# IBM

*IBM Net.Commerce Version 2 to Version 3 Update*
(Course Code IN50)

Study Guide
ERC3.0

IBM Education and Training
Worldwide Certified Material

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## Units

# Introduction

This **Study Guide** will help a student who has attended IBM Education and Training class "IBM Net.Commerce Version 2 Implementation" (World Wide Course Code IN50v2, US Course Code N3333) to understand the changes and new functions in Net.Commerce Version 3 START and PRO for Windows NT, AIX and Sun Solaris.

**Note:** Net.Commerce for the OS/390 and OS/400 platforms are based on the Version 2 server architecture with some additions from Version 3. Many of the new features described in this document are not available in the OS/390 and OS/400 versions.

This guide covers the same subjects that were discussed in the Net.Commerce V2 training class and introduces new subjects as necessary. It will make frequent reference to Net.Commerce documentation and also to publications for the other components provided with Net.Commerce. See the **Bibliography** for a list of documentation for Net.Commerce and related programs.

Each subject is discussed in its own unit. The order of units roughly corresponds to the order in which tasks are performed, but you should be able to read most of them in any order you choose.

Some hands-on exercises are included from the Version 3 classroom training. These are included in Appendix A. To perform the exercises you will need a system installed with Net.Commerce V3 PRO. Further installation requirements are described at the beginning of each exercise.

Using this information you can decide which sections you wish to read and which exercises you may wish to perform on your own demonstration system.

Before you begin read "Overview of Changes" on page ix

# Overview of Changes

Net.Commerce Version 3 introduces significant changes to the server architecture and a number of new functions. These are introduced below and are discussed in more detail in later sections.

There are now two Net.Commerce offerings:

**START**      The base Net.Commerce server including all of the functions that were provided in Version 2 plus many enhancements. This is targeted at small to mid-sized sites which may not have sophisticated requirements for the product catalog navigation and may not need to integrate Net.Commerce with legacy systems.

**PRO**      Includes all START functions plus Product Advisor for intelligent product catalog navigation and legacy system integration sample code.

The major new functions in Net.Commerce Version 3 are:

- New server architecture
- New logon process
- New access control model
- Installation and configuration enhancements
- Store Creator
- Product Advisor (PRO)
- IBM CommercePOINT eTill and SET support
- Legacy system integration (PRO)

# Unit 1.  Net.Commerce V3 Overview

## What This Unit Is About

Net.Commerce Version 3 includes many new features, and
enhancements to the features provided by previous versions.  The
additional software products supported by version 3 and provided
on the installation CD have also been updated.

This unit describes these new and enhanced features and products
and how the changes affect implementation of a Net.Commerce
system.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe the new and enhanced features of Net.Commerce V3.
- Describe how the components of a Net.Commerce V3 system
  interact.
- List considerations for implementing a Net.Commerce V3
  system.

# 1.1 Introduction

As with previous versions, Net.Commerce Version 3 provides a broad set of functions which enable merchants to setup an on-line store on the internet. Net.Commerce can be used by small merchants to setup a single store site or by Internet Service Providers (ISPs) or on-line Malls to host multiple stores.

## 1.1.1 Net.Commerce System Diagram
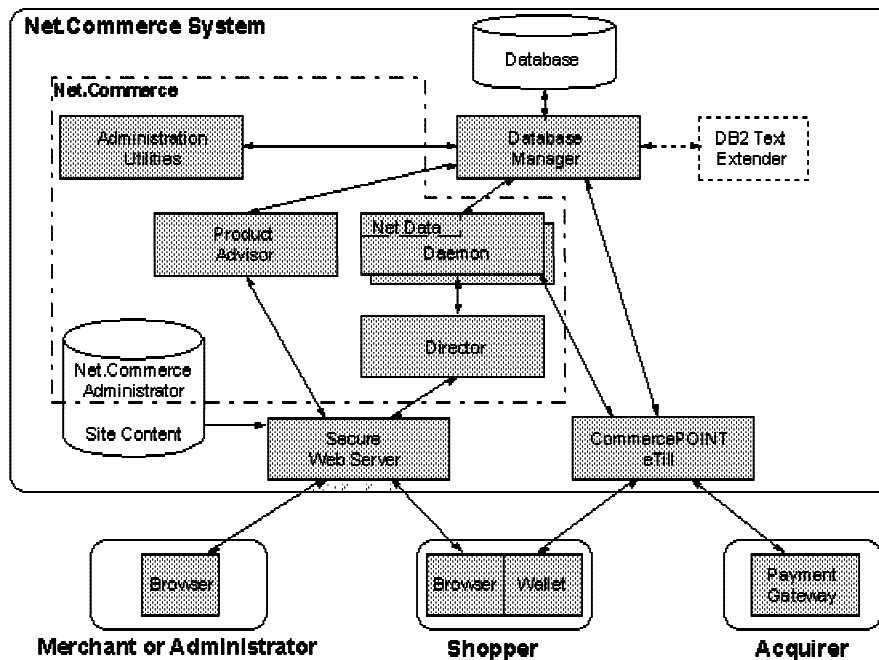


Figure   1-1. Net.Commerce System Diagram

The Net.Commerce system is comprised of four major components:

• Secure Web Server - receives requests from user's browsers and forwards them to the appropriate application.

Lotus Go Webserver V4.6.1 is included with Net.Commerce. Lotus Domino V4.6 and Netscape Enterprise Server V3.0 are also supported.

• Net.Commerce System - this includes:

– Net.Commerce Administrator - a set of web pages and Java applets for managing the site and its stores
– Net.Commerce Director - invoked by the web server to validate and forward shopping requests
– Net.Commerce Daemons - background servers that perform each shopping request. The daemons include the IBM Net.Data runtime libraries.
– Product Advisor - provides an intelligent product catalog
– Administration Utilities - assist with data management

• Database Manager - manages the Net.Commerce database which contains all site and store data.

IBM DB2 Universal Database V5 and IBM DB2 Text Extender (which provides advanced search capabilities) are included with Net.Commerce. Oracle 8.0 is also supported.

- CommercePOINT eTill - manages payments using the Secure Electronic Transactions (SET) protocol.

All transactions with administrator or shopper browsers go through the web server to the Net.Commerce director (with the exception of requests to view the Product Advisor metaphors which go through the Product Advisor viewer servlet program). The director validates command requests and forwards them to the Net.Commerce Daemons which perform the command. Almost all commands involve querying or updating the database.

If SET payment is requested, the shopper's wallet application will start and communicate directly with the eTill. The eTill also forwards SET payment transaction information to the acquirer bank for authorization or payment.

## 1.1.2 Secure Web Server and Net.Commerce
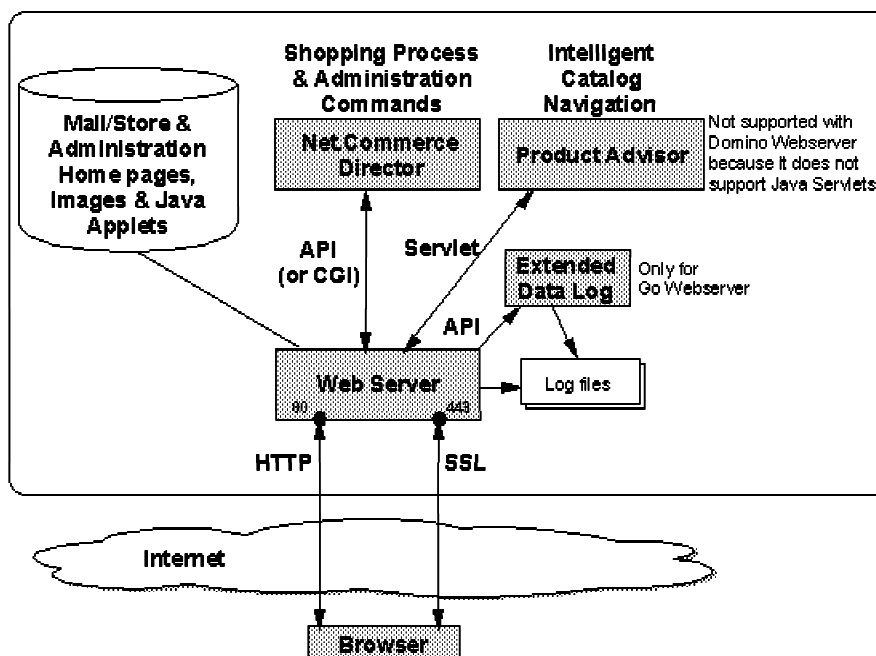


Figure   1-2. Secure Web Server and Net.Commerce

The Net.Commerce system requires a secure web server to serve the site and store content and to protect the confidentiality of shopper transactions.

Net.Commerce Version 3 supports the following web servers:

- Lotus Go Webserver Version 4.6.1 - this is included on the Net.Commerce CD-ROM. When migrating from Net.Commerce V1 or V2, you must migrate IBM Internet Connection Server to Lotus Go Webserver.

- Netscape Enterprise Server Version 3.0. When migrating from Net.Commerce V2, you must migrate Netscape Enterprise Server Version 2.0 if it was used.

- Lotus Domino Webserver Version 4.6 - this is newly supported in V3.

Net.Commerce V3 uses the following web server functions:

- Support for serving different document formats including HTML, JavaScript, images, multimedia files and Java applets. Site and store content and administration pages use these formats.

- HTTP protocol on port 80

- Secure Sockets Layer (SSL) protocol on port 443

- Webserver APIs. The Net.Commerce director is implemented as a GWAPI (Go Webserver) or NSAPI (Netscape Server) module by default.

- Common Gateway Interface (CGI V1.1). The Net.Commerce director can be implemented as a CGI program. Lotus Domino only supports the director as a CGI program.

- Java Servlet support. Servlets are similar to Java Applets but run in the web server like an API module. The new Product Advisor function is implemented using servlets. Lotus Domino DOES NOT support servlets, so Product Advisor is not supported with Domino.

- Support for server-side includes.

- Logging of browser activity (hits) and errors.

**Note:** In Net.Commerce V1 and V2, web server support for password protected URLs was used for login of administrator and shopper IDs, but in V3 this is no longer used and a new logon method has been provided.

**Note:** Only one copy of Lotus Go Webserver runs on the system, even in a multi-homed system where multiple Net.Commerce servers run. In this environment a problem will arise because Lotus Go Webserver V4.6.1 only allows one SSL keyring per server even though multiple hostnames are configured and a SSL certificate is required for each one. A new release of Lotus Go Webserver (Version 4.6.2.1) is now available which resolves the problem.

### 1.1.3 Net.Commerce Director

**API Implementation**          **CGI Implementation**
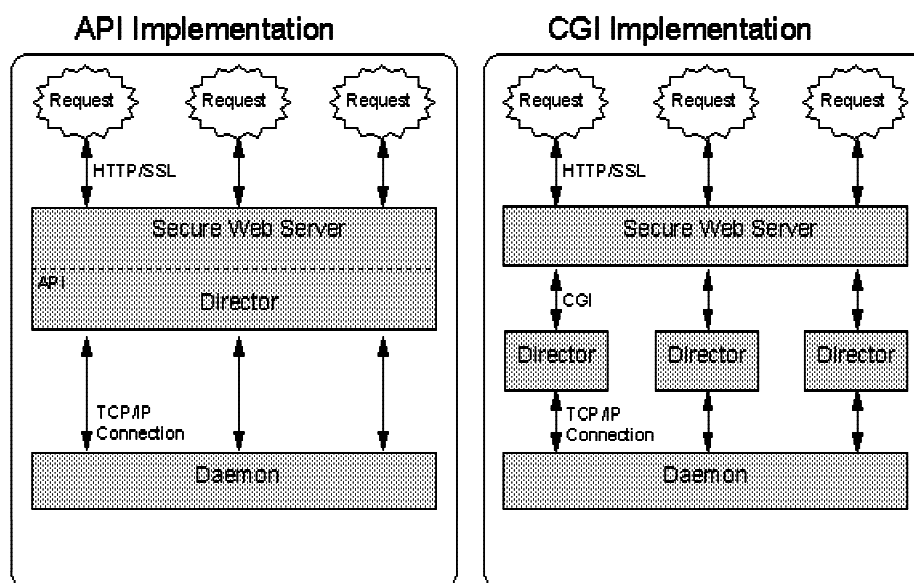


Figure   1-3. Net.Commerce Director

The Net.Commerce Director provides communication between the Secure Web Server and the Net.Commerce Server Daemons.  It can be configured in one of two ways:

- API module - loaded at web server initialization, this module runs in the web server and is passed all Net.Commerce command URLs for processing.  This method has a low performance overhead.
- CGI program - runs as a separate program each time a request is received.  This implementaion is used with Lotus Domino which does not support APIs.

The web server configuration determines whether the director is configured as an API module or a CGI program by mapping Net.Commerce command URLs to the director.

The director parses incoming **request** URLs and:

- validates user session information
- processes redirects directly
- generates some errors directly

**Note:**   The director was a CGI program, named **ncommerce** in V2 and **nph-msrvr** in V1.  When migrating from earlier versions, a web server mapping is defined to map old URLs to the correct program.

### 1.1.4 Net.Commerce Commands

Net.Commerce commands tell the server what mall functions to perform.  They are coded in the URL sent from the browser to the server.  There are more than 30 commands for different shopping functions and many more for administrative purposes.  Access to administrative commands is controlled by the server.

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When a command request arrives, the server determines whether SSL security is required and if the shopper should be logged in. A redirect is sent if necessary.

In V1/V2, command URLs included:

- /cgi-bin for unprotected commands or /msprotect for protected commands
- the director program name (nph-msrvr for V1 or ncommerce for V2)
- the command and its parameters

e.g. /cgi-bin/ncommerce/;order/list?merchant_rn=123&status=P

In V3, the format of command names has changed and /msprotect is no longer used so all command URLs should include:

- **/cgi-bin/ncommerce3**
- the command and its parameters.

e.g. /cgi-bin/ncommerce3/OrderList?merchant_rn=123&status=P

Mappings in the web server configuration and the director will map V1/V2 command URLs to the V3 equivalent.

See Unit 7, "Customization" on page 7-1 for the mapping from V1/V2 command names to V3 commands and a list of new commands in V3. These are also described in the Net.Commerce Online Information.

## 1.1.5 Session Management
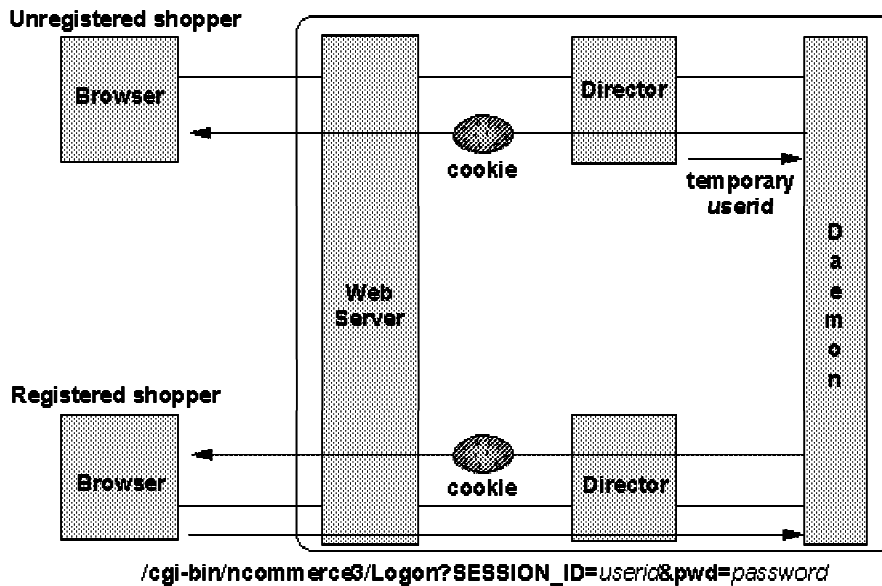


Figure 1-4. Session Management

The web is a stateless environment (**IN - OUT - FORGET!**) so a server cannot determine which browser sent a particular request. Many browsers support cookies which are values that are stored in a browser by a server and are sent back to that server with each request.

Net.Commerce uses cookies to identify and keep track of the different shoppers that enter your site.  Each shopper is assigned an ID.  This ID is sent to the browser in a cookie and the browser sends it back with every request to the same server.

When a shopper first accesses the Net.Commerce director, they are assigned a temporary login ID in the SHOPPER table.  This ID is a random alphanumeric string. e.g. **E1B80314** A cookie is sent back to their browser so that each subsequent request is identified as coming from the same user.

When a registered shopper logs in (using the Logon command) the cookie containing the temporary ID is replaced with one that indicates that they are logged in as a registered shopper.

The cookie is named SESSION_ID and it contains the integer shopper reference number and a digital signature so that the server can ensure the cookie as not been tampered with.

When you are logged in with one ID, that ID will stay with you until you logon as a different user or close the browser.

**Note:**  In V1 and V2, the shopper ID was in the cookie and web server protection was used to force logon of registered shoppers.  This had many restrictions, e.g. logoff was not possible and the site developer needed to be more careful about the syntax of command URLs (e.g.  use /msprotect to ensure logon and force SSL so that passwords were not exchanged in clear text.)

In V3, logoff can be achieved by just clearing the cookie and commands can be configured in the server to require SSL and logon.

### 1.1.6  Net.Commerce Daemons
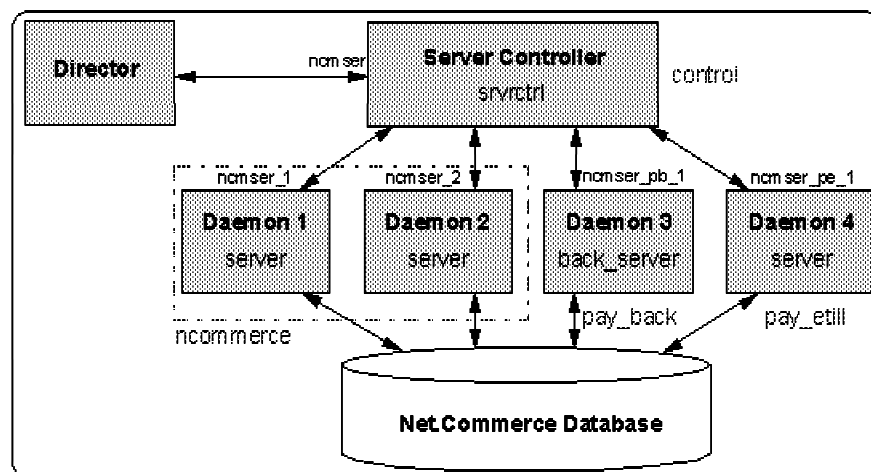


Figure   1-5. Net.Commerce Daemons

The Net.Commerce server architecture has been completely rewritten from V2 to V3.

In Net.Commerce V1 and V2 all daemons were the same program (mserverd) and they all supported the same Net.Commerce commands.  One daemon acted as a controller and the others did the work.

In Net.Commerce V3, there are three types of daemon:

- Server Controller (srvrctrl) - starts the other daemons and acts as a controller that uses a round-robin mechanism to pass command requests to its children for processing.
- Foreground Server (server) - waits for a command and processes the request by executing built-in functions and overridable functions for each task that the command needs to perform.  Returns a HTML document back to the director which is often generated by running a Net.Data macro.
- Background Server (back_server) - wakes up periodically and looks for work by querying a database table for unprocessed records.  Does not interact with a shopper.

Daemons are grouped into pools which serve a group of commands.  Each pool can have multiple copies of the daemon running.  The default pools for Net.Commerce are:

- control - commands to start and stop the server controller and its children.
- ncommerce - commands for the Net.Commerce shopping process, administration and payment processing.  Has 2 daemons started but the number can be increased to maximize throughput.
- pay_etill - starts and stops the CommercePOINT eTill server.
- pay_back - background payment processing.

If eTill will not be configured, the pay_etill and pay_back pools are not started and the server behaves much like a V1/V2 server with one controller daemon and 2 (or more) daemons handling the normal Net.Commerce shopping and administration commands.

All of the information about pools and the commands they support is registered in the database.

All daemons listen on a TCP port which is configured in the TCP/IP services file.  The port numbers are consecutive from a base number assigned during Net.Commerce configuration.  The service names are prefixed by nc, the Net.Commerce instance name (e.g. mser) and a suffix that uniquely identifies the pool and daemon.  The daemons also maintain a continuous connection to the database to improve performance.

## 1.1.7 Net.Commerce Database
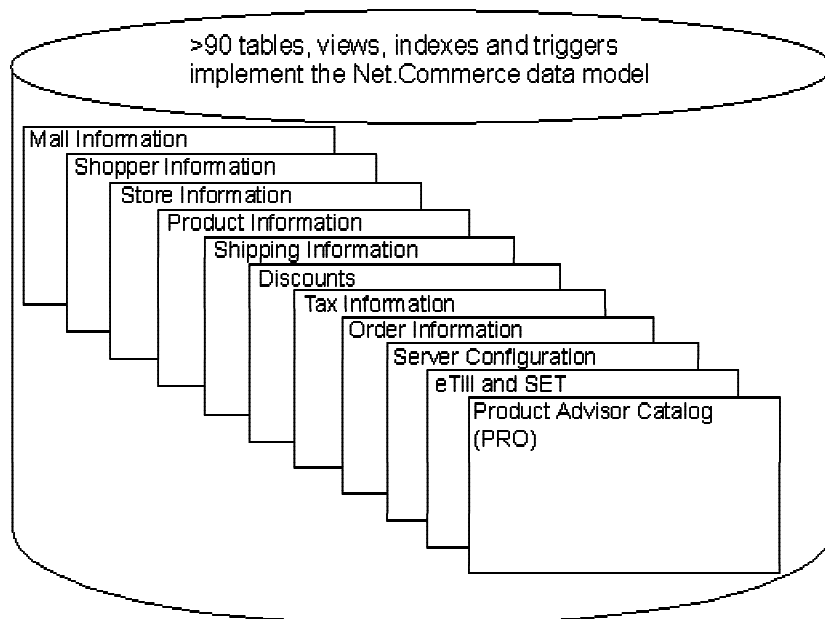


Figure 1-6. Net.Commerce Database

The most important part of the Net.Commerce system is the database. The Net.Commerce database is a relational database that contains information about:

- Mall (site)
- Merchants and stores
- Products (goods and services)
- Prices and Discounts
- Shoppers and addresses
- Orders and Payments
- Net.Commerce configuration

Net.Commerce supports either IBM DB2 Universal Database V5 or Oracle 8 as the database management system.

**Note:** Net.Commerce V2 supported DB2 V2.1 or Oracle 7.3 so a site that is migrating from Net.Commerce V2 to V3 needs to migrate the database management system.

The database (named **mser** by default) contains over 90 separate tables with various views, constraints, triggers and functions to implement the Net.Commerce business rules. Many of these are new in V3. Changes from V2 to V3 are discussed in Unit 7, "Customization" on page 7-1

IBM DB2 Text Extender can be used with DB2 to provide linguistic text search capabilities for the textual data in the Net.Commerce product catalog. See the Net.Commerce Online Information and the DB2 Text Extender documentation for information about using DB2 Text Extender with Net.Commerce.

## 1.1.8  Database Communication
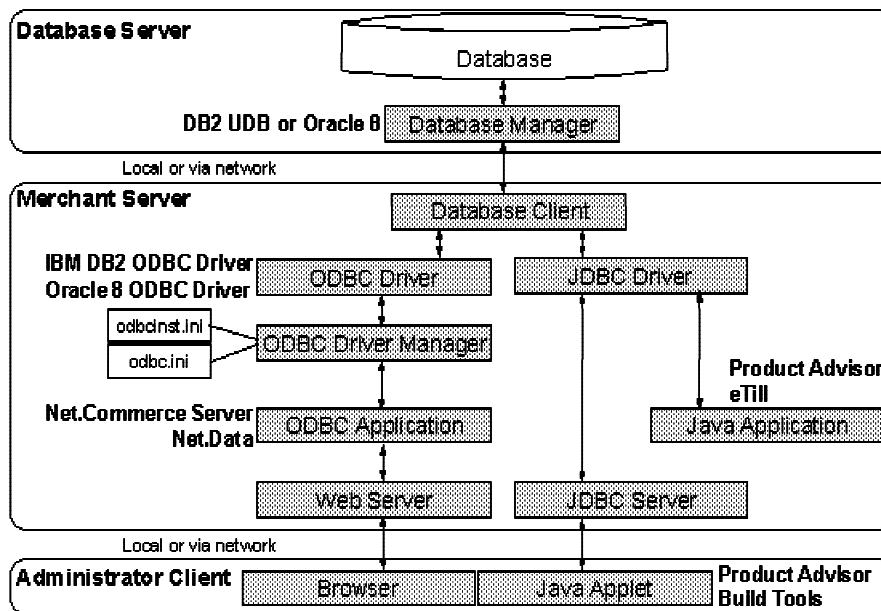


Figure   1-7. Database Communication

ODBC is a standardized programming interface between a database application and a data source.  It hides the programmer from the differences in implementation between the various relational database management systems by providing a single syntax for SQL queries and consistent data types and functions.

Net.Commerce uses ODBC in the Net.Commerce daemon and Net.Data to access the database.  Overridable functions and user written Net.Data macros should also be coded using ODBC.

The database administrator still works with the native database tools and can take advantage of product specific features.  This is why Net.Commerce only supports DB2 and Oracle.  Net.Commerce uses native database features to enforce business rules that do not need to be visible to the programmer.

To use ODBC, an ODBC driver is required for each database management system and an ODBC driver manager is required to coordinate access.  These services are often part of a server operating system or shipped with the database management system.

JDBC is the equivalent of ODBC for the Java environment.  The JDBC driver is a set of Java classes for local programs to access.  The JDBC server listens on a TCP port for remote requests and uses the driver to access the database.

eTill and Product Advisor are written in Java and use JDBC to connect to the database.

## 1.1.9  Secure Payments
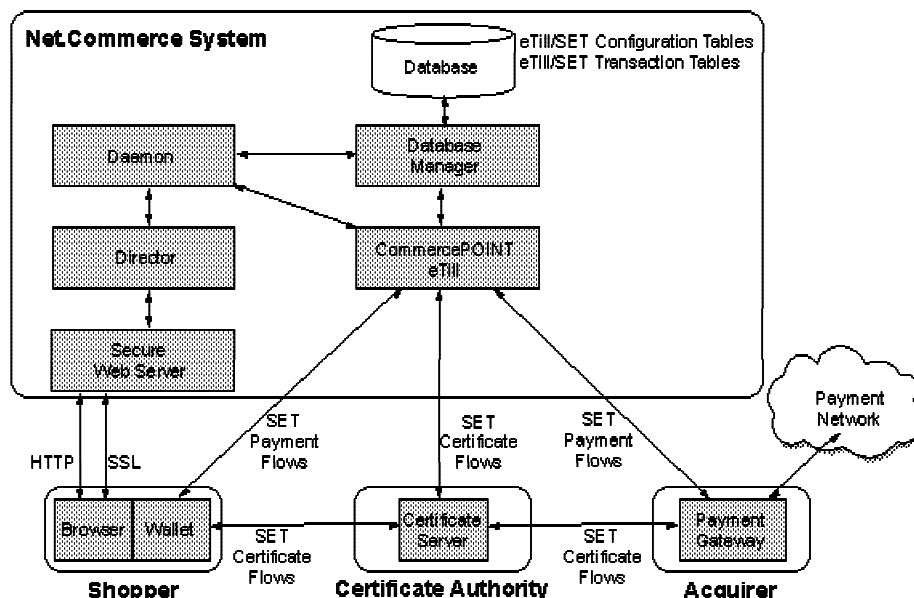


Figure   1-8. Secure Payments

Net.Commerce is integrated with the IBM CommercePOINT eTill product which enables secure payment using the Secure Electronic Transactions (SET) protocol.

SET uses a number of security technologies including public key encryption and digital signatures to ensure that all parties in a transaction are authentic and that payment information can be sent securely without being intercepted or tampered with.

Four roles exist in the SET environment:

- Certificate Authority - Issues digital certificates, similar to those used for SSL but with stronger encryption, which proves the identity of the participants in a SET transaction.  e.g. IBM Registry for SET.

- Payment Gateway - provides a secure gateway between the Internet merchants and legacy Acquirer systems on private networks.  e.g. IBM CommercePOINT Gateway.

- Merchant - receives orders from shoppers and requests payment.  Payment requests are forwarded to the acquirer for authorization or payment capture without the merchant ever seeing the actual card number.  This is the combined role of Net.Commerce plus IBM CommercePOINT eTill.

- Cardholder - Uses a wallet application to maintain card information and send SET requests.  This application will be implemented as a browser helper or plug-in. e.g. IBM CommercePOINT Wallet.

All parties in a transaction need certificates.  SET Certificates are verified through a hierarchy of trust. Each certificate is linked to the signature certificate of the entity that digitally signed it.  By following the trust tree to a known trusted party, one can be assured that the certificate is valid.

SET defines a number of message flows for certificate issuance and payment which are implemented by the various components.

SET payment are discussed in more detail in Unit 6, "Net.Commerce SET Support" on page 6-1

## 1.1.10  Net.Commerce Implementation Tasks

There are a number of activities required to get a Net.Commerce system up and running:

- **Planning** of the implementation is essential to identify the needs and expectations of the merchant and resolve any technical issues relating to customization, configuration, security and performance.

- **Installation and configuration** will get the web server, database, Net.Commerce server and payment server up and running.

  This is discussed in more detail in Unit 2, "Installation and Configuration" on page 2-1

- **Customization** of the site processes may be required to implement the business rules of the mall and merchants.  This customization can involve modifying the database and programming in SQL, Net.Data and C++ to customize existing Net.Commerce samples or create new functions.

  This is discussed in more detail in Unit 7, "Customization" on page 7-1

- **Mall and Store creation** involves creating data in the Net.Commerce database to define contact details, tax rates, shipping details, discounts and payment methods. Web pages, templates and images must be created for the Home pages, header and footer files and other pages needed in the shopping process.

  New administrative functions are discussed in more detail in Unit 3, "Administration & Maintenance" on page 3-1 and Unit 4, "Store Creator" on page 4-1

- **Product catalog creation** is performed by each merchant to specify the organization of the product catalog for navigation purposes and to enter the product information and prices.  Templates need to be created to display the categories and products to shoppers.

  The new Product Advisor function is discussed in more detail in Unit 5, "Product Advisor" on page 5-1

- **Administration** of orders and payments needs to be performed once the stores are operational and shoppers are placing orders.

  SET payment administration is discussed in more detail in Unit 6, "Net.Commerce SET Support" on page 6-1

- **Maintenance** tasks are also required such as logging shopper activity and site problems, backup of critical data, database clean up and performance tuning.

# Unit 2.  Installation and Configuration

## What This Unit Is About

Net.Commerce Version 3 has been repackaged and has a new installation and configration process.

This unit describes how the changes affect installation and configuration of a Net.Commerce system.  It also points to the appropriate documentation for migrating older systems to V3.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe the installation requirements and process for Net.Commerce V3.
- Describe configuration of Net.Commerce V3 instances.
- Access documentation for migrating a Net.Commerce V1 or V2 system to V3.

# 2.1  Installation

## 2.1.1  Packaging

Net.Commerce V3 comes in two versions, START or PRO, on each supported platform (Windows NT, AIX or Sun Solaris).  Each version includes a number of components which are packaged on a single CD:

- IBM Net.Commerce V3 START or PRO
- IBM DB2 Universal Database V5
- IBM DB2 Extenders V5
- Lotus Go Webserver V4.6.1
- IBM CommercePOINT eTill V1.0

Netscape Navigator V4.04 for Windows 95/NT with the Java JDK 1.1 patch is also included on the CD.  For the AIX/Solaris versions it is recommended to use a PC with this version of Netscape Navigator to administer the site.  (Although you should be able to use the AIX or Solaris version of Netscape Navigator V4.04 if you have the Java JDK 1.1 patch for that platform.)

A "timebomb" version of Net.Commerce is available for demonstration and evaluation purposes.  This version includes all of the functionality of the full package but will only work for 60 days.

In the DOCS directory on the CD you will find PostScript and PDF versions of the "Net.Commerce Installation and Getting Started" manual and extracts from the Online documentation.  (See the Bibliography for a complete list of relavent manuals)

The Net.Commerce home page http://www.internet.ibm.com/net.commerce includes links to updated documents including **migration instructions and the latest Net.Commerce README file** which includes important information that is not in the manuals.

## 2.1.2  Hardware Requirements

Minimum hardware requirements are:

- Net.Commerce V3 for AIX
  - IBM RISC System/6000 (Model C20 or higher is recommended)
  - 120 MHz Power PC 604 processor or faster
  - 128 MB memory
  - 500 MB free disk space
- Net.Commerce V3 for Windows NT
  - IBM-compatible personal computer
  - Pentium** 166 MHz or faster
  - 96 MB memory
  - 400 MB free disk space
- Net.Commerce V3 for Solaris
  - Sun SPARCstation capable of running Sun Solaris 2.5
  - 128 MB memory

    – 250 MB free disk space

All platforms require a graphics-capable monitor, a CD-ROM drive, a mouse or other pointing device, and a LAN adapter that is supported by the TCP/IP protocol to make network connections.

This should be sufficient to run a single Net.Commerce instance. Additional hardware may be required, depending on the size of your Net.Commerce site. Hardware requirements vary depending on the number of items in store catalogs, the degree to which audio, video and graphics will be used and the expected number of hits by customers per time interval. A faster CPU, more memory and more disk space will be required in most cases.

For the AIX and Solaris versions it is recommended to use a PC system to run the browser for Net.Commerce Administrator access.

## 2.1.3  Software Requirements

The software requirements include the appropriate operating system for your platform:

- AIX 4.1.5 or later
- Windows NT Server 4.0, with Service Pack 3
- Sun Solaris 2.5

The browser used to run the Net.Commerce Administrator tools should be:

- Netscape Navigator 4.04 with JDK 1.1 patch - The Windows 95/NT version is provided on the Net.Commerce CD-ROM. The patch for AIX and Solaris is available at the Netscape developer web site http://developer.netscape.com.

If you will not use DB2 UDB V5 (which is provided on the Net.Commerce CD-ROM), you should obtain and install Oracle 8.03.

If you will not use Lotus Go Webserver 4.6.1 (which is provided on the Net.Commerce CD-ROM), you should obtain and install either Lotus Domino 4.6 or Netscape Enterprise Server 3.01. (Note: some features of Net.Commerce V3 do not function with Lotus Domino 4.6. This includes Product Advisor and the Extended Data Log facility)

To develop Net.Commerce overridable functions for a customized implementation, you will need a C + + compiler for your platform:

- For AIX, IBM XL C + + version 4.1 or later
- For Windows NT, Microsoft Visual C + + version 4.2
- For Solaris, SunWorkshop version 4.2

To implement the SSL protocol, you need to obtain a certificate from a certificate authority such as Verisign. See http://www.verisign.com/ibm

To implement payments using the SET protocol, you must be able to connect to an acquirer who is operating a SET payment gateway and a SET merchant certificate authority. You may also wish to obtain a SET cardholder wallet application for testing.

To support integration with other payment software, tax calculation software, shipping software, business administration software or transaction middleware you should obtain that additional software. You will also need to write Net.Commerce overridable functions to integrate that software with Net.Commerce.

## 2.1.4 Configurations - Net.Commerce Instance
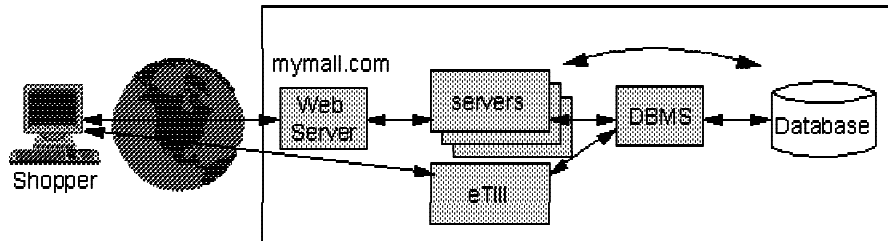


Figure 2-1. Configurations - Net.Commerce Instance

A Net.Commerce instance corresponds to a single on-line mall containing one or more merchants. This mall will use all of the Net.Commerce components (web server, eTill, Net.Commerce daemons, database management system and database) and will be accessed using a single fully qualified host name.

Locating all components on the same machine may be sufficient for a single store or a small mall. As database size and number of shoppers increases, a single machine may not be able to cope with the load.

**Note:** A Net.Commerce Base license is required for EACH system. It allows one Net.Commerce instance to execute on one CPU. A Net.Commerce Additional Merchant Server license is required for EACH additional instance and a Net.Commerce Additional CPU license is required for EACH additional CPU executing Net.Commerce.

## 2.1.5 Configurations - Multi-Homed Machine
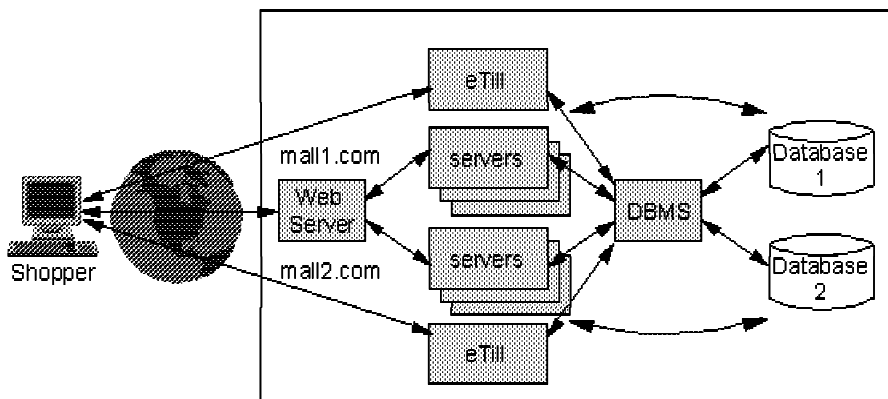


Figure 2-2. Configurations - Multi-Homed Machine

An Internet Service Provider hosting multiple merchants may wish to provide those merchants with their own dedicated Net.Commerce instance.  This may be for security, performance or other purposes.

Multiple Net.Commerce instances can be configured in the same Net.Commerce/database system.  This is called a multi-homed machine.  The following resources must be UNIQUE for each instance:

- Fully qualified host name
- Database name
- HTML document root web server directory (this is where configuration files are stored)
- Template Designer HTML and macro directories
- eTill startup file and certificate database
- Log directory

**Note:**  Other web server and macro directories can be shared by multiple instances.

Separate copies of the Net.Commerce daemons and the eTill application are executed for each instance.

The same web server and database manager are used, but directives in the web server configuration file are used to route requests to the correct Net.Commerce daemons and database based on the fully qualified host name in the incoming URLs.

## 2.1.6  Configurations - Multiple Machines
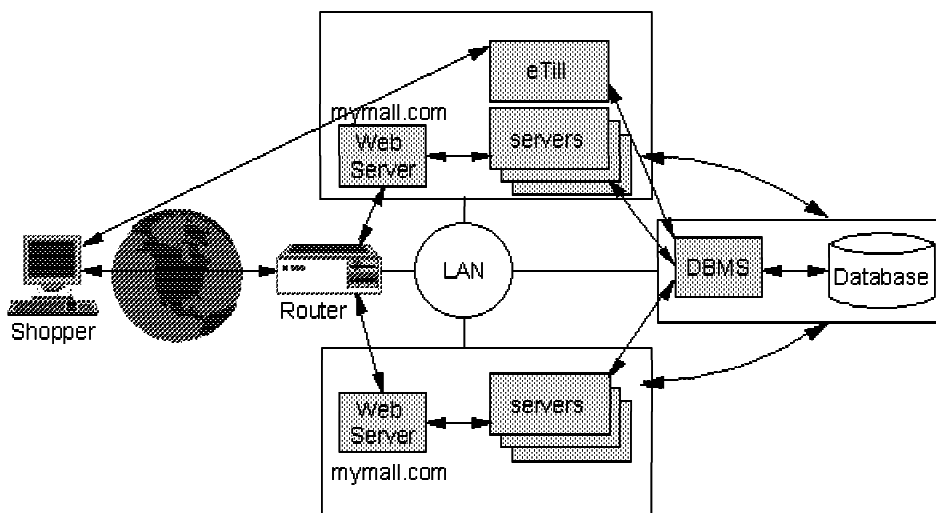


Figure   2-3. Configurations - Multiple Machines

In a multiple machine configuration the database management system and database(s) will reside on a single machine.  One or more additional machines will run the Web Server, Net.Commerce daemons and database client.

The Net.Commerce server and director always run on the same computer as the web server but may be on a different computer to the eTill and database manager.

To implement this environment you need an intelligent load balancing nameserver/router such as IBM Interactive Network Dispatcher. It will spread the incoming requests across the multiple servers as if they were all a single system and will automatically adjust for changes in workload or system availability. For additional information, see IBM Redbook "Load-Balancing Internet Servers" (GG24-4993).

In the current implementation of eTill, its certificate database and SET transaction database are stored as flat files. This means that only one eTill can be running per Net.Commerce instance. This could be on a separate machine to Net.Commerce or the database.

## 2.1.7  Installation Information

The installation process is slightly different for each platform. The Net.Commerce Installation and Getting Started manual for the appropriate platform provides detailed instructions. This is available in PostScript and PDF format on the Net.Commerce CD-ROM in the DOCS directory (ncinst.ps and ncinst.pdf). There are special considerations if you will be performing any of the following non-standard installations:

- Using Oracle as the database manager
- Using either Lotus Domino or Netscape Enterprise Server as the web server
- Installing the database manager on a separate machine
- Installing the eTill on a separate machine
- Migrating from an older version of Net.Commerce to V3

The Net.Commerce home page http://www.internet.ibm.com/net.commerce includes links to updated documents including **migration instructions and the latest Net.Commerce README file** which includes important information that is not in the manuals.

**Note:** If you are migrating from an older version of Net.Commerce to V3, you must also migrate the database management system AND the web server to new versions. You MUST backup your system before migration and carefully follow the instructions in the manual or those available on the Net.Commerce web site - otherwise you could lose data or corrupt your system.

## 2.1.8  Installation Process

The installation process consists of the following steps:

1. Ensure the hardware meets the requirements and is configured correctly

2. Ensure the operating system is installed correctly with any required fixes and the correct drivers

3. Ensure TCP/IP is configured correctly including name resolution

4. Ensure no other web server is installed and listening on the HTTP and SSL ports (80 and 443). e.g. on NT, make sure Microsoft IIS is either not installed or is disabled.

5. Make sure the system has sufficient paging space

6. Make sure the system has sufficient free disk space for software installation and the database and site content

7. Install any prerequisite software that is not on the Net.Commerce CD-ROM (e.g. Oracle or Netscape Enterprise Server)

8. Ensure Netscape Navigator with JDK 1.1 support is installed or is available on a separate PC system.  The Windows 95/NT version is available in the \NETSCAPE directory on the Net.Commerce CD-ROM.

9. Create a user for the database owner and administrator.

10. Install the software from the Net.Commerce CD-ROM.  This is platform specific. On Windows NT, the InstallShield Wizard is used to step through the installation. On AIX, db2setup is used to install DB2 UDB and SMIT is used to install the remaining components.

11. Configure a Net.Commerce instance using the Net.Commerce Configuration Manager.  On Windows NT, this can also be performed from the InstallShield Wizard during installation.

12. Create a demo SSL certificate or obtain a production SSL certificate from a certificate authority.  For Lotus Go Webserver you can perform this function using the CONFIGURATION AND ADMINISTRATION forms.

13. Enable the JDBC server if you will be using the Product Advisor.

## 2.1.9  Installation Directories

Several directories are created during the installation:

- Windows NT

  - Net.Commerce - C:\IBM\NetCommerce3
  - Lotus Go - C:\IBM\WWW
  - eTill - C:\IBM\eTill
  - DB2 - C:\IBM\SQLLIB
  - DB2 Text Extender - C:\dmb

  You can select an alternative drive and directory for each component during the installation.

- AIX

  - Net.Commerce - /usr/lpp/NetCommerce3
  - Lotus Go - /usr/lpp/internet
  - eTill - /usr/lpp/eTill
  - DB2 - /usr/lpp/db2_05_00
  - DB2 Text Extender - /usr/lpp/db2tx_05_00

- Sun Solaris

  - Net.Commerce - /opt/IBMnetc/NetCommerce3
  - Lotus Go - /opt/IBMICS/usr/internet
  - DB2 - /opt/IBMdb2/V5.0

  Note: eTill and DB2 Text Extender are not available for Sun Solaris in this release.

The directories under the Net.Commerce "root" are mostly the same on all platforms. Files belonging to a single Net.Commerce instance must be kept separate from other instances. Each instance will have its own HTML root directory, but other files will be in the Net.Commerce directory structure.

The V3 directory structure is:

```
NetCommerce3
   /adt            Programming samples
   /bin            Executable files and libraries
   /books          Books in PostScript and PDF format
   /cgi-bin        Director CGI program
   /domino         Samples for Lotus Domino integration
   /html           HTML and image files
     /en_US        US English language directory
       /ncadmin    Net.Commerce Administrator HTML and images
       /ncbooks    Installation and Getting Started manual (HTML)
       /nchelp     Net.Commerce Online Information
   /instance       Instance specific directories
     /name         Directory for an instance
       /bin        eTill startup script
       /data       eTill certificate database
       /logs       Log and trace files
       /password   Old V1/V2 password file
       /teditor    Template Designer files
   /locale         Language settings (NT)
   /macro          Net.Data macro files
     /en_US        US English language directory
       /ncadmin    Net.Commerce Administrator macros
   /msprotect      Director CGI program
   /nc_schema      Database creation scripts
     /db2          DB2 specific database creation scripts
     /oracle       Oracle specific database creation scripts
   /server         Configuration Manager files
   /SmartGuide     Store Creator templates
```

The V1/V2 password file is not used in Net.Commerce V3 but when migrating to V3 the old password file is required for use by the migration program.

## 2.1.10  Configuration

As in Net.Commerce V2, multiple Net.Commerce instances can be configured.  This is done using the Net.Commerce Configuration Manager.

For each instance, the configuration will:
- Create instance directories
- Define TCP/IP ports for the server daemons
- Set the environment variables that control Net.Commerce in the Net.Commerce configuration files and the Net.Data configuration file
- (Lotus Go Webserver only) Update the web server configuration file (httpd.cnf) with URL mappings and protection directives.  Update the servlet configuration file (servlet.cnf) with information about the Product Advisor servlets (PRO only).
- (DB2 only) Create the database for Net.Commerce using a supplied script.
- Enable and start the Net.Commerce daemons.

**Note:**  If you select Lotus Domino or Netscape Enterprise Server as the web server, you must manually configure its user database and URL mappings.

If you select Oracle as the database manager, you must manually create the database and register it as an ODBC data source.  Sample database creation scripts are supplied which need to be customized before the database can be created.

These steps are described in the Net.Commerce Installing and Getting Started Guide.

## 2.1.11  Net.Commerce Configuration Manager
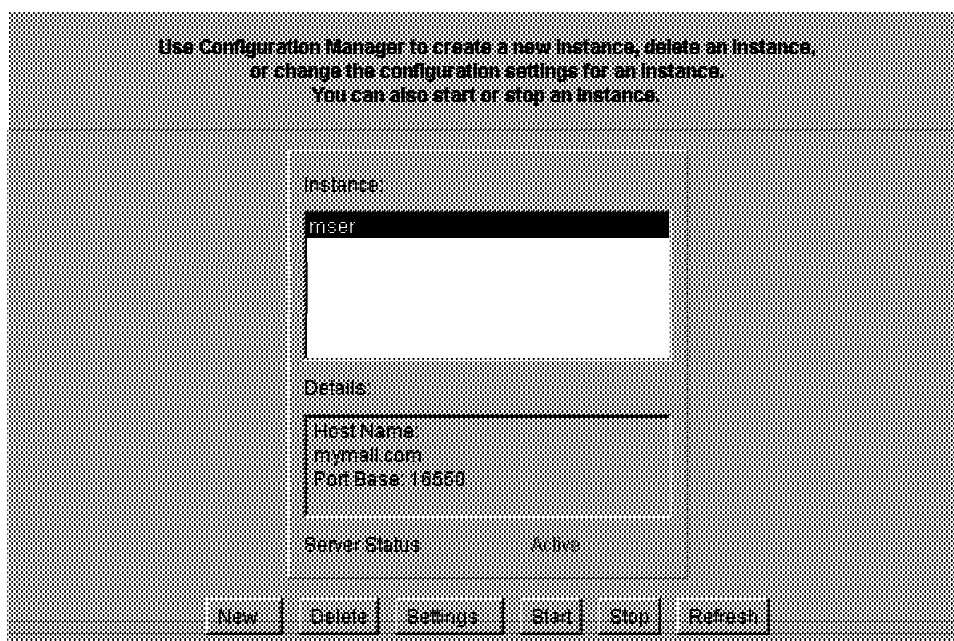


Figure   2-4. Net.Commerce Configuration Manager

The Net.Commerce Configuration Manager is a Java Applet that allows you to enter the required configuration parameters and will create or update the instance.

On Windows NT, the first Net.Commerce instance is created during the installation because the Configuration Manager is run from the InstallShield Wizard. On AIX and Sun Solaris you can only create instances after installation.

The Net.Commerce Configuration Manager is accessed through the Configuration Web Server. This is a copy of Internet Connection Server which listens on port 4444. It has its own HTML pages and configuration file which control the Net.Commerce instance configuration process.

To start the Configuration Web Server:

- On NT, run **Start... Programs... NetCommerce Version 3.1... Configuration Manager**
- On AIX, from directory /usr/lpp/NetCommerce3/server/bin, run **./start_admin_server**

To stop the Configuration Web Server:

- On NT, Close the Internet Connection Server window for the server listening on port 4444
- On AIX, from directory /usr/lpp/NetCommerce3/server/bin, run **./stop_admin_server**

To perform instance configuration:

1. Access the Net.Commerce Configuration Web Server at URL: http://<hostname>:4444/

2. Enter the user ID as **webadmin** and password as **webibm**

3. This will bring up the Net.Commerce Configuration Manager which allows you to:

   - Add New instances
   - Delete instances
   - View/Change instance settings.
   - Start instances
   - Stop instances

## 2.1.12 Net.Commerce Settings
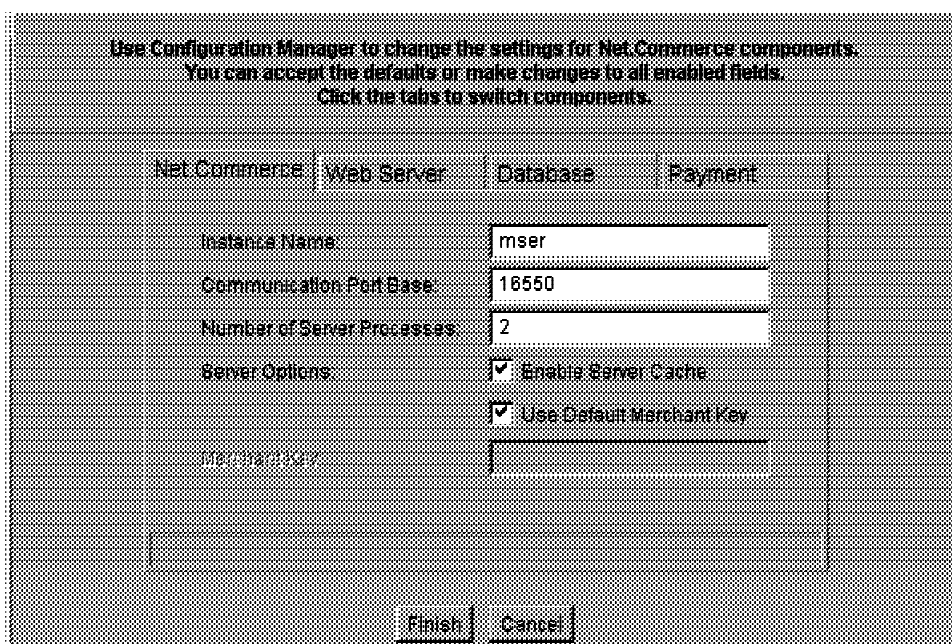


Figure   2-5. Net.Commerce Settings

This Java applet allows you to create or change settings for a Net.Commerce instance.

The Net.Commerce settings of an instance are:

- Instance Name - a unique name for the instance.  This is used in some file, directory and service names so a short alphanumeric string with no special characters should be used.

- Port Base - The base TCP/IP port number used by the server daemons.  This must be unique for each instance.  AT LEAST 11 ports are used by the server so you should be careful to avoid conflicts with other instances and other applications.

- Processes - the Net.Commerce Server Controller will start this number of daemons in the ncommerce pool.  The default is 2.  You may use a larger number to increase throughput assuming your system has sufficient CPU and memory resources.

- Enable Server Cache - will enable caching of Category and Product pages by the Net.Commerce director.

- Merchant Key - a 16 digit number used to seed encryption of sensitive information such as user passwords stored in the database.  You can override the default key if you wish.  If multiple servers are used for an instance, the merchant key on each server must be the same because they share the same database.

When the Finish button is pressed, the configuration changes are made, the web server is configured and restarted (Lotus Go Webserver only) and the database is created if it does not already exist (DB2 only).

## 2.1.13  Web Server Settings
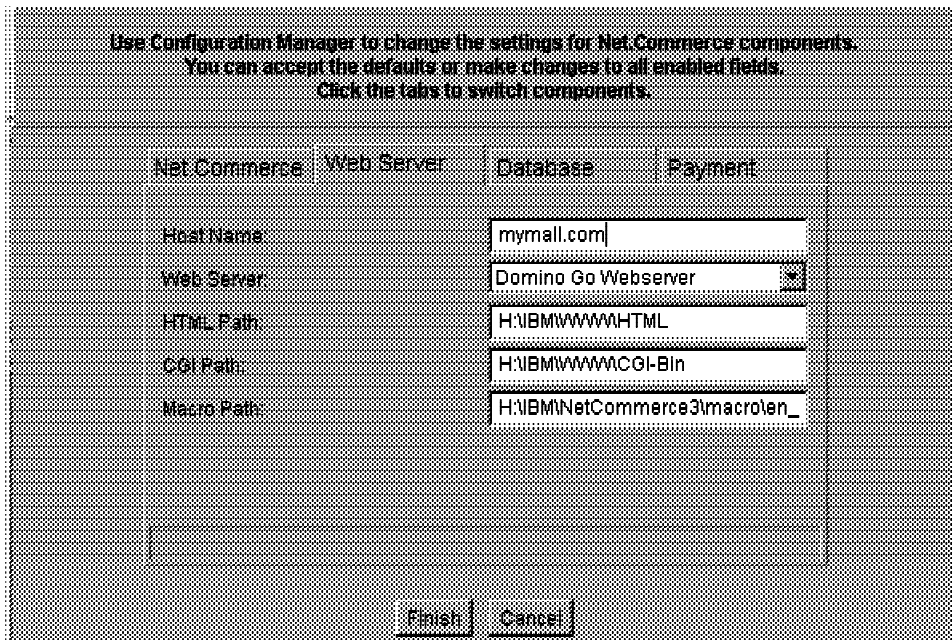


Figure   2-6.  Web Server Settings

The Web Server settings of a Net.Commerce instance are:

- Host Name - the fully qualified TCP/IP host name that will be used to access the instance.  This must be unique for each instance and users can ONLY use this name to access the instance pages.

- Web Server - Can be one of:
    - Domino Go Webserver - if so, changes will be made directly in the web server configuration files.
    - Domino Webserver
    - Netscape Enterprise Server

- HTML Path - the HTML document root for the instance.  This must be unique for each instance because the .ini files for the instance will be copied there.

- CGI Path - where the CGI programs are kept.  The director CGI program executable will be copied to this directory.

- Macro Path - where the custom Net.Data macros for this instance will be located.

When the Finish button is pressed, the configuration changes are made, the web server is configured and restarted (Lotus Go Webserver only) and the database is created if it does not already exist (DB2 only).

## 2.1.14  Database Settings



Figure   2-7. Database Settings

The Database settings of a Net.Commerce instance are:

- Database Name - name of the database that will be created for Net.Commerce. This must be unique for each instance and must follow the naming requirements of the DBMS.

- DBMS - Can be one of:

  - IBM Universal Database - if so, the database will automatically be built during configuration if a database with the name specified does not already exist.
  - Oracle 8 Server

- Instance Owner ID - The user ID of the administrator user that owns the database. (Not required for DB2)

- Database User Logon - The user ID of the user that Net.Commerce will use to create and access the database.  This will usually be an administrator user.

- Database Logon Password - The password of the Logon user.

- Use Staging Server - If selected, during database creation the staging tables and triggers will be created. (DB2 only)

When the Finish button is pressed, the configuration changes are made, the web server is configured and restarted (Lotus Go Webserver only) and the database is created if it does not already exist (DB2 only).

## 2.1.15  Payment Settings



Figure   2-8.  Payment Settings

If eTill is installed, the Payment Settings form is available.  The Payment settings of a Net.Commerce instance control the communication between the Net.Commerce payment server and the eTill application.  They are:

- Server Cycle Time - how often the background server will check the database for new transactions to process
- Processing Interval - how long the server will wait between each job (group of transactions)
- Transaction Timout - how long a transaction will be left in a pending state (meaning it is being processed by the eTill) before it is reset.
- Certificate Password - The password of the file used to store SET certificates
- Enable Message Trace - whether you want a trace file to be created listing all SET operations

When the Finish button is pressed, the configuration changes are made, the web server is configured and restarted (Lotus Go Webserver only) and the database is created if it does not already exist (DB2 only).

## 2.1.16 Configuration Files

The configuration files for a Net.Commerce instance are stored in the instance HTML root directory.  These include the Net.Data configuration file, the Server Controller configuration file and the configuration file for each pool.  (The syntax of the Net.Data configuration file is the same as in Net.Commerce V2)

When a Net.Commerce instance starts, the first daemon to run is the Server Controller (srvrctrl).  It uses its configuration file (srvrctrl.ini - Windows NT or srvrctrl.conf - AIX/Sun) and the database to determine how many other daemons need to be started and which pool of commands will be handled by each daemon.  e.g.

```
CONTROL_DBNAME mser
CONTROL_DBINST inst1
CONTROL_DBPASS ujrnmdkjveur
CONTROL_ERR_TOLERANCE 1
CONTROL_SERVICE ncmser
CONTROL_POOL_CONFIG D:\IBM\WWW\HTML\ncommerce,D:\IBM\WWW\HTML\pay_back,D:\IBM\WWW\HTML\pay_etill
MS_LOGPATH D:\IBM\NetCommerce3\instance\mser\logs
MS_LOGLEVEL 2
```

The three standard pools in a Net.Commerce system are:

- **ncommerce** - This runs the foreground server to processes interactive requests from shoppers in real-time.  It supports the base Net.Commerce and payment command set.  Configuration file ncommerce.ini or ncommerce.conf.

- **pay_etill** - This runs the foreground server to control the eTill.  Configuration file pay_etill.ini or pay_etill.conf.

- **pay_back** - This runs the background server (back_server) to process payment requests in batch mode.  It supports a subset of payment commands.  Configuration file pay_back.ini or pay_back.conf.

In Net.Commerce PRO, the enterprise integration samples implement a new pool **ncei_servers** which runs the background server (back_server) to process MQseries or CICS requests.

A typical ncommerce.ini file contains:

---

```
SERVICE_NAME_PREFIX ncmser
EXEC D:\IBM\NetCommerce3\bin\server.exe
MS_HOSTNAME mymall.com
DBNAME mser
DBINST inst1
DBOWNER inst1
DBPASS ujrnmdkjveur
PROCESSES 2
MERCHANT_KEY QunGZnDUqUDK7yW0cEnk38vOvgkAOlYm
MS_HOSTNAME mymall.com
MS_TRANS_COUNT 250
MS_HTML_MAX 1000000
MS_LOGPATH D:\IBM\NetCommerce3\instance\mser\logs
MS_LOGLEVEL 2
DB_RETRY_LIMIT 15
DB_RETRY_INTERVAL 20
MACRO_PATH D:\IBM\NetCommerce3\macro\en_US
HTML_PATH D:\IBM\WWW\HTML
MS_CGIBIN_PATH D:\IBM\WWW\CGI-Bin
SG_PATH D:\IBM\NetCommerce3\SmartGuide
NC_TEDITOR_PATH D:\IBM\NetCommerce3\instance\mser\teditor;D:\IBM\NetCommerce3\instance\mser\teditor\ca_html
NC_LANG en_US
NC_WEBSERVER Go
NC_ENABLE_STAGING 0
IC_DBMS DB2
ETILL_HOSTNAME mymall.com
PAY_STATE_TIMEOUT 3600
PAYSYS_CONTROLLER 1
ETILL_ADMIN_PORT 16555
ETILL_PAY_PORT 16556
SECURE_NVPS password, shlpswd, shlpswdver, ccnum, ccxyear, ccxmonth, name, shlogid, sanick
IC_JDBC_DRIVER COM.ibm.db2.jdbc.app.DB2Driver
IC_JDBC_NETDRIVER COM.ibm.db2.jdbc.net.DB2Driver
IC_JDBC_URL jdbc:db2:mser
IC_JDBC_NETURL jdbc:db2://mymall.com:16560/mser
```

Common variables are:

- SERVICE_NAME_PREFIX - prefix of entry in services file
- EXEC - program to execute (server or back_server)
- DBNAME - database name
- DBINST - database user
- DBPASS - database user's password
- PROCESSES - number of processes to run in this pool
- MERCHANT_KEY - merchant key used for encrypting data
- MS_HOSTNAME - instance host name
- DB_RETRY_LIMIT - number of retries when attempting to connect to the database during server initialization
- DB_RETRY_INTERVAL - wait between retry attempts
- MS_LOGPATH - directory containing log files
- MS_LOGLEVEL - amount of detail in each log file

## 2.1.17  TCP/IP Services File

The TCP/IP services file registers the port numbers used by TCP/IP servers.  It is /etc/services on AIX/Sun or \winnt\system32\drivers\etc\services on Windows NT.

Net.Commerce configuration registers some of the port numbers assigned to Net.Commerce daemons.  DB2 installation also assigns port numbers for DB2 in this file. e.g.

```
db2cDB2      50000/tcp   # Connection port for DB2 instance DB2
db2iDB2      50001/tcp   # Interrupt  port for DB2 instance DB2
ncmser       16550/tcp   # Net.Commerce - Server Controller
ncmser_1     16551/tcp   # Net.Commerce - mser
ncmser_2     16552/tcp   # Net.Commerce - mser
ncmser_pb_1  16553/tcp   # Net.Commerce - pay_back
ncmser_pe_1  16554/tcp   # Net.Commerce - pay_etill
```

Port numbers start from the base port entered during configuration.  Port Names are prefixed by "nc" and the instance name. e.g. ncmser

The server controller is assigned the base port and the daemons in each pool are assigned numbers consecutively from the base.

**Note:**  The eTill uses 5 additional ports which are assigned consecutively from the last daemon but are not listed in the services file.

The JDBC server (which is used by Product Advisor in Net.Commerce PRO) uses port 16560.  You should not choose the default base port number (16550) if you will have more than 2 processes because a conflict will occur.

## 2.1.18  Lotus Go Web Server Configuration

The Lotus Go Web Server configuration file controls startup of the web server and how URLs are processed.  It is \winnt\httpd.cnf on Windows NT or /etc/httpd.conf on AIX/Sun.

Net.Commerce configuration adds a block of directives at the top of the file, e.g.

```
###### IBM Net.Commerce ###### (Do not edit this section)
Service /cgi-bin/nph-msrvr/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_cache
Service /cgi-bin/ncommerce/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_cache
Service /cgi-bin/ncommerce3/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_cache
Service /msprotect/nph-msrvr/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_auth
Service /msprotect/ncommerce/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_auth
Service /msprotect/ncommerce3/* D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_auth

Protect /*.ini mymall.com {
ServerId        Private_Authorization
Authtype        Basic
GetMask         All@(*)
PutMask         All@(*)
PostMask        All@(*)
Mask            All@(*)
}

ServerInit D:\IBM\NetCommerce3\bin\nc_cgi_icapi.dll:nc_init_cache CACHE=OFF|CACHE_MAX_FILES=100
Pass    /te_html/*      D:\IBM\NetCommerce3\instance\mser\teditor\te_html\* mymall.com
Pass    /ca_html/*      D:\IBM\NetCommerce3\instance\mser\teditor\ca_html\* mymall.com


Exec    /msprotect/*    D:\IBM\NetCommerce3\cgi-bin\*

Pass    /storemgr/*     D:\IBM\NetCommerce3\html\en_US\ncadmin\storemgr\*
Pass    /sitemgr/*      D:\IBM\NetCommerce3\html\en_US\ncadmin\sitemgr\*
Pass    /ncacom/*       D:\IBM\NetCommerce3\html\en_US\ncadmin\common\*
Pass    /ncagif/*       D:\IBM\NetCommerce3\html\en_US\ncadmin\gif\*
Pass    /butnbars/*     D:\IBM\NetCommerce3\html\en_US\ncadmin\butnbars\*
Pass    /ncadmin/*      D:\IBM\NetCommerce3\html\en_US\ncadmin\*
Pass    /nchelp/*       D:\IBM\NetCommerce3\html\en_US\nchelp\*
Pass    /ncerror/*      D:\IBM\NetCommerce3\html\en_US\ncerror\*
Pass    /ncbooks/*      D:\IBM\NetCommerce3\html\en_US\ncbooks\*
Pass    /ncsample/*     D:\IBM\NetCommerce3\html\en_US\ncsample\*
Pass    /sggifs/*       D:\IBM\NetCommerce3\html\en_US\ncadmin\StoreCreator\sggifs\*
Pass    /demomall/*     D:\IBM\NetCommerce3\html\en_US\demomall\*
Pass    /grocery/*      D:\IBM\NetCommerce3\html\en_US\grocery\*
Pass    /bus2bus2/*     D:\IBM\NetCommerce3\html\en_US\bus2bus2\*
Pass    /tutorial/*     D:\IBM\NetCommerce3\html\en_US\tutorial\*
Pass    /nextgeneration/* D:\IBM\NetCommerce3\html\en_US\nextgeneration\*
Pass    /ca_icons/*     D:\IBM\NetCommerce3\html\en_US\ca_icons\*
Pass    /ca_widgets/*   D:\IBM\WWW\servlets\public\*

AddType .js             application/x-javascript binary 1.0 #Net.Commerce java

###### End of IBM Net.Commerce ######
```

The ServerInit and Service directives enable the API module used for the
Net.Commerce director.  They provide compatibility with V1 and V2 style URLs.

The Protect directive prevents a remote user from accessing the configuration files.

The Pass directives map incoming URLs to physical directories.

Another block is inserted just before the directive Pass /*.  It sets the HTML document
root for requests using the hostname associated with the Net.Commerce instance, e.g.

```
###### IBM Net.Commerce (Pass) ###### (Do not edit this section)
Pass   /*  D:\IBM\WWW\HTML\* mymall.com
###### End of IBM Net.Commerce (Pass) ######
```

Lotus Go Web Server supports Java Servlets.  These are small Java programs (like applets) but instead of running in the client browser, they run as part of the web server like an API module or CGI program.  The Lotus Go Web Server servlet configuration file is named \winnt\servlet.cnf on Windows NT or /etc/servlet.conf on AIX/Sun.  It controls how the Java Runtime Environment interacts with the web server and maps URLs to servlets.

Configuration of a Net.Commerce instance adds the Product Advisor builder and viewer servlets (PRO only). e.g.

```
###### IBM Net.Commerce ###### (Do not edit this section)
ESERVLET icviewer icviewer {
    configfile=ncommerce.ini
    content=text/x-ssi-html
    mymall.com=D:\IBM\WWW\HTML
}
SERVICE icviewer /servlet/icviewer

ESERVLET icmserver icmserver {
    configfile=ncommerce.ini
}
SERVICE icmserver /servlet/icmserver
###### End of IBM Net.Commerce ######
```

### 2.1.19  Database Creation

If DB2 is selected as the database manager, the Net.Commerce Database is automatically created if a database with the supplied name does not already exist.  If Staging Server is selected, the database creation script will perform additional steps to create the tables and triggers for staging.  DB2 is also enabled to start automatically at system boot.

For DB2, sample database creation scripts are supplied in the directories:
- On NT, **\IBM\NetCommerce3\nc_schema\db2**
- On AIX, **/usr/lpp/NetCommerce3/nc_schema/db2**

To create the database manually:
- Make sure that you are logged in as a SYSADM user

- Start a DB2 command window

- Change to the script directory

- Run: **schema** *dbname  stage  ncpwd  logfile*

  where *dbname* is the database name, *stage* is S to enable the staging server or N not to, *ncpwd* is the ncadmin user password encrypted with the merchant key and

*logfile* is the log file name.  If you used the default merchant key use **KDRiGCv9hAM=** (which is "ncadmin" encrypted with the default merchant key) as the ncadmin password.  Otherwise you will need to use the **nc3_crypt** command to encrypt the password value with your merchant key.

For Oracle, sample database creation scripts are supplied in the directories:

- On NT, **\IBM\NetCommerce3\nc_schema\oracle**
- On AIX, **/usr/lpp/NetCommerce3/nc_schema/oracle**

To use Product Advisor in Net.Commerce PRO you need to start the JDBC server.  This server must listen on port 16560.  To start it, run the command: **db2jstrt 16560**

On NT, you could add this command to your Startup folder so that it starts every time you login - JDBC is not integrated into Services.

## 2.1.20  Checkpoint Exercise

If you do not have a copy of Net.Commerce Version 3, you can order the 60-day evaluation "timebomb" CD-ROM from the Net.Commerce home page http://www.internet.ibm.com/net.commerce

You can also download updated documents, migration instructions and the latest README file from that site.

To install your own Net.Commerce V3 system, either:

- Follow the Exercise instructions in "Exercise.  Installation" on page  A-3 to install a Net.Commerce for Windows NT system using the IBM DB2 database manager and Lotus Go webserver.
- Follow the instructions in the Installing and Getting Started manual and the Net.Commerce README file.

# Unit 3.  Administration & Maintenance

## What This Unit Is About

Net.Commerce Version 3 includes many enhancements to the Net.Commerce Administrator interface and maintenance utilities.

This unit describes these enhancements and how the changes affect implementation of a Net.Commerce system.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe the new and enhanced administrator functions.
- List considerations for implementing a Net.Commerce V3 system.

# 3.1  Administration

## 3.1.1  Administration Changes

Net.Commerce V3 includes new administration forms and Java Applets for some of the new functionality such as Store Creator, SET support, Product Advisor and the new command architecture.  Security is enhanced via a new access control model based on Access Groups.  All Net.Commerce administrator functions run special administration commands.  These commands are assigned to access groups in the database so that particular administrator functions can be assigned to specific groups of administrators.

The default access groups included with Net.Commerce V3 are:

- Site Administrators
- Store Administrators - a group is created for each store
- Store Creators
- Payment Administrators

**Note:**  A dummy access group also exists for the commands that are used during the shopping process which need no specific access control.

## 3.1.2  Net.Commerce Administrator Tools
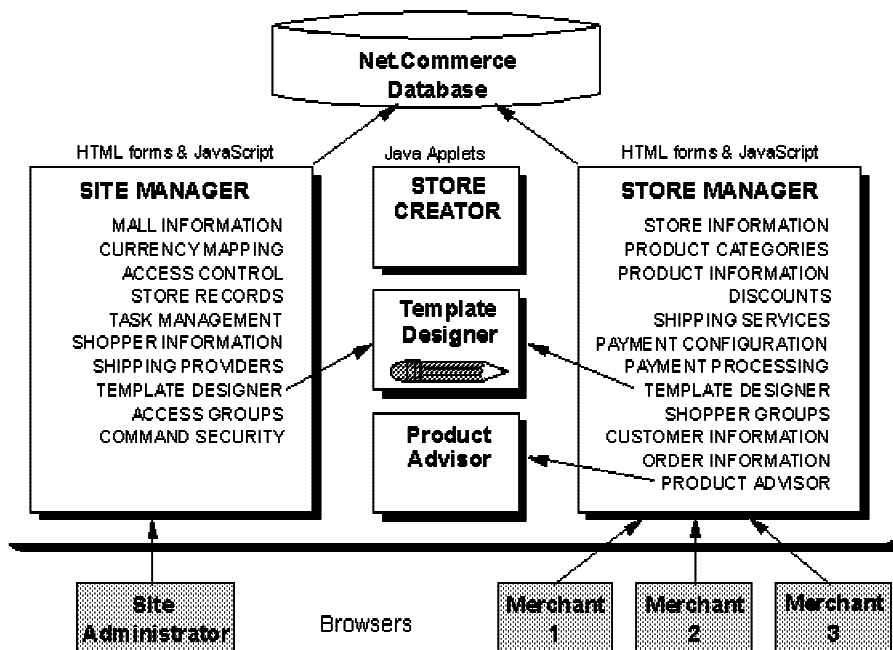


Figure   3-1. Net.Commerce Administrator Tools

Net.Commerce Administrator is a suite of browser based tools to create and maintain the Net.Commerce mall and stores.

Net.Commerce Administrator consists of a number of components. The user interface is a set of HTML & JavaScript pages and Net.Data macros. These pages provide data entry forms and also allow other tools to be launched such as Store Creator, Template Designer and Product Advisor which are Java Applets that run in the user's browser. To run these Java applets, a user MUST have a browser that supports Java 1.1. An updated version of Netscape Navigator 4.04 is on the Net.Commerce CD which includes support for Java 1.1.

In Net.Commerce V3, a number of new functions have been added to the Net.Commerce administrator interface. There are now four main options on the menu:

- STORE CREATOR
- SITE MANAGER
- STORE MANAGER
- SAMPLES AND TUTORIALS

**STORE CREATOR** is an easy to use graphical application that steps a user through creation of a store in 9 easy steps. It supports three store models:

- One Stop Shop - a simple business to consumer store model that does not require shoppers to register
- Personal Delivery - a business to consumer store model that offers more shopper functions including registration and address book
- Business to Business - a business to business store model that includes an approvals process for purchases

Store Creator is only accessible by an administrator in the Site Administrators or Store Creators access group.

Store Creator is discussed in more detail in Unit 4, "Store Creator" on page 4-1

**SITE MANAGER** allows for management of the high-level functions of a site (or mall). It is used to perform the following tasks:

- define mall information and store categories
- create administrators and assign access
- create and delete store records
- view and maintain shopper information
- configure command and task processing and security
- create shipping providers
- define currencies for SET
- load Template Designer for creation of mall pages

Site Manager functions are only accessible by an administrator in the Site Administrators access group.

**STORE MANAGER** allows the merchant to create and manage all aspects of the store specific information. It is used to perform the following tasks:

- enter or change store and merchant information
- create and manage product categories
- create and manage product information
- define discounts
- manage shipping services

- create and manage shopper groups
- view shopper information and create customer information
- manage orders
- configure and manage payments
- load Template Designer for creation of store pages
- load Product Advisor for creation of intelligent catalogs (PRO only)

Store Manager functions are only accessible by an administrator in the Site Administrators or Store Administrators access group. The payment functions are also accessible by an administrator in the Payment Administrators access group. A Store Administrators access group exists for each store so that each administrator can be restricted to one or more store's data.

Template Designer is a Java applet for designing mall and store web pages. Template Designer can be accessed from both the Site Manager and Store Manager.

Product Advisor is a Java applet for building intelligent catalogs.

A Net.Commerce system will typically have one Site Administrator who uses Site Manager, and can have one or more Store Administrators (Merchants) using Store Manager to manage their stores. Additional administrators can be created and granted Store Creator or Payment Administrator authority.

**SAMPLES AND TUTORIALS** is an easy to use interface for creating Net.Commerce sample databases and switching which database the server will use on initialization. The following sample databases can be created:

- DEMOMALL - Metropolitan Mall - A sample mall consisting of a few simple stores with sample data and macros.
- BUS2BUS - Office Window - a business to business store which implements a multi-level user access and approval model.
- GROCERY - East West Food Mart - a custom consumer store selling grocery products.
- TUTORIAL - East West Food Mart Tutorial - the basic structure of the grocery store. Tutorial instructions for building the complete store are provided in the Online Information.

Once multiple databases have been created, you can switch which database the server will connect to when it is next started.

## 3.1.3  Administrator Interface
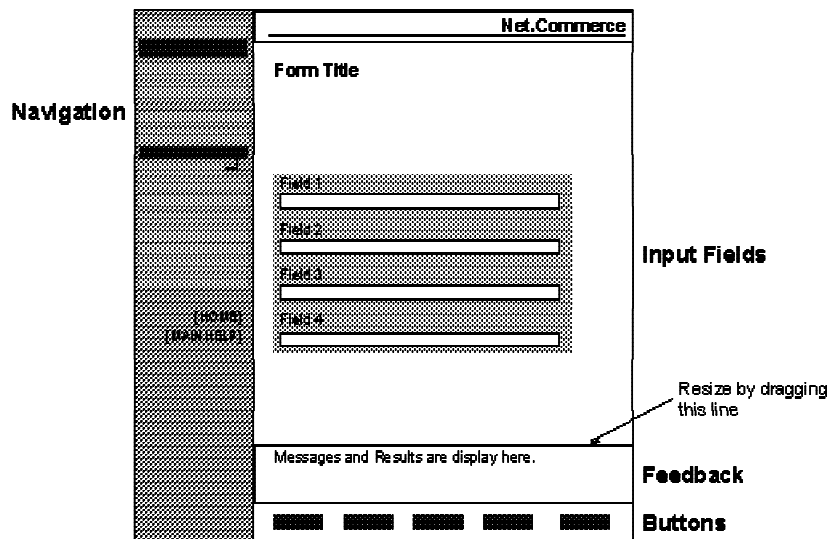


Figure   3-2. Administrator Interface

The Net.Commerce Administrator interface looks and behaves the same as in V2.

To launch Net.Commerce Administrator go to URL:  **https://<hostname>/ncadmin/**

The host name must be the fully qualified name associated with the Net.Commerce instance.  If you have multiple instances you must use a different host name to access each one.

This URL will display the Administrator Logon page.  Once you have logged on, you will go to the administrator home page
https://<hostname>/cgi-bin/ncommerce3/Admin/ncadmin/homepg

**Note:**  If you bookmark this page, you will not get the login prompt when you select the bookmark and will receive an authentication error when you attempt to access an administrative function.

When Net.Commerce is first installed, the only administrator defined is a site administrator:

- User ID =   ncadmin
- Password =   ncadmin

You should use Site Manager... Access Control to change the password and create additional administrators.

The user interface consists of a set of frames:

- Navigation - provides a tree menu structure for navigation between the different administrative tasks.  You can also link to the Net.Commerce Online Information by selecting [MAIN HELP]

- Input fields - the interface to manipulate the data in the database

- Feedback - information, success messages and search results.  This frame starts small but it can be stretched so that long output can be seen.
- Buttons - to process the input fields. e.g. Save, Search or Delete

## 3.1.4  Online Information

To access the Net.Commerce Online Information, go to URL: http://your_hostname/nchelp/index.htm or select [MAIN HELP] from the Net.Commerce Administrator.

The Net.Commerce Online Information has been enhanced and now includes an index which makes navigation much easier.  The following sections are included:

- Tell Me About? - conceptual information about different features.
- How Do I? - task oriented information on how to setup a site.
- Reference - reference information for customization including information about commands, tasks, the database and C++ classes.
- Samples - information about how to setup and use the three supplied sample databases Metropolitan Mall (DEMOMALL), Office Window (BUS2BUS) and East West Food Mart (GROCERY).
- Tutorials - information about how to setup and use the two supplied tutorials - East West Food Mart and Product Advisor.
- Glossary
- Index - a detailed index with links to the other sections.

## 3.1.5  User Access Data Model
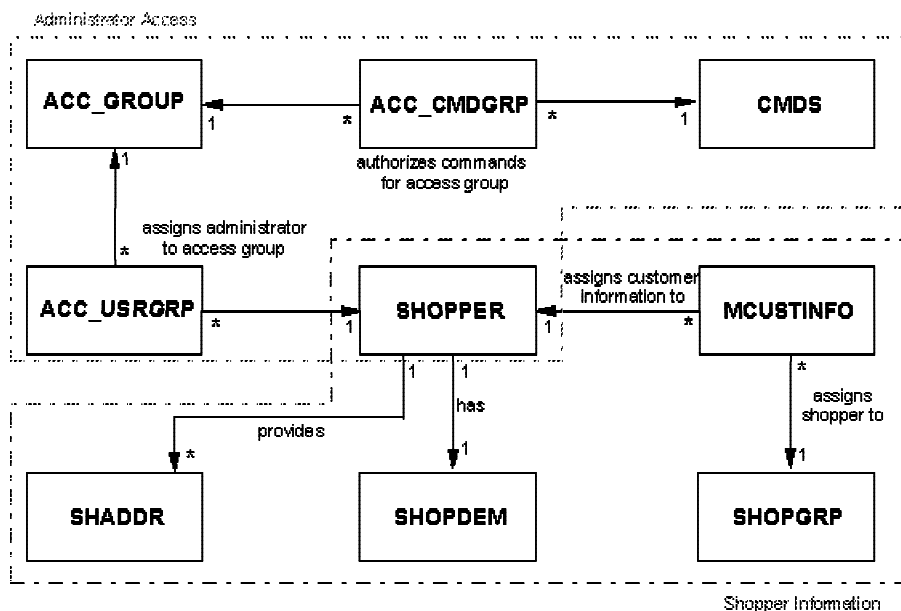


Figure   3-3. User Access Data Model

All users (Shoppers and Administrators) are defined in the shopper database tables (SHOPPER, SHOPDEM, SHADDR).  Merchants can also create shopper groups and customer specific information.

There are more than 90 Net.Commerce commands (about 30 used for Shopping and more than 60 for Administrative purposes).  They are registered in the CMDS database table.  Groups of commands can be assigned to administrators using Access Groups.

When Net.Commerce is installed a number of Access Groups are defined in the ACC_GROUPS table including:

- Site Administrators - Can run all Net.Commerce commands
- Store Administrators - Can run Store Admin and Template Designer commands
- Store Creators - Can run store creator, merchant and shipping commands
- Payment Administrators - Can run Payment admin and SET commands
- Dummy Group - Used for commands that need no access control - e.g. Shopping Commands and AdminLogon

The ACC_CMDGRP table is used to assign commands to access groups.

The ACC_USRGRP table is used to assign administrators to access groups.

There are two types of Net.Commerce user:

- Shoppers run the basic Net.Commerce commands to navigate and place orders. There is no access control associated with these commands by default.
- Administrators run administrative commands by requesting functions in the administrative interface.  All administrative commands are associated with an

access group.  The power of an administrator is determined by which commands are in the access groups they are a member of.

In V1 and V2 a single table ACCTRL was used to indicate if an administrator was a Site Administrator or a Store Administrator for a particular store.

## 3.1.6  Access Control



Figure   3-4.  Access Control

The Access Control function in Site Manager has changed in V3 to enable the new access control model.

The Access Control form allows a Site Administrator (initially ncadmin) to create other administrator users.  This updates the shopper database tables (SHOPPER, SHOPDEM, SHADDR) with the new administrator record.

The Access Group Assignment form allows membership of specific access groups to be specified for an administrator.  This updates the User Access Group table (ACC_USRGRP).

**Note:**  In V1 & V2 the only levels of access that could be granted were Site or Store access.  This was done using the Access Control table (ACCTRL) which is not used in V3.

## 3.1.7  Access Groups
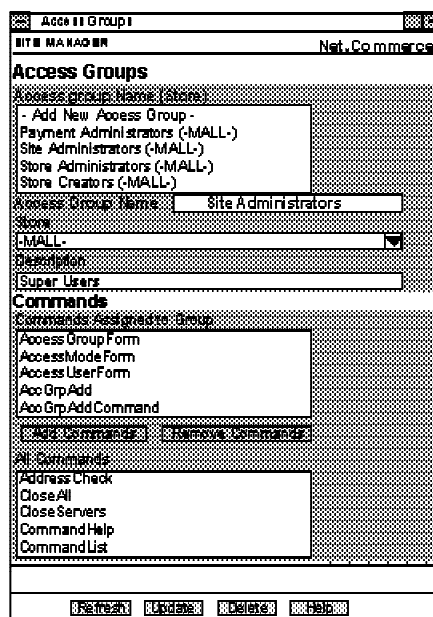


Figure   3-5.  Access Groups

As part of site customization, you may wish to create customized administrators. Net.Commerce provides four different access groups which determine the administrative commands that can be run by a user.  You may wish to define additional access groups.

The Access Groups form in Site Manager allows the Site Administrator to create new Access Groups either for the Mall or for each store.  For example, you may wish to create a custom store administrators group that also has access to payment functions.

**Note:**  There is little documentation on the admin commands so it might be difficult to select the correct commands for a group (although looking at the default groups will help.)

Access Groups updates the ACC_GROUP and ACC_CMDGRP tables in the database.

## 3.1.8  Task Management



Figure    3-6.  Task Management

The Task Management form in Site Manager allows the Site Administrator to change the overridable functions and macros associated with mall and store tasks.  In V3 changes have been made to reflect the new task types and allow overridable functions to be assigned to tasks.

Selecting a Task Type lists all of the tasks associated with that type in the feedback frame.  You can select a task and change its Scope and Comment.

For ALL tasks, the Overridable Function Assignment form allows you to select the function used for a task.  Functions must already be defined in the OFS table in the database.  When Scope=Mall only one function can be assigned.  It will be used by all stores.  When Scope=Store, a different function can be assigned to each store. Function TaskDisplay is assigned to all VIEW and ERROR tasks by default (except those for commands CategoryDisplay and ProductDisplay).  Function DoNothingNoArgs can be used to switch off a particular task (e.g. inventory checking or tax calculation)

For VIEW and ERROR tasks, the Macro Assignment form allows you to define the macro file used for a task.  When Scope=Mall only one macro can be assigned.  It will be used by all stores.  When Scope=Store, a different macro can be assigned to each store.

Task Management updates the TASKS, MACROS and TASK_MER_OF tables in the database.

## 3.1.9  Command Security
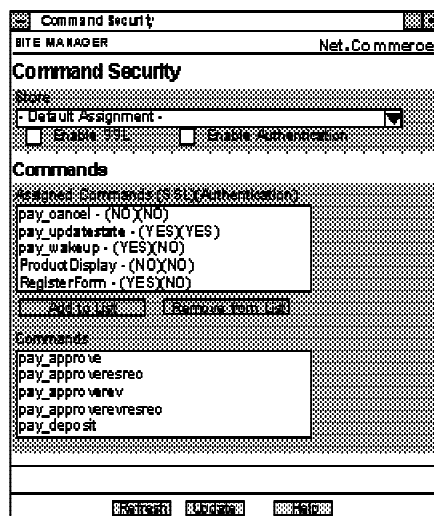


Figure   3-7.  Command Security

The Command Security form in Site Manager allows the Site Administrator to specify whether SSL security and login authentication are required to run a particular Net.Commerce command.

Most commands have a default assignment for the Site, but you may wish to override the defaults for a store.  For example, a merchant who uses the ExecMacro command to run security sensitive macros may decide to require SSL security for this command.  A normally unsecure function such as address book or shopping cart could be made available only to logged in shoppers by requiring logon authentication for the AddressForm or InterestItemDisplay commands.

Command Security updates the ACC_MODE table in the database.

## 3.1.10 Discounts

The data model for discounts is unchanged from Net.Commerce V2. However, the process for choosing a discounts function has changed and there are more functions to choose from.

The Total costs and charges for an order are calculated by the Net.Commerce command OrderDisplay?status=P which displays the "Order Details" page. When this command runs, it runs a series of PROCESS tasks:

- GET_BASE_SPE_PRC - calculates the current price for each item in the order.
- CHECK_INV - verifies inventory is available for each item.
- * GET_SUB_ORD_PROD_TOT - calculates the cost per sub-order (items going to the same shipping address)
- GET_SUB_ORD_PROD_TAX_TOT - calculates the tax per sub-order
- GET_SUB_ORD_PROD_SH_TOT - calculates the shipping per sub-order
- * GET_ORD_PROD_TOT - calculates the total cost of all sub-orders
- GET_ORD_PROD_TAX_TOT - calculates the total tax of all sub-orders
- GET_ORD_PROD_SH_TOT - calculates the total shipping of all sub-orders.

* These tasks calculate the total cost, but the built in functions for these tasks do not support discounts. If you want discount support for a store, you need to assign a supplied overridable function to one of these tasks using Site Manager... Task Management.

If you want discounts calculated per suborder and to have the tax and shipping charges calculated based on the discounted total, then assign a discount function to the GET_SUB_ORD_PROD_TOT task.

If you want discounts calculated per order and to have the tax and shipping charges calculated based on the undiscounted total, then assign a discount function to the GET_ORD_PROD_TOT task.

There are 10 functions supplied that can be used to override the two PROCESS tasks:

For the GET_SUB_ORD_PROD_TOT task:

- GetSubOrderProductTotalWithDiscountPerDiscCode - Calculates a discount for each discount code in a sub-order. Does not support order discounts.
- GetSubOrderProductTotalWithDiscountPerDiscCodePerProduct - Calculates a discount for each product in a sub-order that has a discount code. This can produce a different result than "PerDiscCode". Does not support order discounts.
- GetSubOrderProductTotalWithDiscountPerOrder - Calculates the discount based on the total sub-order cost.
- GetSubOrderProductTotalWithDiscountPerDiscCodePlusPerOrder - Calculates a discount for each discount code in a sub-order. A further discount can be applied based on the total sub-order cost.
- GetSubOrderProductTotalWithDiscountPerDiscCodePerProductPlusPerOrder - Calculates a discount for each product in a sub-order that has a discount code. A further discount can be applied based on the total sub-order cost.

For the GET_ORD_PROD_TOT task:

- GetOrderProductTotalWithDiscountPerDiscCode - Calculates a discount for each discount code in an order.  Does not support order discounts.
- GetOrderProductTotalWithDiscountPerDiscCodePerProduct - Calculates a discount for each product in an order that has a discount code.  This can produce a different result than "PerDiscCode".  Does not support order discounts.
- GetOrderProductTotalWithDiscountPerOrder - Calculates the discount based on the total order cost.
- GetOrderProductTotalWithDiscountPerDiscCodePlusPerOrder - Calculates a discount for each discount code in an order.  A further discount can be applied based on the total order cost.
- GetOrderProductTotalWithDiscountPerDiscCodePerProductPlusPerOrder - Calculates a discount for each product in an order that has a discount code.  A further discount can be applied based on the total order cost.

Due to the new server architecture, the discounts functions are now implemented as Overridable Functions.  These functions are registered automatically in the OFS table when the database schema is created.

To assign a Discount function:

1. Select Site Manager then Task Management in the navigation frame
2. Select Task Type **PROCESS**
3. Select the task (GET_SUB_ORD_PROD_TOT or GET_ORD_PROD_TOT) in the feedback frame.
4. Select Task Assignment in the navigation frame to see the Overridable Function Assignment form.
5. Select the Store you want to assign the function for or Mall to assign the same function for all stores that will not have their own function assigned.
6. Select the desired Discount function from the list of overridable functions
7. Click on **UPDATE** to assign the function.

Because Scope=Store for these tasks, a different function can be assigned for each merchant.

### 3.1.11  Mass Import Utility

The Mass Import Utility in V3 has had a number of enhancements, but there have been no changes to the syntax of a Mass Import file.  A number of performance enhancements have been made to speed up the import process.

To process records more rapidly, the Mass Import utility keeps common data, such as the parent category, in a cache for re-use with subsequent records. This saves the utility from having to query the database for each record.  To take advantage of this caching, you must be careful of the order in which the records appear.  The recommended order is:

1. #CATEGORY
2. #CATESGP
3. #PRODUCT - group items immediately after their parent product
4. #PRODDSTATR
5. #PRODATR
6. #PRODPRCS

7. #PRODSGP
8. #CGPRREL - put CGPRREL entries immediately after the product group

Normally, the mass import utility commits the database after each record. To improve the performance of the mass import utility you can specify option -commitcount n where n is an integer. This will cause the mass import utility to commit after every n records have been processed. If n = 0 the utility will only commit after all records have been processed, but if you are importing a large amount of data the database could run out of log space which will cause the import to fail.

## 3.1.12  Staging Server

The Staging Server in V3 has been updated to support staging of the following new tables:

- V3 Command Infrastructure tables for pools, commands, tasks and overridable functions
- Product Advisor tables (PRO only)

**Note:**  The database tables relating to SET and eTill cannot be staged.

The SQL scripts which enable staging have been renamed to be consistent with other name changes.

To enable staging during database creation, use the Net.Commerce Configuration Manager and select the checkbox on the Database form. To enable staging after database creation, you must run the appropriate SQL scripts to create the STAGLOG table and the triggers that add rows to it. In V3 go to a DB2 command prompt, connect to the database and run:

```
db2 -tvf NC_PATH/nc_schema/db2/stage_schema.db2.sql
db2 -td# -vf NC_PATH/nc_schema/db2/stage.db2.sql
db2 -td# -vf NC_PATH/nc_schema/db2/icat_stage.db2.sql
```

where NC_PATH is the installation directory for Net.Commerce (/usr/lpp/NetCommerce3 on AIX).

## 3.1.13 Net.Commerce Server Logs
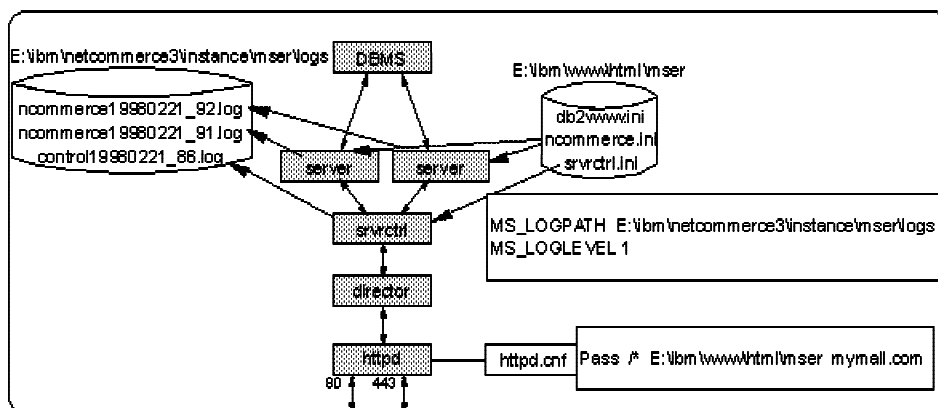


Figure  3-8. Net.Commerce Server Logs

The server logs are stored in the directory instance/*name*/logs relative to the Net.Commerce installation directory.  The location is determined by the MS_LOGPATH parameter in the pool configuration file.

Each server daemon will create a new log file every time it is started and at midnight every night that day's log file is closed and a new one is started.  Log file names include the pool name, date and process id. e.g. control19980130_123.log

The amount of detail written to the server logs is determined by the MS_LOGLEVEL parameter in the pool configuration file (e.g. srvrctrl.ini or ncommerce.ini).  Supported values are:

- 0 - no logging is performed
- 1 - minimal logging
- 2 - debugging (this is the default setting)

The most important information in the server logs are the error messages generated when the server fails. These could be caused by:

- Configuration errors - e.g. in the ncommerce.ini file
- Resource errors - e.g. lack of memory
- Connection errors - e.g. socket used
- Database errors - e.g. cannot connect to database

In V1/V2 you could control log level with a command line parameter (-d or -tr).  This is no longer supported.  You should not remove the MS_LOGPATH entry in the .ini file which previous versions allowed.

## 3.1.14 Extended Data Log
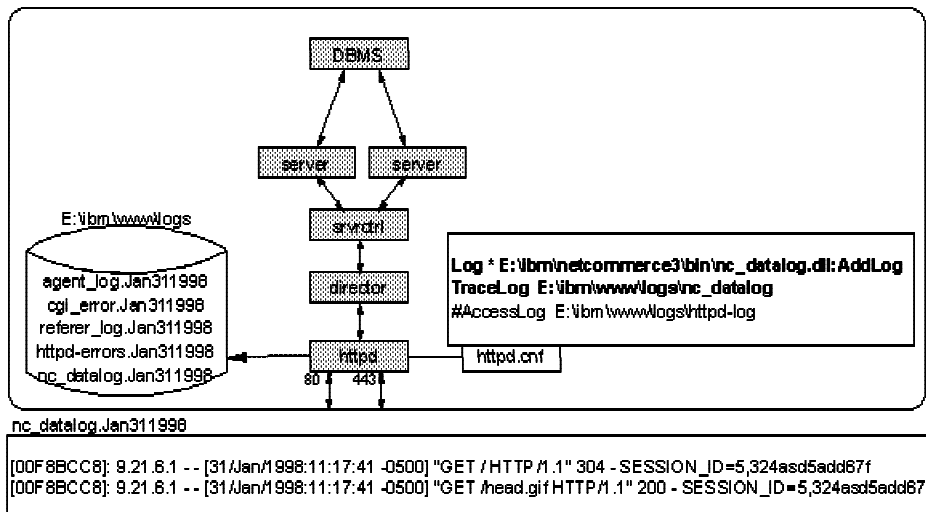


Figure   3-9. Extended Data Log

The normal web server access log does not contain cookies so you will not know which shopper looked at which page.  (The agent IP address will not always uniquely identify a shopper due to proxies, multi-user systems or the fact that a shopper may use browsers on many systems.)

For Go Webserver, Net.Commerce includes an API module that can be used to create log files in the same format as the access log but with cookies appended.  The Extended Data Log module writes log records to the server's trace log.  To enable this API module, the following directives in the httpd.cnf file need to be modified:

- Log - specifies the URLs to log and the API DLL and function name for the log function.
- TraceLog - specifies the filename of the trace log.  (This is not documented in the Go Webserver manuals.)
- AccessLog - normal access log.  Comment out this directive to stop access logging otherwise each request will be logged twice.

Netscape Enterprise Server does allow cookies to be saved in its log file.  Make the following changes to your obj.conf file:

```
Init fn=flex init access="log_file_path/log_file_name"
     format.access="%Ses->client.ip% -
     %Req->vars.auth-user%[%SYSDATE%]  \"%Req->reqpb.clf-request%\"
     %Req->srvhdrs.clf-status% %Req->srvhdrs.content-length%
     %Req->headers.cookie%"
```

Lotus Domino Webserver 4.6 DOES NOT support API modules so the extended data log function IS NOT available.

The cookie in Net.Commerce V3 contains the shopper reference number, a comma and an encrypted string.  You would need a program that could extract the relevant

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data from the log file so that the data could be analyzed. **If you had such a program for Net.Commerce V2, it MUST be modified for V3 to handle the new cookie format.**

### 3.1.15  Net.Commerce Caching Facility
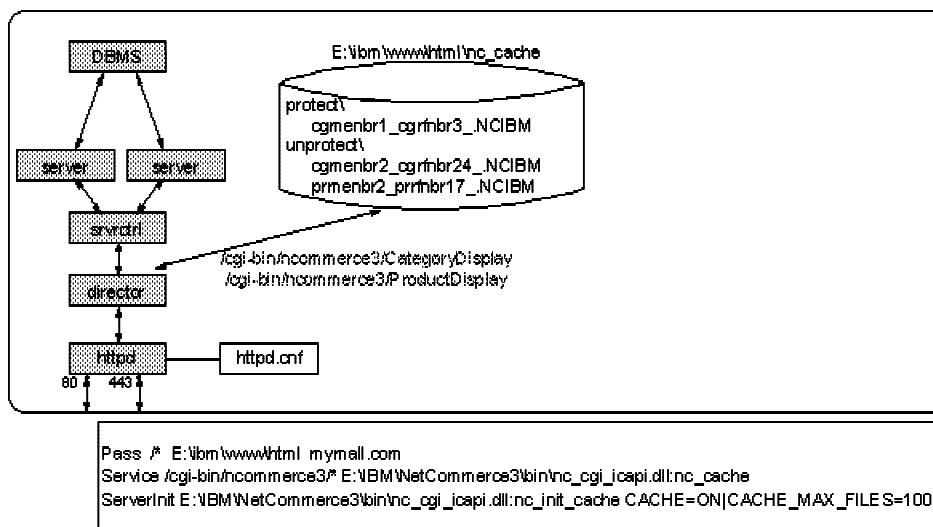


Figure   3-10. Net.Commerce Caching Facility

The Net.Commerce caching facility saves all pages that are generated by the CategoryDisplay and ProductDisplay commands - with certain restrictions.  It is implemented in the Net.Commerce director which intercepts the incoming request and determines if the requested page is in the cache.  This is different from Net.Commerce V2 where the caching facility was a separate API module and the director was a CGI program.  In V3 the director and caching facility are combined and can be implemented either as an API module or a CGI program.

**Note:**  The CategoryDisplay and ProductDisplay commands were ;display/category and ;display/item in V1/V2.

For Go Webserver, directives are added to the httpd.cnf file during configuration to load the director as an API module when the web server starts.  Figure  3-10 shows the directives for Windows NT.  On AIX this would be:

```
Service /cgi-bin/ncommerce3/* /usr/lpp/NetCommerce3/bin/libnc_cgi_icapi.a:nc_cache
ServerInit /usr/lpp/NetCommerce3/bin/libnc_cgi_icapi.a:nc_init_cache CACHE=ON|CACHE_MAX_FILES=100
```

The CACHE parameter specifies if caching is ON or OFF.  This can be set using the Net.Commerce Configuration Manager by selecting the checkbox on the Net.Commerce form.

**Note:**  Caching is either ON or OFF for ALL instances on a system because all instances share the same director.

The CACHE_MAX_FILES parameter allows you to control how many pages are cached.

---

For Netscape Server, you need to add directives to the obj.conf file to load the NSAPI module when the web server starts.

```
Init fn="load-modules" funcs="nc_init_cache,nc_cache" shlib="x:\IBM\NetCommerce3\bin\nc_cgi_nsapi.dll"
Init fn="nc_init_cache" root="x:\IBM\WWW\HTML" CACHE=ON CACHE_MAX_FILES=100
Service root="x:\IBM\WWW\HTML" fn="nc_cache"
```

Stop and restart the web server to load the new configuration.

Cache purging is implemented the same in V3 as it was in V2 but the SQL scripts have been renamed to be consistent with other name changes.

To enable cache purging you must run the appropriate SQL script to create the triggers that add rows to the CACHLOG table.  In V3 go to a DB2 command prompt, connect to the database and run:

```
db2 -tvf NC_PATH/nc_schema/db2/cache_enable.sql
```

where NC_PATH is the installation directory for Net.Commerce (/usr/lpp/NetCommerce3 on AIX).

As in V2, you must manually start the ms_synchd daemon which reads the CACHLOG table and purges the files.

Caching of pages with significant parameters is implemented the same in V3 as in V2. The NC_CAT_SIG_PARMS and NC_ITEM_SIG_PARMS statements must be added to the ncommerce.ini or ncommerce.conf file.

## 3.1.16  Additional Changes

There have been some minor changes to some administration forms to fix JavaScript errors and improve usability.

The Template Designer has been enhanced to add support for creating Product Advisor templates, support the new Net.Commerce command syntax and make minor fixes.  It has also been rewritten using Java 1.1 so the browser used to run Template Designer (and the Store Creator and Product Advisor applets) must support Java 1.1.

There have been some minor changes to the Mass Import, Staging and Cleanup Utilities.  Previously, two logs files were produced based on the -err and -log command line flags.  In V3, a single log file is produced, determined by the -log command line flag.  The -err command line flag is no longer valid and will be ignored.

The new Store Creator, Payment Configuration, Payment Processing and Product Advisor functions are discussed in later units.

# Unit 4.  Store Creator

## What This Unit Is About

Net.Commerce Version 3 includes a new tool called Store Creator
that allows a complete store to be built extremely quickly based on
one of three standard templates (models) which implement a
specific shopping process flow.

This unit describes how to use store creator and what additional
tasks are required when it is used.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe the information needed to create a store.
- Use the Store Creator to create a store.
- List tasks that cannot be performed using Store Creator.

# 4.1 Store Creator

## 4.1.1 Store Creation Choices
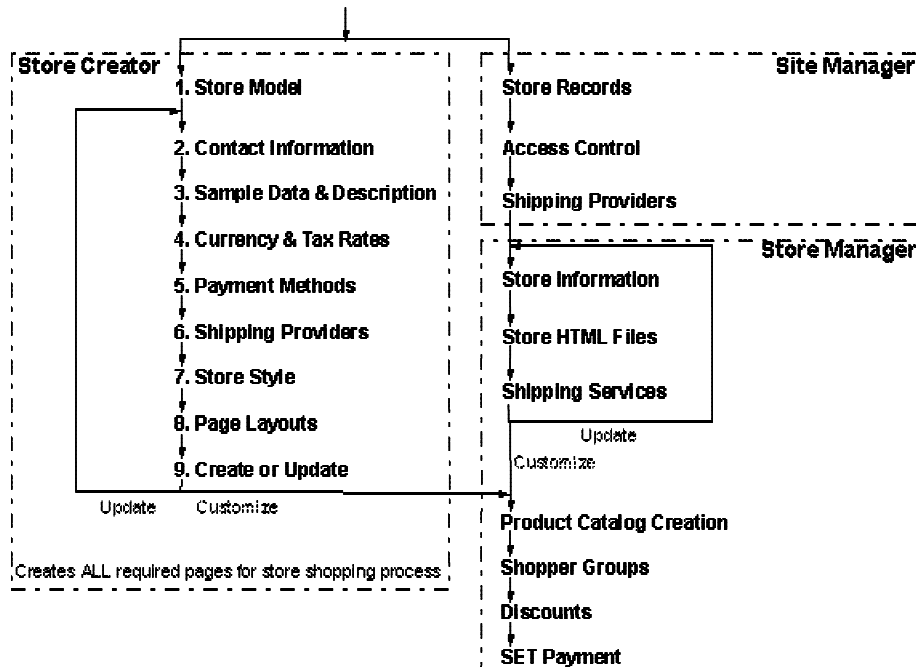


Figure   4-1. Store Creation Choices

Net.Commerce V3 provides different methods of creating stores as illustrated in
Figure  4-1

- Store Creator is an easy to use graphical application which steps a user through
  creation of a store in 9 easy steps:

  1. Select a Store Model
  2. Enter Contact Infomation
  3. Add Sample Data and a Store Description
  4. Specify Currency and Tax Rates
  5. Select Payment Methods
  6. Specify Shipping Providers
  7. Select a Store Style
  8. Select Page Layouts
  9. Review Your Selections

  It creates all necessary HTML pages, images and macros for the complete
  end-to-end shopping process to function.

  After creation, you can go back and make some changes with Store Creator, but to
  use advanced features of Net.Commerce you will need to use the Store Manager
  and perhaps perform manual customization.

- Using Site Manager & Store Manager. This choice can be used if the store models offered by Store Creator do not fit the needs of the merchant or you want to copy a sample store and customize it.

  You would need to create all of the necessary HTML pages, images and macros for the end-to-end shopping process. Some of these can be created with Template Designer and others would need to be created by directly editing sample Net.Data macros.

Creation of the categories and products for the store and use of advanced features of Net.Commerce require you to use the appropriate Store Manager functions.

## 4.1.2 Store Creator
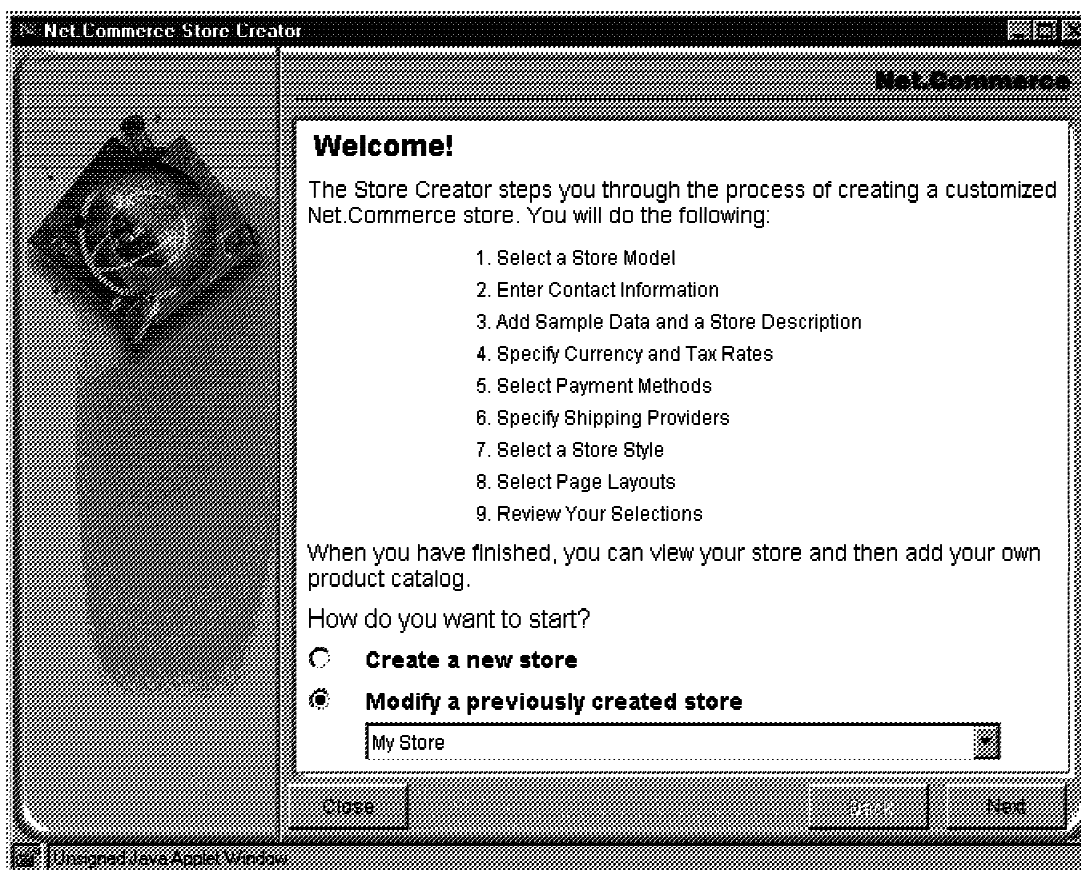


Figure 4-2. Store Creator

Net.Commerce V3 includes Store Creator which is a Java applet that runs in the user's browser. To start Store Creator, go to the Net.Commerce Administrator home page and select STORE CREATOR, then click on LOAD. The window shown in Figure 4-2 will be displayed.

This easy to use graphical application steps a user through creation of a store in 9 easy steps:

1. Select a Store Model - select one of the three store models offered:

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- One Stop Shop - a simple business to consumer store model that does not require shoppers to register
- Personal Delivery - a business to consumer store model that offers more shopper functions including registration and address book
- Business to Business - a business to business store model that includes an approvals process for purchases

2. Enter Contact Infomation
3. Add Sample Data and a Store Description - you can preload sample product data to see how the store would look
4. Specify Currency and Tax Rates
5. Select Payment Methods - specify the credit cards that shoppers can use
6. Specify Shipping Providers
7. Select a Store Style - choose a graphic store style which includes logos and icons that will appear on all store pages.
8. Select Page Layouts - choose how category pages will be displayed.
9. Review Your Selections - make sure you haven't made any errors and then create the store

After creation, you can go back and make some changes with Store Creator, but to use advanced features of Net.Commerce you will need to use the Store Manager and perhaps perform manual customization.

Store Creator is only accessible by an administrator in the Site Administrators or Store Creators access group.

Store Creator requires a browser that supports Java 1.1, SSL, tables and frames.  For example: Netscape 4.0.4 with the Java 1.1 JDK patch which is included on the Net.Commerce CD.

Stores created using the Store Creator require browsers that support frames, tables and JavaScript.

**Note:**   Store Creator is NOT available in Net.Commerce for OS/390 or OS/400

### 4.1.3 Step 1. Select a Store Model
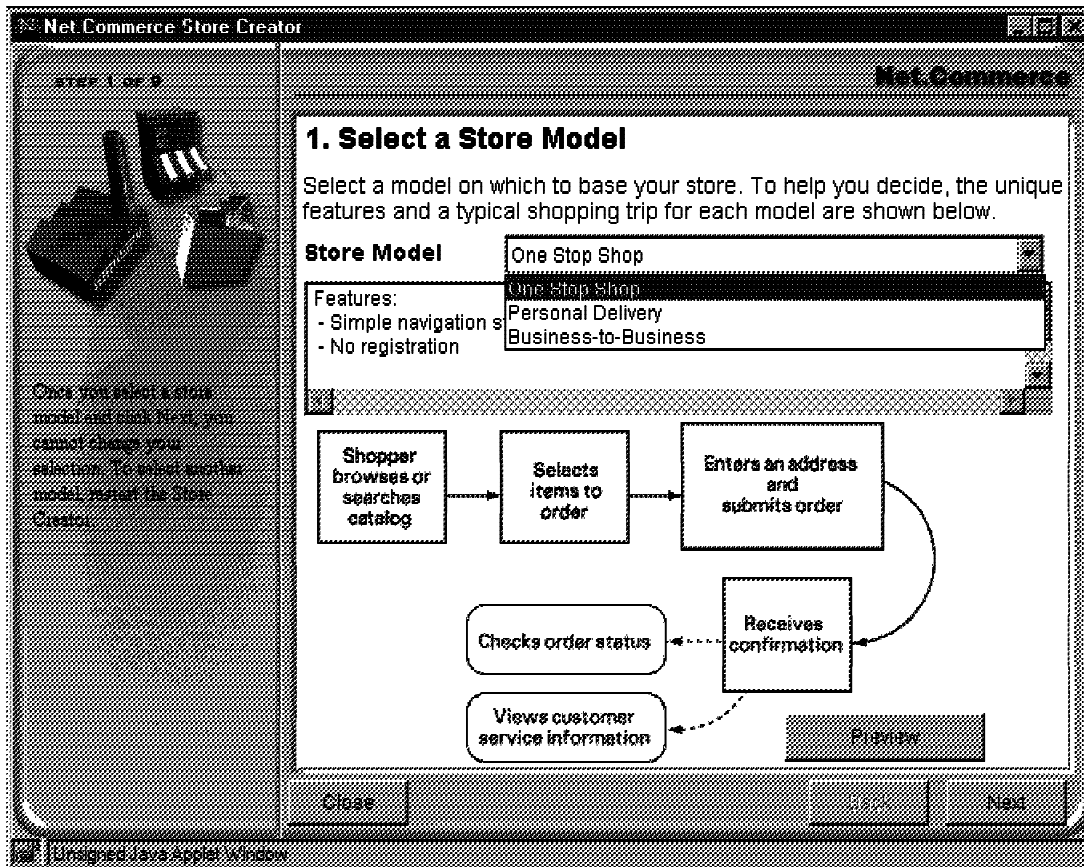


Figure 4-3. Step 1. Select a Store Model

The first step is to select a store model as shown in Figure 4-3

Store Creator offers three Store Models:

- One Stop Shop - a simple business to consumer store model.

  One Stop Shop does not include registration, address book or shopping cart functionality.  Shoppers are given a unique customer number and order number which they can use to query order status.

- Personal Delivery - a business to consumer store model that offers more shopper functions including registration and address book.

  This is similar to the Grocery sample store.

- Business to Business - a business to business store model that includes an approvals process for purchases.
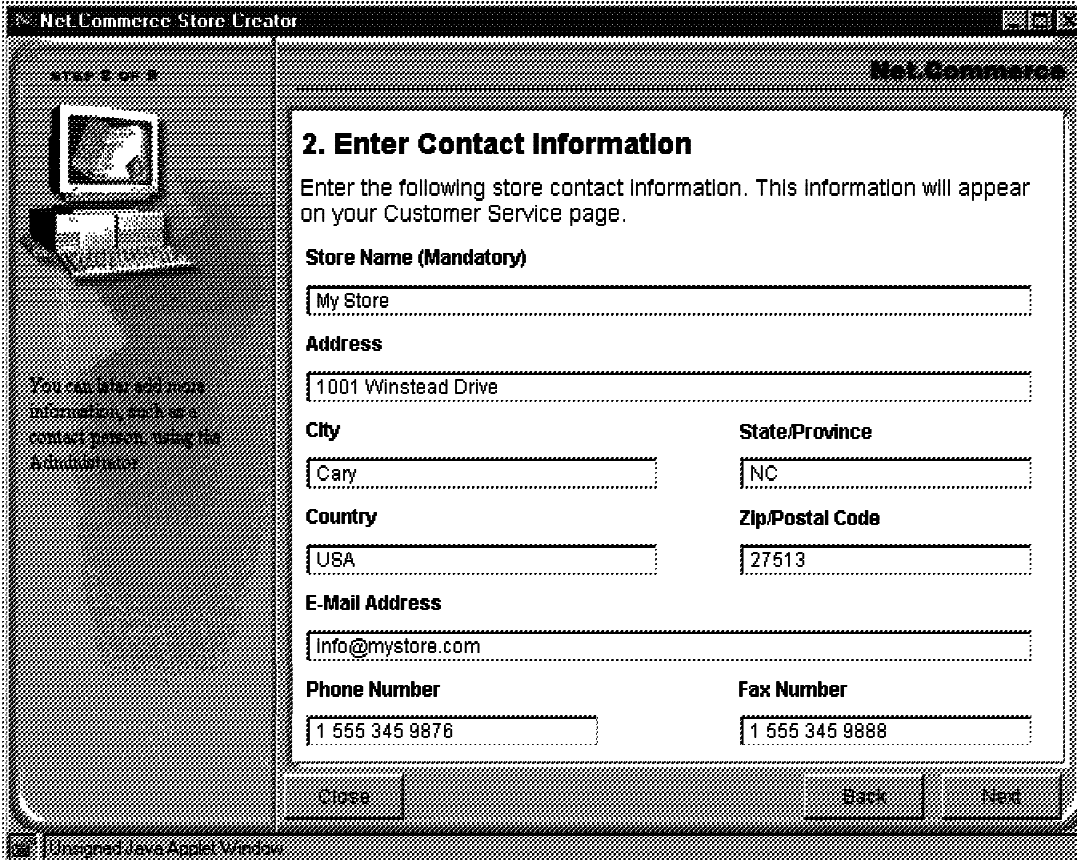
  Business to business provides a three tier approval process to allow a business customer to register an "office" and an "office manager" who approves all purchases.  The store manager approves all "offices" so that only known customers can register.  Each "office manager" is responsible for approving their own "buyers" and their purchases.

This is similar to the Office Window sample store.

Once a store model has been selected, it CAN NOT be changed.

All of the store models provide a complete store with a consistent graphical style, and a frames/JavaScript based interface.

### 4.1.4 Step 2. Enter Contact Information



Figure 4-4. Step 2. Enter Contact Information

You need to enter a unique store name. This name will be used in all store pages and will also be used to generate some filenames.

The Store Name must be unique across all stores in the mall (including stores that were not created with Store Creator).

Store Creator will generate a filename from the store name by removing spaces and special characters. This filename will be used by the files and directories for the store HTML pages and macros.

Enter Contact Infomation for the merchant. This information will appear in a "Customer Service" page in the store so you should fill in all fields.

## 4.1.5  Step 3. Add Sample Data & Store Description
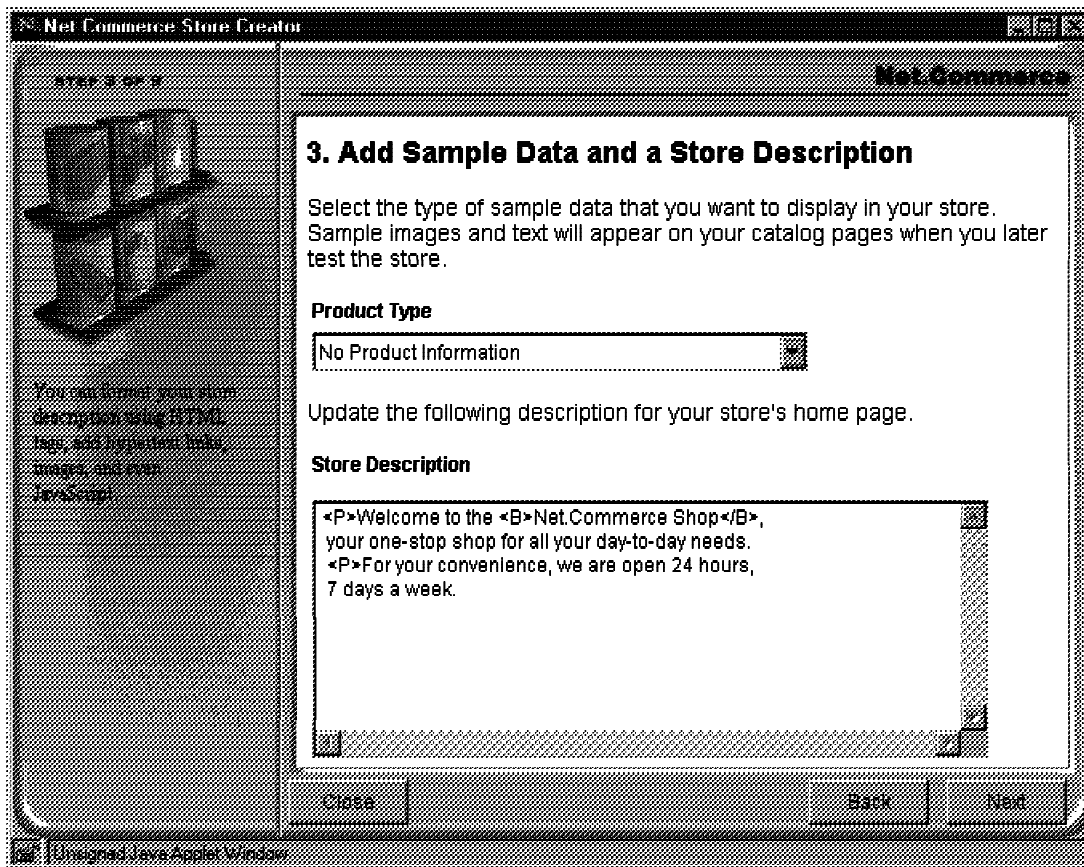


Figure   4-5. Step 3. Add Sample Data & Store Description

You can preload sample product data to see how the store would look.  After creation, you can go back and remove the sample data before you enter your own catalog data.

There are four "bundles" of sample data provided as Mass Import files that the store creator will automatically import.  The "No Product Information" bundle just creates a root category named "Top Category"

You also need to enter a store description which will appear on the welcome page.

The store description can include any HTML markup because it only appears on store web pages.  You need to be more careful with other textual data because it may be used in other ways (e.g. in an e-mail or report)

## 4.1.6  Step 4. Specify Currency and Tax Rates



Figure   4-6.  Step 4. Specify Currency and Tax Rates

Select a Currency from the drop down list.  All prices and charges in the store will be based on this currency.  If your local currency is not in the list, select USD initially and then use the Store Manager.. Store Information form to enter the correct currency.

If you wish to use flat Tax Rates for all items in an order, enter them in this form.  The total of all rates is applied to the items in an order.  You can enter more rates in the Store Information form.

The store tax rates will be stored in the MERCHANTTAX table and will be used instead of the MALL tax rates.  If you do not enter any tax rates, no taxes will be charged.

Merchants that need different rates for different types of product should implement Taxware Sale/Use Tax System or WorldTax, or they could write a custom tax calculation function.  This would involve overriding the GET_SUB_ORD_PROD_TAX_TOT process task with a new function.

## 4.1.7  Step 5. Select Payment Methods
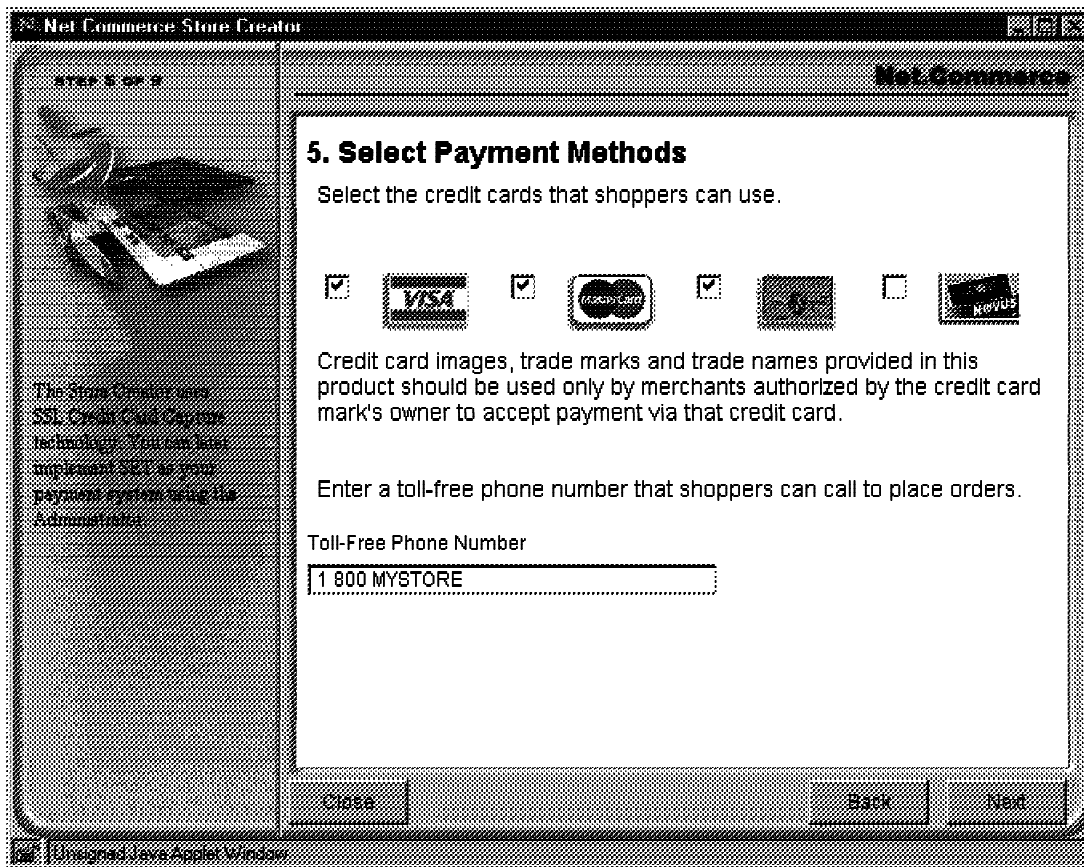


Figure   4-7. Step 5. Select Payment Methods

You can select which Payment Methods will be accepted for basic credit card payment.  The selected cards will be listed for the shopper to select during payment. This is only used for card payment via SSL form entry.

**Note:**  SET payment will not be configured by Store Creator - if you wish to use it, you must configure it separately.

You can supply a toll-free phone number to allow shoppers to phone an order instead of paying across the Internet.

## 4.1.8  Step 6. Specify Shipping Providers



Figure   4-8.  Step 6. Specify Shipping Providers

You can specify multiple Shipping Providers and charges for your store.  Only flat rate charges can be defined.

For more complex Shipping charge calculations you would use the Shipping Services function in Store Manager.

When the data is saved, a Mall Shipping Provider will be created and assigned to the store.  A single shipping code SCSHP will be created which needs to be assigned to each product.  The shipping charges created will be quantity shipping charges with a range from 0 to 9999999 so that it appears as if it is a flat rate.

## 4.1.9  Step 7. Select a Store Style
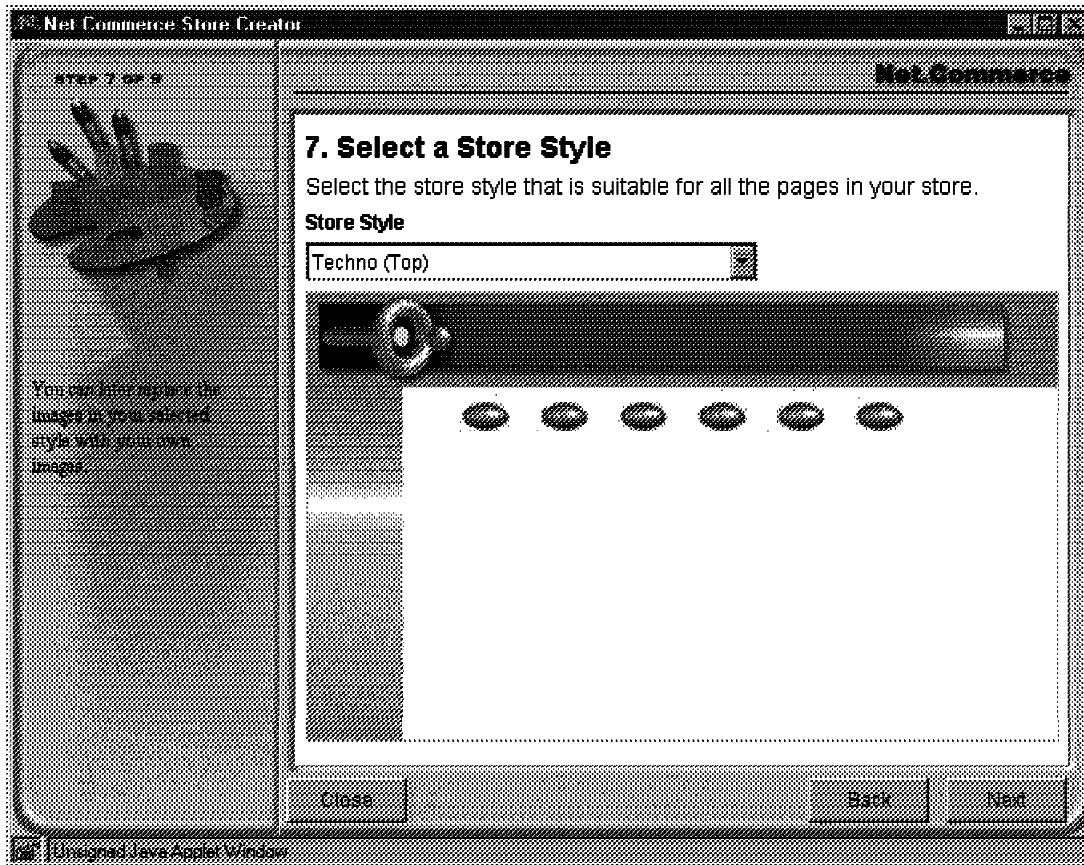


Figure   4-9. Step 7. Select a Store Style

You can select a graphical Store Style which includes a color scheme, logos and icons that will appear on all store pages.

The style is defined by a set of images for title bars, navigation buttons and backgrounds.  The layout of frames is determined by the model not the style.

## 4.1.10 Step 8. Select Page Layouts
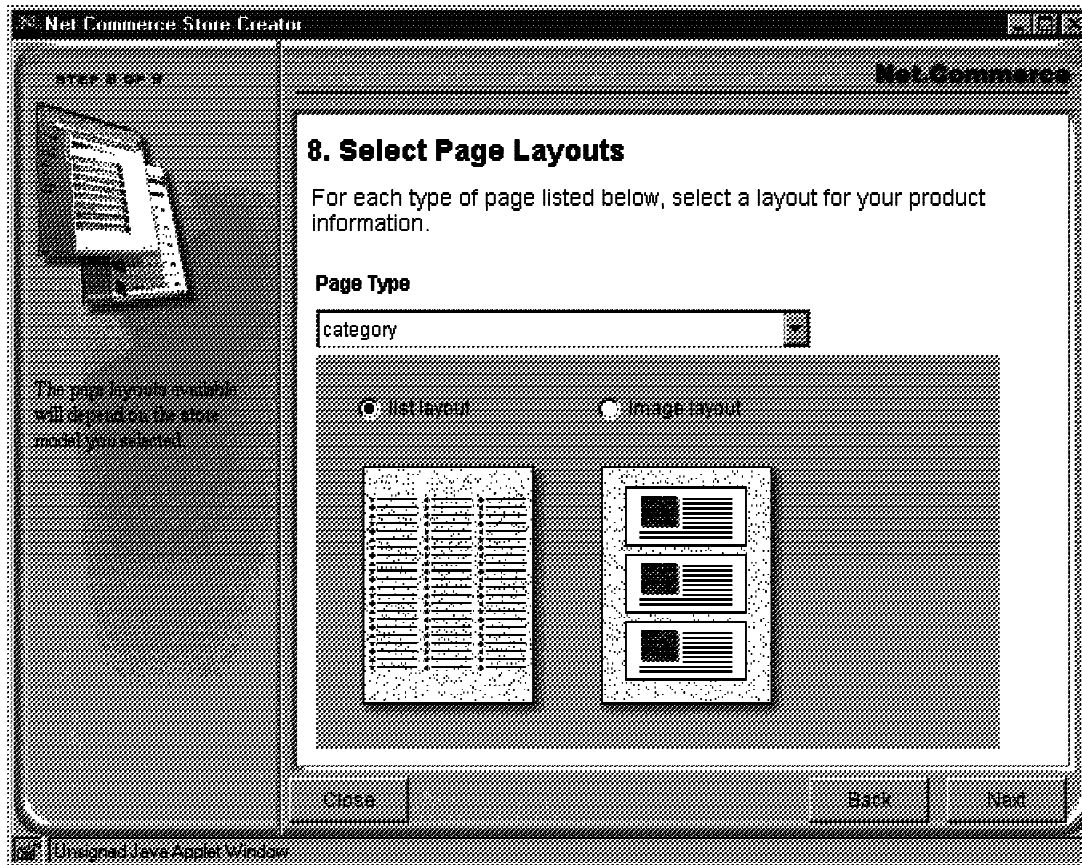


Figure 4-10. Step 8. Select Page Layouts

Select Page Layouts - choose how category pages will be displayed. This selection will change the way the supplied category template will format its output. When a category of products is displayed, you can show just the names or the images as links.

Store Creator will create a standard category template (StoreName/cat1.d2w) and product template (StoreName/prod1.d2w). These templates include flexible Net.Data programming to handle most types of category (including multiple parents) and product (including items and attributes). You can specify how categories will be displayed but not products which have a default presentation.

## 4.1.11  Step 9. Review & Create Store
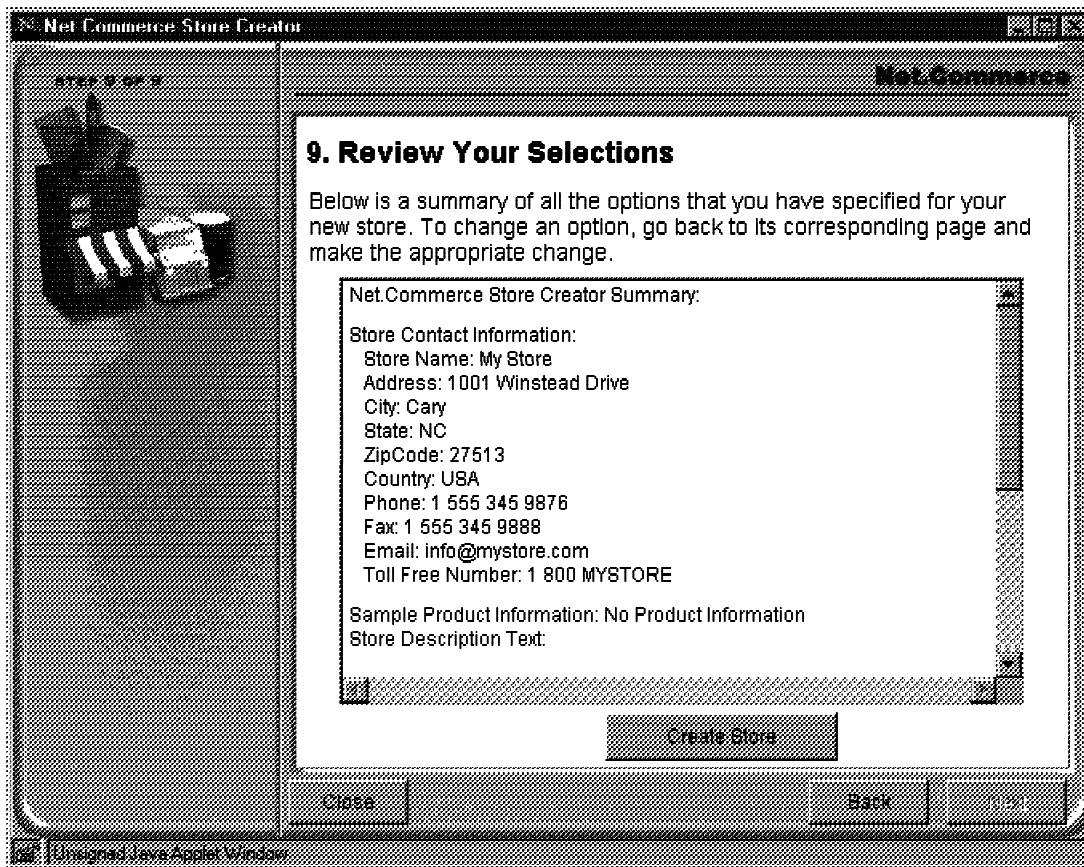


Figure   4-11. Step 9. Review & Create Store

Review Your Selections - make sure you haven't made any errors and then create the store.

Once the Create button is pressed, the store creation will begin.  It will task a few minutes because a Net.Commerce administrative command is run for each component of the creation process and some pieces (e.g. loading sample data) take a long time.

After the store has been created, you can go back and make some changes with Store Creator.  When you go to step 9 again the button will be labelled **Update**.

## 4.1.12  Viewing the Store

Store URL is:    http://*hostname*/MyStore/



Figure    4-12. Viewing the Store

In the HTML document root for the Net.Commerce instance, a directory will be created for the store.  Its name will be the store name with spaces and other special characters removed.  In this directory will be an index.html file.

The index.html file contains a JavaScript statement to redirect the browser location to a new URL.  This URL runs a Net.Data macro to display a set of frames containing pages dynamically generated using Net.Data macros, such as a navigation frame, and order list and a frame showing the current data (welcome page, catalog, customer service)

e.g. if your store was named "My Store", the directory would be MyStore and the URL you should use is: **http://*host*/Mystore**

Stores created using the Store Creator require browsers that support frames, tables and JavaScript.

## 4.1.13  What Next?

After creation, you can go back and make some changes with Store Creator, but to use advanced features of Net.Commerce you will need to use the Store Manager and perhaps perform manual customization.

If you have loaded sample data, you can either remove that data using the Product Categories and Product Information forms in Store Manager or you can:

1. Go to Store Creator
2. Select your store
3. Go to step 3
4. Change Product Type to: No Product Information
5. Go to step 9
6. Select Update

When creating your product catalog you will find a root category "Top Category" has already been created for you.  Create your categories and products under this category.  Category and Product Templates have also been created (STORENAME/cat1.d2w and STORENAME/prod1.d2w respectively) so you should assign these templates to categories and products.

Once you have done that you can implement more advanced features of Net.Commerce such as:

- Shopper groups
- Discounts
- SET payments

Once data has been customized outside of Store Creator, you should no longer use Store Creator because you may lose changes.

To customize a store modify the store macros in the NetCommerce3/macros/en_US/STORENAME directory.  A Net.Data include file STORENAME.inc defines common values and the GIF filenames for the store graphics.

## 4.1.14  Store Information



Figure   4-13. Store Information

The Store Manager... Store Information form is used to input merchant information including:

- The store name, description and logo image
- Home page, header and footer file URLs
- Store category
- Currency - this must be the three letter ISO 4217 code in UPPER CASE
- Merchant company and contact information

This can be used to modify information provided by Store Creator or to add information for a store that was not built by Store Creator.

This information is stored in the MERCHANT database table.

In V3 a store is able to override the six mall tax rates with their own flat rates.  These Merchant Tax Rates are stored in the MERCHANTTAX database table.

Merchants that need different rates for different types of product should implement Taxware Sale/Use Tax System or WorldTax, or they could write a custom tax calculation function. This would involve overriding the GET_SUB_ORD_PROD_TAX_TOT process task with a new function.

# Unit 5.  Product Advisor

## What This Unit Is About

Net.Commerce Version 3 PRO includes the Product Advisor which enables intelligent product catalogs.  It supports a number of "metaphors" which provide different ways of navigating the Product Catalog for different kinds of shopper.

This unit describes the features of Product Advisor, how to prepare the catalog for Product Advisor and how to build web pages to display the Product Advisor metaphors.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe the features of Product Advisor.
- Enable a store catalog for Product Advisor.
- Create Product Exploration, Product Comparison and Sales Assistance shopping metaphors.
- Use the Template Designer to create HTML pages containing Product Advisor tags.

# 5.1 Product Advisor

## 5.1.1 Problems with Electronic Catalogs

Most electronic catalogs offer multiple ways of shopping (metaphors)

- Search for items by keyword or other criteria
- Navigate from an index or table of contents
- Navigate a hierarchy based on the parent/child relationships between categories and products.

These are the basic capabilities offered by Net.Commerce.

However, using some of these metaphors can be difficult for many shoppers if they have little or no product knowledge.  For example, they may not know the correct keyword to search for or they will not know what category to find a particular product under or even what the product is called.  Even an experienced shopper will find it difficult to compare similar products or to find compatible options for a product.

In a physical store the shopper could ask a salesperson or refer to more detailed product specifications than are usually found in an electronic catalog.  But in an online store, the sales force is absent so no knowledge and advice about products is available, compatibility and configuration questions go unanswered and no suggestions are offered.

In many cases there may be insufficient information for a shopper to make a buy decision.

These limitations are addressed in the Product Advisor tool which is discussed in this unit.

Another problem associated with electronic catalogs is the task of entering all of the required product information and managing a catalog as products are added and removed.  This will be addressed in future versions of Net.Commerce.

## 5.1.2 Product Advisor

Product Advisor is an application that is integrated into Net.Commerce V3 PRO to enhance the navigation of the product catalog.

It allows a merchant to build their own product expertise into the navigational structure of the catalog by creating intelligent shopping metaphors.  The metaphors mimic real-life shopping activities such as answering the questions of a salesman and comparing similar products.

Product Advisor works best where there are similar products with multiple attributes in the Net.Commerce database.  It builds its own database tables to specify how the metaphors will be presented.

Product Advisor consists of a set of creation tools which are Java Applets that run in a browser. They store the structure of the metaphor data in the Net.Commerce database. You also need to use the Template Designer to create HTML files for the metaphor pages. You imbed special tags in these files to specify where metaphor content is placed.

The run-time components of Product Advisor are a few Java servlet programs that build the metaphor views dynamically using the HTML files.

### 5.1.3  Product Advisor Components
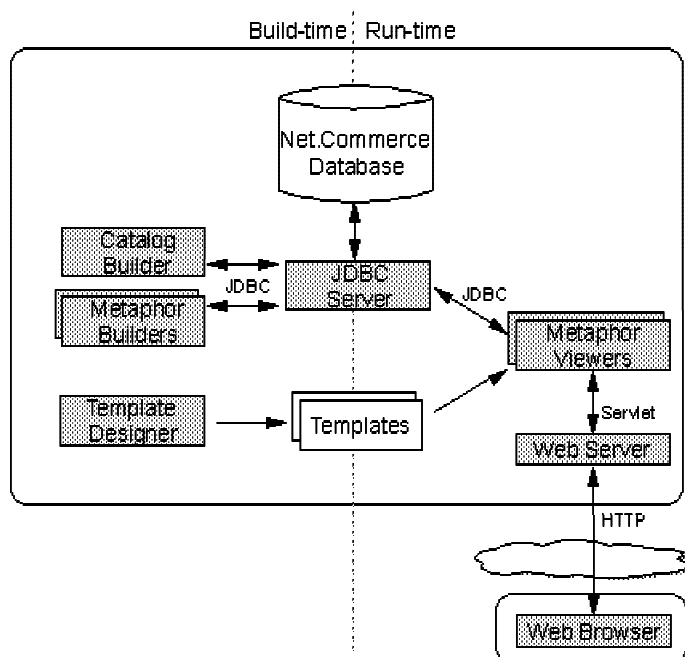


Figure   5-1. Product Advisor Components

The build time tools of Product Advisor are Java Applets that run in a browser:

- Catalog Builder - determines the data types and sizes of the product attributes (features) that will be used in shopping metaphors.
- Metaphor Builders - determine how the features will be displayed in a metaphor and how different metaphors link together.
- Template Designer - creates HTML template files containing special Product Advisor tags for the metaphor pages.

The run-time components of Product Advisor are Java Servlets that run as part of the web server:

- Metaphor Viewers - use the metaphor data in the Net.Commerce database and the template files to build the metaphor views.

All of the tools are written completely in Java and use JDBC to communicate with the Net.Commerce database. This makes them independent of the operating system, database manager and web server used.

---

## 5.1.4  Intelligent Shopping Metaphors

When designing the catalog for a store, it is important to recognize that people shop differently based on their personal preference, product knowledge and whether they are browsing or looking for a specific item.

Product Advisor provides intelligent shopping metaphors which address different ways of shopping:

- Sales Assistance - a shopper with no technical product knowledge would usually ask questions of a sales assistant in a real store.  You can build sample questions that choose particular products or attribute combinations based on the answers given by the shopper.  This allows the merchant to build their product knowledge into the catalog and make the shopper's decision process easier.
- Product Exploration - a shopper who is familiar with a family of similar products will be looking for particular features.  When you have many products in a category with a number of similar attributes (e.g. Size, Color, Material), Product Exploration will allow you to look for all products with one attribute and then all remaining products with another attribute and so on until you narrow the list down.
- Product Comparison - if there are multiple similar products with a few attributes that differentiate them, you can compare them side-by-side to help make a decision.

To use these metaphors effectively you need to:

1. Capture your product expertise as questions and answers in the Sales Assistant metaphor
2. Make sure all similar products have attributes assigned which can be used in the metaphors to select suitable products.

## 5.1.5  Next Generation Sample Store

The Next Generation Sample Store is included as part of "The Metropolitan" Sample Mall.  It includes a number of categories and products with attributes assigned.  The Product Advisor metaphors have been pre-built so you can see how a finished Product Advisor catalog might look.

You should become familiar with how the data in this store as been constructed because it provides a useful example of how the data for a store can be structured for use with Product Advisor.

**Note:**  The exercises for this unit are designed to work with the Next Generation store data.  Net.Commerce includes a "Product Advisor Tutorial" which also uses the Next Generation store data.

The Next Generation store has the following category/product structure:

```
Computers (32)
  Thinkpads (33)
    IBM ThinkPad Power Series (38)
      IBM Thinkpad 820 (45)  -- 12 products
      IBM Thinkpad 850 (46)  -- 11 products
    IBM ThinkPad 700 Series (37)
      IBM ThinkPad 701 (41)  -- 10 products
      IBM ThinkPad 730 (42)  --  6 products
      IBM ThinkPad 755 (43)  -- 26 products
      IBM ThinkPad 760 (44)  -- 13 products
    IBM ThinkPad 300 Series (36)
      IBM ThinkPad 360 (39)  -- 10 products
      IBM ThinkPad 365 (40)  -- 10 products
  Desktops (34)              -- no subcategories or products
  Servers (35)               -- no subcategories or products
```

Each product is a single IBM Thinkpad system.  None of the products have child items.

Each product under the "Thinkpads" category has the following attributes defined:

```
Bus                e.g. ISA/VESA
CD-ROM             e.g. None, 2X, 4X
Form Factor        e.g. Tablet, Notebook, Pen Notebook
Hard Drive         e.g. 0, 105, 340, 540
Memory             e.g. 4, 8
Operating System   e.g. none
Processor          e.g. 486SX 33, 486DX4 75/25
```

The following details may be useful:

- Only "standalone products" (with no child items) have been created.  (Product Advisor also supports child items but htey are not used here)
- Each product has the seven attributes assigned.
- Only one price with precedence 0 and no expiry date has been assigned to each product.  (Product Advisor has some restrictions with prices that will be explained later)
- No inventory quantities or shipping codes are assigned.  (These are not needed for catalog navigation)

**Note:**  The data in the Next Generation store are for older Thinkpad models and many relevant features (display, multimedia, slots, ..)  are not included.   Do not let this distract you from the main purpose which is to illustrate the sophistication of the shopping metaphors when a sufficient variety of attributes are available.

## 5.1.6  Product Exploration Metaphor



Figure   5-2. Product Exploration Metaphor

Product Exploration provides a table of the attributes shared by similar products in a category.  These can be presented in a number of ways using HTML text and form elements.  These HTML form elements such as radio buttons and selection lists are known as **Widgets**

The shopper can select values for ONE feature at a time and then choose an operator. Only one feature can be selected at a time because each cell in the table is a separate HTML form and its operators (=, ...)  are submit buttons for the data in that form only. This prevents a shopper selecting an incompatible combination of features but it needs to be described to shoppers so that they do not attempt to use the page incorrectly.

Textual attribute values can be chosen using "equals" or "not equals" whereas numeric values can also be chosen using "less than or equal to" or "greater than or equal to".

When an attribute value is selected, the view is redrawn with only the products and valid attributes that match.

The template used to display a Product Exploration metaphor can:

- Show how many products match the selected attributes
- Link to other shopping metaphors
- Show the selected feature values

## 5.1.7 Product Comparison Metaphor



Figure   5-3. Product Comparison Metaphor

Product Comparison provides a table of all products in a category matching particular constraints.  The products are shown side-by-side for comparison.  You can also sort by feature (attribute) values.

Alternatively, to simplify the output, you can have common features split off into one table and only unique features shown side-by-side.

The template used to display a Product Comparison metaphor can:

- Show how many products match the selected attributes
- Link to other shopping metaphors
- Show the selected feature values

**Note:**  Usually you would use another metaphor (e.g. Product Exploration) to reduce the number of products before attempting to compare them.

## 5.1.8 Sales Assistance Metaphor
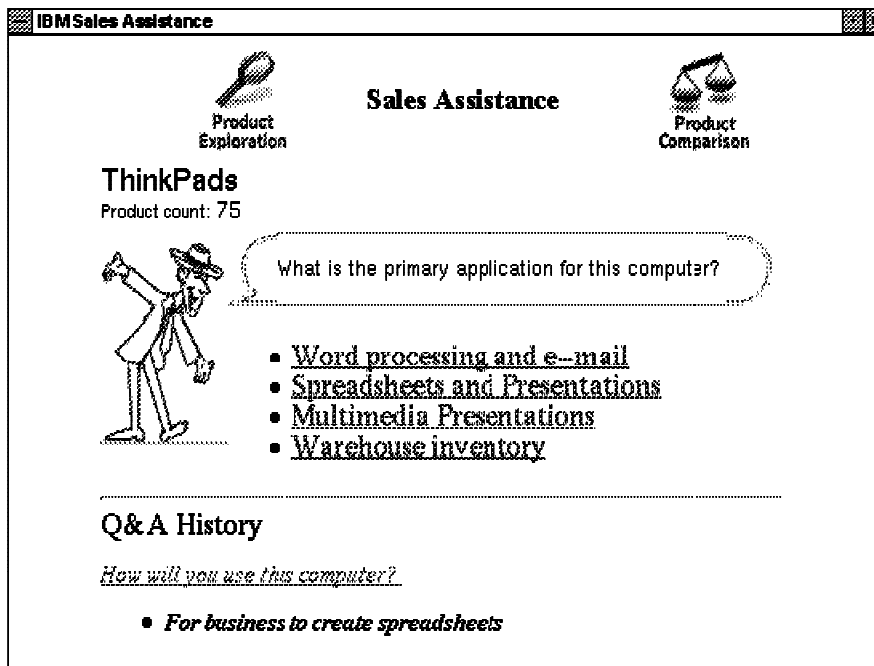


Figure   5-4. Sales Assistance Metaphor

Sales Assistance asks the shopper a series of questions which have been designed by the merchant to help them choose products in a particular category.  The answer to each question can be used to:

- Set constraints on the catalog so that only products with specific features are selected
- Link to another question to further refine the possible products
- Link to other shopping metaphors (e.g. Product Comparison)
- Link to other web pages such as product pages

The template used to display a Sales Assistance metaphor can:

- Show how many products match the selected attributes
- Link to other shopping metaphors
- Show the history of questions and answers so the shopper can go back

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## 5.1.9  Checkpoint Exercise

To fully understand the Product Advisor metaphors you should explore the Next Generation store in the Metropolitan Mall sample (DEMOMALL).

If you don't already have the DEMOMALL database configured, you can configure it using the SAMPLES AND TUTORIALS form in Net.Commerce Administrator.  This will create the new database and then reconfigure the Net.Commerce instance to use the new database.  You must stop and restart Net.Commerce before you can use the new database.

To explore the Next Generation sample store:

\_\_  1.  Start your browser

\_\_  2.  Select URL: http://your_hostname/demomall/basemall.htm to go to the Metropolitan home page

\_\_  3.  Select Guest Shopper to display the Mall Directory

\_\_  4.  Select the Next Generation store

\_\_  5.  Select the "here" link to enter the store.

\_\_  6.  Select the IBM Thinkpads category

\_\_  7.  Select the Product Exploration icon

\_\_  8.  Select CD-ROM: None and click on the not equals symbol.

   The possible values for all other feature values will be evaluated based on the constraint

\_\_  9.  Select more constraints so that the Product Count gets fewer (<10).

\_\_  10.  Select the Product Comparison icon

\_\_  11.  Sort a feature

\_\_  12.  Select a Part Number link

   This will display the normal product page

\_\_  13.  Go back to the Thinkpads category page

\_\_  14.  Select the Sales Assistance icon

\_\_  15.  Select "Economy"

   This answer is followed by another question.  The Q&A history will show links to the previous question and the answer you selected.

\_\_  16.  Select "Computer Graphics and Presentations"

   This answer is NOT followed by another question. The default metaphor (Product Comparison) will be displayed for the remaining products.

---

__ 17. Go back and explore other combinations of questions and answers.

## 5.2  Building Metaphors

### 5.2.1  Data Preparation

Before you can decide to use Product Advisor and build metaphors, you must make sure your category and product data is suitable for use with Product Advisor.  You will only be able to utilize Product Advisor effectively if:

- Similar Products that can be compared with each other, appear in the same category or under a common parent.
- The features that will be used to make the comparison, have been entered as product or item attributes in the Net.Commerce database.

So you must:

1. Design a category hierarchy that groups similar products (with the same features) into the same category and groups related categories (containing products with some common features) under a common parent.

2. Design attributes for each product and item.  Use an attribute for each feature that would be used to compare products and create the same attributes for all products in the same category.

If you will use the Sales Assistance metaphor, you need to capture the product expertise of your sales force as Questions and Answers.  These questions and answers will depend on the attributes you create.

Once the data and metaphors have been designed, you need to create the data in the Net.Commerce database.  This can be done using the Net.Commerce Administrator (for small amounts of data) or the Mass Import Utility.

The power offered by the metaphors depends on multiple similar products being grouped together in the same category and attributes being assigned consistently to all products.  If your products are not or can not be represented this way, then you may get little or no benefit from Product Advisor.

## 5.2.2  Example Category Hierarchy
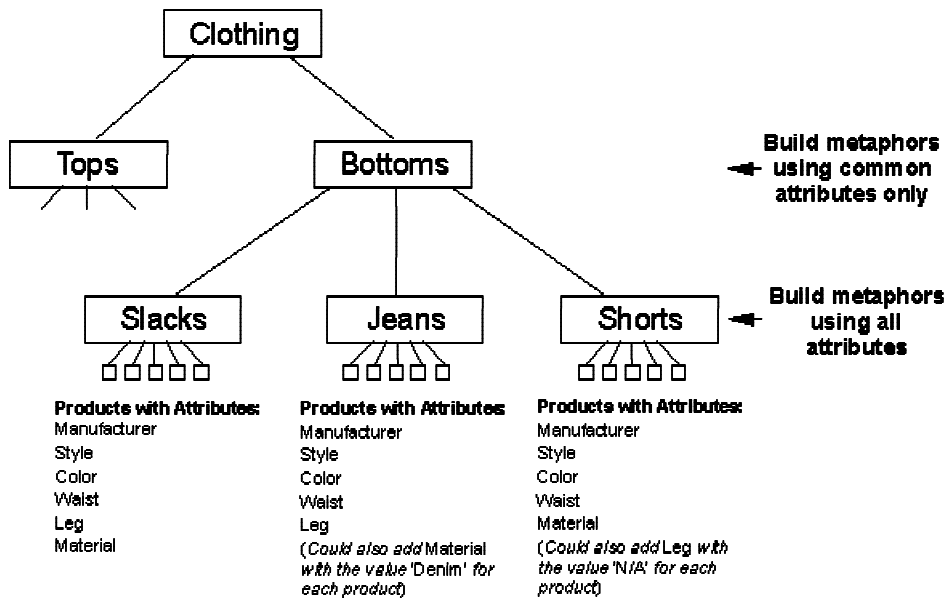


Figure   5-5. Example Category Hierarchy

This example shows a subset of the category hierarchy for a store.  All similar products (e.g. Jeans) are grouped together in the same category and EACH product has the attributes assigned.  A different set of metaphors (Product Exploration, Product Comparison, Sales Assistance) will be built for EACH category to make maximum use of all available attributes.

Because the three lower level categories contain the same type of product and have some attributes in common, a set of metaphors will be built for the parent category 'Bottoms'.  These metaphors would use only the four common attributes (Manufacturer, Style, Color, Waist).

**Note:**  If you added the Material attribute to all products in the 'Jeans' category with a default value (e.g. Denim) and added the Leg attribute to all products in the 'Shorts' category with a default value (e.g. N/A or 0 if other values were numeric), then all six attributes could be used in the metaphors built for the parent category 'Bottoms'.

## 5.2.3  Attribute Values

Net.Commerce stores all attribute values as a character string (field PAVAL in the PRODATR table).

Product Advisor supports the following data types:

- Character (Default)
- Integer
- Decimal - with fixed number of digits and decimal places
- Scientific
- Date
- Time

When Product Advisor processes the Net.Commerce data it will identify which values can be converted to other types so that when you run the Catalog Builder, you can choose integer, decimal or another type if ALL values conform. The character data from the PRODATR table will be converted to the new type and stored in the Product Advisor tables.

Before you can choose a different data type, you must make sure all assigned values are compatible with the new type. When you assign new values you must make sure they are also the correct type, otherwise you will receive an error when you attempt to resynchronize Product Advisor with the Net.Commerce data. If you wish to indicate none or n/a for a numeric feature, use 0.

You must be consistent when assigning attribute values because ALL values assigned across all products under a category will appear in the list. This will show up inconsistent use of case sensitivity, spacing, spelling or punctuation characters. For example, the values **None, none, N/A, n/a** all mean the same, but they would appear as different values in the metaphors.

## 5.2.4  Product Advisor Builder



Figure   5-6. Product Advisor Builder

The Product Advisor builder tool is launched from Net.Commerce Administrator Store Manager. When it starts, it will load the category structure for the store and show the state of the Product Advisor metaphor data for each category in the store.

The FIRST time the builder is run, you will need to resynchronize with the Net.Commerce database to build the base Product Advisor data.

EVERY time you change category or product data in the Net.Commerce database, you will need to resynchronize again.

The window shows:

- The Category Structure
- The Category Reference Number of each Category
- The number of Products under each Category (including its child Categories)
- The number of unique Features (Attributes) assigned to the Products under each Category
- The Status of the Catalog data
- The Status of the Product Exploration metaphor data
- The Status of the Product Comparison metaphor data
- The Status of the Sales Assistance metaphor data

The different status symbols indicate whether a metaphor is built or not and if a category is linked to its parent. If the symbol appears to be broken - the data needs to be resynchronized.

From this window you can:

- Select a Category to work with
- Run the metaphor builder tools
- Link a metaphor to its child Categories
- Resynchronize data or prices

**Note:** The Product Exploration and Product Comparison metaphors can not be built until the Catalog data has been built.

## 5.2.5  Catalog Builder



Figure   5-7. Catalog Builder

The Catalog Builder allows you to specify which features will be available for use in the metaphors and how they will be used. You MUST run the Catalog Builder before you can build the metaphors for a category. The exception is Sales Assistant which will allow you to build some Questions & Answers that do not use attribute values.

Product Advisor uses some fields from standard Net.Commerce tables:

**PRNBR**      SKU Number
**PRSDESC**  Product Name
**PRTHMB**   Thumbnail Image
**PRURL**      URL
**PPPRC**      Price

All user-defined attributes from the PRODATR table are also included.

For each feature you can set:

- Feature Name - the name that will be displayed in the metaphors
- Field Size - the maximum input field size for HTML fields such as selection lists
- Include - whether the feature will be included in metaphors
- Type - (Character, Integer, Decimal,...) determines what operations will be allowed on the feature values and how they will be formatted.
- Usage - (Data, Image, URL, Price) how the feature values will be used in the HTML output. e.g. Data is displayed as-is but Image will be used in a <IMG> tag.
- Unit - unit of measure to be appended each time the value is displayed (e.g. MB, In)

## 5.2.6  Product Exploration Builder



Figure   5-8. Product Exploration Builder

The Product Exploration builder allows you to specify which features will appear in a Product Exploration metaphor, the order in which they will be listed and sorted and the "widget" used for selection. The widgets relate to HTML form input types and can be:

- Hyper-text link - useful for images and features with 2 choices. The link behaves like an "equal to" selection.
- Radio button - useful for numeric features with few choices where greater than or less than might be used.
- Checkbox - useful for textual features with few choices where multiple selections might be used.
- Single list - useful for numeric features with many choices where greater than or less than might be used.
- Multi list - useful for textual features with many choices where multiple selections might be used.

To build a Product Exploration metaphor, you should decide which, of the available features, the shopper would want to select from, and the appropriate widget for the selection. Features you Don't Show will be those that have too many values to narrow the selection (e.g. part number or price).

### 5.2.7 Product Comparison Builder



Figure 5-9. Product Comparison Builder

The Product Comparison builder allows you to specify which features will appear in a Product Comparison metaphor, the order in which they will be listed and which features will link to the product pages.

---

You would probably specify Don't Show for features that could not usefully be compared (e.g. picture or part number).  You must make sure one feature links to product pages.

## 5.2.8  Sales Assistance Builder
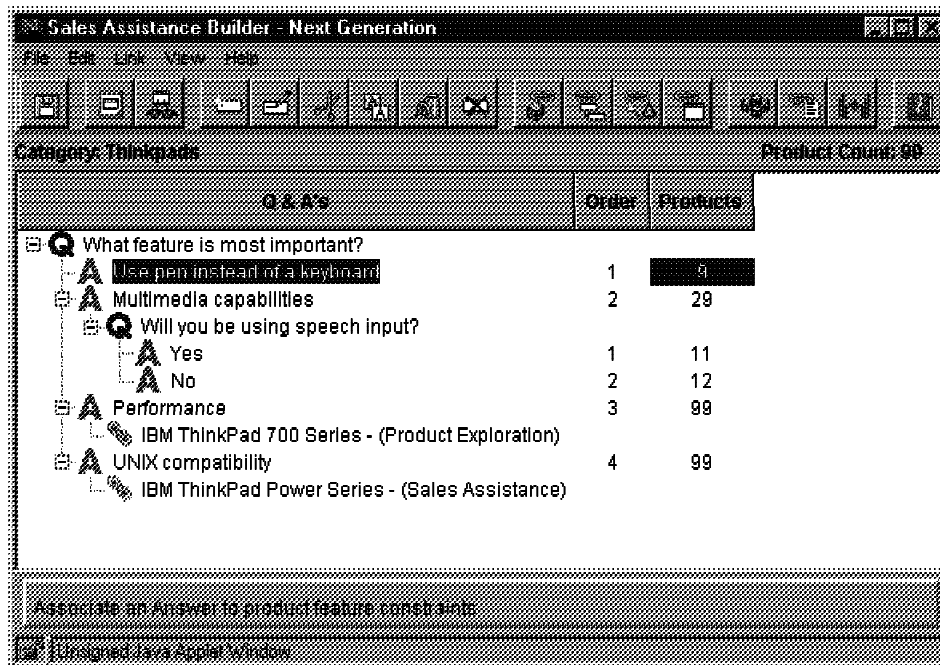


Figure   5-10. Sales Assistance Builder

The Sales Assistance builder allows you to build the Question and Answer trees for the Sales Assistance metaphor.

You start by adding a question and then multiple answers under the question.

Each answer can have constraints applied which will reduce the number of matching products. e.g. Memory > =  16MB

Each answer can link to:

- another question
- another Sales Assistance metaphor
- another metaphor (Product Exploration or Product Comparison)
- another web page URL

The default link, which is used if there are no further questions or metaphor links, can be changed.  The initial setting is the Product Comparison metaphor.

One useful function in Sales Assistance builder is the ability to import the Q&A tree from another category.

---

You can build Sales Assistance metaphors without the catalog data as long as you do not intend to use constraints or other metaphors. For example, you could build a sequence of questions and answers that just link to a particular category or product.

## 5.2.9 Synchronization with Net.Commerce

The Net.Commerce product catalog data is stored in a number of database tables (CATEGORY, CGRYREL, CATESGP, PRODUCT, CGPRREL, PRODSGP, PRODPRCS, PRODSTATR and PRODATR). When you use Product Advisor, it copies the data it needs from the Net.Commerce tables to its own tables in the database (all Product Advisor table names begin with IC).

A number of triggers are used to update timestamps in the CATEGORY, PRODUCT and Product Advisor tables when data changes.

EVERY time you change data in the Net.Commerce tables, you should run Product Advisor builder to Resynchonize the data in the metaphors. When you run Product Advisor builder, it will determine from the timestamps which data has changed and mark the appropriate categories with a "Broken" symbol.

You can run the menu option **File...Resynchronize** to resynchronize a category to integrate the changed data into the metaphors. You may also need to run the Catalog builder or metaphor builders to update the metaphors to use new features or values.

The Net.Commerce system supports a complex price schema which allows a merchant to define multiple prices for the same product based on shopper group, precedence and effective/expiry date and time. At runtime, the current price is determined by selecting the price with the greatest precedence which is valid at the current time for the shopper's shopper group.

Product Advisor does not support dynamic prices. It will only copy the "current price" for each shopper group at build time. To ensure the correct price is shown by Product Advisor, you should either:

- Not use dynamic prices that have effective/expiry date and time assigned
- Run the Product Advisor builder and select **File...Refresh Prices** to refresh the price information when old prices expire or new prices become effective.

## 5.2.10  Checkpoint Exercise

To understand the Product Advisor build tools you can do one of the following:

- Attempt to build metaphors for your own store product catalog. This will only be feasible if you have grouped similar products into common categories and if product or item attributes have been assigned to the products.
- Delete and re-build the metaphors for the sample Next Generation store.  Follow the Exercise instructions in "Exercise. Building Shopping Metaphors" on page  A-21

## 5.3  Creating Metaphor Web Pages

### 5.3.1  Product Advisor Template Flow
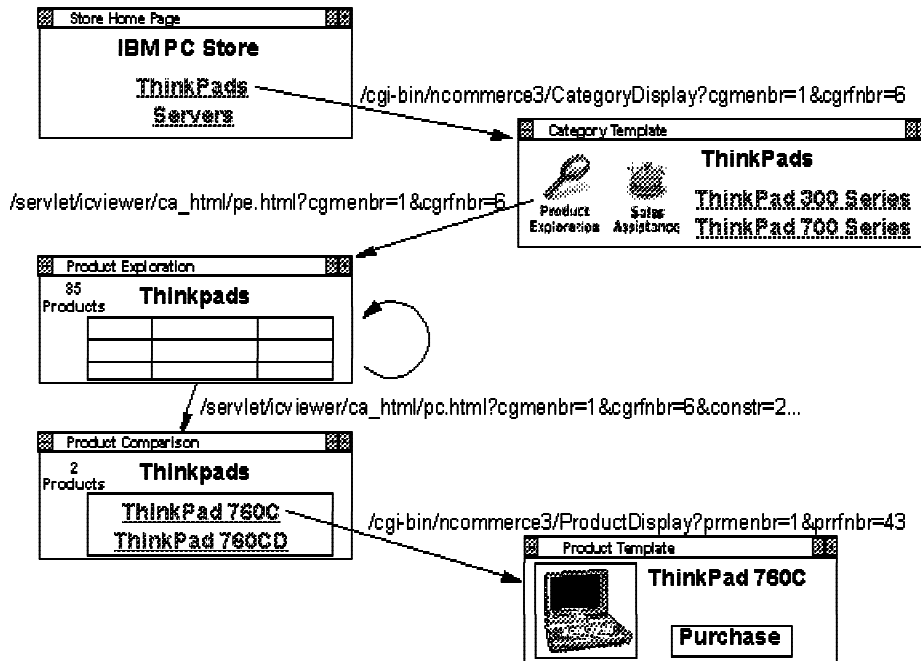


Figure  5-11. Product Advisor Template Flow

Once you have built Product Advisor shopping metaphors you need to integrate them into the catalog navigation flow seen by the shopper when they are browsing your store.

The approximate navigation flow as seen be the shopper is:

1. Store Home Page - The store home page is usually a static HTML file (but can be a macro) containing information about the store and links to its categories.  Links to the categories use the CategoryDisplay command. e.g., CategoryDisplay?cgmenbr=1&cgrfnbr=6.  When the CategoryDisplay command is executed, it queries the database field CATESGP.CSDISPLAY for the merchant and category number supplied to find out the filename of the macro file to run.

2. Category Page - The root category and other higher categories which have no products in them need to display a list of their child categories.  This is done by dynamically building a "category table" containing the category name and links. A "category table" can be created using the Template Designer.  The links to the child categories use the CategoryDisplay command.

   If a category has Product Advisor metaphors built for it, its Category Template should have links to the metaphors.  These links run the icviewer servlet program.  Each link specifies a template to display and the template will determine which metaphor is used.

without the prior written permission of IBM.**

3. Product Exploration - Templates which display the Product Exploration metaphor usually include the category name, number of products and the Product Exploration table. When the shopper selects a constraint in the Product Exploration table, the same Template will be displayed with the constraints appended. Links to other metaphors will use a different Template.

4. Product Comparison - Templates which display the Product Comparison metaphor usually include the category name, number of products and the Product Comparison table. When the shopper sorts a feature in the Product Comparison table, the same Template will be displayed. In the Product Comparison table, there will be links to the products. These links use the ProductDisplay command. e.g., ProductDisplay?prmenbr=1&prrfnbr=43. When the ProductDisplay command is executed, it queries the database field PRODSGP.PSDISPLAY for the merchant and product number supplied to find out the filename of the macro file to run.

5. Sales Assistance (not shown) - Templates which display the Sales Assistance metaphor usually include the category name, number of products and the Questions and Answers. When the shopper selects an answer link, more questions will be displayed using the same template or other metaphors will be displayed using a different Template.

6. Product Page - A product page must show text and graphics to describe (and "sell") a product. It must also provide a way for the shopper to choose the items in a product and add the product to their shopping cart. Product pages can be easily created using the Template Designer.

Unlike Category and Product pages where the macro filename is determined by querying the database, most Product Advisor template filenames must be built into the link (except those for Sales Assistant answers where the link is defined in the metaphor).

## 5.3.2  Creating Product Advisor Templates
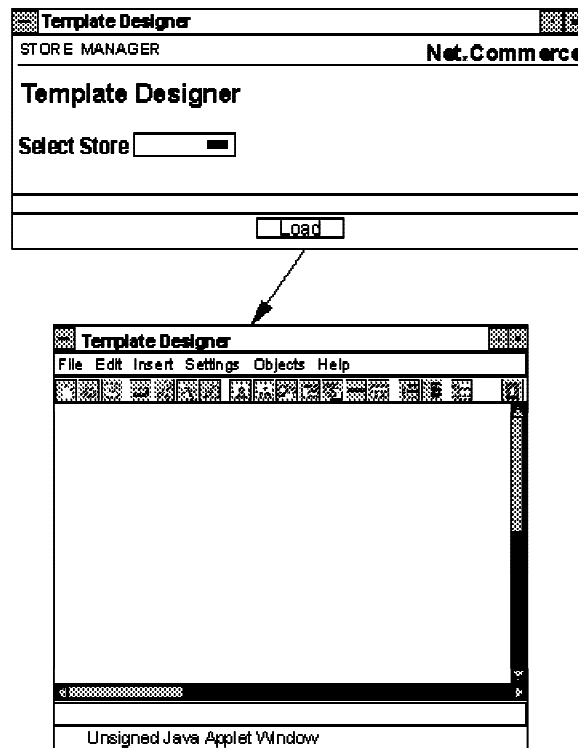


Figure   5-12. Creating Product Advisor Templates

Product Advisor Templates are static HTML files with special Product Advisor tags embedded.  Template Designer can build the special tags for Product Advisor Templates, although you might decide to edit the template file directly and add extra tag options.

Template Designer loads and saves Product Advisor Templates in the directory instance/instance_name/teditor/ca_html relative to the Net.Commerce installation directory.  This is mapped to /ca_html in the web server configuration file.

To load the Template Designer, go to Store Manager in Net.Commerce Administrator and select TEMPLATE DESIGNER.  Click on the LOAD button to load the Template Designer applet.

To create a template, select File... New and then select Product Advisor Template.

Set the basic template information using:

- Settings... Grids to set the grid size
- Settings... Page to set the page title and colors

To create the template you start with a blank page and add any standard HTML objects or special Product Advisor objects onto the page using the Insert menu or the icon bar.  Editing options for Product Advisor Templates include:

- Settings... Header and Footer - Select the store header file and footer file or custom files to be displayed with the template
- Insert... Product Category Name - Displays the current category name as a text string.  You can set the font size and style.
- Insert... Product Count - Displays the number of products matching the constraints as a text string.  You can set the font size and style.
- Insert... Selected Features - Lists all feature constraints selected by the shopper in a paragraph.
- Insert... Product Links - Lists all products matching the constraints in a table with links to each product page.  You can choose the text displayed (default is the product/SKU number)
- Insert... Image - Special Link - When you insert an image, you can link it to a product advisor metaphor.  You can select the template displayed.
- Insert... Product Exploration - displays the Product Exploration table.  You can change the layout of the table.
- Insert... Product Comparison... - Offers 3 types of Product Comparison table with common features integrated or split into a separate table or paragraph. You can change the layout of the tables.
- Insert... Sales Assistance... - You can create the Sales Assistance Question & Answer table and a Q&A History table.  You can change the layout of the tables.

**Note:**  When Headers and Footers are processed, the viewer converts the Product Advisor tags into server-side includes which force the web server to include the appropriate file.  Netscape Enterprise Server needs a patch to enable this functionality.

### 5.3.3  Product Links
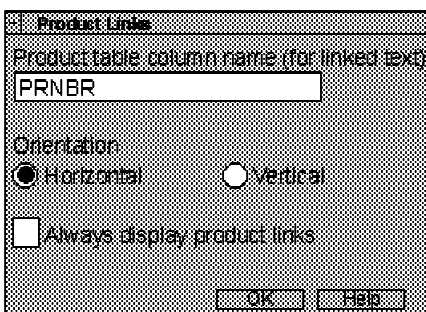


Figure   5-13.  Product Links

The Insert... Product Links option inserts a Product Advisor object that will create a list of all products matching the constraints.  This will be shown in a table with links to each product page.

You can choose the text column from the PRODUCT table that is used to display the links.  The default is the product/SKU number.  If you choose a different column (e.g.

Short Description) all values should be unique otherwise you will confuse the shopper.

You can have the Product Links always visible or only shown when no more constraints can be selected.

## 5.3.4  Product Advisor Metaphor Links
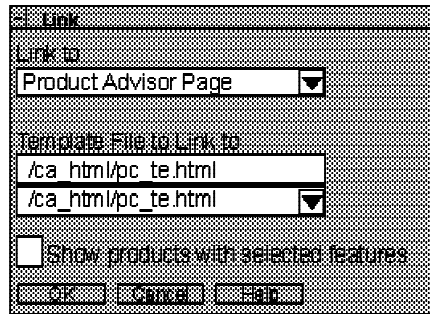


Figure   5-14. Product Advisor Metaphor Links

If you wish to insert a link to a Product Advisor metaphor, you can use the Insert... Image option to insert an image and set it as a Special Link to a metaphor page.

In the Special Link properties, you can select the template file that will be displayed and you can have the linked page only display products matching the already selected constraints or ignore any current constraints.

**Note:**  You cannot use a text string or an image map in a Product Advisor template to link to another Product Advisor metaphor because Template Designer creates the special METAPHOR_LINK tag which is dynamically replaced at runtime with HTML markup like:  <A HREF="/servlet/icviewer/...">\<IMG SRC="..."></A>

This option can also be used to add a link to a Product Advisor metaphor in a static HTML page or a Category or Product template.  In this case, you must supply the merchant reference number and category reference number to be displayed and Template Designer creates the actual HTML instead of a Product Advisor tag because the link does not need to be dynamically generated.

Sample images are provided for each metaphor.



/ca_icons/prod_asst.gif  /ca_icons/prod_comp.gif  /ca_icons/sale_asst.gif

### 5.3.5  Product Exploration
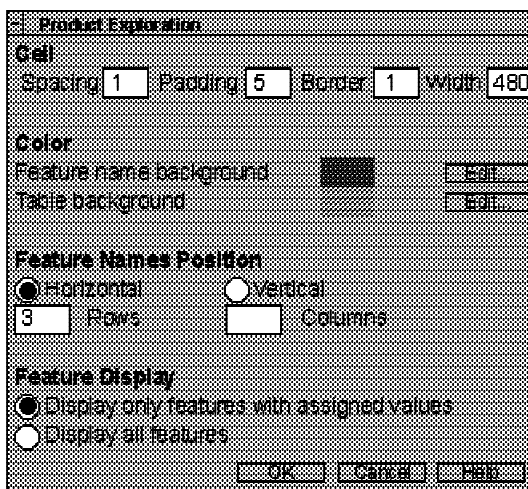


Figure   5-15. Product Exploration

For any Product Advisor template you would usually want to include the Category Name and Product Count with links to other metaphors.  You also want a paragraph explaining how to use the metaphor that will be displayed.  In addition you can choose to add the Selected Features and Product Links.

The Insert... Product Exploration option inserts a Product Exploration table.  You have a number of options to change its layout:

- Cell spacing, padding, border and width control the size and presentation of the table and the cells within it.
- Color allows you to choose a background color for the Feature names and a different one for the feature values.
- Feature names position allows you to specify that the table is laid out horizontally with a fixed number of rows, or vertically with a fixed number of columns.
- Feature display controls whether features that have no assigned values are displayed.

### 5.3.6  Product Comparison

When you insert the Product Comparison table, you have three choices for how the table will be laid out.  These are options on the Insert... Product Comparison menu:

**Type 1**  Show all common and distinct values together in one table

**Type 2**  Show all common values in one table and the distinct values in another table

**Type 3**  Show all common values in a paragraph and the distinct values in a table

You have similar options to change the layout and colors of the Product Comparison tables as for the Product Exploration table.

## 5.3.7 Sales Assistance
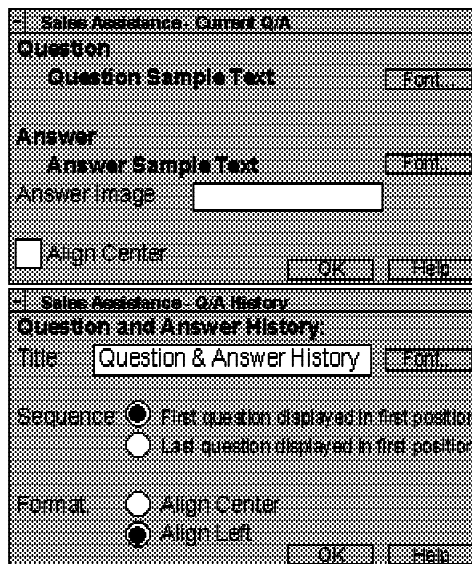


Figure 5-16. Sales Assistance

The Insert... Sales Assistance... Current Q/A option inserts an object which will display the current question followed by its answers in a bulleted list. You can change the default font size and style and specify a bullet image instead of the default HTML bullet.

The Insert... Sales Assistance... Q/A History option inserts an object which will show all questions and answers selected in sequence. You can change the sequence (either first question first or last question first) and how the history is displayed.

## 5.3.8 Product Advisor Tags

Product Advisor templates are static HTML files with special tags embedded in HTML comments. The syntax of a Product Advisor tag is:

```
<!-- IC_TAG=tag  parameters -->
```

some tags have required parameters, others are optional. The Online Information gives a description and examples of how each tag should be used.

These tags can be created using Template Designer or you can choose to edit them manually. Look at the samples in the /ca_html directory (e.g. pc.html) and files created by Template Designer to see how the various tags are combined.

The icviewer program reads the template and replaces each tag with the HTML markup for the appropriate Product Advisor function.

The tags are:

- HEADER - includes the store header or a named file (if the FILENAME parameter is specified)

- FOOTER - includes the store header or a named file (if the FILENAME parameter is specified)
- CAT_NAME - displays the current category name
- PRODUCT_COUNT - displays the number of products meeting current constraints
- SEL_FEAT - displays the selected feature values as a paragraph
- METAPHOR_LINK - displays an image linked to a metaphor. Required parameter IMAGE specifies the image filename. Required parameter TEMPLATE specifies the template filename. Optional parameter CONSTR (yes or no) specifies if the selected constraints will be passed to the metaphor. Default=yes.
- PROD_LINKS - displays links to product pages. Required parameter DISPLAY can be set to **always** if the links should always be displayed or **no_expl_feat** if they should only be displayed when there are no features left to explore in a Product Exploration metaphor.
- PE_TABLE - displays the rows and columns of a Product Exploration table. Optional parameters can be used to change the orientation and number or rows or columns.
- PC_TABLE - displays the rows and columns of a Product Comparison table. Optional parameters can be used to change the orientation and decide which features to show.
- SA_QUESTION - displays the current Sales Assistant question
- SA_ANSWER - displays the current Sales Assistant answers in a bulleted list. Optional parameter IMAGE can specify an image filename.
- SA_QA_HISTORY - displays the Sales Assistant question and answer history. Optional parameters can specify a title and the order.
- FEATURE - displays the values of a single feature in the same style as a cell in a Product Exploration table. Required parameter NAME specifies the feature column (e.g. PRNBR). Optional parameter WIDGET specifies the widget used.

Tags that just output text can be surrounded by other HTML tags to change the appearance (e.g. <FONT>, <B>). e.g.

```
<FONT SIZE=+1><!-- IC_TAG=CAT_NAME --></FONT>
```

PE_TABLE and PC_TABLE MUST be surrounded by HTML table tags to specify the table layout. e.g.

```
<TABLE WIDTH=480><!-- IC_TAG=PC_TABLE VALUES=unique --></TABLE>
```

## 5.3.9  Checkpoint Exercise

To understand the content of Product Advisor templates you can do one of the following:

- Attempt to build templates for your own store product catalog assuming you were able to build metaphors for it.
- Build new templates for the sample Next Generation store. Follow the Exercise instructions in "Exercise.  Creating Metaphor Web Pages" on page  A-37

# Unit 6. Net.Commerce SET Support

## What This Unit Is About

Net.Commerce Version 3 includes support for payment using the SET protocol by integrating Net.Commerce with IBM CommercePOINT eTill.

This unit briefly introduces SET and the IBM products that are used in a SET environment and describes how to configure Net.Commerce for SET and administer SET payments.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe how Net.Commerce V3 supports the SET protocol.
- Configure a Net.Commerce V3 system for SET payment.
- Administer SET payments in Net.Commerce V3.

# 6.1 SET

The Secure Electronic Transaction (SET) protocol is a method to enable secure bankcard transactions over open networks. SET was initially developed by VISA and MasterCard with assistance from a number of computer vendors including IBM. The protocol is published as open specifications for the industry and a company named SET Secure Electronic Transaction LLC (known as SETCo) has been setup to oversee the technology.

## 6.1.1 SET
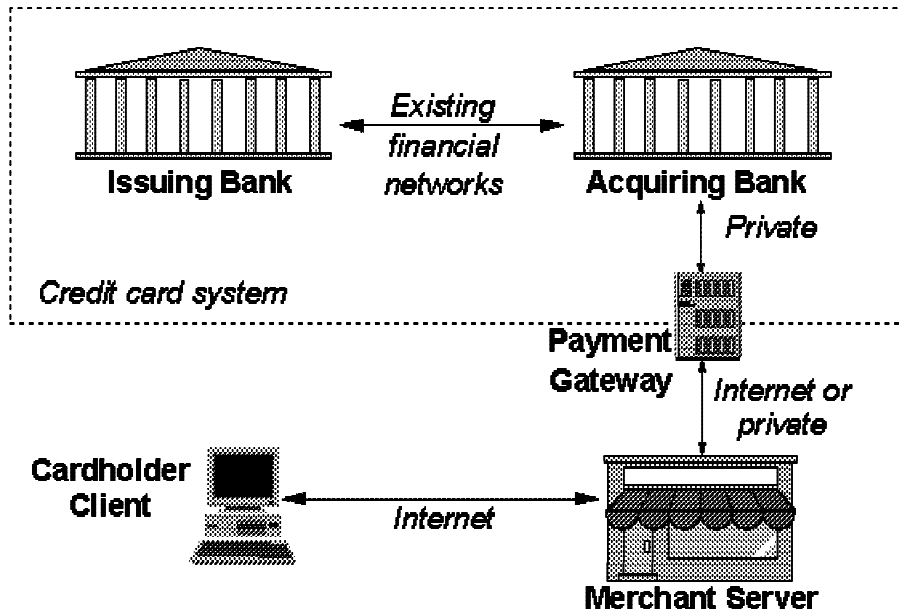


Figure 6-1. SET

A SET environment includes:

- SET Protocol - provides privacy and integrity of payment data, and authentication of cardholders, merchants and acquirers
- Cardholder - uses a SET enabled browser to shop on the internet
- Merchant - incorporates SET enabled software into their payment process
- Payment Gateway - provides a secure gateway between the Internet merchants and legacy Acquirer systems on private networks

Reference information for SET can be found at the SETCo site http://www.setco.org at MasterCard's web site http://www.mastercard.com and at VISA's web site http://www.visa.com

These sites allow you to download the following documents:

- SET Book 1: Business Description
- SET Book 2: Programmers Guide
- SET Book 3: Protocol Definition.

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- External Interface Guide to SET

## 6.1.2  SET Certificate Authority Hierarchy
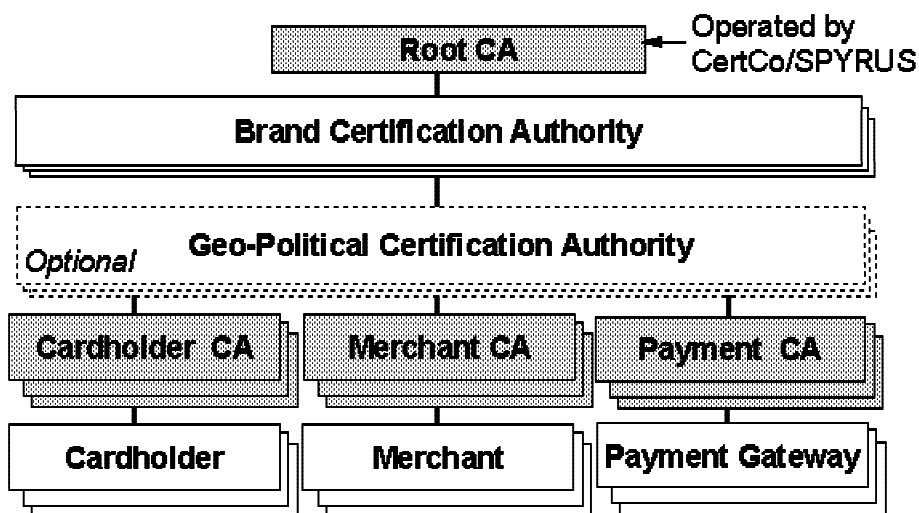


Figure   6-2. SET Certificate Authority Hierarchy

SET uses public key certificates (similar to SSL but with stronger encryption) as the basis for authentication.  It also uses other security mechanisms such as DES for privacy and digital signatures for integrity.

The purpose of the certificate issuing process is to authenticate the certificate requestor and to issue a certificate binding the public key with identifying information.

A Certificate Authority (CA) is an agent of one or more bankcard institutions which provides the creation and distribution of electronic certificates for SET.  Certificates are issued by a CA to cardholders, merchants and acquirers in order to authenticate them.

SET Certificates are verified through a hierarchy of trust. Each certificate is linked by a signature to the certificate of the entity that digitally signed it. By following the trust tree to a known trusted party, one can be assured that the certificate is valid.

- Cardholder Certificate - is the digital equivalent if a plastic credit card, which identifies the credit card account (not the individual). It allows the merchant and acquirer to verify the cardholder's identity but doesn't reveal the card details to the merchant.
- Merchant Certificate - is the digital equivalent of a credit card logo on the front door and identifies the merchant name and address.
- Acquirer Certificate - allows the cardholder software to verify that the account details will only be read by a genuine acquirer.

The root certificate authority for SET will be operated jointly by CertCo (see http://www.certco.com) and SPYRUS (see http://www.spyrus.com)

## 6.1.3 Example Purchase Flow
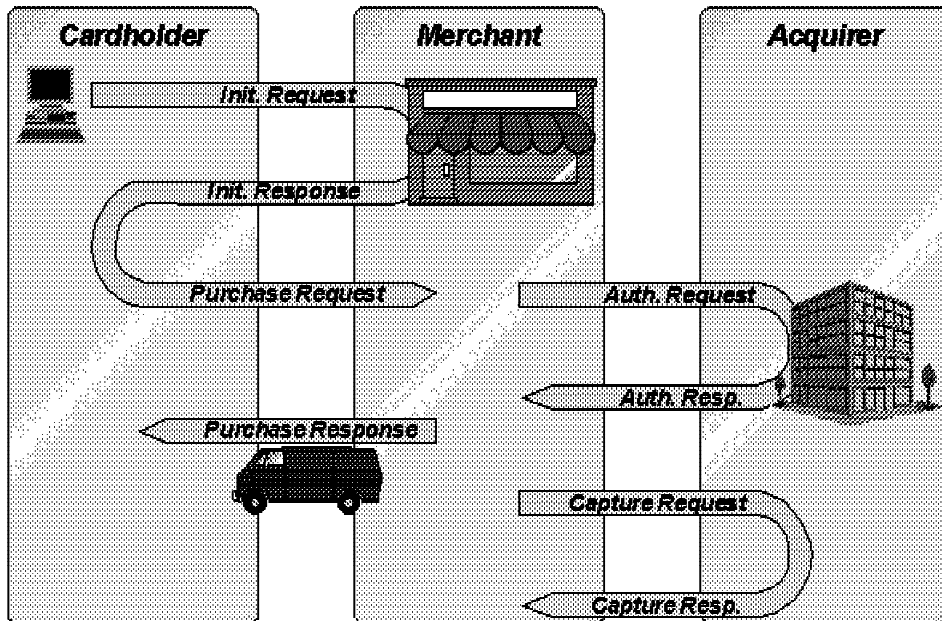


Figure   6-3. Example Purchase Flow

There are a number of message flows in SET.  They include certificate registration flow, purchase flow, capture flow and other flows between the merchant and acquirer.

The cardholder must have a SET enabled wallet application.  Before the first SET message is passed, a message from the merchant server "wakes up" the wallet and passes it the order description.

The purchase flow (when automatic authorization is enabled) is:

- Init. Request - is the first message sent by the cardholder indicates the bankcard brand to be used for this transaction
- Init. Reponse - contains a unique transaction identifier assigned by the merchant and the merchant and gateway certificates that correspond to the bankcard brand indicated in the request
- Purchase Request - contains the order information and the payment information from the cardholder to the merchant. The order information is encrypted in a manner so as to only be decrypted by the merchant. The payment information is encrypted in a manner so as to only be decrypted by the payment gateway.
- Auth. Request - is sent from the merchant to the payment gateway.  It contains the cardholder's encrypted payment information as well as other information required for the payment gateway to ensure integrity of the transaction, authenticate the cardholder and merchant, and process the transaction in the existing bankcard infrastructure
- Auth. Response - is the gateway's response to the merchant's authorization request. It contains the authorization response received from the issuer.
- Purchase Response - is the merchant's response to the cardholder's purchase request. It contains the purchase order status.

- Capture Request - is sent (either automatically or manually) from the merchant to the payment gateway once the goods have been shipped. It triggers the transfer of funds to the merchant's account.
- Capture Response - is the gateway's response to the merchant's capture request.

**Note:** If automatic authorization is NOT enabled, the Purchase Response will occur immediately after the Purchase Request is received and processed by the merchant. The cardholder will not know if the payment was authorized unless they issue an Inquiry Request from their wallet to the merchant.

## 6.1.4 IBM CommercePOINT Wallet
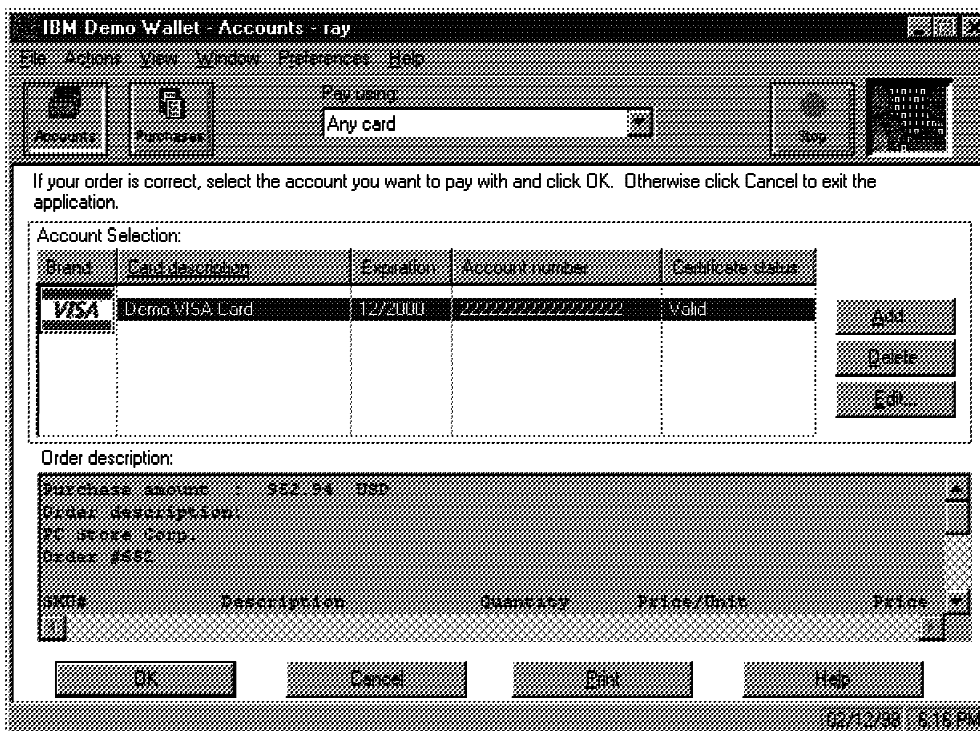


Figure 6-4. IBM CommercePOINT Wallet

IBM CommercePOINT Wallet is a browser helper application that provides the consumer with a GUI for managing credit card accounts and purchases for SET. Features include:

- Password protection of account and purchase information
- Support for SET message flows for Certification and Purchase.
- Display log of purchases.
- View and Print Certificate and Card Details

The wallet provides a number of views:

- Accounts - displays credit card accounts
- Purchases - displays purchases that have been made

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• Payment - is invoked by the SET Payment Wakeup which initiates the wallet.  It displays the description of goods, the choice of payment and the control buttons to purchase or cancel.

To invoke the wallet to perform payment, a "wakeup" message must be generated by the merchant server when a cardholder selects a payment link from the merchant web page.  This is a HTTP message with MIME **content-type: application/set-payment-initiation**

A similar "wakeup" message is also generated by the CA when the cardholder wishes to request certificates.  This is a HTTP message with MIME **content-type: application/set-registration-initiation**

To query current payment status for an order, the shopper can start the wallet, select the "Purchases" view, choose a transaction and then select the Check Status button which will send a message to the merchant till requesting the current status.

## 6.1.5  IBM CommercePOINT eTill & Net.Commerce
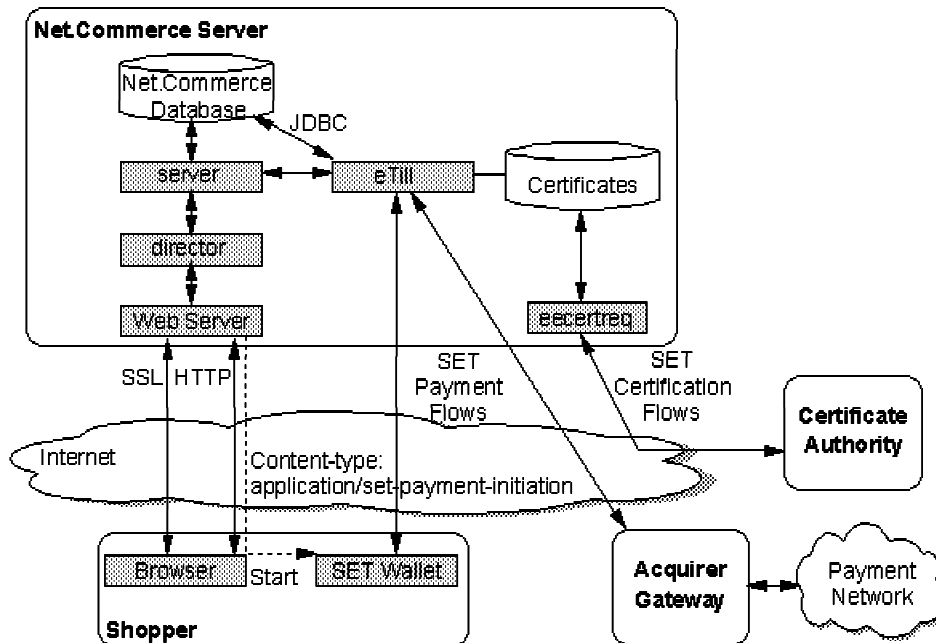


Figure   6-5. IBM CommercePOINT eTill & Net.Commerce

IBM CommercePOINT eTill is a general purpose merchant till application for managing secure payments.  In its initial release it only includes SET support but other payment methods will be supported in future.

eTill provides SET message processing and certificate management.  It uses its own tables in the Net.Commerce database to store configuration and SET message data. eTill is written in Java and uses JDBC to communicate with the database.

Net.Commerce V3 includes extensions to provide integration with eTill for handling of SET transactions.  This includes:

- Net.Commerce commands which use eTill APIs to forward administrator and cardholder requests to the eTill.
- Pools of daemons for controlling the eTill and processing SET transactions in batch mode.
- Sample macros for order processing and SET errors
- Administrator extensions for configuring eTill and processing SET transactions

The flow of a payment would be:

1. The Order Details page will contain a link to the payment wake up command instead of the present input form for credit card details.
2. The Net.Commerce server will send a SET wakeup message to the browser in a HTTP packet.  This will activate the wallet.
3. The shopper will review the order description and decide to pay.
4. The wallet will send SET payment messages directly to the eTill.
5. The eTill will update the Net.Commerce database with payment status information.
6. The Net.Commerce server will send an order acknowledgement page to the shopper's browser.
7. The eTill will forward cardholder account information and certificates to the acquirer gateway for authorization.

## 6.1.6  IBM CommercePOINT Gateway
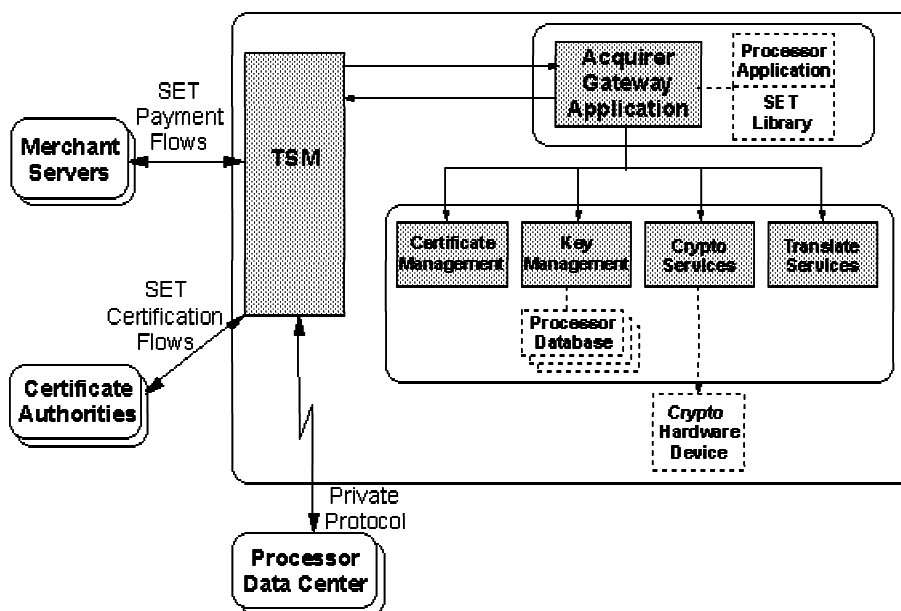


Figure   6-6. IBM CommercePOINT Gateway

IBM CommercePOINT Gateway provides the acquirer gateway component of the SET architecture.  It is a payment processing application based on SET standards that performs transaction management, cryptographic services and translation between communication and application layer protocols. i.e. between merchant SET messages and the acquirer legacy system format and transport.

---

Merchants send SET transactions to Transaction Services Manager (TSM) over TCP/IP which get forwarded to the Acquirer Gateway application

The Acquirer Gateway application validates cardholder and merchant certificates, processes the SET transaction and calls the TSM to send the transaction to the card processing system (credit card clearing and authorization networks)

The Gateway application provides secure storage of private keys - used for decryption of payment instructions, and for signing of response messages. It also provides management of gateway certificates, the distribution of certificates to merchants and management of certification revocation lists (CRL)

The IBM CommercePOINT Gateway runs on an RS/6000 hardware platform (e.g. SP2) with the AIX v4.1 or higher operating system.

Cryptograhic processing can be performed in software or using the IBM 4755 or 4758 Cryptographic Co-processor adaptor.

### 6.1.7 IBM Registry for SET
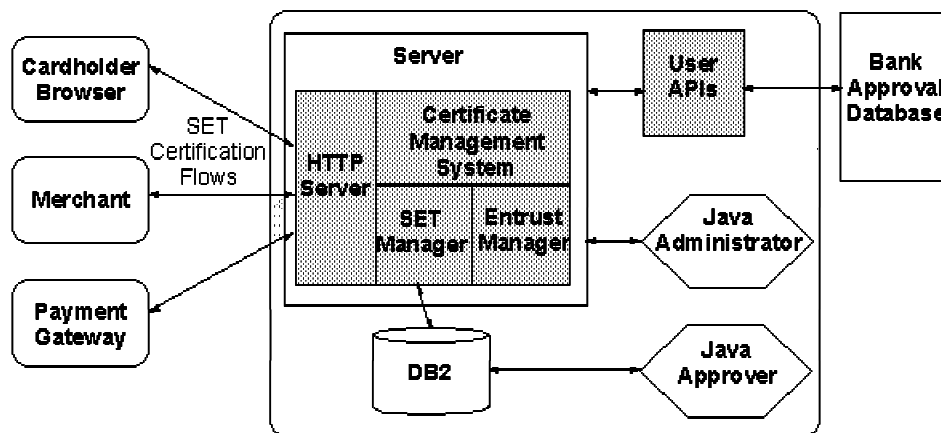


Figure 6-7. IBM Registry for SET

IBM Registry for SET provides the Certificate Authority software for administration of certificates for SET.

It can be configured to perform some or all of the following:

- Cardholder CA (CCA) - issues certificates directly to Cardholders who connect using their wallet software.
- Merchant CA (MCA) - issues certificates to merchants.
- Payment Gateway CA (PCA) - issues certificates to payment gateways.

Certificates may be approved and issued automatically if desired using a CA written API. Alternatively the CA can use an Approver user interface to manually approve requests.

## 6.2  SET Configuration

### 6.2.1  Payment Configuration Tasks

To implement SET payments using Net.Commerce and eTill you must do the following:

1. Establish a business relationship with an aquirer that supports SET transactions. The acquirer will provide the information needed to obtain merchant certificates and setup the eTill.

2. Install and configure eTill.  This is done as part of the normal installation of Net.Commerce.  The eTill is fully integrated into the Net.Commerce installation and configuration process.

   You have the option to install eTill on a different machine to the Net.Commerce servers.  Instructions to do this are provided in the Net.Commerce Online Information.

   If you run a multi-home system, you will need to run a separate eTill for each Net.Commerce instance.

3. Once you have the information from the acquirer, you can use a simple command line utility to request and manage merchant certificates.

4. If you will use a currency that is not configured into Net.Commerce by default, you can add currencies using Site Manager.

5. For each merchant, you need to configure the acquirer information and card brand information using the information from the acquirer.  Once this is done, the eTill will be able to start and communicate with the acquirer.

6. You will need to customize the shopping process pages so that shoppers can elect to pay using SET and they will receive correct responses to SET error conditions and status.

7. Optionally you can customize the way the order information is displayed in the shopper's wallet.

## 6.2.2 Payment Settings

Use Configuration Manager to change the settings for Net.Commerce components.
You can accept the defaults or make changes to all enabled fields.
Click the tabs to switch components.

Net.Commerce | Web Server | Database | Payment

Server Cycle Time (seconds):     30
Processing Interval (seconds):   30
Transaction Timeout (minutes):   60
Certificate Password            ******
Confirm Password                ******
Payment Option         ☐ Enable Message Trace

Finish   Cancel

Figure   6-8. Payment Settings

When you configure a Net.Commerce instance, you can also configure settings that affect the payment module.  These settings are written to the various Net.Commerce configuration files.  There are additional settings that can be manually edited in the configuration files for special configurations.

The Payment settings of a Net.Commerce instance control the communication between the Net.Commerce payment server and the eTill application.  They are:

- Server Cycle Time - how often the background server will check the database for new transactions to process (BACKGROUND_CYCLE_TIME in pay_back.ini)

- Processing Interval - how long the server will wait between each job.  A job is a group of transactions being processed together.
(BACKGROUND_INTER_JOB_TIME in pay_back.ini)

- Transaction Timout - how long a transaction will be left in a pending state (meaning it is being processed by the eTill) before it is reset.
(PAY_STATE_TIMEOUT in pay_back.ini)

- Certificate Password - The password of the database used to store SET certificates (CMSPASS in pay_etill.ini) This must match the password used to create the certificate database using the eecertreq utility.

- Enable Message Trace - whether you want a trace file to be created listing all SET transactions (ETILL_ENABLE_TRACE in pay_etill.ini)

  Only trace SET messages when you are debugging problems because the trace files grow extremely quickly.

### 6.2.3  Obtaining Certificates

Once you have established a business relationship with an acquirer you need to configure eTill and obtain merchant certificates from a certificate authority.  A pair of certificates is required for EACH combination of card brand and acquirer.

To obtain merchant certificates, use the **eecertreq** command from a command prompt. It will prompt you for information about the location of your certificate database, the certificate database password and then provide the following options for managing certificates:

```
Please enter your desired action:

1) Request new certificates
2) Renew certificates
3) Issue inquiry for a pending certificate request
4) Show pending certificate requests
5) Delete a pending certificate request
6) List all merchant certificates
7) List all payment gateway certificates
8) Show comprehensive information on a certificate request by record id
9) Show comprehensive information on a certificate by record id
A) Show comprehensive information on all certificate requests
B) Show comprehensive information on all certificates
C) Change the password to the key databases
D) Delete a certificate by record id
Y) Delete all certificates and keypairs

T) Start Tracing

E) Exit
```

The certificate database is stored in four flat files (bci.db, crl.db, key.db & keypair.db) in the Net.Commerce instance data directory.  Because Net.Commerce supports multiple instances, there must be a different data directory for each instance.

## 6.2.4  Acquirer Configuration



Figure   6-9. Acquirer Configuration

Each merchant must configure the information about how the connection with their acquirer is established.

The following information is required:

- Acquirer Name, Acquirer Business ID, Acquirer BIN and Signing Brand ID.  These values will be supplied by your acquirer.  They must match values in the acquirer's certificate.

- Authorization and Capture options:

  − Auto Auth and Manual Capture - payments are automatically authorized but the merchant must manually trigger capture.  This is the default.
  − Auto Auth with Capture - authorization and capture are automatically initiated in a single SET message.
  − Auto Auth followed by Auto Capture - payments are automatically authorized an once the authorization response is received, capture is automatically issued.
  − Manual Auth and Manual Capture - the merchant must manually trigger authorization and then, once the authorization response is received, capture.
  − Manual Auth with Capture - the merchant must manually trigger authorization and capture which be sent in a single SET message.

  The acquirer will specify which combination can be used.  This may be determined by the laws of sale which often require goods to be shipped before capture is performed.

All other parameters are optional but may be necessary for some aquirers.  They allow you to specify times when the payment gateway can and can not be contacted, and special options for some acquirers.

This information is stored in the ETACQCFG and ETACQOFFDAYS database tables

## 6.2.5  Brand Configuration



Figure   6-10. Brand Configuration

Each merchant must configure the card brands that they support for each acquirer.  A merchant will often use a single acquirer for multiple brands.

The following information is required:

- Brand ID and Merchant ID.  These values will be supplied by your acquirer.  They must match values in the merchant's certificate.

The Have Certificate option is important.  If you leave this blank, the next time the eTill is restarted, it will automatically request the acquirer certificate and update the database to indicate that it does have the certificate.

All other parameters are optional but may be necessary for some aquirers.  They include special identifiers for some acquirers.

This information is stored in the ETBRANDCFG database table.

## 6.2.6  Customize Site for SET Payment

Once SET payment is configured, you need to customize the site or store shopping process to allow shoppers to pay using SET and to provide appropriate feedback about SET transactions.

These customization involve Net.Data macros and C + + overridable functions.

- You must modify the macro that displays the Order Details page to allow payment using a SET wallet.  To do this create a new macro and override VIEW task ORD_DSP_PEN with the macro name.  This can be done differently for each store.

The macro must provide a link which runs the Net.Commerce command to wake up the SET wallet in the browser. The URL for this command is: /cgi-bin/ncommerce3/pay_wakeup?merchant_rn=m&order_rn=o

- The macro that displays the Order Acknowledgement message should be updated to understand SET return codes so that it can give appropriate feedback to the shopper. e.g Payment not authorized.

- The macro used to Check Order Status should be updated to show the current payment status. Note: the wallet provides a function to directly query the payment staus from the eTill.

- An optional customization that may be performed is to customize the order description information sent to the wallet in the initial wakeup message. Net.Commerce includes an overridable function that generates the order description but you may wish to change the format or include custom information.

  To customize this function you need to write a new C + + function based on a supplied sample and then override PROCESS task PAY_ORDER_DESC with the new function assignment. This function can only be customized for a site not per merchant.

Assigning new macros or overridable functions is performed using the Site Manager... Task Management function.

For an example of what customizations may need to be performed, look at the 6ixth Avenue store in the Metropolitan (DEMOMALL) sample. This store is SET enabled so you can look at its configuration in Store Manager and you can look at the sample macros provided in the ncsample macro directory:

- orderdspp.d2w - order details macro
- pay_stat.d2w - SET acknowledgement and error macro

## 6.3  Payment Processing

### 6.3.1  Shopping Process Tables
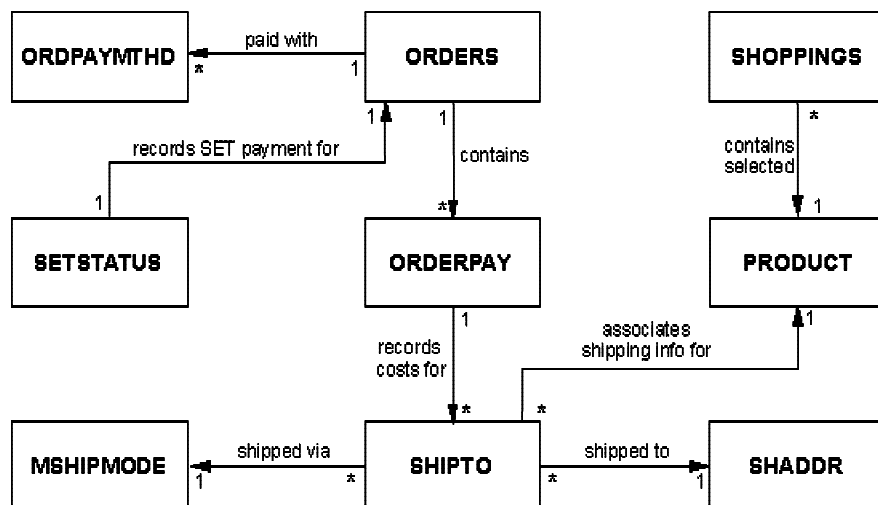


Figure  6-11. Shopping Process Tables

To properly understand the Net.Commerce shopping process you must understand what data needs to be added at what time for an order to be processed successfully. In some ways this depends on the merchant, because some merchants may require more data than others.

The Net.Commerce database tables that are used by the shopping process are:

- SHOPPINGS - lists the products the shopper has added to their shopping cart. This function is completely optional.  A merchant can customize the shopping process so that the link from a product page uses the OrderItemUpdate command so that the SHOPPINGS table is not used.  Entries in the SHOPPINGS table have nothing to do with past or current orders.  When the shopper deletes an item from their shopping cart, the row in the SHOPPINGS table is deleted.

- SHIPTO - lists the shipping address and mode for each item in a suborder.  A suborder is one or more items a shopper has selected from a single merchant for a single shipping address.  Each item has a status so that a merchant can track partially fulfilled orders.  Default status values are X=cancelled, P=pending, C=complete.  When the shopper deletes an item from an order, the STSTAT field is changed to X.

- ORDERPAY - lists the charges for each shipping address.

- ORDERS - lists the charges and billing information for orders.  An order is a transaction between a single shopper and a single merchant.  It can consist of multiple suborders.  Each order has a status.  Default status values are X=cancelled, P=pending, C=complete, I=payment in progress (SET only), M=awaiting authorization (SET only).  When the shopper removes an order, the ORSTAT field is changed to X and for all items, the STSTAT field is changed to X.

- ORDPAYMTHD - lists the payment method for each order.
- SETSTATUS - lists the SET status and amounts for each order where SET is used for payment.

When SET is used for payment, the ORDPAYMTHD table is used to record the method (SET) and authorized amount and the SETSTATUS table records all information about the SET transaction.

## 6.3.2 Shopping Process Flow
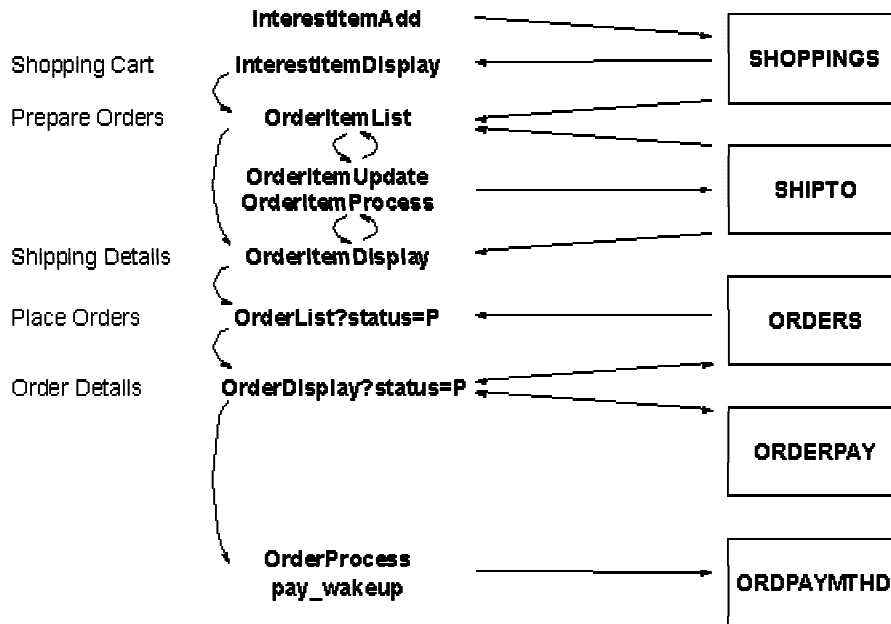


Figure   6-12.  Shopping Process Flow

The Net.Commerce shopping process is implemented by a set of commands that add, update, remove and display information from the shopping process database tables.

- InterestItem* - add, remove or display items in the shopping cart (SHOPPINGS table).  This does not have any influence on the actual contents of an order - it just provides a convenient way for a shopper to see products they may purchase (one or more times).  A merchant can customize the shopping process to bypass the InterestItem* commands and the SHOPPINGS table.

    **Note:**  The InterestItem* commands were ;shopcart/* in V1/V2.

- OrderItem* - add, remove or display order items (SHIPTO table).  Each item is part of a suborder and has a quantity, shipping address, cost and shipping mode.  A suborder is one or more products a shopper has selected from a single merchant for a single shipping address.

    **Note:**  The OrderItem* commands were ;shipto/* in V1/V2.

- Order* - add, remove or display complete orders.  An order is a transaction between a single shopper and a single merchant.  It can consist of multiple suborders.

> **Note:** The Order* commands were ;order/* in V1/V2.

- OrderDisplay?status=P - calculates the suborder totals and final costs for the order including shipping, taxes and discounts (ORDERPAY and ORDERS tables). Then it LOCKS the order to prevent updates while the shopper is entering payment information. Displays the Order Details page with the totals and the payment input form or link.

- OrderProcess - receives the non-SET payment information from the HTML form on the Order Details page. A row is created in the ORDPAYMTHD table and the order status is set to C.

- pay_wakeup - generates the SET order description and sends it in the wakeup message to the shopper's SET wallet. A row is created in the ORDPAYMTHD and SETSTATUS tables to track the payment. The order status is set to I when the payment is initialized, When the shopper responds with the SET payment information, the order status is set to M if authorization is not complete or C if it is.

### 6.3.3  SET Requests & Status

In payment card processing and the SET protocol there are a number of types of request that can be performed and a number of states that a transaction could be in.

The following requests may be performed:

**Authorization** (a.k.a Approval) This process is how the merchant verifies that the shopper's financial institution will guarantee payment. Authorization can be triggered automatically or performed manually by the merchant.

**Capture** (a.k.a Deposit) This process is how the merchant requests that the payment is transferred from the shopper's financial institution to the merchant's financial institution. Capture can be triggered automatically (although this may not be legal in some situations) or performed manually by the merchant.

**Credit** (a.k.a Refund) This process is how the merchant requests that some or all of the payment is transferred back to the shopper's account. Credit would be performed manually by the merchant if needed.

**Reversal** This allows the merchant to correct the amount (downwards) or remove an Authorization, Capture or Credit request. A reversal can only be performed if the transaction is in an appropriate state.

Authorization and Capture can be performed in a single request (known as a Sale request).

**Note:** Usually, by law, goods must be shipped before the merchant is allowed to perform capture. Before configuring Automatic capture, a merchant may need to customize their site to automatically trigger shipping.

Each request may be in one of the following states:

**Cancelled** If the shopper presses the Cancel button in their wallet, the payment will move to the cancelled state.

**Ready** The payment is ready for the next request. e.g. Auth Ready or Capture Ready

---

**Requested** A request has been issued but has not been processed by the payment background server.

**In Progress** The eTill is processing the request and is awaiting a response from the Payment Gateway.

**Completed** The request completed successfully and no further action is required. e.g. Capture Completed or Credit Completed.

**Failed** The request failed. For authorization this could mean the authorization was rejected. For many other transactions, this could mean a system error.

## 6.3.4 SET Transaction Status Flow
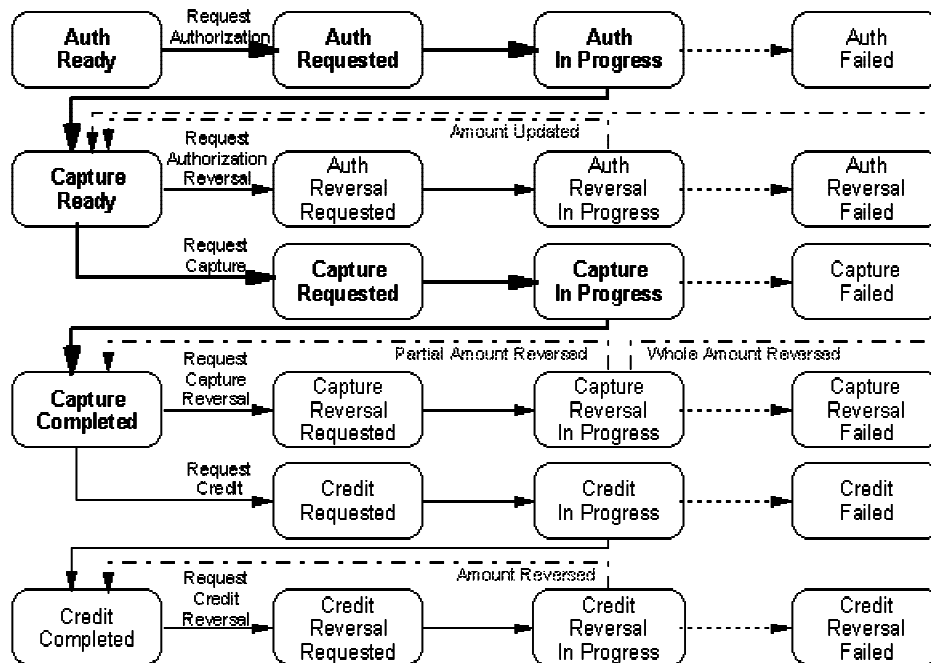


Figure 6-13. SET Transaction Status Flow

The normal flow for a SET payment is:

- The shopper selects pay in their wallet application. Net.Commerce will set the status to **Auth Ready**
- If automatic authorization is configured or when the merchant manually performs a **Request Authorization**, the status changes to **Auth Requested**
- When the background server detects the status it will pass the request to the eTill and set the status to **Auth In Progress**
- Assuming the Payment Gateway OKs the authorization, the status changes to **Capture Ready**
- When the merchant ships the order they will manually perform a **Request Capture** and the status changes to **Capture Requested**
- When the background server detects the status it will pass the request to the eTill and set the status to **Capture In Progress**
- Assuming the Payment Gateway performs the capture successfully, the status changes to **Capture Completed**

All of the other states will only apply in special circumstances, e.g. reversal is required, credit is required, an error occurs.

## 6.3.5 Payment Processing



Figure 6-14. Payment Processing

The Store Manager, Payment Processing form allows a merchant to search for SET orders and to perform a SET transaction on an order.

Like the Order Information form, the first part of the form is a search panel. The merchant can select name, status, date and click on Search to get a list of matches.

The Order Status - the status of the whole order (ORDERS.ORSTAT) - and Item Status - the status of each item in a sub-order (SHIPTO.STSTAT) - fields can have any of the following system assigned values: P=Pending, X=Cancelled, C=Complete, I=Payment in progress (SET), M=payment awaiting authorization (SET). Merchants can customize Net.Commerce to assign other values (e.g. B=Backlog, S=Shipped) for their own business processes.

Once an order is selected, the form shows the order, shopper, sub-order and item information plus the SET status, Payment Information and SET Messages from the SETSTATUS table.

To perform a SET transaction you

1. Search for transactions. They will be listed in the feedback frame with a checkbox by each one.
2. Select the checkbox for one or more orders
3. Select the action from the selection list in the button frame
4. Click on PERFORM

# Unit 7.  Customization

## What This Unit Is About

Net.Commerce Version 3 has a completely new server architecture that redefines Net.Commerce command URLs and introduces a new interface for defining overridable functions for tasks.

This unit introduces the new concepts and points to the appropriate reference documentation to fully understand these changes.

## What You Should Be Able to Do

After completing this unit, you should be able to:

- Describe how commands are processed in the new Net.Commerce V3 server architecture.
- Describe how Net.Commerce V3 maintains compatibility with older commands, macros and APIs.
- List database changes in Net.Commerce V3.

# 7.1 Customization

## 7.1.1 Customization Tasks

The Net.Commerce server will function as a mall immediately after installation, but using sample macro pages for the shopping process pages and default server functions for certain business rules.

Customization of the business logic may be required to implement the business rules of the mall and merchants.

Customization will often involve:

- Creating new tables, views, indexes and triggers in the database or using merchant customizable columns which are provided in many existing database tables.
- Creating Net.Data macros which display dynamic store pages by querying information from the database. To do this you will need HTML, Net.Data and SQL programming skills. Note: it is not recommended to update the database from Net.Data macros.
- Creating Overridable Functions which are called by specific Net.Commerce commands to validate user input and update the database. To do this you will need C++ and SQL programming skills.
- Creating batch mode applications which use data in the database to provide reports or process order or payment data asynchronous from the shopping process.

A working mall or store typically includes the following elements:

- Home page, information and customer service and navigation - Usually static HTML content is used for this information, but dynamic pages based on Net.Data macros can be used.
- Search and Specials - These functions allow a shopper to find products based on certain criteria. They are usually implemented as Net.Data macros.
- Product Catalog Navigation - These functions allow a shopper to find products by navigating a hierarchy. They are usually implemented as Net.Data macros.
- Intelligent Catalog - This is implemented using the Product Advisor tools in Net.Commerce PRO.
- Registration - This allows a shopper to input contact details and create a password protected ID that is valid across multiple sessions. It is implemented using a combination of Net.Data macros to build the registration forms and a C++ overridable function to validate the input data.
- Address Book - This allows a shopper to save shipping addresses across sessions. It is implemented using a combination of Net.Data macros to build the address forms and a C++ overridable function to validate the input data.
- Shopping Cart - This allows a shopper to save a list of products they are interested in across sessions. It is implemented using Net.Data macros to build the shopping cart views.
- Pricing - This allows a merchant to determine how a price is obtained for a product. It is implemented as C++ overridable functions that return the current price. Some Net.Data macros also need to be able to determine prices.

- Inventory - This allows a merchant to determine how checking and updating of inventory is performed for a product. It is implemented as C + + overridable functions that query/update the inventory.
- Order Items - This allows a shopper to choose a shipping address, quantity and shipping mode for each item in an order.
- Shipping Charges - This allows a merchant to determine how shipping charges are calculated. It is implemented as C + + overridable functions that calculate the charges. External shipping charge calculation systems can be used by overriding these functions.
- Tax Calculation - This allows a merchant to determine how taxes are calculated. It is implemented as C + + overridable functions that calculate the charges. External tax calculation systems can be used by overriding these functions.
- Total Cost Calculation - This allows a merchant to determine how the total charges are calculated. It is implemented as C + + overridable functions that calculate the totals. Discounting can be implemented by overriding these functions.
- Order Processing - This allows a shopper to validate the order and charges and submit payment information. It is implemented using Net.Data macros to build the order pages.
- Payment Processing - This allows a merchant to process the payment information. It is implemented as a C + + overridable function that validates the payment. External payment processing systems can be used by overriding these functions.
- Error Handling - Warning pages are displayed when the system is not functioning or invalid data is detected. These are either static HTML content or Net.Data macros.

## 7.1.2  Where to Start

The Net.Commerce Online Information includes sections on customization and the reference information about the database tables, Net.Commerce commands, tasks, macros and overridable functions including descriptions of supplied samples.

Net.Commerce includes three installable samples (1 mall and 2 stores) that include examples of customization. In addition, a tutorial is provided that steps through customization tasks needed to implement one of the samples. To install a sample or the tutorial use the SAMPLES AND TUTORIALS form in Net.Commerce Administrator.

The **adt** subdirectory includes sample source code that can be used as a template for building C + + overridable functions. The library and include files that are needed to compile overridable functions are also provided there.

## 7.1.3  Database Changes

Net.Commerce V3 includes new database tables to support the following new features:

- New Command Infrastructure.  These tables include support for registering pools, commands and overridable functions.  If you are programming overridable functions you will need to manually register them in the OFS table.
- Access Groups.  These tables register access groups and link them to commands and administrators.
- SET and eTill.  These tables store SET and eTill configuration information and transaction data.  It is not recommended to make changes to these tables but you may wish to generate reports from them some of these tables are documented in the Net.Commerce Online Information and others are documented in the eTill manuals.
- Merchant Tax Rates - the MERCHANTTAX table can contain tax rates for a specific merchant that override the default mall rates
- Store Creator status - the SG_STORES table is used by store creator to keep track of stores it has created
- WorldTax support - the WTAXMERINFO table stores WorldTax merchant information
- Product Advisor - a number of tables, views, indexes and triggers with names beginning IC exist for Product Advisor.  These tables are not documented and you should not modify them.
- Legacy Integration samples.

For more information about the database changes in V3 go to the Net.Commerce Online Information, select References, then Database, then Changes in Version 3.

## 7.1.4  Net.Commerce Commands

The syntax for Net.Commerce commands has completely changed from V1/V2 to V3.

In V1/V2, URLs were prefixed by /cgi-bin for unprotected commands or /msprotect for protected commands, followed by the director program name (nph-msrvr for V1 or ncommerce for V2), the command and its parameters. e.g. /cgi-bin/ncommerce/;order/list?merchant_rn=123&status=P

In V3, the format of command names has changed and /msprotect is no longer used so all command URLs should begin **/cgi-bin/ncommerce3** followed by the command and its parameters. e.g.  /cgi-bin/ncommerce3/OrderList?merchant_rn=123&status=P

Mappings in the web server configuration and the director will map V1/V2 command URLs to the V3 equivalent.

The mapping from V1/V2 command names to V3 commands is:

| Old Syntax (V1 & V2) | New Syntax (V3) |
|---|---|
| ncommerce/;execmacro | ncommerce3/ExecMacro |
| ncommerce/;adrbk/add | ncommerce3/AddressAdd |
| ncommerce/;adrbk/delete | ncommerce3/AddressDelete |
| ncommerce/;adrbk/process | ncommerce3/AddressUpdate |
| ncommerce/;display/item | ncommerce3/ProductDisplay |
| ncommerce/;display/category | ncommerce3/CategoryDisplay |
| ncommerce/;register/new | ncommerce3/RegisterNew |
| ncommerce/;register/modify | ncommerce3/RegisterUpdate |
| ncommerce/;register/form | ncommerce3/RegisterForm |
| ncommerce/;shipto/list | ncommerce3/OrderItemList |
| ncommerce/;shipto/display | ncommerce3/OrderItemDisplay |
| ncommerce/;shipto/process | ncommerce3/OrderItemProcess |
| ncommerce/;shipto/update | ncommerce3/OrderItemUpdate |
| ncommerce/;shipto/delete | ncommerce3/OrderItemDelete |
| ncommerce/;shopcart/add | ncommerce3/InterestItemAdd |
| ncommerce/;shopcart/delete | ncommerce3/InterestItemDelete |
| ncommerce/;shopcart/display | ncommerce3/InterestItemDisplay |
| ncommerce/;order/list | ncommerce3/OrderList |
| ncommerce/;order/display | ncommerce3/OrderDisplay |
| ncommerce/;order/process | ncommerce3/OrderProcess |
| ncommerce/;order/unlock | ncommerce3/OrderUnlock |
| ncommerce/;order/cancel | ncommerce3/OrderCancel |

There are also new V3 commands that have no V1/V2 equivalent:

- AddressCheck
- AddressForm
- ExecTask
- ExecUrl
- LogonForm
- Logon
- OrderShippingUpdate

These are described in the Net.Commerce Online Information.

With the new logon model, the way in which you build URLs to force a shopper to logon is different.

For example: in V2, you would use the following URL to enable SSL, force a shopper to login and run a macro to generate a HTML page:

```
https://host/msprotect/ncommerce/;execmacro/dir.d2w/report
```

Other URLs beginning /msprotect would not give a second login prompt.

In V3, you could use the following URL to prompt for login:

```
http://host/cgi-bin/ncommerce3/LogonForm?url=/cgi-bin/ncommerce3/ExecMacro/dir.d2w/report
```

The Command Security function would be used to specify particular commands that required a shopper to be logged in.

## 7.1.5  Commands and Tasks

Net.Commerce V3 includes a new flexible server architecture that allows new functions to be added to the server by registering them in the database.  The database schema for this new server is quite complicated and is explained in the Net.Commerce Online Information.

There are two types of Net.Commerce commands

- VIEW or user-interface (UI) commands - retrieve information from the Net.Commerce database and display store pages. They achieve this by calling Net.Data macros that combine SQL statements with HTML.  These commands are typically linked from the mall or store home pages.
- PROCESS or non-user-interface (non-UI) commands - process and write information to the Net.Commerce database.  These commands are typically invoked by submitting input forms during the shopping process.

Many commands offer some customization ability by calling **Tasks** which are registered in the database.  Each Task has an **Overridable Function** assigned which you can override with your own function (either for the site or per store) to change the way it processes information.  You can also turn off some tasks (e.g. inventory checking) by assigning overridable function **DoNothingNoArgs** to the task.

VIEW commands ALWAYS finish processing by invoking a VIEW task.  This VIEW task will usually have the overridable function **TaskDisplay** assigned which uses Net.Data to run a macro.  The name of the macro is determined from the database.

## 7.1.6  Command Processing
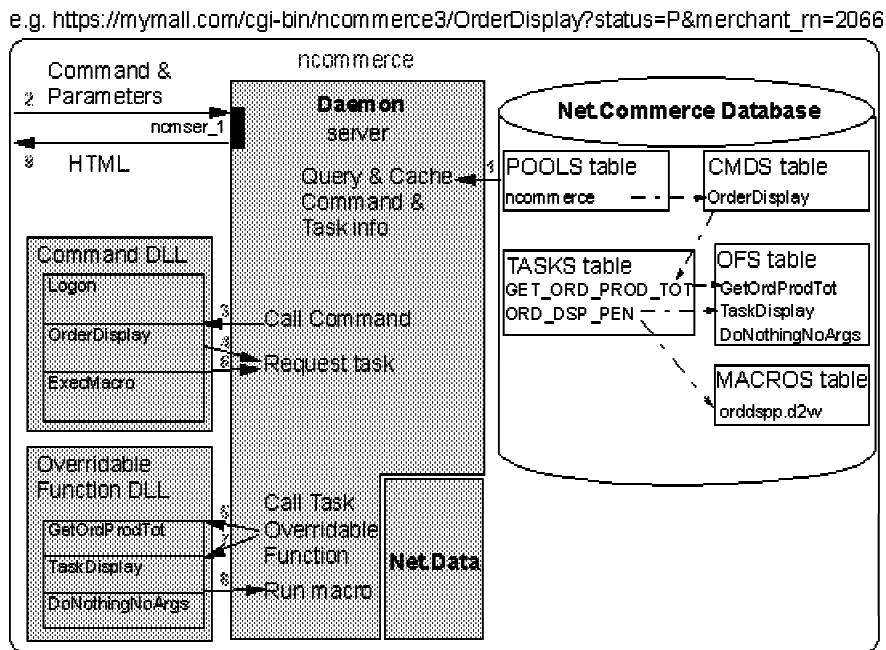


Figure   7-1.  Command Processing

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In the database, the daemon pools are registered in the POOLS table, the 30+ shopping commands (plus all admin and payment commands) are registered in the CMDS table and tasks are registered in the TASKS table. Other tables associate pools with commands, commands with tasks and so on.

The processing of commands is performed as follows:

1. When a daemon starts, it queries the information about the commands and tasks associated with its pool. This information is cached in memory to improve performance when executing commands. This means that you must stop and restart Net.Commerce if you change task information.

2. When a shopper selects a link or button on a store page, a URL is sent to the web server which (if it is a Net.Commerce command) the director will send to the daemon. The daemon verifies the command is valid and has the required parameters.

3. If the command is valid, the server invokes the main command function which is a C++ function in a dynamic link library (NT) or shared library (AIX/Sun). The shopper ID from the cookie and the parameters in the URL are passed to the command in a name-value pair data structure.

4. Commands can optionally use tasks to perform some processing. Most PROCESS commands and some VIEW commands perform PROCESS tasks. The command requests the server to perform a task (e.g. GET_ORD_PROD_TOT) and it is up to the server to decide which overridable function to execute.

5. Once the server has determined which overridable function to use, it invokes the function and passes it the name-value pairs. The results are passed back to the command.

6. A command may use multiple tasks (or none at all). If it is a VIEW command, it will perform a VIEW task at the end of its processing to generate the HTML response.

7. Most VIEW tasks have the TaskDisplay overridable function assigned.

8. The TaskDisplay overridable function runs a Net.Data macro to generate the HTML response. This queries the MACROS table to determine the Net.Data macro filename.

9. The result of running ALL Net.Commerce commands is a HTML document. PROCESS commands usually produce a HTML document containing a redirect to a new URL (usually a VIEW command).

Each Task is registered in the TASKS table and has an overridable function assigned which is registered in the OFS table. Tasks, functions and macro assignments can be changed by the administrator using the Task Management form. Tasks have either Mall or Store scope. With Store scope, a different overridable function or macro can be assigned for each Store.

The example command OrderDisplay?status=P actually runs 8 PROCESS tasks and then runs the ORD_DSP_PEN VIEW task. To keep it simple, just one PROCESS task (GET_ORD_PROD_TOT) is shown.

**Note:** In V1 and V2 all commands were internal functions in the server daemon program (mserverd) and they could not be changed or added to. Tasks were

implemented but you could not override the function used by VIEW tasks and the programming interface was very different for PROCESS tasks (APIs in V1/V2).

## 7.1.7 Overridable Functions

Most Net.Commerce commands call tasks to perform some of the business logic associated with the command. All Net.Commerce V3 tasks run an overridable function to do the actual work. An overridable function is a C + + function, written using a set of classes provided with Net.Commerce. These functions act as extensions to the server daemon so they mut be written extremely carefully because a bug could crash the server.

The classes and programming standards for writing overridable functions are documented in the Net.Commercec Online Information. **adt** subdirectory includes sample source code that can be used as a template for building C + + overridable functions. The library and include files that are needed to compile overridable functions are also provided there.

Important supplied overridable functions include:

- TaskDisplay - used by VIEW and ERROR tasks to query the MACROS table and run the Net.Data macro associated with the task. If you did not want to use Net.Data macros in your site, you could replace TaskDisplay with one or more overridable functions that accessed the database directly and generated the appropriate HTML.
- MacroDisplay - used by the CategoryDisplay and ProductDisplay commands to query the CATESGP or PRODSGP tables for the template associated with the category or product and run the Net.Data macro.
- DoNothingNoArgs - assigned to tasks that have no default business logic (e.g. EXT_SHIPTO_PROC, EXT_SHIPTO_UPD, EXT_ORD_PROC)

**Note:** V3 includes **proxy functions** which can run V1/V2 API functions as PROCESS tasks. For example, the proxy overridable function GetOrdProdTotProxy allows a function written for the V2 GET_ORD_PROD_TOT API to be executed by the V3 GET_ORD_PROD_TOT PROCESS task.

To register a new overridable function with Net.Commerce, you must manually add the appropriate row to the OFS table. Once the entry is in the OFS table, you can use the Task Management form to assign the function to a task.

## 7.1.8 Taxation Support

Tax calculation is performed when the OrderDisplay (;order/display in V1/V2) command is run. In Net.Commerce V1/V2 there were three choices for tax calculation:

1. In the MALL table, six tax rates could be defined. The default function for GET_SUB_ORD_PROD_TAX_TOT API would apply each of these six rates to each suborder and write the results in the ORDERPAY database table. The GET_ORD_PROD_TAX_TOT API would calculate the sum of all six tax amounts for each suborder in an order and write it to the ORDERS table.

2. A merchant in the US or Canada could license Sales Use Tax System from Taxware inc. Database tables and a replacement function for the GET_SUB_ORD_PROD_TAX_TOT API were provided with Net.Commerce to allow

the Net.Commerce server to make a call to Sales Use Tax System to calculate the taxes. A list of tax codes was provided so a merchant could assign a code to a product and the calculation would be based on the tax rates associated with the code.

3. A merchant could write their own function for the GET_SUB_ORD_PROD_TAX_TOT and GET_ORD_PROD_TAX_TOT APIs.

In Net.Commerce V3, there are two new options:

1. A new database table MERCHANTTAX allow a merchant to specify six tax rates to override those defined the MALL table. The default function GET_SUB_ORD_PROD_TAX_TOT will use the merchant tax rates instead of the mall tax rates.

2. A merchant can license Taxware WorldTax system. This provides international taxation support in addition to US and Canada.

### 7.1.9  Legacy System Integration

Net.Commerce PRO includes back-end integration programming samples for integration with the following environments:

- CICS and MQSeries - Sample C + + source code is provided for using CICS EPI or MQSeries as middleware to pass interactive requests from a Net.Commerce overridable function to a legacy system.

  You can also create a background worker application to listen for incoming data from a legacy system and process it in Net.Commerce.

- IMS - Sample C + + source code is provided for using IMS Web Studio to pass interactive requests to a legacy IMS system.

- EDI - Sample overridable function and database tables are provided that allows order information to be written to a batch request which can then be converted to an EDI 850 Purchase Order message by IBM Global Services.

  To use this you need to setup an account with IBM Global Services for the message mailboxes. You can customize the EDI sample to specify the format of the order information.

- SAP R/3 - Sample overridable functions and database tables are provided that allow Net.Commerce to import the SAP R/3 product catalog and user information to enable Net.Commerce to act as a web front-end to SAP.

  Overridable functions are used to send price, discount, shipping, taxation and payment requests directly to SAP.

Depending upon the environment, the following may need to be performed to implement one of the samples:

- Install environment specific client software, the appropriate C + + compiler and the DB2 Software Development Kit (SDK)
- Compile sample C + + overridable function source code
- Create new Net.Commerce background server pool to listen for inbound requests.
- Create new database tables for transaction data
- Register new overridable functions

- Register new Net.Data macros

The Net.Commerce Online Information describes the functions supported by the samples and how they can be adapted by a merchant.  Not all information was available in the initial release, so check the Net.Commerce web site for updates: http://www.internet.ibm.com/net.commerce

The legacy integration samples source code and instructions are included in the **adt** subdirectory.

# Appendix A.  Exercises

# Exercise.  Installation

## What This Exercise is About

This exercise provides an opportunity to perform essential preparation tasks and install the Net.Commerce system.

## What You Should Be Able to Do

At the end of the lab, you should be able to:

- Verify sufficient resources are available
- Install Net.Commerce and its prerequisites
- Create a user ID for DB2 administration
- Build SSL key rings for the Web Server

## Introduction

No instructions are included for AIX or Sun Solaris. Follow the instructions in the Installation and Getting Started manual to install Net.Commerce for AIX or Sun Solaris.

You will first create a user for the installation and DB2 access. Then you will install Net.Commerce and its prerequisite products on your system.  Once installed you will perform certain post-installation tasks to prepare the Web Server and DB2 database for Net.Commerce.  You will then verify that the products have been installed correctly, and that the Lotus Go Webserver and DB2 Database Manager are functioning correctly.

## Preparation

Before you can perform this exercise, you must:

1. Make sure you have a system that meets the recommended hardware requirements.
2. Install Windows NT 4.0.  You can use either Workstation or Server.  If you install Server, select a standalone server.
3. Install the Network adapter driver and configure TCP/IP but DO NOT install Microsoft IIS Web Server.
4. Obtain and install ServicePack 3 for Windows NT 4.0
5. Install Netscape Navigator 4.0 with the JDK 1.1 patch from the \NETSCAPE directory on the Net.Commerce CD-ROM.

6. Make sure you know the TCP/IP host name of your machine and the administrator password.

## Exercise Instructions. Part A

### *Login to NT*

___ 1. If you are not logged in, press Ctrl-Alt-Delete for the login prompt

___ 2. Enter Username **administator** and the correct password.

### *Checking Available Resources*

Before installing the Net.Commerce software, you need to make sure you have enough free disk space and virtual memory. You should also adjust performance settings to enhance background program performance.

___ 3. Select **Start... Settings... Control Panel**

___ 4. Start **System**

___ 5. Select the **Performance** tab

___ 6. In Application Performance, set the Boost to **None**

___ 7. In Virtual Memory, click on **Change...**

___ 8. Make sure the total Initial paging file size for all drives is at least 150MB by increasing the initial size of the existing paging file or creating additional page files on other drives if there is insufficient space on the boot drive.

  - Select the drive that you wish to set the paging file for
  - Enter the new Initial Size (MB) value
  - Click on **Set**

  **Note:** The page file on the boot drive must be at least 40MB.

___ 9. Check that there is at least 300MB of additional space available so that you have enough space to install DB2, Go webserver, e-Till, Net.Commerce and create the Net.Commerce databases. (This can be on a different drive to the page file.)

___ 10. Click on **OK** to close the Virtual Memory window

___ 11. Click on **Close** to close the System window

___ 12. DO NOT reboot the system at this time.

### *Create NT User ID*

To install DB2 you need to create a user ID which will become the DB2 administrator. The user name must be no longer than 8 characters and must NOT start with a digit and some reserved sequences of characters. This user must belong to the NT Administrators group.

___ 13. Start User Manager for Domains

  - Select **Start... Programs... Administrative Tools... User Manager for Domains**

___ 14. Select the Menu option **User... New User...**

---

A "New User" window will be displayed

__ 15. Enter the Username as **db2inst1**

__ 16. Enter the Password and Confirm Password as **db2inst1**

**Note:** NT user names and passwords are case sensitive

__ 17. Deselect "User Must Change Password at Next Logon"

__ 18. Add this user to the Administrators group

- Click on **Groups**
- Select **Administrators** from the "Not Member of" list.
- Click on <**- Add**
  Administrators should now be in the "Member of" list.
- Click on **OK**

__ 19. Click on **Add** in the New User window.

The user will be created and the New User window will be blank.

__ 20. Click on **Cancel** in the New User window.

__ 21. Select the Menu option **User... Exit** to close the User Manager window.

__ 22. Logoff

- Select **Start... Shutdown**
- Select **Close all programs and log on as a different user?**

__ 23. Press Ctrl-Alt-Delete for the login prompt

__ 24. Enter Username **db2inst1** and password **db2inst1**.

## *Install Net.Commerce and its Prerequisites*

Before you start, make sure you know which partition to install onto.

__ 25. Insert the Net.Commerce CD in the drive. The Net.Commerce setup program will run automatically. If it does not start, run the Net.Commerce setup program

- Select **Start... Run**
- Click on **Browse**
- Select the CD-ROM drive
- Select the directory: NETCOMMERCE3
- Double-click on **setup.exe**
- Click on **OK**

The Net.Commerce setup program will start.

__ 26. Use the **Next** > button to move forward through the setup screens.

__ 27. Read the license agreement and click on **Yes**

__ 28. In "Components Selection" select:

Net.Commerce 3.1
DB2 Universal Database 5.0
Domino Go Web Server 4.6.1
CommercePOINT eTill

---

__ 29. Change the installation directories to the drive where you wish to install the software.

The Net.Commerce Configuration Java program will now start.

__ 30. Look at the Net.Commerce parameters. You do not need to change the defaults.

__ 31. Look at the Web Server parameters.

- Select the Web Server tab
- Verify the hostname is correct.
- Write down the value of HTML Path: _____

__ 32. Look at the Database parameters.

- Make sure Database User Logon is **db2inst1**

- Enter the Database Logon Password and Confirm Password fields as **db2inst1**

__ 33. Look at the Payment parameters.

- Enter the Certificate Password and Confirm Password fields as **abc123**

__ 34. Click on **Finish**

__ 35. Follow the prompts to complete the installation of Lotus Domino Go Web Server, DB2 UDB, eTill and Net.Commerce. The full installation can take 20 minutes or more depending on how fast your CPU and disks are and how much memory is in your system.

__ 36. After installation of Domino Go Web Server you will be prompted if you want to install Demo SSL keys. Select **No** - you will create SSL keys later.

When installation of all components is complete, you will be prompted whether you wish to restart your computer.

__ 37. Select **Yes** and click on **Finish**

Wait while your system reboots.

The installation program creates an entry in the user's Startup folder to build the database automatically after you login next time.

__ 38. Press Ctrl-Alt-Delete for the login prompt

__ 39. Login as **db2inst1**

The configuration program will start automatically.

Wait for the Net.Commerce, web server and database configuration to complete.

__ 40. Check the output for configuration errors.

__ 41. Click on **OK** to close the configuration window.

The Net.Commerce server will be started and your browser will start.

__ 42. Ignore any error messages and close the browser.

The SSL keys have not been created so you cannot access the Net.Commerce Administrator at this time.

---

### *Enable JDBC Server*

DB2 UDB includes a JDBC server program that can listen for requests from Java Applets that need to access a database. The Product Advisor build tools require this service.

The JDBC server is not integrated into the NT Services function so you need to add an entry to your Startup folder to start the JDBC server every time you login.

The Product Advisor tools expect the JDBC server to listen on TCP/IP port 16560.

\_\_ 43. Open your Startup folder

- Click with the RIGHT mouse button over the Start button on the task bar
- Select Open
- Open Programs
- Open Startup

\_\_ 44. Create a Shortcut to start the JDBC server on port 16560

- Click with the RIGHT mouse button in the Startup folder (not over an existing icon)
- Select **New... Shortcut**
- Enter the command line as **db2jstrt 16560**
- Select **Next>**
- Enter a name for the shortcut
- Select **Finish**

### *Verify Installation*

You will now perform a quick evaluation of whether the products installed correctly. This will become more apparent as you try to configure components later.

\_\_ 45. Check that DB2 installed correctly

- Use notepad to view the file \winnt\db2log.log
- Look through the file for the installation messages.

\_\_ 46. Check that Domino Go Webserver installed correctly

- Use notepad to view the file \winnt\icssetup.log
- Look for the value of ResultCode. If this is 0, the installation was successful.

\_\_ 47. Check that CommercePOINT eTill installed correctly

- Use notepad to view the file \winnt\etill.log
- Look for the value of ResultCode. If this is 0, the installation was successful.

\_\_ 48. Check that the programs are registered in Services and will start automatically at boot time.

- Start **Control Panel**
- Start **Services**
- Check that the following items are enabled for Automatic start:

**DB2 - DB2**
**DB2 Security Server**
**Lotus Domino Go Webserver**
**Net.Commerce - mser**

- Close Services and Control Panel

__ 49. Verify the programs are actually running

- Click with the Right Mouse Button on the Taskbar and select **Task Manager**
- Select the Processes tab
- Check that the following processes are listed:
    **db2sec.exe**
    **db2syscs.exe**
    **wHTTPg.exe**
    **srvrctrl.exe**
    **server.exe**
    **back_server.exe**

*END OF PART A*

## Exercise Instructions. Part B

### *Building Security Keyrings*

A production Net.Commerce system would need a certificate that is signed by a trusted Certifying Authority (CA) such as Verisign. The Net.Commerce Installation and Getting Started manual explains how to do this. In a development/test system you can create a self-signed certificate. This is what you will do in the following steps.

__ 1. Start your Netscape browser

__ 2. Disable all caching and proxies:

   - Select **Edit... Preferences...**
   - Click on the + symbol next to Advanced
   - Change Memory Cache and Disk Cache to 0 in the Cache form.
   - Select Direct connection to the Internet in the Proxies form.
   - Click on OK.

__ 3. Go to the CONFIGURATION AND ADMINISTRATION FORMS

   - Go to URL: **http://***<your_hostname>***/Frntpage.html**

     This will take you to the webserver front page which allows you to access configuration forms, documentation and other useful links.

   - Select CONFIGURATION AND ADMINISTRATION FORMS

   - When you are asked for your User ID and Password, enter **webadmin webibm**

__ 4. Create a key pair and certificate request.

   You need to create a public/private key pair in a key ring file. The key ring file is loaded by the server and used to encrypt/decrypt data on SSL sessions. The key needs to be signed by a Certificate Authority before it can be used. You will save the key to disk and sign it locally instead of sending it to an external CA.

   - Under the Security heading, select **Create Keys**

   - Click on **Other** and then **Apply**

   - Change the **Size** to the largest available value.

     This chooses the encryption key size. The larger the size, the more difficult it is to attempt to crack the key.

   - Write down the Key Name and the Key Ring filename.

     _____

     They can be left as the default values.

   - Enter **nckey** as the Key Ring Password.

     You can use any valid password, but make sure you don't forget it!

   - Select **Automatic Login**

- Fill in the required fields under Distinguished Name.

  The Server Name should be your complete TCP/IP host name.  The other fields are the X.500 identification of your organization.

  **Note:**   State must be 3 or more characters!

- Select **Don't Mail**

- Write down the file name where the copy of the certificate will be saved. (Scroll the field to see the complete name.)

  _____

- Click on **Apply**

  This will create the encryption key and save it in the key ring file.  It will also create a text file containing the certificate that needs to be signed.

- When complete, use the icon to return to the Configuration Page.

___ 5. Verify the basic security configuration and the default key ring file.

- Select **Security Configuration**

- Make sure HTTP sessions and SSL sessions are allowed.

- Check that the selected Key Ring file is the same as the one you just added the key to.  If it is not, select the correct Key Ring file, click on **Set selected key ring as current key ring** and click on **Apply**.

- Return to the Configuration Page.

___ 6. Receive your certificate and sign it.

- Select **Receive Certificate**

- Change Name of file containing certificate to the name above where you saved the certificate.

- Change Key ring to the correct key ring file.

- Enter the Key ring password as **nckey**.

- Click on **Apply**

  This will sign the certificate and write it to the key ring file.

- When complete, use the icon to return to the Configuration Page.

___ 7. Designate the trusted root key

- Select **Key Management**

- Enter the Key ring password as **nckey**

- Select **Designate Trusted Root Keys**

- Click on **Apply**

  A list of keys in the key ring file will be displayed.

- Select **mykey**

- Click on **Apply**

This key will become the Trusted Root key. (The public key of the CA who signed your certificate.)

- When complete, use the icon to return to the Configuration Page.

__ 8. Set your key as the server default.

- Select **Key Management** again.

- Enter the Key ring password as **nckey**.

- Select **Manage Keys**

- Click on **Apply**

A list of keys in the key ring file will be displayed.

- Select **mykey** and **Set as default**

- Click on **Apply**

This key will become the default key used by your web server.

__ 9. Stop and restart the Web Server.

- Start **Control Panel**
- Start **Services**
- Select **Lotus Domino Go Webserver**
- Click on **Stop**
- Click on **Start**

### *Verify SSL*

Now you will verify that the changes to the Web Server have been successful. You will do this by connecting to the server using SSL (a URL beginning with https:). The browser and server should successfully exchange encryption keys.

__ 10. Go back to your Netscape browser

__ 11. Re-enable caching

- Select **Edit... Preferences...**
- Click on the +  symbol next to Advanced
- In the Cache form, set Memory Cache to 1024 and Disk Cache to 2048

__ 12. Go to URL: **http://**<*your_hostname*>**/**

This checks that the web server restarted correctly.

__ 13. Go to URL: **https://**<*your_hostname*>**/**

This checks that SSL is working. If you get a Bad Data message from the browser, your keys have not been created correctly.

The browser should display a New Site Certificate window to indicate that the Certificate was signed by a CA that is not known to the browser.

__ 14. Use the **Next** > button to move through the New Site Certificate pages and look at the information about the certificate.

__ 15. Choose Accept this ID for this session

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The browser will accept pages from this server until you close it.  You will see the New Site Certificate page again if you connect to this site after restarting the browser.

*END OF LAB*

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# Exercise. Store Creation

## What This Exercise is About

The following exercises will create stores using the Store Creator and Store Manager tools.

## What You Should Be Able to Do

At the end of the lab, you should be able to:

- Create a store using Store Creator.

## Introduction

In this exercise you will create stores using Store Creator. You will follow the 9 steps in Store Creator to create a One Stop Shop store. You will select a store style and pre-load sample data for grocery products.

## Preparation

Before you can perform this exercise, you must:

1. Install and configure your Net.Commerce V3 system

## Exercise Instructions

### Starting Net.Commerce Administrator

You will use the Net.Commerce Administrator to start Store Creator and enter Store information into the Net.Commerce database.

___ 1. Start your Netscape browser

___ 2. Resize your browser window as large as you can.

> **Note:** Many of the data entry forms in Net.Commerce Administrator are quite large. If you resize your browser window when a form is displayed, it might not redisplay correctly.

___ 3. Open URL **https://**<*your_hostname*>**/ncadmin/**

> Make sure this is the fully qualified host name for the **mser** instance. DO NOT use loopback.

___ 4. When you are asked for your **User ID** and **Password**, enter **ncadmin  ncadmin**.

> To run store creator you need to be a user in the Site Administrators or Store Creators group.

### Starting Store Creator

Store Creator is used to quickly build a complete functioning store by entering the minimum information and choosing a store model and style from a list of choices. You will still need to use many of the functions of Store Manager to complete the store.

You will create a grocery store with sample data loaded.

___ 5. Select **STORE CREATOR** in the navigation frame.

___ 6. Click on **LOAD** in the bottom frame.

> The Store Creator java applet will be started in a separate browser window. Do not close this browser window otherwise Store Creator will close and you will lose your changes.

___ 7. Select **Create a new store**

___ 8. Click on **Next** at the bottom of the form.

### 1. Select a Store Model

The first step in store creation is selecting a store model.

___ 9. Look at the diagram and description text for the default store model (One Stop Shop). Can shoppers select multiple addresses per order? _____

___ 10. Do the same for the Personal Delivery model. Can shoppers review items selected during previous visits? _____

___ 11. Do the same for the Business-to-business model. Will orders be processed automatically when the purchaser submits them? _____

---

__ 12.  Select store model **One Stop Shop**

__ 13.  Click on **Next** at the bottom of the form.

>   **Note:**   Now that you have selected a store model it cannot be changed.

## 2. Enter Contact Information

You must specify a unique store name and also supply store contact information.

__ 14.  Enter the Store Name as **All Foods**

__ 15.  Enter all of the other fields on the page.

__ 16.  Click on **Next** at the bottom of the form.

>   If required fields are not supplied you will receive an error.  A filename will be generated from the Store Name which will be used in store files and directories.

## 3. Add Sample Products and Store Description

You can preload sample data into the store so that you can view the shopping flow. You can also supply a store description for the welcome page.

__ 17.  Select the Sample Products as **Grocery Products**

__ 18.  Modify the default Store Description.

__ 19.  Click on **Next** at the bottom of the form.

## 4. Specify Currency and Tax Rates

You must select a currency for the store and can also enter store tax rates.  The tax rates will override the defaluts for the mall.

__ 20.  Choose a currency

__ 21.  Enter a tax rate name and percentage amount in the first row.

__ 22.  Click on **Next** at the bottom of the form.

>   You do not need to supply tax rates if you don't want to.

## 5. Select Payment Methods

The basic method of payment requires the shopper to enter credit card details into a form which is sent using SSL protection.  You can also display a phone number which the shopper can call if they do not wish to send their card number over the Internet. If you want to use SET payment technology, this can be configured using Store Manager.

__ 23.  Select American Express and other cards

__ 24.  Enter a phone number

__ 25.  Click on **Next** at the bottom of the form.

>   If required fields are not supplied you will receive an error.

## 6. Specify Shipping Providers

You can enter multiple shipping services and charges. They define a flat rate that will be applied to each order. If you want more complex shipping calculations you must use Store Manager to create them.

__ 26. Enter the Shipping Service Name as **FoodExpress**

__ 27. Enter a Shipping Charge amount in the currency you specified.

__ 28. Click on **Next** at the bottom of the form.

   If no shipping charges are supplied you will receive an error.

## 7. Select a Store Style

You can select from a number of store styles which provide the graphical appearance of the store.

__ 29. Select a Store Style (e.g. **Organic**)

__ 30. Click on **Next** at the bottom of the form.

## 8. Select Page Layouts

You can specify how category pages will be displayed (either list layout showing only names or image layout showing the name and thumbnail image)

__ 31. Select Image layout

__ 32. Click on **Next** at the bottom of the form.

   If required fields are not supplied you will receive an error.

## 9. Review Your Selections

You can look back through the selections and then create the store.

__ 33. Scroll through the selections to make sure everything looks ok.

__ 34. Click on **Create Store**

   Store creation will take a while because multiple database and file creation actions need to be performed.

__ 35. After creation has completed, review the messages. Write down the URL of your store:

   _____

__ 36. Click on **Close** at the bottom of the form to close Store Creator.

### *Verify your work*

You will now browse the store that you have created to check that everthing works correctly.

__ 37. Open the URL for your store

A set of frames will be displayed showing a store header at the top, navigation icons on the left, the welcome information in the middle and current order list on the right. JavaScript is used to keep the order total information up to date.

__ 38. Select **Catalog**

The Catalog should be displayed in the middle frame. It will show the images for the categories.

__ 39. Select items in the catalog until a product page is displayed with a button to add to the order list.

__ 40. Add the item to the Order List.

The Order List will be redrawn with the item listed and an updated total.

__ 41. Click on **Submit Order**

A new window will be displayed with the order form. You need to enter a shipping address and payment information.

__ 42. Enter a shipping address making sure all fields in bold text are filled in.

__ 43. Select American Express, enter the card number as 2222222222 (10 2s) and choose a future expiry month and year.

__ 44. Click on **Purchase**

Notice that the customer number and order number are displayed. A shopper can not register so they will not have a user id to login with but they can query order information using the values shown.

__ 45. Close the Order Confirmation browser window.


### *END OF LAB*

## Optional Exercises

### *Create Additional Stores*

You created a One Stop Shop store using Store Creator. If you have time you can create other store models to see how their shopping process works.

___ 1. Follow the steps that you used to create the One Stop Shop grocery store but this time build a Personal Delivery store using the Clothing sample data.

___ 2. Follow the steps that you used to create the One Stop Shop grocery store but this time build a Business-to-business store using the Hardware sample data.

### *END OF LAB*

## Exercise.  Building Shopping Metaphors

## What This Exercise is About

The following exercises will create the basic Product Advisor data and create each of the shopping metaphors for a store.

## What You Should Be Able to Do

At the end of the lab, you should be able to:

- Use the Product Advisor build tools.
- Create a Product Exploration metaphor.
- Create a Product Comparison metaphor.
- Create a Sales Assistance metaphor.

## Introduction

In this exercise you will create Product Advisor metaphors for the "Next Generation" store in demomall.  To effectively use Product Advisor you need data for a number of similar products which have the same distinct attributes consistently assigned.  These products need to be grouped under one parent category.  The data for the "Next Generation" store is structured in this way.  It would take too long to manually enter a sufficient number of products & attributes.

The Next Generation store has the following category/product structure:

```
Computers (32)
  Thinkpads (33)
    IBM ThinkPad Power Series (38)
      IBM Thinkpad 820 (45)  -- 12 products
      IBM Thinkpad 850 (46)  -- 11 products
    IBM ThinkPad 700 Series (37)
      IBM ThinkPad 701 (41)  -- 10 products
      IBM ThinkPad 730 (42)  --  6 products
      IBM ThinkPad 755 (43)  -- 26 products
      IBM ThinkPad 760 (44)  -- 13 products
    IBM ThinkPad 300 Series (36)
      IBM ThinkPad 360 (39)  -- 10 products
      IBM ThinkPad 365 (40)  -- 10 products
  Desktops (34)              -- no subcategories or products
  Servers (35)              -- no subcategories or products
```

Each product is a single IBM Thinkpad system.  None of the products have child items.

Each product under the "Thinkpads" category has the following attributes defined:

```
Bus                e.g. ISA/VESA
CD-ROM             e.g. None, 2X, 4X
Form Factor        e.g. Tablet, Notebook, Pen Notebook
Hard Drive         e.g. 0, 105, 340, 540
Memory             e.g. 4, 8
Operating System   e.g. none
Processor          e.g. 486SX 33, 486DX4 75/25
```

It is possible to build a single set of metaphors for all categories under "Thinkpads" or build different metaphors for each category. You will do a combination of both.

# Preparation

Before you can perform this exercise, you must:

1. Install and configure your Net.Commerce V3 PRO system

2. Configure your Net.Commerce server with the DEMOMALL sample database (using the SAMPLES AND TUTORIALS form in Net.Commerce Administrator) and restart the server.

3. Start the JDBC server on port 16560

4. Delete the pre-built Product Advisor metaphors for the Next Generation store using the Product Advisor builder (use STORE MANAGER... PRODUCT ADVISOR)

   **Note:**  In the initial release of Net.Commerce V3 PRO for Windows NT (without Fixpack 1), the data for the Next Generation sample store is not built correctly and you will be unable to delete it using the Product Advisor.  A SQL script (cindex.sql) is available which will correct the data so that you can delete it.  To run this:

   a. Start a DB2 command window (Start... Programs... DB2 for Windows NT... Command Window)
   b. connect to the DEMOMALL database (db2 connect to demomall)
   c. run the script (db2 -f cindex.sql)

## Exercise Instructions - Part A. Product Metaphors

### *Starting Net.Commerce Administrator*

The Product Advisor build tools are started from Net.Commerce Administrator.

__ 1. Start your Netscape browser

__ 2. Open URL **https://**<*your_hostname*>**/ncadmin/**

Make sure you enter your fully qualified host name.

When Net.Commerce Administrator is requested you will be asked to logon

__ 3. Enter your **User Name** and **Password** as: **ncadmin ncadmin**

### *Starting Product Advisor*

__ 4. Select **STORE MANAGER** in the navigation frame.

__ 5. Select **PRODUCT ADVISOR** in the navigation frame.

__ 6. Select Store **Next Generation**.

__ 7. Click on **LOAD** in the bottom frame.

This will start a new browser window to load the Product Advisor Java Applet. Do not close this window otherwise Product Advisor will stop functioning. The applet will take a while to load the category information from the database.

**Note:** If Product Advisor has never been used with this store, you will be asked to run the Resynchronization tool which will build the initial Product Advisor data.

__ 8. Take a look at the Product Advisor applet window.

The tree display shows the relationships between categories. For each category, the category reference number, number of products and number of features is shown and a checkbox shows which actions (Catalog Builder, Product Exploration Builder, Product Comparison Builder, Sales Assistance Builder) have been completed.

### *Build Catalog Data*

Before you can build a shopping metaphor you need to select the product features that will be available to metaphors and specify the data type and input field size.

You will use the Catalog Builder tool to do this.

__ 9. Under the Catalog Builder icon (open book), select the checkbox for category "Thinkpads".

__ 10. Select menu option **File.. Open**

The Catalog Builder window will open. You may wish to resize this window so that all of the information is visible.

__ 11. Take a look a the Catalog Builder window

It shows the features (attributes) defined for the products under the category. For each feature it shows the description, database column name, maximum characters, display field size, whether the feature will be included in metaphors, the data type, how it is used and a measurement unit. Fields shown in grey are not editable. **User-defined** features for the products are shown, as are **Standard** features: Part Number or SKU (PRNBR), Short Description (PRSDESC), Thumbnail Image (PRTHMB), URL (PRURL) and Price (PPPRC).

\_\_ 12. For each **User-defined** feature, write down the number of unique values and whether ALL of the feature values are numeric.

- Select the Feature Values button or menu option.
- Select each User-defined feature in the Catalog Builder window and write down the answer.
- Click on **OK** to close the Feature Values pop-up window.

_____

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\_\_ 13. Change the Include value to No for the URL feature

- Double-click in the Include column for the URL row.

  This database field does not have any values assigned so there is no reason to include it in the metaphor views.

\_\_ 14. Notice that the Type has automatically been set to Integer for the fields that are compatible. What happens when you try to change a Character field to Integer?

\_\_ 15. Enter a Unit for the Integer fields.

- Click in the Unit column for the appropriate row.
- Enter the unit (e.g. MB)

\_\_ 16. Save the new values using the Save button or menu option.

  **Note:** Once you have saved the data, you cannot make changes to the field size, include and type fields. Instead you would need to delete and then re-create the catalog builder data.

\_\_ 17. Exit from the Catalog Builder window

  In the Product Advisor window the Catalog Builder action box will now be checked for the "Thinkpads" category.

\_\_ 18. Select the Catalog Builder action box for "Thinkpads".

---

__ 19. Build the links for the child categories using the Create Links menu option.

This will apply the same catalog data definition to all of the child categories of "Thinkpads" which do not have their own definition. A chain link symbol will be shown in the Catalog Builder checkbox for each child category.

### *Build Product Exploration Metaphor*

The first shopping metaphor to build is Product Exploration. This allows an experienced shopper to select important features to narrow down the list of products.

You will choose which features will be available and how they will be displayed.

__ 20. Under the Product Exploration Builder icon (magnifying glass), select the checkbox for category "Thinkpads".

__ 21. Select menu option **File.. Open**

The Product Exploration Builder window will open.

__ 22. Take a look a the Product Exploration Builder window

It shows the features available to the metaphors (i.e. Include=Yes in the catalog). For each feature it shows the order of presentation, maximum size, number of unique values, whether the feature will be displayed, the order values are sorted and what HTML "widget" is used for selection. Fields shown in grey are not editable.

__ 23. Change the order of the features so that Processor and Memory are shown before other **user-defined** features.

- Click on the value in the Order# column for the appropriate row.
- Select a new value.

__ 24. Reorder the features using the Reorder Features button or menu option.

__ 25. Change the Display value to Don't Show for images and features that have more than 20 unique values.

- Double-click in the Display column for the appropriate row.

When there are a large number of unique values for a feature (compared to the number of products) it is usually less useful in the Product Exploration metaphor.

__ 26. Change the Sort value to Descending for some features.

- Double-click in the Sort column for the appropriate row.

When you want to encourage a shopper to choose a larger value it is useful to show the larger values first.

__ 27. Change the Widget value for some features. Use the following criteria when making your choice:

---

| Widget | Interaction | When to use | Example |
|---|---|---|---|
| Hyper-text link | Single selection, equal to | Images or only 2 values | Bus |
| Radio button | Single selection | Few (<6) numeric values | Memory |
| Check box | Multiple selections | Few (<6) character values | CD-ROM |
| Single list | Single selection | Many numeric values | Hard Drive |
| Multi list | Multiple selections | Many character values | Processor |

- Click in the Widget column for the appropriate row.
- Select a new value from the drop-down list.

__ 28. Select one of the sample Templates to be used to view this metaphor.

- Select the Select Template for Viewing button or menu option.
- In the Template file list choose /ca_html/pe_te.html

__ 29. Test the metaphor

- Select the Save and View in Browser button or menu option.

    A new browser window will be started to display the metaphor.

- Try out some selections and verify that the correct widget is used, the order is correct and the unit is displayed.

- When you are finished, close the browser window.

__ 30. Exit from the Product Exploration Builder window

In the Product Advisor window the Product Exploration Builder action box will now be checked for the "Thinkpads" category.

__ 31. Select the Product Exploration Builder action box for "Thinkpads".

__ 32. Build the links for the child categories using the Create Links menu option.

This will apply the same Product Exploration definition to all of the child categories of "Thinkpads" which do not have their own definition.


### Build Product Comparison Metaphor

The next shopping metaphor to build is Product Comparison. This allows a shopper to compare features of products side-by-side.

You will choose which features will be available and how they will be displayed.

__ 33. Under the Product Comparison Builder icon (scales), select the checkbox for category "Thinkpads".

__ 34. Select menu option **File.. Open**

The Product Comparison Builder window will open.

__ 35. Take a look at the Product Comparison Builder window

It shows the features available to the metaphors (i.e. Include=Yes in the catalog).  For each feature it shows the order of presentation, maximum size, number of unique values, whether the feature will be displayed, the order values are sorted, how the data is used and whether the data links to the product page.  Fields shown in grey are not editable.

__ 36. Change the order of the features so that Processor and Memory are shown before other **user-defined** features.

   - Click on the value in the Order# column for the appropriate row.
   - Select a new value.

__ 37. Reorder the features using the Reorder Features button or menu option.

__ 38. Make the Short Description a Link to the product page.

   - Select Link to Product in the Display column for the Short Description row.

__ 39. Change the Display value to Don't Show for features that you don't want to include in the comparison. e.g. Part Number

   - Select Don't Show in the Display column for the appropriate row.

__ 40. Change the Sort value to Descending for some features.

   - Double-click in the Sort column for the appropriate row.

__ 41. Select one of the sample Templates to be used to view this metaphor.

   - Select the Select Template for Viewing button or menu option.
   - In the Template file list choose /ca_html/pc1_te.html

__ 42. Test the metaphor

   - Select the Save and View in Browser button or menu option.

     A new browser window will be started to display the metaphor.  It will take a while to display because all 98 products will be built into the comparison table.

   - Verify that the correct features are omitted, the order is correct when you sort and the Short Descriptions are links.

   - When you are finished, close the browser window.

__ 43. Exit from the Product Comparison Builder window

In the Product Advisor window the Product Comparison Builder action box will now be checked for the "Thinkpads" category.

__ 44. Select the Product Comparison Builder action box for "Thinkpads".

__ 45. Build the links for the child categories using the Create Links menu option.

This will apply the same Product Comparison definition to all of the child categories of "Thinkpads" which do not have their own definition.


*END OF PART A*

## Exercise Instructions - Part B. Sales Assistance

### Build a Sales Assistance Metaphor

The final shopping metaphor to build is Sales Assistance. This asks a shopper simple questions where the answers link to other metaphors or select feature values as if the shopper had made selections in the Product Exploration metaphor. Usually you will need to build question & answer trees for some of the subcategories which the question & answer tree at the higher level can link to.

You will build a question & answer tree for the "IBM ThinkPad Power Series" subcategory and assign the feature value selections for each answer. Later you will build the question & answer tree for the "Thinkpads" category and link to this category.

__ 1. Under the Sales Assistance Builder icon (bell), select the checkbox for category "IBM ThinkPad Power Series".

__ 2. Select menu option **File.. Open**

   The Sales Assistance Builder window will open.

__ 3. Take a look a the Sales Assistance Builder window

   It is blank because no questions and answers have been created. When you create them, they will be displayed in a tree structure. There are many buttons and menu options for editing or importing questions and answers and selecting the action taken when an answer is chosen.

__ 4. Add the Question "What will you use the system for?"

   • Select the Add New button or menu option

   An editor pop-up window will be displayed.

   • Enter the question text and click on OK

   The question will be shown in the Q & A tree

__ 5. Add Answers "Computer Aided Design", "Office Applications", "Application Development"

   • Make sure the question is still selected

   • Select the Add New button or menu option

   An editor pop-up window will be displayed.

   • Enter the first answer and click on Add Another

   • Enter the next answer and click on Add Another

   • Enter the last answer and click on OK

   The answers will be associated with the question in the Q & A tree. They will appear in the order they were entered.

__ 6. Specify constraints for answer "Computer Aided Design" so that systems with Hard Drive > =  1200 are selected.

   • Select answer "Computer Aided Design"

- Select the Link Product Features button or menu option

  The Select product constraints pop-up window will be displayed.

- Select feature "Hard Drive"

- Select feature value "1200"

- Select operation "Greater or Equal to"

  This is useful for many numeric values so that when new data is added, you do not need to modify the constraints.

- Click on A d d > > >

  The Selected Constraints and Remaining Products will be updated.

- Click on OK

__ 7. Specify constraints for answer "Office Applications" so that systems with Memory < =  16 are selected.

- Select answer "Office Applications" first
- Use the same steps as before to specify the constraints

__ 8. Specify constraints for answer "Application Development" so that systems with Memory > =  32 are selected.

- Select answer "Application Development" first
- Use the same steps as before to specify the constraints

__ 9. Add the Question "Which Operating System will you develop for?" to the "Application Development" answer

- Make sure you select the answer "Application Development" first
- Use the same steps as before to add the question

__ 10. Add Answers "AIX", "Windows NT"

- Select the question you just added
- Use the same steps as before to add the answers

__ 11. Specify constraints for answer "AIX" so that systems with Operating System = IBM AIX Version 4 for Clients are selected.

- Select answer "AIX" first
- Use the same steps as before to specify the constraints

__ 12. Specify constraints for answer "Windows NT" so that systems with Operating System =  Microsoft Windows NT 3.51 are selected.

- Select answer "Windows NT" first
- Use the same steps as before to specify the constraints

__ 13. Select one of the sample Templates to be used to view this metaphor.

- Select the Select Template for Viewing button or menu option.
- In the Template file list choose /ca_html/sa_te.html

__ 14. Test the metaphor

- Select the Save and View in Browser button or menu option.

  A new browser window will be started to display the metaphor.

- Verify that the questions and answers link together correctly.

- What metaphor is used when you select a "leaf" answer? Why?

- When you are finished, close the browser window.

__ 15. Exit from the Sales Assistance Builder window

In the Product Advisor window the Sales Assistance Builder action box will now be checked for the "IBM ThinkPad Power Series" category.

__ 16. Select the Sales Assistance Builder action box for "IBM ThinkPad Power Series".

__ 17. Build the links for the child categories using the Create Links menu option.

This will apply the same Sales Assistance definition to the child categories of "IBM ThinkPad Power Series".

## Build another Sales Assistance Metaphor

You will now build the question & answer tree for the "Thinkpads" category and assign metaphor links and feature value selections for each answer.

__ 18. Under the Sales Assistance Builder icon (bell), select the checkbox for category "Thinkpads".

__ 19. Select menu option **File.. Open**

Wait for the Sales Assistance Builder window to open.

__ 20. Add the Question "What feature is most important?"

__ 21. Add Answers "Use pen instead of a keyboard", "Multimedia capabilities", "Performance", "UNIX compatibility"

__ 22. Specify constraints for answer "Use pen instead of a keyboard" so that systems with Form Factor < >  Notebook are selected.

__ 23. Specify constraints for answer "Multimedia capabilities" so that systems with CD-ROM < >  None and Hard Drive > =  810 are selected.

__ 24. Specify that answer "Performance" links to the Product Exploration metaphor for the "IBM ThinkPad 700 Series" category.

- Select answer "Performance"

- Select the Link Another Metaphor button or menu option

The Link to Another Metaphor pop-up window will be displayed.

- Select metaphor "Product Exploration / IBM ThinkPad 700 Series"

- Click on OK

The metaphor link will be displayed in the Q&A tree.

__ 25. Specify that answer "UNIX compatibility" links to the Sales Assistance metaphor for the "IBM ThinkPad Power Series" category.

- Select answer "UNIX compatibility"

- Select the Link Category button or menu option

The Link to Another Sales Assistance Category pop-up window will be displayed.

- Select metaphor "Sales Assistance / IBM ThinkPad Power Series"
- Click on OK

The metaphor link will be displayed in the Q&A tree.

__ 26. Select one of the sample Templates to be used to view this metaphor.

- Select the Select Template for Viewing button or menu option.
- In the Template file list choose /ca_html/sa_te.html

__ 27. Test the metaphor

- Select the Save and View in Browser button or menu option.

A new browser window will be started to display the metaphor.

- Verify that the questions and answers link together correctly.
- Does the "Performance" answer link to the "IBM ThinkPad 700 Series" Product Exploration metaphor?
- Does the "UNIX compatibility" answer link to the "IBM ThinkPad Power Series" category?
- When you are finished, close the browser window.

__ 28. Exit from the Sales Assistance Builder window

In the Product Advisor window the Sales Assistance Builder action box will now be checked for the "Thinkpads" category.

__ 29. Select the Sales Assistance Builder action box for "Thinkpads".

__ 30. Build the links for the child categories using the Create Links menu option.

This will apply the same Sales Assistance definition to the child categories of "Thinkpads" which do not have their own definition.

__ 31. Exit from the Product Advisor window


### Test the Metaphors

To be sure that the metaphors all function correctly and that they work when selected from any part of the category navigation structure, you should do thorough testing.

__ 32. Go to the Next Generation home page:
**http://**<*your_hostname*>**/nextgeneration/NG_home.html**

__ 33. Select the link to enter the store.

__ 34. Select category "IBM Thinkpads"

__ 35. Verify that the Product Exploration metaphor works correctly.

- Select Product Exploration
- Verify that the metaphor behaves as expected.
- Go back to category "IBM Thinkpads"

__ 36. Verify that the Sales Assistance metaphor works correctly.

- Select Sales Assistance
- Verify that the metaphor behaves as expected.
- Go back to category "IBM Thinkpads"

__ 37. Select category "IBM Power Series"

__ 38. Verify that the Product Exploration metaphor works correctly.

__ 39. Verify that the Sales Assistance metaphor works correctly and that the links display the correct page.

__ 40. Go back to category "IBM Thinkpads"

__ 41. Select category "IBM ThinkPad 700 Series"

__ 42. Verify that the Product Exploration metaphor works correctly.

__ 43. Verify that the Sales Assistance metaphor works correctly and that the links display the correct page.

**Note:** The "UNIX Compatibility" answer still appears under "ThinkPad 700 Series" even though it does not link to children of "ThinkPad 700 Series". This is because the Sales Assistance metaphor was linked from the "Thinkpads" category. You should watch for this kind of inconsistency when designing the Q&A tree and links between metaphors. In this case it would have been better to define a different Sales Assistance metaphor for the "ThinkPad 700 Series" category.

__ 44. Exit from your browser

## END OF LAB

## Optional Exercises

### *Update Catalog*

Product Advisor keeps its metaphor data in different tables to the Net.Commerce product catalog. If category or product information is added, changed or deleted, you need to synchronize Product Advisor.

You will use Store Manager to add a new Thinkpad product.

___ 1. Start your Netscape browser.

___ 2. Go to Net.Commerce Administrator.

___ 3. Enter your **User Name** and **Password** as: **ncadmin ncadmin**

___ 4. Select **STORE MANAGER** in the navigation frame.

___ 5. Select **PRODUCT INFORMATION** in the navigation frame.

___ 6. Select Store **Next Generation**.

___ 7. Enter the following product information:

| | |
|---|---|
| **Product Number or Item SKU** | 9547U6H |
| **Parent Reference Number** | 44 |
| **Publish** | Yes |
| **Name/Short Description** | ThinkPad 760EL |
| **Description 1** | This high-performance, advanced-function notebook is available with a 12.1 SVGA display, Pentium processor, UltraBay and optional 4X CD-ROM. |
| **Thumbnail image** | /nextgeneration/thinkpad/sml/TP760.gif |
| **Full-sized Image** | /nextgeneration/thinkpad/lrg/TP760.gif |

___ 8. Click on **SAVE**

___ 9. Select **TEMPLATES** in the navigation frame.

___ 10. Enter Template information:

| | |
|---|---|
| **Shopper Group** | None |
| **Template** | productNG.d2w |

___ 11. Click on **SAVE**

___ 12. Select **PRICES** in the navigation frame.

___ 13. Enter the following price information:

| Price | 2399.00 |
|---|---|
| **Precedence** | 0 |
| **Shopper Group** | None |

__ 14. Click on **SAVE**

__ 15. Select **ATTRIBUTES** in the navigation frame.

__ 16. Create the following attributes and assign their values

| Attribute Name | Attribute Value |
|---|---|
| Bus | PCI |
| CD-ROM | None |
| Form Factor | Notebook |
| Hard Drive | 1350 |
| Memory | 8 |
| Operating System | Windows 95 |
| Processor | Pentium 120 |

- To create an attribute, type the Attribute Name exactly as shown and click on CREATE
- To assign an attribute, select the Attribute Name, type the Attribute Value exactly as shown and click on UPDATE

### Synchronize Product Advisor

Now that a new product has been added you will run the Product Advisor synchronization tool.

__ 17. Select **PRODUCT ADVISOR** in the navigation frame.

__ 18. Select Store **Next Generation**.

__ 19. Click on **LOAD** in the bottom frame.

Wait for Product Advisor to load.

You should see broken link and checkbox symbols under Catalog Builder for category "IBM ThinkPad 760" and its parents.  These indicate that data has changed in the Net.Commerce database, but Product Advisor has not been synchronized.

__ 20. Select the Catalog Builder action box for the "Thinkpads" category.

__ 21. Select File... Resynchronize

__ 22. Click on **Start** in the pop-up window

This will synchronize the Product Advisor tables with new data in the Net.Commerce tables.  It may take some time to run because it needs to analyse the complete product catalog.

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__ 23. Click on **Close** in the pop-up window

   Another pop-up window will be displayed asking if you want to include new features or data.

__ 24. Click on **Yes** in the pop-up window

### *Verify Update*

__ 25. Verify that the number of products under Thinkpads has correctly been increased to 99.

__ 26. Verify that the new feature values were discovered

   - Open the Catalog Builder tool for category "Thinkpads".
   - Select the Feature Values button or menu option.
   - Verify that the new values for Processor and Hard Drive are listed.

__ 27. Verify the new data appears in the metaphors

   - Go to the Next Generation store home page.
   - Enter the store and select category "Thinkpads".
   - Select the Product Exploration metaphor
   - Verify that the new values for Processor and Hard Drive are listed.

### *END OF LAB*

# Exercise. Creating Metaphor Web Pages

## What This Exercise is About

The following exercises will create HTML pages for use with the Product Advisor metaphors.

## What You Should Be Able to Do

At the end of the lab, you should be able to:

- Understand how metaphor web pages are processed
- Use the Template Designer application to create Product Advisor files.

## Introduction

Product Advisor provides sample HTML pages which will be used to display the shopping metaphors.

In this exercise you will use Template Designer to create new Product Advisor Templates for the metaphors you created in the "Next Generation" store. You will also create a new Category Template which will link to your new Product Advisor Templates. You will use existing image files that are provided as part of the sample mall as images for your store.

The Templates you will create are:

**mype.html**    Product Advisor Template for the Product Exploration metaphor.

**mypc.html**    Product Advisor Template for the Product Comparison metaphor.

**mysa.html**    Product Advisor Template for the Sales Assistance metaphor.

**mycat.d2w**    Category Template which links to the Product Advisor templates.

## Preparation

Before you can perform this exercise, you must:

1. Install and configure your Net.Commerce V3 PRO system

2. Configure your Net.Commerce server with the DEMOMALL sample database (using the SAMPLES AND TUTORIALS form in Net.Commerce Administrator) and restart the server.

## Exercise Instructions

### Starting Net.Commerce Administrator

The Template Designer is started from Net.Commerce Administrator.

\_\_   1.   Start your Netscape browser

\_\_   2.   Open URL **https://***<your_hostname>***/ncadmin/**

Make sure you enter your fully qualified host name.

When Net.Commerce Administrator is requested you will be asked to logon

\_\_   3.   Enter your **User Name** and **Password** as:  **ncadmin   ncadmin**

### Starting Template Designer

\_\_   4.   Select **STORE MANAGER** in the navigation frame.

\_\_   5.   Select **TEMPLATE DESIGNER** in the navigation frame.

\_\_   6.   Select Store **Next Generation**.

\_\_   7.   Click on **LOAD** in the bottom frame.

This will start a new browser window to load the Template Designer Java Applet.  Do not close this window otherwise Template Designer will stop functioning.  The applet will take a short while to load information from the database.

### Creating Product Exploration Metaphor Page

You will use the Template Designer to create a Product Exploration Metaphor Page. This is a static HTML page with embedded Product Advisor tags that are substituted at run-time with HTML markup.  This page should contain common elements such as a header, category name, product count and links to other metaphors in addition to the Product Exploration table.

Your finished template should have the following layout:
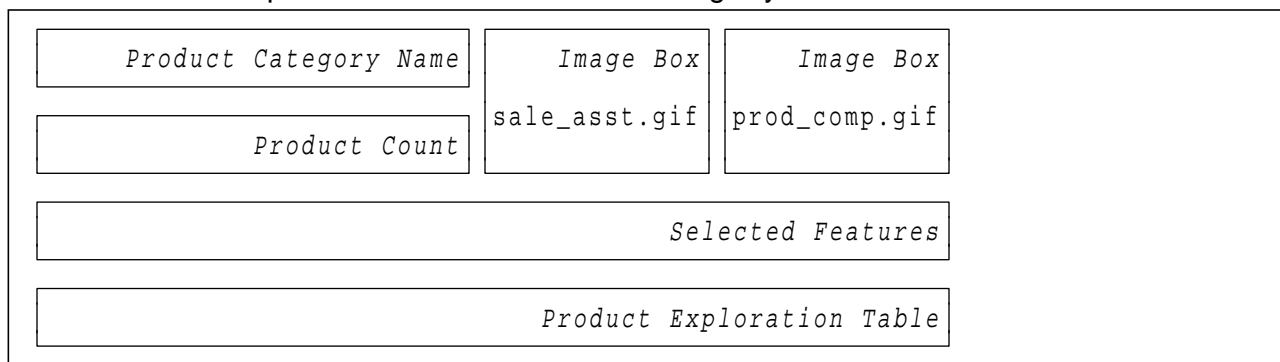
| | | |
|---|---|---|
| *Product Category Name* | *Image Box* `sale_asst.gif` | *Image Box* `prod_comp.gif` |
| *Product Count* | | |
| *Selected Features* | | |
| *Product Exploration Table* | | |

\_\_   8.   Start a New Product Advisor Template

- Select **File... New....**
- From the New popup window, select **Product Advisor Template**
- Click on **OK**

__ 9. Insert the Product Category Name

- Select menu option **Insert... Product Category Name**
- Click and drag at the top of the page to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Product Category Name popup.

__ 10. Insert the Product Count

- Select menu option **Insert... Product Count**
- Click and drag below the category name to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Product Count popup.

__ 11. Create the Sales Assistant image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Product Category Name to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/sale_asst.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter **/ca_html/mysa.html** in the Template File to Link to field.
- Deselect the **Show products with selected features** checkbox.
- Close the Link popup.
- Click on **OK** to close the Image popup.

__ 12. Create the Product Comparison image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Sales Assistant image to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/prod_comp.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter **/ca_html/mypc.html** in the Template File to Link to field.
- Select the **Show products with selected features** checkbox.
- Close the Link popup.
- Click on **OK** to close the Image popup.

__ 13. Insert the Selected Features object

- Select menu option **Insert... Selected Features**
- Click and drag below the Product Count to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Selected Features popup

__ 14. Insert the Product Exploration Table

- Select menu option **Insert... Product Exploration**
- Click below the Selected Features to create the object
- Double-click on the box to edit its properties

---

- If you wish, change the color settings
- Change the Feature Name Position to Vertical with 2 columns.
- Close the Product Exploration popup

__ 15. Set the page title to **Next Generation Product Exploration**

- Select **Settings... Page...** from the menu bar.
- In the Page Settings popup window enter the Page Title.
- Close the Page Settings popup

__ 16. Set the Store Header to be included when the page is displayed.

- Select **Settings... Header and Footer...** from the menu bar.
- Under Choose Header, select **Assigned in the database**
- Close the Header and Footer popup

__ 17. Save the Template as **mype.html**

- Select **File... Save as...**
- Enter the File Name as **mype.html**.
- Select **OK**.

### *Creating Product Comparison Metaphor Page*

You will use the Template Designer to create a Product Comparison Metaphor Page. This page should contain common elements such as a header, category name, product count and links to other metaphors in addition to one of the 3 types of comparison table.

Your finished template should have the following layout:

```
┌─────────────────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────┐  ┌──────────────┐ ┌──────────────┐         │
│  │   Product Category Name  │  │   Image Box  │ │   Image Box  │         │
│  └──────────────────────────┘  │              │ │              │         │
│  ┌──────────────────────────┐  │ sale_asst.gif│ │ prod_asst.gif│         │
│  │          Product Count   │  │              │ │              │         │
│  └──────────────────────────┘  └──────────────┘ └──────────────┘         │
│  ┌──────────────────────────────────────────────────────────────┐        │
│  │                                         Selected Features     │        │
│  └──────────────────────────────────────────────────────────────┘        │
│  ┌──────────────────────────────────────────────────────────────┐        │
│  │        Product Comparison Table for Common Values             │        │
│  └──────────────────────────────────────────────────────────────┘        │
│  ┌──────────────────────────────────────────────────────────────┐        │
│  │      Product Comparison Table for Distinct Values             │        │
│  └──────────────────────────────────────────────────────────────┘        │
└─────────────────────────────────────────────────────────────────────────┘
```

__ 18. Start a New Product Advisor Template

- Select **File... New....**
- From the New popup window, select **Product Advisor Template**
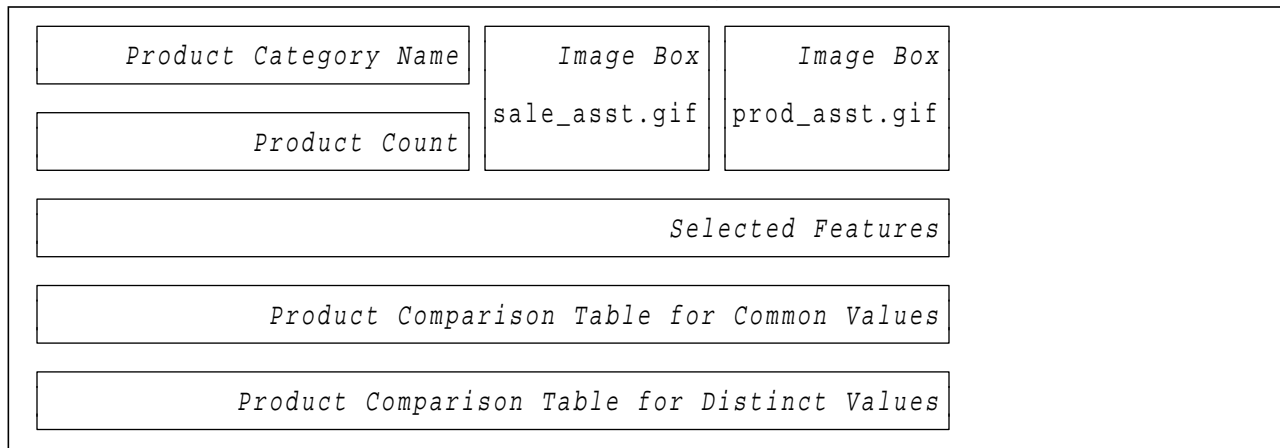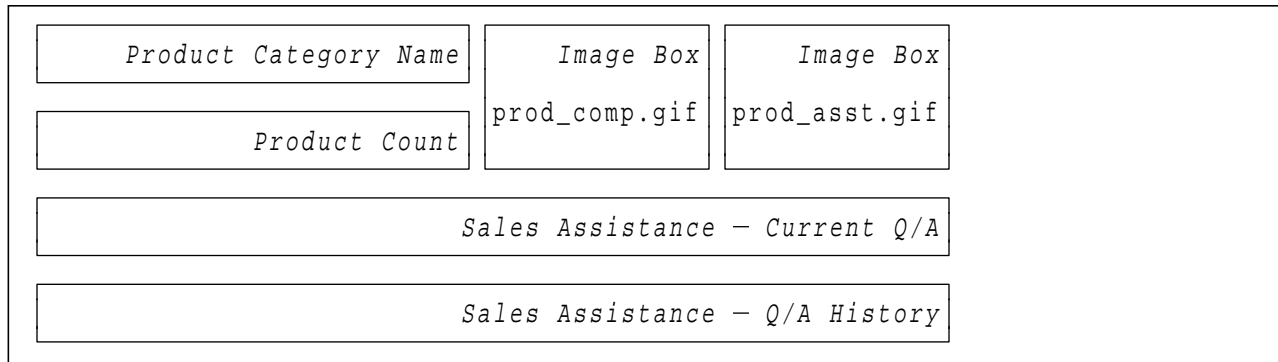- Click on **OK**

__ 19. Insert the Product Category Name

- Select menu option **Insert... Product Category Name**
- Click and drag at the top of the page to create and size the object
- Double-click on the box to edit its properties
- If you wish change the font size and style

- Close the Product Category Name popup.

___ 20. Insert the Product Count

- Select menu option **Insert... Product Count**
- Click and drag below the category name to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Product Count popup.

___ 21. Create the Sales Assistant image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Product Count to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/sale_asst.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter **/ca_html/mysa.html** in the Template File to Link to field.
- Deselect the **Show products with selected features** checkbox.
- Close the Link popup.
- Click on **OK** to close the Image popup.

___ 22. Create the Product Exploration image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Product Category Name to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/prod_asst.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter **/ca_html/mype.html** in the Template File to Link to field.
- Select the **Show products with selected features** checkbox.
- Close the Link popup.
- Click on **OK** to close the Image popup.

___ 23. Insert the Selected Features object

- Select menu option **Insert... Selected Features**
- Click and drag below the Product Count to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Selected Features popup

___ 24. Insert the Product Comparison Tables

- Select menu option **Insert... Product Comparison...  Type 2 - one common value table, one distinct value table**
- Click below the Selected Features to create the objects
- If you wish, change the layout and color settings for the objects

___ 25. Set the page title to **Next Generation Product Comparison**

___ 26. Set the Store Header to be included when the page is displayed.

___ 27. Save the Template as **mypc.html**

---

### Creating Sales Assistance Metaphor Page

You will use the Template Designer to create a Product Exploration Metaphor Page. This page should contain common elements such as a header, category name, product count and links to other metaphors in addition to the Q&A table and Q&A history.

Your finished template should have the following layout:

```
┌──────────────────────────────────────────────────────────────────────┐
│  ┌─────────────────────────┐  ┌──────────────┐ ┌──────────────┐      │
│  │  Product Category Name  │  │  Image Box   │ │    Image Box │      │
│  └─────────────────────────┘  │              │ │              │      │
│  ┌─────────────────────────┐  │ prod_comp.gif│ │prod_asst.gif │      │
│  │         Product Count   │  │              │ │              │      │
│  └─────────────────────────┘  └──────────────┘ └──────────────┘      │
│  ┌──────────────────────────────────────────────────────────────┐   │
│  │           Sales Assistance – Current Q/A                      │   │
│  └──────────────────────────────────────────────────────────────┘   │
│  ┌──────────────────────────────────────────────────────────────┐   │
│  │           Sales Assistance – Q/A History                     │   │
│  └──────────────────────────────────────────────────────────────┘   │
└──────────────────────────────────────────────────────────────────────┘
```

__ 28.  Start a New Product Advisor Template

- Select **File... New....**
- From the New popup window, select **Product Advisor Template**
- Click on **OK**

__ 29.  Insert the Product Category Name

- Select menu option **Insert... Product Category Name**
- Click and drag at the top of the page to create and size the object
- Double-click on the box to edit its properties
- If you wish change the font size and style
- Close the Product Category Name popup.

__ 30.  Insert the Product Count

- Select menu option **Insert... Product Count**
- Click and drag below the category name to create and size the object
- Double-click on the box to edit its properties
- If you wish, change the font size and style
- Close the Product Count popup.

__ 31.  Create the Product Comparison image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Product Category Name to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/prod_comp.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter **/ca_html/mypc.html** in the Template File to Link to field.
- Select the **Show products with selected features** checkbox.
- Close the Link popup.
- Click on **OK** to close the Image popup.

__  32.  Create the Product Exploration image.

  - Select the **Image Box** icon (or menu **Insert... Image**)
  - Click beside the Product Comparison image to create the object
  - Double-click on the image box
  - In the Image popup window, enter **/ca_icons/prod_asst.gif** in the Image file or URL field.
  - Click on **Special Link...**
  - In the Link popup window, select Link to **Product Advisor Page**
  - Enter **/ca_html/mype.html** in the Template File to Link to field.
  - Select the **Show products with selected features** checkbox.
  - Close the Link popup.
  - Click on **OK** to close the Image popup.

__  33.  Insert the Current Q/A Table

  - Select menu option **Insert... Sales Assistance...  Current Q/A**
  - Click below the Product Count to create the object
  - Double-click on the box to edit its properties
  - If you wish, change the font size and style
  - Close the Current Q/A popup.

__  34.  Insert the Q/A History Table

  - Select menu option **Insert... Sales Assistance...  Q/A History**
  - Click below the Current Q/A box to create the object
  - Double-click on the box to edit its properties
  - If you wish, change the title, font size and sequence
  - Close the Q/A History popup.

__  35.  Set the page title to **Next Generation Sales Assistance**

__  36.  Set the Store Header to be included when the page is displayed.

__  37.  Save the Template as **mysa.html**


### Create Category Template

The sample Category Template used by the "Thinkpads" category links to the default Product Advisor Templates (pe.html and sa.html).

You will create a new Category Template which links to your Product Advisor Templates (mype.html and mysa.html).

Your finished template should have the following layout:
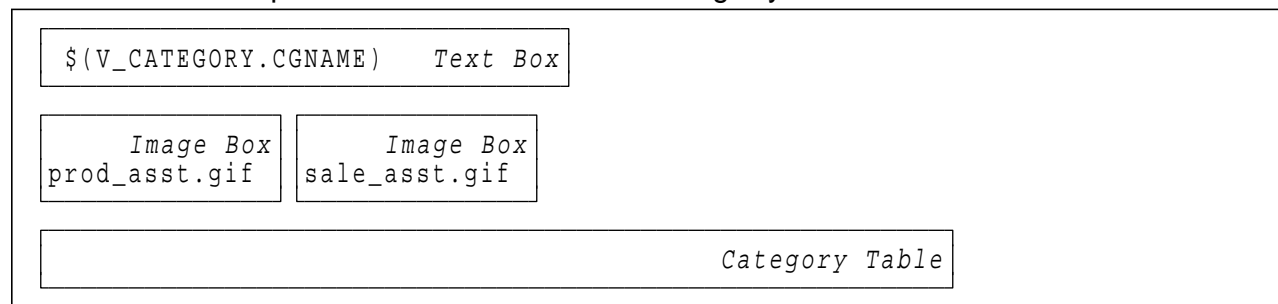


__  38.  Start a New Category Template

  - Select **File... New...**

- Select **Category Template** from the New popup window
- Click on **OK**.

__ 39.  Create a Text Box for the Category Name database field

- Select the **Text Box** icon.
- Click and drag at the top of the page to create and size the object
- Double-click on it, to open the text editor.
- Select **Database... Category Table... Category Name**
- Mark the text that is inserted and select **Insert... Heading...  Heading 2**
- Select **File... Close - Save Changes...** from the Text popup window.

__ 40.  Create the Product Exploration image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click under the Text Box to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/prod_asst.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter the Category Reference Number as **33** (which is the "Thinkpads" category) - You can use the Browse button to view the Product Categories form and find the correct number.
- Enter **/ca_html/mype.html** in the Template File to Link to field.
- Close the Link popup.
- Click on **OK** to close the Image popup.

__ 41.  Create the Sales Assistant image.

- Select the **Image Box** icon (or menu **Insert... Image**)
- Click beside the Product Exploration image to create the object
- Double-click on the image box
- In the Image popup window, enter **/ca_icons/sale_asst.gif** in the Image file or URL field.
- Click on **Special Link...**
- In the Link popup window, select Link to **Product Advisor Page**
- Enter the Category Reference Number as **33** (which is the "Thinkpads" category) - You can use the Browse button to view the Product Categories form and find the correct number.
- Enter **/ca_html/mysa.html** in the Template File to Link to field.
- Close the Link popup.
- Click on **OK** to close the Image popup.

__ 42.  Create a Category Table showing the Thumbnail Image and Short Description

- Select **Insert... Category table...** from the template designer menu bar.
- Click below the images to create the **Category Table**.
- Double-click on the **Category Table**
- In the Category table popup window, change **Border** to **0**
- Select **Category Thumbnail Image File** from the database field listbox
- Select **Link to the sub-category**
- Clear the Column Heading
- Click on **Add**
- Use the same steps to add **Category Name**
- Close the **Category Table** window

---

__ 43.  Set the page title to **Next Generation Category**

__ 44.  Set the Store Header to be included when the page is displayed.

__ 45.  Save the Template as **mycat.d2w**

__ 46.  Exit from Template Designer

### *Update Template Assignment*

Now that you have created a new Category Template, you need to update the database with the new assignment.

__ 47.  Select **PRODUCT CATEGORIES** in the navigation frame.

__ 48.  Select Store **Next Generation**.

__ 49.  Expand all of the categories

__ 50.  Select **Thinkpads**

__ 51.  Click on **TEMPLATE**.

__ 52.  Select Shopper Group **None**.

__ 53.  Enter **mycat.d2w** in the Category Template field.

__ 54.  Click on **SAVE**.

### *Verify your work*

You will now browse the pages that you have created to check that they are displayed correctly.

__ 55.  In a New Browser Window, open the Next Generation home page:
        **http://**<*your_hostname*>**/nextgeneration/NG_home.html**

__ 56.  Select the link to enter the store.

__ 57.  Select category "IBM Thinkpads"

        Your new Category Template should be displayed (check the title).  If not, Reload the page because the previous page may have been cached.

__ 58.  Select the Product Exploration link.

        Your Product Exploration page (mype.html) should be displayed.

__ 59.  Make a selection to reduce the number of products (e.g. CD-ROM=4X)

__ 60.  Select the Product Comparison link.

        Your Product Comparison page (mypc.html) should be displayed.  Only the previously selected products should be in the comparison because the link was defined to Show selected features.

__ 61.  Select the Sales Assistance link.

        Your Sales Assistance page (mysa.html) should be displayed.  The Product Count should include all products because the link was NOT defined to Show selected features.

__ 62. Go back and try some other combinations of navigation through the metaphors to verify the correct pages are used.

**Note:** The links from your Sales Assistance page may not use your new metaphor pages. This is because the template file name is assigned in the metaphor definition.

*END OF LAB*

# Bibliography

Printer ready versions of some publications are shipped with the Net.Commerce software or can be downloaded from an IBM Web site.  These are indicated by:

- (PS) - Adobe Postscript Level 1 format.  Print these on any Postscript compatible printer.

On-line browsable versions of some publications are shipped with the Net.Commerce software or can be accessed at an IBM Web site.  These are indicated by:

- (HTML) - Hypertext Markup Language format.  Use a Web Browser that supports tables and frames (e.g. Netscape Navigator 2.0 or later).
- (INF) - IBM Information Processing Facility format.  Use the IVIEW program (Windows NT) or xview (AIX).
- (PDF) - Adobe Acrobat V3.0 format.  Use Adobe Acrobat Reader 3.0 which can be downloaded from http://www.adobe.com

- *Manuals:*

| | |
|---|---|
| GC09-2626 | *Net.Commerce for Windows NT: Installing and Getting Started Version 3.1* (PS, HTML, PDF) |
| GC09-2627 | *Net.Commerce for AIX: Installing and Getting Started Version 3.1* (PS, HTML, PDF) |
| GC09-2628 | *Net.Commerce for Sun Solaris: Installing and Getting Started Version 3.1* (PS, HTML, PDF) |
| GC09-2509 | *Net.Commerce for AS/400: Installation and Operations Guide Version 2.0* |
| GC24-5862 | *Net.Commerce for OS/390: Configuring and Getting Started Version 3* |
| GC31-8142 | *IBM CommercePOINT eTill Administrator's Guide* (HTML, PDF) |
| SC31-8143 | *IBM CommercePOINT eTill Programmer's Guide and Reference* (HTML, PDF) |
| - | *Lotus Domino Go Web Server for AIX:  Quick Beginnings* (HTML, PDF) |
| - | *Lotus Domino Go Web Server for Windows NT: Quick Beginnings* (HTML, PDF) |
| - | *Lotus Domino Go Web Server for AIX: Webmaster's Guide*  (HTML, PDF) |
| - | *Lotus Domino Go Web Server for Windows NT: Webmaster's Guide*  (HTML, PDF) |
| SC31-8280 | *IBM Internet Connection Secured Network Gateway Advanced User's Guide* |
| S10J-8148 | *IBM DB2 Universal Database for UNIX:  Quick Beginnings* (HTML) |
| S10J-8149 | *IBM DB2 Universal Database for Windows NT:  Quick Beginnings* (HTML) |
| S10J-8154 | *IBM DB2 Universal Database: Administration Getting Started* (HTML) |
| S10J-8157 | *IBM DB2 Universal Database: Administration Guide* (HTML) |
| S10J-8166 | *IBM DB2 Universal Database: Command Reference* (HTML) |
| S10J-8168 | *IBM DB2 Universal Database: Messages Reference* (HTML) |
| S10J-8156 | *IBM DB2 Universal Database: SQL Getting Started*  (HTML) |
| S10J-8165 | *IBM DB2 Universal Database: SQL Reference* (HTML) |
| S10J-8164 | *IBM DB2 Universal Database: System Monitor Guide* (HTML) |
| S10J-8169 | *IBM DB2 Universal Database: Troubleshooting Guide* (HTML) |
| S95H-0999 | *IBM DB2 Universal Database: Replication Guide* (HTML) |
| SH12-6194-02 | *IBM DB2 Text Extender: Administration and Programming* (INF) |
| SC26-8677 | *IBM DB2 Image, Audio & Video Extenders: Administration and Programming* (INF) |

- *Technical Bulletins:*

| | |
|---|---|
| SG24-2116 | *Network Computing Framework* |
| GG24-2577 | *Building a Firewall using Secured Network Gateway* |
| SG24-4814 | *DB2 Performance and Tuning* |
| SG24-4933 | *Integrating Net.Commerce with Legacy Applications* |

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SG24-4978     *Secure Electronic Transactions*

GG24-4993     *Load-Balancing Internet Servers*

- *World Wide Web Resources:*

http://www.internet.ibm.com/net.commerce
*IBM Net.Commerce Home Page*

http://www.software.ibm.com/commerce
*IBM CommercePOINT Home Page*

http://www.software.ibm.com/data/db2
*IBM DB2 Home Page*

http://www.software.ibm.com/data/net.data
*IBM Net.Data Home Page*

http://www.software.ibm.com/data/net.data/docs/ dtwdev.htm
*Net.Data Programming Guide* (HTML, PS)

http://www.software.ibm.com/data/net.data/docs/ dtwref.htm
*Net.Data Reference Guide* (HTML, PS)

http://www.software.ibm.com/data/net.data/docs/ dtwlei.htm
*Net.Data Language Environment Guide* (HTML, PS)

http://www.ics.raleigh.ibm.com
*IBM Internet Connection Family Home Page*

http://www.ics.raleigh.ibm.com/pub/icswpg46.htm
*Web Programming Guide* (HTML)

http://www.ics.raleigh.ibm.com/pub/icstun46.htm
*Tuning Your Web Server for Better Performance* (HTML)

- *Net.Commerce On-line information:*

The Net.Commerce On-line Information is provided as a series of HTML documents. Extracts from the Information, grouped by subject, are available as follows:

– *Net.Commerce Administrator* (PDF, PS)

– *The Template Designer* (PDF, PS)

– *Net.Commerce Utilities* (PDF, PS)

– *The Product Advisor* (PDF, PS)

– *The Net.Commerce Payment Module* (PDF, PS)

– *Integrating Net.Commerce with Legacy Systems* (PDF, PS)

– *Net.Commerce Commands, Tasks, Overridable Functions and Database Tables* (PDF, PS)

– *Migrating from a Previous Version* (PDF, PS)

– *East West Food Mart Tutorial* (PDF, PS)

– *Product Advisor Tutorial* (PDF, PS)

Additional and updated documents (including the latest README file) can be downloaded from the IBM Net.Commerce Home Page (see above).

      