** in the process, and set the values as follows:
Constant = 0
To = LoopCount
7. Click the **Assign** in the bottom branch of the All Start, and set the values:
Constant = The NoLoop Branch has executed
To = NoLoop
8. Click the **Wait** in the process, and choose **WaitService** under **Config** drop-down list.
9. Enter the Name as **WAIT_INTERVAL** and set it to value 1.
10. Click **Tools > Rule Manager** on the tool bar. Add a new rule, and name it Loop Counter. In the Expression box, type:
LoopCount < 10
11. Click **OK** twice to save your work and exit.

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Exercise 7–9 Wait Service

(Continued)

Instructions (Continued)

12. Click the edge line between **Choice Start** and the **LoopStart Sequence Start**.
13. Click **Add** in the Edge Editor. Select your rule from the drop-down, and choose **True** for the value.
14. Click the **Assign** that follows the LoopStart Sequence Start, and set the values:
From = LoopCount + 1
To = LoopCount
15. Click the **Repeat** activity, and set the values:
Name = CountingLoops
Ref = Loop
16. Click the last **Assign** in the top branch of the All Start and set the values:
Constant = Loop is done
To = LoopStatus
17. Click the last **Assign** in the business process and set the values:
Constant = Both branches have executed
To = FinalContext
18. Save and validate the business process with the name **Looping_Test**.
19. Check in the process with the name Looping_Test.
20. Execute your business process (no input file is needed).
21. Analyze the results.

(Continued on next page)

Lesson Review

Completed Objectives

This lesson was designed to help you to:

- List and explain the four basic service types
 - Explain how to create a service configuration
 - Explain Bootstrapping
 - Describe how the file system adapter works
 - Describe how OnFault Processing works
 - Explain how the Command Line adapter functions
 - Describe and demonstrate the use of a Lightweight JDBC adapter
 - Describe how the Invoke Business Process service works
-

Case Study

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Background

Introduction

This lesson provides an opportunity to analyze a business problem and create a business process based on the problem.

Lesson objectives

This lesson is designed to help you to:

- Analyze a business problem
 - Create a business process to solve the business problem
-

The Business Problem

Introduction

The Company agrees to perform a Vendor Managed Inventory service for two customers, My Little Store (MLS) and The Other Guy (TOG), both retailers are merchandise for the company.

The company auditor, requested to maintain a copy of the original data, so we must move a copy of the file to an archive directory. All processing should be automated without manual handling of data. It is already communicated and the data file(s) are now placed in /home/student/fscoll.

This exercise helps you understand more about bootstrapping, creating rules, XPath statements, and configuring different Services.

There are a number of different solutions that you can use to solve this case study, but one is given in detailed steps in this lesson.

The example solution that is presented in the detailed steps of this case study will have you build bootstrapping on a FSA into a business process instead of scheduling a FSA configuration like we did in the previous lesson. Both solutions work but scheduling is more commonly used in the real world. This solution does show the flexibility that is available with business processes and services.

Important!	When using bootstrapping or invoke, the business process that is invoked should be built, saved, and checked-in before it is referenced or used. This affects the order that Processes may be built, as you see in the following exercise.
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Important!	These exercises will have you make changes to service configurations in the GPM. Make sure to check Override Service Configuration under Options -> Preferences -> Service Editor. Please note that when overriding service configurations the overrides will only affect the bp where they are made. They will not globally affect other bp's that use that configuration.
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The Business Problem

(Continued)

Introduction (Continued)

In this solution, the following four different Business Processes need to be created:

1. **The Main Business Process:** Here build a business process that determines the Customer Id and take one of two paths, path for “My Little Store” or path for “The Other Guy”. This process invokes another Business Process that will determine whether it requires to order more items. After the business process runs, write out the file into the directory **/home/student/fs_output**. Suggested name: Main.BP.
 2. **The Invoke Business Process Service:** Here build two different Customer business processes to determine whether it needs to order more items. One business process for the “My Little Store” and another for “The Other Guy”. The order level for My Little Store is less than 10, then it should send more items. The order level for The Other Guy less than 20. Suggested names: LittleStore.BP and OtherGuy.BP
 3. **The Command Line Adapter Process:** Here build a business process that copies data into the correct folders, by calling the script, copytest.bat. This script looks for files in /home/student/fscoll with a name of *.xml. Then, move one copy of the files to /home/student/fsprocess and one copy to /home/student/fsarchive.
 4. **The File System Adapter Process:** Here build a process to PICK UP the files from /home/student/fsprocess and cause the Main.BP process to start running by using bootstrapping.
-

Exercise 8–1 Your Assignment

Instructions	For ease of understanding, this procedure is covered in three parts.
---------------------	----------------------------------------------------------------------

- Setup Steps
- The Main Business Process
- Procedure for the Main Process

Setup Steps	<ul style="list-style-type: none">■ Verify whether the following directories were created:<ul style="list-style-type: none">■ /home/student/fsarchive■ /home/student/fsprocess■ /home/student/fsoutput■ Verify that script copytest.sh is in the directory /home/student.
--------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

The Main Business Process	This process determines the Customer ID and then takes a path for “My Little Store” or “The Other Guy”. Then invoke a Business Process Service that determines whether it is required to order more items. At the end of the process, write file(s) into the directory /home/student/fs_output. Suggestion: Build LittleStore.BP and OtherGuy.BP first (go to Invoke Business Process Service / Per Customer), then come back and build this process.
----------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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Exercise 8–1 Your Assignment

(Continued)

The Main Business Process (Continued)

In this process, the following stencils are required.:

Start (1) Choice Start (1)

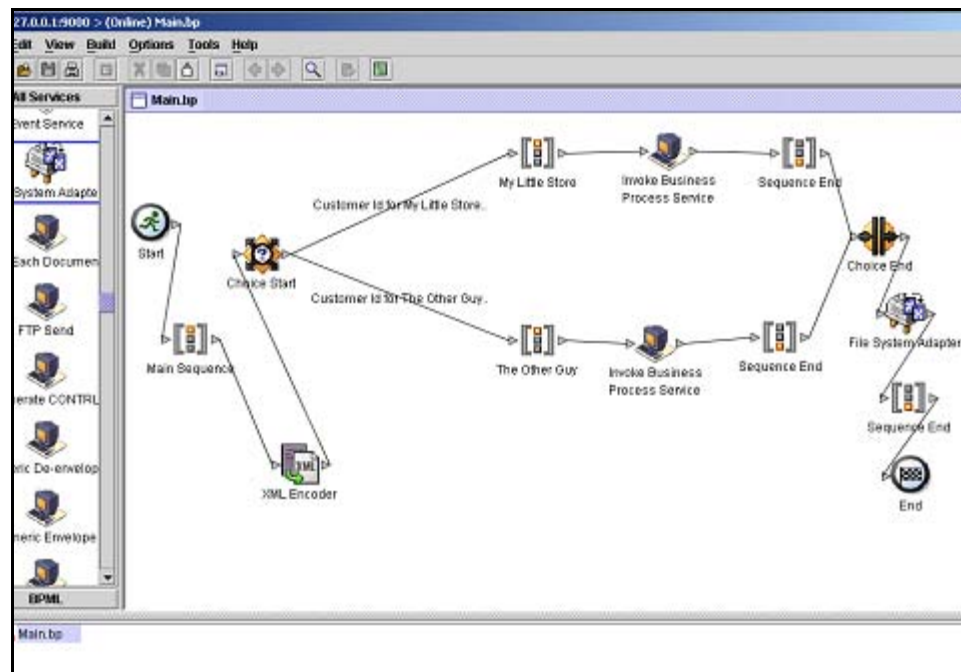
End (1) Choice End (1)

Sequence Start (3) XML Encoder Service (1)

Sequence End (3) File System Adapter (1)

Invoke Business Process (2)

The following figure depicts an example process.



(Continued on next page)

Exercise 8–1 Your Assignment

(Continued)

Procedure for the Main Process

You can follow the mentioned procedure for the main process.

1. Drag and connect your Stencils.
2. Changing the name of the 3 sequence starts.
 - a. Double-click the first sequence start and type in “Main Sequence” under the value column.
 - b. Double-click the top sequence start and type in “My Little Store” under the value column.
 - c. Double-click the bottom sequence start and type in “The Other Guy” under the value column.
3. Configure the XML Encoder:
 - a. Mode = Use existing XML document.
 - b. Output to process data = Yes.
4. Click **Tools > Rules Manager**. Click **Add** to bring up the Rule Editor. Populate the name box with “**Check for MLS**”. In the expression box, type the following Xpath string:

```
//INVENTORY/CUST_ID/text()='My Little Store'
```

(Continued on next page)

Exercise 8–1 Your Assignment

(Continued)

Procedure for the Main Process (Continued)

5. Click **Tools > Rules Manager**. Click **Add** to bring up the Rule Editor. Populate the name box with “**Check for TOG**”. In the expression box, type the following Xpath string:

```
//INVENTORY/CUST_ID/text()='The Other Guy'
```
6. Double click the line between **Choice Start** and the top **Sequence Start**. Click **Add** to open the name and value columns in the top Edge Editor. Select “**Check for MLS**” for the name and **true** under the value column.
7. The Invoke Business Process Service.
 - a. Invoke_mode = Sync
 - b. WFD_Name = LittleStore_#.BP or (whatever you named the business from the below exercise).
8. Double click the line between the **Choice Start** and the bottom **Sequence Start**. Click **Add** to open the name and value columns in the bottom Edge Editor. Select “**Check for TOG**” for the name and **true** under the value column.
9. The Invoke Business Process Service.
 - a. Invoke_mode = Sync
 - b. WFD_Name = OtherGuy.BP or (whatever you named the business from the below exercise).
10. The File System Adapter Service.
 - a. Action = Extraction.
 - b. AssignFilename = Use the original filename
 - c. Bootstrap = No
 - d. ExtractionFolder = /home/student/fsoutput
11. Save as Main.BP, validate and check in the business process.

Congratulations you can now add business process building to your Resume, but you are not done yet. Continue with the File System Adapter Process.

(Continued on next page)

Invoke Business Process Service Per Customer

Overview These two Customer business processes, My Little Store (MLS) and The Other Guy (TOG), will be invoked by the Main business process. It is required to build two copies of business process, one for “My Little Store” and another for “The Other Guy”. Build one, save, and validate; then do a Save As to create the second one with the other name.

In this process, the following stencils are required:

Start (1) Choice Start (1)

End (1) Choice End (1)

Sequence Start (3) Assign (2)

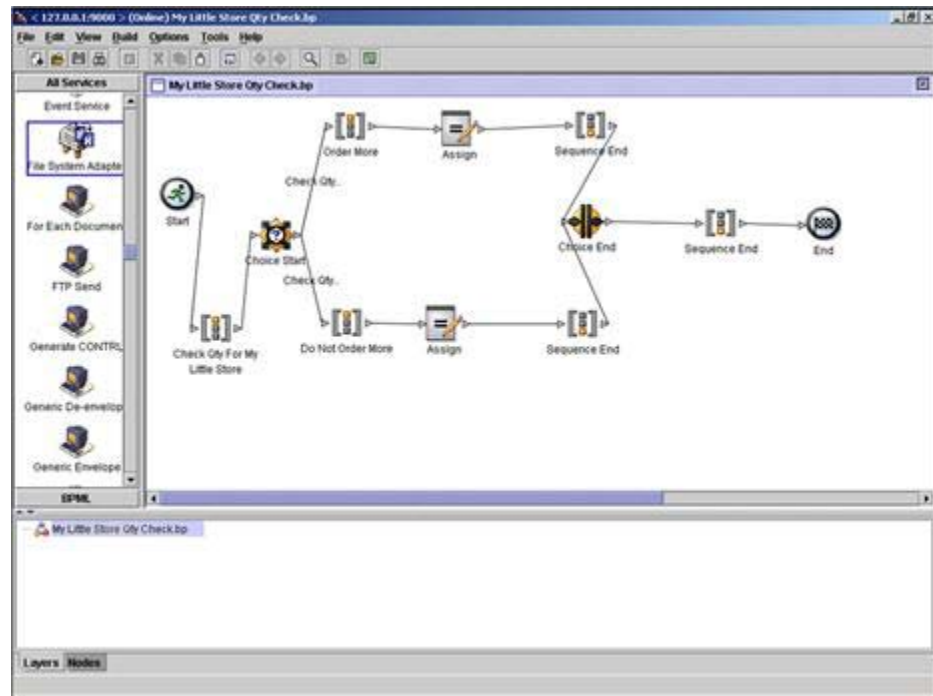
Sequence End (3)

(Continued on next page)

Invoke Business Process Service Per Customer (Continued)

Overview (Continued)

The following figure is an example of the process:



(Continued on next page)

Invoke Business Process Service Per Customer (Continued)

Step 1 for Customer Process

You can invoke business process per customer by following the steps that are listed:

1. Drag and connect your Stencils.
2. Changing the name of the 3 sequence starts.
 - a. Double-click the first sequence start and type in “Check QTY for My Little Store” in the value column.
 - b. Double-click the top sequence start and type in “Order More” under the value column.
 - c. Double-click the bottom sequence start and type in “Do Not Order More” under the value column.
3. Click **Tools > Rules Manager**. Click **Add** to bring up the Rule Editor. Populate the name box with “**Check QTY**”. In the expression box, type the following Xpath string:

```
sum(INVENTORY/PRODUCT/QTY) > 10
```
4. Click **Add** to open the name and value columns in the top Edge Editor. Select “**Check QTY**” for the name and **not true** under the value column.

(Continued on next page)

Invoke Business Process Service Per Customer (Continued)

Step 1 for Customer Process (Continued)

5. Click the **Assign** activity in Order More sequence and following information.

Name	Value
Constant	Order More Items
To	Results

6. Click **Add** to open the name and value columns in the bottom Edge Editor. Select "**Check QTY**" for the name and **true** under the value column.
7. Click the **Assign** activity in Do Not Order More sequence and following information.

This creates TAG in the output file: <results> Do not order more items</results>.

Name	Value
Constant	Do Not Order More Items
To	Results

8. Save as LittleStore.BP, validate and check in the business process.

(Continued on next page)

Invoke Business Process Service Per Customer (Continued)

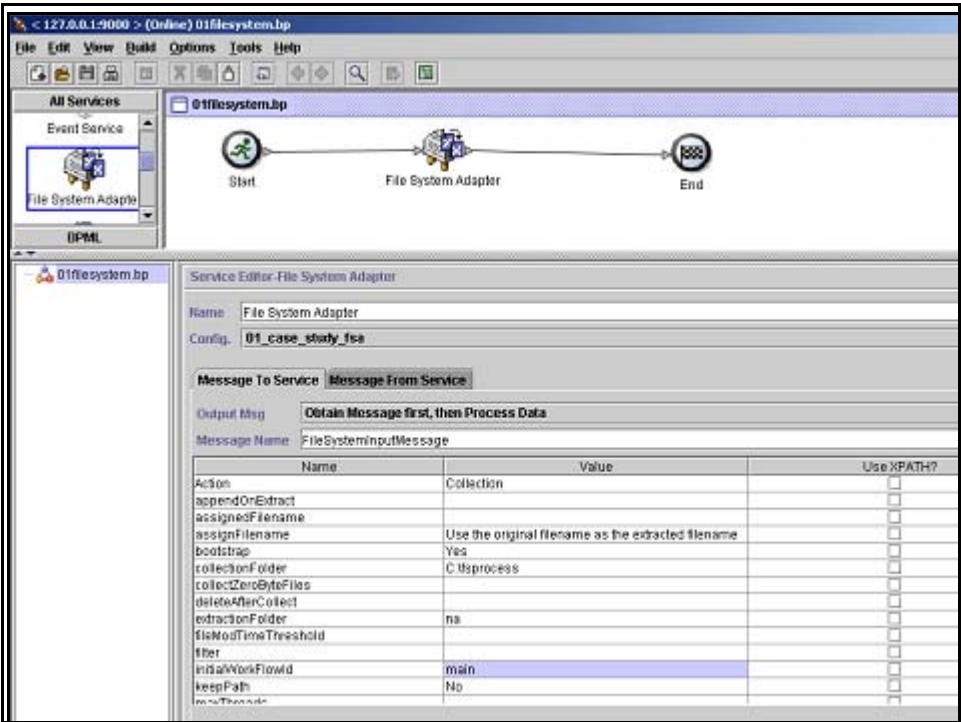
Step 1 for Customer Process (Continued)

Perform a **Save As** to create a second business process for “The Other Guy”. Remember that the Check QTY is different for this customer, (20) and the starting sequence should be named “Check QTY for The Other Guy”.

1. Save as **OtherGuy.BP**, validate, and check in the business process.
 2. Now the Main Process.
-

The File System Adapter Process

- Overview
- This process picks up the files from /home/student/fsprocess and then starts the Main business process. In this process, the following stencils are required:
- Start (1)
- End (1)
- File System Adapter (1)
- The following figure depicts an example process.



(Continued on next page)

The File System Adapter Process

(Continued)

Overview (Continued)

3. Drag and connect your Stencils.
 4. Open the Service Editor for the File System Adapter Service.
 - a. Action = Collection
 - b. Assign Filename = Use the original filename.
 - c. Bootstrap = Yes
 - d. CollectionFolder = /home/student/fsprocess
 - e. DeleteAfterCollect = Yes
 - f. InitialWorkFlowid = main.bp
 - g. FileModTimeThreshold = 0
 5. Save as **KICKOFF.BP**, validate and check in the business process.
-

The Command Line 2 Adapter Process

Overview

This process starts the business flow by calling a script that is called, copytest.sh. This script is set to look for files in /home/student/home/student//fscoll with a name of inventoryof3a.xml. After picking up the files, the script will make two copies of the file, depositing one file in /home/student/fsachive and the other in /home/student/fsprocess and then starting the File System Adaptor business process. (the previous process)

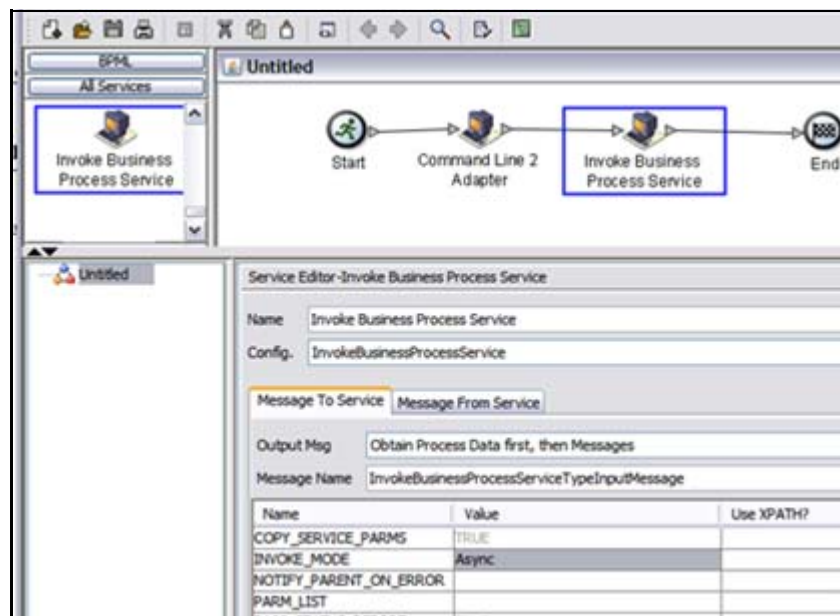
In this process, the following stencils are required:

Start (1)

End (1)

Command Line 2 Adapter (1)

The following figure depicts an example process.



(Continued on next page)

The Command Line 2 Adapter Process (Continued)

Overview (Continued)

1. Drag and connect your Stencils.
2. Open the Service Editor for the Command Line 2 Adapter Service.
 - a. Bootstrap = No
 - b. CmdLine = /home/student/copytest.sh
 - c. WorkingDirectory = /home/student.
 - d. InputDelete = true
 - e. OutputDelete = No
 - f. WaitOnProcess = Yes
3. Add an Invoke Business Process stencil between the command line 2 Adapter and the end stencil. Set the following parameters.
 - a. WFD_NAME = KICKOFF.bp (the bp from the previous step)
 - b. INVOKE_MODE = Asynchronous
4. Save as START.bp, validate, and check in the business process.

You can modify existing Service Configurations, or create new Service Configurations for use in this case study.
5. Locate the data files in the Case Study Labfiles folder under the 915 Fundamentals Folder and copy/paste all of the MLS and TOG files into the collection folder (/home/student/fscoll).

When you cause START to run manually, copytest.sh copies the XML files to the fsarchive directory and the fsprocess directory; then it uses the Invoke Business Process to start Kickoff. Kickoff pulls in the files from fsprocess and starts the Main Business Process.

(Continued on next page)

Lesson Review

Completed Objectives

This lesson was designed to help you to:

- Analyze a business problem
 - Create a business process to solve the business problem
-

Sterling B2B Integrator Mapping

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Background

Introduction

This lesson provides you with an overview of Sterling B2B Integrator Map Editor, WebSphere Transformation Extender, and the XML Encoder Object Map Function.

Lesson objectives

This lesson is designed to help you to:

- Acquire a basic understanding of the Map Editor
 - Download and Install the Map Editor
 - Understand the XML Encoder Object Map Function
 - Use WebSphere Transformation Extender maps in Sterling B2B Integrator
-

The Sterling B2B Integrator Map Editor

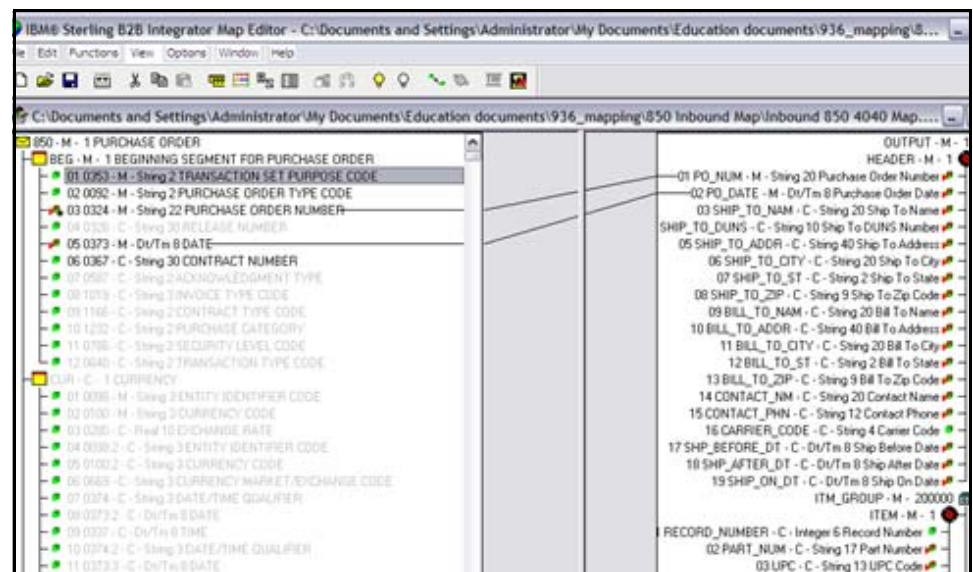
Mapping Overview

To translate data from one format to another, you must specify how the data in one format relates to data in another format. To relate one format to another for the translator, you must define a set of instructions in the Map Editor. These instructions indicate the relationship between the two formats.

Sterling B2B Integrator Map Editor Overview

The Map Editor is a stand-alone Windows program that you download from Sterling B2B Integrator. The Map Editor allows you to create maps (.mxl) and compile them into either translation objects (.txo.) or XML encoder objects (.ltx). After the creation and compilation of maps, check them in to the Sterling B2B Integrator.

The following figure is the Sterling B2B Integrator Map Editor. It is used to represent the translation of one type of input data to a different type of output data.



(Continued on next page)

The Sterling B2B Integrator Map Editor (Continued)

Map File Types

While working with the Sterling B2B Integrator Map Editor you will encounter different save types for source maps and different save types for compiled translation maps. Both source and compiled map files are checked in to Sterling B2B Integrator. The source map as a library function for other developers and a compiled map that is executed at run-time.

Source Maps

Source maps are editable copies of your map that you work on while building your maps. There are two types of source maps:

- **.map** - This is a map file extension type that was common in Sterling Gentran.
- **.mxl** - This is an XML based map save file. It is not limited to xml type data and can be used with any data type such as flat files or EDI.

Note: There is no performance difference between either save format, and no difference while working with either type in the map editor.

Compiled Translation Objects

The translation objects (files with a .txo extension) and XML encoder objects (files with a .ltx extension) are the compiled translation maps. The compiled maps are what is executed by B2Bi at business process execution.

- **.txo** - This is the most common of the translation objects. It is considered the fullweight translation object. Both sides of the map (source and output) must be defined. Use this type of map compilation for data translation from one data type to another. Used with the **Translation Service** and other services.
- **.ltx** - Lightweight translation object. This compiled object can only be use with the **XML Encoder** service. Is designed to add XML tags to a defined source data format for use in a business process's process data. It will not map data to different locations or alter it.

Note: This course will focus on using .ltx maps with the XML Encoder. For full translation (.txo) maps please see the **EDI Mapping & Translation Course**.

(Continued on next page)

The Sterling B2B Integrator Map Editor (Continued)

Navigating the Map Editor

The Map Editor window allows you to navigate in four ways:

- Select the command from the Main Menu bar.
- Click the appropriate button on the Main toolbar.
- Click the appropriate part of the map.
- Right-click a map component to access a menu that contains all the available functions for that map component. The menus allow you to quickly and easily access available functions. The content of the menus varies, depending on the type and level of the selected map component.

When you start the Map Editor, the main menu bar contains a subset of commands. The full set of commands opens after you create a new map or open (load) an existing map.

The following table lists the parts of the Map Editor window:




Part	Function
Main Menu Bar	Contains drop-down menus. Unavailable items are disabled.
Main Toolbar	Allows you to access some of the most common functions in the Map Editor. Unavailable items are disabled. The Main toolbar is dockable, so you can affix it to any edge of the client window.
Status Display	Shows status information about a selection, command, or process; defines commands as you select each item in the menu; indicates any current keyboard-started modes for typing.

(Continued on next page)

The Sterling B2B Integrator Map Editor (Continued)


**EDI Map
Components**

This table describes the map object icons that Sterling B2B Integrator uses to visually represent the EDI map components.

Component	Icon	Description
EDI Root Element		The EDI root element represents the EDI document that Sterling B2B Integrator is mapping. At the EDI file root element, you define delimiters and syntax records. It is a group and can contain groups and segments.
Group		<p>A group is a looping structure that contains related segments and groups that repeat in sequence until either the group data ends, or the maximum number of times that the loop is permitted to repeat is exhausted.</p> <p>The EDI standards define the groups. A group that is subordinate to another group is a subgroup (and corresponds to a nested looping structure, a loop within a loop).</p>
Segment		<p>A segment contains a group of related elements or composite data elements that combine to communicate useful data. The EDI standards define the segments. A segment can occur once or can repeat multiple times.</p> <p>Note: If a segment occurs more than once in a map, it is identified by its name <ID>. The second and subsequent occurrences are identified by <ID>:n, where n is the number of the occurrence in the map.</p>
Continued on next page		


The Sterling B2B Integrator Map Editor (Continued)

EDI Map Components (Continued)

Component	Icon	Description
Composite		<p>A composite is a data element that contains two or more component data elements or sub elements. The EDI standards define the composites that use them (EDIFACT and certain ANSI X12 standards). A composite can occur once or repeat multiple times.</p> <p>Note: If a composite occurs more than once in a map, it is identified by its name <ID>. The second and subsequent occurrences are identified by <ID>:n, where n is the number of the occurrence in the map.</p> <p>A repeating composite is a related group of EDI subelements that have the ability to loop as a whole (occur more than once) within a particular EDI segment. To enable a composite to repeat multiple times within a segment, each occurrence of the composite must be separated by a special delimiters, which are known as the repeating element delimiter.</p>
Continued on next page		

The Sterling B2B Integrator Map Editor (Continued)

EDI Map
Components
(Continued)

Component	Icon	Description
Element		<p>An element is the smallest piece of information that is defined by the EDI standards. An element can have different meanings and it depends on the context. Elements are typically not considered to have useful meaning until they are combined into segments.</p> <p>An element is the EDI map component that corresponds to a field in other data formats.</p> <p>Note: If, an element occurs more than once in a map it is identified by its name <ID>. The second and subsequent occurrences are identified by <ID>:n, where n is the number of the occurrence in the map.</p> <p>A repeating element is an EDI element with the ability to loop (occur more than once) within a particular EDI segment. To enable a single element to repeat multiple times within a segment, each element must be separated by a special delimiter, known as the repeating element delimiter. The use of this delimiter prevents the translator from mistaking the repeating elements for typical elements.</p> <p>When an element has a link or standard rule performed against it, a red check mark appears over the element icon.</p> <p>When an element contains an extended rule or a standard rule, a black asterisk appears to the right of the element icon.</p>

Exercise 9–1 Downloading and Installing the Map Editor

Instructions

You can download and install the Map Editor by following the instructions that are mentioned:

1. Go to **Deployment > Map**.
2. Click **Go!** in the Download and Install section; next to Download Map Editor (EN). The system opens the File Download dialog box.
3. Select **Save**.

Note: **Internet Explorer** will stop you from running the file because it believes it is an unsecured file from the web. So you must save it.

4. IE will present another security warning. Click **View Downloads**.



5. Right click the file download and click **Run Anyways**.
6. Click **Yes** if you see a security warning, asking if you want to install "MapEditorInstall...".
7. Click **Next** in the Map Editor Setup Welcome screen.
8. Click **Next** in the Choose Destination Location screen.
9. Accept the default folder in the Select Program Folder option, and click **Next**.

If you want to specify a different folder:

- a. Type a new name and click **Next**.
- b. In the Existing Folders list, select a folder and click **Next**.

Important!	If you specify a folder name that does not exist, you get a message asking you if you want to create that folder.
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Exercise 9–2 Downloading EDI Standards

Scenario	If you plan to create maps using the EDI format, such as ANSI X12, UN EDIFACT, and Tradacoms, you must install the EDI standards.
-----------------	-----------------------------------------------------------------------------------------------------------------------------------

Instructions	<p>You can follow the steps listed to install the EDI Standards, so that it can be used in the new maps. You can download and install the EDI standards in the following manner.</p> <ol style="list-style-type: none">1. Click Deployment > Standards in Sterling B2B Integrator.2. Click Go! next to Download EDI Standards.3. Click Save.4. Click Run once the installer is downloaded. Accept the default setting and complete the installation of EDI standards.
---------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

XML Encoder Object Mapping Function

Introduction

The XML encoder object is a compiled map that translates positional, variable-length-delimited, CII, SWIFT, and EDI data formats into XML. It has the extension .ltx. To create an XML encoder object, you select Compile XML Encoder from either the input or output side of an EDI or positional file. A .ltx file can not be created from the traditional save functionality like a .txo.

Use the XML Encoder Object Mapping Function (Encode non-XML) with the XML Encoder Service to allow the software to write non-XML data into process data. Once the data is in process data then XPath expressions can be used on it. Because the service can be used to convert non-XML data into XML, it is required to create a map to perform this task. The other XML Encoder modes do not require maps because the Primary Document or Process Data is already in XML.

Exercise 9–3 Create the XML Encoder Object Map

Introduction	This exercise will have you create an XML Encoder translation object (.ltx). It will convert a positional (each piece of data has a specific position) flat file to XML to be used in Process Data.
---------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-
- | | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instructions | <ol style="list-style-type: none">1. Click Start > Programs > Sterling Commerce > Map Editor in the Map Editor.2. Click File -> New in the Map Editor.3. Select Sterling B2B Integrator for type of map.4. Create a new map with the name app2xml and click Next.5. Select Create a new data format using this syntax for input format.6. Click the drop-down arrow and select Positional (VDA, GENCOD, Application files etc).7. Select Create a new data format using this syntax for output format.8. Click the drop-down arrow and select XML (Extensible Markup Language).9. Click Finish. |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

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Exercise 9–3 Create the XML Encoder Object Map (Continued)

Instructions (Continued)

10. Place the cursor on **INPUT** on the source side of the map, right-click, and select **Create Sub > Record**. The **Positional Record Properties** window is displayed.
11. Type the following responses at the prompts on the Name and Tag tabs on the Positional Record Properties page, and select **OK**.
 - a. name: Header
 - b. Tag: NAM
12. Place the cursor on **Header**, right-click, and select **Insert > Record**. The **Positional Record Properties** window is displayed.
13. Type the following responses at the prompts on the Name and Tag tabs on the Positional Record Properties page, and select **OK**.
 - a. name: Address
 - b. Tag: ADR
14. Place the cursor on **Header**, right-click, and select **Edit Fields**.

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

**Instructions
(Continued)**

15. Click **New**. Use the following table to populate the corresponding Field Details.
- Click **New** to start each new row.
 - Select **Auto Position** before exiting this screen.
 - Click **Close** to exit the screen.

Name	Data Type	Max Length
Space	String	1
Widget	String	20

16. Place the cursor on **Address**, right-click, and select **Edit Fields**.
17. Click **New**. Use the following table to populate the corresponding Field Details.
- Click **New** to start each new row.
 - Select **Auto Position** before exiting this screen.
 - Click **Close** to exit the screen.

Name	Data Type	Max Length
Space:2	String	1
Location	String	20

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

**Instructions
(Continued)**

18. Place the cursor on **Address**, right-click, and select **Insert > Group**.
19. Type the following responses at the prompts on the Name and Looping tabs, and click **OK**:
 - a. name: Line_Grp
 - b. Maximum Usage: 3
20. Place the cursor on **Line_Grp**, right-click, and select **Create Sub > Record**.
21. Type the following responses at the prompts on the Name and Tag tabs, and click **OK**.
 - a. name: Line_Items
 - b. Tag: LI
22. Place the cursor on **Line_Items**, right click, and select **Edit Fields**.
23. Click **New**. Use the following table to populate the corresponding Field Details.
 - a. Click **New** to start each new row.
 - b. Select **Auto Position** before exiting this screen.
 - c. Click **Close** to exit the screen.

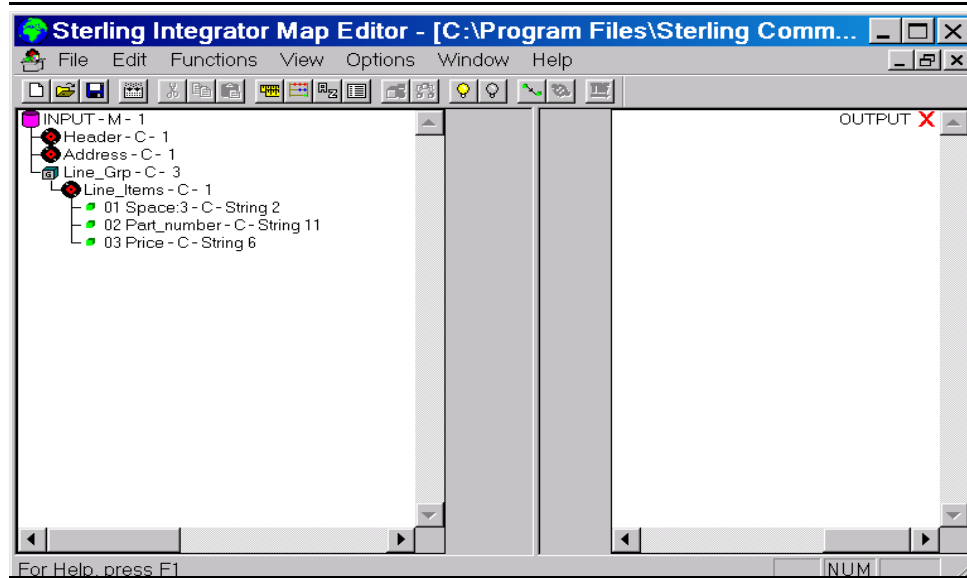
Name	Data Type	Max Length
Space:3	String	2
Part_number	String	11
Price	String	6

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

Instructions (Continued)

24. You should be able to view the map as shown in the following figure.



25. Save the map by selecting **File > Save**.

26. Click **Yes** if it is asked whether you want to increment the version of the map.

27. Compile the map by putting the cursor on the INPUT icon and right clicking. Select **Compile XML Encoder Object...**, and then click **Save** and using the **app2xml** name.

Note: For future save the files in the same location as this will make check in easier. The check in instructions on next page assumes you used the default folders of Source and Compiled in the map editors installation directory.

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

Check in the Map

You can use the following procedure to check in the map.

1. Select **Deployment > Maps** from the Administration UI.
2. Select **Check in new Map** from Map Editor.
3. Locate the map file, and click **Open**.

C:\Program Files\Sterling Commerce\Map Editor\Source Maps

4. Locate the compiled map filename and click **Open**.

C:\Program Files\Sterling Commerce\Map Editor\Compiled Maps\app2xml.ltx

5. Type **app2xml** example for Check-in Comments.
6. Select **Next**.
7. Select **Finish**.

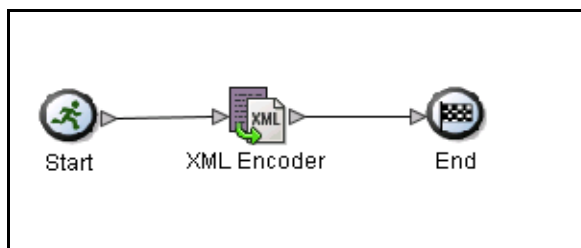
(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

Create a Business Process

Use the following procedure to create a business process.

1. Open the Graphical Process Modeler (GPM). If it is already open, click **View > Refresh Services**.
2. Click **File > New**.
3. Drag **Start**, **End**, and **XML Encoder Service** stencils into the work area. Connect them as shown below.



4. Open the Service editor for the XML Encoder Service and choose XMLEncoder for the configuration.
5. Enter the parameters from the following table for this service.

Name	Value
output_to_Process_data	Yes
map_name	app2xml
mode	Encode non-XML document

6. Click **File > Save** and save the business process as app2xml. If you are asked to validate on save, click **Ok** to do so.

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

Check in and Test the Business Process

You can check in and test the business process by following the steps that are listed:

1. Open the admin console and choose **Business Process > Manager**.
2. Click **Go!** next to Create Process Definition.
3. Name the process **app2xml**.
 - a. Make sure the radio button titled **Check in Business Process created by the graphical modeling tool** is selected.
 - b. Click **Next**.
4. Click **Browse** and go to your saved business process. Select it and click **Open**.
5. Give it an appropriate description and click **Next**.
6. Use the default settings for the remaining parameters. Make sure that the business process is enabled when you click **Finish**.

(Continued on next page)

Exercise 9–3 Create the XML Encoder Object Map (Continued)

Manually run the Business Process

You can follow these steps to run a business process manually.

1. Click **Business Process > Manager**.
2. Type **app2xml** in the Search text box and click **Go!**
3. Click the **Execution Manager** icon for app2xml.
4. Click the **execute** icon.
5. Click **Browse** and go to **Class Labfiles** folder to locate the test data.
6. Locate the file **file1.txt**, and click **Open**.
7. Click **Go!**
8. Observe the separate Execute Business Process window while the business process runs.
9. Click the **Status Report** icon for the app2xml after the process has run. Review the report.
10. View **Process Data** to verify your data is present.
11. Close the **Execute Business Process** window.
- 12.
13. Click **Return**.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data

Scenario When, receiving 850 purchase orders from the trading partners it is necessary to check to see whether a drop ship notification is received. Drop ship notification causes a problem for the ERP system because the trading partners insert 999999 into the N104 element and not their ship to customer id value. The ERP system cannot complete the shipping information without a manual entry into the order entry system by the customer service team. The customer service rep needs to ship information from segments N1, N3, and N4. This exercise shows how to convert EDI data into XML data and then XPath to make decision that is based on the N101 and N104 element.

Important!	The EDI standards needs to be downloaded/installed before starting this exercise. If downloaded previously ignore.
-------------------	--------------------------------------------------------------------------------------------------------------------

Create a New Map

You can create a new map by following the steps that are listed:

1. Open the map editor, Click **Start > Programs > Sterling Commerce Map Editor** and then select **File > New**.
2. Select **Sterling B2B Integrator** as the type of map.
3. Create a new map with the name **edi2xml**, and click **Next**.
4. Select the **Create a new data format using this syntax** in the Input Format page.
5. Select the input format as **Delimited EDI (ANSI X12, UN EDIFACT, Tradacoms, etc)**
6. Select **Customize**.
7. Select **Next**.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function

Converting EDI Data Into Process Data (Continued)

Create a New Map
(Continued)

- 8. Select **EDI** and click **Next**.
- 9. Select **[X] X12** for standards agency.
- 10. Select **[003040]** for which version do you want to use.
- 11. Select **[850] PURCHASE ORDER** for the transaction set.
- 12. Select **Next**.
- 13. Select **Finish**.
- 14. Select **Next**.
- 15. Select the **Create a new data format using this syntax** in the Output Format page.
- 16. Select **XML (Extensible Markup Language)** for the output format.
- 17. Select **Next** and then **Finish**.
- 18. Activate all the segments and elements that are matching the input file of **850dropship.txt** found in **Class Labfiles** folder.

Important!	Using the information in the table work your way down the left side. You will never scroll back up to activate. Using Edit/Find can make this task easier. Be aware that many segments elements can repeat. Double click a segment to expand.
-------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a New Map (Continued)

Segment	Elements
BEG	01, 02, 03, 05
DTM	01, 02
TD5	02, 03
N1	01, 02, 03, 04
N3	01
N4	01, 02, 03, 04
PER-2	01, 02, 03, 04
PO1	01, 02, 03, 04, 05, 06, 07, 08, 09
PID-2	01, 05
REF-3	01, 02
SAC-2	01, 02, 05, 12
SDQ	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
CTT	01, 02

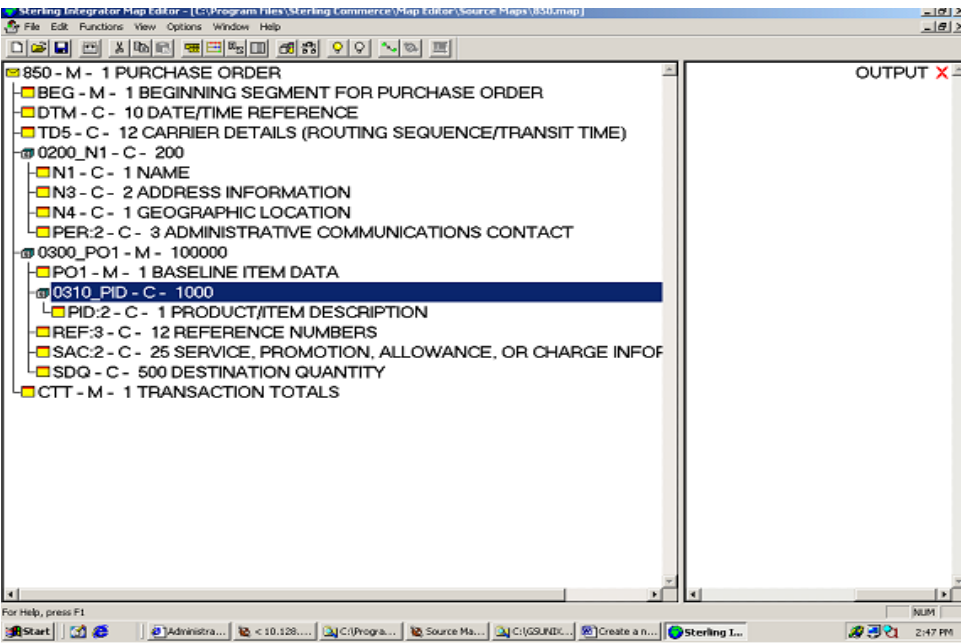
19. Click View, Show Active Only.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a New Map
(Continued)

After completion, the EDI layout should match the following diagram:



Important!	Diagram reflects only the active segments.
-------------------	--------------------------------------------

(Continued on next page)

XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a New Map (Continued)

Set the delimiters to match the data:

Delimiters are used in EDI data to separate one piece of data from another. If you look at the class lab file's 850Normal and 850Dropship EDI files you will see a * will separate all the different elements and a ~ will signify when a segment is done. By setting the delimiters in your map (can also be done in the XML Encoder Configuration) the encoder will be able to identify the different elements and put them in their own tags. Otherwise tags will be used for the whole segments and it may impact the XPath in your business process rule.

1. Right click at the top of the left side of the map, on 850.
2. From the menu, choose Properties.
3. Click the Delimiters tab.
4. Click the check box to Specify Defaults
5. In the Element Delimiter box, type "*" (no quotes).
6. In the Segment Delimiter box, type "~" (no quotes).
7. Click OK.

Save and Compile the Map

8. Save the map by selecting **File > Save**.

Compile the map by putting the cursor on **850 - M - 1 PURCHASE ORDER** envelope icon and right-clicking. Select **Compile XML Encoder Object...**, and click **Save**.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Check in the Map

You can follow these steps to check in the map.

1. Select **Deployment > Maps** from the Administration UI.
2. Select **Check in new Map** for the Map Editor.
3. Locate the map file and click **Open**.
4. C:\Program Files\Sterling Commerce\Map Editor\Source Maps\edi2xml.mxl
5. Locate the compiled map filename and click **Open**.
6. C:\Program Files\Sterling Commerce\Map Editor\Compile Maps\edi2xml.ltx
7. Type “**Edi2xml example**” for Check-in Comments.
8. Select **Next**.
9. Select **Finish**.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a Business Process

You can follow these steps to create a business process.

1. Open the **Graphical Process Modeler (GPM)**.
2. Click **View > Refresh Services**.
3. Create a business process comprised of:
 - Start (1)
 - End (1)
 - Sequence Start (3)
 - Sequence End (3)
 - File System Adapter (1)
 - Choice Start (1)
 - Choice End (1)
 - Assign (2)
 - XML Encoder (2)

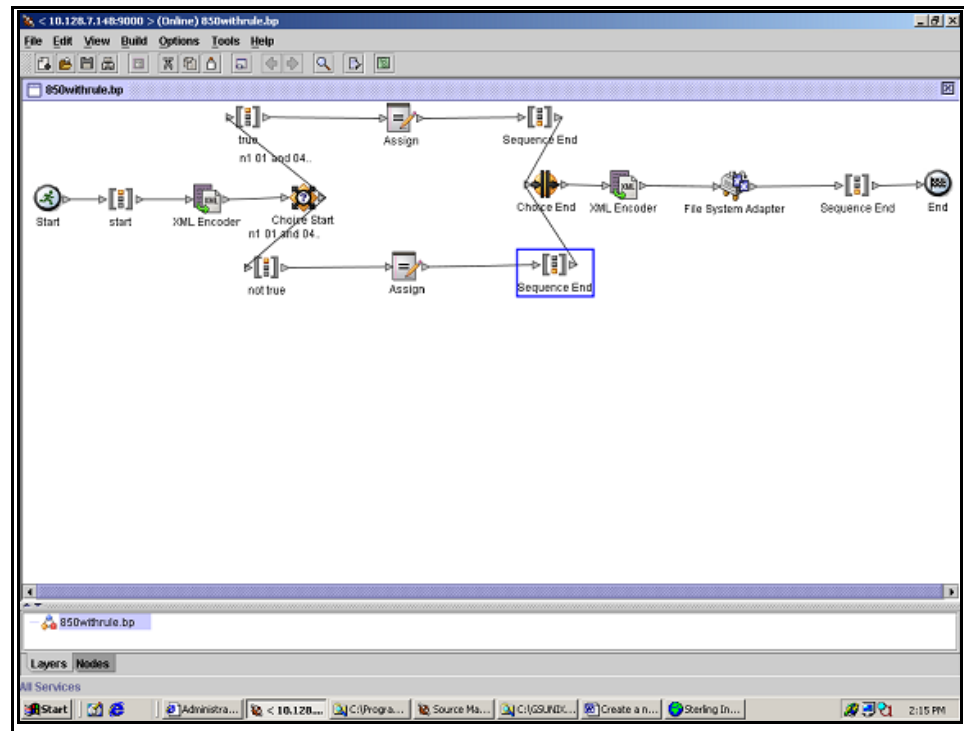
Important!	These exercises will have you make changes to service configurations in the GPM. Make sure to check Override Service Configuration under Options -> Preferences -> Service Editor. Please note that when overriding service configurations the overrides will only affect the bp where they are made. They will not globally affect other bp's that use that configuration.
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(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a Business Process (Continued)

4. Arrange and connect the services as shown below.



(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

Create a Business Process (Continued)

5. Change the name of the 3 sequence starts.
 - a. Double-click the **first sequence start** and type in “**start**” under the value column.
 - b. Double-click the **top sequence start** and type in “**true**” under the value column.
 - c. Double-click the **bottom sequence start** and type in “**not true**” under the value column.
6. Click the first XML Encoder and configure as follows.
 - a. Config select, XML Encoder.

Name	Value
exhaust_input	Yes
map_name	edi2xml .
Mode	Encode non-XML document
Output_to_process_data	Yes

7. Navigate to **Tools > Rule Manager > Add**, name the rule as **Drop Ship Notification**.

(Continued on next page)

Exercise 9–4 XML Encoder Object Mapping Function

Converting EDI Data Into Process Data (Continued)

Create a Business
Process
(Continued)

8. following for expression:
- ```
//N1/_0098[contains(text(),"ST")] and
//N1/_0067[contains(text(),"999999")]
```
- a. Click **Ok twice**, this will save the rule and close the window.
9. Click **Add** to display the name and value columns in the top Edge Editor.  
Select **"Drop Ship Notification"** for the name and true under the value column.
10. Click **Add** to display the name and value columns in the bottom Edge Editor.  
Select **"Drop Ship Notification"** for the name and not true under the value column.
11. Click the **top assign** and enter:

| Name     | Value                  |
|----------|------------------------|
| Constant | Drop Ship Notification |
| To       | Results                |

|                   |                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | In a real situation, you would replace this service with the SMTP send adapter so that the customer service team could be notified. |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|

(Continued on next page)

## Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

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### Create a Business Process (Continued)

12. Click the **bottom assign** and enter:

| Name     | Value        |
|----------|--------------|
| Constant | Normal Order |
| To       | Results      |

13. Click the **second XML Encoder** and configure as follows.

a. Config select XML Encoder

| Name                   | Value                       |
|------------------------|-----------------------------|
| exhaust_input          | Yes                         |
| Mode                   | Create document using Xpath |
| Root_element           | movingprocessdatahere       |
| XPath                  | //ProcessData/*             |
| output_to_process_data | Yes                         |

---

(Continued on next page)



## Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

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### Create a Business Process (Continued)

- 
14. Click the **File System Adapter Service** and configure as follows.

| Name             | Value                        |                |
|------------------|------------------------------|----------------|
| Action           | Extraction                   |                |
| ExtractionFolder | /home/student/fsext          |                |
| AssignedFilename | //ProcessData/Results/text() | Use Xpath? Yes |

15. Save and validate the business process (troubleshoot any error's that appear). Name the business process **EDI2XML.bp**.

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(Continued on next page)

## Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

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### Check in and Test the Business Process

---

You can follow these steps to check in and test the business process.

1. Open the Admin console and choose **Business Process > Manager**.
2. Click **Go!** next to Create Process Definition.
3. Enter **edi2xml** for the process name.
  - a. Select the **Check in Business Process created by the Graphical modeling tool** radio button.
  - b. Click **Next**.
4. Click **Browse** and navigate to your saved business process. Select it and click **Open**.
5. Type “**Converting EDI2XML**” and click **Next**.
6. Use the default settings for the remaining parameters. Make sure the Business Process is enabled when you click **Finish**.

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(Continued on next page)

## Exercise 9–4 XML Encoder Object Mapping Function Converting EDI Data Into Process Data (Continued)

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### Run the Business Process Two Different Times

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You can follow these steps to run the business process at two different times.

1. Search for your new business process from the Business Process Manager screen.
2. Click **Execution Manager** when you get the results screen.
3. Choose **execute** in the execution manager screen.
4. Click **Browse** and navigate to **Class Labfiles** folder to locate the test data.
5. Locate the file **850dropship.txt** and click **Open**.
6. Click **Go!**
7. The process data and filename should reflect “**Drop Ship Notification**”

### Rerun the Business Process using a Different Input File

---

You can follow these steps to re-run a business process using a different input file.

1. Search for your new business process from the Business Process Manager screen.
  2. Click **Execution Manager** when you get the results screen.
  3. Choose **execute** in the execution manager screen.
  4. Click **Browse** and go to **Class Labfiles** folder to locate the test data.
  5. Locate the file **850normal.txt** and click **Open**.
  6. Click **Go!**
  7. The process data and file name should reflect “**Normal Order**”.
-

## WebSphere Transformation Extender Function

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### Introduction

WebSphere Transformation Extender (WTX) is a separate translation software application. It is part of IBM's Advanced ITX solution along with B2B Integrator.

WebSphere Transformation Extender is a powerful, transaction-oriented, data integration solution that automates the transformation of high-volume, complex transactions without the need for hard coding. This provides enterprises with a quick return on investment. This product supports EDI, XML, SWIFT, HIPAA standards that are based on B2B integration, as well as the real-time integration of data from multiple applications, databases, messaging middleware, and communications technologies across the enterprise.

WTX maps are designed to be built and then deployed throughout your enterprise and are compatible with different IBM solutions. IBM Sterling B2B Integrator is one of the solutions WTX maps are compatible with.

---

### WTX for Sterling B2B Integrator

WebSphere Transformation Extender for Sterling B2B Integrator combines the business process management features of Sterling B2B Integrator with the universal transformation capability of WebSphere Transformation Extender. This integration provides new options for solving B2B and Application-to-Application (A2A) integration problems.

The integration of WebSphere Transformation Extender with Sterling B2B Integrator provides the following capabilities.

- Trading partner management
- Enveloping and de-enveloping or bulking and de-bulking
- Document management and archive
- Automated acknowledgment generation
- Reporting
- Managed file transfer with Sterling File Gateway

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(Continued on next page)

## WebSphere Transformation Extender Function (Continued)

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### WTX Basics

WebSphere Transformation Extender performs transformation and routing of data from source systems to target systems in batch and real-time environments. The sources may include files, relational databases, Message-Oriented Middleware (MOM), packaged applications, or other external sources. After retrieving the data from its sources, the WebSphere Transformation Extender product transforms it and routes it to any number of targets where it is needed, providing the appropriate content and format for each target system.

WebSphere Transformation Extender includes a transformation engine, a graphical map editor, industry packs that provide pre-defined support for multiple document standards, and a range of technology adapters.

---

### WTX Map Service

In order for WTX maps to operate in Sterling B2B Integrator the WTX map service needs to be added. The WTX map service can be found with installations of WTX 8.4 or later. You need to have a licensed installation of WTX in order to have access to the service.

---

## Quiz

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- |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Questions</b> | <hr/> <ol style="list-style-type: none"><li>1. Where do you define delimiters in EDI Map?<ol style="list-style-type: none"><li>a. Root Element</li><li>b. Group</li><li>c. Segment</li><li>d. Element</li></ol></li><li>2. Why is the delimiter setting optional for an XML Encoder map that uses EDI Input?</li><li>3. What is the default extension for a map in the Map Editor?<ol style="list-style-type: none"><li>a. .mxl</li><li>b. .txo</li><li>c. .txl</li><li>d. .lnx</li></ol></li></ol> <hr/> |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Lesson Review

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### Completed Objectives

This lesson was designed to help you to:

- Acquire a basic understanding of the Map Editor
  - Download and Install the Map Editor
  - Understand the XML Encoder Object Map Function
  - Use WTX maps in Sterling B2B Integrator
-







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# 10

## *Typing Map*

### Contents

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## Background

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### Introduction

This lesson explains how to create and check in a typing map to pass values in Process Data to Sterling B2B Integrator to translate documents.

---

### Lesson objectives

This lesson is designed to help you to:

- State the purpose of the typing map and the typing Service
  - Create a typing map
-

## Typing Map

---

### Overview

A business process is capable of handling more than one input format. A typing (Type of Data) map for Sterling B2B Integrator can be used to identify the data and process it correctly.

A typing map can also place specific values from the input file into Process Data. It works with the Typing Service to load these values into the business process context. The Typing Service can be used with a **list** of typing maps. The service will work through the different maps till it finds a match in the limited data set used in the typing map.

The typing map specifies certain values on the input side that are to be placed into Process Data. The output side of the typing map defines only the elements that are created in Process Data. You define the output side of the map as XML. The element names you list will be the tag names in Process Data, while the data that passes from the input side via simple links will be the content of those elements. Commonly these values are used to locate document envelopes for EDI but can be used for other business processing needs.

The values that you pass into Process Data can also be hard-coded, if appropriate. You can do this using either standard or extended rules.

---

## Exercise 10–1 Creating a Typing Map

---

**Instructions**

You can create a typing map by following the steps that are listed:

1. Select **File > New**.
2. Complete the fields listed in the following table in the New Map Wizard dialog box, using the parameters given:

| Field                              | Parameter                                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------------------|
| What kind of map are you creating? | Sterling B2B Integrator                                                                           |
| What is the name of the map?       | Typing_Test<br><b>Note:</b> The name can have no spaces. The service map list is space delimited. |
| What is your name?                 | Type your name if it differs from the user name that is prompted by the system                    |

3. Click **Next**.
4. Select **Create new data format using this syntax** (bottom drop-down box) in the New Map Wizard – Input format dialog box.
5. Select **XML**.

---

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## Exercise 10–1 Creating a Typing Map (Continued)

---

### Instructions (Continued)

6. Click **Customize**.
7. Select **schema** in the New XML Wizard dialog box for the Customization File Type section.
8. Click **Browse** and go to C:\Data Files\Class Labfiles\Invoice.xsd.
9. Click **Next**.
10. Select **INVOICE** from the Root Element list.
11. Click **Next**.
12. Verify that all the elements are selected in the **Choose sub-elements to be included in the map** dialog box, and click **Next**.
13. Click **Finish**.
14. Click **Next**.
15. Select **Create new data format using this syntax** (bottom drop-down box) in the New Map Wizard – Output format dialog box.
16. Select **XML** (Extensible Markup Language).
17. Click **Next**.
18. Click **Finish**. The Map Editor displays the new map.
19. Select **File > Save As** to save the map.
20. Name the map **Typing\_Test.xml**.

---

(Continued on next page)

## Exercise 10–2 Create Output Side of Typing Map

---

**Instructions** You can create the output side of the typing map in the following manner.

1. Right-click **OUTPUT** and select **Create Sub > Content Particle**.
2. Name the content particle **part**.
3. Click the **Type** tab, and select **Sequence**.
4. Click **OK**.
5. Right-click **part** and select **Create Sub > Element**.
6. Name the element **partnerinfo**.
7. Click **OK**.
8. Right-click **partnerinfo** and select **Create Sub > Content Particle**.
9. Name the content particle **part2**.
10. Click the **Type** tab and select **Sequence**.
11. Right-click **part2** and select **Create Sub > Element**.
12. Name the element **SENDER**.
13. Right-click **SENDER** and select **Insert > Element**.
14. Name the element **RECEIVER**.
15. Right-click **RECEIVER** and select **Insert > Element**.
16. Name the element **ALIAS**.
17. Right-click **SENDER** and select **Create Sub > PCDATA**.
18. Set the maximum length to **256**.

---

(Continued on next page)

## Exercise 10–2 Create Output Side of Typing Map(Continued)

---

**Instructions  
(Continued)**


- 
19. Right-click **RECEIVER** and select **Create Sub > Pcddata**.
  20. Set the maximum length to **256**.
  21. Right-click **ALIAS** and select **Create Sub > Pcddata**.
  22. Set the maximum length to **256**.
  23. Click **Save**.
-



# Exercise 10–3 Creating Simple Links

---

**Instructions** In the following exercise, link the Pcddata for the Content Particle, Particle\_2 on the input side with the XML elements on the output side of the map. To link input elements to output elements, follow the steps that are listed.

- 1. Click **View > Expand Entire Map** on the menu bar.
- 2. Click the **Toggle Link Mode** icon .
- 3. Select the input side particle and drag and click the output side element to which it needs to be linked.
- 4. Create the simple links between the following EDI elements to the XML Elements:

| Input Side<br>Content Particle > XML Element > Pcddata | Link to Output Side<br>XML Element > Composite |
|--------------------------------------------------------|------------------------------------------------|
| Particle_2 > Partner > C - String 256                  | SENDER > C -String 256                         |
| Particle_2 > Partner > C - String 256                  | RECEIVER > C -String 256                       |
| Particle_2 > Transaction > C - String 256              | ALIAS > C -String 256                          |


- 5. Click **Save**.
-

## Exercise 10–4 Creating the Extended Rule

---

### Instructions

You can create the extended rule in the following manner.

1. Right-click under SENDER, Pcddata, and select **Extended Rule**.
2. Type the extended rule: **SENDER = "PETBLING";**
3. Compile and click **OK**.
4. Save and click the **Compile** icon  to compile your map.

## Exercise 10–5 Checking in the Typing\_Test Map

---

### Instructions

In this exercise, check in the Typing map to make it available to Sterling B2B Integrator. You can check in the Typing.map in the following manner.

1. In the Map Editor save, compile, and save your map again.
2. Click **Deployment > Maps** in Sterling B2B Integrator.
3. Click **Go!** in the Check in section.
4. To check in a source map (.map/.mxl):
  - Click **Browse** (next to the Map filename (.map or .mxl) field).
  - Locate **Typing\_Test.mxl**.
  - Click **Open**.
5. To check in a compiled map (.txo) at the same time you are checking in the source map:
  - Click **Browse** (next to the Compiled Map filename (.txo or .ltx) field).
  - Locate **Typing\_Test.txo**.
  - Click **Open**.
6. Type **Typing map for class** in the Check in comments field and click **Next**. The Confirm window appears.
7. Select **Enable for Business Processes**. This field is mandatory.
8. Click **Finish** to apply your changes. The Sterling B2B Integrator displays the message: Update completed successfully. **Note:** Keep track of the name you used for your map. Since this service uses multiple maps you have to type in the name.

---

(Continued on next page)

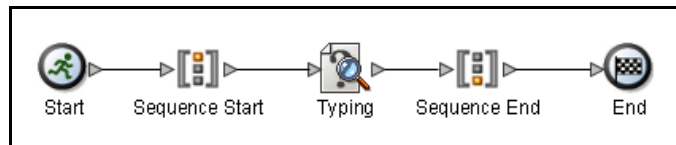
## Exercise 10–5 Checking in the Typing\_Test Map(Continued)

---

### Create a Business Process

You can create a business process in the following manner.

1. Open the GPM. If it is already Open, click **View > Refresh Services**.
2. Click **File> New**.
3. Drag a **Start**, **End**, a **Sequence Start**, **Sequence End**, and a **Typing Service** into the workspace and connect them as shown.



4. Double-click the **Typing Service** to open its properties editor.
5. Choose **TypingService** from the config drop-down box.
6. Specify the following values in the Properties editor:
  - required\_parmlist: SENDER RECEIVER ALIAS
  - Typing\_Maplist: Typing\_Test
  - Validate\_Input\_Against\_DTD: No Validation
7. Save as **Typing\_Test** and validate.

---

(Continued on next page)

## Exercise 10–5 Checking in the Typing\_Test Map(Continued)

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### Check in and Test the Business Process

You can check in and test the business process in the following manner.

1. Open the admin console and choose **Business Process > Manager**.
2. Click **Go!** next to Create Process Definition.
3. Name the process **Typing\_Test**.
  - Make sure that the **Check-in Business Process created by the graphical modeling tool** radio button is selected.
  - Click **Next**.
4. Click **Browse** and go to your saved business process. Select it and click **Open**.
5. Give an appropriate description. Click **Next**.
6. Use the default settings for the remaining parameters. Make sure that the Business Process is enabled when you click **Finish**.
7. Search for your new business process from the Business Process Manager screen.
8. Click **Execution Manager** when you get the results screen.
9. Choose **execute** in the execution manager screen.
10. Click **Browse** and choose the **Outbound XML Invoice Data.xml**.
11. Click **Go!**
12. Monitor the progress of the business process.

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(Continued on next page)

## Lesson Review

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### Completed Objectives

This lesson was designed to help you to:

- State the purpose of the typing map and the Typing Service
  - Create a typing map
-



## *Tracking System Health*

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## Background

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### Introduction

This lesson explains how to locate and correct potential problems in a business process. For instances that stopped running, you must troubleshoot the instance to identify the cause, reconcile the issue or error, and determine whether to restart, resume, or terminate the instance.

---

### Lesson objectives

This lesson is designed to help you to:

- Troubleshoot and reconcile business processes
  - Archive business process data
  - Restore business process data archived offline
  - Manage Resources
  - Delete a Business Process
-

## Troubleshoot and Reconcile Business Processes

---

### Overview

Sterling B2B Integrator has a built-in system recovery business process that runs automatically every 45 minutes. The recovery business process monitors active business process instances and allows Sterling B2B Integrator to report any issues that occur: for example, a system or service associated with an instance shuts down or a compliance error results while an instance that implements standards is running.

When the recovery business process identifies issues or errors while an instance is running, Sterling B2B Integrator halts the instance, indicates an advance status message of error and a status message of interrupted, and generates reports, as appropriate.

When troubleshooting an instance that indicates a status error, remember that:

- The terminated activity and state activity override all other activities and states.
- When an instance is terminated, all subprocesses and any subprocesses waiting to be processed in the instance terminate.

Used in combination, the status indicator, advanced status and state messages, and reports can help to determine:

- Issues that result while an instance is running
- Errors or warnings that prevent an instance from running
- Actions to complete to reconcile errors or warnings


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(Continued on next page)

## Troubleshoot and Reconcile Business Processes(Continued)

### Status Indicators and State Messages


The following table describes the status indicators and state messages and possible actions to take in response to them:

| Status Indicator                                                                  | State      | Action                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Active     | <ol style="list-style-type: none"> <li>1. View details to identify whether errors or warnings justify stopping the business process instance.</li> <li>2. Stop the instance if necessary.</li> <li>3. Correct the errors.</li> <li>4. Resume or restart the instance and run the same document.</li> </ol>                                                                                    |
|                                                                                   | Halting    | <ol style="list-style-type: none"> <li>1. Wait for the business process instance to stop.</li> <li>2. View details to identify errors or warnings.</li> <li>3. Correct the errors.</li> <li>4. Resume or restart the instance and run the same document.</li> </ol> <p>Sterling B2B Integrator does not archive data for halted instances. To archive an instance, you must terminate it.</p> |
|                                                                                   | Halted     | <ol style="list-style-type: none"> <li>1. View details to identify errors or warnings.</li> <li>2. Correct the errors.</li> <li>3. Resume or restart the instance and run the same document.</li> </ol>                                                                                                                                                                                       |
|                                                                                   | Terminated | <ol style="list-style-type: none"> <li>1. View details to identify errors or warnings.</li> <li>2. Correct the errors.</li> <li>3. Restart the instance and run the same document.</li> </ol>                                                                                                                                                                                                 |
| Continued on next page                                                            |            |                                                                                                                                                                                                                                                                                                                                                                                               |

## Troubleshoot and Reconcile Business Processes(Continued)


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### Status Indicators and State Messages (Continued)

| Status Indicator                                                                  | State       | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Waiting     | <ol style="list-style-type: none"><li>1. View details to identify whether errors or warnings justify stopping the business process instance.</li><li>2. Stop the instance if necessary.</li><li>3. Resume or restart the instance and run the same document.</li></ol> <p>If you terminate this instance, the state can change in the following order as Sterling B2B Integrator terminates the instance: Waiting &gt; Halting &gt; Halted &gt; Terminated.</p> |
|                                                                                   | Interrupted | <p>View details to identify any errors or warnings.</p> <p>Correct the errors if necessary.</p> <p>Restart the instance and run the same document.</p>                                                                                                                                                                                                                                                                                                          |
| Continued on next page                                                            |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

# Troubleshoot and Reconcile Business Processes(Continued)

Status Indicators and  
State Messages  
(Continued)

| Status Indicator                                                                  | State     | Action                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Active    | <ol style="list-style-type: none"><li>1. Wait for the business process instance to complete.</li><li>2. Check the accuracy of results, if appropriate.</li><li>3. If the results are inaccurate, modify the business process and run the same document with the new version.</li></ol> Determine whether the new results are accurate. |
|                                                                                   | Completed | <ol style="list-style-type: none"><li>1. Check the accuracy of results, if appropriate.</li><li>2. If the results are inaccurate, modify the instance and run the same document with the new version.</li><li>3. Determine whether the new results are accurate.</li></ol>                                                             |
|                                                                                   | Halting   | <ol style="list-style-type: none"><li>1. Wait for the current step in the instance to finish.</li><li>2. Resume or restart when appropriate.</li></ol>                                                                                                                                                                                 |
|                                                                                   | Waiting   | <ol style="list-style-type: none"><li>1. Wait for the current step in the instance to finish.</li><li>2. Resume or restart when appropriate.</li></ol>                                                                                                                                                                                 |

(Continued on next page)

## Troubleshoot and Reconcile Business Processes(Continued)

### Advanced Status Messages

In the Business Process Detail page, check the message in the Advanced Status column of the business process instance to determine whether further action for the business process is required.

The following table describes advanced status messages and possible actions:

| Message                   | Description                                                 | Action                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| None                      | No advanced status is available for the current stage.      | No action is required                                                                                                                                                                                                                                                                                                                                                   |
| Invalid Business Process  | Business process does not exist.                            | <ol style="list-style-type: none"><li>1. Locate the instance in the Monitor page.</li><li>2. Select the ID of the instance.</li><li>3. Select <b>Restart</b> from the Action field.</li></ol>                                                                                                                                                                           |
| Business Process Disabled | Disabled feature that is selected for the business process. | <ol style="list-style-type: none"><li>1. Find the instance by performing an advanced search.</li><li>2. Select <b>Manager</b> from the Business Process menu, and then locate the instance.</li><li>3. Click <b>Enable</b> for the selected instance.</li><li>4. Click <b>Execution Manager</b> for the instance.</li></ol> The business process resumes automatically. |
| Continued on next page    |                                                             |                                                                                                                                                                                                                                                                                                                                                                         |

## Troubleshoot and Reconcile Business Processes(Continued)

### Advanced Status Messages (Continued)

| Message                | Description                                                                                | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service Disabled       | Disabled feature that is selected for this service in the business process.                | <ol style="list-style-type: none"> <li>1. Select <b>Services &gt; Configuration</b> from the Deployment menu.</li> <li>2. Search and find the service.</li> <li>3. Click <b>Enable</b> for the selected service.</li> </ol> <p>The business process resumes automatically.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Service Error          | Error occurred with the service processing the data at this point in the business process. | <ol style="list-style-type: none"> <li>1. Select <b>System &gt; Troubleshooter</b> from the Operations menu.</li> <li>2. Is the service active? <ul style="list-style-type: none"> <li>■ If <b>Yes</b>, go to step 3.</li> <li>■ If <b>No</b>, contact your system administrator and restart the service.</li> </ul> </li> <li>3. Select <b>System &gt; Logs</b> from the Operations menu.</li> <li>4. View the log associated with the service that encountered the error. The log may show that where the error occurred or what caused the error.</li> <li>5. Correct the error where possible and select <b>Resume</b> from the Business Process Detail page. If the log does not contain information about the error, resume the instance and verify your results.</li> </ol> |
| Continued on next page |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Troubleshoot and Reconcile Business Processes(Continued)

### Advanced Status Messages (Continued)

| Message                           | Description                              | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Business Process Instance Stopped | Business process discontinued execution. | <ol style="list-style-type: none"><li>1. Locate the instance in the Monitor page.</li><li>2. Click the number that identifies the instance to view the related Business Process Detail page in the ID column.</li><li>3. Review the advanced message to determine why the instance stopped and correct the problem.</li><li>4. Return to the Monitor page and select <b>Resume</b>, <b>Restart</b>, or <b>Advanced Restart</b> in the Action field.</li></ol> |
| System Shutdown                   | Sterling B2B Integrator was shut down.   | Restart Sterling B2B Integrator. The instance restarts automatically.                                                                                                                                                                                                                                                                                                                                                                                         |
| Service Stopped                   | Service in the business process stopped. | <ol style="list-style-type: none"><li>1. Locate the instance in the Monitor page.</li><li>2. Click the number that identifies the instance to view the related Business Process Detail page in the ID column.</li><li>3. Identify which service stopped.</li><li>4. Select <b>Resume</b> from the Action field.</li></ol>                                                                                                                                     |
| Continued on next page            |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |



## Troubleshoot and Reconcile Business Processes(Continued)

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### Advanced Status Messages (Continued)

| Message                                 | Description                                | Action                                                                                                                                                                                          |
|-----------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Invalid Service                         | Service does not exist.                    | 1. Install and configure the service.<br>2. Restart Sterling B2B Integrator.                                                                                                                    |
| Mandatory parameter for service missing | Service is missing a required parameter    | 1. Determine which parameter is missing.<br>2. Modify the service properties of the instance in the business process document, if possible.<br>3. Restart Sterling B2B Integrator if necessary. |
| Invalid value for mandatory parameter   | Value for required parameter is incorrect. | 1. Fix the incorrect parameter.<br>2. Restart Sterling B2B Integrator.                                                                                                                          |

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(Continued on next page)

## Troubleshoot and Reconcile Business Processes(Continued)

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### **Viewing Troubleshooting Reports**

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Sterling B2B Integrator generates two reports to use for troubleshooting business processes. The reports are:

- Status Report
  - EDI Compliance
-

## Exercise 11–1 Viewing a Troubleshooting Report

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- |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Instructions</b> | <p>You can view a troubleshooting report by following the steps that are listed:</p> <ol style="list-style-type: none"><li>1. Select <b>Monitor &gt; Current Processes</b> from the Sterling B2B Integrator Business Process menu.</li><li>2. If you do not see the business process you want to monitor in the Current Process page, it is not active. Perform a search to find processes not listed in the Monitor page.</li><li>3. Click the number that identifies the business process for which you want to check the troubleshooting report in the ID column. An Information icon in the Status Report column indicates that a report is available for a specific step.</li><li>4. Does the Status Report column display one or more Information icons?<ol style="list-style-type: none"><li>1. If <b>Yes</b>, click the Information icon to view the troubleshooting report for the step with which it is associated. The report then opens in a new window.</li><li>2. If <b>No</b>, no troubleshooting report is available.</li></ol></li></ol> |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
-

## Archiving and Restoring Business Process Data

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### Introduction

Archiving your business process data not only protects your critical data but also conserves database disk space, improving the efficiency of Sterling B2B Integrator. Sterling B2B Integrator uses a set of components to move business process data out of the database and onto a persistence level of long-term storage.

The components include:

- Index Business Process service
- Archive system business process
- Purge system business process

Data that was removed by the Backup Business Process component can later be restored to the same version of Sterling B2B Integrator using the Restore Business Process component.

|                   |                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | The level of detail that is written to the database as a business process runs is affected by the persistence level, which you specify with the Business Process Manager or in the noapp.properties file. Decreasing the persistence level increases the business process performance at the cost of full-tracking for each step of the business process. |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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(Continued on next page)

## Archiving and Restoring Business Process Data(Continued)

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### **Additional Information**

Business processes are eligible for archiving as soon as their archive flag is set by the Index Business Process service. You do not have to wait until a business process exceeds its life span before archiving it. After the archive flag is set, the business process is then archived the next time the Backup Business Process service is run either by schedule (at 2 A.M. each morning) or manually. The data is still available in the system because it cannot be purged (with the Purge service) until it has exceeded its life span.

The Restore Business Process service restores archived business process data from physical media to a Sterling B2B Integrator restored data location where it can be searched and viewed.

After running a business process, when a business process terminates, and before archiving or purging business process data, the business process must first be indexed. That is, the Index Business Process service runs a process that looks for archiving parameters defined in the business process. When the process finds these parameters, the process creates summary information and writes the information to a table in the database.

For information written to the table, the Backup Business Process service runs, according to how you have configured your archiving settings. The Backup Business Process service retains the business process and its related data to a file system as Java™ serialized objects for later backup to tape, some other long-term storage medium, or purging. The Purge service then runs and removes any data from the database or file system, or both, specified in archive settings not to retain.

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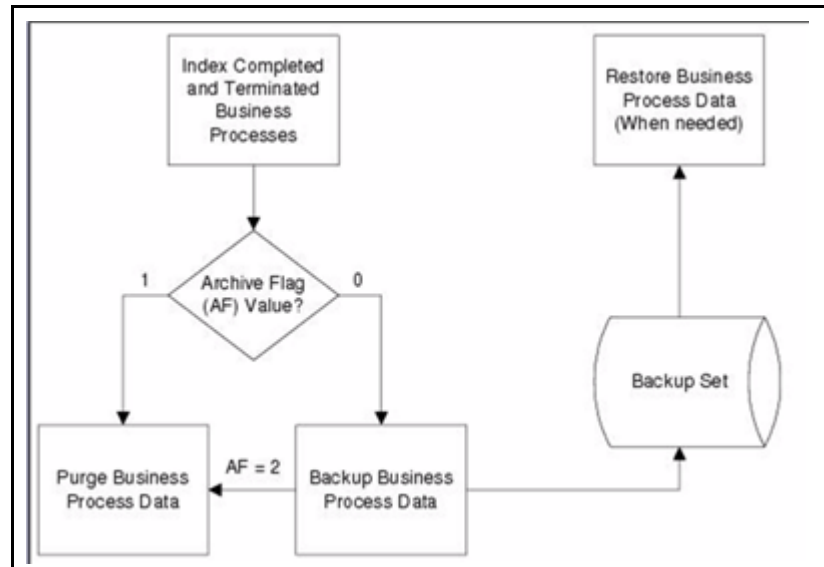
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## Archiving and Restoring Business Process Data(Continued)

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### Additional Information (Continued)

The following diagram shows the archiving process.



The Archive Flag is initially set by the Index Business Process service to 0 or 1. A value of 0 causes the data to be backed up. A value of 1 causes the data to be purged without being backed up. A data backup sets the flag to 2, which causes data to be purged.

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(Continued on next page)

## Archiving and Restoring Business Process Data(Continued)

---

### Additional Information (Continued)

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | <ul style="list-style-type: none"><li>■ You cannot archive active business process instances (for example, halting, halted or interrupted). Only data for completed or terminated business processes that have been indexed can be archived.</li><li>■ You cannot delete a workflow definition of a business process (using the Source Manager of the Business Process Manager) while an instance of that process is being either indexed, archived or purged. If you try to delete such a definition, an error message appears.</li></ul> |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

In the same manner that you schedule business processes, you can schedule the intervals at which you want Sterling B2B Integrator to index, archive, and purge the contents of the database.

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(Continued on next page)

## Archiving and Restoring Business Process Data(Continued)

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### Factors affecting the Amount of Database Table Space

There are two options that affect the amount of database table space used when you archive or purge business processes:

- Persistence level
- Life span

#### Persistence level

**Full** - Retain all data for this business process, including associated documents, activities, and all process data.

**Step Status (Engine May Override)** - This is the recommended persistence level for most process models because it helps optimize performance while providing a level of recovery suitable for most business needs. Persists process data and documents for service steps according to the persistence level supported by the service in the step.

**BP Start Stop (Engine May Override)** - Choose this level if you know that you do not need persisted status data for successful processing. Because service level settings override the selection, you can have additional data in a recovery scenario. Persists process data and documents for service steps according to the persistence level supported by the service in the step.

**System Default** - Assume that for the data, configuration is already defined in Sterling B2B Integrator to retain data.

Persists data according to the global persistence setting configured in the properties file.

**Step Status Only** - Choose this level if you need only status information for each step and your recovery needs do not depend on additional data that are being saved.

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# Archiving and Restoring Business Process Data(Continued)

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Factors affecting the  
Amount of Database  
Table Space  
(Continued)

**BP Start Stop Only** - Choose this level if your recovery needs do not depend on data that are being saved for the processing steps.

**Zero** - This level does not persist any business process data for recovery or process tracking. Choose this level only if you are certain you will not need the data.

|                   |                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------|
| <b>Important!</b> | Zero persistence is available only if the process is running in Synchronous start mode. |
|-------------------|-----------------------------------------------------------------------------------------|

**Error Only** - Choose this level if you do not need tracking data for your process when it is successful and your recovery does not depend on process step data being saved.

**Life span**

This option allows you to define the length of time, in days and hours, to retain the data in Sterling B2B Integrator ONLINE tables. This is the length of time after which the business process instance expires.

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## Archiving and Restoring Business Process Data(Continued)

---

### Configuring Archive Settings

You can configure Sterling B2B Integrator to automatically archive business process data as often as you need.

When archiving your business process data, consider that:

- You cannot archive active business process instances. Only data for completed or terminated business processes can be archived.
- You should indicate default values that apply to all business process instances that you run.
- How often you archive should depend on the volume of business processes that you run.
- Business level information should be archived for audit purposes, including:
  - Security information, such as certificates
  - Documents that support non-repudiation for AS1 and AS2 protocols
  - Correlations that provide searching ability
- Business processes are purged only when they exceed their life span.
- For any data that you may potentially want to view in the immediate future, maintaining the data in live tables provides faster retrieval.

### Configuring Default Archive Settings

When configuring default archive settings, you can define whether Sterling B2B Integrator should archive data for business process instances inside or outside of Sterling B2B Integrator. After you configure and save the archive schedule, the archive process is automatic and runs based on the time parameters you provided during configuration.

## Exercise 11–2 Archiving

---

**Instructions** To configure default archive settings:

|                   |                                                                                                                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | Before you set up the offline archive, rerun the BasicInventory business process. This is the business process that you will archive/restore for this exercise. |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|

1. Go to **Operations > Archive Manager** from the Sterling B2B Integrator.
  2. Click **Go!** in the Archive Configuration section, against Configure Archive Settings. A pop up warning will appear that the UI lock is enabled and this lock can be released by clicking either Cancel or Finish in the wizard.
  3. Click **Ok**.
- Note:** If the configuration page is closed without clicking the Cancel or Finish, then the lock must be released using Lock Manager function.
4. Set the number of **Days** and **Hours**:
    1. Default values that business processes must remain in the system.
    2. Default values that trackable business process information remains in the system.
  5. Verify whether the **Backup directory** path where the archived data stored is **/opt/IBM/SterlingIntegrator/install/arc\_data**.
  6. Choose **Archived** for the expired business processes.
  7. Click **Next**. The BackupService: Business Process Definitions screen displays.
  8. Select **BasicInventoryProcess** on the BP Definitions screen, and move with the right or left arrow to the **To be exported** list.
  9. Click **Next**. The **Schedule Type** screen displays.
  10. Choose **Run** based on timer and click **Next**. The **Schedule Settings** screen displays.

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(Continued on next page)

## Exercise 11–2 Archiving

(Continued)

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### Instructions (Continued)

11. Select the time as 1 hour and click **Next**.
12. Click **Next**. If required, the **time** for schedule exclusion can be entered.
13. Click **Next**. If required, the date exclusion details can also be entered here.  
The Backup Service: Confirm screen displays.
14. Click **Finish**.
15. Go to the Backup directory  
**/opt/apps/SterlingIntegrator/install/arc\_data/<date>** in the Windows Explorer. The folder named with archive date and time is created.

---

### Manually Archiving the Business Process

After configuring the archive settings, you can archive all completed or terminated business process instances at any time.

1. Go to **Operations > Archive Manager** from the Sterling B2B Integrator.
2. Click **Go!** in the Archive Execution section against Archive Business Process.
3. Click **Ok** in the confirmation popup message to continue the execution of archive process. On successful execution of archive process, the business process is archived to the specified location.

---

### Viewing Archived Business Process Data

The only archived business process data that you can view from its archived location is data archived to archive tables within Sterling B2B Integrator. To view archived business process data that is archived to an offline location, you must first restore that data within Sterling B2B Integrator.

---

## Viewing Archive Logs

---

### Viewing the Archive Log

In Sterling B2B Integrator, you can view the archive log using either the:

- Archive Manager
- System logs

#### Using the Archive Manager

To view the archive log through the Archive Manager:

1. Select **Archive Manager** from the Sterling B2B Integrator Operations menu.
2. Click **Go!** to view the archive log in the Archive Log section.

#### Using the System Logs

To view the archive log through the system logs:

1. Select **System > Logs** from the Sterling B2B Integrator Operations menu.
2. Click the link **archive.log** to view the archive log in the environment section.

---

### Restoring Archived Data

After you have archived business process data to an offline location, you can restore that data and view it in Sterling B2B Integrator.

---

## Exercise 11–3 Restoring Archived Business Process Data

---

### Instructions

You can restore an archived business process data from an offline location in the following manner.

1. Select **Archive Manager** from the Sterling B2B Integrator Operations menu.
2. Click **Go!** in the Restore Manager section.
3. Type the backup directory (**/opt/IBM/SterlingIntegrator/install/arc\_data/<date\_time>**) in the Restore panel. (Choose the folder that you want to restore. Pick the one that matches the <date\_time> from your recent archive.)

|                   |                                                                                                                                                                                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | View the archive directory to make sure you type the correct folder name. Also in the <b>Restore</b> folder path make sure to replace <b>CHOOSE_DATE_DIR_HERE</b> with your recent archive folder <date_time>. |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4. Click **Go!** to restore the data in Sterling B2B Integrator.
-

## Viewing Restored Business Process Data

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### Procedure to View Restored Business Process Data

To view archived business process data that is restored in Sterling B2B Integrator, follow the steps listed:

1. Select **Monitor > Advanced Search > Business Processes** from the Sterling B2B Integrator Business Process menu.
2. Select **Restore Tables** under Search Location at the top of the page.
3. Complete one of the following steps in the Business Process Monitor Search (Restore) page:
  1. Click **Go!** to view all restored business process data. In the **Search Using Business Process Name** section.
  2. Search for specific restored business process data. Indicate any combination of the following criteria and click **Go!** to view the restored business process.

| Criteria                  | Description                                                                                                               |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Process ID                | Display data identified by the number assigned by Sterling B2B Integrator when the business process ran.                  |
| Business Process          | Display data for business processes whose names contain the specified character or string.                                |
| System Business Processes | Display data for Sterling B2B Integrator system business processes whose names contain the specified character or string. |
| State                     | Display data for business processes whose final state corresponds to the specified state.                                 |
| Status                    | Display data for business processes whose final status corresponds to the specified status.                               |
| Start date/time range     | Display data for business processes that run within the specified start dates and times.                                  |

## Managing Resources

---

### Introduction

In Sterling B2B Integrator, resources are files, templates, and documents that are deployed in Sterling B2B Integrator to perform various actions.

Sterling B2B Integrator allows you to import and export resources, which can save time and increase the accuracy of duplicating resources on various Sterling B2B Integrator systems that are set up for unique purposes. Specifically, the Import and Export options allows you to:

- Import resources from a Sterling B2B Integrator test environment to a Sterling B2B Integrator production environment.
- Import resources from one Sterling B2B Integrator system to another.

To import and export resources from Sterling B2B Integrator environment to another Sterling B2B Integrator environment, both environments must be the same version.

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(Continued on next page)



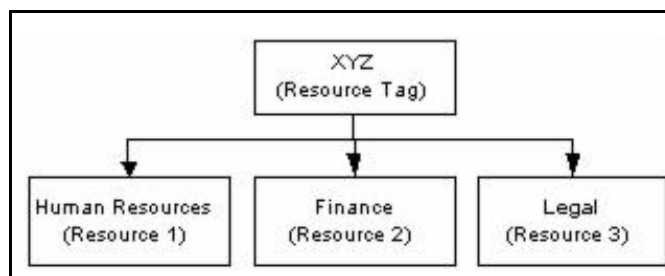
## Resource Tags

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### Overview

A resource tag is a name that you use to identify a group of associated resources. A resource tag is much like a company name, with each department being a web resource associated with the resource tag. For example, XYZ company has Human Resources, Finance, and Legal departments. The company name, XYZ, is the resource tag, and the Human Resources, Finance, and Legal departments are web resources that are associated with the XYZ resource tag.

Sterling B2B Integrator allows you to associate a resource with more than one resource tag.



(Continued on next page)

## Resource Tags

(Continued)

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### **Additional Information on Resource Tags**

Before you can create a resource tag, resources to associate with the tag must be saved in Sterling B2B Integrator.

Managing resource tags involves:

- Creating resource tags
- Editing a resource tag to add or delete resources from the tag
- Copying the resource tag to use as the basis for a new tag with a different name
- Deleting resource tags that have become obsolete.

You can create resource tags that are needed to define your resource groupings, and you can also create a tag during the import resources procedures, to assign a new tag on the fly to resources you are importing.

You cannot import resources (.xml or .jar files) greater than 10 MB through the Sterling B2B Integrator interface. Creating resource tags is a way to separate resources to keep the file size down.

---

## Exercise 11–4 Creating Resource Tags

---

**Instructions**


You can create resource tags in the following manner.

1. Go to **Deployment > Resource Manager > Resource Tags**.
2. Click **Go!** under Create New Resource Tag.
3. Type **Train\_#\_BP** for the Resource Tag name, and use the same name for the description and click **Next**.
4. Place a check mark in the box next to **Business Processes** for the Resource Type and click **Next**.
5. Type the unique identifier that you used when creating your processes in the Filter Data by Name, and click the **filter** icon.





**Resource Tag**





**BPs**

Filter Data:

By Name:  

Select Names:

| Available                       |                                                                                                                                                                                                                                                                                                                                                          | To Be Associated |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| ACHDevelope                     | <br><br><br> |                  |
| ACHEnvelope                     |                                                                                                                                                                                                                                                                                                                                                          |                  |
| ACHReturnGeneration             |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AdvanceShipment                 |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTPurgeArchiveMailboxes        |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTRoute                        |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTRouteAddMailboxMessage       |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTRouteConsumerNameViaDocument |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTRouteEventEmailNotification  |                                                                                                                                                                                                                                                                                                                                                          |                  |
| AFTRouteExtractMailboxMessage   |                                                                                                                                                                                                                                                                                                                                                          |                  |

6. Click the double arrow icon to associate all your business processes and click **Next**.
  7. Click **Finish**.
-

## Exporting Resources

---

### Overview

Before conversion, resources must be converted into the proper format for storage and transfer. The Export option converts a group of resources that you specify into one of the following formats:

- XML - Allows you to transfer data or resources between two existing systems.
- Install bundle - Optionally allows you to load during a Sterling B2B Integrator install on a new system.

|                   |                                                        |
|-------------------|--------------------------------------------------------|
| <b>Important!</b> | You cannot use the Export option to export .war files. |
|-------------------|--------------------------------------------------------|

In the export process, after you defining the file format to use for the export, you select the version of the resources to export:

- The Standard export copies non-versioned resources and the default version of versioned resources.
- The Advanced export copies non-versioned resources and allows you to choose to export just default versions or all versions of versioned resources.

You can export resources that are associated with a particular resource tag or resources that are not associated with a resource tag.

---

## Exercise 11–5 Exporting Resource Out of Sterling B2B Integrator

---

- |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Instructions</b> | <hr/> <p>You can export resources out of Sterling B2B Integrator by following the steps that are listed:</p> <ol style="list-style-type: none"><li>1. Click <b>Deployment &gt; Resource Manager &gt; Import/Export</b> from the Administration Interface.</li><li>2. Select <b>Export Resources</b> to take information out of Sterling B2B Integrator, and click <b>Go!</b></li><li>3. Select the radio button for <b>XML Files</b> on the <b>Output Format Type</b> screen, and click <b>Next</b>.</li><li>4. Accept the default of <b>No</b> to export based on resource tag name on the Resource Group screen, and click <b>Next</b>.</li><li>5. Accept the default of <b>Standard - exports default version</b> on the Export Type screen, and click <b>Next</b>.</li><li>6. Select <b>Business Processes</b> on the Select Resources screen as the type of resources to export and click <b>Next</b>.</li></ol> <hr/> |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Exercise 11–5 Exporting Resource Out of Sterling B2B Integrator (Continued)

---

### Instructions (Continued)

7. Select **BasicInventoryProcess** in the **Available** list on the **BP Definitions** screen, and move using the down arrow to the **To Be Exported** list. Click **Next**.

**Note:** when you select any confidential resources (such as; Trading Partner Data, envelops, Web Services, Security Tokens, etc) the **Security** screen prompts you to enter a pass phrase. Note down the pass phrase as you need to enter this again while importing these resources back to the Sterling B2B Integrator.

8. Click **Finish**.
  9. Click **Download Export data XML** when the system updates the successful completion.
  10. Click **Save** to download the file.
  11. Save with a unique name <filename>.xml in the desktop.
-

## Importing Resources

---

**Overview** When you import resources, the Import option converts an XML file or install bundle to Sterling B2B Integrator resources format.

|                   |                                                        |
|-------------------|--------------------------------------------------------|
| <b>Important!</b> | You cannot use the Import option to import .war files. |
|-------------------|--------------------------------------------------------|

Depending on the type of export you used (standard or advanced, default or all versions), the Import option performs the following functions:

- Creates new non-versioned resources
- Creates and checks in new versioned resources (assigns time/date of the import)
- Updates or preserves existing non-versioned resources
- Preserves or appends existing checked-in resources



### **Caution**

**To prevent the loss or corruption of existing records, preserve and download the backup file of all imports that you conduct.**

---

### **The Standard Import**

The standard import:

- Replaces non-versioned records
- Appends to existing versioned resources
- Sets the default according to imported records

---

(Continued on next page)

## Importing Resources

## (Continued)

---

### Tips for Importing Resources

Here is some important information about importing resources:

You must manually update imported resources that contain hard-coded, computer-specific information. For example, system paths in scripts must be manually changed to use the new path after importing resources to their new location.

During import, Sterling B2B Integrator creates a backup file containing records as they existed before import. After you import the resources, you can download and preserve the backup file, which is named backup.xml by default. You can change the name of the backup file so that you do not overwrite an existing backup file.

### Update and Preserve Existing Resources Options

For both non-versioned and versioned resources, the import process creates a new record where none exists. If you are importing resources to an environment that already contains the same resources, you have two options:

- Update
- Preserve Existing (default)

|                   |                                                                        |
|-------------------|------------------------------------------------------------------------|
| <b>Important!</b> | Each option handles versioned and non-versioned resources differently. |
|-------------------|------------------------------------------------------------------------|

---

(Continued on next page)

**Instructor Note:** Inform students that the exercise to import and export with and without resource tags are covered in this topic.



## Importing Resources

(Continued)

---

### Update and Preserve Existing Resources Options (Continued)

The Preserving Existing option is the default option. Depending on whether you are working with versioned or non-versioned resources, different actions occur.

- Non-versioned resources - If a record exists, nothing is imported. The import process does not change existing records.
- For versioned resources - The preserve existing option does not change any versions currently in the system, and adds only new versions.

You see the Update option only when you select Update during the import process. If you are importing non-versioned resources, the Update option replaces the existing records. If you are importing versioned resources, the Update option appends to the list when the versions exist, incrementing by one, according to the starting point of the import system.

---

## Exercise 11–6 Importing Resource into Sterling B2B Integrator

---

- |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Instructions</b> | <hr/> <p>You can add information into Sterling B2B Integrator by following the steps that are listed:</p> <ol style="list-style-type: none"><li>1. Click <b>Deployment &gt; Resource Manager &gt; Import/Export</b> from the Administration Interface.</li><li>2. Select <b>Import Resources</b> and click <b>Go!</b></li><li>3. Click <b>Browse</b> and locate the &lt;filename&gt;.xml (file that is saved in the export exercise) to import the file.</li><li>4. Click <b>Open</b>.</li><li>5. Click <b>Next</b>.</li><li>6. Click <b>Next</b>, do not create a resource tag.</li><li>7. Click <b>Yes</b> to update objects in database, click <b>Next</b>.</li><li>8. Select the business process that you want to import in <b>Available</b> list.</li><li>9. Click down arrow to list the selected business process in <b>To Be Imported</b> list.</li><li>10. Click <b>Next</b>.</li><li>11. Verify confirmation details and click <b>Finish</b>.</li></ol> <hr/> |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Exercise 11–7 Importing and Exporting Using Resource Tags

---

### Exporting Resources

You can export resources by following the steps that are listed.

1. Go to **Deployment > Resource Manager > Import/Export**.
2. Click **Go!** next to Export Resources.
3. Accept the default of XML file for the type of format you wish to export to and Click **Next**.
4. Click **Yes** when prompted: Do you wish to export resources that are based on a tag name and select your Resource Tag name from the drop-down.
5. Click **Finish**.
6. Click **Download**.
7. Click **Save**. For the file name type **MyBPs** and save the file to a directory of your choice.
8. Click **Save**.
9. Click **Return**.

---

(Continued on next page)

## Exercise 11–7 Importing and Exporting Using Resource Tags (Continued)

---

### Importing Resources

---

You can follow the steps that are listed to import resources.

1. Click **Go!** next to Import Resources.
2. Browse to where you save the .xml file and click **Open**.
3. Leave the passphrase blank and click **Next**.
4. Place the word **NEW** in front of the tag name that appears for the tag name, and leave the description as **defaulted**.
5. Click **Next**.
6. Select **Yes** when prompted: Some objects being imported may exist in the system. Do you wish to update them? Click **Next**.
7. Click the **double-arrow** to select all your processes and click **Next**.
8. Click **Finish** and **Return**.

You now know how to import resources using tags.

---

## Deleting a Business Process

---

### Overview

In Sterling B2B Integrator, you can delete individual business processes (except business processes used by Sterling B2B Integrator). Some reasons that you might delete a business process are:

- Business activities have changed and, as a result, a business process can no longer accomplish the activities.
- You need to remove versions of a business process to reduce the database size.

### Before Deleting a Business Process

Before deleting a business process, consider that:

- Deleting a business process is permanent; it cannot be restored once deleted.
- If the business process runs on a schedule, the schedule is deleted with the business process.
- When a user account is required by a business process (for example, to perform a human interaction activity, such as approving a PO), and that user account is deleted, the business process does not run, and Sterling B2B Integrator generates an error message instead.
- After you confirm that you want to delete a business process, Sterling B2B Integrator deletes the business process and creates a log entry that contains the name of the business process, date, and time of deletion, and the user account who performed the deletion.
- After a service configuration has been deleted, you can reuse the name.
- Only user accounts that have DELETE and BPMANAGE permissions can delete business processes.

---

(Continued on next page)

## Deleting a Business Process

(Continued)

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### Tasks Before Deleting a Business Process

Before you delete a business process, ensure that the following tasks are completed:

1. Use the Export Resources function to save a copy of the business process for offline storage.
  2. Identify any uses of the business process to ensure that the deletion does not prevent other business processes and ensuing services from running.
-

## Exercise 11–8 Deleting a Business Process

---

### Instructions

You can delete an individual version of a business process or all versions of a business process in the following manner.

1. Select **Manager** from the Sterling B2B Integrator Business Process menu.
2. Type #\_BasicInventoryProcess1 (where # is the lab number assigned to you) in the Search section.
3. Click **source manager** next to the business process in the Business Process Manager search results page.
4. To delete a version of a business process:
5. Select the check box next to the version, under Delete.
6. Click **Go!** next to Delete Selected Versions.

|                   |                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------|
| <b>Important!</b> | To delete all versions of this business process, next to Delete All Versions, click <b>Go!</b> |
|-------------------|------------------------------------------------------------------------------------------------|

## Quiz

---

- |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Questions</b> | <ol style="list-style-type: none"><li>1. Archiving deletes expired process instance data whereas Purging moves it to disk for storage.<ol style="list-style-type: none"><li>a. True</li><li>b. False</li></ol></li><li>2. Restored data is moved to the restore tables within the Sterling B2B Integrator database.<ol style="list-style-type: none"><li>a. True</li><li>b. False</li></ol></li><li>3. At what intervals does the built-in system recovery business process run in Sterling B2B Integrator?<ol style="list-style-type: none"><li>a. Every 15 minutes</li><li>b. Every 45 minutes</li><li>c. Every 30 minutes</li><li>d. Every 60 minutes</li></ol></li><li>4. How do you troubleshoot the “Invalid Service Configuration” error?<ol style="list-style-type: none"><li>a. Fix the incorrect parameter and restart Sterling B2B Integrator</li><li>b. Install and configure the service and then finally restart Sterling B2B Integrator.</li><li>c. Restart Sterling B2B Integrator.</li><li>d. Determine the missing parameter and modify the service properties of the instance in the business process.</li></ol></li></ol> |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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(Continued on next page)



## Quiz

## (Continued)

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### Questions (Continued)

- 
5. To what file types can you export Sterling B2B Integrator objects? Select the correct answers.
    - a. XML
    - b. JAR
    - c. Zip
    - d. RAR
    - e. bpm
  6. When can a business process be exported, but not deleted?
    - a. The unarchived or purged instance data remains in Sterling B2B Integrator.
    - b. The delete flag is set to "no" in the properties files.
    - c. The export and delete are the same thing.
    - d. The unarchived or purged instance data is already exported.
-

## Lesson Review

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---

### Completed Objectives

This lesson was designed to help you to:

- Troubleshoot and reconcile business processes
  - Archive business process data
  - Restore business process data archived offline
  - Manage Resources
  - Delete a Business Process
-



---

# 12

## *Best Practices*

---

### Contents

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## Background

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---

### Introduction

This lesson provides you with the best practices that you can adopt when working with Sterling B2B Integrator.

---

### Lesson objectives

This lesson is designed to help you to:

- Implement best practices for Assign Service
  - Implement best practices for Invoke Sub-Process Service
  - Implement best practices for Release Service
-

## Best Practices for Assign Service

---

### **Assign Service vs Assign Activity**

- The Assign Service can be used when there are multiple assignments that need to be made consecutively.
  - Reducing the number of steps in a process can increase performance. A recent test with two assign statements versus the same values in an Assign service ran in approximately half the time.
  - The Assign Service can be found in the Sync Mode Stencil.
-

## Exercise 12–1 Create an Assign Service Process

---

- |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Instructions</b> | <ol style="list-style-type: none"><li>1. Open the <b>Graphical Process Modeler</b>.</li><li>2. Click <b>New</b>.</li><li>3. Open the Stencils if not already showing. (Be sure to include the Sync Mode Stencil).</li><li>4. Move the following operations and services to your workspace by dragging the icons from the Stencil to the workspace:<ul style="list-style-type: none"><li>■ Start (1)</li><li>■ End (1)</li><li>■ Sequence Start (1)</li><li>■ Sequence End (1)</li><li>■ Assign Service</li><li>■ BP MetaData Service (1)</li><li>■ XML Encoder (1)</li><li>■ File System Adapter (1)</li></ul></li></ol> |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

---

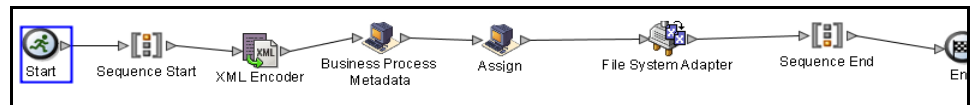
(Continued on next page)

## Exercise 12–1 Create an Assign Service Process(Continued)

### Connecting Activities

Connecting activities determine the order in which the activities are run within the Business Process. You can follow the steps that are listed to connect the activities.

1. Connect the activities from the previous exercise as shown below.



2. Click the **XMLEncoder** Service to open the Service Editor and perform the following steps:
  - a. Select **XMLEncoder** from the Config Drop-down list box.
  - b. Select **Use existing XML document** from the drop-down list box in the Value column for the mode field.
  - c. Select **Yes** from the drop-down list box in the Value column for the output\_to\_process\_data field.
3. On the Business Process Metadata service choose **BPMetadataInfoService** as the configuration, and accept the defaults for all other parameters.
4. Click **Assign Service** to open the Service Editor, and click **Advanced** to open the Advanced Editor.

The **Advanced Editor** is available in different services and adapters. It will allow you to create your own Assign statements. Some services require you to use the Advanced Editor to create their configuration settings.

(Continued on next page)



## Exercise 12–1 Create an Assign Service Process(Continued)

---

### Connecting Activities (Continued)

5. Click **Add** and complete the editor options with the following information:

| Name       | Value                                                                                                                                                                                   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OrderTotal | sum(INVENTORY/PRODUCT/PRICE)<br><b>Note:</b> This XPath statement must be typed on a single line and the XPath check box must be selected.                                              |
| OutputFile | concat('Proc#',//WORKFLOW_ID/text(),'_Total_',//OrderTotal/text(),'.txt')<br><b>Note:</b> This XPath statement must be typed on a single line and the XPath check box must be selected. |

6. Open the **Service editor** for the file system adapter, and choose your file system adapter configuration that you have used for prior exercises like **FS\_Test**.

| Name             | Value                                                                                                                                       |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Action           | Extraction                                                                                                                                  |
| assignedFileName | /ProcessData/OutputFile/text()<br><b>Note:</b> This XPath statement must be typed on a single line and the XPath check box must be checked. |
| extractionFolder | /home/train/fsxt                                                                                                                            |

---

(Continued on next page)

## Exercise 12–1 Create an Assign Service Process(Continued)

---

**Connecting  
Activities  
(Continued)**

- 
7. Save the Business Process as **AssignService\_Test**. Validate and check-in the Business Process.
  8. Execute the business Process with the file **InventoryOf11.xml**.
- 

(Continued on next page)

## Exercise 12–1 Create an Assign Service Process(Continued)

---

### Obtaining Business Process Results

You can follow the listed procedure to obtain business process results.

1. Click **Business Process > Monitor > Current Processes**.The Business Process Monitor screen displays the current processes.
2. Locate your instance of **AssignService\_Test** in the list.
3. Click corresponding **Business Process ID** to view the Business Process Detail page.

---

(Continued on next page)

## Exercise 12–1 Create an Assign Service Process(Continued)

### Obtaining Business Process Results (Continued)

- Click the **info** icon in the Instance Data column of the Assign Service to view Process Date.

```
<ITEM>Gizmo K</ITEM>
<PRICE>12</PRICE>
</PRODUCT>
</INVENTORY>
<BPDATA>
 <WORKFLOW_ID>27373</WORKFLOW_ID>
 <MESSAGE_FROM_SERVICE>admin</MESSAGE_FROM_SERVICE>
 <WFD_ID>825</WFD_ID>
 <WFD_VERSION>4</WFD_VERSION>
 <WFD_NAME>AssignService_Test</WFD_NAME>
 <WFD_DESCRIPTION>alpha order</WFD_DESCRIPTION>
 <WFD_STATE>ACTIVE</WFD_STATE>
 <WFD_STATUS>SUCCESS</WFD_STATUS>
 <WFD_TYPE>NORMAL</WFD_TYPE>
 <WFD_PRIORITY>4</WFD_PRIORITY>
 <WFD_PERSISTENCE_LEVEL>FULL</WFD_PERSISTENCE_LEVEL>
 <WFD_LIFE_SPAN>2880 Minute(s)</WFD_LIFE_SPAN>
 <WFD_STORAGE_TYPE>DEFAULT</WFD_STORAGE_TYPE>
 <WFD_RECOVERY_LEVEL>DEFAULT</WFD_RECOVERY_LEVEL>
 <WFD_DOC_TRACKING_FLAG>false</WFD_DOC_TRACKING_FLAG>
 <WFD_DEADLINE_INTERVAL>-1</WFD_DEADLINE_INTERVAL>
 <WFD_EVENT_LEVEL>FULL</WFD_EVENT_LEVEL>
</BPDATA>
<OrderTotal>191</OrderTotal>
<OutputFile>Proc#27373_Total_191.txt</OutputFile>
</ProcessData>
```

**Important!**

Notice the OrderTotal and OutputFile tags in Process Data from the Assign Service. This requires two Assign activities.

- Check the **/home/student/fsex** directory for the output file.

## Best Practices for Invoke Sub-Process Service

---

### How the Invoke Sub-Process Service Works

When the Invoke Sub-Process service is set to synchronous mode, the parent suspends processing until it receives data from the child. In synchronous mode, the parent is notified when the child encounters errors.

When the Invoke Sub-Process service is set to asynchronous mode, the parent and child process data simultaneously and independently of each other. Therefore, the parent does not receive notification when the child encounters errors.

When the Invoke Sub-Process service is set to run a subprocess inline, the subprocess runs as part of the parent process, sharing process data.

When the Invoke Sub-Process service is set to run in embedded mode, the subprocess runs without persistence, meaning that no record of the process is recorded in Application and no tracking is done.

**Note:** The **Invoke Sub-Process** and **Invoke Business Process Service** are different names for the same service used to start a child business process.

### What Mode Should I Use?

- Asynchronous mode is the default selection and typically used in most applications as it allows for concurrent (multi-threaded) processing of multiple documents.
- Synchronous can be used when you want the child to report back up to the parent or if you want a single threaded process flow. An example of this may be large files such as Catalogs (832) or Product Activity Data (852) where due to the file size, handling multiple files at once can put an undue strain on the environment.
- Inline is a good choice when dealing with high volumes of processes within the system as it minimizes the number of threads that are created for the overall process flow.

---

(Continued on next page)

## Best Practices for Invoke Sub-Process Service (Continued)

---

### Performance Tips

By default, when you use the Invoke Sub-Process service in a business process, all process data passes from the parent process to its subprocess.

However, if you are using the Invoke Sub-Process service in sync mode, a special tag called ``message_to_child/message_to_parent'` allows you to pass along only the ``message_to_child/message_to_parent'` node in the process data of the parent process or subprocess. Using this tag can provide significant performance improvement.

Before invoking a subprocess, create a special tag called ``message_to_child'` in the parent process, and append all of the data needed in the subprocess under this tag. The Invoke Sub-Process service will pass only this tag to the subprocess.

The `'message_to_parent'` tag accomplishes the same task, but limits the amount of data that is returned to the parent process. Only data under the `'message_to_parent'` tag will be passed back to the parent.

---

## Exercise 12–2 Using the Invoke Sub-Process Service in Async Mode

---

### Instructions

You can use the Invoke Sub-Process Service in sync mode in the following manner.

1. Open the **Graphical Process Modeler**.
2. Click **New**.
3. Open the Stencils if not already showing.
4. Move the following operations and services to your workspace by dragging the icons from the Stencil to the workspace:
  - (1) Start
  - (1) End
  - (1) Sequence Start
  - (1) Sequence End
  - (1) Assign Service
  - (1)BP MetaData Service
  - (1) Invoke Sub-Process
  - (1) File System Adapter

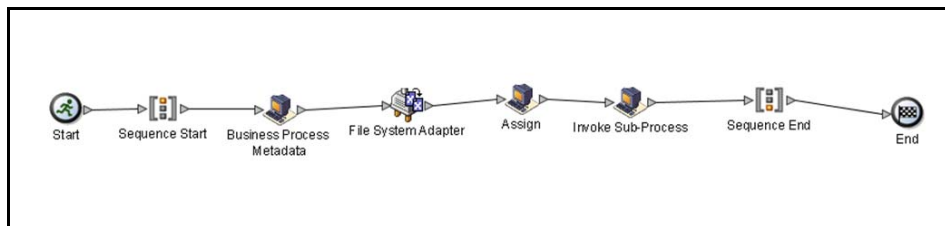
---

(Continued on next page)

## Exercise 12–2 Using the Invoke Sub-Process Service in Async Mode (Continued)

### Instructions (Continued)

5. Connect the activities from the previous exercise as shown in the following figure.



6. Connecting activities determine the order in which the activities are run within the Business Process.
7. On the Business Process Metadata service choose **BPMetadataInfoService** as the configuration, and accept the defaults for all other parameters.
8. Open the **Service editor** for the file system adapter, and choose your file system adapter configuration.

| Name             | Value                |
|------------------|----------------------|
| Action           | Collection           |
| collectionFolder | /home/student/fscoll |

(Continued on next page)



## Exercise 12–2 Using the Invoke Sub-Process Service in Async Mode (Continued)

---

**Instructions  
(Continued)**

9. Click **Assign Service** to open the Service Editor, and click **Advanced** to open the Advanced Editor.
10. Click **Add** and complete the editor options with the following information:

| Name                 | Value                                                                                                                                        |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| message_t<br>o_child | //WORKFLOW_IDI//PrimaryDocument<br><b>Note:</b> This XPath statement must be typed on a single line and the XPath check box must be checked. |

11. Click the Invoke Sub-Process Service to open the Service Editor and perform the following tasks:
  - a. Select **InvokeSubProcessService** from the Config. Drop-down list box.
  - b. Select **Async** for the Invoke Mode.
  - c. Select your **BasicInventoryProcess** for the WFD\_NAME.
12. Save the Business Process as **InvokeSubProcess\_Test**. Validate and check-in the Business Process.
13. Paste the **InventoryOf11.xml** file into the /home/train#/fscoll directory.
14. Execute the **InvokeSubProcess\_Test** process without input file.

---

(Continued on next page)

**Instructor Note:** Inform the students that in the expression “//WORKFLOW\_IDI//PrimaryDocument”, the “I” is a pipe symbol.

## Exercise 12–2 Using the Invoke Sub-Process Service in Async Mode (Continued)

### Obtaining Business Process Results

You can follow the steps that are listed to obtain the business process results.

1. Click **Business Process > Monitor > Current Processes**.
2. The Business Process Monitor screen displays the current processes.
3. Locate your instance of **InvokeSubProcess\_Test** in the list.
4. Click the corresponding **Business Process ID** to view the Business Process Detail page.
5. Click the **info** icon in the Instance Data column of Step 4, the Invoke Sub-Process Service.



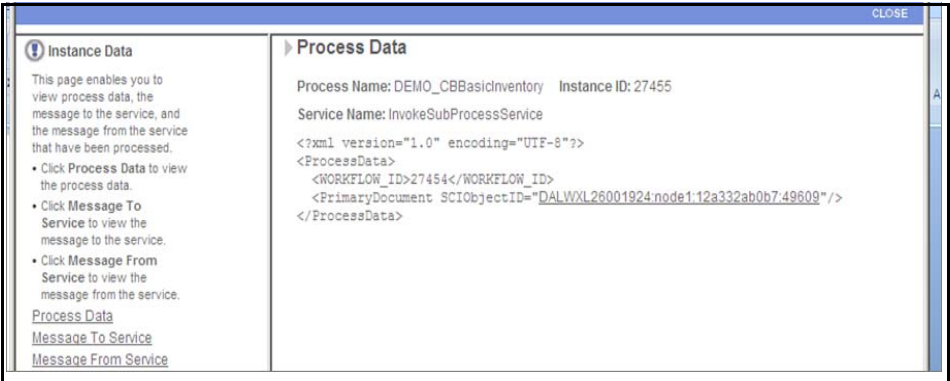
(Continued on next page)

# Exercise 12–2 Using the Invoke Sub-Process Service in Async Mode (Continued)

## Obtaining Business Process Results (Continued)

|            |                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Important! | Notice the amount of data in process data. We will only pass the values from the message_to_child tag onto the child process to improve performance. |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------|

- 6. Close the window to return to the Business Process Detail page.
- 7. Click the **instance ID** of the child process that was invoked, your BasicInventoryProcess.
- 8. Click the **info** icon in the Instance Data column of Step 0, the Invoke Sub-Process Service.



|            |                                                                                          |
|------------|------------------------------------------------------------------------------------------|
| Important! | Notice process data contains only the values from the parent process which are selected. |
|------------|------------------------------------------------------------------------------------------|

(Continued on next page)

## Best Practices for Release Service

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**Overview** The Release Service is a system service that is used to remove extraneous data from the process data. This service comes without predefined parameters, therefore; you must use the Advanced Service Editor to create a parameter that is called TARGET and assign a value to it. The value identifies the process data which is no longer needed. TARGET is the name of the parameter the Release service expects in the "Message TO Service." The value that is assigned to the parameter is an XPath expression which selects the nodes from the Process Data to be released. Even though it is an XPath expression you do not need to check the "Use XPATH" check box.

When dealing with large amounts of Process data, the Release service can be used to clean up portions of Process Data that are no longer needed which aid in the performance of the business process. Multiple Process Data tags can be released within one Release Statement to reduce the overall number of steps in the business process.

---

## Exercise 12–3 Re-executing the Business Process

---

### Instructions

You can re-execute the Invoke\_Test process in the following manner.

1. Open the admin console and choose **Business Process > Manager**.
2. Click **Business Process > Manager**. The Business Process Manager screen appears.
3. Type **Invoke** in the Search text box and click **Go!**
4. Click the **Execution Manager** icon for Invoke\_Test business Process. **Note:** This is a bp we built earlier in the course.
5. Click the **execute** icon.
6. Click **Browse** and go to **Class Labfiles** to locate the test data. Your instructor will provide the location of the Classlab files.
7. Locate the file **InventoryOf3.xml**, and click **Open**.
8. Click **Go!**
9. Observe the separate Execute Business Process window while the business process runs.
10. Close the Execute Business Process window when the Business Process has completed running.

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(Continued on next page)

## Exercise 12–3 Re-executing the Business Process(Continued)

---

### Obtaining Business Process Results

---

You can obtain the business process results in the following manner.

1. Click **Business Process > Monitor > Current Processes**.

The Business Process Monitor screen displays the current processes.

2. Locate your instance of **Invoke\_Test** in the list.
3. Click the corresponding **Business Process ID** to view the Business Process Detail page.
4. Click the **Subprocess link** of Step 2 of the process detail. A pop-up window opens with the steps encountered by the child process, BasicInventoryProcess.

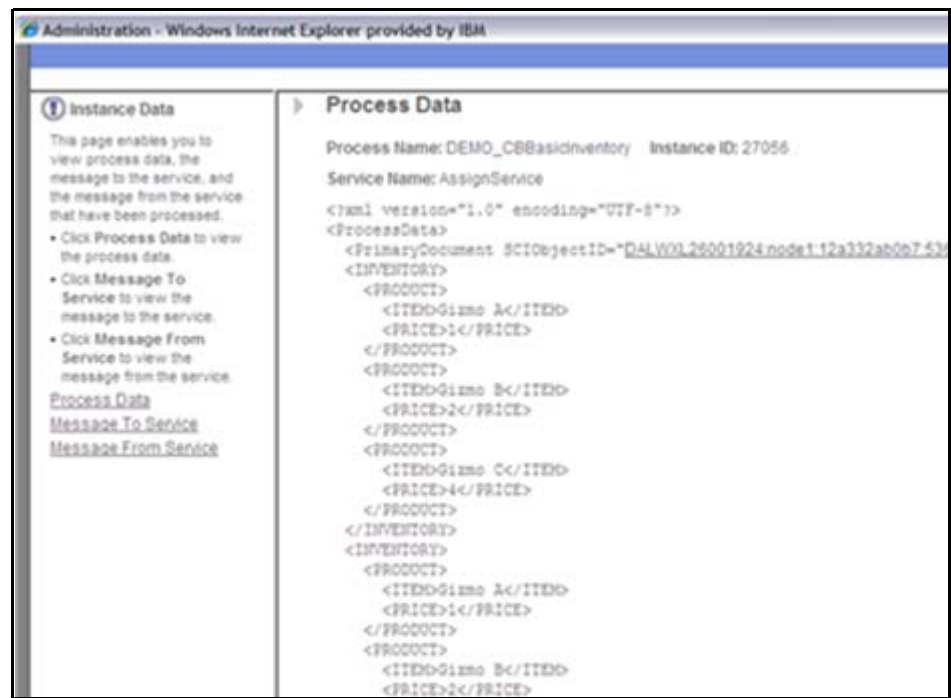
---

(Continued on next page)

# Exercise 12–3 Re-executing the Business Process(Continued)

Obtaining Business  
Process Results  
(Continued)

5. Click the **Info** icon in the Instance Data column of the last Assign Service.



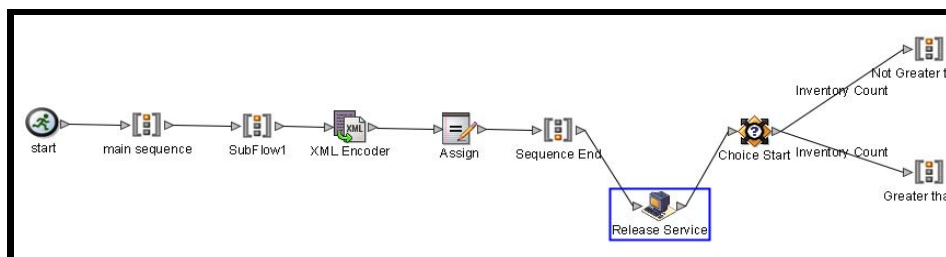
|                   |                                                                                                                                                                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Important!</b> | Notice that the primary document is doubled in process data from being passed from the parent process, which is causing the TotalPrice to be doubled. The release service can be used to remove the first occurrence of primary document. |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Exercise 12–4 Adding the Release Service to the BasicInventoryProcess

### Instructions

You can follow the steps that are listed to add the release service to the BasicInventoryProcess.

1. Check out your BasicInventoryProcess.
2. Open the **BasicInventoryProcess** in the Graphical Process Modeler.
3. Insert a **Release Service** in between the Sequence End and Choice Start (as shown in the following figure).



4. Click **Advanced** in the Service Editor for the Release service, and complete the fields in the following table with the given parameters:

| Field | Parameter                                                                                                                                               |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name  | TARGET                                                                                                                                                  |
| Value | <code> '/ProcessData/INVENTORY[1]' </code><br><b>Note:</b> This XPath statement must be typed on a single line and the XPath check box must be checked. |

5. Save as **BasicInventoryProcess** and validate.
6. Check in the business process.

(Continued on next page)



## Exercise 12–4 Adding the Release Service to the BasicInventoryProcess (Continued)

---

### Testing the Business Process

You can test the business process by following the steps that are listed:

1. Open the admin console and choose **Business Process > Manager**.
2. Click **Business Process > Manager**. The Business Process Manager screen appears.
3. Type **Invoke** in the Search text box and click **Go!**
4. Click the **Execution Manager** icon for the **BasicInventoryProcess** business Process.
5. Click the **execute** icon.
6. Click **Browse** and go to **Class Labfiles** to locate the test data. Your instructor will provide the information on the location of the class lab files.
7. Locate the file **InventoryOf3.xml**, and click **Open**.
8. Click **Go!** Observe the separate Execute Business Process window while the business process runs.
9. Close the **Execute Business Process** window when the execution of the Business Process is completed.
10. Click **Return**.

---

(Continued on next page)

## Exercise 12–4 Adding the Release Service to the BasicInventoryProcess (Continued)

---

### Obtaining Business Process Results

---

You can follow the steps that are listed to obtain the business process results.

1. Click **Business Process > Monitor > Current Processes**. The Business Process Monitor screen displays the current processes.
2. Locate your instance of **BasicInventoryProcess** in the list.
3. Click the corresponding **Business Process ID** to view the Business Process Detail page.
4. Click the **info** icon in the Instance Data column of step 0. Notice that you see primary document that is written in Process Data.
5. Click the **Info** icon in the Instance Data column of step 1 (the Release Service). Notice that the process data simply contains a link into PrimaryDocument.

---

(Continued on next page)

## Exercise 12–4 Adding the Release Service to the BasicInventoryProcess (Continued)

### Obtaining Business Process Results (Continued)

- Click the **Info** icon in the Instance Data column of the last Assign Service. Notice that the Primary Document is in ProcessData with the correct TotalPrice.

The screenshot shows a web application window titled "Business Process Detail" with a "CLOSE" button in the top right corner. The window is divided into two main sections: "Instance Data" on the left and "Process Data" on the right.

**Instance Data:** This section contains a brief description: "This page enables you to view process data, the message to the service, and the message from the service that have been processed." Below this are three bullet points:
 

- Click Process Data to view the process data.
- Click Message To Service to view the message to the service.
- Click Message From Service to view the message from the service.

 At the bottom of this section are three links: [Process Data](#), [Message To Service](#), and [Message From Service](#).

**Process Data:** This section displays XML data for a specific process. It includes the following information:
 

- Process Name: DEMO\_CBBasicInventory Instance ID: 27062
- Service Name: AssignService
- XML Content:
 

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessData>
 <PrimaryDocument SCIObjID="DALWXL26001924node1:12a332ab0b7-6157"/>
 <INVENTORY>
 <PRODUCT>
 <ITEM>Gizmo A</ITEM>
 <PRICE>1</PRICE>
 </PRODUCT>
 <PRODUCT>
 <ITEM>Gizmo B</ITEM>
 <PRICE>2</PRICE>
 </PRODUCT>
 <PRODUCT>
 <ITEM>Gizmo C</ITEM>
 <PRICE>4</PRICE>
 </PRODUCT>
 </INVENTORY>
 <TotalPrice>7</TotalPrice>
 <Result>Order More Items</Result>
</ProcessData>
```

- Click **Return** from the Business Process Detail window when complete.

## Lesson Review

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### Completed Objectives

This lesson was designed to help you to:

- Implement best practices for Assign Service
  - Implement best practices for Invoke Sub-Process Service
  - Implement best practices for Release Service
-



## *Case Study*

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### Contents

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## Background

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### Introduction

This lesson provides an opportunity to analyze a business problem and create a comprehensive solution to that problem.

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### Lesson objectives

This lesson is designed to help you to:

- Analyze a business problem
  - Create a comprehensive solution to solve the business problem
-

## Case Study

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<b>Overview</b>	This Case Study is based on a real implementation and is designed to test your learning in class. The Case Study is planned to take 8 hours (It is intended for flexibility on Friday or earlier if applicable). Because of the complexity of this study, regular stopping points are inserted to bring back the class together for discussion and progress checks. Those falling behind will be brought current by the instructor providing the solution to missing or non-working components.
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<b>Timeline</b>	The following timeline is a guideline established to assist you in managing your time for completing the Case Study. Adjust timing accordingly to pace of class. Examples being starting Fourth Day or Starting 5th Day but going a little longer.
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### **Fourth Day:**

1:00pm - 2:00pm - Discuss and explain the case study; Q&A time lines for the exercise and what services/adapters are required.

2:00pm - 4:00pm - Steps 1-5 from "Steps for Completing the Case Study".

4:00pm - 4:30pm - Breakpoint #1 - Class discussion and debugging of file directories and database table.

### **Fifth Day:**

9:00am - 11:30am - Steps 6-9 from "Steps for Completing the Case Study".

11:30am - 12:00pm - Breakpoint #2 - Class discussion and debugging of ErrRtn, and Output processes, and services/adapters.

12:00pm - 1:00pm - Lunch

1:00pm - 2:30pm Steps 10-13 from "Steps for Completing the Case Study".

2:30pm - 3:00pm - Breakpoint #3 – Class discussion and debugging of Main.

3:00pm - 3:30pm - Final Review/Course Wrap-up/Evals.

---



## The Business Problem

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### Overview

Historically, the company is operated as two autonomous divisions; one for trucking and logistics, and one for pharmaceuticals. Recently, Sterling B2B Integrator has been purchased and installed, and planned to unite processing into a single system through it. The backend systems will remain independent for the time being; still the evaluation of which ERP software to choose and implement in the future is under discussion.

Company receives inbound data in EDI ( X12) format, from Sterling Collaboration Network (our VAN of choice). Some of the data is intended for the company pharmaceutical division, some for the logistics division. Pharma orders must be written to the ORDERS table in the database. Logistics documents must be sent to the logistics application, which requires the data be in EDI format, but with a specific set of delimiters that the app system needs and which the partner will not provide. For data warehousing purposes, must write a copy of the data to a directory, in XML format.

Pull the data from the VAN by way of a communications package. It is being done through FTP communications and it is already established. The files will be transmitted to a folder on the B2Bi server.

Error handling is required, as is hands-free processing.

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(Continued on next page)

## The Business Problem

(Continued)

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### **Bootstrapped FSA Config Vs. FSA in a BP and CLA2**

During this case study the business flow and hints will have you build a business process with a FSA and an Invoke service to start off your process flow, and add error handling if there are no files to collect. Then in the last process you will add a CLA2 to run a script to clear the collection directory.

If limited on time, build a bootstrapped, scheduled FSA configuration as your “starting BP. Then remove the requirement for the CLA2 because the FSA will delete the file on collection

If you have more time try the FSA BP and CLA to clear the directory. Why would someone build all the extra to collect and delete a file? By having a FSA in a BP it gives you more control of the configuration. Such as setting false to “Delete on Collect” and having another service delete the file once processing was complete.

Setting an error on “No files to collect” is not very common as usually it is desired for the FSA to constantly check for incoming files and multiple errors would fill up error reports/logs. This error would be beneficial though, if files were expected at a specific time and if they did not arrive someone should be notified.

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(Continued on next page)

## The Business Problem

(Continued)

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### The Business Flow

The Start business process collects data from a directory with an FSA (scheduled). When data is collected, bootstrap Main. If no data is present for collection, invoke ErrRtn business process. This could also be done with a bootstrapped and scheduled FSA configuration instead of a BP but you would lose the error handling.

Main accepts the data handed to it by Start, and encodes it into XML, placing it into ProcessData. Test the data; if it is for the Pharma division, write the PO number, and customer number to the ORDERS table. If it is for the logistics division, change the segment terminator from a "\*" to a "=" (equal) and write the altered EDI data out to a processing directory. After this processing is done, pass the results to Output business process. If there are errors anywhere along the line, invoke ErrRtn.

Output accepts the data handed to it by Main, and invokes two paths at the same time; one will call a script outside of Sterling B2B Integrator that will clear the inbound directory, The other moves the XML in Process Data to Primary Document, and write it to a data warehousing directory. If there are errors anywhere along the line, invoke ErrRtn.

ErrRtn is called from multiple processes, as a generic error handling process. Project specifications require that errors be reported to the Sterling B2B Integrator admin via email, requiring the use of an SMTP Send Adapter.

---

## Pre-requisites to Complete the Case Study

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### Introduction

In order to complete this case study, you will require the following:

1. File System Adapter (2)
2. OnFault activity
3. Invoke Business Process Service
4. XML Encoder Service
5. Choice Start/Choice End
6. Lightweight JDBC Adapter

In order to extract the correct values for use in updating the database in the lightweight JDBC Adapter, you will need to know where the PO\_Number and Customer Number are located. If you look at your map you will see the following:

- PO Number = Element 0324 under the BEG segment
- Customer Number = Element 0093 under the N1 segment in the first loop of the Group N1.

Here is an example of an XPath statement finding the Customer number  
`//N1[1]/_0093/text()`

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(Continued on next page)

## Pre-requisites to Complete the Case Study (Continued)

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### Introduction (Continued)

#### 7. Document Keyword Replace Service

<b>Important!</b>	The Document Keyword Replace Service is not part of your course materials. However, all service and adapter documentation is available on Knowledge Center. There is no default configuration. One must be created before it will show in the GPM
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#### 8. Assign activity

#### 9. Command Line Adapter

Command Line Program: Batch program is supplied in lab files folders.  
Program name is Clear\_Dir.sh, and will delete all files in directory  
c:\Inbound\_from\_Comms.

#### 10. All Start/All End

#### 11. SMTP Send Adapter

#### 12. Create a table in the Sterling B2B Integrator database to the required specifications

#### 13. Access to product documentation

#### 14. XPath to conduct a choice

#### 15. XPath for DOMToDoc

---

## Case Study Hints

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<b>Introduction</b>	The following pages contain some tips that can help you as you work through the case study.
<b>Additional Information</b>	<ol style="list-style-type: none"><li>1. The Start business process contains a File System Adapter and an Invoke Business Process stencil. The FSA should read from Inbound_from_Comms and pass the document to the Main business process.</li><li>2. Create a business process called ErrRtn that uses an XML Encoder Service and an SMTP Adapter to send an e-mail (optionally also a note added to Process Data) that there is an error in the business process instance. Use the XML Encoder and xpath to pull from Process Data the Error tag contents and insert into the e-mail. Can also be done with a DOMToDoc.</li><li>3. Capture all errors with an OnFault that calls ErrRtn via an Invoke Business Process.</li><li>4. Create a map for translating EDI to XML. This map must work for both the Ellis 850 documents and the Unlimited 216 documents. A suggestion is to create an 850 input side map first, then add the 216 segments not there already (PUN, G61, TEM) to the 850 map. Since the map is being used for conversion to XML, data not in the document will be ignored at this step. Here the XML Encoder map will just convert the data it receives. Use 3040 version as previous maps.</li><li>5. Create in Main an XMLEncoder stencil, choose to Encode non-XML documents, and use the map you created.<ol style="list-style-type: none"><li>a. Set <b>edi_input_element_delimiter</b> to <b>2A *</b> .</li><li>b. Set <b>edi_input_segment_delimiter</b> to <b>7E ~</b> .</li><li>c. Set <b>map_name</b> to your combo map.</li></ol>The delimiter settings will allow the map to separate the segments and elements into individual tags instead of grouped together into one tag by the segment. This will make writing your rules and assigns much easier.</li></ol>

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(Continued on next page)

## Case Study Hints

(Continued)

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### Additional Information (Continued)

6. Once the document has been converted into XML in Process Data, create a rule that tests whether the data is from Ellis Labs (N1 contains “ST” and “Ellis”) or from Unlimited (G61 contains “SH” and “CHRISTIAN”). If it’s for Ellis (Pharma), use Assign activities to pull the PO\_Num and CustNum values out of the document and into their own Process Data tags. Using a Lightweight JDBC Adapter, write an insert statement that pulls the PO\_Num and Cust\_Num values from Process Data and inserts them into the table created earlier as CUST\_ID and PO\_NUM.
7. If the data is for Unlimited (Logistics), call the Document Keyword Replacement Service and replace ~ with = as the segment delimiter, and use an FSA to extract the document to the Altered\_Delimiter directory.
8. After the Choice End, call an Invoke Business Process to invoke the Output BP.
9. Output uses an All Start to enact two different paths at the same time. One path uses a Command Line Adapter to call the Clear\_Dir.bat script to clear Inbound\_from\_Comms. The other path uses an XML Encoder to convert Process Data to Primary Document. Use a File System Adapter to write the Primary Document to the Output directory. Configure an OnFault to handle any errors.
10. It is very common in the real world to run business processes to see how things will align in Process Data in order to write correct XPath statements. You do not have to but an example would be to run your map to see the tags and data from the EDI document to write your rules and assigns.

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(Continued on next page)

## Case Study Hints

(Continued)

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11. If you do not set delimiters for your map the following assigns can be helpful in pulling out pieces of information:

a. On an Assign: `substring(//_0353/text(), 8, 4)`

It reaches into ProcessData, locates element \_0353, counts from the left 8 bytes, and extracts the next 4. Result: The PO number from the data in ProcessData for use in the adapter is extracted.

b. On an Assign: `string-length(//_0098/text())`

It reads the overall length of the element in ProcessData and stores that number of bytes as an integer for future use.

c. On an Assign: `substring(//_0098/text(), 5, CustNumLen)`

Here, CustNumLen might be the To value from the last Assign. It reaches into the element in ProcessData, places a pointer at the fifth byte, and extracts the rest of the element for use in the adapter.

---



## Completing the Case Study

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<b>Overview</b>	<p>In order to successfully complete the Case Study, you must complete the following steps in their given order.</p> <ol style="list-style-type: none"><li>1. Analyze the business problem, plan/sketch a solution.</li><li>2. Gather requirements (directories to be created, email address, mail host/port, command-line script location, and function, database table schema).</li><li>3. Develop three file system directories (Inbound_from_Comms, Altered_Delimiter, Output_Data).</li><li>4. Create database table ORDERS within the Sterling B2B Integrator database.</li><li>5. Build the business processes.</li></ol>
<b>To Create the ORDERS Database Table</b>	<p><b>Database Schema:</b> Table is to be added to Sterling B2B Integrator database in class.</p> <p><b>Table Name:</b> ORDERS</p> <p><b>Fields:</b> CUST_ID (string 20), PO_NUM (string 10)</p> <p><b>Creation Instructions:</b></p> <ol style="list-style-type: none"><li>a. Go to <b>Operations &gt; System &gt; Support Tools &gt; SQL Manager</b> in the UI</li><li>b. Type <b>create table ORDERS(CUST_ID char(20), PO_NUM char(10))</b> and press <b>Enter</b></li><li>c. Check your work by typing <b>describe ORDERS</b> and click <b>Execute</b></li></ol>

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(Continued on next page)

## Completing the Case Study

(Continued)

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**To Create the  
ORDERS Database  
Table  
(Continued)**

6. Configure services and adapters Create and check-in ErrRtn.
  7. Test/debug ErrRtn.
  8. Create and check-in Output.
  9. Test/debug Output with and without errors to call ErrRtn.
  10. Create and check-in Main.
  11. Test/debug Main with and without errors to call ErrRtn.
  12. Manually test entire process.
  13. Set schedule for Collection side of FSA or schedule Start BP to test automation.
-

## Deliverables Provided by Instructor

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### Overview

Your Instructor will provide you with the following information to assist you in completing the Case Study.

1. Database table schema.
2. Command-line program.
3. Two EDI interchanges; one for Pharma and one for Logistics.
4. Mail server documentation
5. Documentation on this case study, with breakpoints for discussion.
6. A completed version of this, tested and demonstrable, for discussion and to catch up those lagging behind.

---

### Additional Information

The case study that provided in this lesson is intended to challenge you with a real-world business problem. The examples hear are one way to solve the problem. Feel free to experiment if desired.

If you have any questions during the Case Study or you need assistance, contact the instructor.

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## Lesson Review

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### Completed Objectives

This lesson was designed to help you to:

- Analyze a business problem
  - Create a comprehensive solution to solve the business problem
-



# Course Wrap Up

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## Introduction

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### Lesson Objectives

---

This lesson is designed to help you to:

- Review completed Course Objectives.
  - Locate additional help.
  - Complete the Online Course Evaluation.
-

## Course Objectives

---

### Completed Course Objectives

---

This course is designed to help you to:

- Run a business process
  - Create a business process using the Graphical Process Modeler
  - Explain how to create a service configuration
  - Explain how to track an executable business process
  - Discuss the basics of Sterling B2B Integrator.
-



## Lesson Review

---

### Completed Lesson Objectives

---

This lesson is designed to help you to:

- Review completed Course Objectives.
  - Locate additional help.
  - Complete the Online Course Evaluation.
-

## Congratulations!

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### Course Completion

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You have successfully completed the Sterling B2B Integrator Fundamentals course!

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# Quiz Answers

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## Quiz Answers

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### Overview

This Appendix provides answers to the Sterling B2B Integrator, Fundamentals lesson quizzes.

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## Lesson 02 Quiz

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**Answers**

1. How many branches within a Choice can be executed as a result of a case statement?
- a. One
  - b. Two
  - c. Three
  - d. Unlimited

The correct answer is: **A: One**

2. Services and adapters are used to exchange messages between business processes.
- a. True
  - b. False

The correct answer is: **A: True**

3. The All activity does not complete until all the sequences are complete.
- a. True
  - b. False

The correct answer is: **A: True**

4. Which of these elements are available in Operations of services/adapters?  
Select all the correct answers.
- a. Output
  - b. Participant
  - c. Input
  - d. Message To Service
  - e. Message From Service

The correct answers are: **A. Output, B. Participant, C. Input**

---

## Lesson 03 Quiz

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### Answers

1. `"/ProcessData/Order/OrderNumber"` is an example of:

- a. an absolute path
- b. a relative path

The correct answer is: **A: an absolute path**

2. In XPath, `"/text()"` and `"string"` perform the same function

- a. True
- b. False

The correct answer is: **B: False**

3. Which of the following is an example of an indexed search using XPath?

- a. `"/ProcessData/Order/item/text()"`
- b. `"/ProcessData/Order/item[3]/price"`
- c. `"/ProcessData/Order/*"`
- d. `"/ProcessData/Order/item"`

The correct answer is: **B: `"/ProcessData/Order/item[3]/price"`**

4. Which reserved character is used to denote an attribute in XPath searches?

- a. \*
- b. \$
- c. @
- d. &

The correct answer is: **C: @**

---

## Lesson 04 Quiz

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### Answers

1. Which service editor option allows you to send service configuration information to another service?

- e. Config
- f. Message From Service
- g. Input Msg
- h. Output MSG

The correct answer is: **D. Output MSG**

2. Which of the following GPM elements opens the Edge Editor?

- a. OnFault
- b. Consume
- c. Spawn
- d. Line off a Choice Element

The correct answer is: **D: Line off a Choice Element**

3. You can open a bpml file in the GPM and view its graphical representation.

- a. True
- b. False

The correct answer is: **A: True**

---



## Lesson 05 Quiz

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### Answers

1. Which of the following statements are true regarding subflows? Select all correct answers.
  - a. An internal service is used to call other business processes.
  - b. A BPML activity is used to make choices about the data.
  - c. A graphical tool creates another layer in your business process.
  - d. A layer allows you to add more details about an activity in the business process

The correct answer is: **C: A graphical tool creates another layer in your business process.** and **D: A layer allows you to add more details about an activity in the business process.**

2. The business process that is checked in to Sterling B2B Integrator is independent of any .bp file that you have saved in a local directory.
  - a. True
  - b. False

The correct answer is: **A: True**

3. Which is the language used to create rules in a business process?

The correct answer is: **XPath**

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**Lesson 05 Quiz****(Continued)**

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**Answers**      4. Match the Persistence Level with their appropriate descriptions.

	Persistence Level		Description
1	BP Start Stop (Engine May Override)	a	Choose this level if you do not need tracking data for your process when it is successful and your recovery does not depend on process step data being saved.
2	Step Status Only	b	Choose this level if you know that you do not need persisted status data for successful processing.
3	BP Start Stop Only	c	Choose this level if you need only status information for each step and your recovery needs do not depend on additional data being saved
4	Error Only	d	Choose this level if your recovery needs do not depend on data being saved for the processing steps.

The correct answers are: 1-b, 2-c, 3-d, 4-a

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## Lesson 06 Quiz

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**Answers**

1. In current processes, if the status shows a green traffic light, the state will always be completed successfully.

- a. True
- b. False

The correct answer is: **A: True**

2. Which field in the Execute Business Process page has the process data that are generated in each step?

The correct answer is: **A: Instance Data**

3. When does the Parent/Child column of the Process Monitor indicate "none"?

- a. This process does not invoke any process and no other process invoked this process.
- b. This process failed to read in a designated file.
- c. This process failed to write output to the designated directory.
- d. This process failed has not received input file to invoke the other process.

The correct answer is: **A: This process does not invoke any process and no other process invoked this process.**

4. The Terminated business process can be resumed from the step where it stopped.

- a. True
- b. False

The correct answer is: **B: False**

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## Lesson 06 Quiz

(Continued)

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- Answers**
5. At what state should a business process be, for it to be archived? Select all that apply.
- a. Completed
  - b. Terminated
  - c. Halted
  - d. Interrupted

The correct answers are: **A. Completed** and **B. Terminated**

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## Lesson 09 Quiz

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**Answers**

1. Where do you define delimiters in EDI Map?

- a. Root Element
- b. Group
- c. Segment
- d. Element

The correct answer is: **A: Root Element**

2. Why is the delimiter setting optional for an XML Encoder map that uses EDI Input?

The correct answer is: **Because it allows the XML to be formatted with a separate tag for each EDI segment.**

3. What is the default extension for a map in the Map Editor?

- a. .mxl
- b. .txo
- c. .txl
- d. .lnx

The correct answer is: **A: .mxl**

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## Lesson 11 Quiz

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- Answers**
1. Archiving deletes expired process instance data whereas Purging moves it to disk for storage.
    - a. True
    - b. False

The correct answer is: **B: False**

2. Restored data is moved to the restore tables within the Sterling B2B Integrator database.
  - a. True
  - b. False

The correct answer is: **A: True**

3. At what intervals does the built-in system recovery business process run in Sterling B2B Integrator?
  - a. Every 15 minutes
  - b. Every 45 minutes
  - c. Every 30 minutes
  - d. Every 60 minutes

The correct answer is: **B. Every 45 minutes**

4. How do you troubleshoot the “Invalid Service Configuration” error?
  - a. Fix the incorrect parameter and restart Sterling B2B Integrator
  - b. Install and configure the service and then finally restart Sterling B2B Integrator.
  - c. Restart Sterling B2B Integrator.
  - d. Determine the missing parameter and modify the service properties of the instance in the business process.

The correct answer is: **D: Determine the missing parameter and modify the service properties of the instance in the business process.**

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## Lesson 11 Quiz

(Continued)

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- Answers**
5. To what file types can you export Sterling B2B Integrator objects? Select the correct answers.
- a. XML
  - b. JAR
  - c. Zip
  - d. RAR
  - e. bpm

The correct answers are: **A. XML** and **B. JAR**

6. When can a business process be exported, but not deleted?
- a. The unarchived or purged instance data remains in Sterling B2B Integrator.
  - b. The delete flag is set to "no" in the properties files.
  - c. The export and delete are the same thing.
  - d. The unarchived or purged instance data is already exported.

The correct answer is: **A. The unarchived or purged instance data remains in Sterling B2B Integrator.**

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