

IBM® WebSphere® Commerce



Fundamentals

Version 54

IBM® WebSphere® Commerce



Fundamentals

Version 54

Note:

Before using this information and the product it supports, be sure to read the information in the Notices section.

Third Edition (September 2002)

This edition applies to the following products:

IBM WebSphere Commerce Business Edition for Windows NT and Windows 2000, Version 5.4

IBM WebSphere Commerce Business Edition for AIX, Version 5.4

IBM WebSphere Commerce Business Edition for Solaris Operating Environment Software, Version 5.4

IBM WebSphere Commerce Studio, Business Developer Edition for Windows NT and Windows 2000, Version 5.4

IBM WebSphere Commerce Professional Edition for Windows NT and Windows 2000, Version 5.4

IBM WebSphere Commerce Professional Edition for AIX, Version 5.4

IBM WebSphere Commerce Professional Edition for Solaris Operating Environment Software, Version 5.4

IBM WebSphere Commerce Professional Edition for Linux, Version 5.4

IBM WebSphere Commerce Business Edition for Linux, Version 5.4

IBM WebSphere Commerce, Business Edition for Linux for IBM eServer zSeries and S/390, Version 5.4

IBM WebSphere Commerce Professional Edition for iSeries, Version 5.4

IBM WebSphere Commerce Business Edition for iSeries, Version 5.4

IBM WebSphere Commerce Studio, Professional Developer Edition for Windows NT and Windows 2000, Version 5.4

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Where to find information

WebSphere Commerce has online and hardcopy information describing the complete e-commerce solution. WebSphere Commerce Studio information is included as part of WebSphere Commerce. In addition, the software products that are bundled with either of WebSphere Commerce or WebSphere Commerce Studio provide further information, describing the specific features and functions of the software. This section provides a quick overview of where to locate the various types of information.

For more detailed information about these sources of information, refer to “Help Information” on page 221.

WebSphere Commerce publications

The following lists the WebSphere Commerce publications:

- *IBM WebSphere Commerce Fundamentals, Version 5.4*
- *IBM WebSphere Commerce Programmer’s Guide, Version 5.4*
- *IBM WebSphere Commerce Quick Beginnings for Windows NT and Windows 2000, Version 5.4*
- *IBM WebSphere Commerce Quick Beginnings for AIX, Version 5.4*
- *IBM WebSphere Commerce Quick Beginnings for Linux, Version 5.4*
- *IBM WebSphere Commerce Quick Beginnings for Linux for IBM eServer zSeries and S/390, Version 5.4*
- *IBM WebSphere Commerce for Solaris Operating Environment Software Quick Beginnings, Version 5.4*
- *IBM WebSphere Commerce for IBM eServer iSeries 400 Quick Beginnings, Version 5.4*
- *IBM WebSphere Commerce Studio for Windows NT and Windows 2000 Installation Guide, Version 5.4*

The following publications are available in PDF format from the Technical Library page.

Installation Guides

- *IBM WebSphere Commerce for Windows NT and Windows 2000 Installation Guide for use with a DB2 Universal Database, Version 5.4*
- *IBM WebSphere Commerce for Linux Installation Guide, Version 5.4*
- *IBM WebSphere Commerce for Linux for IBM eServer zSeries and S/390 Installation Guide, Version 5.4*

- *IBM WebSphere Commerce for Windows NT and Windows 2000 Installation Guide for use with an Oracle Database, Version 5.4*
- *IBM WebSphere Commerce for Windows NT and Windows 2000 Additional Software Guide, Version 5.4*
- *IBM WebSphere Commerce for AIX Installation Guide for use with a DB2 Universal Database, Version 5.4*
- *IBM WebSphere Commerce for AIX Installation Guide for use with an Oracle Database, Version 5.4*
- *IBM WebSphere Commerce for AIX Additional Software Guide, Version 5.4*
- *IBM WebSphere Commerce for Solaris Operating Environment Software Installation Guide for use with a DB2 Universal Database, Version 5.4*
- *IBM WebSphere Commerce for Solaris Operating Environment Software Installation Guide for use with an Oracle Database, Version 5.4*
- *IBM WebSphere Commerce for Solaris Operating Environment Software Additional Software Guide, Version 5.4*
- *IBM WebSphere Commerce for IBM eServer iSeries 400 Installation Guide, Version 5.4*
- *IBM WebSphere Commerce for IBM eServer iSeries 400 Additional Software Guide, Version 5.4*
- *IBM WebSphere Commerce for Linux Additional Software Guide, Version 5.4*
- *IBM WebSphere Commerce for Linux for IBM eServer zSeries and S/390 Additional Software Guide, Version 5.4*

Migration Guides

- *IBM WebSphere Commerce Commerce Studio for Windows NT and Windows 2000 Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for Windows NT and Windows 2000 Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for AIX Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for Solaris Operating Environment Software Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for IBM eServer iSeries 400 Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for Linux Migration Guide, Version 5.4*
- *IBM WebSphere Commerce for Linux for IBM eServer zSeries and S/390 Migration Guide, Version 5.4*

Other books

- *IBM WebSphere Commerce Store Developer's Guide, Version 5.4*
- *IBM WebSphere Commerce Access Control Guide, Version 5.4*
- *IBM WebSphere Commerce Catalog Manager User's Guide, Version 5.4*
- *IBM WebSphere Commerce Security Guide, Version 5.4*

- *IBM WebSphere Commerce Calculation Framework Guide, Version 5.4*
- *IBM WebSphere Commerce Accelerator Customization Guide, Version 5.4*

For updates to these publications, refer to the following Web address:


 ibm.com/software/webservers/commerce/wc_pe/lit-tech-general.html

 ibm.com/software/webservers/commerce/wc_be/lit-tech-general.html

WebSphere Commerce online help

The WebSphere Commerce online help consists of online information that can be viewed using a Web browser. Extracts from the online information that have also been compiled into related subject area PDF (Portable Document Format) documents.

The online help can be accessed from a Web browser that runs on Internet Explorer, Version 5.5, or higher using the following address:
`http://host_name/wchelp/`, where *host_name* is the name of your WebSphere Commerce machine.


 In addition, on Windows, the help can be accessed from the **Start** menu as follows:

Start -> Programs -> IBM WebSphere Commerce -> Documentation

WebSphere Commerce Studio online help

The WebSphere Commerce Studio online help is included in the WebSphere Commerce online help.

Online help for packaged products

 The following table lists the locations of online help for products that are packaged with WebSphere Commerce and Commerce Studio.

Product	Access point for information
WebSphere Studio	<ul style="list-style-type: none">• Studio Guide Start -> Programs -> IBM WebSphere Commerce Studio -> Studio 4.0 -> Studio Guide• Getting Started Start -> Programs -> IBM WebSphere Commerce Studio -> Studio 4.0 -> Getting Started
DB2 Universal Database [®]	Start -> Programs -> IBM DB2 [®] -> Information-> Information Center
WebSphere Application Server	Start -> Programs -> IBM WebSphere -> Application Server V4.0 -> Documentation
IBM HTTP Server	Start -> Programs -> IBM HTTP Server -> Documentation
IBM Payment Manager [™]	Start -> WebSphere Payment Manager -> Payment Manager README

Further information on the Web

You can find other sources of useful information on the Web, as described in the following sections.

Support

To find support information, including newsgroups, FAQs, technical notes, troubleshooting information and downloads refer to the following Web address: ibm.com/software/webservers/commerce/support.html.

Software partners

There are many software partners that offer products and services to enhance WebSphere Commerce. For information about these partners, visit the www.ibm.com/software/webservers/commerce/community and click the **Software Developers** link.

Redbooks

To find more advanced technical information, visit the Redbooks Web site, which is located at www.ibm.com/redbooks and search for WebSphere Commerce.

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Before you begin

This edition of *IBM WebSphere Commerce Business Edition, Fundamentals* provides an introduction to the WebSphere Commerce. This book contains the following types of information:

- Overview of the WebSphere Commerce family, including descriptions and explanations of how everything fits together
- Information on site planning
 - Configuration options and key considerations
 - Store planning and key considerations
- Overview of Store Services
 - Creating a store
 - Store pages
 - Online catalog pages
- Working with your online catalog
 - Creating your online catalog
 - Using the Loader package
- Overview of the tasks involved in customizing a store
 - Planning the project
 - Understanding the effort involved
 - Deciding between various methods to perform similar tasks
- Testing and deploying your store
 - Using a staging server
- Administration of your site and store
 - Overview of the Administration Console
 - Overview of database maintenance
 - System management
- Running your store front
 - Managing inventory
 - Managing the store's catalog
 - Managing customer information
 - Fulfillment
 - Managing business relationships
- Extending the features of your store
 - Campaigns

- Auctions
- Business intelligence reporting
- Glossary

Conventions used in this book

This book uses the following conventions:

The terms WebSphere Commerce Studio and Commerce Studio are interchangeable.

Boldface type indicates graphical user interface (GUI) controls such as names of fields, buttons, or menu choices.


Monospaced type indicates examples of text you enter exactly as shown, as well as directory paths.

Italic type is used for emphasis and variables for which you substitute your own values.

 **NT** indicates information specific to Windows NT.

 **2000** indicates information specific to Windows 2000.

 **AIX** indicates information specific to AIX.

 **Solaris** indicates information specific to the Solaris Operating Environment.

 **400** indicates information specific to the IBM iSeries 400 (formerly called AS/400[®]).

 **Linux** indicates information specific to Linux.

 **Business** indicates information specific to the Business Edition.

 **Professional** indicates information specific to the Professional Edition.

 **B2C** indicates information specific to a business-to-consumer site.

 **B2B** indicates information specific to a business-to-business site.



 indicates additional information that can help you complete a task.

Part 1. Overview

This part of the book provides an introduction to e-commerce software, and discusses some key business features of WebSphere Commerce Version 5.4. It also provides an overview chapter which describes the product offerings.

Chapter 1. An introduction to e-commerce software

It was only a few years ago that the goal for most businesses was to have a Web site describing the company and the products or services they provided. Times have changed.

In order to remain competitive in a global marketplace, online merchants have to offer much greater levels of customer service and support than ever before. When customers visit an e-commerce Web site, they expect, at a minimum, to be able to browse an online catalog, add products to a shopping cart, make a secure purchase using their credit card, and specify the location for delivery. But that isn't enough. Customers have become more Internet savvy, so their expectations have grown. They want to shop in the language and currency of their choice. They expect personalized services based on their interests because they don't have a lot of time for browsing catalogs. They also want intelligent assistants to take the place of the store sales person and help them by making useful product recommendations. Soon, customers will want to use hand-held devices for their shopping.

Changes to e-commerce software capabilities aren't limited to the customer view. For many merchants, e-commerce has moved from an experimental project to being an integral part of their core business. As a result, many non-technical staff are now part of the e-commerce process. Marketing and merchandising managers are using e-commerce software in more sophisticated ways to create marketing campaigns, target products to specific customer segments, and monitor the success of their campaigns.

Business processes have also changed with the times. E-commerce software is integrated with existing software systems so the merchant maintains a single source for customer and product information. As a result, customers know if a product is in stock before they make a purchase. Also, merchants are increasingly becoming connected to their suppliers, providing quicker response times to customer requests.

WebSphere Commerce, now in its fifth version, has kept pace with the increasing expectations and requirements of customers and merchants. Build an e-commerce site that turns visitors into buyers with WebSphere Commerce.

The WebSphere difference

Your e-commerce site needs a strong platform to build on. Using WebSphere software, you are getting products that meet industry standards, and have high performance, dependability, scalability, and security. When building your e-commerce site, these requirements are a must.

The foundation of the WebSphere platform is provided by the WebSphere Application Server, a robust server for your e-commerce applications. It supports industry software standards such as Java™, Enterprise JavaBeans, and JavaServer Pages files and enables powerful interactions with enterprise databases and transaction systems.

The WebSphere platform includes MQSeries®, a middleware product that allows you to integrate your e-commerce applications with back-end systems. Integrating your applications helps you maintain a single source of data, allowing you to respond quickly and effectively to customer requests.

The WebSphere software family has a complete set of tools for extending the capabilities of the WebSphere platform. Two products are particularly relevant for WebSphere Commerce: VisualAge for Java and WebSphere Studio. VisualAge for Java provides programmers with a complete Java development environment, including support for Enterprise JavaBeans. WebSphere Studio provides Web developers with a complete HTML development environment, including support for JavaServer Pages technology.

WebSphere Commerce makes full use of the WebSphere platform, enabling you to build an e-commerce system that you can count on for performance and dependability. This allows you to put your energies into creating unique, added-value applications that give your enterprise a winning edge.

Marketing for profit

Until recently, working with e-commerce software was the responsibility of programmers, site administrators, and Web gurus. What about the marketing managers? They are the ones who create campaigns such as: "buy one get one free", or "get great prices during our back-to-school sale". Marketing managers need to interact with the e-commerce system to sell products and WebSphere Commerce makes it possible.

The WebSphere Commerce Accelerator provides a comprehensive set of tools for Marketing Managers. First, create customer profiles that define the demographics, purchase history, and other attributes of your customers. Use campaign initiatives to target advertisements at specific customer segments. A "closed loop marketing" process enables you to know and serve your customers better. A robust business intelligence system, accessible from the

WebSphere Commerce Accelerator, reports on the comparable success rates of your marketing campaigns, as well as demographic distributions of customers. These reports provide feedback that can be used to evaluate recent campaigns and to initiate change for upcoming campaigns. This completes the marketing campaign lifecycle.

It's a big world

You're not selling products to your local community any more, so you need to make your e-commerce site accessible to a world-wide audience. How do you do that? When a customer visits your site, they can register to tell you who they are. What country or region are they from? What is their preferred language? What currency do they use? WebSphere Commerce makes it all possible with its progressive multicultural support.

When your customer views product information, show it to them in their preferred language and currency. You will have to translate all your textual information, but the results will be worth it when you are selling to an international audience.

Your own staff can work with WebSphere Commerce in the language of their choice.

It's a mobile world

Using WebSphere Commerce interfaces, you can provide access to your online stores from pervasive computing devices, like cellular phones, PDAs (personal digital assistants) and i-mode devices. This opens up your business to a wider audience.

Bringing your site alive

Adding auction capability to your site helps to bring customers back to your site. Choose from a variety of auction types:

- Open Cry: all bids are available for public viewing
- Sealed Bid: all bids are seen only by the auction administrator
- Dutch Auctions: start with a high bid and see if anyone takes it

What better way to move excess merchandise? In fact, products sold on Internet auctions, on average, sell for above list price.

Add a sales assistant to your site to help guide customers with little knowledge of a product category. Those with more knowledge can explore by selecting desired product features from a list. Once customers have narrowed down the selection, they can compare similar products side by side.

Why Java™?

WebSphere Commerce uses an open architecture based on a Java programming model, allowing Store Developers to modify and add commands to customize the behavior of their store. Why use Java?

- Java code is easier to create and maintain than C++ code, so Store Developers are more productive and their code more reliable when they customize store operations. It is much easier to find skilled Java programmers than C++ programmers. Java is an object-oriented language, so Store Developers can write applications quickly from reusable parts. Also, Java extensions, like enterprise beans, make it an ideal language for client-server, distributed, applications.
- JavaServer Pages files are easier to create and maintain than Net.Data® macros, so Web designers with basic Web skills can create or modify store pages. In previous releases, anyone designing store pages needed Net.Data programming skills. Typically, Web designers are skilled in graphic design rather than programming.
- Java applications are more portable than C++ applications, so your development and production systems do not have to be the same.

WebSphere Application Server supports the Java environment. To serve JavaServer Pages files, to run servlets, and to enable enterprise beans, you need an application server providing high performance, dependability, and security. WebSphere Application Server provides a robust environment for Java applications making it a strong foundation for your e-commerce Web site.

Tools for every job

Creating and running a store requires staff with a variety of skills and specialized tools.

For the Web designer, WebSphere Commerce Studio provides a complete Web development environment. Edit your HTML or JavaServer Pages files using Page Designer. Manage your assets using WebSphere Studio. Then, publish your work to the WebSphere Commerce Server and test your results.

For the Store Developer, VisualAge for Java provides a complete, award-winning, Java development environment. Use VisualAge for Java to create or extend WebSphere Commerce commands, Enterprise JavaBeans, and data beans. Then, publish your work to the WebSphere Commerce Server and test your results.

For the Site Administrator, WebSphere Commerce provides performance monitoring tools within the WebSphere Commerce Administration Console to

help keep things running smoothly. You can also use the Administration Console to maintain security by providing access control to the various users of the system.

For the Marketing Manager, the WebSphere Commerce Accelerator interfaces allow you to display, price and sell products in your online store, as well as analyze customer behavior.

For the Customer Service Representative, the WebSphere Commerce Accelerator interfaces allow you to manage customer orders, customer information, and payment information.

What does this mean to you?

WebSphere Commerce Version 5.4 provides a complete solution for your e-commerce needs. Running on award-winning software like DB2, WebSphere Application Server, and VisualAge for Java, you are getting a secure, scalable, high-performing base for your e-commerce site. Using an open architecture, WebSphere Commerce is highly customizable to meet all your requirements.

The remainder of this book describes the WebSphere Commerce solution in greater detail.

Chapter 2. Overview of WebSphere Commerce

This chapter describes the IBM WebSphere Commerce family of products, and lists the individual software components included in the offerings.

Product offerings

The WebSphere Commerce family consists of the following product offerings:

- IBM WebSphere Commerce Professional Edition
- IBM WebSphere Commerce Business Edition
- IBM WebSphere Commerce Studio Professional Developer Edition
- IBM WebSphere Commerce Studio Business Developer Edition

IBM WebSphere Commerce

IBM WebSphere Commerce Version 5.4, is a comprehensive set of integrated software components that are used to build, maintain, and host stores. WebSphere Commerce, builds on the reputation for dependability, scalability, and performance.

Some of the largest, busiest e-commerce sites, including the ShopIBM site, www.ibm.com/shop, use WebSphere Commerce.

The following list shows the software components for WebSphere Commerce. For a detailed description of each component, refer to “WebSphere Commerce components” on page 11.

Platform availability

- Windows NT[®], Windows[®] 2000
- AIX
- Linux
- Sun Solaris
- iSeries/400

Tools

- Store Services
- WebSphere Commerce Accelerator
- Administration Console
- Configuration Manager

Required components

- DB2 Universal Database Enterprise Edition, Version 7.2

▶ 400 DB2 Universal Database for iSeries, which is included with OS/400 for iSeries V5R1

- IBM HTTP Server, Version 1.3.19

▶ 400 IBM HTTP Server for iSeries V5R1

- WebSphere Application Server, Advanced Edition, Version 4.0.2
For Linux for IBM eServer zSeries and S/390, WebSphere Application Server, Advanced Edition, Version 4.0.4
- Blaze Advisor Rule Server, from HNC Software, Inc.
- Blaze Advisor Innovator Runtime, from HNC Software, Inc.
- IBM WebSphere Payment Manager, Version 3.1.2

▶ 400 IBM WebSphere Payment Manager, Version 3.1.2

For Linux for IBM eServer zSeries and S/390, IBM WebSphere Payment Manager, Version 3.1.3

Payment cassettes

- ▶ Windows ▶ AIX ▶ Solaris ▶ 400 SET Secure Electronic Transaction™ cassette, Version 3.1.2
- IBM WebSphere Payment Manager cassette for VisaNet, Version 3.1.2
- CyberCash cassette, Version 3.1.2
- BankServACH cassette, Version 3.1.2
 - For Linux for IBM eServer zSeries and S/390, IBM WebSphere Payment Manager cassette for VisaNet, Version 3.1.3
 - For Linux for IBM eServer zSeries and S/390, CyberCash cassette, Version 3.1.3
 - For Linux for IBM eServer zSeries and S/390, BankServACH cassette, Version 3.1.3

Optional components

- IBM SecureWay® Directory Server, Version 3.2.1

▶ 400 Directory Services

- ▶ Windows ▶ AIX ▶ Solaris ▶ Linux DB2 Text Extender®, Version 7.1
- Segue SilkPreview, Version 1.0
- WebSphere Recommendation Engine, Version 5.4
- WebSphere Commerce Analyzer, Version 5.4
- Brio Broadcast Server, Version 6.2
- Lotus QuickPlace, Version 2.0.8
- Lotus Sametime, Version 2.5

WebSphere Commerce components

This section provides details about the components of WebSphere Commerce.

Tools

WebSphere Commerce provides the following tools:

WebSphere Commerce Accelerator

WebSphere Commerce Accelerator provides a central location to manage your store and to facilitate your business strategies. The WebSphere Commerce Accelerator provides an integration point for operating an online store, such as store and product management, fulfillment, marketing, customer orders, and customer service.

Exploit the WebSphere Commerce Accelerator's potential to practice "relationship marketing". Use the WebSphere Commerce Accelerator to measure activity on your Web site and gather key information about your customers and their buying habits. You can then analyze the information and make appropriate adjustments based on your new information. You could add content, customer profiles, or promotions; then develop your campaigns accordingly.

The WebSphere Commerce Accelerator can also produce reports to assist you with your business intelligence needs.

Store Services

Store Services provides a central location for creating, customizing, and maintaining certain operational features of a store.

WebSphere Commerce store development tools focus on helping you create and customize your stores. WebSphere Commerce includes sample stores, provided in the form of a store archive file. This file is the encapsulation of a store, including the file assets and the database assets. Using the browser-based tools, you can customize this file to meet your store needs. A publishing utility converts the archive into a functioning store on the WebSphere Commerce Server. Other tools, such as the Store Profile notebook, allow you to change some aspects of your store prior to and after publishing.

Using Store Services, you can:

- Define store information with the Store Profile notebook
- Define tax and shipping information
- Publish your store to the WebSphere Commerce Server

Administration Console

The Administration Console allows a Site Administrator or Store Administrator to perform tasks related to site configuration and store

configuration. Tasks that the Site Administrator performs using the Administration Console, include the following:

- Manage users, organizations, roles, and member groups
- Manage access control
- Define transports and message types for the site
- Monitor performance of the site
- Specify Payment Manager settings
- Configure logging and tracing
- Enable and disable WebSphere Commerce components
- Schedule jobs to be run for the site
- Update registry components

Configuration Manager

The Configuration Manager establishes and changes the infrastructure required to deploy and run WebSphere Commerce. Establishing the infrastructure involves acquiring information regarding the location of your database, Web server, and Payment Manager, and any necessary information required to configure these applications for use with WebSphere Commerce. It also involves determining your machine's setup information, and any information necessary to initialize the WebSphere Commerce application itself.

The Configuration Manager allows the Site Administrator to perform administration tasks and configuration tasks without having to work with syntax-sensitive configuration files. These are some of the functions the Site Administrator can perform:

- Create or delete a WebSphere Commerce instance
- Change the configuration settings for a WebSphere Commerce instance
- Configure the Web server
- Configure the database to serve as a staging server
- Enter parameters for Payment Manager

For more information on the Configuration Manager, refer to the Installation Guide for your platform, or refer to the WebSphere Commerce online help.

Required components

WebSphere Application Server

WebSphere Commerce includes the WebSphere Application Server. This Web application server is a high-performance Enterprise JavaBeans (EJB) server that implements EJB components to incorporate business logic. It supports multiple platforms, databases and transaction systems, supports servlets, and provides Java-based gateway, and EJB connectivity. For information about the EJB specification, refer to the www.java.sun.com Web site.

Web container support: A Web container is a component of the Web application server that manages servlets. Servlets are Java programs that run on a Java-enabled server. A servlet extends the Web server's capabilities. For example, a servlet can create dynamic HTML pages in response to a client request. Another servlet can manage multiple client connections, accept client requests, and broadcast the response to all interested clients.

In the past, server-side requests were often handled by CGI (Common Gateway Interface) programs. Servlets provide advantages over CGI programs in that they can run with less overhead, are more portable, and are easier to maintain.




A Web container manages the creation and deletion of servlets, dispatching the appropriate servlet for each URL it receives. A Web container also specifies which servlets should automatically load into memory at start time and which servlets should load upon initial request. Of particular importance to Commerce Studio is the servlet responsible for compiling all JavaServer Pages files that generate responses to the client.

In the WebSphere Commerce environment, JSP files, compiled into servlets, are for the display of category and product pages from your catalog. In addition, you may take advantage of the extensions to the servlet API that WebSphere Application Server has provided. For example, one extension allows you to track the page that has referred visitors to your site.

DB2 Universal Database

DB2 Universal Database is the default database for the WebSphere Commerce product. DB2 stores all data related to the store, the store's products and services, and all customer data.

    WebSphere Commerce includes DB2

Universal Database, Enterprise Edition.    As an alternative, you may use Oracle as your database; however, this software is not included.

 OS/400 for iSeries includes DB2 Universal Database. Ensure that you also have the latest PTFs installed.




Web server


    IBM HTTP Server, powered by Apache,

is the default Web server for the WebSphere Commerce product. IBM has enhanced the Apache Web server. Features include the following:

- Support for SSL secure connections
- Remote configuration
- SNMP support

- LDAP support
- Fast response cache accelerator for serving static HTML pages

   IBM HTTP Server is the provided Web server; however, you can use Domino™ Web Server or Netscape iPlanet. Domino Web Server and Netscape iPlanet are not included.

 IBM HTTP Server for OS/400 for iSeries is the default Web server for the WebSphere Commerce product.

Blaze Advisor Rule Engine and Server

Blaze Advisor Rule Engine enables individualized e-business applications by monitoring, executing, and optimizing the performance of personalization and business rules created with Blaze Advisor Builder. When integrated with the Blaze Advisor Rule Engine, the Blaze Advisor Rule Server offers concurrent multiple customers uniquely tailored e-business services. WebSphere Commerce uses the Blaze Advisor Rule Server to process rules and provide personalized marketing content that consist of advertisements and suggestive selling techniques. The WebSphere Commerce Server incorporates this server. Both of these products are part of the WebSphere Commerce installation package, and are required for the WebSphere Commerce Accelerator.

Blaze Advisor Innovator Runtime

The Blaze Advisor Innovator Runtime lets you easily create and change business rules without programming. You can define or adjust assessment criteria, pricing, and other dynamic business policies, and put them into operation as quickly as the e-business marketplace demands. This product is part of the WebSphere Commerce installation package, and is required for the WebSphere Commerce Accelerator.

IBM WebSphere Payment Manager

Payment Manager is a protocol-independent payment transaction server for an online merchant. It integrates with merchant software systems and provides cash register-like functionality to manage payment processing.

To provide specific payment functionality, cassettes can be plugged into Payment Manager. A cassette is a software component that can interpret the generic Payment Manager messages into payment-protocol specific messages. The messages are then sent to the appropriate payment gateway for further processing. Each cassette provides support for a specific electronic payment system, and the framework can handle multiple cassettes simultaneously. The use of cassettes makes the Payment Manager easy to implement, change and upgrade.

WebSphere Commerce provides the following payment cassettes:

Merchant Initiated SET (MIS)

A SET™ Secure Electronic Transaction extension that merchants can use to accept credit card information from buyers using any method other than SET Secure Electronic Transaction.

CyberCash cassette

A payment cassette that provides support for the CyberCash CashRegister, an electronic payment processing service that is provided by CyberCash. The CyberCash CashRegister enables merchants to accept and process various types of electronic payments for products or services that are purchased over the Internet.

If you want to use CyberCash for payment processing, you must install the CyberCash cassette.

SET Secure Electronic Transaction cassette

This cassette includes the industry-standard protocols Merchant Initiated SET (MIS) and SET Secure Electronic Transaction.

If you want to use Merchant Initiated SET (MIS) or SET Secure Electronic Transaction for payment processing, you must install the SET Secure Electronic Transaction cassette.

IBM WebSphere Payment Manager cassette for VisaNet

This cassette allows users of Payment Manager to send real time Internet credit card transactions to the VisaNet system for processing. The cassette enables merchants to utilize the e-Commerce credit card segment of VisaNet 6.0 Authorization and Data Capture services. Authorization messages are formatted in accordance with the EIS 1080 Version 6.0 specification. Data Capture messages are formatted in accordance with the EIS 1081 Version 6.0 specification.

If you want to use VisaNet for payment processing, you must install the VisaNet cassette.




BankServACH Cassette


The BankServACH cassette is used with the BankServ payment gateway to interface with the Automated Clearing House (ACH) system operated by the Federal Reserve (of US Government). The BankServACH cassette enables online electronic check transactions to take place at various financial institutions. The BankServACH cassette collects payments on behalf of merchants by communicating with the BankServ payment gateway, which forwards the transaction data to the ACH system for daily automatic settlement.

WebSphere Commerce bundled software descriptions

The following information describes software bundled with WebSphere Commerce. Unless otherwise noted, the software is optional.

IBM SecureWay Directory

   IBM SecureWay Directory provides a common directory for you to reduce the high costs associated with application-specific directories. IBM SecureWay Directory is an LDAP cross-platform, highly scalable, robust directory server for security, and e-business solutions.

 OS/400 Directory Services provides a common directory for you to reduce the high costs associated with application-specific directories. This directory service is included in OS/400 for iSeries, and is not bundled with WebSphere Commerce.

IBM WebSphere Commerce Analyzer

IBM WebSphere Commerce Analyzer is an optionally installed feature of WebSphere Commerce. A WebSphere Commerce-specific entry edition of IBM WebSphere Commerce Analyzer provides reports specifically for customer profiling and monitoring campaign performance. The reports cannot be customized. Note that you cannot install IBM WebSphere Commerce Analyzer without Brio Broadcast Server. WebSphere Commerce Analyzer and the Brio Broadcast Server run on Windows, but can be configured to connect to a database that runs on another platform.

Brio Broadcast Server

The Brio Broadcast Server is a batch processing server that automates query processing and report distribution. The Brio Broadcast Server allows administrators to tightly control database access and document distribution. The Brio Broadcast Server runs on Windows, but can be configured to connect to a database that runs on another platform.

Segue SilkPreview

Segue SilkPreview uses a script to simulate users interacting with Web applications and database servers. SilkPreview creates realistic models that simulate different business environments, Internet, Enterprise Resource Planning (ERP) and legacy systems, for example. SilkPreview also provides a repository of information to analyze and report results throughout application development.

WebSphere Commerce Recommendation Engine

WebSphere Commerce Recommendation Engine is an optional application included WebSphere Commerce. The WebSphere Commerce Recommendation Engine is powered by LikeMinds, a powerful collaborative filtering engine that provides product recommendations based on customer behavior patterns.

WebSphere Commerce Recommendation Engine collects profile information based on a number of algorithms to develop mentor groups. These groups are the foundation for subsequent product recommendations. Customers that fit the profile of a particular

community are presented with recommendations based on the preferences of others in the community. This personalization model is referred to as *adaptive* when compared with other models because the recommendations are based on current customer purchasing trends, and tend to change over time.

Windows AIX Solaris **DB2 Text Extender**

The Store Developer can create a search mechanism for the store by using DB2 Text Extender.

400 DB2 Text Extender is provided with OS/400 for iSeries V5R1. However, WebSphere Commerce uses the Unicode code page to support multilingual and multicultural features; but DB2 Text Extender for iSeries does not work with fields containing Unicode data.

DB2 Text Extender provides advanced search engine functions. Using the search functions provided by DB2 Text Extender, customers can find information containing the following:

- Specific words
- Similar sounding words
- Words with a similar spelling to the search term
- Synonyms to the search term
- Variations of the search term
- You can also use a wild card for sections of the search terms

The installation of DB2 Text Extender is optional.

Note:

In the WebSphere Commerce there are a number of search options available; these options do not require DB2 Text Extender. The different search options address the different needs of customers and administrators. Each of the search formats is based on technology known as the *Unified Search Framework*. The search framework consists primarily of a search database with which each search method interacts.

The following search methods are based on the unified search framework:

Catalog search

The catalog search provides both basic and advanced search functionality to your site for use by customers.

Product Advisor

The Product Advisor provides interactive shopping guides to help your customers identify the products which match their requirements.

WebSphere Commerce Accelerator

WebSphere Commerce Accelerator includes a number of tools which integrate product or category searches to help users complete their objectives. These include such product search functions as found in the Campaign and Customer profile notebooks and wizards.

For additional information see, "Adding catalog search to your site" on page 86.

IBM WebSphere Commerce Studio

Commerce Studio provides the tools required to manage and edit the file assets for your store, and to develop in VisualAge for Java.

Commerce Studio packages include tools to help you develop and manage assets (for example, JavaServer Pages templates) for your e-commerce application. Commerce Studio is available on Windows NT and Windows 2000; however, you can publish the store assets to any server.

A version of WebSphere Commerce for Windows is included with Commerce Studio, which you can use for testing purposes. If you want to put your site into production, using WebSphere Commerce, you must purchase a licensed copy of WebSphere Commerce.

Using WebSphere Commerce with Commerce Studio provides developers with all the tools required to create and test a store. A developer installs all of the software on one machine, thereby creating a completely localized environment. Benefits of this configuration include:

- Easier access to a testing environment
- Quicker debugging
- A developer environment that is disconnected from the rest of the team, if required
- WebSphere Commerce Studio
 - Blaze Advisor Workbench Version 3.1
 - Blaze Innovator Runtime Version 3.1
- VisualAge for Java, Enterprise Edition, Version 4.0

Commerce Studio components

WebSphere Studio components

WebSphere Commerce Studio, Version 4.0, is a comprehensive tools environment for organizing and managing Web development projects. You can extend this environment with source control management tools from IBM and Lotus®, and other third-party vendors.

Page Detailer

Use to analyze Web pages and display the identity, size, source and time it takes to deliver each item on the page.

Page Designer

An integrated tool that you can use to create and maintain the HTML pages and JSP files for your Web site. It provides common page editing features such as:

- WYSIWYG page editing
- Icon-based page formatting tools
- Drag-and-drop images and links
- Multiple page views (normal, HTML source, browser previews, and frame HTML source)

Page Designer includes support for servlets, HTML pages, JSP pages, JavaScript, and VBScript. It has special editors to help you create and manage these elements. You can create JSP templates or edit those templates you created with Studio wizards, and add data from other beans. You can also choose from a library of scripts and add dynamic functions to your Web pages without writing a line of code. You can use JSP templates to create store pages by dragging and dropping WebSphere Commerce specific beans.

Page Designer includes two tools for working with graphics: WebArt Designer and AnimatedGif Designer, which are available from the **Tools** menu in Page Designer.

- **WebArt Designer**

WebArt Designer is an image design tool that is fully integrated with Page Designer, making it easy to include images in your files. You can use this tool to create and manipulate logos, banners, and other images used in your site.

- **AnimatedGif Designer**

Use to create animated image files for your Web site. The animation wizard guides you through the animation process. It uses the familiar concept of a cartoon strip to display the individual images that are used in the animation. The wizard generates the animated output for you. You can then add the animation file to a page in your Web site.

Applet Designer

Use to create Java applets. It includes a wizard to guide you through creating an applet and Java beans that can be manipulated in a visual development environment.

IBM Distributed Debugger

The Distributed Debugger is a client/server application that enables you to detect and diagnose errors in your programs. You can use it to debug Java applications that are developed outside the IDE. The WebSphere Test Environment provides server run-time support for locally testing and debugging JSP files and servlets. JSP files and servlets that run successfully in the WebSphere Test Environment also run successfully in a WebSphere Application Server production environment.

Java Bean, Database, and SQL wizards

These wizards are the fastest way to add dynamic content to your Web pages. They make the creation of dynamic Web pages simple by generating Java beans, SQL statements, and servlets that are based upon your requirements

Commerce Studio extensions

Commerce Studio enhances the standard WebSphere Studio environment with its own extensions. The extensions include the following:

Enhanced publishing

You can publish your store assets to the store archive file and the WebSphere Commerce Server in one step.

Store Archive Import and Store Archive Export

Store presentation assets are imported, edited, and updated in WebSphere Studio. Once editing is complete, you export the presentation assets from Studio back into the store archive.

Commerce Studio bundled software

The following components are optionally installed:

Macromedia Web publishing

A 30-day trial CD, Macromedia Web publishing helps you to create a more interesting and dynamic Web site. Use Fireworks to design and optimize Web graphics for easy integration into your HTML pages. Use Flash to create animated vector-based Web sites. Use Director to develop powerful multimedia Web sites. Use Freehand to create illustrations for print and the Web.

VisualAge for Java, Enterprise Edition, Version 4.0

VisualAge for Java, Enterprise Edition meets development requirements for e-commerce applications, and includes tools for developing and debugging JSP templates. Its integration with WebSphere Studio allows you to add content to JSP templates more quickly, which makes your programmers and Web developers more productive. It includes support

for Enterprise JavaBeans™ technology and connectivity features to support integration to other systems, such as CICS® Transaction Systems, MQSeries, and more. In addition, the integrated WebSphere Test Environment of VisualAge for Java, Enterprise Edition, allows developers to run WebSphere Commerce functions without leaving VisualAge for Java. This means that you can test your code without deploying it to a WebSphere Commerce Server. For more information, refer to the *IBM WebSphere Commerce Programmer's Guide, Version 5.4* or to Chapter 8, "Customizing store operations" on page 89 in this book.

Chapter 3. Overview of the WebSphere Commerce Server

WebSphere Commerce includes a Java-based commerce server to control the flow of information in the WebSphere Commerce system. The following diagram illustrates the WebSphere Commerce Server components:



Tools

WebSphere Commerce Accelerator

A browser-based component that you can use to operate and to maintain online stores after you have created them. Tasks are based on access control and authority levels.

Store Services

A browser-based component that allows you to create a fully-functional store based on a sample store model provided with WebSphere Commerce.

Administration Console

A browser-based component that allows you to complete administrative operations at the site level or the store level.

Subsystems

Member

The member subsystem is a component of the WebSphere Commerce Server that includes data for participants of the WebSphere Commerce system. A member can be a user, a group of users (also known as a member group), or an organizational entity (which can be an organization, such as "IBM" or an organizational unit within an organization, such as "Electronic Commerce Division"). Business logic in the member subsystem provides member registration and profile

management services. Other services which are closely related to the member subsystem include access control, authentication, and session management.

The member subsystem allows its users and organizational entity members to be assigned roles depending on the activities in which they choose to participate. Role assignment is the responsibility of an administrator, such as a Site Administrator. The Site Administrator is also a role. The Site Administrator grants users rights to the system. Once a member is assigned a role, access control component authorizes the member to participate in activities associated with the role. For example, an organization can be a buyer or a seller, or both. A user can also be assigned multiple roles.

The member subsystem also allows you to create member groups, which are groups of users categorized for various business reasons. The groupings can be used for access control purposes, for approval purposes, as well as for marketing purposes, such as calculating discounts, prices, and displaying products.

The following features are associated with the member subsystem:

- Registration information
- Profile management
- Access control or authorization
- Security, authentication, and session management

For more information about the member subsystem, refer to the WebSphere Commerce online help.

Catalog

The Catalog subsystem provides online catalog navigation, merchandising features, interest lists, and search capabilities. The Catalog subsystem includes all logic and data relevant to a catalog, including categories, products and their attributes, items, and any associations or relationships among them. It interacts with the Member subsystems and the Order subsystems to obtain information about viewing templates and pricing. The following features are provided:

Groupings

A generic grouping construct is introduced for categorizations of various products. The owner of a catalog group may not necessarily be the owner of all the catalog entries in the group. This allows portal owners to define the categories of products offered while other suppliers can add their products to the catalog group.

Catalog entries

One or more catalog entries can belong to a catalog group. A set of base object types is provided to represent products, stock keeping unit (SKU) items, packages, and bundles in a catalog entry.

Merchandising associations

These make it possible to create an association between any two catalog objects, which become cross-sells, up-sells, and promotions.

Multicultural support

The catalog design addresses the requirement to support multicultural features such as product display and currency format according to the locale.

Trading

The trading subsystem in WebSphere Commerce provides the logic, function and data relevant for negotiating the price and quantity of a product or set of products between the buyer and seller organization. For the Professional Edition the trading subsystem includes auctions. For the Business Edition the trading subsystem includes auctions, contracts, and Request for Quote (RFQ) components.

Order

The order subsystem is a component of the WebSphere Commerce Server which provides shopping carts, order processing, and order management function support. Related services, such as pricing, taxation, payment, inventory, and fulfillment, are also part of the order subsystem.

Order processing capabilities include quick order or buy, scheduled orders, multiple pending orders, reorders, and splitting or backorders.

Marketing

The marketing subsystem is a component of the WebSphere Commerce Server, and provides numerous marketing concepts to your site. Components of the marketing subsystem provide functionality to create marketing campaigns including product recommendations, advertisements, and electronic coupons; discounts; customer profiles; and collaboration.

Inventory

The Inventory subsystem provides real-time inventory management. Components of the inventory subsystem provide functionality to record inventory received from vendors and that returned by customers; adjust inventory quantity; determine the disposition of returned inventory; and ship and receive inventory.

Common server run time

The common server run time provides a framework in which the commerce applications are deployed and executed. The framework consists of the programming model, the process model, exception handling, transaction control, data access, and the persistence model. The common server run time leverages the run time services provided by WebSphere Application Server to support WebSphere Commerce Server applications. The common server run time takes advantage of many features available in WebSphere Application Server:

- JavaServer Pages (JSP) files provide dynamic Web page scripting on the server side. This helps separate the presentation logic from the business logic. WebSphere Commerce provides a set of extensible data beans to display user, catalog, order and other dynamic information. Using the WebSphere Studio page design tool, a Store Developer can drop the beans onto a JSP file. The JSP files are compiled into servlets and rendered to display dynamic data at run time.
- WebSphere Commerce uses an enterprise bean entity framework. Developers can access data in the system, such as data objects, without being bound directly to the underlying database schema. The common server run time provides a set of entity beans for the base schema. Application developers can customize the business logic and modify the entity objects by extending the base schema and re-mapping the entity objects. This process is accomplished by using the VisualAge for Java enterprise bean mapping tool.
- All WebSphere Commerce Server and scheduler processes are integrated into WebSphere Application Server processes. Use the WebSphere Application Server Administrator's Console to manage these processes. By default, each WebSphere Commerce Server process is configured as a WebSphere Application Server instance that maps to a single, multi-threaded Java process. The process can run JSP files, servlets and enterprise beans. Multiple WebSphere Commerce Server processes can be cloned with multiple WebSphere Application Server instances to facilitate workload balancing and availability.

System management

The system management component of WebSphere Commerce provides the system with reliability, availability, and serviceability. WebSphere Commerce logs messages to notify administrators of abnormal conditions in the system. The diagnostic information enables the administrator to determine the cause of errors and to rectify the problem.

In addition, IBM HTTP Server, WebSphere Application Server, and DB2 Universal Database all provide system management tools for configuration, monitoring and tuning.

Messaging service

The Messaging service sends messages from WebSphere Commerce to users and systems. It provides a common messaging Application Programming Interface (API) for different notification types. Supported types include merchant and customer broadcast e-mail, and order notification through an SMTP (Simple Mail Transfer Protocol) server. The Messaging service also provides asynchronous message delivery through MQSeries (which can be separately ordered). For more information, refer to “Messaging services” on page 118.

WebSphere Application Server

For information about WebSphere Application Server refer to “WebSphere Application Server” on page 12.

Part 2. Developing your store

WebSphere Commerce Version 5.4 is a comprehensive set of integrated software components that helps Store Developers build, maintain, host and manage stores to sell products and services on the Web. This part of the book provides chapters that discuss the information you need to develop your store.

It begins with the processes involved in site planning, such as familiarizing yourself with WebSphere Commerce roles and possible configurations, and asking yourself key questions before creating your store.

It continues with store and online catalog creation, providing details about the sample store, the tasks involved in creating your store, and data for your online catalog.

The focus moves to store customization, providing information on how your development team can customize and extend the standard solution.

The next step is to test and deploy your store.

Chapter 4. Planning your site

The following section describes a typical WebSphere Commerce development cycle. This development cycle usually consists of the following phases:

- Assembling the site development team
- Requirements gathering
- Design
- Store development
- Catalog development
- Testing
- Deployment

Assembling the site development team

The use of e-commerce software to implement an online business significantly changes the way a retail business operates. Automation replaces some of the retail roles, such as cashier. In an e-commerce operation, some key roles must be added, such as Site Administrator.

Often, the retail role is not easily translated online, such as a sales associate. In an e-commerce solution, there is no direct equivalent to this role. Some of the sales associate duties need to be driven into the store design, such as making a customer feel welcome, providing product information, and suggesting additional items and contacting the customer after a purchase. Other duties in a well-designed online store involve collecting information from registered customers and tracking their purchase history. This information is then used to better determine a customer's future needs and make better suggestions for future purchases. To create and maintain an advanced e-commerce site, you may need people to fulfill multiple roles.

Whether you are customizing the sample store to create your own store, or developing an entirely new store, it typically takes a team of people to create a store. While the size of this team depends on the size and scope of the store or site being created, the team must include people filling the following roles:

- Web designer
- Store Developer
- Database developer
- Site Administrator
- Store Administrator

- Seller
- Marketing Manager
- Product Manager

WebSphere Commerce uses many of the standard retail roles, merges others, and then adds the required e-commerce roles to create a complete e-commerce solution for your site. If necessary, the Site Administrator in the WebSphere Commerce Administration Console can create new roles. The following section describes the knowledge and experience required for these roles. Depending on the size of your business, the roles may be assumed by only a few people, or a large team may be required.

Seller

The Seller is concerned with the business side of a store's operation. This role requires detailed knowledge about the overall business. The Seller handles staffing, and works with the other roles to determine the store image, customer profile and merchandise characteristics. The Seller supervises the overall store objectives, profitability, and management, in addition to tracking the store sales.

Marketing Manager

The Marketing Manager communicates the market strategy and brand messages to the customers. This role monitors, analyzes, and understands customer behavior. In addition, the Marketing Manager creates or modifies customer profiles for targeted selling, and creates and manages campaigns and promotions. Campaign event planning can be handled by a team comprising the Seller, Marketing Manager, and Product Manager. Either the Marketing Manager or the Product Manager projects the sales for a promotional event and analyzes its effectiveness.

Product Manager

The Product Manager needs to understand the marketing strategy and the way the store's customers shop. The Product Manager determines the best way to display, price, and sell products in the online store. In addition, the Product Manager traces customer purchases and determines discounts, auctions, and suggestive selling techniques.

This role also supervises catalog administration, which includes creating and managing online product catalogs, associated pricing schemes, product categories, and product advising. This person is typically an expert on the product domain with a thorough understanding of the product line and the relationships between various products.

Site Administrator

The Site Administrator installs, configures, and maintains WebSphere Commerce and the associated software and hardware. The Administrator responds to system warnings, alerts, and errors, and diagnoses and resolves system problems. This role typically controls access and

authorization (creating and assigning members to the appropriate role), manages the Web site, monitors performance and manages load balancing tasks. The Site Administrator may also be responsible for establishing and maintaining several server configurations for different stages of development: test, staging, and production. This role also handles critical system backups and resolves performance problems.

The Site Administrator has the ability to create and publish a store.

The Site Administrator requires knowledge of hardware, operating systems and training on the architecture and operation of WebSphere Commerce.

Store Administrator

The Store Administrator manages the store assets and updates and publishes changes to taxes, shipping and store information. The Store Administrator, usually the lead on the store development team, is the only role on the team with the authority to publish a store archive (the Site Administrator can also publish a store archive). The Store Administrator is usually Web-literate and has a thorough knowledge of the store's business procedures.

Store Developer

The Store Developers create JavaServer Pages files and any necessary customized code and can modify any of the standard functionality included with WebSphere Commerce. Store Developers must have programming skills in Java, the EJB component model, VisualAge for Java, JavaScript, HTML, JSP technology, and be familiar with the WebSphere Commerce programming model.

Once a store archive has been created, Store Developers have the authority to make changes to it manually or by using the Store Profile notebook and Tax and Shipping notebooks, but they do not have the authority to publish the store archive to the WebSphere Commerce Server.

Database developer

Database developers modify and extend the WebSphere Commerce database schema for the purpose of implementing customized store functions, or integrating with existing database information. This member usually has database administrator skills for DB2 or Oracle.

Note: The database developer role is not defined in the WebSphere Commerce Server. If necessary, database developers should be assigned Store Developer access.

Web designer

Web designers create the look and feel for the site, and work with Store

Developers to create store pages. Web designers should have experience using multimedia tools, HTML and JavaScript skills, and familiarity with JSP technology.

Note: The Web designer role is not defined in the WebSphere Commerce Server. Instead, Web designers should be assigned Store Developer access.

Requirements gathering

Functional requirements define both the business functions that the e-commerce system is going to provide, and the Web page flow. You determine your requirements by developing a good understanding of your business needs for the site and what you hope to achieve from the site. For example, look at issues such as business goals, purpose of Web site, and usability questions, such as who your users are, and how they expect to interact with your store. When looking at your requirements, keep in mind possible consistency issues, such as reflecting the appearance of your brick and mortar store in your Web site. It is important to gather these requirements early, and to discover any challenges that may lie ahead while they can still be dealt with easily.

Once you have determined the functional requirements, you can clarify the technical or system requirements. Examples of technical requirements include integration issues and machine requirements.

Examples of questions that should be answered during the requirements gathering phase include the following:

Functional requirements

- Will your store cater to a business or consumer audience?
- Which languages will your store support?
- How will you handle multiple currencies (if required)?
- What products and services will you sell? Will the product line differ for various customer groups or countries and regions in which you transact business?
- If you sell in multiple countries and regions, will your store be displayed differently to make it more appropriate for different cultures?
- What do you want your store to look like?
- Can existing graphics be reused? If so, what format is required?
- What are your competitors doing?
- Will you require customers to register before purchasing products?
- Will you take advantage of personalization features to provide unique purchasing experiences for individual customers?

- What kind of customer information do you want to capture (and quantity)?
- Will you promote products based upon customer profiles or behavior?
- How will orders be processed?
- How will you process payments?
- How will you implement taxation?
- How will you implement shipping charges?
- What is your customer service strategy?
- How will the Web pages flow?
- Will you provide links to other sites?

Technical requirements

- How will you move data from an existing system to a new system?
- What type of security will you use?
- What level of performance do you require?
- What is your anticipated level of customer traffic?
- What size of machine do you need to accommodate the number of customers you attract?
- How will you maintain and tune your server machines for optimal performance?

Integration requirements

- Will you integrate with existing technology systems?

There may be many more questions related to the requirements of your store that need to be answered, depending upon your business needs.

By the end of the requirements gathering phase, your team should:

- Create a shopping flow and use cases from the functional requirements. Examples of use cases may include customer registration or order processing. Sample use cases can be found in the WebSphere Commerce online help.
- Determine the site's topology. For information on the configuration options available refer to Chapter 5, "Selecting a configuration" on page 39.

Design

The requirements gathering phase is followed by the design phase, which includes determining the information technology architecture design, the WebSphere Commerce design, and the database design.

Once all information is gathered, create a static HTML prototype of the store to ensure that the development is on track and requirements have not been

missed. The prototype can be created by a Web or media designer, using the WebSphere Studio integrated Page Designer. (Alternatively, the prototype can be developed outside of the Commerce Studio environment.) This may be done in conjunction with, or independent of, use cases.

Store development

The store development phase focuses on the creation of store assets. The Store Developer creates the project plan that describes how (and when) the project will be completed. The Store Developer is a role that can consist of more than one person, depending on the skills required. The project plan should contain:

- A staffing plan that describes the skills required of the Store Developer to design and develop the infrastructure, code, and pages.
- A listing of the total number of JavaServer Pages files, tables, EJBs, data beans, and commands that need to be developed (this will drive the size of the project and the required resources).
- A listing of the required graphical and media design elements.
- A schedule listing major checkpoints and deliverables. The schedule must accommodate system testing at the end.
- A description of the performance and stress testing that will be done on the site.

In addition to developing the project plan, the Store Developer creates the store's home page, the online catalog display pages, and the shopping flow for the store.

The recommended method to create a store is to base your store on a sample store. Creating a store is described in the chapter, Chapter 6, "Creating your store" on page 53.

Data management

The database developers focus on data management tasks, including the following activities, which occur on the development database server:

- Extending the database schema (optional, based on business requirements). Extending the WebSphere Commerce database schema may be required if the store is integrating with an existing database that uses a different schema, or if WebSphere Commerce is customized.
- Enabling migration of existing data. Once the database schema has been modified (if required), existing information, such as customer data, can be migrated to the WebSphere Commerce database. To migrate the information, the database developer writes and runs database scripts.
- Building a mechanism to feed data to the database (if required). For WebSphere Commerce stores that use existing enterprise applications,

mechanisms can be developed to automatically feed data from the enterprise application to the WebSphere Commerce system. This will enable synchronization of data between the two systems. The Loader package can be used for this purpose.

Throughout the development process, the source code for the store should be checked into a software configuration management (SCM) system to facilitate file management.

A Store Developer who has been designated with the responsibility of assembling the assets into a functioning store uses Commerce Studio to publish the store to a test machine.

If working outside of the Commerce Studio environment, the Store Developer extracts all of the code from the SCM and transfers the store to the test machine. The test machine's platform may be different from the developer's platform.

Once the store has been built, testing should be done to ensure the quality of the build.

Catalog development

The online catalog is developed by various roles. The Product Manager decides which products are sold by the store and at what price. This phase of development can happen in conjunction with the store development phase. The method used to create the catalog depends on the size of the catalog and whether catalog data already exists in an electronic format.

Use the Loader package to create and update online catalogs. Using the Loader package, a catalog developer can maintain the product catalog. Then, a Store Developer can format the information so it is suitable for the Loader package to populate the database. The Loader package can also be used for migration of data from an existing WebSphere Commerce store.

For more sophisticated catalog creation, use the IBM WebSphere Catalog Manager.

Once developed, the catalog is published to either a staging server (during the development stages) or a production server (when development is complete). For more information on catalog development, refer to Chapter 7, "Creating your online catalog" on page 71.

Testing

Typically the Site Administrator will test the store, and should run unit, functional, system, integration, and stress tests. Visual design and user interaction tests can also be run. For more information on testing, refer to Chapter 9, “Deploying your store” on page 101.

Deployment

After testing is complete, the Site Administrator updates the production system. Usually this is done in two stages: the first stage is replicating the database, the second stage is publishing the store assets (HTML, GIFs) to the production server. For more information on publishing your store or deploying your store, refer to the chapters called Chapter 6, “Creating your store” on page 53 and Chapter 9, “Deploying your store” on page 101 or to the WebSphere Commerce online help.

Chapter 5. Selecting a configuration

The following section describes possible WebSphere Commerce configurations. Many configuration options will work for your business, but some will work better for you than others. The configurations have the same foundation. The real configuration issue is how many machines you need to run your business, and what is the best layout, or topology, of those machines.

In this section, you will find the following information:

- Configuration options that exploit your system's capabilities
- Descriptions of various configurations
- Sample configurations
- Who might use the configuration
- Pros and cons
- Expansion possibilities

Notes:

1. In any configuration where the Web server, WebSphere Commerce Server, and database server are on different physical machines, they must all use the same operating system.
2. In any configuration where you have multiple Web servers, they must all be the same type of Web server (such as all IBM HTTP Server or all Netscape iPlanet).
3. In any configuration where you use WebSphere Commerce Analyzer or WebSphere Catalog Manager, it is best to install them on dedicated systems, freeing resources on your WebSphere Commerce Server.

When you are ready to select a configuration, refer to the document *WebSphere Commerce, Capacity Planning Guide* available from the Technical Library page. This *Capacity Planning Guide* contains step-by-step directions to help you choose an appropriate topology for your site.

Scalability

Your configuration should allow the overall system to service a higher client load than that provided by a basic configuration. Ideally, it should be possible to service any given load, simply by adding the appropriate number of servers or machines.

Cloning

Cloning is a mechanism for creating multiple identically configured copies of an object, such as an application server. The cloning process begins by taking a server that you have set up, and creating a model based upon that setup. Once you have a model made, you can create clones of that server. With extra clones running, you can improve the performance of your server.

Important benefits of cloning are:

- Simplified system administration (use clones to quickly create and maintain identical copies of a server configuration)
- Organized workload distribution for several mechanisms provided within WebSphere Application Server
- Improved availability and reliability (when one Java Virtual Machine (JVM) is busy, the other JVMs can still handle client requests). Also, if one server fails or is taken down for maintenance, JVMs running on cloned servers are still available.
- Improved scalability (by leveraging CPUs on the machine)

In a typical scenario, a Site Administrator might create a model of an application server, populate it with the objects necessary for the implementation of their target application, and fine-tune the properties of these objects. When ready to deploy the application, the Site Administrator creates and starts a number of clones that will begin to execute the application.

Cloning an application server on a single physical machine is one way to increase throughput with the notion of "vertical scalability." *Vertical cloning* provides a straight forward mechanism to create multiple Java Virtual Machine processes, that together can fully use all the processing power available. Cloning can also be used to support the concept of "horizontal scalability," where multiple processes are distributed across multiple physical machines. *Horizontal cloning* can provide both increased throughput and failover (availability).

Workload management

With workload management, each machine or server processes a fair share of the overall load that is being processed by the system. Although equal distribution is not required, you should avoid having a heavy workload on one machine, while another sits almost idle. If your machines are of approximately equal power, each should process its share of the load. If some machines are of different power, each should process a portion of the load proportionate to its processing power.

Session management

Session management refers to managing and storing session information on the server or database. Unless you have a single application server, or your application is stateless, then maintaining a session state between HTTP client requests is a factor in determining your topology when looking at workload management. A stateless application is a server that processes requests based solely on information provided with the request itself, and so it does not matter if the request is processed by different servers.

For more information refer to the document *WebSphere Scalability: WLM and Clustering Using WebSphere Application Server Advanced Edition*, available at the following Web address: www.ibm.com/redbooks

IBM Network Dispatcher

The IBM Network Dispatcher is a separately orderable product that complements WebSphere Commerce. It accepts incoming request packets, such as HTTP or SSL from Web clients, and redirects them to any one of a number of Web servers that are part of a Network Dispatcher cluster. This process is transparent to the other Web client. Each Web client will appear to communicate directly with a Web server, when in fact the Network Dispatcher intercepts and directs these requests.

Network Dispatcher provides scalability and load balancing among all the Web servers in the cluster by distributing a fraction of the incoming requests from clients to each server. The Network Dispatcher also provides failover, by keeping track of which servers are currently available or failed, and distributing requests only to the currently available servers. Although Network Dispatcher normally runs on a dedicated machine, two dedicated machines can cooperate to run the software. So, if one dispatcher fails, the other automatically takes over.

By default, Network Dispatcher distributes the client requests among the available servers in a sequential and cyclical manner: each server in the cluster gets the next request in turn. But it can be customized to allow the Site Administrator to control how the requests will be distributed. Some examples of customizing Network Dispatcher include:

- Specifying a machine's percentage of load
- Dynamically adjusting the load per server based on the number of requests
- Consistently directing requests from a particular client or group of clients to a particular server, to minimize the need for multiple servers to coordinate their actions if they are all processing requests on behalf of the same client

To see the Network Dispatcher within a configuration, refer to "Typical enterprise configuration" on page 47.

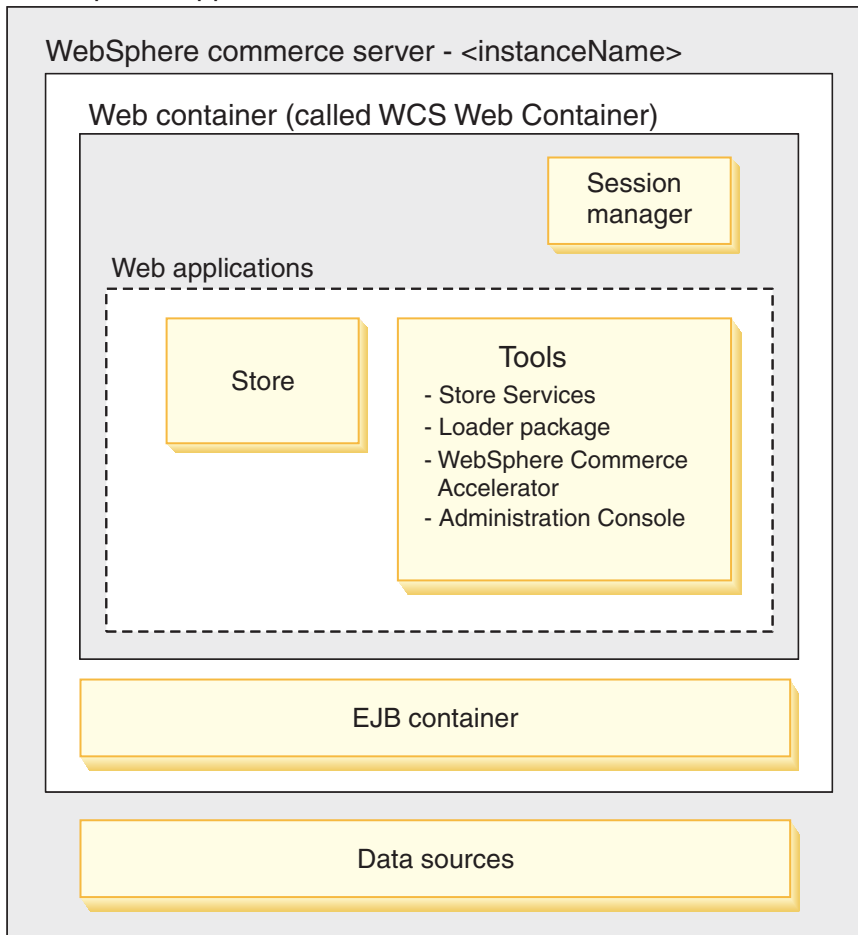
Network Dispatcher is now a part of the IBM WebSphere Edge Server product. For more information refer to the following Web address:
www.ibm.com/software/webservers/edgeserver/

WebSphere Commerce Server contents

The WebSphere Commerce Server is implemented as an application server. The WebSphere Commerce Server provides all of the WebSphere Commerce functionality in a Web container and an EJB container. The Web container has two Web applications providing the business and display logic: stores and tools. The EJB container provides the Enterprise JavaBeans code that accesses the database. WebSphere Application Server provides all the run-time support to enable the WebSphere Commerce Server.

The following diagram shows the contents of the WebSphere Commerce Server.

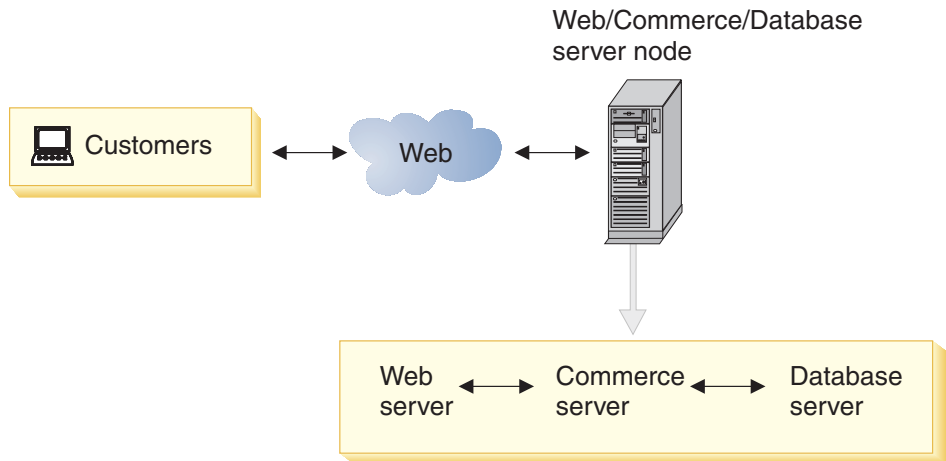
WebSphere Application Server



Single-tier configuration

In a single-tier configuration, the tier consists of the Web server, WebSphere Commerce Server, and database server nodes. It is the simplest configuration, and is recommended for smaller Web sites, or for development purposes.

The following diagram displays the single-tier configuration.



A smaller store with moderate transaction volumes could use a single-tier configuration. In addition, this configuration is particularly useful in a development environment because it allows Store Developers to have a self-contained development environment.

Pros

- Simple to set up and maintain
- Lower associated hardware costs

Cons

- Not ideal for production environments where performance is a concern
- You cannot implement additional firewalls
- Application server and database compete for system resources
- Single point of failure

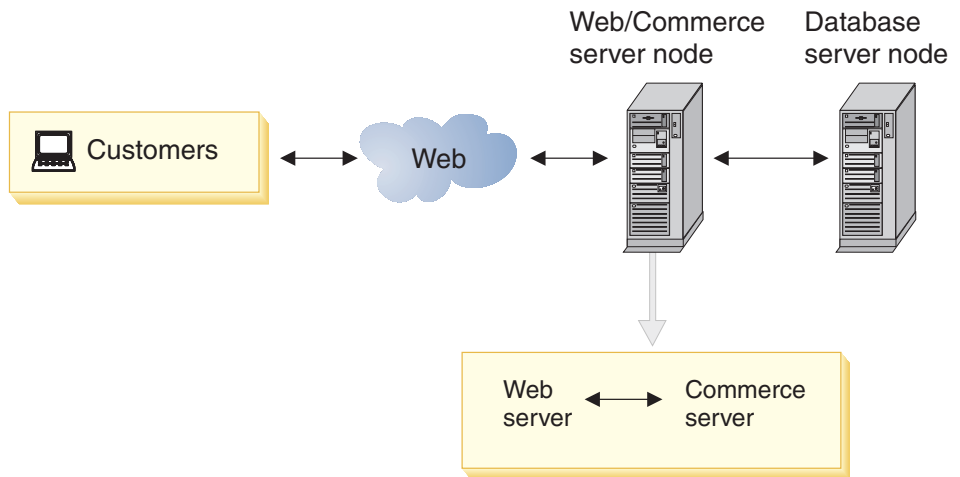
Note: As transaction volumes increase, you may need to implement a 2-tier or 3-tier configuration to improve performance.

If you want to expand, you can go to a 2-tier configuration, and add multiple servers or clones.

2-tier configuration

In a 2-tier configuration, the Web server, and the WebSphere Commerce Server make up the first tier, and the database is the second tier. The separate database configuration is one of the configurations that uses multiple servers.

This example is typical of a small Web site where all of the WebSphere Commerce Server and HTTP server processes are hosted on a single node.



A medium-to-large sized store with higher transaction volumes can use the 2-tier configuration. This configuration can be part of an effective workload balancing and high availability strategy. Sites that implement a redundant Web server strategy and database failover systems also use this configuration.

Pros

- Better performance than a single-tier configuration
- Permits separate tuning of the Web and database servers for performance
- Separate database configuration lends itself to further scalability, and reliability
- Allows for the placement of a firewall in front of the database

Cons

- Scalability limitation: where you have your Web Server and WebSphere Commerce Server on the same machine, they cannot be separately scaled or administered
- Security issue: where you have your Web server and WebSphere Commerce Server on the same machine, you cannot insert an additional layer of security between them

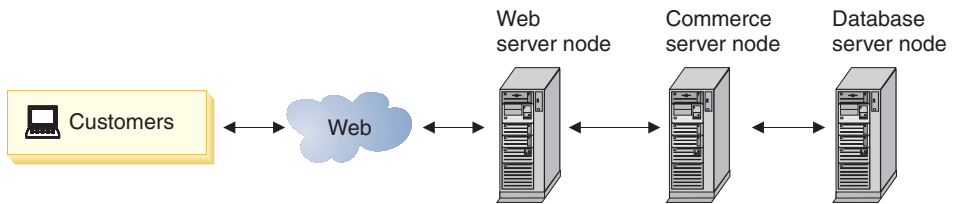
As the load on the Web site increases, you can scale up to a multiple Web server configuration. You could also upgrade to a 3-tier configuration.

The multiple Web server configuration consists of multiple Web server and WebSphere Commerce Server nodes, all utilizing a single, common database. In a single instance configuration, each Web server and the WebSphere Commerce Server is running the same store, accessing store assets from a

common, shared file system. A load balancing solution, such as the Network Dispatcher, can be used to distribute traffic among the multiple Web and WebSphere Commerce Server nodes.

3-tier configuration

In the 3-tier configuration, the Web server is the first tier, the WebSphere Commerce Server is the second tier, and the database is the third tier. The difference between the 3-tier configuration and the 2-tier configuration is the separation of the Web server and the WebSphere Commerce Server nodes. This configuration is recommended for larger Web sites; where a "demilitarized zone" (DMZ) is required.



Large businesses with high transaction volumes that want high performance and businesses that want to implement additional security can use a 3-tier configuration.

Pros

- Added security: put an additional firewall between your Web servers and WebSphere Commerce Servers, creating a DMZ, allowing Internet users to access all of the site information, but preventing unauthorized access to the application servers
- Improved scalability: Web servers and WebSphere Commerce Servers can be added independently.

Cons

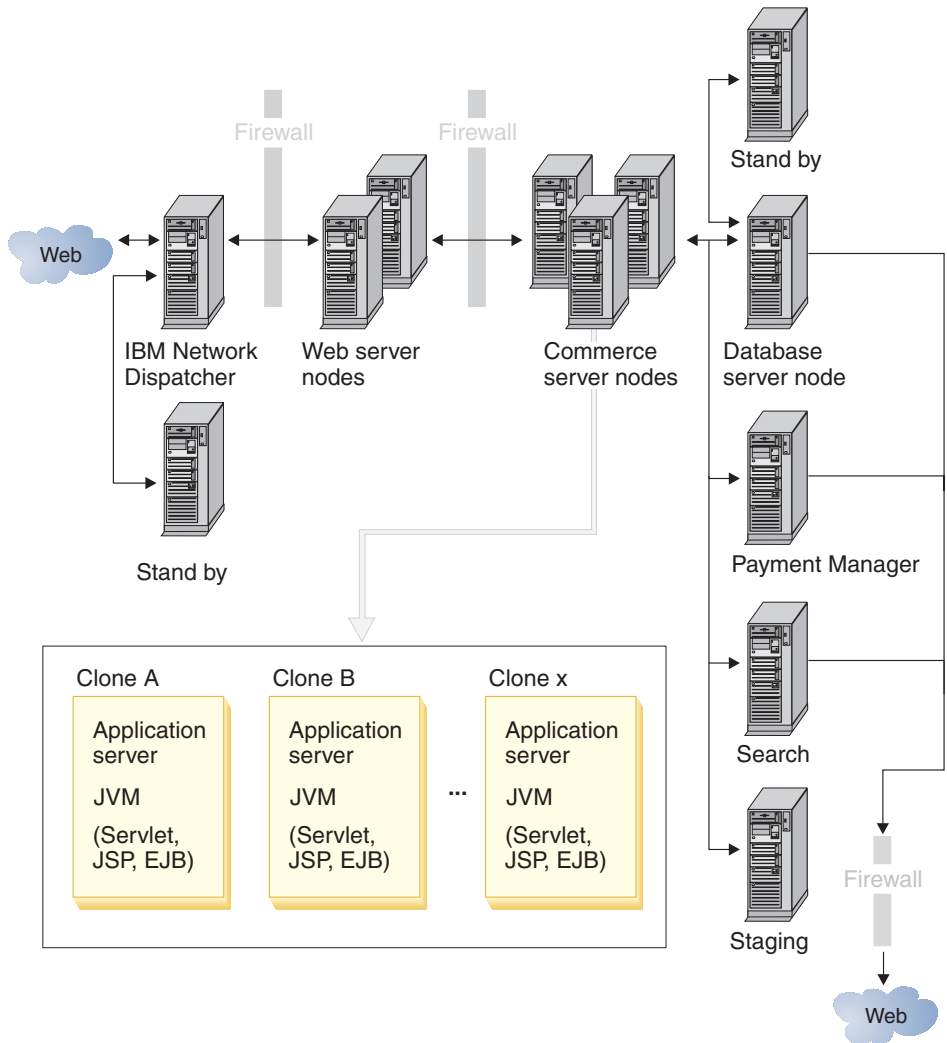
- Increased cost of additional hardware

Expansion possibilities with the 3-tier configuration are almost unlimited. Network Dispatchers can be added, as well as clusters of Web servers, and vertical or horizontal clones. You can also configure two database containers with different data sources by connecting to the transaction logging server and the logging server, respectively. This configuration offloads logging activities (such as user traffic logging) from the main transaction server. This frees memory for catalog browsing and order transactions.

The "typical enterprise configuration" example which follows is an expanded 3-tier configuration.

Typical enterprise configuration

The following describes a typical enterprise configuration, and also illustrates the 3-tier configuration described in the previous section.



The enterprise configuration is a 3-tier configuration (separate Web server, WebSphere Commerce Server, and database nodes) with many expansions.

Because the Web server and WebSphere Commerce Server processes are physically separate, you are able to put firewalls before the Web server, and before the WebSphere Commerce Server. Between the two firewalls is the demilitarized zone (DMZ). The DMZ configuration allows Internet users to

access all site information, but prevents unauthorized access to internal servers. The internal servers may contain more sensitive or private information.

With this configuration, there are two examples of two dedicated machines that cooperate to run the software. If one machine fails, the other automatically takes over. The examples are the Network Dispatcher and Stand by, and the database server and Stand by.

This configuration tries to reduce single points of failure; in other words, many of the machines are protected either by failover or redundancy. If one machine fails, the system should continue to operate with the remaining machines.

To reduce hardware costs, the standby database server can also be the search database. In this configuration the commerce database and the search database are configured to use each other as backups.

To provide a failover database, you can replicate the data or use a shared disk for the database. The preferred method is to utilize a shared disk. Typically, the failover database server (the physical server) is configured using HACMP (AIX), Sun Clustering (Solaris Operating Environment), or Windows Cluster Services (Windows 2000). These products allow failover to a backup server in the event of an unrecoverable condition (loss of network connectivity, for example). In order for the failover server to resume functioning as the database server for WebSphere Commerce, the database must be accessible to the failover box and the disk subsystem must be shared between the two servers. The failover software should be configured to bring that disk subsystem online and to notify the database manager.

Scalability

The WebSphere Commerce Server is both horizontally scaled and vertically scaled. Horizontal scaling increases throughput by distributing multiple Java Virtual Machine processes across multiple physical machines. With vertical scaling, there are multiple Java Virtual Machine processes on a single machine.

Workload management

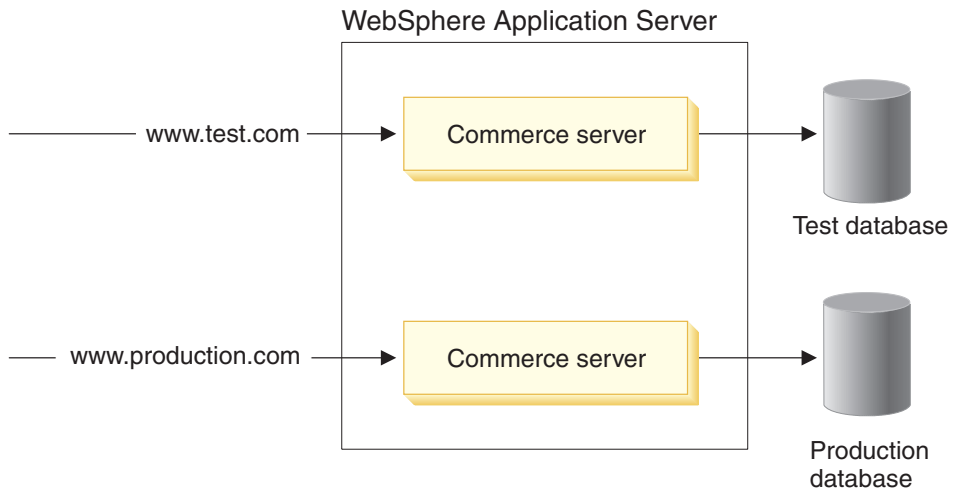
The Network Dispatcher distributes the incoming requests between the two Web servers. Clones provide increased throughput and improved performance of the WebSphere Commerce Server.

Multi-instance configuration

Note: 400 Although multiple Web servers are supported, a typical configuration on OS/400 for iSeries is one Web server to one WebSphere Commerce instance.

A multi-instance configuration allows for multiple, active WebSphere Commerce instances. In this case, a single Web server communicates with multiple WebSphere Commerce instances, each of which has a unique IP (Internet Protocol) address. Each instance should have a different (virtual) host name and a different database. Configuration changes to one instance are independent of any other instance.

A multi-instance configuration can be applied to single, 2, or 3-tier configurations.



A typical use of multiple instances would include running a production instance, and a test instance, each with any number of clones. When the test instance works, the test instance is connected to the production database, and the virtual host of the test instance is changed to be the production instance (and the production instance is taken "offline," that is, it is disassociated from the production virtual host).

Pros

- Allows parallel testing scenarios
- Hosts multiple stores using shared hardware to minimize the cost of deployment

Cons

- Uses additional system resources that could hinder the performance of your production system

Expansion possibilities

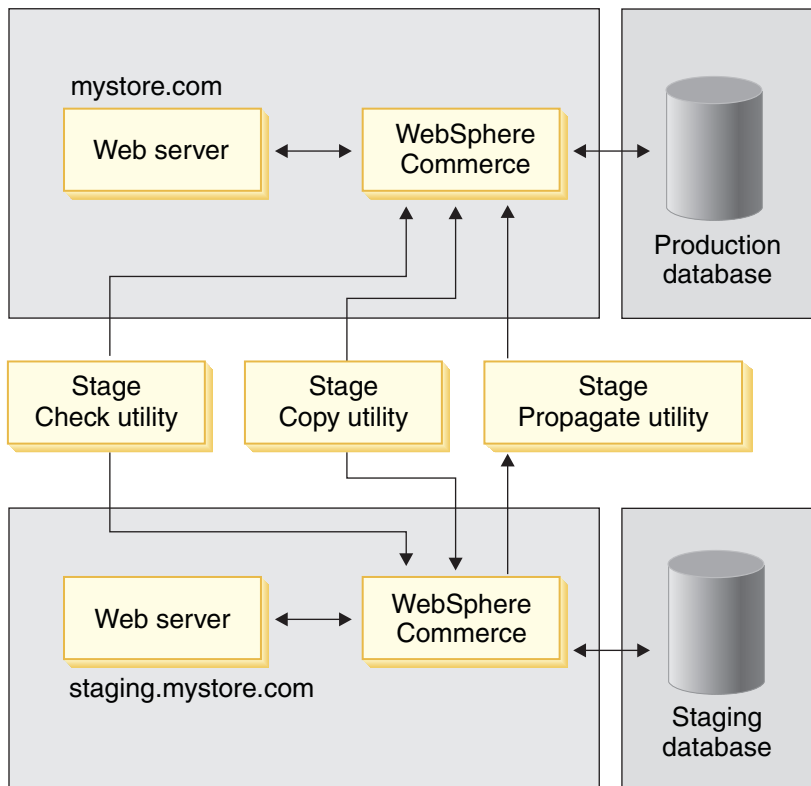
- To expand, you may use clones to create multiple copies of the application server and increase throughput

Staging server configuration

This configuration is useful for development and testing. In this environment, changes can be made to the staging database and tested before being propagated to the production database. Using separate machines for the production and staging servers allows you to stress test the staging server, and is recommended.

Ideally, the configuration for your staging server will be identical to your planned production environment.

The following is a staging server configuration:



For more information on staging servers, refer to “Staging server” on page 102.

Chapter 6. Creating your store

This section provides an overview of the tasks involved in creating your store.

What is an online store?

An online store is a store that uses Internet technologies to sell or exchange products or services. It is comprised of a collection of Web pages that display and sell your products. For example, the home page acts as your store front, bringing customers into the store, and directing them to your products. Catalog group pages group products together, and direct customers to the product pages, where they can find detailed information about the product. The shopping cart page fulfills the same role as a physical shopping cart does: you can add products you want to purchase, then pay for them using credit cards or other payment methods in the checkout pages.

Your customers only see the external portion of your store pages. Each page includes graphics and images which are displayed to the customer, as well as Java commands and scripts which are not displayed to the customer. Commands and scripts are used to call other pages within the store or to complete actions, like logging in and registering. In order to display the correct product information, as well as the correct price, taxes, and shipping, the store accesses information from tables in the WebSphere Commerce database. WebSphere Commerce data beans (a set of Java beans included with Commerce Studio and WebSphere Commerce) may be included in the JavaServer Pages files. WebSphere Commerce data beans allow you to access information from the database such as the price of a product, or the product's attributes.

Sample stores

WebSphere Commerce provides sample online stores that you can use as the basis for creating your own store. There are two general types of stores: business-to-consumer (B2C) and business-to-business (B2B).

When planning your site, a key step is to plan your shopping flow to meet your customers' needs and expectations. While a merchant may choose to offer customers a unique shopping experience, most customers want consistency and familiarity with the shopping structure and sequence. Rather than focusing on a unique shopping flow, consider using targeted promotion, personalized recommendation, and a better selection of products and services to improve customer loyalty. WebSphere Commerce provides the tools for targeted promotions and personalized shopping experience with the WebSphere Commerce Accelerator.

A sample store acts as a template for the way that your store works. It sets up the flow of information as visitors look for and purchase products in your store. The sample store is packaged in a store archive format.

A sample store has a sufficient set of assets needed for the store to function. These assets include: JavaServer Pages files, static HTML files, image files, and database entries (catalog, tax, shipping, and fulfillment entries).

You can also create your own sample. This feature is beneficial if you need to create several similar stores that contain features or functions that are not included in the sample stores provided. If you would like to create your own sample store, you can use WebSphere Commerce and Commerce Studio to:

- Create your own store archive.
- Select the sample store, copy it, then modify it.

The following table lists the key features of the business-to-consumer sample stores:

Table 1. Business-to-consumer sample stores

	InFashion	WebFashion	NewFashion
New customer registration	✓	✓	✓
Registered customer logon	✓	✓	✓
Manage personal account	✓	✓	✓
Reset password	✓	✓	✓
Edit registration information	✓	✓	✓
Add a new address to the address book	✓	✓	✓
Edit the address book	✓	✓	✓
View the store's home page	✓	✓	✓
View categories in catalog	✓	✓	✓
View products in catalog	✓	✓	✓
View packages and bundles in the catalog		✓	✓
View and manage the shopping cart	✓	✓	✓
Quick checkout		✓	

Table 1. Business-to-consumer sample stores (continued)

	InFashion	WebFashion	NewFashion
Create/update quick checkout profile		✓	
Checkout without back/split order support	✓	✓	
Checkout process with backorder support			✓
Show expected availability date of inventory			✓
Split an order with back order processing support			✓
Multilingual store catalog and pages	✓	✓	✓
View, manage and send wish list		✓	✓
View past order status		✓	✓
e-mail notification of order status		✓	✓
View promotions on New Arrivals Page		✓	
Order level discount for registered customers		✓	
Search the catalog			✓
Multiple ship to address			✓
Availability dates for order items			✓
Track order status			✓
Customer care			✓

Business-to-business sample store: ToolTech

Business

ToolTech is the first B2B online hardware store provided with WebSphere Commerce. ToolTech highlights the tasks a buyer can perform at a seller's e-commerce site. Some of the features included in the ToolTech sample store are:

- Contract-based purchasing
- Requisition lists

- Browsing based on entitlement
- Contract-based pricing
- RFQ creation
- Split orders
- Multiple shipping addresses
- Weight-based shipping
- Product search capability
- Buyer registration
- Customer care
- Collaboration

The ToolTech store provides all the pages and features necessary for a functioning B2B online store. ToolTech is packaged with WebSphere Commerce as a store archive, and as a result, no further installation is necessary. All that is required to view the sample store is to create a new store archive based on ToolTech using the Store Services tools, then publish it to the WebSphere Commerce Server.

Since store creation in WebSphere Commerce is based upon selecting a sample store archive and modifying it, ToolTech is designed to act as the basis for your store. It is based on a simple yet proven shopping flow, and all the sample store pages can be easily customized. All ToolTech sample store pages use JSP's and XML to load the necessary data.

For more information on ToolTech's shopping flow, see ToolTech use cases provided with online help. The use cases detail the flow of each buyer interaction in the store, for example, registration or searching for a product. For more technical detail on how each page works, see the corresponding reference information for each page.

Multicultural stores

WebSphere Commerce stores support multicultural features, making them more useful in an international environment. Store Developers can develop stores with multicultural online product catalogs, allowing customers to view descriptions appropriate to their locale in their preferred language and currency. In other words, if this information has been entered during the store development process, customers can select cultural parameters such as language, tax and shipping rates, date and currency format, and payment methods.

The sample stores provided with WebSphere Commerce are multicultural. To create a multicultural store, simply select the store sample that best matches your requirements. For more information see, "Creating a store using a

sample store archive” on page 62. You can add multicultural support to an existing store, refer to the WebSphere Commerce online help.

WebSphere Commerce allows you to create a store that can be tailored to fit the needs of an international or culturally diverse customer base. For example, you can create a store with some or all of the following characteristics:

Multiple languages

A store may be viewed in more than one language. For example, you may want to allow customers to choose the language in which they would like to view your store, or you may want to automatically select a default language, depending on the location of the store.

Multiple currencies

A store may be capable of displaying and handling more than one currency.

Optional data formats

Data may be displayed in various customizable formats. People from different cultures may have different expectations about how certain information should be displayed. For example, a decimal may be indicated by using either a comma or a period, depending on the language or country, or region of the customer.

Multiple address formats

Addresses may be displayed in various formats to conform to different international conventions.

Taxation

Different taxation rules may be defined for different jurisdictions, including sales tax, and other business or government taxes.

Shipping

Different shipping rules and carriers may be defined for different regions.

Multiple payment methods

Different payment methods may be defined.

Prices

The same product may be sold at different prices in different jurisdictions.

Online catalog data

Descriptions, attributes, and images may be customized for display to customers in different regions. You can also maintain a master online catalog that can be shared by a number of stores.

Page design

WebSphere Commerce allows you to create customized pages for each display format. You can create a generic page template for all cultures so

that the design looks the same but culturally sensitive information is dynamic. Otherwise, you can create separate display pages for each culture.

Typical store pages

The following sections describe the types of pages that are found in a typical store.

Home page

A home page is a virtual store front, and is the first page that customers see when accessing the site. Usually, a home page contains the name and logo of the store, an introduction or welcome message, any other general information, and hypertext links to connect customers to store pages and to a registration page. Home pages typically contain a header, body, footer, and a navigational section.

Registration pages

When customers register with a store, they provide personal information such as their name, logon ID, password, address, contact information, and some demographic details. Typically, stores have two types of registration pages that facilitate collecting this information: a new registration page and an update registration page.

A new registration page is used for initial registrations. An update registration page is used for updating personal information on subsequent visits.

Logon page

Typically, the Logon page displays a form containing fields in which a registered customer enters a user ID and password in order to log on to the store.

Display pages

The display of certain pages in your online store is determined by commands in WebSphere Commerce. These pages are called display pages. Typically, display pages are used whenever you wish to use the same design to present information to your customers. Display pages are most commonly used for catalog information. For example, the `CategoryDisplay` command determines the appropriate page for displaying category content in the store.

Typically, display pages are dynamic. The number of display pages you choose to create will depend on how many different page layouts you want. For example, you may want to create a separate template for each package or bundle in each store, or just one template for all packages or bundles. You may also want to display packages and bundles differently to different customer groups. This way, you can allow certain customers to view information and page styles that are directed specifically to them. For example, a customer purchasing computer systems for a large

company will most likely want different product information than a customer purchasing a computer for home use.

- **Catalog group pages**

Catalog group pages help customers navigate through the various departments or groups of products and services available in a store. The first catalog group pages lead customers to the areas in which they want to shop. Subsequent catalog group pages further narrow the selected product type that the customer wants to browse. The last catalog group page in a shopping path contains links to product pages.

There are three types of catalog group pages: those that list subcategories within a parent catalog group, those that list products within a catalog group, and those that list both products and subcategories.

These templates usually contain an image to represent the catalog group, a description of the catalog group, and links to subcategories, products, and various other parts of the store (for example, a link to the customer service area).

- **Product pages**

A product page displays information about a particular product. Usually, a product page includes a description, image, price, and any attributes (for example, different sizes and colors). It also contains a button to add the product with the selected attributes to the shopping cart.

If a product has variations, you may want to provide a page that displays information specific to the variant.

- **Package pages and bundle pages**

Package pages and bundle pages feature product groupings in an online store. Typically, package pages include a description, price, and a list of components that comprise the package. Package pages may also show an image for each component. Bundle pages are much the same, but are priced by component. The price for the bundle is the total of each individual component.

Package pages and bundle pages also contain a button to add the package or bundle to the shopping cart.

Shopping cart page

The shopping cart page displays the products that a customer has selected for possible purchase. From this page, customers can proceed directly to the checkout process. For more information, see Checkout pages.

Interest list page

The interest list includes products that customers have selected for recurring or potential purchase. An interest list differs from a shopping

cart in that customers plan to purchase the products in the shopping cart during that shopping session or in the near future.

To order from an interest list, customers must select from their list which products they want to purchase. When non-registered customers are finished their shopping session, products that remain in the interest list are removed. Depending on the store's design, customers may also have multiple interest lists.

Checkout pages

Most stores include a series of pages that comprise the checkout process. The pages you use will depend upon the design of your store.

Select Billing Address page

Allows customers to select an existing address as the billing address, or to create a new address as the billing address.

Select Shipping Address page

Allows customers to select an existing address as the shipping address, or to create a new address as the shipping address.

Select Shipping Method page

Allows customers to select the type of shipping method (for example, courier or express mail).

Order Summary page

Allows customers to review their detailed order information, including a description of the items bought, as well as quantity, unit price and total price, shipping address, and shipping costs. The customer must then complete the order by providing payment information and clicking **Order Now**.

Order Confirmation page

Informs the customer that the order has been accepted and provides an order reference number.

Prepare Orders page

Lists the products in the interest list and allows customers to select which ones will be ordered. This page is required if you are using an interest list.

Order Status page

Lists orders that the customer has placed with order details and status.

Address pages

Address pages allow customers to create and maintain an online address book. In their address book, customers can keep address information for themselves, family members, or any other person or business to whom they want orders shipped. Typically, there are three address pages:

- A main address page, which presents the options available for managing the address book.
- An add address page, which presents the form used to create a new address book entry.

- An update address page, which displays existing address information and allows information updates.

Exception pages

Exception pages display when WebSphere Commerce detects exception situations, such as a customer typing an incorrect password.

Error pages

An error page displays in a customer's browser when WebSphere Commerce encounters an error that prevents it from performing the customer's request. For most error pages that display in a customer's browser, a corresponding message displays in the instances log files.

Creating a store

You use a store archive to create a store. A store archive file (.sar) is a compressed archive file (for example, a ZIP file) that contains all the assets necessary to create a store. The store archive can be easily copied; then used as a base upon which to create new stores. A store archive only needs to be published to the WebSphere Commerce Server to create a functional store that you can view, browse, and shop.

Typically, a store archive includes the following files:

Web assets

The files used to create your store pages, such as HTML files, JSP files, images, graphics, and include files. Web assets are grouped together as a compressed file in the store archive.

Property resource bundle

Contains the text displayed on your store's pages. If your store supports more than one language, the resource bundle will contain multiple bundles; that is, one bundle per language.

Store database assets

The data to be loaded into the database. Store database assets include: campaign, catalog, command, currency, fulfillment, offering, shipping, store, tax, trading, contracts and quantity units. The store database assets take the form of well-formed, XML files valid for the Loader package. For more information on the Loader package, see Step "The Loader package" on page 80.

Payment assets

Configuration information for the IBM Payment Manager.

A descriptor

An XML file, `sarinfo.xml`, that describes the store archive, including the names of the Web assets compressed archive file, the resource bundles, and the store database asset XML files. The `sarinfo.xml` file also contains

the names of include files and consistency checking files, as well as information about the archive file that is needed during the publishing process. The `sarinfo.xml` is the only mandatory file in a store archive.

In WebSphere Commerce, you can create a store by using either of the following methods:

- Use Store Services to create a store based on a sample store archive
Store Services is a browser-based set of tools that allows you to quickly create a store archive based on a sample archive provided with WebSphere Commerce. Once you have created a store archive, Store Services allows you to perform the following tasks:
 - Publish the store archive to create a functional store
 - Change general store settings using the Store Profile notebook
 - Change shipping settings using the Shipping notebook
 - Change tax settings using the Tax notebook

If you create a store based on a sample store archive, you can create a functional store in under 30 minutes. The length of time it takes to customize this store to meet your needs depends upon the size and scope of your site.

- Build your own store archive
Once built, you can add this store archive to the sample store list in Store Services. Building your own store archive requires advanced knowledge of the WebSphere Commerce database, XML, Java, and JSP technology. For more information on building your own store archive, see “Creating a store by building a store archive” on page 67.

Creating a store using a sample store archive

To create your own store using the sample store archive provided with WebSphere Commerce, use the browser-based tools in Store Services. When you complete the steps outlined in this section you will have a store running on a WebSphere Commerce Server. The store will have a catalog, and products will have tax and shipping charges added. If Payment Manager is running, customers will be able to place orders; and the orders can be processed by Customer Service Representatives using the WebSphere Commerce Accelerator. If e-mail notification is enabled, customers will receive notification messages when the order is fulfilled.

Step 1. Use Store Services to create a new SAR file.

- a. Log on to Store Services with a Site Administrator, or Store Administrator ID.

To open Store Services type the following Web address in your browser:

`https://host_name:8000/storeservices`

where *host_name* is the fully qualified HTTP host name of your WebSphere Commerce Server.

- b. From the Store Archive List page, click **New**.
- c. In the Create Store Archive page, define a name for the store archive, a store directory, and a store owner.
- d. Select a sample store archive, *samplestore_locale1_locale2.sar*, and click **OK**.

Store Services creates a new store archive, which at this point is an exact copy of *samplestore_locale1_locale2.sar*, saved under a new file name and directory structure.

- e. If desired, you can publish the new store archive without modification. To publish a store, see Step 7 on page 66.

Step 2. Change store information

To customize the general store information contained in the store asset files in the store archive, use the Store Profile notebook in Store Services. You can change the following information:

General

The name of your store and a message to display in your store.

Contact

The address, e-mail, phone, and fax information customers use to contact your store. This information may be displayed on the customer service page in your store.

Language

The languages in which your store displays to customers.

Currency

The currencies that your store is capable of displaying and handling, for example the currencies that display to a customer, and the currencies customers can use to purchase products.

Display pages

The JSP files used to display the catalog information in your store.

Step 3. Change shipping information

To customize the shipping information contained in the shipping asset files in the store archive, use the Shipping notebook in Store Services, or alter the *shipping.xml* file. To determine the appropriate method consider the following:

The Shipping notebook enables you to calculate shipping charges by using any of the following methods individually, or by adding the results of several of these methods together.

- Charge a flat rate for each product based on its shipping category
- Charge a flat rate for each product based on its weight

- Charge the same flat rate for each product (cost per product)
- Charge a flat rate for the whole order (cost per order)

In addition to the shipping methods listed above the WebSphere Commerce schema also supports shipping charges by using the following methods:

- Charge as a percentage of the cost of the order (for example, you can set your shipping charge as 5% of the total cost of each order so that a \$100 purchase will incur \$5 in shipping charges to make the total a \$105 purchase).
- Charge based on quantity ordered (for example, you can charge \$3 to deliver one to five CDs, \$5 to ship six to 15 CDs, and \$10 to ship more than 16 CDs).

To set up shipping charges based on a percentage of the cost of the order, or based on the quantity ordered; create the shipping assets files and populate the database by using the Loader package.

You can change the following information, by using the Shipping notebook:

Providers

The shipping providers for your store.

Providers by Language

The name for each provider that displays to your customers. If your store supports multiple languages, you may need to define language-specific names for each provider.

Zones

The geographic regions to which your store delivers products.

Categories

The shipping categories supported by your store, for example, oversize or fragile.

Rates

The shipping rates to be charged for each zone, category, and provider combination.

Weight Ranges

The range in units of weight, to which a shipping category applies.

Weight Rates

Shipping rates to be charged for each zone, weight range category, and provider combination.

After changing the shipping information, ensure that you assign the appropriate shipping categories to the catalog data. For more information, see 5 on page 79.

Step 4. Change tax information

To customize the tax information contained in the tax asset files in the store archive, use the Tax notebook in Store Services. You can change the following information:

Categories

The tax categories supported by your store, for example, state, and federal.

Category Assignment

The categories assigned to each tax code. In the category assignment table, a row is created for each tax code and tax category combination.

Display Names

The tax category names that display to customers. If your store displays in multiple languages, define a display name for each language.

Jurisdictions

The geographic regions to which your store sells products.

Rates

The tax rates to be charged for each jurisdiction and category combination.

Sales Tax Codes

The sales tax codes used by your store. A tax code is a name for a grouping of taxes that are applied to the same products. For example, all taxes applicable to groceries could be grouped under a single tax code called groceries. Then, you could assign the groceries tax code to each grocery product.

Shipping Tax Codes

The shipping tax codes used by your store. A tax code is a name for a grouping of taxes that are applied to the same products. For example, all taxes applicable to shipping to a certain region could be grouped under a single tax code called Regional shipping tax. Then, you could assign the Regional shipping tax code to each product being shipped to that region.

After changing the tax information using the Tax notebook, ensure that you assign the appropriate tax categories to the catalog data in the database. For more information, see 4 on page 79.

Step 5. Customize Web assets, and create new store pages

• **Page Designer**

Use Page Designer in Commerce Studio to customize the store pages in the store archive file. Commerce Studio allows you to import the Web assets from the store archive into a Studio project, while keeping the store archive structure intact. After making changes to the JSP files, HTML files, and images using the Studio tools, you can export the files back to the store archive on the

WebSphere Commerce Server and republish the Web assets. You can also publish the files directly to your running store using Commerce Studio.

- Your preferred Web development tool

You can also configure Commerce Studio to use another tool of your choice, for example Macromedia Dreamweaver. Refer to the WebSphere Studio online help for more information on registering your own tools with Commerce Studio.

You may have already created pages for your store. For information about inserting previously created files into Commerce Studio, refer to the section on inserting pages in the WebSphere Commerce online help.

Step 6. Create online catalog data

If you want to change the sample catalog, you must create online catalog data that contains information about the products and services sold in your store. There are multiple methods for creating your product data (including importing existing catalog information from other electronic sources). For more information on the methods available to create your catalog data, refer to Chapter 7, “Creating your online catalog” on page 71.

Step 7. Publish the store archive

When you publish a store archive to the WebSphere Commerce Server, you are transferring your store assets to the WebSphere Commerce Server for execution. During publishing, Store Services copies the Web assets in the store archive to the Web application document root and updates the database with the information in the XML files from the store archive. Only users with Store Administrator or Site Administrator access have the authority to publish a store.

- a. Ensure that Payment Manager is installed, and that the payment engine is running.

To start the payment engine, open a command window and change directory to the directory where IBM Payment Manager is installed. Enter the following command: `IBMPayServer` You are prompted to enter your Payment Manager password. This is the password of the user you specified to use when connecting to the Payment Manager database.

- b. From the Store Archive List page, select the store archive you want to publish, then select **Publish**. The Publish Store Archive page displays.
- c. Select the following options:
 - Store database assets, with the online catalog data
 - Web assets such as JSP files, HTML files, and images

- Property resource bundles (the text for the store)
- d. Click **OK**.
- e. Run scheduled jobs for the store. For information about running scheduled jobs, refer to the online help topic "Running scheduled jobs for a sample store".

Creating a store by building a store archive

This section provides an overview of the steps required to create your own store archive, for use as a sample, or as the basis for your store. For more detailed information refer to the *IBM WebSphere Commerce Store Developer's Guide, Version 5.4*.

Step 1. Create store pages

You need to create Web pages for your store. For example, your store requires a home page that is the first page customers see when they access your store. For descriptions of pages found in a typical store, see "Typical store pages" on page 58. Create store pages using Commerce Studio or a tool of your choice.

WebSphere Studio provides an integrated visual page development tool, Page Designer, that helps you create HTML files and JSP templates.

WebSphere Commerce and Commerce Studio include a set of Java beans that access information from tables in the database. Creating store pages using WebSphere Commerce data beans allows you to dynamically display information that may change often, such as catalog groups or product prices. Typically, WebSphere Commerce beans are used to create all store pages.

For a complete listing of the beans available with WebSphere Commerce and Commerce Studio, see the data beans section of the reference information in the WebSphere Commerce online help.

Step 2. Create a compressed archive file

After creating your store pages, create a compressed archive file (for example, by using a ZIP program) that contains the store pages and all other necessary files, such as HTML files and images.

Step 3. Create a property resource bundle

Using the sample store archive text file, `infashiontext_en_US.properties`, as your guide, create a property resource bundle that contains the text for your store pages. If your store supports more than one language, create a file for each language. As a result, the resource bundle will contain multiple bundles; that is, one bundle per language.

After creating the resource bundle, create a compressed archive file of it (for example, by using a ZIP program).

Step 4. Create store database assets

The store database assets are the data for your store that is loaded into the database. For example, all of your online catalog information must be loaded into the database. Create your store database assets in the format of XML files using the document type definitions (DTDs) supplied with WebSphere Commerce.

Step 5. Create a sarinfo.xml file

The sarinfo.xml file describes the store archive, including the names of the Web assets compressed archive file, the resource bundle(s), and the store database asset XML files. Using the sample store archive file, sarinfo.xml as your guide, create a sarinfo.xml file for your store archive.

Step 6. Create a compressed file

Using a ZIP program, create a compressed file of the assets you created in steps 1 through 4. Give this compressed archive file the extension .sar, for example, mystorearchive.sar.

Step 7. Add the store archive to the Store Services sample list

After creating your store archive, add it to the sample list in Store Services. You can then create a store archive based on it, and publish it to the WebSphere Commerce Server.

To add the store archive to the sample list, add it to the SARRegistry.xml file. The SARRegistry.xml file is located in the following directory:

▶ NT	drive:\WebSphere\CommerceServer\xml\tools\devtools
▶ 2000	drive:\Program Files\WebSphere\CommerceServer\xml\tools\devtools
▶ AIX	/usr/lpp/CommerceServer/xml/tools/devtools
▶ Solaris	/opt/WebSphere/CommerceServer/xml/tools/devtools
▶ Linux	/opt/WebSphere/CommerceServer/xml/tools/devtools
▶ 400	/Qibm/ProdData/WebCommerce/xml/tools/devtools

Step 8. Publish the store archive

When you publish a store archive to the WebSphere Commerce Server, you are transferring your store assets to the WebSphere Commerce Server for execution. During publishing, Store Services copies the Web assets in the store archive to the Web application document root and updates the database with the information in the XML files from the store archive. Only users with Store Administrator or Site Administrator access have the authority to publish a store.

- a. Ensure that Payment Manager is installed, and that the payment engine is running.

To start the payment engine, open a command window and change directory to the directory where IBM Payment Manager is

installed. Enter the following command: `IBMPayServer` You are prompted to enter your Payment Manager password. This is the password of the user you specified to use when connecting to the Payment Manager database.

- b. From the Store Archive List page, select the store archive you want to publish, then select **Publish**. The Publish Store Archive page displays.
- c. Select the following options:
 - Store database assets, with the online catalog data
 - Web assets such as JSP files, HTML files, and images
 - Property resource bundles (the text for the store)
- d. Click **OK**.
- e. Run scheduled jobs for the store. For information about running scheduled jobs, refer to the online help topic "Running scheduled jobs for a sample store".

Chapter 7. Creating your online catalog

This section provides an overview of the tasks involved in creating your online catalog. This section also discusses creating data for your online catalog and importing existing catalog data into the database.

Understanding your online catalog

Before creating and maintaining your online catalog, you should understand how a catalog works in WebSphere Commerce.

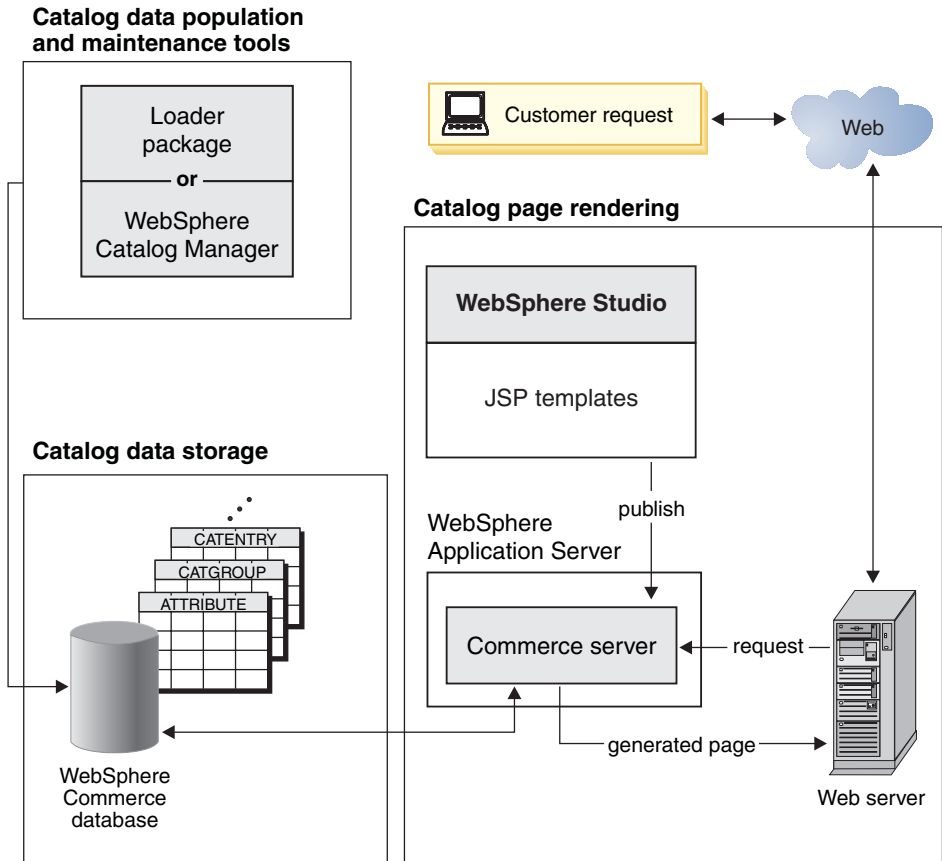
There are two types of catalogs in the WebSphere Commerce system: master and navigational. A master catalog is the central tool for managing your store's merchandise. This is the single catalog containing all products, items, and standard pricing for each entity. Every store in the WebSphere Commerce system must have a master catalog. You can share the master catalog across stores and define as many stores as needed.

If necessary, you can create a navigational catalog to change the catalog display for customers. A navigational catalog contains the same entries as the master catalog, but with a much more flexible structure for customer display purposes. You can have as many navigational catalogs as is necessary to suit your promotional needs. In order to limit the administrative overhead of managing several navigational catalogs, we recommend that you only use a single master catalog.

Catalog information that is displayed to customers requires the following:

- Catalog data, or assets
- Catalog display pages
- Catalog relationships

The following diagram shows the flow of catalog information between the WebSphere Commerce components.



Catalog data

Catalog data is stored in the WebSphere Commerce database. To initially populate a database with the catalog information, use the Loader package. Catalog data is also known as *catalog assets*.

Catalog data consists of descriptions, relationships, prices, and images for each entry in your catalog. For administrative and navigational purposes, catalog data is arranged into catalog groups. As the name suggests, a catalog group (or category) combines catalog entries and other catalog groups to create different sections of an online catalog. With properly structured catalog groups, customers can easily browse through an online store and quickly find the desired product. Catalog groups provide pathways for customers to navigate through the store. The pathways begin at the home page and end at a product page. Within a catalog group, catalog entries represent orderable merchandise in an online catalog. WebSphere Commerce supports default

catalog entry types including products, items (also known as SKUs), packages, bundles, and dynamic kits. WebSphere Commerce also allows you to create new types of catalog entries if necessary.

A *product* is a group of items, while *items* are specific instances of a product defined by attributes. For example, cotton pants are a product because they cannot be uniquely identified until values are provided for the size and color attributes. This product represents the group of all cotton pants while the item, cotton pants, size 32, color black represents a specific instance of the product. Remember that the terms items and SKUs are considered synonymous. When using the Product Management tools in the WebSphere Commerce Accelerator, the orderable item is called a SKU for simplicity.

A *bundle* is a collection of catalog entries. For example, a bundle for a computer may be composed of a central processing unit, a monitor, a hard drive, and a CD-ROM drive. Bundles may be a grouping of items, or a combination of products, items, and packages. If a bundle contains only items and is added to an order, it is broken into separate orderable items. Bundles allow customers to buy multiple items at once. The price of a bundle is the aggregate of each bundle component price.

A *package* is an indivisible collection of catalog entries. For example, a computer package may contain a specific central processing unit, monitor, and hard drive that may not be available separately. A package has its own price and is a separate orderable SKU that can be added to an order. A package cannot be broken up or modified.

A *dynamic kit* is a group of products ordered as a unit. The components of a dynamic kit are not statically stored in the WebSphere Commerce database, but are instead configured by an external product configurator. Users interact with the product configurator to build a dynamic kit, which is supplied to WebSphere Commerce at order entry time. Individual components of a dynamic kit cannot be modified in an order, but each dynamic kit can be reconfigured. There are several product configurators available that can be used to configure dynamic kits. While WebSphere Commerce does not supply a product configurator, full support integration is provided for an external product configurator.

Catalog display pages

Catalog display pages customize your catalog layout for presentation purposes. They outline how a page is displayed to your customers and how it provides a consistent look and feel between various catalog pages. Display pages created using JSP technology improve the efficiency of the operation of your store since you do not need a separate HTML file for each product. Instead, the product information exists in the database, while the display page exists

on the server. When a customer requests a page, displayable pages are generated and returned to the customer's browser.

You can use different catalog display pages to exhibit the different types of catalog data. For example, a product page to display products, or a package page to display packages, and so on. You can customize display pages for individual products and items. That is, you may want a unique page to showcase a featured coat or other items that are on sale. You can also create different display pages for each customer group, such as a special offer to your frequent buyers group.

Another method of customizing the catalog display is by specifying product sets. Product sets provide a mechanism for you to partition your catalog into logical subsets. This partitioning allows you to show different parts of your catalog to different users. You can create a contract and specify that the participants of the contract are only entitled to purchase products that fall into a pre-defined product set. WebSphere Commerce provides easy to use tools to create product sets from the master catalog and to make use of them in contracts for entitlement filtering.

Catalog relationships

A catalog contains several kinds of *relationships* between its data. As noted above, a catalog contains catalog groups and various catalog entries in the form of products, items, packages, bundles, and dynamic kits. A catalog partitions the catalog entries and the catalog groups into meaningful views for customers.

As an example, many retail stores rotate their merchandise according to the time of year. A catalog can create seasonal views of the underlying product universe. Catalogs allow full or partial inclusion of catalog groups, or a combination of the two. Continuing with the retail store example, a catalog group called Men and a catalog group called Women appears in both the Summer and Winter catalogs. When part of the Summer catalog, the Men and Women catalog groups contain summer apparel (such as sandals, shorts, and swimwear) and when part of the Winter catalog, the Men and Women catalog groups contain winter clothing (such as boots and woolen outerwear). Both catalog groups may share certain catalog entries which contain identical and seasonally neutral articles of clothing, such as shirts and pants.

However, during the summer season, only catalog groups and catalog entries appearing in the Summer catalog are accessible. Similarly, during the winter season, only the Winter catalog with its associated catalog groups and catalog entries is displayed to the customer.

Every store in the WebSphere Commerce system is related to at least one catalog. Catalogs can be shared among many stores, and each catalog can be

related to one or more catalog groups, which represent the root categories in the catalog navigation tree. One or more catalog entries may belong to a catalog group.

Creating a master catalog

Once you have created your store, you need to create your master catalog. WebSphere Commerce provides several methods of creation.

The WebSphere Commerce sample stores — ToolTech, WebAuction, InFashion, NewFashion, and WebFashion — include master catalogs. You can use one of the sample master catalog as a base for your own master catalog. Use the Product Management tools to modify the existing data for your catalog. For more information, see “Maintaining your online catalog” on page 84.

If you include a sample catalog when you published your store archive, your store will already contain sample products. In this case, you should delete the sample products before adding your own products. For more information on deleting the sample products, refer to “Deleting sample products” on page 80.

You can also create your master catalog from scratch by updating the WebSphere Commerce XML files. To create a new master catalog, see the catalog assets chapter in the *IBM WebSphere Commerce Store Developer's Guide, Version 5.4*. The catalog assets chapter uses the ToolTech master catalog as an example when creating a new master catalog.

Or, if you prefer, you can create and maintain catalogs by using the Catalog Manager. Catalog Manager is a catalog management tool specifically designed and optimized for the creation and management of online catalog information. It is designed to understand the inherent relationships between different catalog elements such as products, categories, or SKUs, and catalog relationships. It also allows multiple users to access and update the data from different workstations.

Catalog Manager provides a generic toolkit that provides various functions that can be strung together in the required sequence to solve your particular catalog-management problems. It provides the ability to aggregate information from multiple sources into a consolidated WebSphere Commerce system and to remap all that diverse data into a standard catalog- and product-definition format using XML files as the standard means of managing information.

Catalog Manager includes the Loader package, the Web Editor, and two tools with a user interface to assist in the administration of its functions: the Text Transformation tool and the XSL Editor. In particular, the Loader package provides the primary method for catalog creation and maintenance. The Loader package is ideal for importing large amounts of existing product

information into the database. For more information on Catalog Manager, see the *Catalog Manager User's Guide, Version 5.4*.

Creating catalog assets

The information in this section is meant as an overview. For more detailed instructions on creating catalog data, see the section on creating catalog assets in the *IBM WebSphere Commerce Store Developer's Guide*.

To create catalog assets for your store, you need to create a master catalog by adding information to several WebSphere Commerce database tables. You can create your catalog using XML files that are loaded into the database using the Loader package. A multicultural catalog requires a separate XML file for each locale your store supports.

Step 1. Create an owner for the catalog by adding an organization in the ORGENTITY table using one of the following methods:

- Use the sample AddOrganization JSP files provided with WebSphere Commerce.
- Do an SQL insert into the ORGENTITY table.

Step 2. Create XML files to load your catalog data into the database. You can use the sample store's catalog XML files and DTDs that are supplied with WebSphere Commerce as a guide to create your own files. If you are creating a multicultural catalog, you also need to create a separate XML file for each locale your store supports. Any information that needs to be translated, such as product descriptions and prices, should be added to the locale-specific files.

To create the catalog assets for your XML files, complete the following tasks:

Creating a catalog entity

- a. A catalog entity represents a catalog in the database. Create a catalog entity by adding information to the CATALOG and CATALOGDSC tables.

Creating catalog groups

- b. Catalog groups form a navigational tree of categories and products. Think of catalog groups as corresponding to departments in an actual store.

To create catalog groups, you must first arrange products in a hierarchy, or inverted tree. The tree begins at a general catalog group (called the root), and branches out into increasingly specific subcategories until it cannot be further divided. Each lowest level catalog group, which contains only products, is a leaf. A catalog group is the parent to the categories immediately below it, and a child of the one above. For example, Men's Fashion is a grouping

of the men's apparel categories, such as pants and shirts, while the catalog group Pants is a grouping of products.

Create catalog groups by adding information to the CATGROUP and CATGRPDESC tables.

Assigning top-level catalog groups to the catalog

- c. After you have created catalog groups for your catalog, you must assign the top-level groups to your catalog. For example, Men's Fashion is a top-level catalog group. Assign top-level catalog groups to the catalog by adding information to the CATTOGRP table.

Creating relationships between catalog groups

- d. After you have created catalog groups for your catalog, you must define the relationships between the groups. For example, top-level catalog groups have subcategories, that is Men's Fashion contains the subcategories Pants and Shirts. The top-level group is the parent, and the subcategories are the children. Subcategories can also act as parents. That is, the subcategory Pants could have its own subcategories, like Dress Pants and Casual Pants. Create catalog group relationships by adding information to the CATGRPREL table.

Creating inventory information

- e. You need to define several different types of inventory information for your catalog. Base items represent a general family of goods with a common name and description, and represent products in the catalog. For each group of inventory items in your catalog, add information to the BASEITEM and BASEITEMDSC tables.

A specified item is an item with values for all its attributes, and represents an item, package, bundle or dynamic kit in the catalog. A specified item is a fulfillment entity that corresponds to the item catalog entry and the fulfillment view of what the merchant sells. For each specified item in your catalog, add the information to the ITEMSPC table.

You need to establish relationships between item versions and base items in your catalog. For each such relationship, add the information to the ITEMVERSN table.

You need to establish relationships between a product version and a specified item in your catalog. For each such relationship, add the information to the VERSIONSPC table.

A distribution arrangement enables a store to sell its own inventory. For each distribution arrangement in your catalog, add the information to the DISTARRANG table.

Certain attributes affect how a particular store allocates inventory for the specified items of a particular base item to the database. For each base item in your catalog, add the allocation information to the STOREITEM table.

Creating catalog entries

- f. The merchandise in your catalog takes the form of catalog entries. Products, items, packages, bundles, and dynamic kits are all examples of catalog entry types.
Create catalog entries in your catalog by adding the information to the CATENTRY and CATENTDESC tables.

Creating attributes and attribute values

- g. Each product in your catalog has a specific set of attributes. For example, a shirt may have the size and color attributes. Items are defined by the attribute values. For example, a small, red shirt. After you have created catalog entries, create attributes and attribute values in your catalog by adding information to the ATTRIBUTE and ATTRVALUE tables.

Creating relationships between products and items

- h. After you have created products and items for your catalog, you must define the relationships between each product and item. Define the relationship between products and their items by adding information to the CATENTREL table.

Creating packages and bundles

- i. After you have created products and items for your catalog, you must create packages and bundles. Begin creating packages and bundles by adding information to the CATENTRY and CATENTDESC tables. Then create the relationships between packages or bundles and their components to the CATENTREL table.

Creating relationships between catalog groups and catalog entries

- j. After you have created catalog groups and catalog entries in your catalog, you must define the relationship between the catalog groups and catalog entries. That is, you need to assign catalog entries to specific catalog groups. For example, Pants is a catalog group. Dress Pants and Cords are both products that belong to this group. Define the relationship between catalog groups and catalog entries by adding information to the CATGPENREL table.

Creating merchandising associations

- k. Create merchandising associations — cross-sell, up-sell, and accessory — in your catalog for promotional purposes. Create merchandising associations by adding information to the MASSOCECE table.

Step 3. Associating your catalog to a store

To display your catalog in an online store, you must assign the catalog, including all of its catalog groups and catalog entries, to a store in the database. At the same time, you should also assign display pages to your catalog groups and catalog entries. Using the sample store's store-catalog XML files and DTDs supplied with WebSphere Commerce as a guide, create your own XML files to add this information to the following tables in the database: STORECAT, STORECENT, STORECGRP, DISPCGPREL, and DISPENTREL. If you are creating a multicultural catalog, you must also create an XML file for each locale your store supports.

Step 4. Associating taxes to your catalog and store

To associate taxes to the products and services in your catalog for a specific store, you must associate a tax calculation code with the catalog entries. Using the sample store's store-tax XML files and DTDs supplied with WebSphere Commerce as a guide, create your own XML files to add this information to the CATENCALCD table in the database.

Step 5. Associating methods of shipping to your catalog

To associate methods of shipping to the products and services in your catalog, you must associate a shipping calculation code with the catalog entries. Using the sample store's store-shipping XML files and DTDs supplied with WebSphere Commerce as a guide, create your own XML files to add this information to the CATENCALCD table in the database.

Step 6. Associating your catalog with a fulfillment center

A fulfillment center manages product inventory and shipping for a store. You must associate your catalog with a fulfillment center in order to ship products to customers. Using the sample store's storefulfill XML files and DTDs supplied with WebSphere Commerce as a guide, create your own XML files to add this information to the FFMCENTER table in the database.

Step 7. Pricing the products in your catalog

Pricing represents the price range for a catalog entry and any criteria that must be satisfied in order to use that price. In order to create a functional catalog, you need to add offering information to the database. Using the sample store's offering XML files and the DTDs supplied with WebSphere Commerce as a guide, create your own XML files to add this information to the following tables in the

database: TRADEPOSCN, TDPCNCNTR, MGPTRDPSCN, OFFER, and OFFERPRICE. Or you can create or update the pricing for a catalog entry using the Product Management tools in the WebSphere Commerce Accelerator.

Step 8. Loading data

After you have created your catalog data, load it into the database using either the Loader package or through the Publish function in Store Services. For more information, see the “The Loader package” on page 80. For more information on the Publish function, refer to the WebSphere Commerce online help.

Deleting sample products

When you publish a store archive to a WebSphere Commerce Server, you have the option of including sample products in your store. If this option was selected when you published your store archive, you should delete these sample products before adding your own products. Use the Database Cleanup utility to delete these sample products. For more information, see the section on the Database Cleanup utility in the WebSphere Commerce online help.

The Loader package

A part of Catalog Manager, the Loader package loads catalog and other data into your WebSphere Commerce database. This package allows you to load large quantities of new data or make cell-level updates to existing data. An example of cell-level updates includes updating a value in a specific row and column. Superior performance and scalability features make the Loader package appropriate for the mass population and subsequent updates of the WebSphere Commerce Server data.

The Loader package uses data in XML format as input into the WebSphere Commerce database. The package lets you generate a document type definition (DTD), resolve identifiers in the data, and load data. The Loader package also includes utilities for data extraction and XML data transformation. The Loader package now contains TextTransformer, which transforms an ASCII-delimited document into an XML document.

If you create an XML file using the DTDs provided with WebSphere Commerce or modify the XML files provided with the sample store archive, you do not need to generate another DTD.

Included with the Loader package is a logging facility that lets you capture and store messages from package components. For example, you can log errors that occur while generating a DTD or loading data for debugging purposes.

Publishing and the Loader package

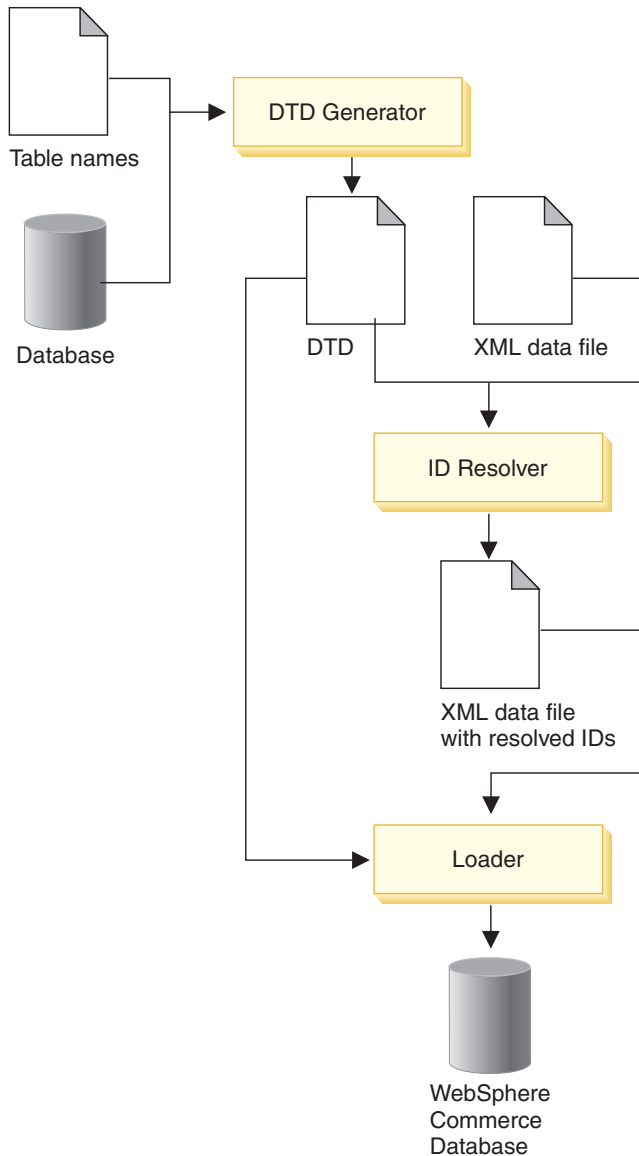
The Publish function in Store Services invokes the Loader package to load information into the database. The Publish function uses the DTDs supplied with WebSphere Commerce and a WebSphere Commerce-specific DTD, then resolves the identifiers and loads the data for you. If you want to load your data using the Publish function in Store Services, ensure that you use the appropriate DTDs provided with WebSphere Commerce to create your XML files and then add the XML files to a store archive.

Populating the database with the Loader package

This section describes how the Loader package imports XML data into WebSphere Commerce tables. For more detailed instructions on formatting data and using the Loader package, refer to the Loader package section in the WebSphere Commerce online help. The loading process consists of the following steps:

1. Generating a document type definition (DTD) with the DTD Generator.
2. Creating a data file.
3. Resolving identifiers in the input files with the ID Resolver.
4. Loading the data with the Loader package.

The following diagram illustrates the process of creating data with the Loader package:



Step 1. Generating a DTD

The DTD specifies structural elements and markup definitions that can be used within the XML data document. For example, the DTD lists elements that can be used in the document and specifies the attributes each element can take. The DTD describes the tables and columns into which the Loader package imports data.

The DTD files that are provided with the sample store archive, *webfashion_locale1_locale2.sar*, work with the Loader package. To load data into WebSphere Commerce tables not specified in the store archive or into WebSphere Commerce databases that you have not modified, use the provided *data.dtd* file. Otherwise, run the DTD Generator component of the Loader package. You only need to run the DTD Generator once.

The DTD Generator uses a list of tables and information from the source relational database management system (RDBMS) to create a DTD that defines structural information about the tables in such a way that the Loader can determine how to process XML data files. Elements in the XML document map to table names in the database, and element attributes map to columns.

Step 2. Creating a data file

The Loader package requires well-formed, valid XML files as input. Your data file must conform to the DTDs provided with the sample store archive, or the *data.dtd*, or the DTD you generated. To create the data file, use any XML editor or text editor. If your XML files are not valid, the Loader package uses a validating XML parser, and reports the errors for correction.

Here is a simple example of input data:

```
<catentry
catentry_id="@product 1"
member_id="1"
catenttype_id="ProductBean"
partnumber="1234"
mfpartnumber="1234"
mfname="JoesAppliances"
markfordelete="0"
buyable="1"/>
```

In this example, the table name is *CATENTRY*, and the column names are *catentry_id*, *member_id*, *catenttype_id*, and so on.

Step 3. Resolving identifiers

Because the XML files used by the Loader map directly to the target database schema, they must include identifiers where required. These identifiers link data in the XML file with the database. The ID Resolver component of the Loader package updates XML elements with their associated identifiers.

The ID Resolver can generate identifiers for new data to be loaded into WebSphere Commerce. This component can also resolve identifiers for existing data before the Loader is invoked.

To determine an identifier, the ID Resolver uses one of two methods: unique index resolution or internal alias resolution. Unique index resolution uses any specified unique index on a table as a means of


determining an identifier. Internal alias resolution places an alias in the primary key attribute (identifier). You can use this alias throughout the XML file to refer to that element.

In the example above, the `catentry_id="@product 1"` line indicates that you are using the internal alias resolution as all foreign key references must be denoted with an @. If you are using the unique index resolution, then you would not use `catentry_id` attribute for the catalog entry element. The `catentry_id` is referred by other elements as `@1234@1`, as the unique index for the CATENTRY table is "PartNumber and Member_ID" and the values for these columns are 1234 and 1, respectively.


Step 4. Loading data

The Loader provides the following modes of operation for loading product data for both DB2 and Oracle unless otherwise noted:

- SQL import: This mode uses Java Database Connectivity (JDBC) to insert and update data, providing the most flexible mode of operation but also the slowest for importing large amounts of data into a small number of tables. It allows cell-level update.
- Native import:

 This mode uses DB2 native import functions and allows cell-level update with medium speed and flexibility. If import method is used in Oracle, it defaults to the SQLIMPORT mode.

- Load:

 This mode uses the native facilities of the RDBMS (DB2 Load or SQL*Loader) and is the fastest mode for loading large amounts of data into a small number of tables.

 This mode uses CPYFRMIMPF with the *ADD option.

For more information, refer to the Loader package section of the WebSphere Commerce online help. You will find a comparison of these modes that can help you decide which method best suits your needs. If required, there is also a delete method for the Loader package to delete data from the database.

Maintaining your online catalog

Maintaining your catalog is an ongoing process, as you will need to continually add and remove merchandise, create and associate categories or catalog groups, and update product information, such as descriptions and price.

Once you have created your master catalog and you have added your catalog data, you can update your catalog's content or create new catalog data using the Product Management tools within the WebSphere Commerce Accelerator. The Product Management tools are a combination of wizards and notebooks designed to help you to manage all your catalog data. Specifically, you can:

- Create, update, and delete products and product details
- Generate, update, and delete items (or SKUs) for purchase
- Create, update, and delete categories (or catalog groups)
- Associate products and items with categories
- Create attributes and attribute values for products
- Create, update, delete, and associate catalog pricing with products.

For more information, refer to Chapter 12, "Managing the catalog" on page 145. You can also refer to the Product Management section in the online help for detailed instructions on each task. Or you can maintain your catalog using the Catalog Manager. Using a Web browser interface, you can create, edit, or delete catalog data. Refer to the *Catalog Manager User's Guide, Version 5.4* for more information.

Catalog search

The catalog search feature enables you to implement a search tool for your customers. By adding a simple interface to your site, you provide your customers with an additional way to locate your products. This might help close a sale where the customer may otherwise have been unable to navigate to the product they were looking for.

The catalog search functionality is implemented by a databean which generates SQL queries against the database. These queries can perform simple searches based on string combinations, or more powerful searches based on Boolean expressions. The search is capable of searching rich attributes as well.

Furthermore, the catalog search feature underlies the Product Advisor's base search space format.

Simple catalog search

Once implemented, the simple version of the catalog search feature adds a text entry field to the page and a button which launches the search. The field accepts text strings which are compared against the database to find matches, and displays them in the results page. If the search string is multiple words separated by spaces, the search engine treats each space as a 'logical and'.

The simple version of the catalog search is designed to require minimal page real estate, so that you can put it on any page without

having to redesign major portions of the page. In fact, to provide the most benefit to your customers, you should consider including a simple catalog search database on most of your store pages.

Advanced catalog search

The advanced version of the catalog search feature provides a robust search facility to your customers. It permits multiple input fields, which means that your customers can create a much more complex search string. It also provides support for Boolean expressions depending on the attribute selected. Additionally, your customers can search based on rich attributes, such as color or size. While both advanced search techniques are supported, Boolean expressions cannot be used to search rich attributes.

Due to the wide variety of search options, and the ability to specify multiple input fields, the advanced search interface is usually presented to customers as a separate page in the store. Often, the link to the advanced search page is located on the simple search results page, which invites customers to refine the results that they received, or to expand their search in cases where no results were returned.

Adding catalog search to your site

To add catalog search to your site, you must add the CatalogSearch database to each page from which you want to make search available. For implementation guidelines, refer to the search pages which are part of the sample stores. The search pages are described in the WebSphere Commerce online help.

Configurable products

Configurable products are "marked/identified" in such a way that allow a customer to group products while shopping. This new grouping of products is based on the customer's requirements and will be sold together. The product grouping is called a *dynamic kit*, and is based on predefined rules and any user interaction with a configurator. Adding a dynamic kit to an order is the same as adding a package. Like a package, the individual components of a dynamic kit cannot be modified and the entire configuration must be fulfilled as a whole. If you have configurable products in your store's master catalog, you are providing flexible products to fit your customer's needs.

While WebSphere Commerce does not supply a product configurator, full support and integration is provided for an external product configurator.

For a better idea on how a product configurator works within WebSphere Commerce, consider the following shopping scenario:

A configuration page displays high-level information for products. With the help of an external product configurator, the customer selects the desired product configuration based on a set of configuration rules. The new selection returns a configuration ID, which is recognized as the list of selected products (which may include a price). To add the selected products to the order the customer selects the configuration ID. If there are any modifications to be made, WebSphere Commerce redirects the customer to the configuration to make the appropriate changes, which generates a new configuration ID.

Chapter 8. Customizing store operations

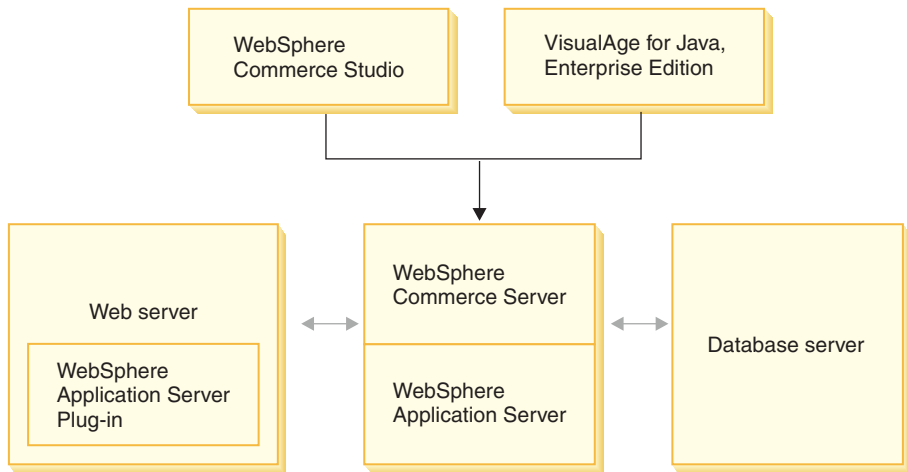
Introduction

WebSphere Commerce includes many standard features and functions that allow you to create an advanced e-commerce application without performing programmatic extensions. Despite this, you may find that your particular business needs require your development team to customize and extend the standard solution. This chapter introduces the WebSphere Commerce programming model and architecture that have been designed to simplify the customization process. In addition, it introduces the tools that are recommended for customization.

For additional information related to customization, refer to the *WebSphere Commerce Programmer's Guide* and the Reference section of the WebSphere Commerce online help.

WebSphere Commerce software components

Before examining how the WebSphere Commerce Server functions, it is useful to look at the larger picture of software components that relate to the customization process. The following diagram shows a simplified view of these software products:



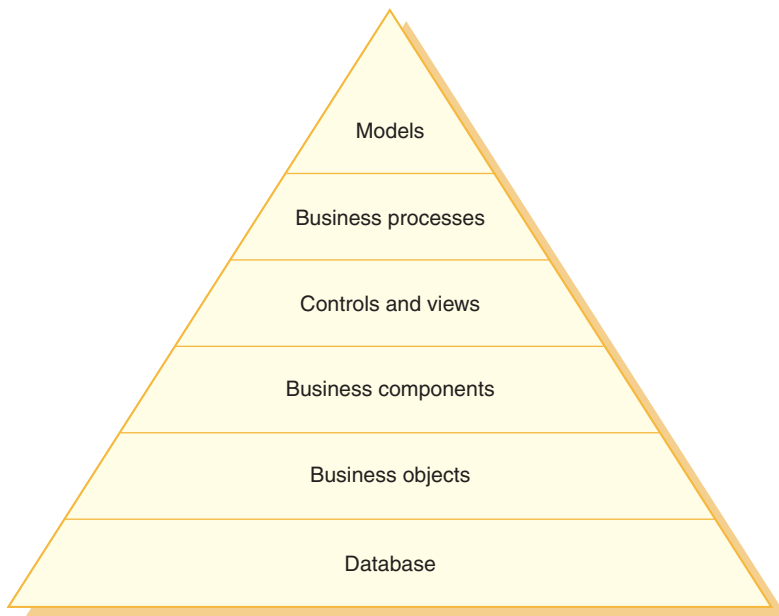
The Web server is the first point of contact for incoming HTTP requests for your e-commerce application. In order to interface efficiently with the WebSphere Application Server, it uses the WebSphere Application Server

plug-in. The WebSphere Commerce Server runs within the WebSphere Application Server, allowing it to take advantage of many of the features of the application server. The database server holds most of your application's data, including product and customer data. In general, extensions to your application are made by modifying or extending the code for the WebSphere Commerce Server. In addition, you may have a need to store data that falls outside of the realm of the WebSphere Commerce database schema within your database.

Developers use two main tools to create customized business logic; WebSphere Commerce Studio and VisualAge for Java Enterprise Edition. WebSphere Commerce Studio is used to create and manage store front assets (for example, JSP templates). VisualAge for Java Enterprise Edition is used to create new business logic, in Java, that either extends existing functionality or that creates completely new functions. If your application requires extensions to the database schema, a database developer should use database development tools to create the new tables.

WebSphere Commerce application model

Now that you have seen how the various software components related to customization fit together, it is important to understand the application model. This will help you to understand the parts that are foundation layers and the parts that you can modify. The following diagram shows the various layers that comprise the application model:



Each layer of the model is described below:

Database

WebSphere Commerce uses a database schema designed specifically for e-commerce applications and their data requirements. The following are examples of tables in this schema:

- User
- Order
- Product

Business objects

Business objects model entities within the commerce domain and encapsulate the data-centric logic required to extract or interpret information contained within the database. These entities comply with the Enterprise JavaBeans (V1.0) component architecture.

These beans act as an interface between the commerce application and the database. In addition, the beans model entities in a more natural fashion that is easier to comprehend than a complex relationship between columns in database tables.

Business components

Business components are units of business logic. They perform coarse-grained procedural business logic. The logic is implemented using the WebSphere Commerce model of controller commands and task commands. An example of this type of component is the OrderProcess controller command. This particular command encapsulates all of the business logic required to process a typical order. The e-commerce application calls the OrderProcess command, which in turn, calls several task commands to perform individual units of work. For example, individual task commands ensure that enough inventory is available to meet the requirements of the order, process the payment, update the status of the order and when the process has completed, decrement the inventory by the appropriate amount.

Control and views

A Web controller determines the appropriate controller command implementation and view to be used. Implementations can be store specific.

Views display the results of commands and user actions. They are implemented using JSP templates. Examples of views include ProductDisplay (returns a product page showing relevant information for the shopper's selected product) and OrderPrepare (presents the shopper with a form to submit appropriate order information).

Business processes

Sets of business components and views together create workflow and site flow processes that are known as business processes. Examples of business processes include:

User registration

This business process includes the business components (for example, the `UserRegistrationAdd` command that creates a registration record for a new user) and views related to all steps involved in the process of registering users.

Catalog navigation

This business process includes the business components (for example, the `StoreCatalogDisplay` and `CategoryDisplay` commands that respectively show the catalogs for a store and the categories within a catalog) and views related to all steps involved in the process of navigating through a catalog.

Models

When gathered together, the lower layers of the diagram make up e-commerce business models. One example of an e-commerce business model is the business-to-consumer model that is used by the InFashion sample store. Another example is the business-to-business model that is used by the ToolTech sample store.

WebSphere Commerce run-time architecture

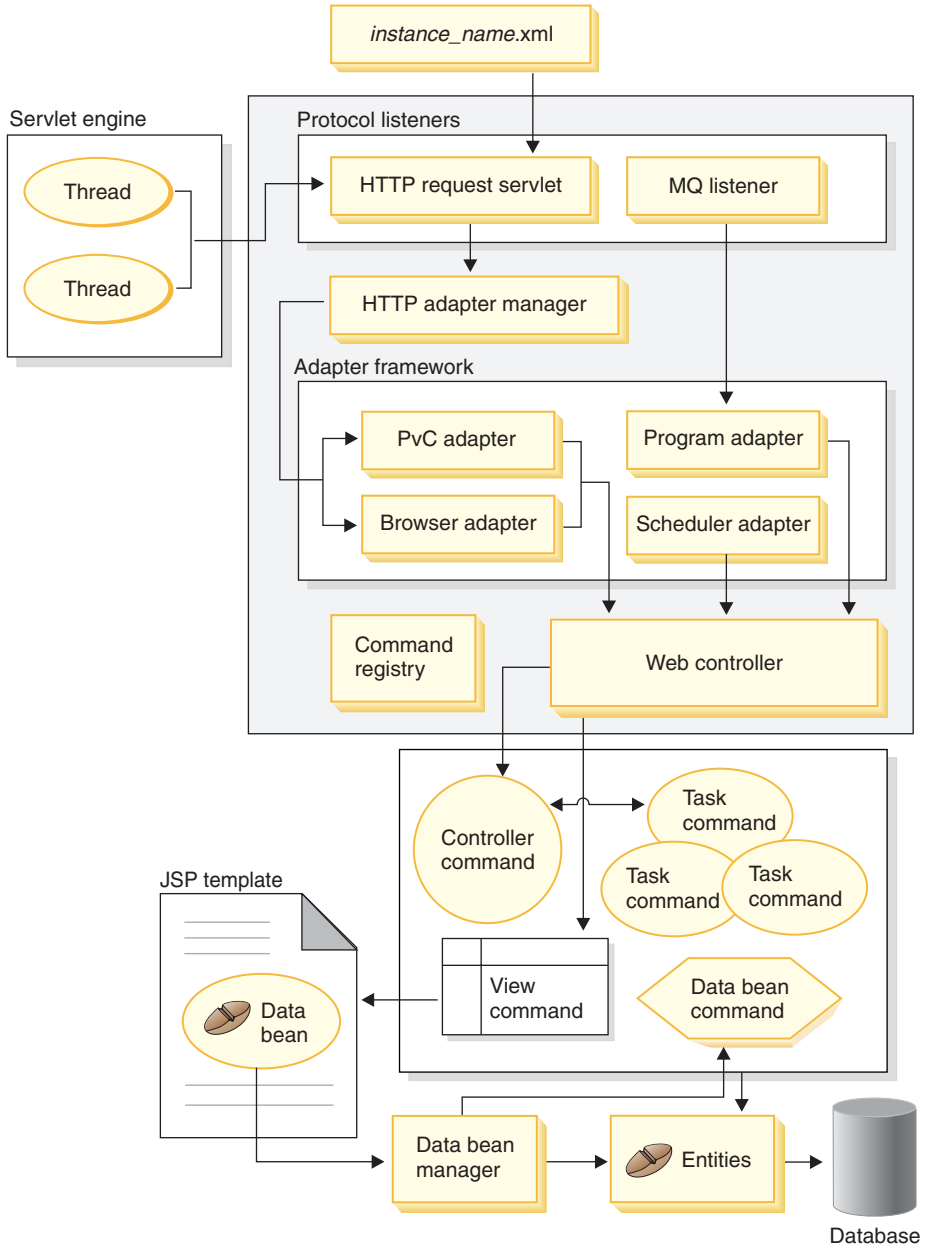
The previous section introduced the application architecture, which depicts, from a business application point-of-view, the various layers in the WebSphere Commerce application. This section describes how the application architecture is implemented.

The major components of the WebSphere Commerce architecture are:

- Servlet engine
- Protocol listeners
- Adapters
- Web controllers
- Commands
- WebSphere Commerce entity beans
- Data beans
- Data bean manager
- Display pages
- XML files

The interactions between these components is shown in the following diagram.

More details on each component can be found in subsequent sections.



Servlet engine

The servlet engine is part of the WebSphere Application Server run-time environment that acts as a request dispatcher for inbound URL requests. The servlet engine manages a pool of threads to handle requests. Each inbound request is executed on a separate thread.

Protocol listeners

WebSphere Commerce commands can be invoked from various different devices. Examples of devices that can invoke commands include:

- Typical Internet browsers
- Mobile phones using an Internet browser
- Business-to-business applications sending XML messages using MQSeries
- The WebSphere Commerce scheduler that executes commands and background jobs

Devices can use a variety of communication protocols. A protocol listener is a WebSphere Commerce Server run-time component that receives inbound requests from transports and then dispatches the requests to the appropriate adapters, based upon the protocol used. The protocol listeners include:

- Request servlet
- MQSeries listener

Adapters

WebSphere Commerce adapters are device-specific components that perform processing functions before passing a request to a controller. Examples of processing tasks performed by an adapter include:

- Instructing the Web controller to process the request in a manner specific to the type of device. For example, a pervasive computing (PvC) device adapter can instruct the Web controller to ignore HTTPS checking in the original request.
- Transforming the message format of the inbound request into a set of properties that WebSphere Commerce commands can understand.
- Providing device-specific session persistence.

Web controller

A WebSphere Commerce Web controller is an application container that follows a design pattern similar to that of an EJB container. These containers simplify the role of commands, by providing such services as session management (based upon the session persistence established by the adapter), transaction control, access control and authentication.

The Web controller also plays a role in enforcing the programming model for the commerce application. For example, the programming model defines the types of commands that an application should write. Each

type of command serves a specific purpose. Business logic must be implemented in controller commands and view logic must be implemented in view commands. In this case, the Web controller expects the controller command to return a view command. If a view command is not returned, an exception is thrown.

Commands

WebSphere Commerce commands are Java beans that contain the programming logic associated with handling a particular request. There are four types of commands, described in the following table:

Type of Command	Description
Controller	Controller commands interact directly with a Web controller and they perform coarse grained business logic. The controller command typically includes a series of subtasks that are carried out by individual task commands. For example, the OrderProcess command uses task commands to perform individual tasks such as ensuring that enough inventory exists to process the order and updating the status of the order.
Task	A task command implements a specific piece of business logic. In general, a controller command and a set of task commands together implement the application logic for a URL request. These commands are called by controller commands, rather than directly by the application.
View	<p>A view command is used to compose a view for a response to a client request. There are two ways in which a view command can function:</p> <ul style="list-style-type: none"> • A controller command specifies a view command name on successful completion of the request • A command detects an error and decides that an error task must be executed to process the error and throws an exception with a view command name. When the exception propagates to the Web controller, it will execute the view command and send the response back to the client. <p>There are three types of view commands:</p> <ul style="list-style-type: none"> • Redirect view • Direct view • Forward view

Type of Command	Description
Data bean	A data bean command is used when a JSP template instantiates a data bean. These commands generally populate the data bean with information from an entity bean. For example, when a catalog display page is required to show the information for a particular product, a data bean command will populate the "Product" data bean with information such as the product description, for the required product.

WebSphere Commerce entity beans

WebSphere Commerce entity beans are the persistent, transactional commerce objects provided by WebSphere Commerce. These beans represent WebSphere Commerce data in an intuitive way. That is, rather than understanding the database schema, you can access data from an entity bean that more closely models concepts and objects in the commerce domain. You may extend or replace existing entity beans. In addition, for your own application specific business requirements, you can deploy entirely new entity beans.

WebSphere Commerce entity beans are implemented as enterprise beans.

Data beans and data bean commands

Data beans represent containers of properties (or data) that are primarily used by page designers. Most commonly, they provide a simple representation of a WebSphere Commerce entity. A page designer can place these beans on a JSP template, allowing dynamic information to be populated on the page at display time. This person only needs to understand what data the bean can provide and what data the bean requires as input. In keeping with the theme of separating display from business logic, there is no need for the page designer to understand how the bean works.

Data bean manager

When a WebSphere Commerce data bean is inserted into a JSP template, using WebSphere Studio Page Designer, a line of code is generated that populates the data bean, at run time, by invoking the data bean manager. The data bean manager demarcates a transaction, if there is no transaction outstanding, before invoking a data bean command to fetch the data from the corresponding entity beans.

JavaServer Pages (JSP) templates

JSP templates are specialized servlets that are typically used for display purposes. Examples of JSP templates are the CategoryDisplay and ProductDisplay templates. Typically, when a controller command finishes processing, it invokes a ForwardView command to display a JSP template.

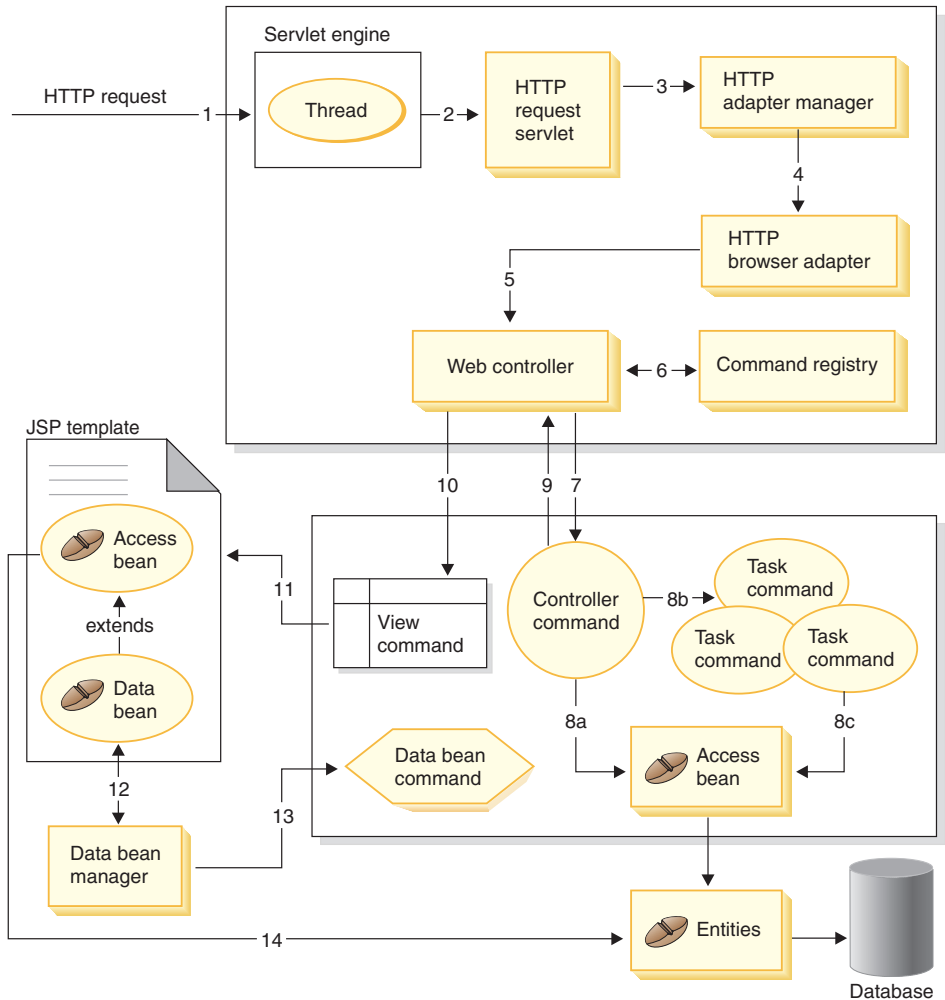
Instance_name.xml configuration file

The *instance_name.xml* configuration file sets configuration information for the instance. It is read when the Request Servlet is initialized.

Summary for an HTTP request

This section provides a summary of the flow between components in response to a request from an Internet browser. Similar flows are used for other types of requests.

A description of each of the steps follows the diagram.



The following information corresponds to the diagram above.

1. HTTP request is directed to the Servlet Engine by the WebSphere Application Server plug-in.
2. The request is executed in its own thread. The Servlet Engine dispatches the request to the HTTP Request Servlet.
3. The HTTP Request Servlet passes the request to the HTTP Adapter Manager.
4. The HTTP Adapter Manager determines that the request originated from an Internet browser, therefore, it passes the request to the HTTP Browser Adapter.
5. The HTTP Browser Adapter passes the request to the Web controller.
6. The Web controller determines which command to invoke, by querying the command registry.
7. Assuming that the request requires the use of a controller command, the Web controller invokes the appropriate controller command (the other option to invoke a view command). The controller command may access the database, using one or more entity beans.
8. Once a controller command begins execution, there are a few possible paths:
 - a. The controller command may access the database, using access beans and their corresponding entity beans.
 - b. The controller command may invoke one or more task commands.
 - c. The task commands may access the database, using access beans and their corresponding entity beans.
9. Upon completion, the controller command returns the name of a view command to the Web controller.
10. The Web controller looks up the view name in the VIEWREG table. It invokes the view command implementation that is registered for the device type of the requester.
11. The view command forwards the request to a display template.
12. Within the JSP template, a data bean is required to retrieve dynamic information from the database. The data bean manager activates the data bean.
13. The data bean manager invokes a data bean command, if required.
14. The access bean from which the data bean is extended accesses the database using its corresponding entity bean.

Customizable components

Depending upon your business needs, you may find it necessary to extend, modify or create new components. In general, customization is typically performed on the following types of components:

- Controller commands

You can create controller commands when a new business process is required. You can extend an existing controller command to include additional functionality, or you replace a controller command. Replace a controller command if you require an implementation of an existing WebSphere Commerce controller command that is very different from the current implementation.

- Task commands

If you create a new controller command, new task commands are most likely required. These commands are used to perform the individual pieces of work required to create the new business process. New task commands can also replace existing WebSphere Commerce task commands. By replacing a task command, you can modify a particular step within the logic of a controller command. Additionally, existing task commands can be extended to add new logic before or after the current business logic.

- Entity beans

You can extend WebSphere Commerce's public enterprise beans, write new entity beans and create new stateless session beans.

- Database tables

If the existing database schema does not completely satisfy your business requirements, you may need to modify the database schema. When inserting additional information into the database schema, you should create a new table to store the data. You *must not* add new columns to existing tables. This restriction is to simplify migration to future releases.

- JSP templates

Modify existing JSP templates to better match the look and feel of your store. Create new JSP templates to replace existing ones, or to create new views.

Customizing the WebSphere Commerce subsystems

The WebSphere Commerce Server includes the following subsystems:

- Catalog
- Order
- Member
- Trading
- Inventory
- Marketing

Customizing a subsystem is completely dependent upon your particular application requirements. Examples include customizing the catalog subsystem to add a gift registry, and customizing the order subsystem to access a back-end inventory or pricing system. Performing the customization

may involve creating new commands, entity beans, data beans and database tables, or extending existing commands, entity beans and data beans. For complete details on customization, refer to the *WebSphere Commerce Programmer's Guide*.

Chapter 9. Deploying your store

This section describes some points to consider before opening your store for business, such as testing your store and using a staging server.

Testing considerations

Testing is a necessary and critically important stage in store development. The testing of any IT system can be considered a discipline unto itself. You should ensure that your store development team includes skilled testers.

This section introduces the types of testing that you should perform on your store; however, this list is not intended to be exhaustive.

Unit tests

Verify particular pieces of function or code for the store prior to integrating the code into the production code base. These tests should be performed on a developer's own machine. If you are customizing code, you create and test that code in a VisualAge for Java environment.

Function tests

Verify individual functions. Once you perform your unit tests, you may want to run through all of the functions offered on your Web site. For example, run a test to verify that taxes are correctly calculated.

System tests

System tests encompass a larger area of function than unit tests or function tests. System tests are performed using a use case scenario. If the target production environment is different from the development environment, the system test environment should use the same operating system as the target production environment. The hardware used in the system test environment does not need to be exactly the same. System tests should test a complete scenario. The scenario should involve as many components as possible, such as creating a store, executing some transactions, and verifying that those transactions are processed properly.

Integration tests

Perform integration tests if your site links to other systems, such as a back-end inventory system or billing system (Payment Manager). The testing environment should be similar to the target production environment.

Stress tests

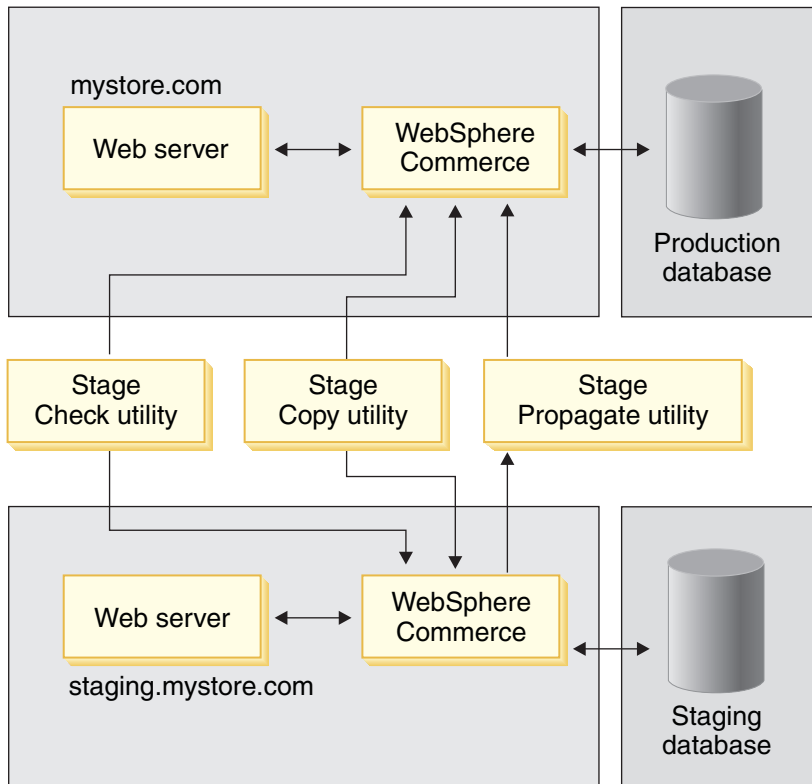
Ensure that your site is able to withstand the expected traffic volume. The stress testing environment should be as similar as possible to the target production environment.

Secondarily, the results of stress tests can be used to determine the optimum settings for the database server, Web server, and WebSphere Commerce Server.

Staging server

Most online stores operate 24 hours a day, 365 days of the year, making it difficult to perform maintenance or test changes to the system. The WebSphere Commerce staging server allows Site Administrators to copy their production server database to a staging database in order to test updates without affecting customers. This is useful for testing updates to the product catalog, but it is also important for testing new shopping process commands.

The diagram below shows the flow of information between the staging environments and the production environments. A description of components follows.



Stage Check utility

Before propagating your changes to the production database, use the Stage Check command to determine any potential unique index conflicts and correct the conflicts before propagation. The staging check utility is

configurable and extensible. You can add more tables or your customized tables into STGUINDTAB table and run the Stage Check command to verify any potential key conflicts.

Stage Copy utility

Allows an administrator to copy data from the production database to the staging database. You can copy the data into site-related tables, merchant-related tables, or individual tables.

Stage Propagate utility

Allows an administrator to propagate changes from the staging database to the production database. The information in the STAGLOG table identifies the records in the staging database that must be inserted, updated, or deleted in the production database. The identified records are then updated in the production database. Processed records are indicated in the STAGLOG table by a 1 in the STGPROCESSED column.

The Stage Propagate utility can only propagate changed data in the database. It can not propagate the schema changes in the database. For example, if you create a new index or table in the staging database, you have to manually create the index or table in the production database. Any new image files, HTML files, or JavaServer Pages files that are referenced by the staged records must be manually copied from the staging server to the production server.

Staging database

The controlled environment where the Site Administrator can make and test updates. The staging database contains the same schema as the production database. It also includes a set of tables that are used for staging purposes and a set of triggers to log the changes made to the staging database.


Production database

The live environment to which you propagate your tested data.

For more detailed information on the staging server, refer to the WebSphere Commerce online help.

Configuring a staging server

Any WebSphere Commerce instance can be set up as a staging server. A staging server can be configured during or after installation. Setting up a staging server during a WebSphere Commerce installation is described in your *IBM WebSphere Commerce Studio for Windows NT and Windows 2000 Installation Guide, Version 5.4*. For information on how to set up a staging server after installation, refer to the WebSphere Commerce online help.

 **400** Setting up a staging server is described in your *IBM WebSphere Commerce Studio for iSeries/400 Installation Guide, Version 5.4*.

Publishing

Stores created in the WebSphere Commerce environment must be published to a WebSphere Commerce production server (the server from which the business will operate).

During development and testing, the store is published to test servers or development servers. Before your store opens for business, you must publish your store to the production server.

The WebSphere Commerce Server to which you publish your store can run on the same platform, or on a different platform as your development environment. For example, you can create your store using Commerce Studio and publish to a WebSphere Commerce Server that runs on Windows for testing purposes. You can then republish to a production WebSphere Commerce Server that runs on AIX. You should test your store on the same platform that you will be using for production, prior to opening your store for business.

Refer to the WebSphere Commerce online help for further information about publishing your store, and for details about the staging server and production server.

Part 3. Administering and maintaining the site and store

This part of the book introduces the main tasks involved in the day-to-day operation of your store.

Chapter 10. Site management

This chapter highlights some tasks commonly performed by the Site Administrator.

- Access management
- Define the messaging systems for the site
- Propagate rules services to the production server
- Configure Payment Manager
- Configure and maintain the cache
- Configure the scheduler
- Configure logging
- Maintain the database
- Administer WebSphere Application Server
- Administer the Web server
- Monitor system performance
- Ensure the security of the site
- Troubleshoot

Opening the Administration Console

To open the Administration Console type the following Web address in your browser:

```
https://host_name:8000/adminconsole
```

where *host_name* is the fully qualified HTTP host name of your WebSphere Commerce Server.

Access management

Access control in WebSphere Commerce refers to the tasks that a particular user can perform. The Site Administrator can designate Store Administrators and all other administrators, as well as the organizations to which the administrators have access. The Site Administrator must assign a password to each administrator to ensure that only authorized parties access confidential information. This provides a way to control key responsibilities, such as the updating of product information.

Defining organizations, roles and users

In a WebSphere Commerce business-to-business site an organization represents each seller organization and each buyer organization. Therefore, the Site Administrator needs to define the both access control characteristics of the

organization that owns the store, and the access control characteristics of each organization that buys from the store. Access control characteristics are specified in *access control policies*. In a business-to-consumer site the Site Administrator creates organization to represent the seller, which owns the stores, not the customers, which buy from the store.

Access control policies provide a flexible and extensible way to control access to the WebSphere Commerce system. The steps provided in the following section are intended to provide the Site Administrator with the basic steps. For more refer to the information *Access Control User's Guide* available from the Technical Library page:

 ibm.com/software/webservers/commerce/wc_pe/lit-tech-general.html

 ibm.com/software/webservers/commerce/wc_be/lit-tech-general.html

In addition to defining organizations by using the Administration Console, organizations can also be populated to the database by using the Loader package, for information refer to the online help. The online help is also available from the Technical Library page.

Define the seller organization

1. Create the organization that will own the store.
2. Optionally, define which processes within the organization require approval. This step is only required in a business-to-business site.
3. Assign roles to the organization.
4. Create users. Assign users to roles.

Define the buyer organization

5. Create the buyer organization.
6. Optionally, define which processes within the organization require approval.
7. Assign roles to the organization.
8. Create users. Assign users to roles.
9. Repeat steps 5 to 8 for each Buyer organization unit, if required. An organization unit is a unit within an organization, for example, the organization IBM could contain an Electronic Commerce Division organization unit.

Organizations

An organization has a profile that includes the following information: a name, description, address, and contact person. In a business-to-business site, each customer that the store sells to must be defined as an organization. In a business-to-consumer site, an organization can be created for each store on the

site, or a single organization can contain all stores. The Site Administrator can create a new organization in which to publish a store.

To define organizations, do the following:

1. Open the Administration Console as the Site Administrator, click Site. The Site Administration Console launches.
2. From the Access Management menu, select **Organizations**. A list of organizations and organizational units for the site displays.
3. From the list, click **New** to add a new organization or organizational unit to the site. The New Organization wizard launches, displaying the Details page first. Provide appropriate information for the fields and click **Next** to save each page.
4. When you have completed all pages, click **Finish** on the Contact Information page to create the organization.

When an organization, or an organization unit is defined a default set of *access control policies* is associated with the organization. These access control policies may be used as is.

Defining which processes require approval

Business Depending on a store's business policies, some processes may require approval. The approvals process only applies to a business-to-business site. The Site Administrator does not need to set up approvals in a business-to-consumer store. By default, the following processes can be defined as requiring approval:

- RFQ response approvals
- Order process approvals
- Contract submit approvals
- User registration approvals

For information on defining approvers refer to the online help available from the Technical Library page:

Professional ibm.com/software/webservers/commerce/wc_pe/lit-tech-general.html

Business ibm.com/software/webservers/commerce/wc_be/lit-tech-general.html

To define which processes require approval, do the following:

1. From the Access Management menu, click **Organizations**. A list of organizations for the site display.
2. Select the check box next to the organization that you want to work with and click **Approvals**. The Select Approve Levels dialog opens.

3. From the **Available Roles** field, select the process or processes that require approval; then click **Add**.
4. Click **OK** to define the processes that require approval for the organization.

Roles

The Site Administrator must assign specific roles to every organization; then the Site Administrator can assign users to those roles. For example, in a business-to-business site the Site Administrators could assign the following roles to the Buyer organization: Buyer Administrator, Buyer Approver, Buyer (Buy-side).

The WebSphere Commerce system provides the following default set of roles:



Site operations

- Site Administrator
- Store Administrator

Site and content creation

- Store Developer

Logistics/Operations

-  Operations Manager
-  Logistics Manager
- Pick Packer
- Receiver
- Returns Administrator
- Seller

Product management

- Buyer (sell-side)
- Category Manager
- Product Manager
- Seller

Sales management

- Sales (Account) Manager
- Account Representative
- Customer Service Supervisor
- Customer Service Representative
- Seller

Marketing management

- Marketing Manager
- Seller

Organizational management

- Seller Administrator
- Buyer Administrator

- Buyer Approver
- Buyer (buy-side)
- Seller

Note that the Seller role can perform all business related roles. The Site Administrator role can perform all tasks in the WebSphere Commerce system.

Assigning roles to a sell-side organization

The roles that need to be assigned vary depending on whether the store is a business-to-business store, or a business-to-consumer store. At a minimum consider assigning the following roles:

Business-to-business

- Store Administrator
- Seller
- Store Developer
- Seller Administrator

Business-to-consumer

- Store Administrator
- Seller
- Store Developer

Assigning roles to a buy-side organization

The Site Administrator should assign a Buyer Administrator and a Seller Administrator. The Buyer Administrator can assign all other roles and users for the Buyer organization. The Seller Administrator can assign all other roles and users for the Seller organization. Buyer and Seller Administrators use the Organization Administration Console, for information refer to the online help.

Users

In WebSphere Commerce when a user is assigned a role, he is authorized to perform certain tasks within the WebSphere Commerce system. In most cases such default authorization is sufficient. To create users, do the following:

Creating a user

1. Open the Administration Console as the Site Administrator, click Site. The Site Administration Console launches.
2. Select **Users** from the Access Management menu. The Users page displays.
3. Click **New** to add a new user to the site. The New User wizard launches, displaying the Details page first. Provide appropriate information for the fields and click **Next** to save each page. When you have completed all pages, click **Finish** on the Member Groups page to create the user.

Assigning a role to user

4. From the list of users for the site, select the check box next to the user that you want to work with and click **Roles**. The Roles dialog opens.
5. To assign the user a role, from the Available roles list, select the role that you want to assign to the user and click **Add**. The role moves from the Available roles list to the Selected roles list.
Note that the Available Roles list displays all roles that have been assigned to the current organization.
6. Repeat step 5 for all the roles you want to assign to the user.
7. Click **OK** to define roles for the user.

Security

An important aspect of a successful e-commerce site is security. Your customers will be concerned with the security of their personal information as it is transmitted across the Internet. In addition, you should be concerned with securing your information assets and systems.

WebSphere Commerce provides features to help you implement your security strategy. The security topics discussed briefly in the following sections include authentication and user registry, and enhancing the security of your site.

Authentication

In order to conduct business online, two (or more) parties typically interact. Authentication is the process that allows each party to have confidence in the identity of the other (in other words, each party is who it says it is). WebSphere Commerce provides the following two modes of authentication:

- Custom authentication
- X.509 authentication

Custom authentication

For custom authentication, a customizable form is presented to the customer to log on to the site. This form authenticates the customer's identity against the LDAP user registry configured in the WebSphere Application Server.

LDAP (Lightweight Directory Access Protocol): LDAP is a client-server protocol for accessing a directory service. It can be used as a front-end to X.509, or with standalone and other kinds of directory servers. LDAP can be used as a centralized information repository to support information sharing among various clients.

LDAP provides a standard way to authenticate users and manage information. This allows you to create a solution in which a user can register once and be able to log on to multiple applications.

► **Linux** The WebSphere Commerce LDAP solution is SecureWay Directory.

X.509 authentication

WebSphere Commerce supports client certificate logon as a security mechanism, protecting both the site and the customer. When an X.509 client certificate is used for authentication, WebSphere Commerce, through its Web server plug-in, authenticates the certificate against the appropriate WebSphere user registry, in addition to the Web server verification of the client certificate.

Before you can begin using X.509 certificates, you must arrange for a trust relationship with external certificate authorities to handle electronic authentication of X.509 certificates.

User registry

To interact with your site, customers may need to register with the site. WebSphere Commerce supports two types of user registries for the storage of customer information. The first is a directory server (such as IBM SecureWay Directory Server or OS/400 Directory Services (LDAP), Netscape iPlanet Directory Server, Domino Directory Server, or Windows 2000 Active Directory Service) and the second is using the WebSphere Commerce database and commands for user registration. LDAP can be used for both authentication and user profiles.

Enhancing the security of the site

To enhance the security of your WebSphere Commerce, you can enable any of the following features in Configuration Manager:

Defining security settings in the Configuration Manager**Login Timeout**

A WebSphere Commerce user that is inactive for an extended period of time is logged off the system and requested to log back on. If the user subsequently logs on successfully, WebSphere Commerce runs the original request that was made by the user. If the user logon fails, the original request is discarded and the user remains logged off the system.

Password Invalidation

Requires WebSphere Commerce users to change their password if the user's password has expired. In that case, the user is redirected to a page where they are required to change their password. Users are not able to access any secure pages on the site until they have changed their password.

Password Protected Commands

Requires registered users who are logged onto WebSphere Commerce to enter their password before continuing a request that runs designated WebSphere Commerce commands.

Database Update Tool

Update encrypted data such as passwords and credit card information as well as the merchant key in a WebSphere Commerce database, using the Database Update Tool node.

Cross Site Scripting Protection

Reject any user request that contain attributes or characters that are designated as not allowed.

Security check

Check for potential security exposures within intermediary files by launching a security check program. Normally the launch security program runs as a scheduled job and by default is set to run once a month.

Access Logging

Identify any security threats against WebSphere Commerce by enabling access logging. The access logging feature logs either all incoming requests to the WebSphere Commerce server or only the requests resulting in access violations. Examples of access violations are authentication failure, insufficient authority to execute a command, or resetting a password that contravenes password rules at your site. When enabled, this feature allows a WebSphere Commerce administrator to quickly identify security threats to the WebSphere Commerce system.

Defining security policies in the Administration Console

Account

An account policy defines the account-related policies such as password and account lockout policies. Once you have created an account policy, you can assign the policy to a user. The Site Administrator can create account policies for both customers and administrators.

Password

The password policy defines attributes with which the password must comply. The password policy enforces the following conditions:

- Whether the user ID and password can match.
- Maximum occurrence of consecutive characters.
- Maximum instances of any character.
- Maximum lifetime of the passwords.
- Minimum number of alphabetic characters.
- Minimum number of numeric characters.
- Minimum length of password.
- Whether the user's previous password can be reused.

Account lockout

The account lockout policy enforces the following attributes:

- The account lockout threshold. This is the number of invalid logon attempts before the account is disabled.
- Consecutive unsuccessful login delay. This doubles the time between consecutive login attempts.

After the account has been locked, WebSphere Commerce sends a notification to both the Site Administrator and the owner of the account, informing them of the status of the user account.

Security check

Check for potential security exposures within intermediary files by launching a security check program. Normally the launch security program runs as a scheduled job and by default is set to run once a month.

Access control policies

An access control policy authorizes users or a group of users to perform particular actions on WebSphere Commerce resources. Unless authorized through one or more access control policies, users cannot access any functions. Access control policies grant authorization to a specific group of users to perform particular actions on resources in a specified resource group.

For many businesses the default set of access control policies provided with WebSphere Commerce are adequate. If necessary, the Site Administrator can modify the default policies, or create additional policies.

An access control policy consists of four elements:

User group

The group of users to which the policy applies.

Action group

Action groups are a group of actions.

Actions are set of operations that users can perform on resources. Actions typically map to Java commands. If the resource group is a business object such as a contract, the action might be "create" or "approve." If the resource group is a collection of related commands, the action might be "execute." Only the Site Administrator can view, create, update and delete action groups.

Resource group

The resources controlled by the policy. A resource group may include business objects such as "contract" or "exchange position," or a set of related commands.

Relationship

Each resource type can have a set of relationships associated with it. Each resource can have a set of members that fulfill each relationship.

The elements contained within an access control policy specify that a user belonging to a specific user group is permitted to perform actions specified in the action group on resources belonging to the specified resource group, provided that the user satisfies a particular relationship with respect to the resource.

Maintaining access control policies

When WebSphere Commerce is installed, the default access control policies defined in the `defaultAccessControlPolicy.XML` are loaded into the database. The Site Administrator can create new access control policies, or change default policies either by using the Administration Console, or by making direct updates to the database tables. After access control policies have been changed, the `defaultAccessControlPolicy.XML` file is no longer in-sync with the policy information in the database.

Before loading data using the Loader package the Site Administrator must run the Extractor utility tool against the database. For information about running the Extractor utility tool refer to the WebSphere Commerce online help.

Monitoring performance

This section provides an overview of the Performance Monitor; a tool used to monitor the performance of your site.

Performance Monitor

The Performance Monitor is a tool for measuring the performance of a WebSphere Commerce server from a local or remote machine. The information gathered from the Performance Monitor can be used by Site Administrators to detect performance problems and analyze performance trends. A Site Administrator can launch the Performance Monitor from the Administration Console.

The WebSphere Commerce Server gathers statistics for URLs, tasks, and JSPs. Each data key has an associated set of counters that provide the following information:

- Number of occurrences
- Total time spent in the task
- Maximum time
- Minimum time
- Sum of squares of the values
- Standard deviation
- Store number (SID)
- Last response time
- Last access time

A Site Administrator can use the Performance Monitor to execute the following tasks:

- Reset a data key (monitor a command for a specified period of time)
- Query the performance of a command

The Performance Monitor is not enabled by default. To enable it, follow the directions in the WebSphere Commerce online help.

Other Performance Tools

The Site Administrator may also need to use the following tools:

- WebSphere Application Server Resource Analyzer

The Resource Analyzer is a stand-alone performance monitor for WebSphere Application Server. The Analyzer retrieves performance data by periodically polling the administrative server. Data is collected continuously and retrieved as needed from within the Analyzer. Specify the level of data to collect by using the WebSphere Advanced Administrative Console. Use the Analyzer's graphical interface to retrieve and view data in a table or chart, or to store data in a log file.

- WebSphere Site Analyzer

WebSphere Site Analyzer uses Web server logs to analyze site activity. WebSphere Site Analyzer can determine who the users were; what pages and resources were accessed; what error codes were received, and other useful information. If you are using Site Analyzer with WebSphere Commerce, use the NCSA Combined log format.

Even though WebSphere Commerce can be installed with either DB2 or Oracle, Site Analyzer only supports analyzing data extracted from DB2.

For more information about WebSphere Site Analyzer, refer to the following Web address: <http://www.ibm.com/software/webservers/siteanalyzer/>.

- Commerce Studio Page Detailer

Use to analyze Web pages and display the identity, size, source, and time it takes to deliver each item on the page. You can use these details to identify areas where performance could be improved to enhance the end user experience. You can run Page Detailer without running the other components of Commerce Studio.

- Segue SilkPreview

SilkPreview introduces load testing and scalability testing. SilkPreview monitors the access times of Web pages, and gives you valuable insight into whether or not your application is suffering performance degradation. SilkPreview provides a sub-set of the functions contained in SilkPerformer. SilkPerformer is included with WebSphere Commerce and WebSphere Commerce Studio.

Some other performance areas to consider are:

General performance issues

- Security (configuration, timeouts, authentication, and access control)
- Web server issues (process handling, resource usage, fast response cache accelerator)
- WebSphere engine issues (Java Virtual Machine or JVM, transport queue, the caching of JSP files, EJB container)
- Session management (caching, storing sessions in memory or storing sessions in the database)
- NFS (Network File System) performance tuning (file server tuning)

Configuration

This section describes some tasks that the Site Administrator configures by using the Administration Console.

Messaging services

The Messaging services interface allows the Site Administrator to set up and manage the delivery of messages for the site and stores. The WebSphere Commerce messaging system allows you to manage all aspects of defining and sending messages that are generated within WebSphere Commerce. To configure the outbound messaging system use the Administration Console. The messaging system can send messages by using transports such as e-mail and plain files. For e-mail the supported outbound protocol is SMTP; the message encoding depends on the specified language. Plain file messages use the UTF-8 encoding standard. Optionally, you can configure the messaging system to send messages to a back-end system by using MQSeries.

WebSphere Commerce uses a plug-in model that implements the Common Connector Framework (CCF). This model provides a single interface between the messaging services and the various transport mechanisms. When the system generates a message, it selects the appropriate transport method and configuration; then the message is communicated through the common interface. This allows the details of the transport method, which is external to WebSphere Commerce, to be separated from messaging services. The result is a completely flexible, scalable system. You can easily customize the solution to fit your business needs and your environment.

The Site Administrator determines which transport methods the site will use, and configures the methods. The Site Administrator performs the following tasks:

- Adds the vehicle (called "transports") for delivering messages
- Configures transports
- Views message transport assignments

- Configures message types (add, change, or delete the message description, severity, transport, or device format)

The Store Administrator enables the transport methods for their own store use. Store Administrators can modify transport settings, and assign transport methods to message types, or accept the settings created by the Site Administrator. The Store Administrator performs the following tasks:

- Adds a transport method
- Activates or deactivates a transport method
- Configures a transport method (changes values for the parameters)
- Views message transport assignments
- Configures message types (adds, changes, or deletes the message description, severity, transport, or device format)

If a Store Administrator overrides a site-level setting, any future site-level changes made to that setting will affect that store.

Scheduler

The scheduler is a component of a WebSphere Commerce Server primarily used to schedule jobs and launch jobs that are based on a timing scheme. Each scheduled job runs as a separate thread. You can schedule multiple jobs to run simultaneously. A job is a WebSphere Commerce command scheduled to run at a specified time or interval. To specify the timing for the job use the command start and interval parameters of the AddJob command. The database maintains job tracking information, including the job start time, end time, and results.

The scheduler must be running in the following cases:

- IBM Payment Manager is running.
- An auction is running.
- A rules service is being propagated to the production environment
- The Site Administrator is changing the system (in a cloned environment).
- The Available To Promise (ATP) features are used.
- The site sends e-mail messages.

The CleanJob command removes jobs from the WebSphere Commerce job scheduler status table based on job reference number or time stamp. Under heavy scheduler use, the scheduler status table grows tremendously large, so you can use this command to trim its size. The following example cleans all jobs that are scheduled to complete before a given time. The system deleted the specified entries from the scheduler status table.

```
http://host_name/webapp/wcs/stores/servlet/CleanJobendTime=2001:10:05:15:29:06&URL=baseball.jsp
```

You can add the auto-clean job to the scheduler. The auto-clean job cleans jobs from the scheduler status table based on the time stamp or the job reference number.

Access the scheduler from the Administration Console. For more information about using the scheduler, refer to the WebSphere Commerce online help.

WebSphere Commerce Server logs

The purpose of logging messages is to notify the administrator if unexpected errors or abnormal conditions occur in the WebSphere Commerce application. Log files should provide sufficient diagnostic information to rectify the problem without requiring the Site Administrator to contact IBM, or to reproduce the problem.

The Site Administrator configures logging by using the Configuration Manager, or by using the Administration Console. If logging is configured by using the Administration Console the logging setting will only apply until the WebSphere Commerce Server is restarted. WebSphere Commerce allows you to choose which components you want to appear in the trace file. You can specify the amount of detail that the trace file will contain. The more items you trace with a higher defect level, the more performance impact you will experience on the overall system. Unless it is needed, WebSphere Commerce logging should be kept to the minimum number of components required. Set the defect level to either *normal* or *none*.

Diagnostic logs

Tracing is a problem-determination mechanism. Tracing assists Store Developers in debugging the code during the development stage and assists the technical support team in solving customer problems. By default, trace data log file name is `ecmsg.log`.

Activity logs

Activity logs collect and store data about user activity on the WebSphere Commerce system.

Messages

User messages

These messages, displayed in the browser, provide information about the state of the application. Typical examples of user messages are: `System unavailable`, or `Invalid credit card number`. A user message is generated as a result of invalid user input or an invalid application state.

System messages

Provide diagnostic information for Site Administrators, Customer Service Representatives, and Store Developers. These messages follow a system malfunction. System messages are logged. The following lists the system message

types: error, warning, status, debug, and informational. By default, only error messages are logged.

IBM WebSphere Payment Manager

The IBM WebSphere Payment Manager (Payment Manager) is a protocol-independent payment transaction server for an online store. It provides cash register-like functionality to a site, supporting multiple payment methods that use protocol-specific cassettes. A cassette is a software component that can be attached to the Payment Manager framework. The cassette interprets generic payment and administrative commands into payment protocol-specific requests. The requests are forwarded to the appropriate recipient (such as the payment gateway of an Acquirer institution). The end result is similar to a cashier swiping a payment card at the checkout counter in a traditional store. The Payment Manager handles all the background details of Internet payments on behalf of the merchant, and provides a graphical interface to simplify the transaction management.

The Site Administrator can perform the following Payment Manager related tasks:

- Configure users
- Configure Merchant settings
- Configure Payment Manager settings
- Configure cassette settings
- Configure trace enablement

The Store Administrator can perform the following Payment Manager related tasks:

- Configure users
- Configure Merchant settings

Note: Within Payment Manager, a "user" is always an administrator.

For more information about Payment Manager, refer to the WebSphere Commerce online help or to the following Web address:

www.ibm.com/software/webservers/commerce/paymentmanager/lib.html

Dynamic page caching

The Site Administrator must determine whether caching is appropriate for the site. To configure caching use the Configuration Manager. The following sections describe caching and provide some points to consider before selecting a caching method. For task-level information, refer the WebSphere Commerce online help.

When a customer clicks a link to view a product or category page most of the time is spent parsing the HTTP request, accessing the database, and dynamically creating the page. Heavy site traffic and many product and category entries in the database can further increase the time it takes for pages to load.

Most HTTP requests on the server will be for product pages and category pages, which the `CategoryDisplay`, `ProductDisplay`, `TopCategoriesDisplay`, and `StoreCatalogDisplay` commands create dynamically. These commands retrieve information from your database, and display the information as a JSP page. If product and category information is unchanged since it was last viewed, the page does not need to be dynamically re-created the next time a customer requests it. Serving an equivalent “static” page stored in a cache would be faster. WebSphere Commerce provides two caching methods for you to do this: session independent and session dependent. You can use either of the two caching methods for any of your cacheable commands. For a command to be cacheable, the HTML result of that command must not vary for different users that view the same command with the same parameters. Using these methods to cache your pages can ease the strain on the server and speed the download process for customers significantly.

If the file corresponding to the page being accessed is not in the cache file storage, it will be generated dynamically. The page is then stored in the cache, and will not have to be regenerated until the data it is based on is modified.

Generally, personalized catalog pages cannot be cached. To cache personalized catalog pages use either of the following methods:

- Ensure that the personalized content is contained within a separate frame.
- Base the personalized content on customer groups.

Variations of WebSphere Commerce cache configuration

Pages can be retrieved from the cache daemon by the Web server cache client or by the application server cache client. The *Web server cache client* enables communication directly from the Web server to the cache daemon (see Figure 1 on page 123). The only data available to the Web server cache client is URL information; therefore the Web server cache client can only serve session independent cache requests. The code path through the Web server cache client to the cache daemon is shorter than the path through the application server cache client to the cache daemon. Therefore, the Web server

cache client performs with a higher throughput and a lower response time. Since the Web server cache client exists within the Web server, this configuration also helps offload work from the application server in a 3-tier environment. Also in a 3-tier environment, some manual setup is required to enable the Web server cache client.

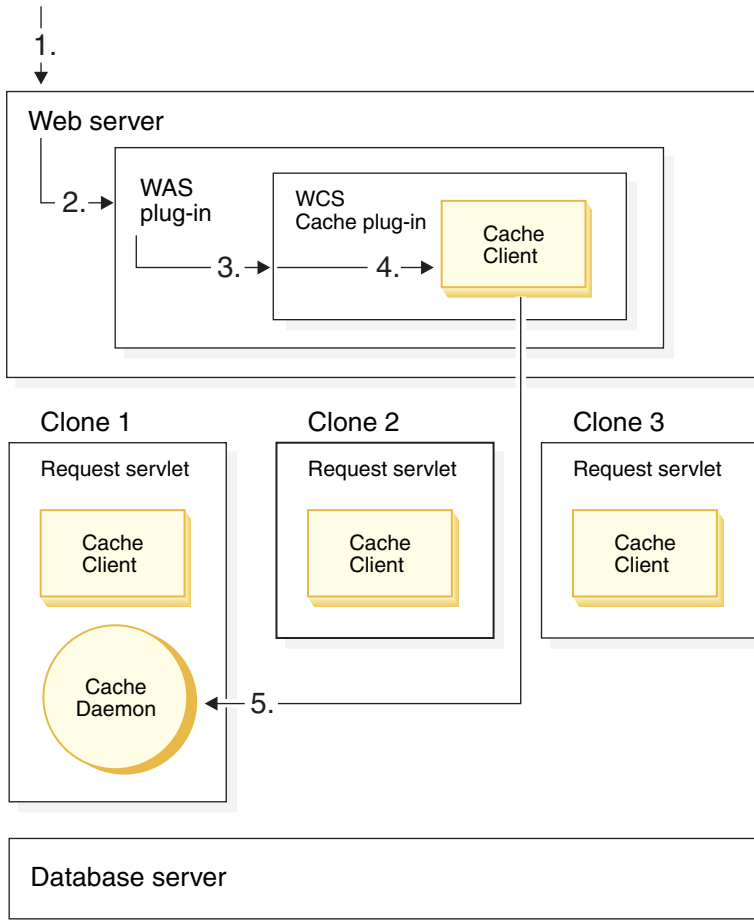


Figure 1. Diagram showing the code path of cache pages retrieved from the Web server client

The application server cache client enables communication from the RequestServlet in the application server to the cache daemon (see Figure 2 on page 124). The application server cache client can access both URL information and database and session-specific information: it can serve both session-independent and session-dependent cache requests. The application server cache client performs with a lower throughput and a higher response time. The code path through the application server cache client to the cache

daemon is longer than the path through the Web server cache client to the cache daemon.

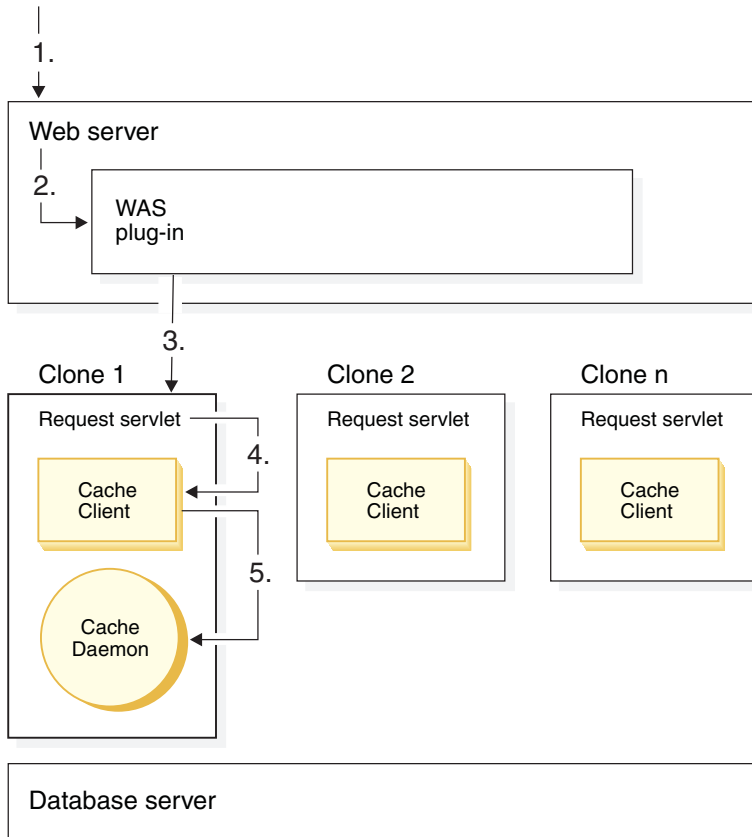


Figure 2. Diagram showing the code path of cache pages retrieved from the application server client

Pages can be indexed using either of the following page indexing schemes: session independent or session dependent.

Session independent

Use session-independent page indexing if a page can be indexed in the cache based on information from the URL. Enable session independent caching, unless you will use multiple currencies or customer groups. Using this method can speed the download process significantly and provide faster response time. The default parameters used to store pages are based on the URL. You can add additional parameters, if necessary. The session-independent cache stores the results of a user-specified list of commands. It serves these cache pages in response to subsequent requests for the same commands.

Session dependent

Use this indexing method for sites with distinct pages for customer groups, multiple languages, or multiple currencies. The cache determines the language, customer group, price group and preferred currency, and other cache information, when storing or retrieving pages. This ensures that users in specific customer groups will only be able to see their own customer group's catalog pages. The customer group is identified internally. The number does not appear in the URL thereby, providing a secure method for displaying customer group pages. By default the following commands are enabled for session dependent caching: CategoryDisplay, ProductDisplay, TopCategoriesDisplay, and StoreCatalogDisplay.

Rules service administration

WebSphere Commerce uses rule services to interact with the Blaze Advisor Rule Server. A rules service is an interface to facilitate communication between the two applications. The rules service also provides a convenient way to update the rule-based portion of your site without stopping the WebSphere Commerce Server. The campaigns component interacts with the Blaze Advisor Rule Server. The Blaze Advisor Rule Server can also be used to implement a customized rules solution for various components, such as discounts. You may want to implement a rules-based discount implementation if the provided schema-based discounts do not meet your needs.

Systems maintenance


WebSphere Commerce relies on several other systems. This describes some points for the Site Administrator to consider about WebSphere Commerce related systems.

Server use

You should monitor the growth and capacity utilization of the Web server and of the WebSphere Commerce Server. Ensure that you have plans in place for additional disk storage, processors, and memory.

Database maintenance

In order to prevent problems with your online store, it is important to develop regular maintenance strategies for your database server (whether it is DB2 or Oracle).

Note:  400 Some of the following database maintenance tasks do not apply to implementations that use WebSphere Commerce for iSeries.

Scheduled database maintenance

This section highlights aspects of database maintenance that should be performed on a scheduled or regular basis.

Diagnostic information logging: 400 This section about diagnostic information logging does not apply to implementations that use WebSphere Commerce for iSeries.

Errors and other diagnostic information can be captured in a log file to be used for problem determination. If you are using DB2, the amount of information captured is controlled by the `diaglevel` configuration setting. This is a Database Manager configuration setting (as opposed to a database configuration setting). It is recommended that you set this to a value of either 2 (All errors) or 3 (All errors and warnings). By default, `diaglevel` is set to 3. You should regularly check the size of the file that is capturing this information to ensure that it does not run out of space. In DB2, this file is called `db2diag.log`. This file is found in the DB2 instance directory.

Database logs: 400 This section about database logs does not apply to implementations that use WebSphere Commerce for iSeries.

Database logs record all changes to a database. These logs are used for rollback processing as well as roll-forward recovery. You should ensure that the logs are retained in an appropriate physical location and that the log parameters are set appropriately.

Database backups: You should perform regular backups of your database. DB2 offers two methods for performing the backup: *online* and *offline*. Online backups allow other applications and processes to remain connected to the database as well as read and write data while the backup task is running. Offline backups allow only the backup task to be connected to the database. In particular, the WebSphere Commerce Server will not be able to read or modify data. Your database backup strategy may contain any combination of backup methods. For example, you may perform online backups daily and an offline backup once per week.

Enable roll-forward recovery to permit an online backup of the DB2 database. To enable roll-forward recovery, you must use log archiving (as opposed to circular logging). Log archiving saves the log files, whereas circular logging reuses log files. When the database is created, circular logging is enabled. To switch to log archiving, activate either (or both) of the `logretain` and `userexit` database configuration parameters. In addition, you should develop a strategy to store the archived log files with your database backups.

If you are using offline backups, a weekly backup is recommended. The recommended interval for online backups is daily.

Table space management: 400 This section about table space management does not apply to implementations that uses WebSphere Commerce for iSeries.

A table space is a storage model that provides a level of indirection between a database and the tables that are stored within that database. A DB2 database uses either System Managed Storage (SMS) table spaces; or Database Managed Storage (DMS) table spaces. In an SMS table space, the operating system's file system manager allocates and manages the space where the table is to be stored. The storage model typically consists of many files, representing table objects, stored in the file system space.

In a DMS table space, the database manager controls the storage space. The storage model consists of a limited number of devices. DB2 manages the device space. The Administration Console decides which devices to use, and DB2 manages the space on the devices. This table space is essentially an implementation of a special-purpose file system designed to best meet the needs of the Database Manager. These devices are referred to as containers.

If you are using SMS, regularly compare the table space size to the available disk space to ensure that enough disk space is available. If you are using DMS, regularly check the number of free pages to ensure that there are ample free pages for business operations.

In addition, you should also regularly check the sizes of buffer pools and match them to the table spaces.

Access plan generation: Your DB2 database follows an access plan when running queries. The access plan is based on database statistics. These statistics change as changes are made to your database, and as a result, the best access plan will change. Therefore, it is recommended that you run the RUNSTATS utility on a regular basis. This will update statistics in the system catalog tables to help with query optimization. If your site generates a high number of database inserts, run the utility on a daily basis for optimal access plan generation.

Table reorganizations: The reorganization of database tables helps to reclaim table space, after data has been deleted. If queries use arrival sequence access (the order in which the records are inserted into the table), reorganizing to remove deleted rows improves query performance.

In addition, the reorganizing tables that contain variable length columns can improve performance. This is due to the fact that unused fragments in the overflow area get compacted by the reorganization. The result is a reduced read time for rows that overflow.

To reorganize your DB2 database, use the REORG utility on a regular basis.

▶ 400 To reorganize your database, use the RGZPFM native command on a regular basis. Running this command on a large database file requires an exclusive lock. This means that other jobs cannot access this table while this operation is taking place. Schedule this job during hours when your site experiences a lower volume of traffic. You should shutdown the WebSphere Commerce server before running this command.

Database usage monitoring: Monitor the growth and the capacity utilization of the database and have plans in place for additional disk storage, processors, and memory.

Database Cleanup utility: WebSphere Commerce provides the Database Cleanup utility, or `dbclean`, as a flexible way of clearing old data from the database. The removal of old and unused data from the database can improve overall system performance. This is especially true if there is a large amount of redundant data.

The Database Cleanup utility is a flexible and extensible tool for cleaning up your database. It allows you to clean up tables selectively, while maintaining referential integrity of the database. The Database Cleanup utility can clean in two ways:

- The *Top-down* method deletes all child table rows by using a delete cascade. This method is faster than the bottom up method.
- The *Bottom-up* method deletes the child tables rows first; then the parent table rows. You must use this method if there is a referential constraint. A *referential constraint* is the referential integrity rule that the non-null values of the foreign key are valid only if they also appear as values of a parent key. A referential constraint is usually specified when the child data is used by more than one parent table.

The Database Cleanup utility provides more than 35 preset cleanup options. These are aimed at the most commonly used tables. You can define others, either for other WebSphere Commerce tables, or your own custom application tables. Before using the Database Cleanup utility, carefully consider which data to delete. Your site may need to maintain data for purposes that are not directly related to the day-to-day operations of the site. For example, data may need to be stored for purposes of marketing or of fulfillment .

If `dbclean` is run infrequently, the `dbclean` operation may take a long time to complete. It may also consume a large amount of system resources on the database server. This may cause disruption to your online store.

For information about how to use the Database Cleanup utility refer to the WebSphere Commerce online help.

Running reorg and runstats: DB2 has two commands for cleaning up and improving database performance: RUNSTATS and REORG. REORG has an additional command called REORGCHK. To optimize database access, the RUNSTATS command should be run regularly on all database tables. Regularly monitor the state of database tables by using the REORGCHK command. You do not need to reorganize tables; unless you perceive that the table organization is the cause of a performance problem. For more detailed information about these commands, see *DB2 UDB Command Reference*.

For DB2 databases, you should run the REORG command to reclaim table space after running the Database Cleanup utility. You should also run the RUNSTATS command to update the database access plan.

400 After you run the Database Cleanup utility; run the RGZPFM command to remove deleted rows from the tables. (The RUNSTATS command does not apply to implementations that use WebSphere Commerce for iSeries.)

For more detailed information on system administration for DB2, refer to the following documents:

- *Administration Guide*
- *Troubleshooting Guide*
- *System Monitor Guide and Reference*

Occasional database maintenance tasks

This section lists occasional database maintenance tasks.

Database tuning: To optimize performance, tune the database. The person who tunes the database must fully understand database tuning principles, database and database manager configuration parameters, the hardware, and operating system configuration. This person should also understand how to use the operating system performance tools. Database integrity could be jeopardized if the database is tuned by a person lacking the prerequisite knowledge.

Disaster recovery strategy: You should develop and rehearse a disaster recovery strategy. This strategy is linked to your day-to-day backup strategy. It is important to rehearse this in order to determine any of the strategy's shortcomings and fix them in a controlled environment.

Maintain correct code levels: Ensure that you have applied all appropriate fix packs and code updates to your database as specified in the Installation Guide for your platform.

WebSphere Application Server administration

Administrator's Console

The Administrator's Console in WebSphere Application Server provides the tools and features to allow an administrator to do the following:

- Stop and start the WebSphere Commerce Server
- Stop and start the IBM Payment Manager
- Install and configure resources (for example, servlets and enterprise beans)
- Assign security to resources
- Ensure that all applications are available
- Grant or revoke user access (for example, create a new account for a new employee and add the person to particular user groups)
- Monitor server performance
- Clone application components for improved performance
- Provide traces and debugging information for running WebSphere applications

For more detailed information on system administration for the WebSphere Application Server, refer to the following documents:

- *Systems Administration*
- *Tuning and Troubleshooting*

Web server administration


This section describes the following aspects of Web server administration: Web server logs and concurrent connections.

Web server logs

You should monitor the log file size, and either delete or archive the log files on a regular basis. Clean up log files daily. If this is not feasible, clean up log files at least weekly.



If these log files are archived for data mining purposes, do not perform the data analysis on the Web server machine. Perform it offline, so as not to negatively impact Web server performance.

Concurrent connections

 WebSphere Commerce for iSeries does not support concurrent connections.

Web servers use process models that support concurrent connections. Netscape iPlanet uses a thread-based process model. The IBM HTTP Web Server uses a pre-forking model for UNIX platforms and a thread-based model for Windows.

Thread count management for Netscape iPlanet:  Netscape iPlanet is not supported on OS/400 for iSeries.

  Netscape iPlanet is not supported on OS/400 for iSeries or Linux.

For Netscape iPlanet, you can define the number of threads per Web server process. You should regularly monitor thread usage (including active, waiting, busy, and idle threads).

Ensure that the number of threads available to satisfy the incoming requests does not approach zero. As traffic volume to your site increases, the number of active and busy threads can increase, leaving few threads available for new requests. You can increase the maximum number of threads running per server process, increase the number of server processes, or add another Web server machine.

Concurrent connections for IBM HTTP Web Server: For information on concurrent connections for the IBM HTTP Web Server, refer to the following Web address: www.ibm.com/software/webservers/httservers/library.html

Troubleshooting

For troubleshooting information, refer to the Installation Guide for your platform.

Part 4. Running your store front

This part of the book introduces the main tasks involved in the day-to-day operation of your storefront.

This section describes high-level information about the WebSphere Commerce Accelerator.

The WebSphere Commerce Accelerator allows you to maintain your online stores by completing various store operations. If you are authorized to work with multiple stores, when you log on to the WebSphere Commerce Accelerator, you select the store and language with which you want to work. If you are authorized to work with a single store, the store name is pre-selected during logon, and if the store supports more than one language, you select the language with which you want to work.

Tasks that you are authorized to perform in your role are displayed on the WebSphere Commerce Accelerator home page menus. These tasks are based on access groups and authority levels, which are defined by the Site Administrator by using the Administration Console.

To return to the WebSphere Commerce Accelerator home page, click the **Home** link within the WebSphere Commerce Accelerator history.

Opening the WebSphere Commerce Accelerator

To open the WebSphere Commerce Accelerator type the following Web address in your browser:

```
https://host_name:8000/accelerator
```

where *host_name* is the fully qualified HTTP host name of your WebSphere Commerce Server.

Chapter 11. Managing inventory

This chapter describes key tasks in setting up the inventory system and managing inventory in the fulfillment center. Several different roles, or types of users work with inventory in the fulfillment center, each section describes a particular role.

► **B2C** **Operations Manager** or ► **B2B** **Logistics Manager**

- Maintaining fulfillment center information
- Maintaining return reasons
- Return Management reports

Buyer

- Maintain vendor information
- Maintain product information
- Manage expected inventory

Receiver

- Receive expected inventory
- Adjust inventory quantity
- Create an ad hoc inventory receipt
- Receive returned merchandise

Returns Administrator

- Disposition returned merchandise

Determining how to manage inventory

Inventory includes anything that can be physically accounted for in a fulfillment center. There are specific definitions of types of inventory that can be fulfilled, such as items, products, SKUs, bundles, packages, and dynamic kits; but these are all considered inventory. During the installation and planning phase of your site the ► **B2C** **Operations Manager** or ► **B2B** **Logistics Manager** should work together with the store development team to determine an appropriate method to manage inventory.

WebSphere Commerce supports the following inventory management methods:

- Use WebSphere Commerce to track and manage inventory.

This method only takes into account inventory sold through your online store. WebSphere Commerce is unaware of any other method of selling your products.

- Use your existing fulfillment center to track and manage inventory.
In this method the site would configure MQSeries and the messaging system to communicate between WebSphere Commerce and the fulfillment center. For more information, refer to the WebSphere Commerce online help.
- Use a legacy system.
For backward compatibility, if you used task commands in previous product releases to interface with your own inventory system, such as the `ResolveFulfillmentCenter`, `CheckInventory`, `UpdateInventory`, and `ReverseUpdateInventory` commands, you can continue to use the default task command implementations for these commands. The WebSphere Commerce system determines which set of interfaces to use via a configuration flag setting. A value of zero in the `Store.AllocationGoodFor` attribute will indicate that the old task command interfaces should be called, instead of the new ATP task command.

If your site uses either of the first two methods, you have the tools at your disposal to know which inventory is Available to Promise (ATP). ATP provides a mechanism to ensure that commitments made to customers are based on info a seller has about expected inventory, as well as inventory currently available. You can manage Expected Inventory Records (anticipation of arrival of inventory from a vendor to a fulfillment center); and track and manage inventory.



Inventory allocation

Available inventory is determined by examining all receipts for an item that are available to a given store and taking into account any inventory that has been reserved (for an auction or any other purpose) or allocated to a backorder.

Available inventory is the sum of available inventory in the RECEIPT table (QTYONHAND - QTYINPROCESS), minus any inventory the store has reserved in the ITEMFFMCTR table, minus any inventory allocated to backorders in the ITEMFFMCTR table.

Managing inventory using WebSphere Commerce Accelerator

WebSphere Commerce provides you with tools to manage inventory:

- Inventory management interface allows the Seller and  Operations Manager or  Logistics Manager to track and manage their product inventory.
- Real-time product inventory update as products are ordered or returned by customers.

- If your store is based on the NewFashion or ToolTech sample stores, customers can see if any products included in their order are currently on backorder. Based on this information customers can decide whether to cancel their order, or split their orders.
- If your store is based on the NewFashion or ToolTech sample stores, Customer Service Representatives or Account Representatives can see if any products are currently on backorder when using the Place Customer order notebooks.
- The B2B Sales Manager and Buyer can see inventory status by running the Inventory Status report, described on page 141.
- Backorder support.
 - Only stores based on the NewFashion or ToolTech samples include backorder support.
 - To allow specific products to be backordered the Product Manager selects Allow backorder on the Product Fulfillment page of the Product notebook.
 - The Product Manager can also force a particular product to be backordered, to do this the Product Manager specifies Force backorder on the Product Fulfillment page of the Product notebook.
 - To see which products are on backorder run the Products on Backorder report, described on page 142.
- Create an expected inventory record.
- Create ad hoc inventory receipts for a fulfillment center.
- Receive inventory against an expected inventory receipt for a fulfillment center.
- Check if expected inventory receipt is complete.
- Close expected inventory adjustment for a fulfillment center.

Setting up the inventory subsystem

To use the inventory and ATP functions in your store, the following functions must be defined:

- Fulfillment center(s)
- Reason codes
- Vendors
- Products



Fulfillment center

Fulfillment centers are used by stores as both inventory warehouses and shipping and receiving centers. One store may have one or many fulfillment centers associated with it. In the WebSphere Commerce Accelerator, a user assigned to the Seller, B2C Operations Manager or B2B Logistics Manager, Buyer, Returns Administrator, Receiver or Pick Packer role selects a



fulfillment center at logon time. You can change to a different fulfillment center without logging out by clicking the icon in the upper left corner of the WebSphere Commerce Accelerator.



From a WebSphere Commerce Server perspective, a FulfillmentCenter object is separate from the Store object. It manages product inventory and shipping. To ship an order, the fulfillment center relies on a ShippingMode object that is specified by the customer. The ShippingMode object indicates the shipping carrier and method of shipping for fulfilling the customer's order.

In a fulfillment center, the ShippingArrangement object indicates that a Store object has arranged with a FulfillmentCenter object to ship products using a certain ShippingMode, within a certain time range. For example, one store may have an arrangement with its fulfillment center to ship an order within 24 hours if the customer selects an express shipping option.

The  Operations Manager or  Logistics Manager can view, create, change or delete a fulfillment center. To work with fulfillment centers, select the **Fulfillment Center** option from the **Store** menu. For each fulfillment center that you create, provide the name, display name (the name that displays in the title bar of the WebSphere Commerce Accelerator), description and address.



Return reasons

A return reason is a store-defined reason that a product may be returned. The  Operations Manager or  Logistics Manager defines return reasons. The return reasons should be from both the Seller and the customers perspective, since these may not always be the same. For example, a customer might return a product because it does not work properly, but Returns Administrator might find that the customer did not follow the instructions in using the product, and that it actually works fine. Return reasons are based on the perspective of either the customer or seller.

To work with reason codes, select the **Reason Code** option from the **Store** menu. The  Operations Manager or  Logistics Manager can view, create, change or delete reason codes. Each reason code must contain the following information: reason, reason description and type. The type specifies whether the return is from the customer's or the merchant's perspective, or both.

When the Customer Service Representative creates a return, the customer's return reason is specified. When the Returns Administrator specifies the disposition of the return the Sellers return reason is specified.

Return Management Reports

1.  Select the **Returns** option from the **Operations** menu.
 Select the **Returns** option from the **Logistics** menu. The Returns page displays.
2. Click **Reports**. The Return Management Reports list displays.
3. Select an appropriate report.

Returns with Partial Receipts

This report shows returns for which at least one product has been received from the customer and at least one product has not been received from the customer.

Return Receipts Not Disposed

This report shows returns by product for those products that have been received but not yet disposed.



Outstanding Returns

This report shows returns that have been recorded, but for which none of the products have been received from the customer. This report does not depict returns that have been logged where some of the products have been received from the customer; these returns can be found in the Returns with Partial Receipts report.

Vendors

A vendor is any organization from which your store purchases merchandise. Vendors are defined by the Buyer. The Buyer can view a list of all vendors, create a new vendor, change an existing vendor, and delete a vendor.

To work with vendors, do the following:

-  Select **Vendors** from the **Merchandise** menu.
-  Select **Vendors** from the **Products** menu.

To create a new vendor, provide the following information: vendor's name and address, vendor's contact information.

Expected inventory records are shown by vendor, External ID (usually a purchase order number), and order date on the Expected Inventory page.

Products

Before inventory can be received into the fulfillment center a corresponding product record must exist. Product records are created when the store is created. The Product Manager can create and update products by using the WebSphere Commerce Accelerator. For more information, refer to Chapter 12, "Managing the catalog" on page 145.

Managing inventory

This section describes the cycle of recording expected inventory, until the inventory is received and is classified as inventory on hand. Inventory can be received by using either of these methods:

- Expected inventory that has an associated expected inventory record
- Ad hoc inventory, or inventory not recorded as expected

Expected inventory records

An expected inventory record lists items that a fulfillment center expects to receive. Each expected inventory record contains the following information: vendor name, order date, inventory details and optionally an external ID. Inventory details contain information such as, the product SKU, fulfillment center, expected date, quantity, unit of measure, and comments. An expected inventory record may contain information about one or more products. The Buyer can view, change, add, close, receive, and delete expected inventory records.

An expected inventory record cannot be deleted once inventory has been received against it, and expected inventory details cannot be changed or deleted once any of that inventory has been received.

When orders are placed for inventory that is available in a fulfillment center, the WebSphere Commerce allocates inventory to those orders. Allocating inventory to an order makes it unavailable to the order system. If the order is canceled, the inventory becomes available again.

If an order is placed for inventory that is not available, a backorder can be created. If there is expected inventory that could be used to fulfill the order, inventory is allocated against an expected inventory record.

Creating an expected inventory record

Generally, the Buyer creates expected inventory receipts and the Receiver receives inventory against the receipt. The Buyer closes the receipt when all expected inventory has been received.

To create an expected inventory record, do the following:

1.  Select **Expected Inventory Records** from the **Merchandise** menu.
-  Select **Expected Inventory Records** from the **Products** menu.



The Expected Inventory list displays.

The Expected Inventory list shows orders placed with vendors. Here, the Buyer can create a new expected inventory record, view the details of an existing expected inventory record, change the details of an existing expected

inventory record, close one or more expected inventory records, delete one or more expected inventory records, and run associated reports.

Closing an expected inventory record



When all inventory from an expected inventory record has been received to the fulfillment center the record should be closed. The expected inventory record is generally closed by a Buyer. To close an expected inventory record, do the following:

1.  Select **Expected Inventory Records** from the **Merchandise** menu.
 Select **Expected Inventory Records** from the **Products** menu. The Expected Inventory page displays.
2. Select the check boxes to the left of the expected inventory records that you want to close, and click **Close**. The Expected Inventory list refreshes, removing the closed expected inventory records.

After you close an expected inventory record, you cannot re-open it. Ensure that all inventory associated with the expected inventory record has been received before closing the record.

Inventory reports

The WebSphere Commerce Accelerator provides the following reports to track problems regarding inventory. To run an inventory report, do the following:

1.  Select **Inventory Reports** from the **Operations** menu.
 Select **Inventory Reports** from the **Logistics** menu.
2. Select the check box next to the report you want to run, and click **Reports**.
3. Select the appropriate report option, then click **OK**.

Inventory Receipts by Product

This report lists all receipts: receipts received through expected inventory records, ad hoc receipts, and receipts added as a result of product disposition. Use this report to review inventory receipts. Report options include the start date, end date, SKUs, and fulfillment centers. The report can be sorted by either the SKU, or the date received.

Inventory Adjustments

This report shows inventory adjustments by product. Report options include the start date, end date, SKUs, fulfillment centers, and adjustment reasons. The report can be sorted by the adjustment date, or SKU. The report is grouped by the product, fulfillment center, and adjustment date.

Inventory Status

This report shows the current inventory allocation and receipt status

of products in stock. Report options include SKUs, and fulfillment centers. The report can be sorted SKU. The report is grouped by the fulfillment center and SKU.

Products on Backorder

This report shows cumulative backorder information by product. Use this report to review the current inventory allocation and receipt status of products in stock. Report options include SKUs and fulfillment centers. The results can be sorted by SKU. The report is grouped by the fulfillment center and SKU.



Open Expected Inventory Records

This report shows open expected inventory records. Use this report to review expected receipts and outstanding expected inventory records. Report options include the start date, end date, SKUs, fulfillment centers, and vendors. The report is sorted by SKU, and date expected.

Receiver tasks

Receiving expected inventory



Typically, a Receiver receives inventory against an expected inventory record. To receive inventory into the fulfillment center, do the following:

1.  Select **Expected Inventory** from the **Operations** menu.
 Select **Expected Inventory** from the **Logistics** menu. The Expected Inventory page displays.
2. From the Expected Inventory page select the check box next to the expected inventory record against which you want to receive inventory, and click **Details**.
The Expected Inventory Details list displays.
3. Select the check box next to the SKU you want to receive, and click **Receive**.
4. Type the quantity of inventory received, the cost and the receipt date; then click **Receive**.

Ad hoc inventory receipts

Ad hoc inventory receipts are created when inventory arrives at a fulfillment center without a corresponding expected inventory record. This could be due to an unexpected inventory arrival, or the Seller could choose not to use expected inventory records to record inventory receipts.

To work with ad hoc inventory records, do the following:



1.  Select **Find Inventory** from the **Operations** menu.
 Select **Find Inventory** from the **Logistics** menu.

2. Search for the inventory by providing information in either or both of the **Name** and **SKU** fields; then click **Find**. The system performs a search and displays the inventory matching your search criteria on the Inventory - Search Results page.
3. Select the check box next to the **SKU** you want to receive, and click Ad Hoc Receipt. The Ad Hoc Receipt notebook opens.
4. Provide appropriate information for the fields, and click **OK**.

Inventory Adjustments

An *inventory adjustment* is a direct adjustment to the on-site inventory level. Inventory adjustments are made when the amount of inventory in the fulfillment center is not the same as the amount of inventory recorded in the WebSphere Commerce Accelerator. This could happen for a number of reasons. For example, if products in a fulfillment center are stolen or damaged, the amount of inventory available must be adjusted to reflect that situation. If a count is taken in a fulfillment center and there are more products than previously thought, this too must be recorded.



To adjust inventory levels, do the following:

1.  Select **Find Inventory** from the **Operations** menu.
 Select **Find Inventory** from the **Logistics** menu.
2. Search for the inventory by providing information in either or both of the **Name** and **SKU** fields; then click **Find**. The system performs a search and displays the inventory matching your search criteria on the Inventory - Search Results page.
3. Select the check box next to the **SKU** you want to adjust, and click **Adjust Quantity**. The Adjust Quantity dialog opens.
4. Provide appropriate information for the fields, and click **OK**.

Receiving returned products

When returned merchandise is received by a fulfillment center the Receiver records that the inventory has been received. After the merchandise has been received the Returns Administrator determines whether the merchandise should be returned to inventory or discarded.

To receive returned merchandise the Receiver does the following:



1.  Select **Returns** from the **Operations** menu.
 Select **Returns** from the **Logistics** menu.
2. Select the check box next to the return for which you want to receive products, and click **Receive**. The Receive Products dialog opens.
3. Provide the date and the quantity to receive, and click **OK** to save the information. The Returns list displays, refreshed with the new information.

Returns Administrator tasks

Selecting the disposition for returned products

After returned products have been received the Returns Administrator determines whether the merchandise should be returned to inventory or discarded.

To set the disposition for returned products, do the following:

1.  Select **Returns** from the **Operations** menu.
2.  Select **Returns** from the **Logistics** menu.
2. Select the check box next to the return you want to work with, and click **Returned Products**. The Returned Products page displays.
3. Select the check box next to the returned product you want to dispose, and click **Disposition**. The Disposition page displays.
4. Provide appropriate information for the fields, and click **Add** to save the information.

Chapter 12. Managing the catalog

This chapter describes the following tasks:

- Managing categories
- Managing products
- Working with discounts
- Product Management reports

In WebSphere Commerce the primary tools to create and manage catalog information are the Loader package, and Catalog Manager. For more information about using these tools to create a catalog refer to Chapter 7, “Creating your online catalog” on page 71. These tools, run by the Site Administrator, can update many products at once. However, the Product Manager and Category Manager can update individual products, by using the tools provided in the WebSphere Commerce Accelerator. Note that the Web Editor may also be used to manage categories and products, for more information about the Web Editor refer to the online help.

Category management

The Category Manager manages the category hierarchy by creating, changing and deleting categories.



The master catalog is the central tool for managing your store’s merchandise. The master catalog contains all the catalog information that the store requires. This is the single catalog containing all products, items, and standard pricing for each entity.

Using the Product Management tool to view your catalog provides a representation of the master catalog.

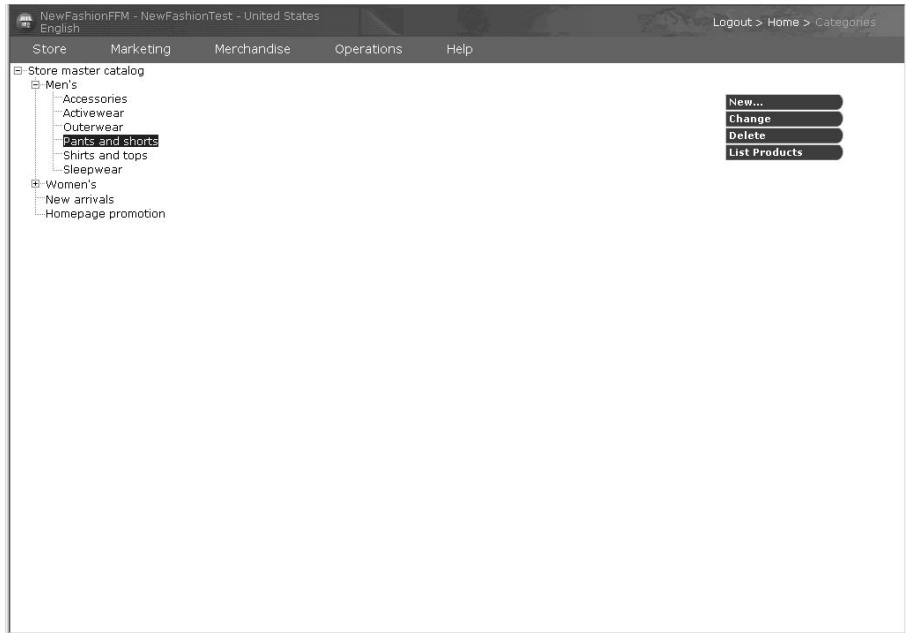
Managing categories

A category, is a group of objects that have similar properties. Categories are used to organize products or services offered by the store. The Category Manager can create, find, list, change, and delete categories. You can classify products and SKUs under different parent categories.

To manage categories, do the following:

1.  Select **Categories** from the **Merchandise** menu.
 Select **Categories** from the **Products** menu.

The Categories page displays.



2. Select an appropriate action: New, Change, Delete, List Products.

Finding a category

To find a category, do the following:

1. **B2C** Select **Find Category** from the **Merchandise** menu.
B2B Select **Find Category** from the **Products** menu.
2. On the Search page type a Name or Description of the category, and click **Find**.
A list of categories that match the search criteria displays.

Product management

In the WebSphere Commerce Accelerator a product can contain the following characteristics:

- The product code, which uniquely identifies the product.
- The product name and description.
- The merchandising options, such as indicating that a product displays to customers, or that it is part of a special promotion.
- Thumbnail and full size images of the product.
- Tax specifications and shipping specifications.
- Discounts assigned to the product.

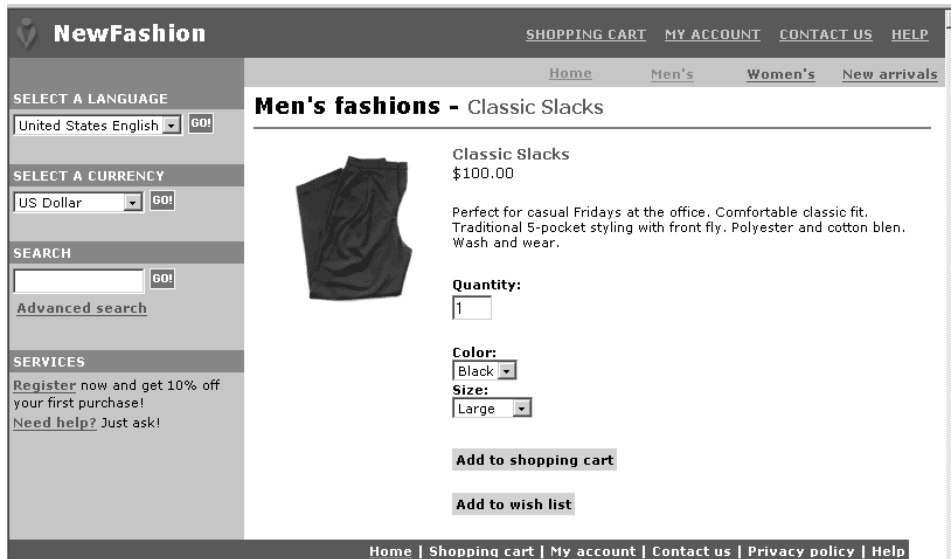
- Manufacturer information.
- The following advanced information:
 - A URL. For online software sales, you might specify a Web site to download the software.
 - A product description in XML format.

Creating products, attributes, and SKUs

After the Category Manager has created categories in the catalog, the Product Manager can create catalog entries, or products.

The following example shows how a Product Manager could enter a new product in the store's catalog. The example assumes that the store is based on the NewFashion store sample. The example product, Classic slacks, is available to purchase in either red or black in small, medium or large sizes. The store charges for shipping based on the order; therefore, shipping information is not required at the product level. The product does not fall into any special category, so not sales tax needs to be applied at the product level. The store supports USD and EUR currencies.

The following image shows the newly created product in the NewFashion store.



Step 1. Create the product.

Products act as templates for SKUs, the individual items which are ultimately sold to a customer. The Product wizard allows you to create new products for your catalog.

-  Select **Products** from the **Merchandise** menu.

B2B Select **Products** from the **Products**The Products list displays.

- b. Click **New**. The Product notebook opens on the General page.
- c. Enter the following information:

Product code	SKU-0003
Name	Classic Slacks
Display to customers	<input checked="" type="checkbox"/>
For purchase	<input checked="" type="checkbox"/>

- d. Click **Next**. The Description page displays. Enter the following information:

Short description	Classic Slacks
Long description	Perfect for casual Fridays at the office. Comfortable classic fit. Traditional 5-pocket styling with front fly. Polyester and cotton blend. Wash and wear.

Click **Next**. The Category page displays.

- e. On the Category page expand the icon beside the Store master catalog, then expand Men's. Select Pants and Shorts; then click **Next**. The Images page displays.
- f. Enter the directory where the product images are stored, for example:

Full size image file and location images/mens_pants_dress.gif

Thumbnail image file and location images/mens_pants_dress.gif

This information refers to the directory on the WebSphere Commerce machine where store images are located. To define new images for use in your store use the Ad copy notebook, described in the section "Ad copy" on page 191. For this example images that are already in the NewFashion image directory are used.

Click **Next**. The Manufacturer page displays.

- g. Stores based on the NewFashion sample do not display Manufacturer information; click **Next**. The Discounts page displays.
- h. This page displays any discounts applied to the product. Since no discounts are defined the following message appears:

There are no discounts assigned to the specified product. To create a new discount, from the Merchandise menu, select **Discounts**, then **New**.

Click **Next** the Sales tax page displays.

- i. The Shipping Tax page displays the following message.
There are no sales taxes defined or available to assign to this product.

Click **Next**. The Shipping Tax page displays.

- j. The Sales Tax page displays the following message.
There are no shipping taxes defined or available to assign to this product.

Click **Next**. The Shipping categories page displays.

- k. The Available categories field shows any shipping categories that the store has defined. The Selected categories field shows any shipping categories assigned to the product. Use this page to add or maintain shipping categories for a product. A shipping category is most commonly defined by a range in weight, size, or amount. For example, you may have a shipping category for large orders, medium orders, or small orders. Each shipping category is assigned a different shipping charge or tax. Click **Next**. The Units of measure for shipping page displays.
- l. The Units of Measure for Shipping page is used if the store ships orders based on the weight of the products. You do not need to enter any information on this page. The fields are:
 - Weight
 - Weight Measure
 - Sold in multiples of this amount
 - Number of items per package
 - Unit of Measure

Click **Next**. The Product Fulfillment page displays.

- m. The Product Fulfillment page specifies details about how to fulfill the product. Accept the default values.

Track inventory

Allow backorder

Force backorder

Release separately

Returnable

Creditable

Enter the smallest amount that can be measured

Unit of Measure

Click **Next**. The Advanced page displays.

- n. The Advanced page is used to specify a URL for downloadable products. You do not need to enter any information on this page. Click **Finish** to save the changes and close the notebook. The Products page displays.

Step 2. Define prices.

A price for a product or SKU, is defined in one or more currencies, along with a set of conditions such as an effective time range or an acceptable quantity range. The conditions must be satisfied in order to use the price. In our example Classic Slacks are sold in USD and EUR. The price for the product remains the same regardless of how many units the customer purchases.

- a. Select the check box to the left of the product you are working with, SKU-0003, and click **Prices**. The Pricing page displays. This page allows you to define the price for a product based on the currency and the quantity of the product sold.
- b. Type 100.00.
- c. Select EUR type 100. Click **OK**.

Step 3. Define attributes and attribute values.

Attributes are properties of products in an online store, such as color or size. Each possible combination of attributes and attribute values equals a new SKU.

For the Classic Slacks product example two attributes are defined: Size and Color. Notice that there are six orderable combinations of Classic Slacks, 2 small, 2 medium and 2 large.

	Small	Medium	Large
Red	✓	✓	✓
Black	✓	✓	✓

- a. Select the check box to the left of the product you want to work with and click **Attributes**. The Attributes page displays.
- b. To create a new attribute click **New**. The New Attribute page displays.
- c. Select United States English from the Language drop-down list.
- d. Type Size, ensure that the attribute type Text is selected; then click **Add Value**.
- e. In the Value field type Small, click **Add**.
- f. In the Value field type Medium, click **Add**.
- g. In the Value field type Large, click **Add**.

- h. Click **OK**. A message displays informing you that the attribute has been created. The Attribute List page displays.
 - i. To create a new attribute click **New**. The Attribute General Information page displays.
 - j. Type **Color**, ensure that the attribute type **Text** is selected; then click **Add Value**.
 - k. In the Value field type **Red**, click **Add**.
 - l. In the Value field type **Black**, click **Add**.
 - m. Click **OK**. A message displays informing you that the attribute has been created. The Attribute List page displays.
- If desired, add the appropriate attribute values for all languages supported by your store.

Step 4. Generate SKUs.

Once you have created your product, attributes and attribute values, you must create SKUs to represent each orderable item of merchandise for sale. All SKUs related to a particular product exhibit the same set of attributes and are distinguished by their attribute values.

- a. Click the **Products** link from the navigational links in the upper right-hand corner. The **Products List** page displays.
- b. Select the check box to the left of the product you are working with, and click **Generate SKUs**
Wait a few moments while the SKUs are created. In our **Classic Slacks** example six SKUs will be created, one for each combination of attribute values.
- c. If desired, change the SKUs to a different number. Customers in your store will see the SKU on the **Order** page.
In some stores the Buyer will provide the Product Manager with the appropriate SKU numbers.

The product and SKUs will now be visible in your store; however, no inventory, or inventory records exist.


Step 5. For dual-language stores, switch to the other language for your store. Navigate to the **Products** page, select **SKU-003**, click **Change**. Enter a product name and description for the other language.

Step 6. Create receipts for inventory

To create receipts follow the directions in the section “Creating an expected inventory record” on page 140.

Product management reports

1.  Select **Find Products** from the **Merchandise** menu.

 Select **Find Products** from the **Products** menu. The Products list displays.

2. Click **Reports**. The Product Reports page displays. Select one of the following reports.

Inventory Receipts by Product

This report lists all receipts: receipts received through expected inventory records, ad hoc receipts, and receipts added as a result of product disposition.

Inventory Status

This report shows the current inventory allocation and receipt status of products in stock.

Products on Backorder

This report shows cumulative backorder information by product.

Outstanding Returns

This report shows returns that have been recorded, but for which none of the products have been received from the customer. This report does not show returns that have been logged where some of the products have been received from the customer; these returns can be found in the Returns with Partial Receipts report.



Product update guidelines

When you change product information, note the following:

- Consider marketing information related to the product, such as any discounts, campaigns, or auctions associated with the product, or the available customer groups for the store. Each of these can affect the product that you want to change. For example, if you update a product's price, you may also need to update the discount assigned to the product. In addition, you can also create offers for each product, which are based on customer groups.
- Update the price for all supported currencies. For example, you can display a sweater for \$50 United States dollars or \$75 Canadian dollars.
- If you remove an attribute or an attribute value all existing SKUs containing that attribute value will be deleted.

Finding a product

To find products in the store, do the following:

-  Select **Find Products** from the **Merchandise** menu.
-  Select **Find Products** from the **Products** menu.

to search for store products that are based on the stock keeping unit, name, description, product group, or category. If the system finds multiple products that match your search criteria, the search results display in a list.

Discounts

Discounts allow you to offer customers incentives to purchase. You can offer percentage discounts (such as 10% off), or fixed-amount discounts (such as \$15 off). Discounts can apply to specific products, specific SKUs, or to the total purchase. For example, you can offer a 20% reduction to senior citizens; or if you have many red baseball caps in stock, you can offer a 25% discount on the caps for a limited time.

Create discounts by using the Discount wizard in the WebSphere Commerce Accelerator. Users belonging to any of the following roles may create discounts: Product Manager, Buyer, Category Manager, Sales Manager, and Account Representative. Discounts can also be created by using the Loader package, or imported during migration from previous version. These discounts will function correctly, but may not display properly in the WebSphere Commerce Accelerator.

Discounts can be either active, or inactive. Discounts are set as active by default when created, but can be deactivated at any time using the WebSphere Commerce Accelerator. For example, you might want to deactivate a discount before it expires if you notice that the inventory level for a discounted product is too low for the increased demand.

By default discounts appear on the Checkout page. The Checkout page displays after a customer has provided payment information; therefore, customers may not be aware of the discount until they have already purchased products. You can advertise discounts using the marketing tools in the WebSphere Commerce Accelerator. To do so, create ad copy which supports the discount, and select the ad copy when you are scheduling the advertisement to occupy a particular e-Marketing Spot.

Discount types

There are nine different discount types available in WebSphere Commerce. The following tables illustrate the differences between the calculation methods used, and the end results.

Simple discounts

A customer buys 4 books which each cost ten dollars. The customer also purchases 3 DVDs which each cost twenty dollars. The total price without a discount is \$100. The discount is applied to determine the final price.

Table 2. Simple discounts: Calculation A

Discount type	Rules	Calculation	Result
Percentage off total purchase	25% off total purchase with no minimum qualifications.	$[(4 \times \$10) + (3 \times \$20)] \times (1 - 25\%)$	\$75
Amount off total purchase	Spend at least \$90 and get \$15 off total purchase	$[(4 \times \$10) + (3 \times \$20)] - \$15$	\$85
Percentage off per product	25% off each book when four or more books are purchased.	$4 \times (\$10 \times \{1 - 25\%\}) + (3 \times \$20)$	\$90
Amount off per product	When 3 or more books are chosen, get \$5 off each book	$4 \times (\$10 - \$5) + (3 \times \$20)$	\$80

Multi-range discounts

Calculation A:

A customer buys 4 books which each cost ten dollars. The customer also purchases 3 DVDs which each cost twenty dollars. The total price without a discount is \$100. The discount is applied to determine the final price.

Table 3. Multi-range discounts: Calculation A

Discount type	Rules		Calculation	Result
Percentage off total purchase	0-\$39.99	No discount	$[(4 \times \$10) + (3 \times \$20)] \times (1-10\%)$	\$90
	\$40-\$109.99	10% off total purchase		
	\$110 and up	20% off total purchase		
Amount off total purchase	0-\$99.99	No discount	$[(4 \times \$10) + (3 \times \$20)] - \$10$	\$90
	\$100-\$199.99	\$10 off total purchase		
	\$200 and up	\$20 off total purchase		
Amount off qualifying products	1-5 books	\$10 off book sub-total	$[(4 \times \$10) - \$10] + (3 \times \$20)$	\$90
	6 or more books	\$20 off book sub-total		

Table 3. Multi-range discounts: Calculation A (continued)

Discount type	Rules		Calculation	Result
Percentage off per product	1-5 books	10% off each book	$[4 \times (\$10 \times \{1-10\%\})] + (3 \times \$20)$	\$96
	6 or more books	20% off each book		
Amount off per product	1-5 books	\$3 off each book	$[4 \times (\$10 - \$3)] + (3 \times \$20)$	\$88
	6 or more books	\$6 off each book		

Calculation B:

A customer buys 8 books which each cost ten dollars. The customer also purchases 2 DVDs which each cost twenty dollars. The total price without a discount is \$120. The discount is applied to determine the final price.

Table 4. Multi-range discounts: Calculation B

Discount type	Rules		Calculation	Result
Percentage off total purchase	0-\$39.99	No discount	$[(8 \times \$10) + (2 \times \$20)] \times (1-20\%)$	\$96
	\$40-\$109.99	10% off total purchase		
	\$110 and up	20% off total purchase		
Amount off total purchase	0-\$99.99	No discount	$[(8 \times \$10) + (2 \times \$20)] - \$10$	\$110
	\$100-\$199.99	\$10 off total purchase		
	\$200 and up	\$20 off total purchase		
Amount off qualifying products	1-5 books	\$10 dollars off book sub-total	$[(8 \times \$10) - \$20] + (2 \times \$20)$	\$100
	6 or more books	\$20 dollars off book sub-total		
Percentage off per product	1-5 books	10% off each book	$\{8 \times [\$10 \times (1-20\%)]\} + (2 \times \$20)$	\$104
	6 or more books	20% off each book		
Amount off per product	1-5 books	\$3 off each book	$[8 \times (\$10 - \$6)] + (2 \times \$20)$	\$72
	6 or more books	\$6 off each book		

Launching the Discounts page

The following steps describe how to navigate to the Discounts list page. From this page you can create a discount code, delete an existing discount code, activate or deactivate a discount, and show a summary of a selected discount code.

1.  Select **Discounts** from the **Merchandise** menu.

 Select **Discounts** from the **Products** menu.

The Discounts list page displays, containing a list of the currently defined discounts.

2. Select an appropriate action:

New Creates a new discount code. Unless the discount is to be applied to the total purchase, you must assign the discount to a product or SKU after creating it. To assign the discount to a product or SKU follow the directions in the section “Assigning a discount to a product or SKU”.

Summary

Shows a summary of an existing discount. The summary contains the following information: discount name, description, and all currently defined criteria.

Activate

Activates a discount.

Deactivate

Deactivates a discount. Discounts can be deactivated if they are not referenced by any product, SKU or order.

Delete Deletes the discount code. Discount codes can only be deleted if no product, SKU or order currently references the discount code. Clicking Delete removes the discount from the Discount list, but not from the database. To remove the discount code from the database the Site Administrator must run the dbclean utility.

Assigning a discount to a product or SKU

You can assign a discount to either a product or a SKU. Assign a discount to a product if all orderable SKUs contained within the product are to be discounted. Assign the discount to a particular SKU if not all of the SKUs under a product are to be discounted.

1.  Select **Products** from the **Merchandise** menu.

 Select **Products** from the **Products** menu.

The Products list page displays, containing a list of all currently defined products.

2. Apply a discount:
 - To a product

- Open the Product notebook by selecting the check box next to the product you want to work with and click **Update**.
- From the left navigation frame, click **Discounts**. The Discounts page displays.
- To assign a discount to the product, select the discount name from the Available discounts list, and click **Add**.
- To make other changes to this product, use the links on the left side to switch between each product page. To save the changed discount assignments and close the notebook, click **OK**.
- To a SKU
 - List the SKUs you want to work with by selecting the check box to the left of the product and click **SKU**.
 - Open the SKU notebook by selecting the check box next to the SKU you want to work with and click **Update**.
 - From the left navigation frame, click **Discounts**. The Discounts page displays.
 - To assign a discount to the SKU, select the discount name from the Available discounts list, and click **Add**.
 - To make other changes to this SKU, use the links on the left side to switch between each SKU page. To save the changed discount assignments and close the notebook, click **OK**.

Chapter 13. Managing customer information

This chapter describes the following key customer service tasks:

- Find a customer
- Change customer information (reset password, demographic information, unlock account)
- Customer care
- Find an order
- Create an order for a registered customer
- Create an order for a non-registered customer
- Change an order
- Cancel an order
- Add comments to an order
- Process payment
- Work with returns

The tasks listed above are normally performed by a Customer Service Representative, or for a business-to-business store by an Account Representative.

Customer registration information

A Customer Service Representative can manage customer information for registered customers. Non-registered, or guest customers do not have information stored in the database and as such there is no customer information to manage.

non-registered customer

A customer that does not have a customer logon ID and password for shopping at the store. The customer has not provided registration information, such as contact or demographic information, and any interests lists or shopping cart items will not be retained for future visits. A non-registered customer is considered a guest.

registered customer

A customer that has provided information to create a registration profile. This customer has a logon ID and password, which are required when submitting orders at the store. Any interest lists or shopping cart items are "saved" so that the customer does not have to browse through the online catalog during return visits.

To manage customer information, such as a customer's address, password, or account status Customer Service Representatives can search for customers; then update the appropriate information. The registration information that

customers provide depends on the store model, some registration information may be optional. To view or update customer information use the Customer Information notebook. The notebook shows the following:

General

Security information, a challenge question and answer for identification purposes, and an X.509 security certificate status, if applicable. General information also includes the customers full name, preferred shopping language and currency and the account status (enabled or disabled).

Address

Full address.

Contact



Contact information, such as e-mail addresses, phone numbers, and fax numbers. Customers can indicate their preferred method of communication and the best time to call. Customers can also specify whether or not they want to receive promotional material from the store.

Demographic

Demographic information, such as age, gender, marital status, annual income, number of household members, number of children, return customer, occupation, employers and hobbies.

Finding a customer

To change customer registration information, use the Customer Information notebook and update the fields as required. To open the notebook, do the following:

-  Select the **Find Customers** option from the **Operations** menu.
-  Select the **Find Customers** option from the **Sales** menu.

You can search for a customer based on the customer's logon ID, first and last names, primary phone number, primary e-mail address, city of the customer's contact address, and ZIP or postal code of the customer's contact address and if applicable the business account. Enter appropriate information then click **Find**.

Customer Care

The NewFashion sample store demonstrates the customer care feature. The Customer care feature provides real-time customer service support by way of a synchronous text interface using the Lotus Sametime Server. A customer may enter the site, and click a link on the store page to connect to a Customer Service Representative (CSR) so that the two parties can communicate or chat

over the Internet.



A CSR accesses the customer care interface through the WebSphere Commerce Accelerator. In addition, the CSR can view the store page where the customer needs assistance, and retrieve shopping cart and profile information. This interface also allows the CSR to chat with other CSRs. For more information refer to the online help topic, *Customer Care overview*.

Enabling Customer Care

To use Customer Care Sametime, this must first be installed and configured with WebSphere Commerce. For instructions, refer to the *WebSphere Commerce Additional Software guide*.

Managing customer orders

You can track and manage details about orders, including the customer, recipient, products and quantity, total cost (including tax and shipping charges), shipping specifications, payment method, and any comments. Customer order management includes three major tasks: placing orders for customers, updating existing orders for customers, initiating a return merchandise authorization for customers. You can also cancel an order or include a price adjustment to the total cost of the order.

Finding customer orders

You can search for an order based on the order number, the customer logon ID, order status, or account number. To find a customer order, do the following:

-  Select the **Find Orders** option from the **Operations** menu.

-  Select the **Find Orders** option from the **Sales** menu.

The search results displays. To work with the customer order, select the check box to the left of the order, and click one of the buttons on the page. You can show a summary of the order, change products and items, change the billing address, change payment information, add comments, cancel the order, process payment, or create a new return for the order.

Changing customer orders

Changes can be made to a submitted order so long as the order has not yet been released for fulfillment. Orders that have an order status of Shipped, Canceled, Released or Deposited can not be changed.

Use the Change Customer Order notebook to change details about an order. For example, if a customer places an order and initially indicates that the billing and shipping addresses are the same, but then decides that the order should be delivered to a friend instead, then the customer can contact the store to change the shipping address. Use the Change Customer Order notebook to include the new shipping address on the Shipping Address page within the notebook.

Canceling an order

To cancel a customer order, locate the order by following the instructions in “Finding customer orders” on page 161 then click **Cancel Order**. When you cancel a customer order, you can include a reason for the cancellation, such as the customer mistakenly ordered the wrong product, or the product selected is temporarily out of stock and the customer does not want to wait for the new stock. You can choose whether to send the customer an e-mail containing the text of this comment. Orders that have an order status of Shipped, Canceled, Released or Deposited can not be canceled.

Adding comments to an order

To add comments to an order, locate the order by following the instructions in “Finding customer orders” on page 161 then click **Add Comment**. You can indicate that the comment should be e-mailed to the customer.

You can add a comment to an order for your own reference, or e-mail the comment to the customer. For example, if there is insufficient inventory to fulfill an order, you can indicate the reason in a comment and e-mail it to customers. This way, customers are aware of delayed shipments.

Processing payment for an order



Before an order can be shipped, payment must be approved. Payment Manager is used to process payments. To change the payment status of a customer order, users with the correct authority level can link to Payment Manager from the WebSphere Commerce Accelerator. To process payments,

click **Process Payment** from the Orders page. Possible payment states include pending, approved, deposited, closed, void, or declined payment.



Creating new customer orders

Use one of the following methods to create a customer order. Follow the New Customer Order wizard pages sequentially to provide the information required for an order, including the products, quantity, billing address, shipping address, shipping method, payment option, and a comment or special price adjustment, if desired.

Create an order for a registered customer

-  Select the **Find Customers** option from the **Operations** menu.
-  Select the **Find Customers** option from the **Sales** menu.
The Search Results list displays.
- From the list, select the customer that you want to work with and click **Place Order** to open the New Customer Order wizard.

Create an order for a non-registered customer

-  Select the **Place Guest Order** option from the **Operations** menu.
-  Select the **Place Guest Order** option from the **Sales** menu.
The New Customer Order wizard launches.

Returns

If a customer is not satisfied with their purchase, they can request a refund for the amount of the original purchase, in the form of a credit to their credit card or to a line of credit. In WebSphere Commerce, a return includes a credit for the taxes paid on the order, but not necessarily the shipping charges. To refund the customer shipping costs, you can manually add this to the total refund amount.

Depending on your business, a return does not always require the customer to physically return the unwanted product. For example, if a customer wants a refund for fresh produce from a grocery store, the store would not likely require the produce to be returned to the store.

When a store is created the store defines return policies, for example, the NewFashion store defines that all returns are automatically returned if the return is initiated within 30 days of the purchase. The NewFashion store does not charge for returns. A customer must be authorized to return merchandise to a fulfillment center, this authorization is referred to as a Return Merchandise Authorization (RMA). Customers may contact the store and ask a Customer Service Representative to initiate the RMA. All returns that fall

within the store's return policy are automatically approved by the system. Returns that fall outside of the store's returns policy may be approved by the Customer Service Supervisor.

Creating a return

Returns are created by using the New Return wizard and Change Return notebook within the WebSphere Commerce Accelerator. To create a return search for either the customer or the order for which the return should be prepared. From the Customers List page, or the Order List page click **New Return**.

Approving a system-denied return

WebSphere Commerce will deny any returns that do not fall within the store's return policy. Common reasons for denying a return include the following:


- The product needs to be physically return to the store for a refund. For example, if a CD is originally marked in the system as an item to be returned in order for the customer to receive a refund, however, the customer contacts the store to say that the CD was scratched during delivery. Rather than have the customer ship the product back to the store and reimburse shipping costs, the store may simply ship the customer a second CD without requiring the customer to return the defective product. In this case, the Customer Service Representative can indicate, on the system, that no physical return is required and add a note about the situation. The system will deny approval for the return and the Customer Service Supervisor must manually approve this return.
- The quantity shipped is more than the quantity returned. For example, the customer orders three books, but only returns one.
- The credit amount requested is more than the amount paid for the original purchase. For example, the customer paid \$100.00 for the order, but wants a refund for \$150.00. This may be the case, if the customer purchased the order on sale, and the discount is no longer applicable.
- The return period has expired. For example, the store may not accept returns after ten days after the original purchase.
- The system determined whether or not the returned product must be returned to its original fulfillment center; however, this status was changed (such as by a Customer Service Representative).
- The store does not have an automatic approval policy. In this case, all returns must be manually approved.

To approve system denied returns, do the following:

1.  Select the **Find Returns** option from the **Operations** menu.

 Select the **Find Returns** option from the **Logistics** menu.

The search results displays.

2. Search for the return that you want to work with by providing at least one of the following returns information:
 - Order number
 - Return number
 - Originator logon ID
 -  Contract name
 - Return status

Click **Find**. The system performs a search and a list of returns that match the search criteria displays.

3. Select the check box next to the return that you want to work with, and click **Approve** to approve the selected return. The Approve Returns dialog opens, listing products in returns that require manual approval, and the reason why the return was denied by the system.
4. Click **Approve** to close the dialog.

Chapter 14. Fulfillment

This chapter describes the order fulfillment process. The processes described in this chapter assume that your store is using the ATP features available in WebSphere Commerce. If your store is based on the NewFashion or ToolTech sample stores the following information will be applicable. If your store is based on the InFashion or WebFashion samples, or if you are using a legacy system to manage fulfillment, the features described in this section do not apply.

The fulfillment process describes one part of the order lifecycle. Although, the order lifecycle varies from store-to-store, the following lists a typical order lifecycle at an online store.

1. A customer places an order at the store, paying by credit card.
2. The Customer Service Representative processes the payment. When the funds have been successfully reserved; the order is released to fulfillment. The status of the order is Inventory fulfilled.
3. The Pick Packer creates a pick batch.

A pick batch is collection of releases. Pickers use the pick batch to take all products required by the batch. The pick batch improves efficiency. If two releases require the same product, it is much faster to pick both products at the same time; rather than make two trips to the pick area.

A release is a set of order items, all for the same order, which are released-to-fulfillment as a unit. All order items in a release must have the same carrier, ship-to address, and fulfillment center. Items which would otherwise be part of a release may be released separately if store policy dictates.

4. Fulfillment center staff pick and pack the order.
5. The Pick Packer enters package information.
6. The Pick Packer confirms the shipment.
7. The funds are released from the credit card organization to the store.



This chapter describes the process of picking, packing and shipping an order.

Fulfilling an order

The Pick Packer is the primary role responsible for fulfilling an order. To pick, pack and ship an order, do the following:

Create a pick batch

1. Log on to the current store and fulfillment center.

2.  From the **Operations** menu select the **Pick Batches** option.
 From the **Logistics** menu select the **Pick Batches** option. The Pick Batches page displays.

3. Click **Create New**.

A confirmation message displays when the pick batch is created. If there are more than the specified maximum number of releases available to be included in the pick batch, those releases will be included in the next pick batch. If no releases are available to create a pick batch, an informational message displays. Note that Pick Batches with all releases shipped are not displayed on the Pick Batches page.

Pick the order items



4. Select the newly created pick batch then click **Pick Ticket**. The pick ticket displays, you may print the ticket if desired.
A pick ticket is a document containing a list of all the items which are required to fulfill all the releases in a given pick batch. This document is used by Pick Packers to assemble all products which pickers require to package all the releases in the pick batch.
5. Pick the inventory from the picking area; then deliver it to the packing station.

Pack the order items

A packing slip is a document showing all the line items which comprise a given release. This document typically has the ship-to address, carrier and a list of the order items on the release. Item prices are included on a packing slip, if applicable. The packing slip is used by Pick Packers to package the items in a release for physical fulfillment. The packing slip is usually included in the package, so that the customer can verify that the correct items were sent.

6. Select the pick batch and click **Packing Slips**.
View and print selected packing slip; then pack the release into box(es) according to the packing slip.
7. The packed boxes are passed to a shipping clerk.

Enter package information

8. After the order has been packed. Enter package information.
 From the **Operations** menu select the **Releases Ready to Ship** option.
 From the **Logistics** menu select the **Releases Ready to Ship** option.
The Releases Ready to Ship page displays.

9. Select the appropriate order number and release number then click **Packages**.


The New Package Details page displays.


10. Enter the following information, usually this information is taken from the shipping carrier's manifest.
 - Package ID
 - Tracking ID
 - Pickup ID
 - Shipping provider
 - Package weight
 - Unit of measure
 - Shipping costs
 - Currency
 - Shipping date

Click **OK**. A message appears indicating that the package was successfully created. Repeat this step for all packages within the order.

Confirm the shipment

11. After all package information has been entered, you can confirm the shipment.

 From the **Operations** menu select the **Releases Ready to Ship** option.

 From the **Logistics** menu select the **Releases Ready to Ship** option.

The Releases Ready to Ship page displays.

12. Select the appropriate order number and release number then click **Confirm Shipment**.

A message displays indicating that the selected release has been confirmed for shipment. Repeat this step for all releases within the order. When shipment has been confirmed for all releases within an order, the order status changes to Shipped. Note that Shipped orders are not displayed on the Releases Ready to Ship page.

Chapter 15. Managing business relationships

This section describes how to perform the following tasks:

- Create and manage customer accounts
- Define account attributes for individual accounts, such as:
 - Customer contact information
 - Purchase order
 - Invoice delivery method
 - Credit line
- Collaboration

WebSphere Commerce Business Edition:

The information in this chapter only applies to WebSphere Commerce Business Edition. If your store is a business-to-consumer store, you will not see the Accounts option on the WebSphere Commerce Accelerator Sales menu.

WebSphere Commerce Business Edition provides the ToolTech sample store. To fully understand the information presented in this chapter it is recommended that you publish and configure the ToolTech sample store. To learn how to publish and configure the ToolTech sample, refer to the online help.

Business policies

Business policies are sets of rules followed by a store, or group of stores, that define business processes, industry practices, and the scope and characteristics of a store's or group of stores' offerings. Business policies define all allowed and supported practices within a store or group of stores.

You create your store's policies during store creation. Policies are in the store's `businesspolicy.xml` contained in the store's SAR file. To learn how to create business policies refer to the *Store Developer's Guide*.

In WebSphere Commerce you can define the following types of business policies:

Catalog

Catalog business policies define the scope and characteristics of the products for sale; including prices and categorization within the store's master catalog. You can create the following catalog business policies:

Price lists

A price list policy specifies the prices for a collection of products. These prices may be in multiple currencies. The price list policy can include quantity-based prices. WebSphere Commerce creates one price list for all products in a store's master catalog. The price list policy is the base pricing of all products in the master catalog. Contracts reference the price list policy; the contract may offer percentage adjustments from the base price.

Product sets

Product sets are collections of products. You can use product sets to do the following:

1. Adjust the price of products within a price list.
2. Include or exclude portions of the master catalog in a contract.

This is referred to as *entitlement*, or *product selection constraints*.

Product sets are created from categories in a store's master catalog. If a product set is created by using the WebSphere Commerce Accelerator, it is automatically maintained when products are added or removed from the store's master catalog.

Invoicing, payment, and refund

Invoicing, payment, and refund business policies define how a store accepts payments, pays refunds, and the format of a store's invoices. You can define the following payment business policies:

Payment methods

A store can support any payment method that WebSphere Payment Manager supports. A store can also accept a credit line or a purchase order as a payment method.

Invoice format

The invoice format defines the layout of the invoice sent to the buyer with their shipment.

Returns

Returns business policies define if refunds are accepted, the time period they are accepted for, and any re-stocking fees applied to returns. You can set the following returns business policies.

Return charges

Return charges specify the amount refunded for returned merchandise. It covers restocking fees and percentage of price refunded.

Return approvals

A return approvals policy determines when a return will be automatically approved.

Return payment method

The refund payment method policy defines how the buyer is paid for goods returned.

Shipping

Shipping business policies define the shipping providers a store can use and the charges associated with each type. You can define the following shipping business policies:

Shipping modes

Shipping mode business policies define the ship modes and carriers supported by your store.

The ToolTech sample store defines the following shipping modes.

- **International mail**, USD\$5.00 per order plus USD\$1.00 for each item, 5 business days
- **Express mail**, USD\$6.00 per order plus USD\$2.00 for each item, 3 business days
- **Courier**, USD\$10.00 per order plus USD\$3.00 for each item, 1 business day

To change the shipping policies either modify the `shipping.xml` file, or use the Shipping notebook. The Shipping notebook is described in the section Step 3 on page 63.

Shipping charge types

The following types of shipping charges are supported:

- No shipping charge
- The Seller calculates shipping charges during order capture
- The carrier invoices the Buyer for shipping charges

Customer entitlement

Business policies set the scope of supported practices within a store or group of stores. Customer entitlement allows you to customize the behavior of a store for different customers. Customer entitlement refers to the actions that a customer can perform in a store. You *entitle* customers to various aspects. This includes what products they can purchase, the product price, and the acceptable payment methods. Customer entitlement is prescribed by the terms and condition defined in a *contract* between the Buyer and the Seller.

The default customer entitlement is defined by a store's *default contract*. This default contract usually specifies that customers can access the master catalog and purchase items at base prices. The default contract also specifies which payment methods the store accepts, and which shipping providers are used to send orders.

Default contract

A default contract defines the default customer entitlement for a store or a group of stores. The default contract settings are defined in the `contract.xml` file, when the store is created. The default contract applies to all customers shopping at a store who are not entitled under any other contract with the

store. If the customer is permitted to purchase products that are not covered by a contract, the default contract applies to product not covered by a contract.

Out-of-the box, the default contract for a store is setup to specify the following customer entitlement:

- The customer can purchase all products available in the store catalog.
- The customer pays the base price for products. No markups or markdowns apply.
- Payment is specified during order processing. The customer can use any payment method accepted by the store.
- The customer can choose any shipping provider supported by the store to ship the order.
- The ship-to address for an order is specified by the customer during order processing.
- Shipping charges are calculated by the seller upon order capture.
- There is no charge for returns.
- A refund is always approved for products returned within 30 days.
- The buyer is refunded for a return using the original payment method.

To modify the default contract refer to the online help topic "Bootstrap files" and to the *Store Developers Guide*. If, you do not want to use the default contract for a particular customer organization; you can create a contract for that organization.

Business Accounts

Business accounts are the starting point for managing a store's relationships with customer organizations. You can use business accounts to track contracts and orders for customer organizations. You can also configure how buyers from customer organizations shop in your store.

A business account records the following information about a customer organization:

- The name of the customer organization and a contact person within that organization
- The department and name of the account representative from the store assigned to the customer organization
- Information about purchase orders a customer organization has with a store
- How invoices are delivered to the customer organization
- The amount of a store-issued credit line (if the customer organization has a credit line)

- Any general remarks about the business account

Defining business accounts

Business accounts are managed by users assigned to the Sales Manager role.

Select the **Accounts** from the **Sales** menu. On the Accounts page select **New** to create a new account.

Contract

Contracts enable a customer organization to purchase products from a store or a group of stores at a specified price for a specified period of time. Contracts can be created either by using the WebSphere Commerce Accelerator, or by creating XML files then using the Loader package to populate the database.

Determining how to create a contract

Most stores will use the WebSphere Commerce Accelerator to create and manage contracts. However, some terms and conditions cannot be specified by using the WebSphere Commerce Accelerator. If you require these terms, you must create the contract by using XML files and the Loader package. For more information refer to the *Store Developer's Guide*.

Terms and conditions that cannot be defined by using the WebSphere Commerce Accelerator

Right to buy amount

This term places a limit on the combined value of all orders placed under a contract. The value of all orders made under the contract must be less than or equal to a specified amount. If this limit is exceeded when placing an order, processing of the order will fail.

Obligation to buy amount

This term specifies the minimum value of all orders that must be placed under the contract within a specified time after the contract is deployed. If the cumulative value of orders placed under the contract is below the specified amount at the specified time, the store can cancel the contract.

Fulfillment center

This term allows you to specify the fulfillment center from which orders placed under the contract must be filled.

Invoice Format

Specifies the layout of invoices to be sent by e-mail to the customer organization.

Creating an organization, account and contract for a customer

This section describes how to add an additional organization, account, customer and contract to the ToolTech store. The contract is created by using

the WebSphere Commerce Accelerator, for information about creating contracts by using XML files refer to the online help. Four contracts are provided with the ToolTech sample store. Contracts are defined in the `contract.xml` file in the store SAR file.

Step 1. The Site Administrator creates an organization to represent the Buyer organization.

For information refer to the section “Organizations” on page 108.

Step 2. The Site Administrator creates a user with the Buyer role for the Buyer organization.

For information refer to the section “Roles” on page 110.

Step 3. The Sales Manager creates an account with the Buyer organization.

For information refer to the section “Defining business accounts” on page 175.

Step 4. The Account Representative creates a contract.

Creating a contract by using the Contract notebook

a. Select the **Accounts** option from the **Sales** menu. The Accounts page displays.

b. Select the Account for which you want to create a contract; then click **New Contract**. The Contract General Information page displays.

On the Contract General Information page type the contract name and description. Optionally, you can provide start dates and end dates for the contract. If you do not provide start and end dates for the contract, the contract will start on the current date and will expire in one year. You can also specify that the contract does not have an expiry date.

c. From the navigation frame, click **Customers**.

On the Contract Customers page select which customers (buyer organizations) to which this contract applies. The Available Customers list displays the Buyer organization of the account and any organizational units within it.

d. From the navigation frame, click **Products and Prices**.

Use the Pricing pages to define what products are available under a contract and what prices the customer will pay for the products. You can price products in the contract by using any combination of the following methods: Percentage pricing, fixed pricing, and selection constraints.

- **Percentage pricing**

- Apply an adjustment on the entire master catalog
Define a percentage price adjustment for the entire catalog.
Everything within the catalog will adopt the price

adjustment. All products in the store catalog are available for sale, with a percentage adjustment (markup or markdown) from the base price defined in the store's master catalog.

- Apply an adjustment on the following contract optimized categories

All products in the store catalog are available for sale, with a percentage adjustment on the selected subcategory. The percentage adjustment (markup or markdown) is applied to the base price defined in the store's master catalog.

To define a contract optimized category, check the "Use in contracts" checkbox in the Product notebook. Creating and changing products is described in the section, "Creating products, attributes, and SKUs" on page 147.

- Apply an adjustment on the following categories and products

All products in the store catalog are available for sale, with a percentage adjustment on the selected subcategories or products. The percentage adjustment (markup or markdown) is applied to the base price defined in the store's master catalog.

To include or exclude subcategories from the contract use the Contract Selection Constraints page.

- **Fixed pricing**

Fixed pricing specifies that both the list of products for sale and their prices are customized for sale in a contract. Any product in the store catalog can be added to a fixed price list. Note that price lists are unique per contract. You cannot reuse price lists between contracts.

To add products to the list provide the product SKU, name or short description; then click **Find**. On the Search Results page specify the price for the product then click **Add**. The product is added to the list.

- **Contract Product Selection Constraints**

Use selection constraints if the contract specifies percentage pricing, but the entire store master catalog should not be offered for sale. You can either exclude or include categories and items for sale under the contract.

Exclude for sale the following categories and items in this contract

Specify catalog subcategories and items to exclude from the the master catalog in the contract.

Include for sale the following categories and items in this contract

Specify catalog subcategories and items from the master catalog to include in the contract.

- e. Define **Shipping** terms and conditions.

Shipping terms and conditions specify how orders will be shipped, where they will be shipped to and who will pay for the shipping.

Providers

Select to define how orders created under a contract are shipped. If a provider is not selected, orders can be shipped by any mode available in a store. The list of available shipping providers shows all shipping providers defined for the store.

Charge type

Select to define whether the shipping charges are charged by the shipping carrier, or by the store.

Addresses

Select to specify where orders made under a contract are shipped. This allows you to limit the locations where orders can be shipped. If the ship-to address is not specified, a ship-to address must be specified each time an order is made under a contract. The Available shipping address list shows the shipping address provided for the account.

- f. Select a payment method.

Specify the payment methods that will be accepted for orders made under the contract. If no payment method term is specified in a contract, payment in all methods accepted by the store will be accepted for orders made under the contract. For example, a contract could specify a payment method of offline card. If the account has a credit line you can specify that payment may be made under the credit line for this contract.

- g. Define how returns are handled.

Policies

Select how returns are approved and any charges the customer must pay for returns.

Refund

Select the payment methods that a customer can choose from when receiving refunds under a contract. If not specified, customers can choose from all payment methods available in a store.

- h. Define order approval amounts.

Check the Approval required checkbox to specify if orders must be approved by the customer organization. If order approval is required you can specify a minimum order approval amount. This would allow orders with a value below the currency value to be filled without approval from the customer organization.

- i. Specify attachments.

Attachments refer to any information that is attached to a contract. For example, an attachment may be a standard Terms and Conditions document in PDF format, that a customer organization attaches to all contracts. Enter the complete URL for the attachment, for example <http://www.ibm.com/attachments/terms.pdf>. The Contract Summary page lists all contract attachments.

- j. Add remarks.

Remarks may be any comments about the contract. The contract remarks are displayed on the Contract Summary page.

- k. When you are ready to save the contract click **OK**.

The newly created contract is shown on the Contracts page. The contract is in Draft status. Before the contract can be used in the store it must be approved and deployed.

Submitting the contract for approval

Step 5. A submitted contract is a draft contract that is complete and has been submitted for approval. Before a contract can be submitted at least one pricing term, a shipping charge type and a customer must be defined. The Sales Manager or Account Representative decides when a draft contract is ready to submit for approval. If approvals have been set up then, the designated approvers for the contract must review the contract. If no approvals have been set up the contract will go to Active state.

Approving the contract

Step 6. If the designated approvers for the contract decides a contract is complete and acceptable, they can move the contract into the approved state. WebSphere Commerce will automatically attempt to deploy an approved contract.

Contracts can be approved or rejected by approvers and administrators with appropriate access. Usually, the Sales Manager approves contracts. The process for approving or rejecting a contract is the same process used for all approvals in WebSphere Commerce. To approve or reject a contract, do the following:

From the **Store** menu, select **Approval Requests**. The Approval Requests page displays. Select the check box to the left of the contract

that you want to approve or reject. If you want to see a summary of the contract details, click **Summary**. Click **Approve** to approve the contract or **Reject** to reject it. The status for the contract you are working on will update to reflect your decision.

Deploying the contract

Step 7. A successfully deployed contract is a contract that is active. Registered users of the buyer organization can now shop and make purchases at the store under the terms prescribed in the contract.

Contract management reports

The Sales Manager can quickly produce reports related to a particular account or contract. Account Representatives can produce reports relating to their own accounts and contracts.

1. Select the **Accounts** option from the **Sales** menu.
2. Select an Account then click **Contracts**. The Contracts page displays.
3. On the Contracts page, select a contract then click **Reports**.
4. Choose an appropriate report:

Charge amounts by contract

This report lists all of the orders associated with the selected contract.

Refunds by contract

This report lists all of the refunds associated with the selected contract.

Account management reports

The Sales Manager can optimize and maximize contract values by analyzing performance and effectiveness of the contract. Get to know the customers better to optimize customer value and maximize the ability to sell products and service to the right customers. Reveal subtle behavior patterns and critical purchasing trends to optimize commerce activity. Close the loop by acting on hidden trends and information to provide real results

The Sales Manager can quickly produce reports related to a particular account or contract. Account Representatives can produce reports relating to their own accounts and contracts.

1. Select the **Accounts** option from the **Sales** menu. On the Accounts page select an account then click **Reports**.
2. Choose an appropriate report:

Orders by account

This report shows orders for the selected account

Spending by limited purchase order number

This report shows the current balance, and the limit of limited purchase orders for the selected account.

Refunds by account

This report shows the refunds issued to the selected account.

Contracts close to expiry date

This report shows the contracts for the selected account that are close to expiring.

Orders by contract

This report shows orders for the selected contract.

Refund by contract

This report shows the refunds issued to the selected contract.

Request for Quote (RFQ)

Request for Quotes (RFQ) is one of the trading mechanisms available in WebSphere Commerce. A buyer can create an RFQ for unique variations of goods and services that are offered in the catalog. An Interest List is used by buyers to add desired products to their RFQ. Buyers can include any number of products in one RFQ, and define unique specifications for each product. They can also specify the terms and conditions for the transaction. A seller can view and respond to an RFQ when the RFQ is in Active state. A Buyer can also change or cancel an RFQ.

When sellers respond to an RFQ, they have the option of responding to each product, and to each product specification. A seller can also modify or cancel a response.

The Seller can evaluate RFQ responses in Closed state to choose a winner, or multiple winners. When the RFQ response is accepted by the buyer and the seller is notified, the RFQ transaction is completed through one of the following two processes:

- The buyer places an order that already contains the RFQ information.
- A contract already containing the RFQ information is created.

A record of the RFQ is maintained in the RFQ Request List for a predetermined period, so that they can copy an RFQ that they repeatedly use. Responses are retained for the same period to facilitate a seller's response to similar requests from the same buyer.

Sellers can enable approval flow for the RFQ response process if they want responses to be reviewed prior to transmittal to the buyer.

Enabling RFQ

To enable RFQs the Site Administrator must perform the following tasks:

- Publish the ToolTech sample store
- Schedule RFQ site level jobs
- Enable RFQ messages
- Assign appropriate user roles
- Determine whether to enable response approval

These tasks are described in the online help and in the tutorial: *Request for Quote (RFQ) Creating Requests and Responses*, available from the Technical Library page of the WebSphere Commerce site.

The RFQ process

The following section describes the RFQ process from both the buyer's and seller's perspective.

Step 1. Buyer The Buyer browses the store catalog and adds products to the interest list.

Step 2. Buyer Creates an RFQ request.

- a. From the ToolTech store click **RFQ Request**.
- b. The Request for Quote tool opens to the RFQs page. To create an RFQ click **New**.
- c. The RFQ wizard opens on the General page. Provide the following information:
 - Name** RFQ name
 - Short description**
Short description for the RFQ
 - Long description**
Long description for the RFQ
 - Create a contract or order**

Contract The successful outcome of the RFQ should result in a contract.

Order The successful outcome of the RFQ should result in an order.

Click **Next**.

- d. On the Duration page, specify a start and end date for the RFQ; then click **Next**. If a start date is not provided the RFQ is effective when submitted.
- e. On the Terms and Conditions page, click **Add** to add any required Terms and Conditions. You can specify the following terms and conditions:

Add Add a new term or condition to the RFQ.

Remove

Remove terms and conditions from the RFQ.

Terms and conditions

Enter any necessary terms and condition.

Specification required in the response

Check Yes if the specification is required in the response; otherwise, check No.

Specification can be changed

Check Yes if the specification can be changed in the response; otherwise, check No.

Add as many terms and conditions as necessary. When you have finished adding the terms and conditions click **Next**. The Products page displays

- f. On the Products page, click **Add products**. The Add products from Interest List page displays. This page shows all products in the interest list.
- g. Select the check box for the desired product in the interest list, then click **Add to RFQ**. The Products page displays.
- h. Enter the price, quantity and unit of measure, for example, one or kilogram for each product.
- i. Optionally, enter specifications. Select the product then click **Specifications**.

Note:

The specifications that you can define are pre-defined by the Seller using the Personalized Attribute function in the WebSphere Commerce Accelerator. For information on defining Personalized Attributes refer to the online help topic "Personalized attributes".

- j. Optionally, enter comments. Select the product then click **Comments**.
- k. Click **Finish** to save the RFQ. The RFQs page redisplay showing the newly created RFQ.

Step 3. Seller Creates an RFQ response.

After the Buyer has submitted an RFQ request the Seller can respond to it. To respond to an RFQ, do the following:

- a. Log on the to WebSphere Commerce Accelerator.
- b. From the **Sales** menu select the **RFQs** option. A list of RFQ requests displays.
- c. Locate the appropriate RFQ:

- Select the check box for that request and click **Respond**. The General form displays.
 - To determine if there are any responses to this request, click **Responses**. The RFQ Response page displays any existing responses for the selected request. Click **New** to create a new response.
- d. Type the name for the response in the **Name** field.
 - e. Type any remarks, then click **Next**. The Terms and Conditions page displays.
 - f. Respond to the terms and conditions, then click **Next**. The Products page displays.
 - g. Respond to the product specifications, then click **Finish**. The RFQ Response page displays.
 - h. Click **Submit** to transmit your response to the approver.
If approval has been enabled, the response will be submitted to the approver. If the approver approves the RFQ it will be submitted to the buyer.
- Step 4. **Seller** Approve the RFQ.
- a. From the **Store** menu select **Approval Requests**. The Approval Requests page displays.
 - b. Select the check box for the request you are working on; then click **Summary**. The Summary page displays.
 - c. Review the RFQ details; click **Approve** to approve the request or click **Reject** to reject it. A message box indicates if the approval or rejection attempt was successful. The Approval Requests page displays, showing the updated status for the request you are working on.
- Step 5. **Buyer** From the ToolTech store, click **Launch RFQ**. The RFQ Tool launches to the RFQs page. To view responses, select the RFQ, then click **Responses**.
- Step 6. Select the RFQ response then click **Summary**. To accept the Response, select the response then click **Accept**.

Collaboration

Collaborative workspaces provides a collaborative interface using Lotus QuickPlace to support business discussions, such as negotiating contract terms and conditions between a Buyer and a Seller (or an Account Representative for the Seller). Business users within the Seller's organization can also use collaborative workspaces. Collaborative workspaces are created through the WebSphere Commerce Accelerator by using the QuickPlace template. Any member of the Seller organization can create a collaborative workspace. An Account Representative or a Sales Manager with QuickPlace Manager access

can add Buyers to the workspace. To enable collaborative workspaces, member data must be on an LDAP server connected to WebSphere Commerce with the appropriate links to the WebSphere Commerce Server database. You must also install and configure QuickPlace on a separate server from the machine where you have WebSphere Commerce and LDAP. For installation instructions, refer to the *WebSphere Commerce Additional Software Guide*. The details about the collaborative workspaces and workspace member information are managed through WebSphere Commerce. Any discussion threads, postings, or file attachments used for collaboration are stored on the QuickPlace server.

The ToolTech sample store illustrates collaborative workspaces and Customer Care.

Part 5. Extending the features of your store

This part of the book introduces advanced functionality that you may want to add to your store.

Chapter 16. Marketing

WebSphere Commerce facilitates marketing and personalization by enabling Marketing staff to interact with the site directly, instead of requesting that the Information Technology department make required changes. Marketing Managers create large-scale marketing campaigns that target various customer profiles. Campaigns drive site sales, increase revenue, or increase customer awareness.

This chapter provides the following information:

- E-marketing Spots
- Ad copy
- Customer profile creation and maintenance
- Marketing campaign, and campaign initiative creation and maintenance
- Coupon Promotions

Notes:

1. The WebSphere Commerce online help contains a tutorial that describes the process of adding campaign initiatives and discounts to the WebFashion store. For more information, refer to the topics *Creating discounts in WebFashion* and *Creating a marketing campaign in WebFashion* in the online help.
2. Only the WebFashion store model contains e-Marketing spots on store pages. To add personalized content to store pages from one of the other store models, a Store Developer must add e-Marketing Spots to the appropriate pages. For information about adding e-Marketing Spots to JSP pages refer to the WebFashion store sample in the online help.

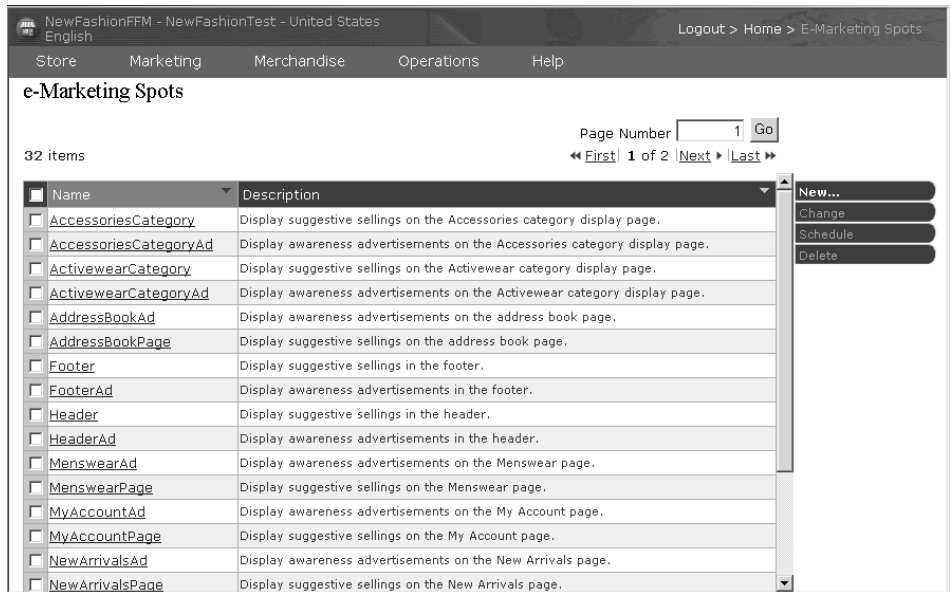
e-Marketing Spots

In addition to rule-based processing, the WebSphere Commerce marketing system relies upon the Web site's ability to display dynamic content. Special entities called e-Marketing Spots meet this requirement. An e-Marketing Spot displays advertising content, or category recommendations, or product recommendations.

Store Developers place e-Marketing Spots on the appropriate pages. Each e-Marketing Spot has a unique name. The Marketing Manager selects the e-Marketing Spot that they want to target as part of the campaign creation process.

While the customer browses your store, the e-Marketing Spots communicate with the WebSphere Commerce Server to determine what content should be displayed in their place. A JSP page may contain any number of e-Marketing Spots. Any JSP page in your site may contain an e-Marketing Spot.

To view the e-Marketing Spots registered in the database, select **e-Marketing Spots** from the **Marketing** menu.



The e-Marketing Spots list displays, containing the e-Marketing Spots currently defined in the database for the selected store. This list does not indicate which JSP pages actually contain e-Marketing Spots. To determine which JSP pages contain e-Marketing Spots the Marketing Manager must communicate with the Store Developer. For example, the WebFashion store home page, `StoreCatalogDisplay.jsp`, contains three e-Marketing Spot. In the image shown below the e-Marketing Spots display a product

recommendation.

WebFashion SHOPPING CART MY ACCOUNT CONTACT US HELP

Home Men's Women's New arrivals

CHOOSE A LANGUAGE
United States English **GO!**

SERVICES
Register now and get 10% off your first purchase!
Need help? Just ask!

men's FASHION women's FASHION new ARRIVALS

Check out this month's best-selling products:


These 100% cotton shorts feature 2 front pleats, side pockets, and belt loops at the waist. Roomy through the hip and thigh. 6 inch inseam. Zip front. Machine-washable. [Details](#)


This fun summer t-shirt features a v-neck, short sleeves and lots of stripes! Contrasting trim at neck. Classic fit, falls to just past the natural waist. 100% cotton. Pre-washed and pre-shrunk. Machine-washable. [Details](#)


In this sleeveless nightie, you'll be cool and comfortable on warm summer nights. 100% cotton. Scoop neckline. Knee length. Night-sky print. Pre-washed and pre-shrunk. Machine-washable. [Details](#)

Home | Shopping cart | My account | Contact us | Privacy policy | Help

To schedule when an initiative should appear in an e-Marketing Spot on the site click **Schedule**. The Schedule Campaign Initiatives notebook launches. By using this notebook, you can define the start and end dates for campaign initiatives.

Ad copy

Ad copy refers to all of the supporting material created for your campaigns. Graphic artists and writers create ad copy, in Flash, gif or JPEG format. Ad copy includes product pictures, graphics that are used in advertising, and marketing text.

To register ad copy in the database, select **Ad copy** from the **Marketing** menu. The Ad Copy list displays, containing the ad copy currently defined for the selected store. Click **New**. The Ad Copy wizard launches, enabling you to define your ad copy.

Ad copy is normally kept in the stores images directory. Images that contain translatable text are normally kept in the `store/locale/images` directory. Before using the Ad copy wizard ensure that the image files are in the appropriate location on the WebSphere Commerce Server machine.

Customer profiles

Customer profiles define groups of customers that have common sets of characteristics. These profiles identify targets for your marketing campaigns. You create profiles by selecting criteria and then assigning target values. When a customer visits your site, the system compares their personal information against the specified criteria. Depending on the customer, and the profiles that you have defined, profile-specific awareness advertisements or suggestive selling messages display. There are numerous possible criteria, including: data supplied during registration; purchase history information; and information about the frequency of a customer's visits.

For example, you can assign profiles for groups such as senior citizens, by creating a profile that targets customers who are at least sixty years old. You can further refine this profile to target senior women by specifying that in addition to the age requirement, the profile also targets customers who are female.

Profiles serve as dynamic targets for your marketing efforts. Depending on the criteria defined, your customers may or may not fit a particular profile at any given time. For instance, you might create a profile named "New Customers", which includes only customers who have registered in the last 30 days. While most of your customers would not belong to this profile, all new customers would fit this profile upon registration. New customers would fit this profile for a maximum of 30 days. This is dynamic because it requires no intervention on your part, applies to customers on an individual basis, and is determined in real-time. The cut-off date for inclusion in this profile depends on the customer's date of registration and the maximum days limit defined during profile creation.

If you choose to use customer profiles, you must create them prior to creating marketing campaigns. During campaign creation, you select the target profile. You can create campaigns that are applicable to all customers; however, customer profiles can target a specific sub-set of customers.

Customer profile management

Use the Customer Profile notebook to create and maintain customer profiles. Select **Customer profiles** from the **Marketing** menu. The Customer Profile page displays.

NewFashionFFM - NewFashionTest - United States
English

Logout > Home > Customer Profiles

Store Marketing Merchandise Operations Help

Customer Profiles

5 items

Page Number

« First | 1 of 1 | Last »

<input type="checkbox"/>	Name	Description	Last Update	Modified By
<input type="checkbox"/>	female	Female shoppers	October 9, 2001 5:20:55 PM EDT	wcsadmin
<input type="checkbox"/>	male	Male shoppers	October 9, 2001 5:20:41 PM EDT	wcsadmin
<input type="checkbox"/>	Over 29	Shoppers who are over 29	October 9, 2001 5:22:29 PM EDT	wcsadmin
<input type="checkbox"/>	Registered	Registered customers	October 9, 2001 5:22:45 PM EDT	wcsadmin
<input type="checkbox"/>	Under 29	Shoppers who are under 29	October 9, 2001 5:23:04 PM EDT	wcsadmin

New...

Summary

Delete

Change

Duplicate

Customers

Use the Customer Profile page to find out about the customer profiles defined for the current store. The list contains information about the name and description of the profile. You can sort the displayed profiles, create new profiles, create copies of profiles, delete profiles, see the customers who belong to a particular profile, and modify profiles.

Customer profile creation guidelines

To effectively use customer profiles, the store's pages must capture the information required by the profile. Merchandising and Marketing Managers must communicate their requirements to Store Developers. A well-designed registration page, that communicates how customers enter information will eliminate potential problems. Note the following:

- Strings are matched exactly and are case-sensitive

To create a customer profile based on state, you could enter "New York" on the State or Province page in the Customer Profile notebook. Any customer who enters "New York" on the store's registration page is included in the profile. However, a customer who enters "NY" is not included. To target all intended customer you could use a list on the registration page. Instead of typing the state, customers would select the state from the list. Consider using lists for country or region of residence, city of residence, e-mail address domain, interests, phone number, and either zip or postal code.
- Any found strings will include the customer in the profile

To create a customer profile based on an area code, you could enter 905 on the Phone Number page of the Customer Profile notebook. Any customer

whose phone number has the three digits 905 is included in the profile. This is true whether they correspond to the customer's area code, exchange, or the end of the phone number. If you specify (905), but the customer types 905, that customer is excluded from the profile. To avoid this problem, you should specify the parentheses when creating the profile. The Store Developer should ensure that the Store Registration page validates that there are parentheses around the area code.

Campaigns

There are two primary components that comprise any campaign, which work together to provide a complete, flexible marketing strategy.

1. The Campaign.

A campaign is a major marketing effort. A campaign has associated business objectives. They function as containers for initiatives.

2. The Campaign initiatives.

Deliver the personalized content. Initiatives are coordinated activities that are designed to achieve the overall goal of a campaign. They represent the individual messages used to achieve a campaign's business objective. There are three types of initiative.

Suggestive selling

Used to provide a product or category recommendation. These recommendations suggest associated products in an attempt to up-sell or cross-sell products to a customer. Suggestive selling initiatives also remind customers of related products that they might want to consider purchasing. The recommendations are based on the customer's previous purchases, or the current contents of the customer's shopping cart.

Collaborative filtering-based recommendation

Used to provide a product recommendation. These recommendations suggest associated products in an attempt to up-sell or cross-sell products to a customer. They also remind customers of related products that they might want to consider depending on the customers' overall shopping behavior, rather than predefined rules. In order to use these initiatives the site must have installed and configured LikeMinds Personalization Server.

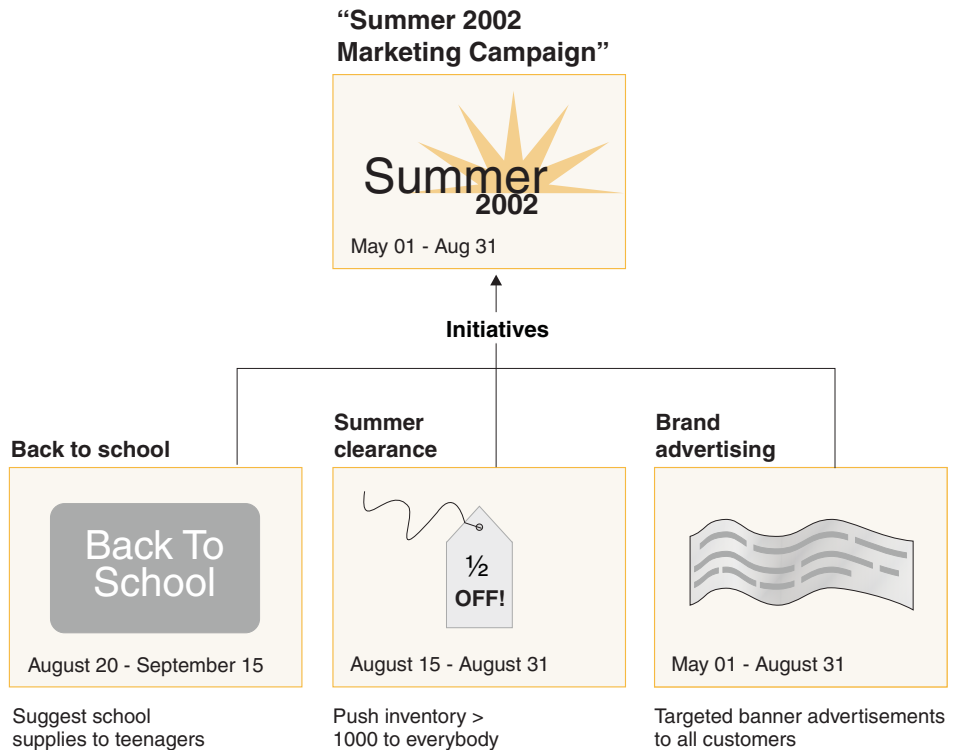
Awareness advertisement

Used to display advertisements that are designed to increase a customer's awareness. For instance, awareness advertisements inform customers about upcoming events, or increase brand awareness.

Campaign initiatives also have one or more target locations, namely e-Marketing Spots.

Suggestive selling initiative

The following diagram shows the relationship between a campaign and the initiatives contained within it.



The diagram illustrates a fictitious marketing campaign, called the "Summer 2002 Marketing Campaign." The campaign contains the following three initiatives:

Back to school

This is a suggestive selling initiative, which targets a customer profile called teenagers, and recommends school supplies. The back to school initiative runs from August 20 until September 15.

Summer clearance

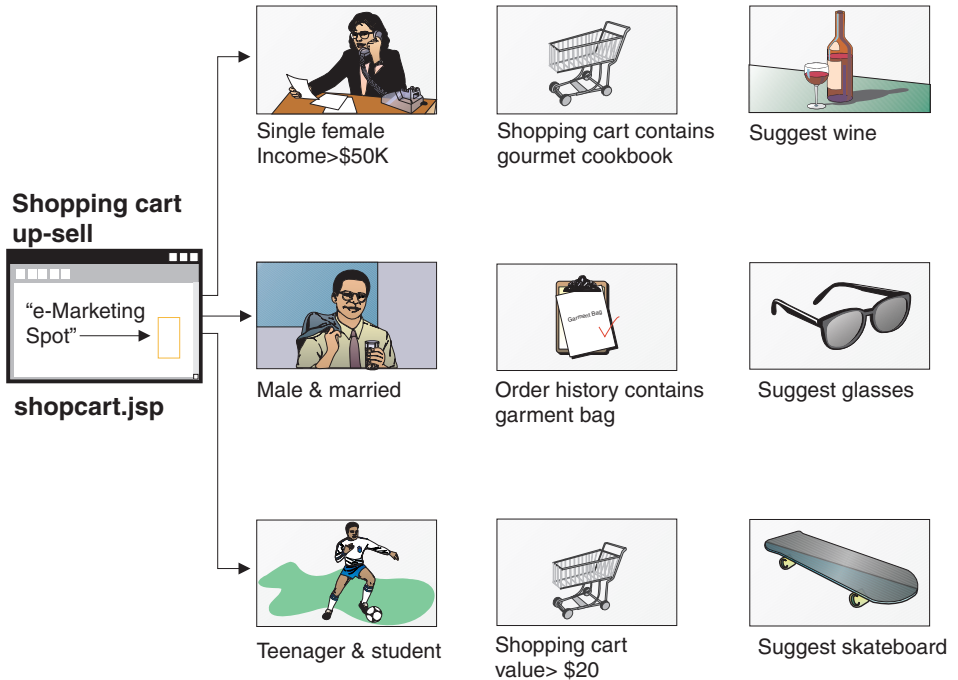
This is a suggestive selling initiative, which targets all customer profiles, and recommends all products that have an inventory count greater than 1000. The summer clearance initiative runs from August 15 until August 31.

Brand advertising

This is an awareness advertisement initiative, which targets all customer profiles, and shows banner advertisements that are intended to increase brand awareness. The brand advertising initiative runs from May 1 until August 31.

Suggestive selling initiative with conditions

The following diagram shows a relationship between e-Marketing Spots, customer profiles, and suggestive selling initiative. A suggestive selling initiative results in dynamic content.



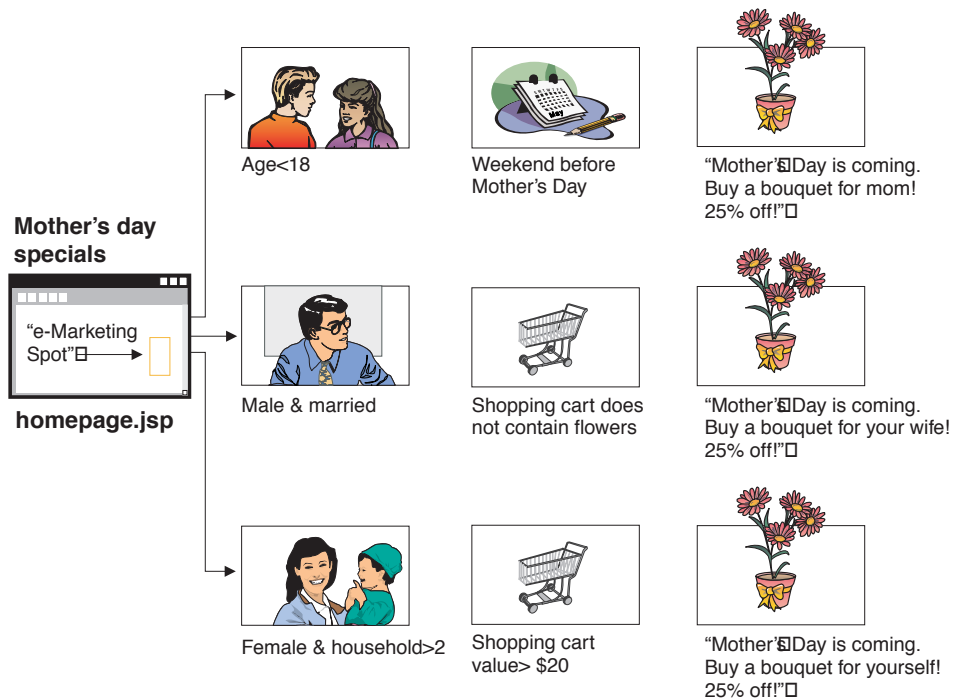
This page has a defined e-Marketing Spot. This e-Marketing spot corresponds to a suggestive selling initiative. The initiative associated with the e-Marketing Spot has three conditions, represented by a row in the diagram. The conditions specify the target customer profile, the situation in which the condition is true, and the product recommendation to display when the condition is true. When this page displays, one of the following four things can happen:

- If the customer is single, female, earns more than fifty-thousand dollars per year, and her shopping cart contains a gourmet cookbook, recommend a bottle of wine.
- If the customer is male, and married, and his order history contains a garment bag, recommend a pair of sunglasses.
- If the customer is a teenager, and a student, and their shopping cart has a current value of greater than twenty dollars, recommend a skateboard.
- If the customer does not fit any of these profiles, or if the situation does not meet the specific criteria, no recommendations display.

Awareness advertisement

For each campaign initiative that you create, you must define a condition when the initiative is true. Associate each condition with an individual initiative. Conditions lay out the scenarios under which a particular initiative's content displays. To create conditions you answer questions; your answers define the condition. The questions include who the initiative should target, when (which day of the week) the initiative is considered, what content should be displayed, and which customer behaviors should be targeted. Your answers to these questions define the situation in which a particular condition will be true, and the personalized content will display. Conditions also provide the ability to display multiple messages in the same spot, under different situations.

The following diagram shows the relationship between e-Marketing Spots, customer profiles, and awareness advertisement initiatives. Imagine that an online store has a spring campaign, and an initiative designed to raise awareness for Mother's day.



The e-Marketing Spot corresponds to an awareness advertisement initiative for Mother's Day. The initiative associated with the e-Marketing Spot has three conditions, each represented by a row in the diagram. Each row shows how conditions work to determine the dynamic content for a given situation. The conditions specify the target customer profile, the situation in which the

conditions will be true, and the target ad copy to display when the condition is true. When this page displays, one of the following four things can happen:

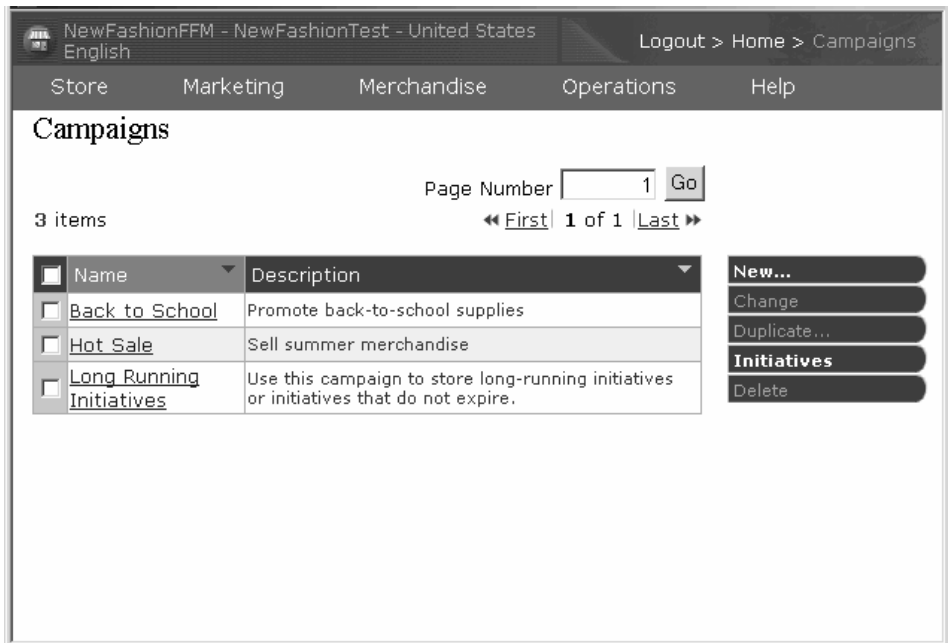
- If the customer is under eighteen years old, and the current day is the weekend before Mother's Day, display an advertisement to remind the customer to buy flowers for their mother.
- If the customer is male, married, and his shopping cart does not contain flowers, display an advertisement to remind the customer to buy flowers for his wife.
- If the customer is female, has a household size of two or more, and her shopping cart has a current value of more than twenty dollars, display an advertisement to remind the customer to buy flowers for herself.
- If the customer does not fit any of these profiles, or if the situation does not meet the specific criteria, no advertisements display.

Campaign management

The Campaign notebooks facilitate marketing campaign creation and maintenance. These online campaigns organize marketing techniques, including suggestive selling and awareness advertisements. Campaigns represent large marketing efforts, typically associated with an occasion, or objective, such as a back-to-school campaign or a Christmas campaign. The initiatives and their conditions implement rule-based processing that generates personalized content on a customer-by-customer basis.

The content of a campaign displays on your store's JSP pages. Special data beans called e-Marketing Spots contain the content. Store Developers create these, and use them as placeholders during page design.

Select the **Campaigns** option from the **Marketing** menu to display the Campaign list.



Use the Campaigns page to show the marketing campaigns defined for the current store. The list contains information about the name and description of the campaign. You can also perform other actions from this list, including creating new campaigns, deleting campaigns, and modifying existing campaigns.

Campaign Initiatives

To create a campaign initiative, do the following:

1. From the Marketing menu select **Campaign Initiatives**. The Campaign Initiative list page displays. Click **New**.
2. On the General Definition page, do the following:
 - Type a name for the campaign initiative.
 - Select General, Up-sell, Cross-sell, Discount or Coupon, from the Initiative classification list.
 - Optionally, type a description
 - Select the associated campaign from the Campaign list, if applicable.

Click **Next**.
3. On the Defining displayed dynamic content page, determine which type of dynamic content to display:
 - Suggest specific product(s)
 - Recommend category
 - Show advertisement(s)

You can advertise general advertisements, advertise discounts, or advertise coupons.

- Let the system suggest products based on clickstream analysis
- Let the system suggest products based on one or more filters

Click **Next**.

4. On the Defining target customers page, select whether to target all customers, or to target specific customer profiles. The customer profiles must already be defined. Click **Next**.
5. On the Defining dates for targeting customer, choose which days of the week the campaign initiative should display. Click **Next**.
6. On the Defining target customer behaviors page click Add to define a customer behavior in order to display the campaign initiative. Typical examples of customer behavior include, the current value of the shopping cart, and the current contents of the shopping cart. If the campaign initiative should display regardless of the customer behavior; click **Finish**.

Campaign reports

Campaign initiatives generate statistics about their use. These statistics can be viewed by Sellers, and Marketing Managers, using the WebSphere Commerce Accelerator. The statistics illustrate an initiative's clickthrough rate for each e-Marketing Spot where it is implemented. These statistics provide feedback on the effectiveness of the initiative, as well as comparative success rates among the various locations in which it displays.

Promotions

Coupon Promotions

Coupon Promotions allow the Product Manager to offer customers incentives to purchase. A *coupon* is an instance of a coupon promotion. A coupon can apply to specific products, (referred to as a product type condition), or to the total purchase, referred to as an (order type condition). For example, if you have many red baseball caps in stock, you can offer 25% off on the caps for a limited time. Or you could offer \$3 off on the purchase of a baseball cap to everyone who purchases products worth \$50 from your store.

An eCoupon is an online electronic equivalent of a paper coupon. It is an electronic offer made by an online store, to a customer. The eCoupon gives the customer a discount on some or all items in an order. The eCoupon may be subject conditions such as only one coupon may be used per order.

There are three components of an electronic coupons:

Coupon Promotion

A promotion run by a Product Manager. The promotion offers coupons to customers.

Coupon

An electronic version of a paper coupon. A coupon is an instance of a Coupon Promotion, that can be uniquely identified within the system.

Coupon Wallet

A collection of a registered customers eCoupons.

Note to Store Developers

The sample stores do not provide JSP pages to support Coupon Promotions. To add Coupon Promotion support to a store model, refer to the Coupons reference store available from the Technical Library page at:

 ibm.com/software/webservers/commerce/wc_pe/lit-tech-general.html

 ibm.com/software/webservers/commerce/wc_be/lit-tech-general.html

Setting up a Coupon Promotion

The following example describes the steps involved in setting up a coupon promotion.

Define the Coupon Promotion

1. From the Merchandise menu select **Coupon Promotions**. The Coupon Promotions list page displays.
2. To define a Coupon Promotion click **New**. The Coupon Promotion General Information page displays.
3. Define the name, description and time for which this coupon is in effect; then click **Next**. The Details page displays.
4. Define the Currency, the number of coupons and the purchase condition.

Product type

The customer must purchase a particular product to be eligible to receive the coupon.

Order type

The customer must meet a minimum or maximum order amount to be eligible to receive the coupon.

Click **Next**.

5. Define the coupon value: percentage off, or fixed amount of total; then click **Finish**.

Define the ad copy

The media design team creates full-size and thumbnail images of any images required for the promotion. The team also writes the textual descriptions for the promotion.

6. Copy the necessary graphics or Flash files to the correct directory on the WebSphere Commerce Server machine. The Site Administrator may be the only person able to access this directory.
7. Use the Ad copy function to make the text and graphics used in the eCoupon available to the campaign initiative and to Set the action URL for the eCoupon promotion. Using the Ad copy notebook is described in the section “Ad copy” on page 191.
8. Assign and schedule the coupon promotion to an e-Marketing Spot.

How a customer uses eCoupon promotions

To use eCoupons the customer does the following:

1. The customer clicks on the banner advertisement to accept the offered eCoupon promotion.
WebSphere Commerce creates an instance of the coupon and adds it to the customer’s coupon wallet.
2. The customer clicks the eCoupons link.
All valid eCoupons display.
3. The customer checks for the applicable eCoupons against the contents of the current shopping cart. The customer purchases an applicable product and applies the corresponding eCoupon.
The discount is shown on the Order Checkout page.

Chapter 17. Product Advisor

This section describes Product Advisor and provides an overview of how to use Product Advisor to extend the capabilities of your online catalog. Use this section to develop a better understanding of Product Advisor and the tasks involved in creating shopping metaphors. For complete, detailed instructions on how to perform these tasks, refer to the WebSphere Commerce online help.

Product Advisor creates intelligent catalogs. An intelligent catalog is an interactive catalog that can produce a list of products that best suit the customer's needs. It is analogous to having sales staff and product specialists who help customers investigate, compare and determine which products are best suited to their requirements.

Product Advisor helps customers find the right product as quickly as possible. By making it quick and easy for a customer to locate desired products, the probability of a "browser" becoming a customer increases.

Shopping metaphors

Customers interact with the catalog by using *shopping metaphors*. There are three types of shopping metaphors, each of which presents the catalog data in a unique manner:

Product Comparison

The Product Comparison metaphor displays related products side by side, so that customers can identify the similarities and differences between them. Launch the Product Comparison metaphor directly, or from either the Product Exploration or Sales Assistance metaphors. The Product Comparison metaphor allows the customer to compare the selected products.

Product Exploration

The Product Exploration metaphor is for customers who are familiar with the features of a given category of products. The customer selects the feature values that they want, which initiates a parametric search of the product data. The Product Exploration metaphor can be used to display the resulting list of the appropriate products matching the selected parameter values.

Sales Assistance

The Sales Assistance metaphor is for customers who are not sure where to start. It presents them with a series of multiple-choice questions, where

each answer determines the next question. You can create as many answers as you want for a given question. For each answer, you can create one subsequent question.

As the customer answers the questions, the information provided by each answer is collected. An increasingly refined list of products that match the answers is determined. The customer can choose to view this list at any time or to continue with the questions. By default, the answers to the last question available will link to a previously defined Product Comparison metaphor. When the customer answers the last question, a list of matching products automatically displays. You can override the default to target a different metaphor or a different URL.

The Sales Assistance metaphor is the only metaphor that can be prepared without having a prepared catalog.

Determining whether your catalog data is suitable for Product Advisor

To help you determine whether your catalog is suitable for use with Product Advisor consider the following areas:

Features

You should ensure that your catalog is rich in product features. Metaphors include or remove products from a list of products that are based upon the products' feature values. To distinguish between several products a product must have ample features.

Consider a store that sells computers and has defined several features for the computers. Examples of these user-defined features include: CD-ROM drive, hard drive, memory, operating system, and processor. Based upon these features, the metaphors narrow down the selection of applicable products for the customer. For example, customers may state that they are only interested in computers that have a minimum memory capacity of 256 MB. In order for the metaphors to make use of that information, define a feature for that characteristic (in this case, *memory*). In other words, understand and define the features by which you expect that customers will differentiate between products, before you create your shopping metaphors.

Catalog hierarchy

The catalog hierarchy should group products with the same features into one category.

Product attributes

Product Advisor uses the attributes defined in the WebSphere Commerce database tables as features. Use one attribute for each feature that is required by Product Advisor. Ensure that you use the same attribute for all products (or items) in a category.

Question and answer flow design for the Sales Assistance metaphor

You need to capture the knowledge of your sales force in this metaphor.

Ensure that you solicit the input of the appropriate sales and product specialists when designing this information.

Resource planning

A catalog developer should create the category hierarchy as well as the product attributes and the item attributes. The catalog developer must have input from a sales or product specialist who understands how customers differentiate between products. Group products with like features into the same categories. Create appropriate attributes so that the metaphors can effectively narrow down the product selection lists. Once the design of the hierarchy and attributes is complete, the catalog developer can create the catalog.

The catalog developer, sales, or product specialist can create the question and answer tree. This person must understand and predict the questions that customers are most likely to ask in order to refine the product selection. This requires an understanding of the product features and uses for the product. For example, it is very useful to structure the questions in order to determine how the customer will use a product. This way, customers do not need to clarify which features they want. The constraints that are placed upon the selected answers in turn select the features for them. For example, if a customer states that the computer will be used for graphic intensive games, the list should only show computers that can support games.

Product Advisor pages use JSP templates to render the display pages. The JSP pages are dynamically generated, based upon the customers' requests. The store developer who creates Product Advisor pages should be familiar with creating JSP pages.

Product Advisor and Catalog Manager

Product Advisor and Catalog Manager are both advanced catalog tools that can be used in a complementary fashion.

It is recommended that you use Catalog Manager to create your catalog and extend the catalog by creating Product Advisor metaphors. Create the catalog using Catalog Manager; then publish the catalog to the WebSphere Commerce database. Creating a Product Advisor search space using the `paconfig` utility prepares a category for use by the metaphors; then using the `PABatchXML` utility to create the shopping metaphors. These utilities process XML files to set up the search space and the metaphors.

Product Advisor statistics

The WebSphere Commerce Accelerator provides reports that show Product Advisor statistics. You can access these reports from the **Merchandise** menu.

Product Advisor statistics

Use this list to view the site-wide statistics for all Product Advisor metaphors. Statistics are displayed in a table with the following information: category ID, category name, metaphor name, count.

Product Comparison statistics

Use this list to view the site-wide statistics for all Product Comparison metaphors. Statistics are displayed in a table with the following information: category, category name, ID views (the total number of products that have been compared), clicks (the number of times that metaphor usage has led to subsequent clicks on a specific product).

Product Exploration statistics

Use this list to view the site-wide statistics for all Product Exploration metaphors. Statistics are displayed in a table with the following information: category ID, category name, feature name, count.

Sales Assistance statistics

Use this list to view the site-wide statistics for all Sales Assistance metaphors. Statistics are displayed in a table with the following information: category ID, type, tree ID, concept ID, parent Concept ID, concept name.

Chapter 18. Auctions

Auctions are an increasingly popular sales model for online transactions. Auctions provide a method for negotiating and dynamically establishing the price and other terms for the sale of products and services. WebSphere Commerce provides tools to help you create and manage auctions for your site. The auctions component provides an ideal environment for implementing small to moderate-scale auctions as part of your e-commerce solution. To help you learn about auctions and to demonstrate the auction components, use the WebAuction sample store.

The creation and management of a WebSphere Commerce auction is simple. You can use system-provided auction styles or create custom auction styles. Auction styles contain predefined values for input fields and reduce the time required for auction creation.

WebSphere Commerce auctions are highly secure. In multi-store malls, merchants or administrators of one store cannot set up or modify auctions for another store. Authorized users can view auction bids. By default, users that are assigned to the Seller or Product Manager role can view auction bids. Only registered customers who are logged on to the site can submit bids. The system encrypts all sensitive information.

Multi-attribute search features enable you to search for specific auctions. You can search for auctions by store, type, or product. You can also search for auction styles and bid control rules.

The Customer Service Representative uses discussion forums to view and respond to messages from customers regarding an auction. Use these forums to provide customers with extra information about the product on auction, auction rules, or future auctions.

Auction implementation

The following section briefly describes the auction implementation in WebSphere Commerce. Before you work with auctions for the first time, you must enable auction scheduler jobs. The scheduler calls commands that process auction messages and bids scheduler must be configured and running. If you are using Payment Manager, it must be active when you are using auctions. Store Developers should not edit the auction sample JSP files by using WebSphere Commerce Studio, or unpredictable results may occur. Use Wordpad or another text editor.

Features for auction participants

The following image shows the Current auctions page, in the WebAuction sample store. The actions that auction participant can perform are described in the list below.

WebAuction HOME SHOPPING CART MY ACCOUNT CONTACT US HELP

CHOOSE A LANGUAGE
United States English GO!

SERVICES
Register now and get 10% off your first purchase!
[Need help?](#) Just ask!

AUCTIONS
[Future Auctions](#)
[Current Auctions](#)
[Closed Auctions](#)
[Your Auction Gallery](#)
[Your Auction Bids](#)
[Messages](#)

RETURN TO STORE
10/09/2001
09:49:04 AM

Current Auctions

This page was last refreshed at October 9, 2001 9:48:46 AM

Product Name	Quantity	Auction Type (Best Bid) (See All Bids)	Bid Submission Deadline	Create/Modify Your Bids
Double-breasted blazer Auction Rules	99	Open Cry (\$10.00) (See All Bids)	July 23, 2275 1:59:35 PM	New Bid New AutoBid Your Bids
Short-sleeve casual shirt Auction Rules	100	Open Cry (\$0.00) (See All Bids)	March 10, 2032 1:53:27 PM	New Bid New AutoBid Your Bids
Classic belt shorts Auction Rules	99	Sealed Bid	October 9, 2001 1:53:28 PM	New Bid Your Bids
Walking shorts Auction Rules	100	Sealed Bid	July 3, 2004 2:55:08 PM	New Bid Your Bids
Bomber jacket Auction Rules	100	Dutch Auction (See All Bids)	October 8, 2003 12:01:00 PM	New Bid Your Bids

* product has a reserve price

Site level

Auctions are at the site level. A registered customer can select which store to view auctions for.

Autobids

Participants may have automatic bids submitted in Open Cry auctions by setting up autobids that specify the maximum bid value and other information.

Auctions gallery

The auctions gallery displays auctions of interest to customers. They may add or remove auctions from the auctions gallery. The auctions gallery includes auctions that are explicitly added to the gallery by the customer, so that they can monitor or participate in the auctions. If a customer submits a bid for an auction, that auction is added to the gallery.

Auction notification messages

Participants receive messages notifying them of events such as winning an auction. If customers do not read the message within a specified time, they automatically receive an e-mail message containing the same text.

Discussion forums

Customers can communicate with the store through discussion forums for auctions.

Auction types

WebSphere Commerce provides three auction types:

Open Cry

Open Cry auctions follow the public meeting model; that is, all bids are available for everyone to see. Open Cry auctions typically include a short response time between final bid submission and the time that the administrator closes the auction. These auctions work well when prospective buyers participate in the auction simultaneously, and feel comfortable about quickly submitting counter bids. If necessary, the administrator can extend the time between the final bid submission and the close of the auction. This gives customers more time to react and submit bids.

Sealed Bid

Single-round Sealed Bid auctions utilize a private bidding process. Each participant submits a private bid, known only to themselves and the administrator. The auction closes at the bid submission deadline. The administrator determines the winners and losers of the auction. Use Sealed Bid auctions when it is impractical for bidders to prepare counter bids instantaneously. The following characterize Sealed Bid auctions:

- Anonymity of bids amongst bidders
- Long submission deadlines that allow the bidders to gather information, make decisions, and prepare and submit their bids

Dutch

In a Dutch auction, the administrator announces a price and asks if there are any participants willing to conduct a trade at that price. In Open Cry auctions and Sealed Bid auctions, participants submit bid prices. The auction starts with a high bid price that is lowered over time until there are sufficient bidders to clear the inventory.


In all auctions, the interactions are between your store and customers, not between customers.

Unlike in a traditional auction environment that runs auctions sequentially, several WebSphere Commerce auctions can run simultaneously.

Auction styles

An auction style serves as a template for an auction. Instead of specifying all the fields each time an auction is created, create a default auction style which is used to populate some of the fields.

An auction style should include all mandatory fields; then you can create the auction by entering the product details. Enter product details by using the Auction wizard.

Select the **Auctions Styles** option from the  **Merchandise**  **Products** menu to display the Auction Style list.

Auction rules

A set of rules governs each auction. The bidder must review and understand these rules before participating in an auction. Auction rules specify the following information:

- The type of auction, product name, and quantity.
- The reserve price for the auction, if it exists.
- The deposit amount. Winners who refuse to accept the auctioned items forfeit the deposit amount. The database records the deposit amounts when a customer submits a bid; however, Payment Manager does not process the deposits. If you want to process deposits, you must write code to implement the deposit processing.
- The auction start date and time.
- Conditions that govern the auction end such as scheduled end date and time.
- Bid rules for the auction that describe the minimum bid price, quantity, and bid increment. Bid rules apply to Open Cry and Sealed Bid auctions. For more information, see “Defining bid rules” on page 211.
- The pricing mechanisms for the auction.

When more than one product is available in an auction, the auction may have multiple winners. The winning bids may be for different values. Pricing mechanisms take effect when multiple items are available for auction, or the auction quantity is not the same as the minimum bid quantity. WebSphere Commerce auctions support two pricing mechanisms.

Discriminative

Auction winners pay their exact bid amounts.

Non-discriminative

Auction winners pay the price paid by the winner with the lowest winning bid.

Open Cry auctions or Sealed Bid auctions must use either discriminative or non-discriminative pricing.

- Additional comments about the auction. Include your comments in the short or long description fields on the rules page. The information you add is communicated to bidders.

If the auction rules change during an auction, bidders must reread the auction rules before submitting or updating bids. Bids submitted prior to the rule change are not affected and may still win the bidding.

Defining bid rules

To define bid control rules, select the **Bid Rules** option from the

 **Merchandise**  **Products** menu. The Bid Control Rule page displays.

Use the Bid Rule page to view available bid control rules for auctions, such as the rule name, rule description, minimum bid value, and minimum bid quantity. You can create, change and delete bid rules from this page.

Managing auctions for the site



Once an auction has been created, you can view, change, retract, or close it. You can also view submitted bids and withdraw active bids for customers. Auction management also includes discussion forum functions. You can respond to questions from customers, post additional information, and remove individual messages or entire discussion threads.

Select the  **Merchandise**  **Products** menu to display the Auctions page for the store.

The Auctions page shows the following information: auction ID, type, status, products, and quantity of products. You can perform other actions from this list, including the following:



- Create a new auction
- Change an existing auction
- View a summary of an auction
- Retract an auction
- Manage auction discussion forums
- Manage bids
- Close bids
- Find auctions

Creating an auction

Select the **Auctions** option from the  **Merchandise**  **Products** menu to display a list of current auctions. On the Auctions list page, click **New** to launch the Auction wizard.

Use this wizard to create new auctions. Provide the following information: auction type, products for auction, start and end dates, prices, and display template. Optionally, for Open Cry auctions and Sealed Bid auctions, you can include bid control rules. Bid control rules define minimum bid value, and minimum bid quantity and the bid increments. If you want to use bid control rules, the rules must be predefined. For more information, see “Defining bid rules” on page 211.

Finding an auction

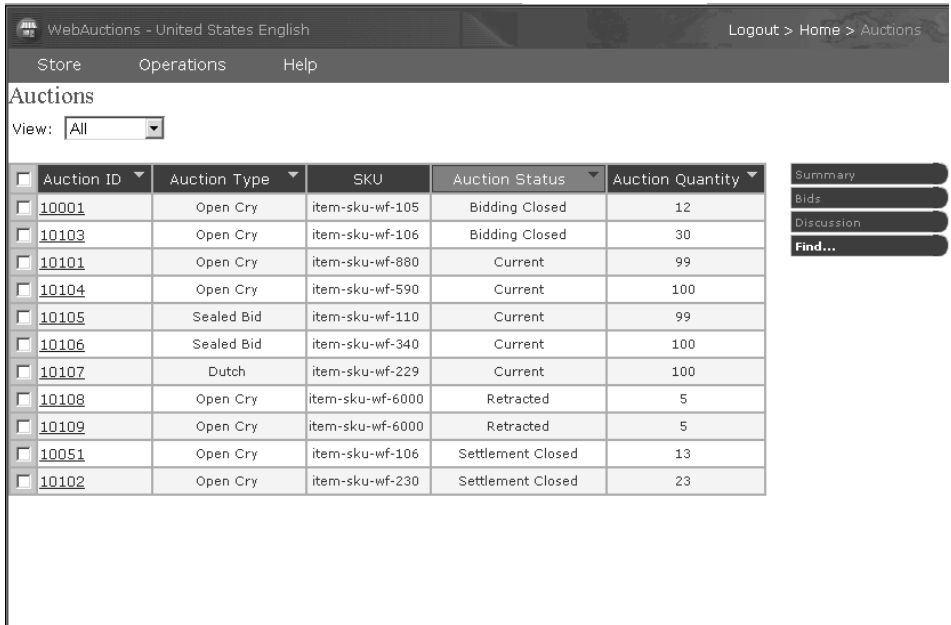
Select the **Find Auctions** option from the  **Merchandise**  **Products** menu to search for an auction based on the auction ID, product SKU, or auction type.

Use the Auctions page to view available auctions. You can also perform other tasks from this list, such as creating, changing, and retracting auctions.

Managing auctions for customers

Typically, Customer Service Representatives manage auctions for customers. To perform auction-related tasks for customers, such as withdrawing bids and managing discussion forums, select the **Auctions** option from the

▶ **B2C** **Operations** or ▶ **B2B** **Sales** menu. The Auctions list displays.



The screenshot shows the 'WebAuctions - United States English' interface. The top navigation bar includes 'Store', 'Operations', and 'Help'. The 'Auctions' section is active, with a 'View: All' dropdown menu. Below the menu is a table of auctions with columns for Auction ID, Auction Type, SKU, Auction Status, and Auction Quantity. To the right of the table are buttons for 'Summary', 'Bids', 'Discussion', and 'Find...'.

Auction ID	Auction Type	SKU	Auction Status	Auction Quantity
10001	Open Cry	item-sku-wf-105	Bidding Closed	12
10103	Open Cry	item-sku-wf-106	Bidding Closed	30
10101	Open Cry	item-sku-wf-880	Current	99
10104	Open Cry	item-sku-wf-590	Current	100
10105	Sealed Bid	item-sku-wf-110	Current	99
10106	Sealed Bid	item-sku-wf-340	Current	100
10107	Dutch	item-sku-wf-229	Current	100
10108	Open Cry	item-sku-wf-6000	Retracted	5
10109	Open Cry	item-sku-wf-6000	Retracted	5
10051	Open Cry	item-sku-wf-106	Settlement Closed	13
10102	Open Cry	item-sku-wf-230	Settlement Closed	23

Use this page to view details about auctions, including the following information:

- Auction ID, which uniquely identifies the auction
- Auction type: Dutch, Open Cry, or Sealed Bid
- Product SKU, which uniquely identifies the product on auction
- Auction status
- Quantity of products in the auction

You can also perform the following tasks from this page:

- Find auctions
- View auctions
- Withdraw auction bids for customers
- Create and manage discussions forums for customers

Chapter 19. Reporting and business intelligence

This chapter describes the reporting and business intelligence capabilities of WebSphere Commerce. In WebSphere Commerce reports that contain details of campaign events and Product Advisor usage are provided. More robust business intelligence reporting capabilities are provided by WebSphere Commerce Analyzer, an optional component of WebSphere Commerce.

To view reports, log on to the WebSphere Commerce Accelerator; then select the **Business Intelligence Reports** option from the **Store** menu. Depending on your role, you may not see all the reports described in this chapter.

WebSphere Commerce reports

The Marketing Event Monitor collects statistics using simple counters in the WebSphere Commerce database that are incremented when any of the triggering events occur. The statistics are compiled for the following:

- Campaign events, which include impressions and clickthroughs.
An impression occurs each time a particular campaign initiative is displayed to a customer. Each initiative results in either an ad or suggestive selling content being displayed. A clickthrough occurs each time a customer clicks the displayed content to find out more information about the subject. In order to record clickthroughs, the Store Developer must associate the ClickInfo command with the dynamic content. The Marketing Event Monitor records campaign initiatives and the displayed e-Marketing spots. This could help to refine your targeted advertisements, or to verify that certain ads are being seen.
- Customer usage of the Product Advisor.
Statistics are kept for each of the three shopping metaphors, and can demonstrate their comparative effectiveness.

The Marketing Event Monitor also compiles a detailed log of the campaign events generated during site usage. Each time that a campaign event takes place, the log is updated with the page requested, the displayed e-Marketing Spots, and the initiatives used to generate the content. This log is captured in the CPGNLOG table in the WebSphere Commerce database. WebSphere Commerce Analyzer generates reports based on the collected data.

Reports are described in the following sections:

- “Inventory reports” on page 141.
- “Product management reports” on page 151.

- “Account management reports” on page 180.
- “Contract management reports” on page 180.

Business intelligence

Businesses collect large quantities of data in day-to-day operations such as data about orders, accounts payable, inventory, and customers.

Being able to consolidate and analyze this data for better business decisions can often lead to competitive advantage. For example, a large retail clothing chain can tailor store inventories to suit local tastes, a bank can determine what services are needed to retain existing customers, and a sales manager can look for trouble spots in geographic territories.

Business intelligence refers to the ability to make better business decisions through intelligent use of your data assets. It is about giving access to the right data, analyzing the data for insights, and using the insights to make better decisions.

The business intelligence solution used in WebSphere Commerce is called WebSphere Commerce Analyzer.

WebSphere Commerce Analyzer

WebSphere Commerce Analyzer provides predefined reports about the marketing and shopping activities in the store. You can use these reports to manage the success of your business. The reports cannot be customized.

WebSphere Commerce Analyzer creates and maintains a datamart containing information that is needed to generate reports about the store. The datamart is created on the WebSphere Commerce Analyzer server, which is installed through the WebSphere Commerce Analyzer installation program. The datamart is an IBM DB2 relational database. It contains information obtained from the WebSphere Commerce database servers. IBM DB2 provides the tools needed for database administration. The installation program also installs the Brio Broadcast Server reporting tool, provided by Brio Technology as part of Brio Enterprise Server 6.2. The Brio Broadcast Server reporting tool generates the business reports.

The business reports provide information about the effectiveness of campaigns as well as information about sales and the customers who use the store. You can use these reports to help make decisions about the marketing strategy and the products sold in the store. You can access the business reports from the WebSphere Commerce Accelerator.

After installation, the report generation process can be scheduled to run on a daily basis. For example, the reports can be run just after midnight or at some other time when there is little activity in the store.

WebSphere Commerce Analyzer provides information about a store and supports multiple languages, locales and currencies. WebSphere Commerce Analyzer reports are generated only in one selected language, locale and currency.

Business reports provide comprehensive information about your site. They include information which has been extracted to a datamart on a remote machine, and analyzed to produce very specific information. These reports are only available if the Site Administrator has installed and configured WebSphere Commerce Analyzer. For installation information, refer to the *WebSphere Commerce Analyzer Installation and Configuration Guide*. In addition, the Site Administrator must enable the UserTrafficEventListener and CampaignRecommendationListener components. For information about how to use WebSphere Commerce Analyzer, refer to *WebSphere Commerce Analyzer Installation and Configuration Guide*.

The following table summarizes the reports on marketing activities. Most reports are available in either table or bar chart format; some reports are only available in table format. Depending on your role, you may not see all the report types shown in this table.

Metric	Dimensions/Information	Description
Impressions displayed	Campaign Initiative e-Marketing Spot Time Top 10 Geography Absolute "impression displayed" counts	This analyzes how often personalized content was shown to the customer.

Metric	Dimensions/Information	Description
Impressions clicked	Campaign Initiative e-Marketing Spot Time Top 10 Geography Absolute “impressions displayed” counts Absolute “impressions clicked” counts Click Ratio	This analyzes how often personalized content was clicked by a customer. This infers that the customer had interest in the recommended content.
Impressions clicked followed by orders	Campaign Initiative e-Marketing Spot Time Top 10 Geography Absolute “impressions displayed” counts Absolute “impressions clicked followed by orders” counts	This analyzes how often personalized content (e.g. Product recommendation) was displayed to a customer, subsequently clicked on by the customer, and led to an order/sale of the product.

Metric	Dimensions/Information	Description
Impressions that led to abandoned products (units abandoned)	Campaign Initiative e-Marketing Spot Time Top 10 Absolute "impression clicked" counts Absolute counts of how of often abandonment occurred	This analyzes how often an impression led to a product being left in the shopcart. This can indicate lost demand.
Product sales - revenue	Time Top/bottom 10	This analyzes product sales revenue.
Product sales - units sold	Time Top/bottom 10	This analyzes product sales volume.
Products abandoned	Time Top 10	This analyzes products that were left in the shopcart. This can indicate lost demand.
Order summary - volume	Time	This analyzes the volume of orders over time.
Sales value and units sold	Geography Time Age Range Demographic Income Range Demographic Gender Demographic Marital Status Demographic Account/Contract (Sales Value)	This analyzes the sales revenue and sales volume over the particular dimensions.

Appendix. Help Information

When you use the IBM WebSphere Commerce family of products to create a store, you use a number of related software products. This appendix describes the types of information included with this family of products and indicates where the information can be found.

WebSphere Commerce Help

Updated publications and online help can be downloaded from the Technical Library page of the WebSphere Commerce Web site, at the following address:

 ibm.com/software/webservers/commerce/wc_pe/lit-tech-general.html

 ibm.com/software/webservers/commerce/wc_be/lit-tech-general.html

Installation and Configuration Information

An Installation Guide is included with WebSphere Commerce. This book describes how to install and configure WebSphere Commerce.

An Installation Guide is also included with Commerce Studio. This book describes how to install and configure Commerce Studio.

Programmer Information

The *IBM WebSphere Commerce Programmer's Guide, Version 5.4* is included with WebSphere Commerce. This book describes concepts and architecture, provides a programmer's model, explains the development lifecycle, and provides examples on how you can customize your e-commerce environment.

Online Help

The online help system for WebSphere Commerce can be accessed from Internet Explorer, Version 5.5, on your Windows machine (it will not function correctly in a Netscape browser), using the following methods:

- From the following address:
`http://host_name/wchelp/`, where *host_name* is the name of your WebSphere Commerce machine.

If WebSphere Commerce help is not installed, refer to the *Installation Guide* for instructions on installing the Commerce Server Documentation component.

-  From the **Start** menu as follows:
Start → **Programs** → **IBM WebSphere Commerce** → **Documentation**

Printable versions of the online help

Portions of the online help for WebSphere Commerce have been packaged into PDF files. These PDF files are available from the Technical Library page.

Commerce Studio Help

IBM WebSphere Commerce Studio, Developer and Professional Developer Editions (also referred to as Commerce Studio) integrate several site development tools into one development environment. As a result, help information is accessed from a variety of different points. This section describes the different types of information to which you can refer when using Commerce Studio.

Online Help

The Commerce Studio online help is merged with the WebSphere Commerce online help. A copy of WebSphere Commerce must be installed on the same machine as Commerce Studio. Refer to “Online Help” on page 221, for information on how to access the WebSphere Commerce online help.

Glossary

A

access beans. Wrappers for enterprise beans that are typically used by client programs. Access beans hide the complexity associated with home and remote interfaces. These beans are generated by tooling in VisualAge(R) for Java(TM). WebSphere(R) Commerce commands use access beans to facilitate database operations.

B2B **access control policy.** A group of constraints and criteria, established by the Site Administrator and the Store Administrator, restricting a user's access only to those resources necessary for carrying out the responsibilities relevant to their assigned role.

access group. A type of member group used to define access control. Commands and views are associated with one or more access groups, allowing members assigned to that role to have access to those views and commands. WebSphere Commerce predefines a set of access groups. The Site Administrator uses the WebSphere Commerce Administration Console to assign access to these groups, and to add new groups, if necessary.

B2B **Account Representative.** The Account Representative role is the primary role responsible for creating contracts for accounts, changing orders for accounts, and monitoring account activity. Account Representatives are part of the sales organization, and as such may be involved in the creation of targeted sales promotions such as discounts and coupons.

B2B **action group.** An explicitly defined group of operations corresponding to Java commands that act on resources.

activate. (1) To initiate a merchandising program, such as a discount offer. (2) To transfer an enterprise bean from secondary storage to memory.

ad copy. The information, images and other media used to support a marketing activity. Also referred to as *sales collateral*.

address book. A collection of shipping and billing addresses owned by a customer. These are useful for a customer who wishes to purchase gifts and ship them to different addresses.

ad hoc inventory receipt. A record of physical inventory that arrived at a specific fulfillment center at a specific time, and was not expected inventory.

applet. An application program, written in the Java programming language, that can be retrieved from a Web server and executed by a Web browser. A reference to an applet appears in the markup for a Web page, in the same way that a reference to a graphics file appears; a browser retrieves an applet in the same way that it retrieves a graphics file. For security reasons, an applet's access rights are limited in two ways: the applet cannot access the file system of the client upon which it is executing, and the applet's communication across the network is limited to the server from which it was downloaded. Contrast with *servlet*.

application. In Java programming, a self-contained, stand-alone Java program that includes a static main method. It does not require an applet viewer. Contrast with *applet*.

application partitioning. In the scheduler, the grouping together of heavily running jobs. This helps to avoid overloading the scheduler's default application pool.

application server. A server program in a distributed network that provides the execution

environment for an application program. For example, the WebSphere Commerce Server provides the execution environment for online stores.

► **B2B** **approvable action.** A command or group of commands invoked by a user that cannot be executed without prior approval from an approver within the organization.

► **B2B** **approval flow.** The series of steps initiated when a user attempts to execute a task involving an approvable action. The process first verifies that the user is authorized to invoke the command. If the user is authorized, the request for command execution is sent to the appropriate approver for acceptance or rejection. Multiple levels of approval are possible.

► **B2B** **approver.** The individual authorized to approve or reject an approvable action.

► **B2B** **approver group.** The designated users within a specific organization to whom an approval request is directed when an approvable action is invoked. Requests are directed to the entire unit, rather than a single individual.

ASCII (American Standard Code for Information Interchange). A standard code for representing characters using binary values. The standard code is used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII character set uses the numbers 0 through 127 to represent all English characters as well as special control characters. Most PC-based systems use an 8-bit extended ASCII code, with an extra 128 characters used to represent special symbols, foreign-language characters, and graphic symbols. UNIX(R) and DOS-based operating systems (except for Windows NT(R)) use ASCII for text files. Windows NT uses the newer Unicode standard. Conversion programs allow different operating systems to change a file from one code to another.

assortment. An ad hoc grouping of products that do not share any concrete relationships. Assortments are typically used to group products for merchandising purposes. Examples include groupings based on holiday themes, such as Easter or Valentine's day.

atomic catalog entry. A non-divisible collection of catalog entries available for purchase. Commonly referred to as a *package*.

ATP inventory.. See *available to promise inventory*.

attribute. A property of an item in an online store such as, a color or size. Items can have several attributes.

auction. A method of sale involving negotiating and dynamically establishing the price and other terms of sale for goods and services, typically to the highest bidder.

available to promise (ATP) inventory. Inventory on hand minus inventory allocated to backorders and reserved inventory.

B

B2B (business-to-business). B2B e-commerce software builds Web sites for the exchange of products, services, or information between businesses. Typical B2B transactions occur between buyers, suppliers, manufacturers, resellers, distributors, and trading partners. Contrast with *B2C*.

B2C (business-to-consumer). B2C e-commerce software builds Web sites for the exchange of products, services, or information between businesses and consumers. Also known as the retail part of e-commerce. Contrast with *B2B*.

back-office business logic. The implementation of business logic, using commands and customized code, allowing a customer to complete an action in the store front. For example, the implementation of business logic that allows a customer to complete an order. Contrast with *store front assets*.

backorder. The status of an ordered product when inventory allocation has determined that the product is not available.

base search space. An implementation of the Product Advisor. This style of implementation uses WebSphere Commerce base database tables to facilitate searching a particular category of products. See also *separate search space*.

batch. A collection of payment transactions, such as captures, credits, capture reversals, and credit reversals, processed as a group. A batch is submitted as a single unit to the Acquirer's financial system. Business guidelines regarding the use of batch processing are developed by credit acquiring institutions. Merchants also establish policies that align with these guidelines.

bean. A definition or instance of a JavaBeans component. See *Java bean*.

beaninfo. (1) A Java class that provides explicit information about the properties, events, and methods of a bean class. (2) In the VisualAge for Java IDE, a page in the class browser that provides bean information.

bean-managed persistence (BMP). In the EJB development environment, persistence that is managed by an entity bean. Contrast with *container-managed persistence (CMP)*.

BMP. See *bean-managed persistence*.

broadcast job. A job that runs on all clones at once. Like any other job, it is handled by the scheduler.

buffer. A portion of storage used to temporarily hold text, markup tags, and other objects.

bundle. A concept that allows Product Managers and Marketing Managers to provide a single-click function for referring to multiple items. More formally, a bundle is a composite catalog entry consisting of at least one SKU. When a bundle is added to an order, it is decomposed into its orderable items, which are then added to the order, and the price is aggregated. A bundle cannot be directly purchased. See also *package*.

business intelligence. The consolidation and analysis of data collected in the day-to-day operation of a business, which is then used as a basis for better business decisions and competitive advantage.

B2B business policy. A set of rules followed by a store or group of stores defining business processes, industry practices, or the scope and characteristics of business offerings.

Buyer. The Buyer is the primary contact with vendors; the Buyer handles negotiations and ordering from vendors, keeps track of inventory, makes purchase order decisions, tracks expected inventory records and receipts, and tracks reasons for returns.

C

cache. A special-purpose buffer storage, smaller and faster than main storage, used to hold a copy of instructions and data obtained from main storage and likely to be needed next by the processor.

calculation code. Associated with order items, catalog entries, or catalog groups to specify how discounts, shipping charges, sales or use taxes, and shipping taxes should be calculated.

calculation rule. Defines how a calculation will be done. Each calculation code contains a set of calculation rules. In general, only a subset of a calculation code's calculation rules are applicable for a particular set of order items. For example, different rules apply when shipping to different regions.

calculation scale. A set of ranges that can be used by a calculation rule. For example, for shipping charges, you may have a set of weight ranges that each correspond to a particular cost. That is, a product that weighs between 0 to 5 kg might cost \$10.00 to ship, while a product weighing 5 to 10 kg might cost \$15.00 to ship.

call center. In WebSphere Commerce, a group of staff who are assigned as users in the Customer Service Representative access group, during

which time they may invoke some functions on behalf of a customer. For example, they can update customer information, including the password; they can also update orders or place a new order. The `forUser` parameter is used to enable call centers.

▶ **400 calling command ID.** A numeric identifier for a command that calls an API function.

campaign. A planned series of operations including advertisements and suggestive selling techniques, that are pursued to achieve a defined set of business objectives. In the WebSphere Commerce Accelerator, campaigns are used to coordinate and aggregate groups of campaign initiatives.

capture. The process by which your Acquirer receives payment from the customer's financial institution and remits the payment to you. A "capture" is the guarantee that the funds are available and that the transfer will take place.

catalog. See *online catalog*.

catalog entry. An object in an online catalog. An entry has a name, description, list price, and other details. The entry can be as simple as a SKU; it may also be a product that is automatically broken down into its component items such as a bundle or package.

catalog group. A collection of one or more catalog entries or catalog groups which create a navigational hierarchy for an online catalog.

category. A group of objects that have similar properties. In WebSphere Commerce, categories are used to organize products or services offered by the store. For example, a clothing store may include categories arranged by lifestyle (casual, formal, outdoor), gender (men, women), or age (infants, children, adults). A category is usually implemented as a catalog group. See also *child category* and *parent category*.

Category Manager. A defined role in WebSphere Commerce that manages the category hierarchy by creating, modifying, and deleting

categories. The category hierarchy organizes products or services offered by the store. The Category Manager also manages products, expected inventory records, vendor information, inventory, and return reasons.

category page. A Web page in an online store that displays product categories. Category pages connect customers to child category pages or to products that belong to the selected category.

category table. A dynamic table that displays category information in a series of rows and columns.

CCF. See *Common Connector Framework*.

certificate authority (CA). An organization that issues certificates. The CA authenticates the certificate owner's identity and the services that the owner is authorized to use, issues new certificates, renews existing certificates, and revokes certificates belonging to users who are no longer authorized to use them.

child category. A category that is subordinate to another category in a hierarchy. See also *parent category*.

clickstream. In Web advertising, the sequence of clicks or pages requested as a visitor explores a Web site.

Clickstream Engine. The LikeMinds Personalization Server component that accesses transaction information and generates recommendations based on users' shopping behavior as they navigate a Web site. WebSphere Commerce generates events based on shopping behavior, including viewing a product detail page and adding items to a shopping cart or wish list. These events are forwarded to the Clickstream Engine.

clickthrough rate. In Web advertising, the number of clicks on an ad on an HTML page as a percentage of the number of times that the ad was downloaded with a page. Contrast with *impression*.

client. A functional unit that receives shared services from a server. For example, a personal

computer requesting HTML documents from a Web server is a client of that server.

clone. An identically configured copy of an object, such as an application server. Clones can be used for workload management purposes, for example, to support horizontal scaling and vertical scaling.

CMP. See *container-managed persistence*.

collaborative filtering. A technology that calculates the similarity between users based on the opinions and ratings of a number of other people. Collaborative filtering uses the behaviors of those customers who most closely resemble the current customer as a functional basis for making predictions and recommendations for the current customer.

command bean. A Java bean that contains the programming logic to handle a particular request. The WebSphere Commerce commands follow the WebSphere command programming model. There are four types of commands: *controller commands*, *task commands*, *data bean commands*, and *view commands*.

commerce server. See *WebSphere Commerce Server*.

commit. To end a unit of work by releasing locks so that changes made by that unit of work become available to other processes.

commitment boundary. A point at which there are no changes to a database file pending within a job.

commitment control. A way of grouping file operations that allows the processing of a group of database changes as one unit or the removal of a group of database changes as one unit.

Common_Connector_Framework. Interface and class definitions that provide a consistent means of interacting with enterprise resources (for example, CICS(R) and Encina(R) transactions) from any Java execution environment.

composite catalog entry. A collection of catalog entries that breaks down to its separate components when ordered. Commonly referred to as a *bundle*.

Composition Services. The component of the WebSphere Commerce messaging system that provides a formatted output for messages using JSP templates.

compound key. In a relational database, a key that consists of two or more attributes in a relation.

compress. To reduce the size of a set of data, such as a file, in order to save space or transmission time.

configurator. Software that provides a dynamic rules-based kit (bundling) capability to determine a group of items that may be sold together. The configurator may also supply a price for the configuration. This grouping is based on pre-defined rules in addition to user interaction with the configurator.

container-managed persistence (CMP). In the EJB development environment, persistence that is delegated to an enterprise bean's container, as opposed to being managed by the bean itself. Contrast with *bean-managed persistence (BMP)*.

contract. In WebSphere Commerce, an agreement representing the terms and conditions that apply to a transaction; a logical grouping of trading position containers available in a store. For example, discounts and shipping charges for an order item may be calculated differently depending on the associated contract.

controller command. A command that interacts with a Web controller directly. On completion, a controller command returns the name of a view task to be executed. The Web controller determines the correct implementation class of the view command and then invokes it.

counter value. A displayed monetary amount converted from the shopping currency into a different currency.

cross-sell. A product recommendation that is related or complementary to the currently displayed or selected product. See also *up-sell*.


CSR. See *Customer Service Representative*.

customer. A user of an online store.

customer group. A type of member group consisting of a collection of customers who have been grouped by a Site Administrator because they share similar shopping patterns or characteristics. Typically, customer groups are based on information that customers provide during registration. Customer groups may be entitled to discounts or other incentives, or be shown different product and category pages than other customers. A customer can belong to one or more customer groups per store.

customer profile. All information about the customer that is held by the Seller. This can include basic demographics, order history, or operational data such as the user ID and shipping address. Customer profiles are dynamic; Marketing Managers define the criteria for including a customer in a customer profile. Customer profiles can be the targets of campaigns.

Customer Service Representative (CSR). A defined role in WebSphere Commerce that manages customer inquiries. The Customer Service Representative also processes customer registration, orders, and returns. Some businesses may have a Customer Service Supervisor, who has authority to complete actions that cannot be accessed by a Customer Service Representative, such as approving system-denied returns records.

 The Customer Service Representative also works with auctions, such as withdrawing bids and managing discussion forums.

Customer Service Supervisor. A defined role in WebSphere Commerce that has access to all customer service tasks. The Customer Service Supervisor manages customer inquiries (such as customer registration, orders, returns, and auctions) and has authority to complete tasks that cannot be accessed by a Customer Service Representative, such as approving system-denied

returns records, and contacting customers regarding payment exceptions (such as credit card authorization failures).

D

data bean. A type of Java bean that is placed into a JSP file. The data bean represents data that is accessible by the Store Developer. Data beans can have associated commands that are invoked when the JSP instantiates the data bean at run time.

data bean command. A command associated with a data bean, and called by a JSP file. This command retrieves data for the data bean from a persistent object, such as an entity bean.

data bean manager. A module that invokes a data bean command to fetch data from corresponding entity beans.

datamart. A subset of a data warehouse that contains data tailored for the specific needs of a department or team. A datamart can be a subset of a warehouse for your entire organization.

delete cascade. A DB2(R) process that causes an action to be taken on rows in a database when another row is deleted.

delete rule. A rule associated with a referential constraint that either restricts the deletion of a parent row or specifies the effect of such a deletion on the dependent rows.

demilitarized zone (DMZ). In network security, a network that is isolated from, and serves as a neutral zone between, a trusted network (for example, a private intranet) and an untrusted network (for example, the Internet). One or more secure gateways usually control access to the DMZ from the trusted or the untrusted network.

deployment. (1) The act of packaging enterprise beans into a JAR file for distribution to a container on an enterprise bean server. (2) The process of making WebSphere Commerce application code available for use. This process includes packaging customized commands, data

beans, and enterprise beans into JAR files. The JAR files must then be installed and configured within a container.

deployment descriptor. A serialized object that contains run-time settings for an enterprise bean and passes information to the EJB container about how to manage and control the enterprise bean.

discount. A price incentive offered to customers to promote a purchase.

display format. A set of display preferences that a customer at a multicultural store can select, depending on their language and locale. For example, a multicultural commerce site may have different formats for United States English and Japanese. These display formats would differ in the language of the text as well as such features as currency, units of measure, and data formats.

display page. (1) A page in a catalog that displays category and product information. (2) A page in an online store that is generated in response to a command.

disposition. Disposing of or transferring inventory that has been returned to the Seller's fulfillment center by a customer.

DMZ. See *demilitarized zone*.

document type definition (DTD) . The rules that specify the structure for a particular class of SGML or XML documents. The DTD defines the structure with elements, attributes, and notations, and it establishes constraints for how each element, attribute, and notation may be used within the particular class of documents. A DTD is analogous to a database schema in that the DTD completely describes the structure for a particular markup language.

domain name. In the Internet communications protocol, the name of a host system in a network. A domain name consists of a sequence of subnames separated by a delimiter character.

downstream. In the direction of data flow or towards the destination of transmission; generally from an information server toward an end user.

DTD. See *document type definition*.

dual display. The simultaneous display of a monetary amount in the shopping currency, and one or more counter value amounts in a different currency.

dynamic. Pertaining to an operation that occurs at the time it is needed rather than at a predetermined or fixed time. Contrast with *static*.

dynamic kit. A group of products that are ordered as a unit. The information about the products contained in a dynamic kit is controlled by an external configurator and supplied at order entry time. The individual components of a dynamic kit cannot be modified in the order, but they can be reconfigured by the configurator. The entire configuration must be fulfilled together. See also *bundle* and *composite catalog entry*.

E

EDI. See *electronic data interchange*.

EJB. See *Enterprise JavaBeans*.

EJB container. A run-time environment that manages one or more enterprise beans. The EJB container manages the life cycles of enterprise bean objects, coordinates distributed transactions, and implements object security. Generally, each EJB container is provided by an EJB server and contains a set of enterprise beans that run on the server.

electronic data interchange (EDI). The exchange of structured electronic data between computer systems according to predefined message standards.

e-Marketing Spot. In WebSphere Commerce, data on a Web page that typically results from a marketing activity such as a campaign.

encryption. The conversion of data into a form that cannot be easily understood so as to prevent unauthorized access, especially during transmission.

enterprise bean. A nonvisual object that conforms to the Enterprise JavaBeans architecture. Enterprise beans are deployed in an EJB container and run on an EJB server. There are two types of enterprise beans: session beans and entity beans.

Enterprise JavaBeans. A distributed component architecture defined by Sun Microsystems, Inc.

entity. In object-oriented design, an item that can be treated as a unit and, often, as a member of a particular category or type. An entity can be a concrete thing or an abstract idea.

entity bean. An enterprise bean that contains persistent data, and that can be saved in various persistent data stores. Each entity bean carries its own identity. There are two types of entity beans: container-managed persistence (CMP) entity beans and bean-managed persistence (BMP) entity beans. Contrast with *session bean*.

exception condition. An abnormal condition that may arise during execution of a program.

expected inventory. Inventory that has been ordered from a vendor and that is expected to be received by the Seller. This information is contained in an expected inventory record.

expected inventory record. Lists the inventory that has been ordered from a vendor and that is expected to be received by the Seller. An expected inventory record may contain information for multiple items, fulfillment centers, and dates. See also *inventory receipt*.

Extensible Markup Language. See *XML*.

F

factory. A bean that dynamically creates instances of beans. The command factory (used

to create command objects) is an example of the use of the factory design pattern in WebSphere Commerce.

failover. In high-availability cluster multiprocessing (HACMP), an active node's acquisition of resources that were previously owned by another cluster node in order to maintain the availability of those resources.

feature attribute. Specifies how the information about products is to be displayed to customers. For example, features with numerical descriptions can be displayed to a customer in either ascending or descending order.

foreign key. In a relational database, a key in one table that references the primary key in another table.

framework. A set of object classes that provide a collection of related functions for a user or piece of software.

fulfillment center. Serves as a storage warehouse where products are packaged and shipped to customers. Fulfillment centers, stores, and shipping carriers are treated as separate entities.

G

gateway. A functional unit that connects a local data network to another network.

geo-code. In WebSphere Commerce, an application-specific code representing a geographical region.

H

horizontal scalability. The ability to distribute Java virtual machine processes across multiple physical machines.

host. A computer that provides an access point to a network. A host can be a client, a server, or both a client and server simultaneously.

host name. In the Internet suite of protocols, the name given to a computer. Sometimes, *host*

name is used to mean the fully qualified domain name; other times, it is used to mean the most specific subname of a fully qualified domain name. For example, if mycomputer.city.company.com is the fully qualified domain name, either of the following may be considered the host name:

- mycomputer.city.company.com
- mycomputer

HTML. See *Hypertext Markup Language*.

HTTP. See *Hypertext Transfer Protocol*.

HTTP Web controller. See *Web controller*.

Hypertext Markup Language (HTML). A markup language that conforms to the SGML standard and was designed primarily to support the online display of textual and graphical information that includes hypertext links. HTML is used to create electronic store pages for the Web.

Hypertext Transfer Protocol (HTTP). In the Internet suite of protocols, the protocol that is used to transfer and display hypertext documents on the Web.

I

IDE. See *Integrated Development Environment*.

ID resolution. The generation of reference numbers prior to loading XML elements into a database. ID resolution is used to uniquely identify data within the database system.

impression. In Web advertising, an ad's appearance on an accessed page. For example, if a Web page displays three ads, each ad would have one impression. Online publishers often sell ad space according to impressions. Contrast with *clickthrough rate*.

inbound message. A message that WebSphere Commerce receives from an external or back-end application. The Transport adapter supports five inbound messages in XML format: Order Status Update, Product Inventory Update, Product Price Update, Customer Update, and Customer New.

Inbound messages are used to integrate WebSphere Commerce with other systems.

input method. A component that converts key strokes into text input that could not otherwise be typed directly, such as characters that are not native to your operating system. For example, the input method component can be used to type Japanese text on an English keyboard.

instance. See *WebSphere Commerce instance* and *Web server instance*.

Integrated Development Environment (IDE). A set of integrated tools for developing software. In VisualAge for Java, it is the set of windows that provide the user with access to development tools. The primary windows are the Workbench, Log, Console, Debugger, and Repository Explorer.

interest item. An item that a shopper has indicated for recurring or potential purchase. An interest item is stored with quantity information, but not price information. An interest item list consists of one or more interest items.

inventory allocation. Designating inventory for an order against inventory that actually exists in an a fulfillment center. Allocation is not the same as reservation, which is a more stringent policy, and does not typically apply to orders. Contrast with *inventory allocation against expected inventory*.

inventory allocation against expected inventory. Designating inventory for an order against inventory that is expected to be received at a fulfillment center. This information is typically found in an expected inventory record. Contrast with *inventory allocation*.

inventory on hand. Inventory that is physically available to fulfill orders.

inventory receipt. The receipt of products at a fulfillment center. Products may have been expected and recorded in expected inventory records, or received ad hoc. Ad hoc inventory receipts are not recorded in expected inventory records.

inventory sharing arrangement. An arrangement whereby a store makes its inventory receipts available to another store for inventory allocation.

IP address. The unique 32-bit address that specifies the location of each device or workstation in the Internet. For example, 9.41.41.103 is an IP address.

ISO 4217. A three-letter format standard adopted by the International Organization for Standardization, used to indicate the currency in which a monetary amount is expressed. For example, the United States dollar is expressed as USD.

item. An entity that has a part number or SKU. All items that are related to a particular product exhibit the same set of attributes and are distinguished by their attribute values. An item does not need to be associated with a product. If an item has no distinct attributes, it does not have an associated product.

J

JAR file format. JAR (Java Archive) is a platform-independent file format that aggregates many files into one. Multiple Java applets and their components (.class files, images, sounds, and other resource files) can be bundled in a JAR file and subsequently downloaded to a browser in a single HTTP transaction.

Java(TM). An object-oriented programming language for portable interpretive code that supports interaction among remote objects. Java was developed and specified by Sun Microsystems, Inc.

JavaBeans. As defined by Sun Microsystems, a portable, platform-independent, reusable component model.

Java bean. A reusable software component that follows the JavaBeans specification from Sun Microsystems, Inc. Beans have standard ways of implementing their properties, methods, and events so they can be examined and manipulated programmatically. WebSphere Commerce and

Commerce Studio include WebSphere Commerce specific beans that you can use to add dynamic information to store pages created with JavaServer Pages technology.

Java Database Connectivity (JDBC). A specification for enabling Java programs to access databases using SQL queries.

Java Message Service (JMS). An API from Sun Microsystems, Inc. that supports the formal communication known as messaging between computers in a network. Using the JMS interface, a programmer can invoke enterprise messaging systems such as MQSeries(R).

JavaScript. A Web scripting language that resembles Java.

JavaServer Pages (JSP). A server-side scripting technology that enables you to embed Java code within static Web pages (HTML files) and to execute the Java code when the page is served. As a result, you can use JSP technology to create product data pages, which typically contain dynamic content, such as products, product prices, and attributes.

JDBC. See *Java Database Connectivity*.

job. A WebSphere Commerce command that is scheduled to run at a specified time or interval.

JSP. See *JavaServer Pages*.

JSP file. A file named with a .jsp extension that a developer authors using standard HTML tags, core JSP tags, custom JSP tags, and scripting language statements in order to display dynamic pages in a Web browser. [Sun Microsystems, Inc.]

JSP page. A text-based document using fixed template data and JSP elements that describes how to process a request to create a response. [Sun Microsystems, Inc.]

jurisdiction. A geographical region for tax or shipping purposes representing a country or region, province or territory, zip code range, or an application-specific geo-code.

L

LDAP. See *Lightweight Directory Access Protocol*.

Lightweight Directory Access Protocol (LDAP).

An open protocol that uses TCP/IP to provide access to information directories.

LikeMinds Personalization Server. The software responsible for implementing collaborative filtering recommendations.

list price. A price that is part of the catalog entry. Since a catalog may be produced by a manufacturer, who would supply a list price as part of the description of each entry, the list price is not necessarily the price at which an entry is sold. The price at which items are sold is determined by a store and is known as the offer price. Thus, displaying the list price is, in general, not always appropriate. If a store creates its own catalog entries, then it may display either the list price or the offer price in its catalog.

load balancing. A method of dividing the amount of work that a computer has to do between two or more computers so that all online users get served faster. If one server starts to get swamped, requests are forwarded to another server with more capacity. Typically, load balancing is the main reason for computer server clustering. Since load balancing requires multiple servers, it is usually combined with failover and backup service.

B2B **Logistics Manager.** A defined role in WebSphere Commerce that manages fulfillment. The Logistics Manager has access to all operational tasks, including the duties of the Pick Packer, Receiver, and Returns Administrator.

LUHN formula. An industry standard used by many credit card companies as a rudimentary prevention of credit card fraud.

M

manifest. A shipment confirmation that may contain tracking identification information.

marketing event. In WebSphere Commerce, any event within the system that is considered to be significant for the purposes of marketing. Most marketing events are directly driven by customer behavior. Examples include catalog browsing, navigation, and shopping cart activity.

Marketing Manager. A defined role in WebSphere Commerce that monitors, analyzes, and understands customer behavior. The Marketing Manager also creates and modifies customer profiles for targeted selling and creates and manages campaigns.

B2B **marketplace.** A business-to-business electronic commerce Web site in which those organizations granted access to the site are presented with a unified view of the products and services being traded on that site. They are also provided with a variety of trading mechanisms to facilitate trade among themselves.

master catalog. The main catalog containing all products, SKUs, descriptions, and standard pricing for each product. Each product belongs to a single category. See also *online catalog*.

member. A person, group, or organization known to the system. A member can be a user, an organization, an organization unit, or a member group. A member may act as a customer or an administrator, or may own entities.

B2B A member must first become a member of the marketplace before becoming a user.

member group. Member groups implement role-based control in WebSphere Commerce. The type of member group indicates its intended usage. A customer group is for general use, while an access group is for access control purposes.

merchandising association. An association between two catalog items for the purpose of a sales activity. For example, a camera may have a "requires" merchandising association with a set of batteries, and a particular shirt may have a "goes with" merchandising association with a particular pair of pants.

merchandising manager. The merchandising manager traces customer purchases, suggests discounts, and determines the best way to display, price, and sell products in the online store. The merchandising manager is equivalent to *Product Manager*.

merchant. Supervises the overall store objectives and management, in addition to tracking the store sales. The merchant is equivalent to *Seller*.

Merchant Initiated SET. A SET Secure Electronic Transaction LLC extension for SET Secure Electronic Transaction(TM) messages. The Merchant Initiated SET extension permits a merchant to use SET(TM) messages for authorization and capture of orders that were placed by the cardholder using a transmission method other than SET.

MQSeries(R) classes for Java Message Service. A set of Java classes that implement Java Message Service (JMS) interfaces by Sun Microsystems, Inc. to enable JMS programs to access MQSeries systems.

N

node. A connection point in a network; either a redistribution point or an end point for data transmissions. In general, a node has programmed or engineered capability to recognize and process or forward transmissions to other nodes.

non-registered customer. A customer who is not registered with a store. Non-registered customers are created when a customer adds something to the shopping cart, but has not yet registered.

O

object. (1) An item that a user can manipulate as a single unit to perform a task. An object can appear as text, an icon, or both. (2) In object-oriented design or programming, objects are grouped into classes that share common data definitions and member functions. Each object in the class is said to be an instance of the class.

offer. A price for a product, in one or more currencies, along with a set of conditions such as an effective time range or an acceptable quantity range, which must be satisfied in order to use the price. Also known as a *trading position*. See also *trading position container*.

offer price. A price at which items are offered by a store. The offer price is the final price paid, before taxes, discounts, and shipping. Offer prices can be qualified by quantity ordered (that is, you can have a different price per quantity), time frame, member groups, or contract. When items are actually placed into an interest item list or into an order, the price shown is the offer price. See also *list price*.

online catalog. General term for a collection of catalog groups or catalog entries available for display and purchase at an online store.

online store. (1) A store that uses Internet technologies to sell or exchange goods or services. (2) A set of HTML and JavaServer Pages files, as well as tax, shipping, payment, catalog and other database assets. In WebSphere Commerce, these files and database assets are contained in a store archive. WebSphere Commerce provides sample stores and reference stores to be used by customers.

▶ AIX ▶ Solaris **Open Database**

Connectivity (ODBC). A standard application programming interface (API) for accessing data in both relational and nonrelational database management systems. Using this API, database applications can access data stored in database management systems on a variety of computers even if each database management system uses a different data storage format and programming interface. Contrast with *Java Database Connectivity*.

▶ AIX ▶ Solaris **Open Database**

Connectivity (ODBC) driver. Each database that supports ODBC has its own ODBC drivers. A driver provides a set of standard application programming interfaces to perform a variety of database functions such as connecting to the

database, performing dynamic SQL functions, and committing or rolling back database transactions.

B2C **Operations Manager.** A defined role in WebSphere Commerce that manages order processing, ensuring that orders are properly fulfilled, payment is received, and orders are shipped. The Operations Manager can search for customer orders, view details, manage order information, and create and edit returns.

B2B See *Sales Manager*.

order. (1) One or more items or packages, or a combination thereof, selected for purchase. An order contains quantities, prices, shipping information, and tax and shipping charges, which are compiled and displayed to customers after they initiate the ordering process. In WebSphere Commerce, an order can be in one of the following order states: new, pending, shipped, completed, or canceled. (2) One or more products, their prices, and the quantity specified, that a customer has selected to purchase or has purchased. A Customer Service Representative can also place an order on behalf of a customer. In addition to products, a customer order includes a billing address; shipping address (not applicable to downloadable purchases, such as software); shipping method, carrier, and service; payment information; tax and shipping charges; and any comments or price adjustments stipulated by the person placing the order.

B2C An Operations Manager ensures that orders are properly fulfilled, payment is received, and orders are shipped. **B2B** A Sales Manager ensures that orders are properly fulfilled, payment is received, and orders are shipped.

B2B **organization administrator.** In WebSphere Commerce, the representative of a member organization who establishes organizational approval flows, and assigns roles to the users within the organization.

outbound message. A message generated by WebSphere Commerce that is sent to a back-end system. The WebSphere Commerce Transport

adapter supports one outbound message, called Order Create. This message contains order information copied from the WebSphere Commerce Server to back-end systems, where further order fulfillment processes take place. Outbound messages are used to integrate WebSphere Commerce with other systems.

output queue. A generalized mechanism to separate a set of products that require special treatment in the fulfillment process. An output queue may direct information about ordered products to a printer or a file. For example, monogramming would require special attention; sending products to be monogrammed to the same output queue would allow for this.

owner. (1) A member who owns an entity. (2) One who has access and permission to operate on an entity.

P

package. (1) A collection of catalog entries that has a SKU and may be ordered as a single item. See also *bundle*. (2) A shipping unit that may be tracked by a shipping carrier.

package item. An item that is sold as part of a package.

packing slip. A printed document containing a list of all the products in a given release. Typically, this document also contains the ship-to address, shipping carrier information, and sometimes pricing information. The packing slip is used by packers to package the products in a release for shipping. It may then be included in the package itself so that the customer can verify that the correct products were sent.

parametric search. A search of the online catalog in which the searcher specifies attributes or values as criteria.

parent category. A category that contains other categories in a hierarchy. See also *child category*.

persistence. A characteristic of data that is maintained across session boundaries, usually in nonvolatile storage such as a database system or

a directory. A bean persists by having its properties, fields, and state information saved to and restored from storage, rather than ceasing to exist when the application that created it is not running.

personalization. (1) The use of customer knowledge to present a customized shopping experience. (2) Creating for a given user a set of associated information that can be used to customize resources for that person.

personalization engine. The LikeMinds Personalization Server component that identifies which algorithm is used to generate customer recommendations. The LikeMinds Personalization Server supports five different engines: Clickstream, Purchase, Item Affinity, Preference, and Product Matching. WebSphere Commerce interacts with the Clickstream Engine.

B2B **personalized attributes.** In the RFQ trading mechanism, a list of attributes created by a selling organization that a buyer must use when sending an RFQ to that organization. In addition to the predefined attributes provided by the Seller, buyers may specify unique attributes in designated attribute fields.

PGP. See *Pretty Good Privacy*.

pick batch. A group of releases that are managed as a unit in a fulfillment center.

Pick Packer. A defined role in WebSphere Commerce that picks products from fulfillment centers and packs the products for shipping to customers. The Pick Packer also manages pick tickets and packing slips which are used to confirm shipment of products during order fulfillment.

pick ticket. A printed document containing a list of all the products required to fulfill the releases in a given pick batch. This document is used by pickers to gather the products that must be packaged and shipped for all of the releases included in the pick batch.

B2B **post-approve.** The execution of the post-approve command, if any, when an

approvable action is approved. For example, the post-approve command might transmit a special notification process. See also *pre-approve* and *post-reject*.

B2B **post-reject.** The execution of the post-reject command, if any, when an approvable action is rejected. For example, the post-reject command might check for the size of the order and notify a manager if it above a certain amount. See also *post-approve* and *pre-approve*.

B2B **pre-approve.** The execution of a command prior to the approval of the approvable action which initiated the approval request. For example, prior to the approval of an order, the command checking inventory is executed to ensure that the product is in stock. See also *post-approve* and *post-reject*.

preferred currency. The currency indicated by a customer as the one in which he or she would prefer to see prices. The preferred currency is indicated in the customer profile. See also *shopping currency* and *supported currency*.

preferred language. The language indicated by a customer as being the one in which he or she would like to conduct transactions. The preferred language may be indicated either in the customer profile or by use of the langId parameter, which is available from the URL-based controller commands. See also *shopping language*.

Pretty Good Privacy (PGP). An electronic transfer protocol that allows for the private exchange of files or mail using public key encryption.

primary key . In a relational database, a key that uniquely identifies one row of a database table.

product. (1) An entity that can be viewed as a group of SKU items that share attributes. All SKU items that are related to a particular product exhibit the same set of attributes and are distinguished by their attribute values. (2) For WebSphere Commerce Accelerator users, the orderable item is called a *product*. Although products and SKU items are differentiated for

low level reasons (such as in the WebSphere Commerce database schema), the WebSphere Commerce Accelerator does not make this distinction.

Product Manager. A defined role in WebSphere Commerce that is responsible for determining the best way to display, price, and sell products in the online store. The Product Manager traces customer purchases and suggests discounts. The Product Manager also determines suggestive selling techniques, and creates and manages auctions and bid controls. The Product Manager role is equivalent to a *merchandising manager*.

product page. A Web page that displays detailed information about a product in an online store.

product recommendation. A sales and marketing technique in which catalog inventory is suggested to customers based on their profile or on independent criteria. See *cross-sell* and *up-sell*.

production server. A WebSphere Commerce Server that is live for business.

project. A unit of organization of files and assets in WebSphere Studio. For example, you create a project in WebSphere Studio in which you manage all of the Web assets for your store.

publish. The act of transferring files to a location on the WebSphere Commerce Server. There are three contexts. (1) Using Store Services, you can publish the store archive to a WebSphere Commerce Server, thus creating an operational store. The store archive must be published to a WebSphere Commerce Server before you can view an operational store. (2) Using WebSphere Studio, you can publish Web assets to a store archive or to an operational store that resides locally on your workstation, on a shared file system, or on a remote system that you access using FTP.

Q

▶ 400 **QNETCOMM.** (1) The name of the WebSphere Commerce product library. (2) A subsystem space for WebSphere Commerce jobs. (3) The name of the default Web server instance; this Web server instance is used for running multiple WebSphere Commerce instances.

R

Receiver. A defined role in WebSphere Commerce that receives inventory at the fulfillment center, tracks expected inventory records and ad hoc receipts for ordered products, and receives returned products as a result of customer returns.

redirection URL. A URL used in a URL command to indicate the page that should be sent to the customer upon completion of the command.

reference store. An online store which contains fully functional code for selected features of an online store, for example, auctions. Reference stores are designed to be used by store developers as code samples of the highlighted features.

referential integrity. (1) The state of a database in which all values of all foreign keys are valid. (2) The condition that exists when all intended references from data in one column of a table to data in another column of the same or a different table are valid. Maintaining referential integrity requires that DB2 UDB for z/OS enforce referential constraints on all LOAD, RECOVER, INSERT, UPDATE, and DELETE operations.

referrals. Records that show the number of times a third-party business or Web site has referred customers to the Web site. Referrals can be recognized where the Seller and the third-party measure the number of referrals for recognition purposes. They can also be unrecognized where the Seller measures referrals for their own purposes. Referrals can be measured through various techniques including

clickstream analysis, clickthrough rates, affiliate marketing services, and surveys.

registered customer. A customer who is registered with a store. To register, a customer provides personal information to the WebSphere Commerce system, such as an e-mail address.

release. A set of products in a given order that have the same ship-to address, fulfillment center, and shipping carrier. Products in a release may be shipped in multiple packages. For example, a release could contain four computer monitors. It would not be practical to ship them all in one large box, but they are still considered a single release. Products that would otherwise be part of a single release may be released separately if the Seller's policy dictates.

report context. The basis for a displayed report. The context changes depending on which function you are using in the WebSphere Commerce Accelerator. Available report contexts include campaigns, initiatives, and a combined context.

▶ **B2B request for quote (RFQ).** The trading mechanism used when a buyer solicits quotes for a specific set of goods or services. It can be used if a buyer does not find a particular item in the catalog, finds an item without a price, or wants to establish a long-term supply arrangement for a fixed-price item.

reserved inventory. Inventory that has been designated for a particular purpose, and is not available to allocate to orders.

resource bundle. Contains the text for the store pages. If the store supports more than one language, the resource bundle will contain multiple "bundles," that is one bundle per language. The bundle files are created and accessed according to the Java PropertyResourceBundle API.

▶ **B2B resource group.** A group of resources that can include business objects such as contracts or a set of related commands. In access control policies, resource groups specify the resources to which the policy authorizes access.

return. One or more products, their prices, and the quantity specified, that a customer has selected for a refund from the store in which the product was originally purchased. The refund can be in the form of a credit, refund, or replacement product. Depending on your business, a return does not always require the customer to physically return the unwanted product. For example, a refund for a magazine subscription would not require a physical return.

return merchandise authorization (RMA). Authorization from the Seller for a customer to return products ordered from a store and receive a credit, refund, or replacement product. At the Seller's discretion, a product may not need to be returned in order to receive a credit, refund, or replacement product.

Returns Administrator. A defined role in WebSphere Commerce that manages the disposition of returned products.

▶ **B2B RFQ.** See *request for quote*.

▶ **B2B RFQ response.** When using the RFQ trading mechanism, the reply a Seller sends to a buyer who has sent them an RFQ. The RFQ response indicates the terms and conditions under which the Seller will sell the products or services to that buyer.

RMA. See *return merchandise authorization*.

role. Defines what access levels a given user has and the specific resources they can modify at those levels. The user may be limited in how they can access information if they do not have the proper role. Multiple roles are permissible.

roll back. To remove changes that were made to database files under commitment control since the last commitment boundary. To return to a previous stable condition.

rule. A statement that associates a set of actions with a set of test conditions. The basic form of a rule is: if condition, then action. Rules are used extensively to implement personalization.

rule project. Contains information that your site requires to interact with the Blaze Advisor Rule Server.

rule service. An interface used to interact with the Blaze Advisor Rule Server. A rule service has defined input and output methods to facilitate communication between the two applications.

run-time environment. (1) An execution environment. (2) In WebSphere Commerce, an active Web site conducting business.

S

B2B **Sales Manager.** A defined role in WebSphere Commerce that manages order processing, ensuring that orders are properly fulfilled, payment is received, and orders are shipped. The Sales Manager can search for customer orders, view details, manage order information, and create and edit returns.

B2C See *Operations Manager*.

sample store. A fully functional online store, provided in store archive format with WebSphere Commerce. Sample stores are designed to be used as a base on which you create your online store.

sample store archive. A store archive that is meant to be copied and used as a base upon which to create new stores. Sample store archives can be copied and published multiple times; they do not contain generated primary keys that are specific to a particular instance of the database. Instead, they use internal aliases which are resolved by the IDResolver at the time of publish. The sample stores provided with WebSphere Commerce are sample store archives.

SAR file format . In WebSphere Commerce, SAR (store archive) is a platform-independent file format that aggregates many files into one. See *store archive*.

scalable. Pertaining to the capability of a system to adapt readily to a greater or lesser intensity of use, volume, or demand. For example, a scalable

system can efficiently adapt to work with larger or smaller networks performing tasks of varying complexity.

scheduler. A multithread, multiprocess background server designed to handle the scheduling and launching of jobs, based on a simple timing scheme.

schema. The set of statements, expressed in a data definition language, that completely describe the structure of a database. In a relational database, the schema defines the tables, the fields in each table, and the relationships between fields and tables.

Secure Hypertext Transfer Protocol (S-HTTP). A security-enhanced variation of HTTP. S-HTTP allows servers and clients to authenticate each other and to define the kind of security used in transmissions. S-HTTP is an alternative to another well-known security protocol, Secure Sockets Layer (SSL). See also *secure server*.

secure server. A server that encrypts files it is sending and decrypts files it has received to facilitate secure communication with a client.

Secure Sockets Layer (SSL). A security protocol that allows the client to authenticate the server and all data and requests to be encrypted. The URL of a secure server protected by SSL begins with HTTPS (rather than HTTP). See also *secure server*.

security. Solution used by a computer system to insure that internal resources are protected from unintended or deliberately malicious reading, modification, or deletion.

Seller. (1) A defined role in WebSphere Commerce that has access to all WebSphere Commerce Accelerator capabilities. (2) The role that supervises the overall store objectives and management, in addition to tracking the store sales. The Seller role is equivalent to a *merchant*.

separate search space. An implementation of the Product Advisor. For this style of implementation, you must create additional

database tables containing metadata to facilitate searching a particular category of products. See also *base search space*.

server. (1) A functional unit that provides shared services to one or more clients over a network. (2) A computer or program that responds to commands from a client. Examples include a file server, a print server, and a mail server. See also *WebSphere Commerce Server* and *Web server*.

servlet. An application program, written in the Java programming language, that is executed on a Web server. A reference to a servlet appears in the markup for a Web page, in the same way that a reference to a graphics file appears. The Web server executes the servlet and sends the results of the execution (if there are any) to the Web browser. Contrast with *applet*.

servlet engine. The function of the Web application server that manages servlets. It manages the creation and deletion of servlets, dispatches the appropriate servlet for each URL it receives, and specifies which servlets should be automatically loaded into memory at start time and which servlets should be loaded upon initial request.

session bean. A relatively short-lived enterprise bean. There are two types of session beans: *stateful session beans* and *stateless session beans*. Contrast with *entity bean*.

session ID. A unique identifier that is assigned when a customer accesses WebSphere Commerce. For a non-registered customer, the session ID is assigned by the system. For a registered customer, the session ID is the login user ID.

SET Secure Electronic Transaction(TM). An industry standard for secure credit card and debit card payments over open networks such as the Internet. The SET(TM) protocol ensures confidentiality of information, integrity of all transmitted data, authentication of the cardholder and the merchant, and interoperability.

shipping carrier. A company that provides shipping services from a fulfillment center to a customer.

shipping category. Defines shipping specifications, and is typically determined by a range in weight, size, or amount. For example, you may have a shipping category for standard size products and a category for oversize products. These shipping categories will have different shipping rates. WebSphere Commerce defines two default shipping categories: cost per item and cost per order. These two categories cannot be changed or deleted.

shipping provider. The combination of a shipping carrier and a type of service offered by that carrier. For example, a shipping provider may be XYZ Courier, overnight service.

shopper. See *customer*.

shopping cart. A pending order. See also *interest item*.

shopping currency. The currency that is used by a store in its transactions with a particular customer. See also *preferred currency* and *supported currency*.

shopping language. The language that is used when displaying pages to a particular customer. If the customer's preferred language is supported by the store or site, then the preferred language is used as the shopping language. Otherwise, the shopping language is the default language for the store or site. See also *preferred language*.

S-HTTP. See *Secure Hypertext Transfer Protocol*.

Simple Mail Transfer Protocol (SMTP). In the Internet suite of protocols, an application protocol for transferring mail among users in the Internet environment. SMTP specifies the mail exchange sequences and message format. It assumes that the Transmission Control Protocol (TCP) is the underlying protocol.

Site Administrator. A defined role in WebSphere Commerce that installs, configures, and maintains WebSphere Commerce and the

associated software and hardware. The Site Administrator responds to system warnings, alerts, and errors, and diagnoses and resolves system problems. This role typically controls access and authorization, manages the Web site, monitors performance, and manages load-balancing tasks.

SKU (stock keeping unit). An alphanumeric identifier for each item of merchandise, or catalog entry. The smallest unit available for keeping inventory control. It can include variables for department, class, vendor, style, color, size, and location.

SKU item. (1) A purchasable object with a SKU. It may consist of a single item, or it may consist of a product, a package, or a bundle. (2) For WebSphere Commerce Accelerator users, the orderable item is called a product. Although products and SKU items are differentiated for low level reasons (such as in the WebSphere Commerce database schema), the WebSphere Commerce Accelerator does not make this distinction.

SMTP. See *Simple Mail Transfer Protocol*.

SQL (Structured Query Language). A standardized programming language that is used to define and manipulate data in a relational database.

SSL. See *Secure Sockets Layer*.

staging server. An instance of a WebSphere Commerce Server that is used for testing purposes before new functions or data are deployed to the production server.

state . (1) Stages in the life cycle of an object that identify the current status of that object. Multiple states are arranged to create a business flow. See also *state machine*. (2) In VisualAge for Java, an object's characteristic that is manifested in its public and private data members, and can be divided into two categories: essential state and non-essential state.

stateful. Of or pertaining to a system or process that keeps track of the state of interaction. Contrast with *stateless*.

stateful session bean. A session enterprise bean that acts on behalf of a single client and maintains client-specific session information (called conversational state) across multiple method calls and transactions. Contrast with *stateless session bean*.

stateless. Having no record of previous interactions. A stateless server processes requests based solely on information provided with the request itself, and not based on memory from earlier requests. Contrast with *stateful*.

stateless session bean. A session enterprise bean that does not maintain any conversational state. Stateless session beans are pooled with others in a container. Contrast with *stateful session bean*.

state machine. In WebSphere Commerce, the state machine enforces the validity of user actions, tracks the execution of actions within an instance of the business process, and provides the run-time user interface with a list of actions for an instance of the business process. In doing so, the state machine enables the configuration and execution of successive steps in the workflow process.

static. Pertaining to an operation that occurs at a predetermined or fixed time. Contrast with *dynamic*.

static kit. See *package*.

stock keeping unit. See *SKU*.

store. See *online store*.

Store Administrator. A defined role in WebSphere Commerce that manages the store assets and implements changes to shipping providers as well as store information.

store archive. A compressed file that contains all the assets (including file assets and database information) necessary to create a store. Publishing the store archive to a WebSphere Commerce Server creates an operational store. See *SAR*.

Store Developer. A defined role in WebSphere Commerce that creates the initial store, member groups, product display and other store pages, shopping metaphors, and order and payment systems including taxes and shipping. The Store Developer is also responsible for the look and feel of the store and any required code customization.

store entity. An abstract super class that can represent either a store or a store group.

store front assets. The part of an online store that customers see while shopping. Store front assets include HTML pages, JSP files, style sheets, images, graphics, and other multimedia file types. Contrast with *back-office business logic*.

store owner. In WebSphere Commerce, this position controls and owns the database and the file assets related to the online store. A store owner can be an organization.

Structured Query Language. See *SQL*.

suborder. The part of an order that is being shipped to a specific address. An order can consist of multiple suborders. For example, a customer may indicate different shipping addresses for different products in the shopping cart. Each shipping address and the products associated with it constitute a suborder.

supported currency. A currency that an online store is capable of displaying and handling. See also *shipping currency* and *preferred currency*.

T

targetable command. A command that can be executed on a different target container. A targetable command invocation incurs some overhead; making the task command not targetable can improve the performance of the overall command framework.

targeted e-mail. A means of communicating a campaign through e-mail to specific recipients based on customer profiling.

task command. A command that implements a specific application logic. In general, a controller command and a set of task commands together implement the application logic for a URL request. A task command is not targetable, meaning it is always executed in the same container as the controller command.

tax category. Indicates the different categories of tax a store may be required to collect, such as federal, state or provincial, and municipal tax. Each tax category must be assigned one of the tax types; either sales or shipping.

tax type. Indicates the type of tax; either sales or shipping. Each tax type has its own unique set of tax categories.

TCP/IP. See *Transmission Control Protocol/Internet Protocol*.

template. In WebSphere Commerce, a template is a skeleton or pattern that defines how information in the WebSphere Commerce database displays on a Web page. The template determines the location and type of text and images on the page, as well as other page attributes, such as a background color. The templates are created with JavaServer Pages (JSP) technology using HTML tags or beans that are linked to the WebSphere Commerce database.

top category. In an online catalog, a category of items that has no parent.

B2B trading mechanism. Within WebSphere Commerce, a method by which buyers and Sellers carry out business transactions. Depending on the edition of WebSphere Commerce, these methods may include: fixed price, contract, RFQ, and auction.

trading position. See *offer*.

trading position container. Contains offers, also known as trading positions. The trading positions in a trading position container are made available to customers by associating the trading position with one or more contracts. A trading position container may be restricted. A customer shopping in a store cannot use offers in

a restricted trading position container unless the customer is a member of one or more customer groups associated with that trading position container.

Transmission Control Protocol/Internet Protocol (TCP/IP). A set of communication protocols that support peer-to-peer connectivity functions for both local and wide area networks.

transport. A means by which to send an outbound message from WebSphere Commerce.

trigger. A trigger is an object that initiates an action when an UPDATE, DELETE, or INSERT operation is run against a table. The action is called a triggered action and the operation is called a trigger event. Triggered actions can perform such tasks as:

- Synchronizing other tables with changes made by trigger events
- Validating input data
- Generating values for newly-inserted rows

U

B2B **UBF.** See *Unified Business Flow*.

Unicode. A universal character encoding standard that supports the interchange, processing, and display of text that is written in any of the languages of the modern world. It also supports many classical and historical texts in a number of languages. The Unicode standard has a 16-bit international character set defined by ISO 10646.

B2B **Unified Business Flow (UBF).** A feature that allows for the flexible creation and alteration of business processes. Unified Business Flow allows developers to modify the business flows across the various subcomponents of WebSphere Commerce.

B2B **Unified Trading Framework (UTF).** The common architecture upon which all trading mechanisms can be built. This includes trading mechanisms that are developed in-house.

unit abandoned. An orderable item that was placed in a shopping cart but not ordered at the time the data was extracted.

up-sell. A product recommendation of a related yet pricier product in the same product line as the currently displayed or selected product. See also *cross-sell*.

URL. The address of a file on the Internet. The URL contains the name of the protocol, the fully qualified domain name, and the path and file location. See also *URL command*.

URL command. A controller command that has a URL interface. A URL command may be called by entering a URL in a browser.

use case. In WebSphere Commerce, a use case shows the flow of each user interaction in the sample store and acts as a template for creating your own store.

user group. See *customer group*.

B2B **UTF.** See *Unified Trading Framework*.

V

vertical scalability. The creation of multiple Java virtual machine processes on a single machine.

view. An alternative representation of data from one or more tables. A view can include all or some of the columns in the table or tables on which it is defined.

view command. A command that is used to compose a view as a response to a client request.

W

Web application document root. The location within the file system where an application's Web assets are stored (such as static HTML, JSP files, and GIFs).

Web application Web path. The portion of a URL associated with a Web application.

Web controller. An adapter to the WebSphere Commerce commands. There can be different types of Web controllers, one for each client invocation protocol, such as the HTTP request or MQSeries request.

Web server. A server on the Web that serves requests for HTTP documents. The Web server controls the flow of transactions to and from WebSphere Commerce. It protects the confidentiality of customer transactions and ensures that the user's identity is securely transmitted to the WebSphere Commerce Server. The Web server implements the Secure Sockets Layer (SSL) protocol to achieve this level of security.

Web server instance. A unique configuration of the Web server to support one or multiple WebSphere Commerce instances.

WebSphere Application Server. A Java servlet-based Web application server used for deploying and managing Web applications. WebSphere Application Server is a Web server plug-in based on a server-side Java programming model that uses servlets, JavaServer Pages files, and enterprise beans.

WebSphere Catalog Manager. A catalog management tool for creating and managing online catalog information. WebSphere Catalog Manager is designed to work with WebSphere Commerce.

WebSphere Commerce Accelerator. In WebSphere Commerce, a workbench of online tools used to maintain online stores through various store operations. If multiple languages are available on the WebSphere Commerce machine, you can complete these tasks for each language. If you are assigned a role with fulfillment duties, you can also choose the fulfillment center associated with the store using the WebSphere Commerce Accelerator. Tasks that you are authorized to perform in your role are displayed on the WebSphere Commerce Accelerator home page menus. These tasks are based on user roles and authority levels.

WebSphere Commerce beans. A set of Java beans, included with WebSphere Commerce and Commerce Studio, that access information from the database tables. Creating store pages using these beans allows you to display information that may often change, such as category and product lists or product prices.

WebSphere Commerce database. The database that contains the operational data for online stores.

WebSphere Commerce instance. A unique configuration of WebSphere Commerce to support an electronic commerce Web site, which may contain one or multiple stores.

WebSphere Commerce Server. The server that handles the store- and commerce-related functions of an e-commerce solution. The WebSphere Commerce Server provides all of the WebSphere Commerce functionality in a Web container and an EJB container.

WebSphere Commerce Studio. WebSphere Commerce Studio is available in three editions: Developer Edition, Professional Developer Edition, and Business Developer Edition. All editions include the tools required to develop the Web assets for your store.

WebSphere Studio. WebSphere Studio is a suite of tools that brings all aspects of Web site development into a common interface, allowing you to create, manage, and maintain your site from one central location.

widget. (1) An element of a graphical user interface (GUI) that displays information or provides a specific way for a user to interact with the operating system and application. Widgets include icons, pull-down menus, buttons, check boxes, scroll bars, windows, forms, and many other devices for displaying information and for inviting, accepting, and responding to user actions. (2) In object-oriented programming, each type of widget is defined as a class (or a subclass under a broad generic widget class) and is always associated with a particular window. A widget implements procedures through its widget class structure.

Most if not all application development languages today, such as Java, come with a ready-made library of widgets that a programmer can incorporate and modify.

wrapper. A program or script that sets the stage and makes possible the running of another, more important program.

WYSIWYG (What You See Is What You Get).

The capability of a text editor to continually display pages exactly as they appear when printed or viewed through a Web browser.

X

X.509 certificate. Client certificate authentication for users entering a secured WebSphere Commerce site.

XML (Extensible Markup Language). A standard metalanguage for defining markup languages that was derived from and is a subset of SGML. XML omits the more complex and less-used parts of SGML and makes it easier to write applications to handle document types, to author and manage structured information, and to transmit and share structured information across diverse computing systems. XML is defined by the World Wide Web Consortium (W3C).

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