

**IBM Net.Commerce
Version 3.2**



Integrating Net Perceptions for E-commerce With IBM Net.Commerce - Sample Program



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Version 3.2

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Note:

Before using this information and the product it supports, read the information in “Appendix B: Notices and Trademarks” on page 60.

First Edition (November 1999)

This edition applies to version 1 of IBM Net.Commerce Integration with Net Perceptions – Sample Program and to all subsequent releases and modifications until otherwise indicated in new editions.

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1. Introduction

This document shows how to integrate IBM Net.Commerce with Net Perceptions for E-commerce, a recommendation engine toolkit. This document is intended for a Site or Store Administrator using IBM Net.Commerce. Net Perceptions adds a personal touch to your store by profiling shopper behavior and making product predictions and recommendations upon request.

This integration offers the following personalization features:

- Shoppers at a Net.Commerce online store actively or passively rate products
- Shoppers are provided with real-time product recommendations based on their preferences
- Shoppers are provided with cross-sell related product recommendations

These features personalize your mall or store by helping shoppers find desired products quickly and easily without having to navigate your entire catalog.

THE NET.COMMERCE INTEGRATION WITH NET PERCEPTIONS FOR E-COMMERCE CONSISTS OF SAMPLE PROGRAMS THAT SHOW HOW TO INTEGRATE NET PERCEPTIONS WITH NET.COMMERCE USING WINDOWS NT, OR THE SOLARIS OPERATING ENVIRONMENT. THE SAMPLE PROGRAMS HAVE NOT BEEN TESTED UNDER ALL CONDITIONS AND MAY CONTAIN ERRORS. IBM DOES NOT GUARANTEE OR IMPLY RELIABILITY, SERVICEABILITY, OR FUNCTION OF THESE PROGRAMS. THE INTEGRATION KIT IS PROVIDED "AS IS" WITH NO WARRANTIES OF ANY KIND, INCLUDING THE IMPLIED WARRANTIES OF MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IBM DOES NOT PROVIDE SUPPORT FOR THE SAMPLE PROGRAMS.

The code in this integration is configured to enhance the Sixth Avenue store in the Net.Commerce Metropolitan mall sample. This document shows you how to use the included integration as a sample to enable Net Perceptions in your own store. You may also use the integration with Sixth Avenue for demonstration purposes.

2. Before You Begin

To use this information, you must be familiar with the general structure of a Net.Commerce Web site and store, including the name of the Net.Commerce database, the database administrator's user ID and the password. You also should be familiar with the Net.Commerce database schema: the names and contents of relevant tables and columns in the database. This information is available in *Net.Commerce Commands, Tasks, Overridable Functions and Database Tables*, distributed as file name *dbtofcmd.pdf* with Net.Commerce. You must also be familiar with Net Perceptions for E-commerce 4.0. For more information about Net Perceptions, see *Net Perceptions for E-commerce User's Manual*.

2.1. Prerequisites

Ensure that you have the following software installed before installing the Net.Commerce integration:

- Net Perceptions for E-commerce 4.0.93.0 (Oracle 8.0.4.1 or 8.0.5 recommended)
- IBM Net.Commerce Version 3.2 Start or Pro on Windows NT 4.0 or the Solaris Operating Environment, with DB2 6.1, or Oracle 8.0.4.1 or 8.0.5
- The following zip tool:
 -  WinZip
 -  tar and gzip or compress

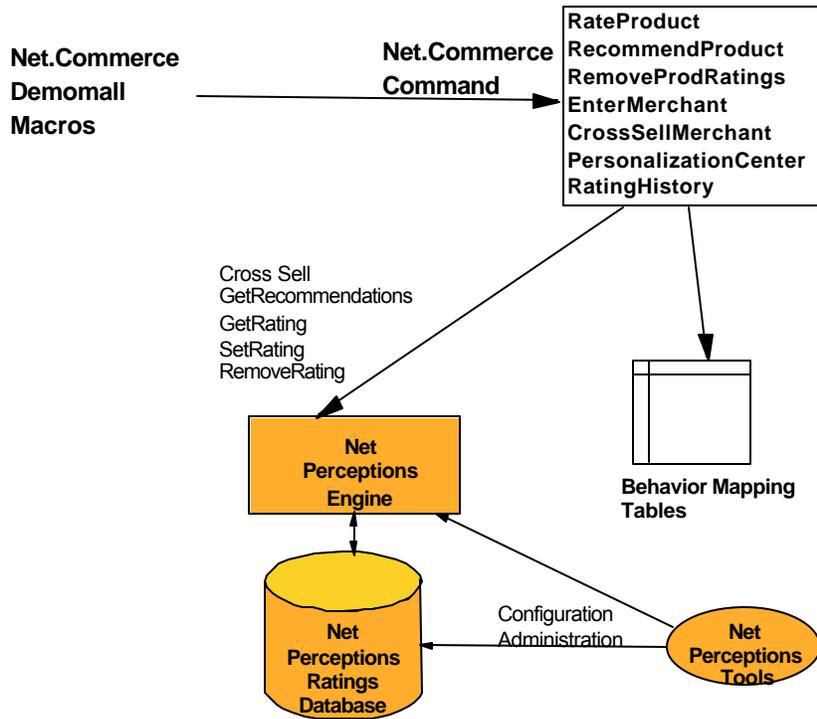
3. Overview

This integration installs several customized Net.Commerce commands, tasks, overridable functions (OFs), and behavior mapping database tables, and updates some existing sample Net.Data macros and HTML. After installation and configuration, this integration enables communication between a Net.Commerce instance and a Net Perceptions recommendation engine. This integration enables shoppers to do the following:

1. Rate products
 - Set implicit ratings (shopper behavior profiling)
 - Set explicit ratings
 - Retrieve a list of products to be explicitly rated
 - View explicit ratings
 - Remove ratings
2. View recommended products
3. View cross-sell products

The following figure shows an overview of the relationship between Net.Commerce and Net Perceptions once the integration is implemented:

Figure 1: Integration Overview



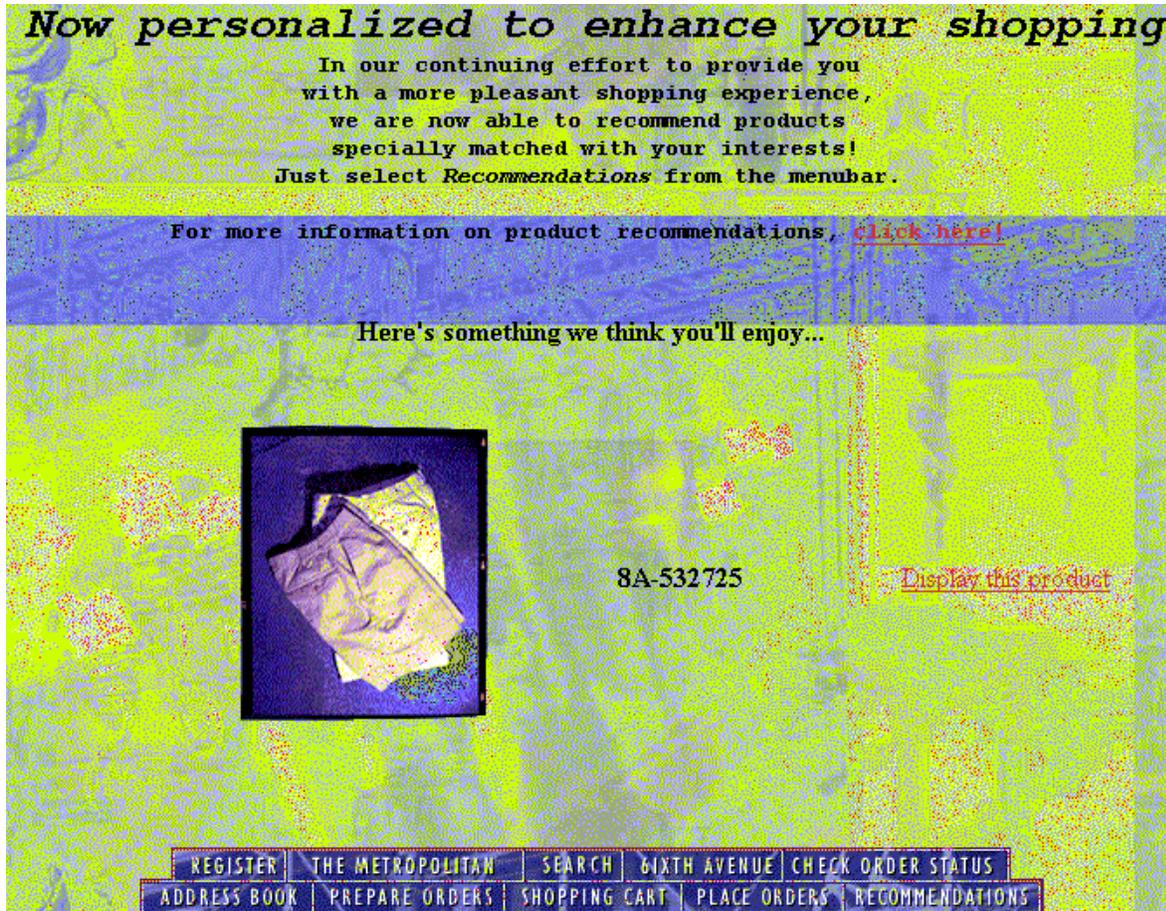
3.1. Function Flow

The following is a function flow scenario for this integration. This flow shows how a user might navigate through the sample store using this integration's personalization features and explains the Net.Commerce code implementation behind the features. This function flow demonstrates the following features:

- Storefront
- Personalization center
- Rating history
- Cross-sell
- Implicit ratings

3.1.1. Storefront

A shopper logs on to the Metropolitan mall and enters the Sixth Avenue storefront:



The following personalization features display:

- If there are any product recommendations for the shopper (recommendations display based on the buying patterns of the current shopper, as well as other shoppers in the store), the most highly recommended product displays with its thumbnail image. If there are no recommendations for the shopper, none display.
- A **RECOMMENDATIONS** button on the navigation bar leads to the personalization center.
- Text highlights the personalization features. There is also a link to a page containing further details about product the recommendation.

The following Net.Commerce code drives the function behind these storefront features:

- The `EnterMerchant` command replaces the storefront page. This command invokes the `GET_REC_PROD` task to retrieve the most recommended product, then formats the recommended product information into the rest of the home page (`sixth_storefront.d2w`).

- The `PersonalizationCenter` command provides the function behind the **RECOMMENDATIONS** button.
- The `sixth_storefront.d2w` macro displays the storefront.

3.1.2. Personalization Center

The shopper displays the personalization center page by clicking the **RECOMMENDATIONS** button. The following is an image of the Sixth Avenue personalization center product recommendations:



The following is an image of the personalization center explicit rating feature and rating history link:



The personalization center has the following features:

- A list of recommended products. This list is based on the shopper's behavior (implicit ratings), explicit ratings (from the forms such as the one above), and the implicit and explicit ratings of other shoppers. If there are no recommended products, a message displays instead of the product list. The shopper can click the product number link to view a product page and purchase the product.
- An unrated product section. This section appears at the bottom of the personalization center page, and allows the shopper to explicitly rate products from a list of purchased products that have not yet been explicitly rated. The shopper selects their opinion of the product from a list of five ratings. The shopper records the rating by clicking the **Record My Rating** button.
- A link to the Rating History page.

The following Net.Commerce code drives the function behind the recommendation feature:

- The `RecommendProduct` command is called when the shopper clicks the **RECOMMENDATIONS** button. `RecommendProduct` calls the following:
 - The `GET_REC_PROD` task provides the list of recommended products.
 - The `PROFILE_SELECT_UNRATED_PROD` task provides the list of unrated, purchased products.
 - The `RateProduct` command allows the shopper to explicitly rate products in the list. `RateProduct` is called when the shopper clicks the **Record My Rating** button.
 - The `RatingHistory` command provides the rating history link.
 - The `pers_center.d2w` macro displays the personalization center page.

Note: The product display macro also displays the explicit rating feature for individual products at the bottom of each product page to allow shoppers to rate products as they shop.

The following is an image of the product page explicit rating feature:

If you'd like to give feedback for this product...

I am very pleased

I am pleased

I am satisfied

I am neutral

I am disappointed

Please remove rating for this product.

Record My Rating

REGISTER | THE METROPOLITAN | SEARCH | 6IXTH AVENUE | CHECK ORDER STATUS
ADDRESS BOOK | PREPARE ORDERS | SHOPPING CART | PLACE ORDERS | RECOMMENDATIONS

3.1.3. Rating History

The shopper clicks the rating history link to display the rating history page:



The rating history page displays a list of all explicit ratings contained in the recommendation engine database for the shopper.

The following code drives the function behind the rating history feature:

- The `RatingHistory` command is called when the shopper follows the rating history link from the personalization center.
- The `RatingHistory` command calls the `GET_RATING_HISTORY` task to retrieve all explicit product ratings recorded by this shopper from the recommendation engine.
- The `ratinghistory.d2w` macro displays the rating history page.

3.1.4. Cross-sell

A cross-sell link to related products displays at the top of each product page:

If you like this product you might also like the following products [Click Here](#)



Jogging Shorts

8A-532726
\$ 24.99 CAD

Description:
With these blue jogging shorts, you'll want to jog everyday. Rest assured that these shorts will last as long as you do.

Shipping Dimensions:
Height: 0.0100 m
Length: 0.4000 m
Width: 0.3600 m
Weight: 0.3500 kg

The shopper follows this cross-sell link to a list of products that the merchant recommends for purchase along with the current product. From this page, the shopper may then click the product number links to view the products or add them to the shopping cart just as they would on an unmodified product page:

Product recommendations

You might also like the following products.

Product Number	Description
8A-532730	T-Shirt



The following code drives the function behind the cross-sell feature:

- The `CrossSell` command is called when the shopper follows the cross-sell link.
- The `GET_REC_PROD_FR_LIST` task retrieves the list of cross-sell products.
- The `cross_sell.d2w` macro displays the cross-sell product page.

3.1.5. Implicit Ratings

Shoppers record implicit product ratings to the recommendation engine database by their actions while navigating the store. These actions include: displaying a product page, adding a product to the shopping cart, removing a product from the shopping cart, and purchasing a product. Each action records an increasingly favorable implicit rating.

The `Net.Commerce ProductDisplay`, `InterestItemAdd`, `InterestItemDelete`, and `OrderProcess` commands call the `PROFILE_UPD_PROD` task to provide the implicit rating feature.

Note: Because the recommendation engine maintains ratings separately in its own database, this integration synchronizes the recommendation engine database with the `Net.Commerce` database when a merchant removes a product from their catalog. The product information section of the `Net.Commerce Store Manager` is modified to call the `Net.Commerce REMOVE_PROD_RATINGS` task whenever a merchant deletes a product. If you delete products from the `Net.Commerce` database without using the `Net.Commerce Store Manager`, you must manually remove the corresponding product information from the `Net Perceptions` database.

3.2. Net Perceptions Concepts

The following `Net Perceptions` concepts are demonstrated in this integration:

- Domains
- Dimension
- Ratings and rating strategies
- Recommendations strategy
- Cross-sell

3.2.1. Domains

A `Net Perceptions` domain is a group of objects sharing structure and behavior. `Net Perceptions` for E-commerce offers four types of built-in domains: user, user category, item and item category. In `Net.Commerce` terms, a user is a shopper, and an item is a SKU. The item category domain is used for cross-selling products.

Note: The user group domain is not used in this integration.

3.2.2. Dimensions

`Net.Commerce` may be configured to create a single store or a mall with multiple stores. In `Net.Commerce`, every store in a mall is treated as a separate entity. All shopping flow concepts and data are maintained by store. When `Net.Commerce` is configured for personalization, the mall owner might want to share shopping behaviors and product ratings across stores. `Net Perceptions` offers a flexible approach to recommendations using the dimensions concept. A

dimension specifies a collection of ratings. Ratings are defined between any two domains; one domain rates the other domain. A dimension serves as a placeholder for ratings. Any recommendation made by the engine can be restricted to the ratings saved in the dimension. In Net.Commerce a dimension can also be used to partition ratings by store.

Following are the different ways the mall owner might want to configure Net Perceptions:

- **Scope product recommendations and product ratings across the mall:** To recommend products across the mall, the mall owner configures Net Perceptions to define a single dimension between the user and item domains. Shopper ratings across the mall are saved against the defined dimension.
- **Scope product recommendations by store, but have product ratings across stores affect the recommendations:** In this approach, the stores that intend to share their ratings share a dimension. Shopper ratings for all these stores are saved against the shared dimension. However, to scope product recommendations, control the output displayed to the shopper using Net.Commerce commands and OFs.
- **Scope product recommendations and product ratings by store:** In this approach a dimension is created between the user and item domains for every store. All shopper ratings for a store are saved against the dimension created for the store. This method ensures that ratings and recommendations are limited by store.
- **Scope product recommendations across the mall and product ratings by store:** This implementation scopes recommendations and ratings by store, which affects how the commands, tasks, and OFs are implemented.

This integration adds the following two dimensions to Net Perceptions:

- `Shopper_product_interest_2066`: Maintains implicit ratings for Sixth Avenue (the Sixth Avenue merchant reference number is 2066). In this dimension, the domain user rates the item domain.
- `Shopper_product_likert_2066`: Maintains explicit ratings for Sixth Avenue. In this dimension, the domain user rates the item domain.

Note: The dimensions above are hard-coded for Sixth Avenue. During installation you must manually update the `NPupdate.txt` script to assign these behaviors to your store.

3.2.3. Ratings and Rating Strategies

With Net Perceptions shoppers rate products either implicitly or explicitly. Implicit ratings are based on shopper buying patterns and do not require any input from the shopper. Explicit ratings, on the other hand, are ratings that the shopper explicitly sets for products they purchase.

The following rating behaviors are associated with the respective rating values for this integration:

Table 1: Rating Values

Rating Behavior	Rating Value
Shopper implicitly rates a product:	
Shopper views a product (<code>ProductDisplay</code>)	2
Shopper adds item to shopping cart (<code>InterestItemAdd</code>)	3
Shopper removes item from shopping cart (<code>InterestItemDelete</code>)	3
Shopper buys an item (<code>OrderProcess</code>)	4
Shopper explicitly rates a product:	
Very pleased	5
Pleased	4
Satisfied	3
Neutral	2
Disappointed	1

There are rating strategies associated with each dimension. There is a one-to-one relationship between a rating strategy and a dimension.

This implementation adds two rating strategies to Net Perceptions:

- `Shopper_interest_rating_strategy_2066`: Maintains implicit ratings for Sixth Avenue (the Sixth Avenue merchant reference number is 2066.). This rating strategy is mapped to the `shopper_product_interest_2066` dimension. This dimension and rating strategy are used to maintain shoppers' implicit ratings.
- `Shopper_likert_rating_strategy_2066`: Maintains explicit ratings for Sixth Avenue. This rating strategy is mapped to the `shopper_product_likert_2066` dimension. The dimension and ratings strategies are used to maintain shoppers' explicit ratings.

Note: The rating strategies above are hard-coded for Sixth Avenue. During installation you must manually update the `NPupdate.txt` script to assign these rating strategies to your store.

3.2.4. Recommendation Strategy

Net Perceptions requires a recommendation strategy for each rating strategy. This implementation defines two recommendation strategies:

- `Shopper_product_interest_recommendation_2066`: This recommendation strategy is based on Net Perceptions `Interest_recommendation_strategy`.
- `Shopper_product_likert_recommendation_2066`: This recommendation strategy is based on Net Perceptions `Likert_recommendation_strategy`.

This integration uses the interest and likert recommendation strategies

Note: The above recommendation strategies are hard-coded for Sixth Avenue. During installation you must manually update the `NPupdate.txt` script to assign these recommendation strategies to your store or mall.

3.2.5. Cross-sell

The cross-sell feature is implemented using the Net Perceptions FastLookUp dimension and rating strategy. This integration sample creates one FastLookUp dimension and one rating strategy dimension per store and ties the two together with a corresponding FastLookUp recommendation strategy.

- `Fast_lookup_dimension_2066`: Maintains cross-sell data. In this dimension, the domain item rates the item domain category.
- `Fast_lookup_rating_2066`: Rating strategy corresponding to the `Fast_lookup_dimension_2066` dimension.
- `Fast_lookup_recommendation_2066`: Recommendation strategy used for the above dimension and rating strategy.

Note: The cross-sell ratings and dimensions above are hard-coded for Sixth Avenue. During installation you must manually update the `NPupdate.txt` script to assign the FastLookUp rating strategy, dimension strategy, and recommendation strategy to your store or mall.

4. Installation

These installation instructions use the Net.Commerce Sixth Avenue store as a sample. You can install, configure and test with Sixth Avenue before attempting to modify your own store.

To complete the installation, do the following:

1. Select a configuration
2. Install Net.Commerce
3. Install Net Perceptions
4. Install the integration
5. Verify the installation

4.1. Select a Configuration

There are four possible configurations when installing Net Perceptions and Net.Commerce:

1. Net Perceptions and Net.Commerce installed on the same machine and sharing one Oracle database.
2. Net Perceptions running with an Oracle database and Net.Commerce running with a DB2 database, both installed on the same machine.
3. Machine A installed with Net Perceptions server client running with an Oracle database. Machine B installed with Net.Commerce running with an Oracle database and Net Perceptions client.
4. Machine A installed with Net Perceptions running with an Oracle database. Machine B installed with Net.Commerce running a DB2 database and Net Perceptions client.

For configurations 1 and 2, install the Net Perceptions and Net.Commerce servers as described in sections 4.2, "Install Net.Commerce" and 4.3, "Install Net Perceptions." For configurations 3 and 4, you must install the Net Perceptions client on the same machine as the Net.Commerce server. Follow the additional instructions in section 4.3.1, "Install the Net Perceptions Client" for configurations 3 and 4.

4.2. Install Net.Commerce

Install Net.Commerce 3.2 Start or Pro according to the instructions in the Net.Commerce *Installing and Getting Started Guide*. You must also install the sample Metropolitan mall which contains the Sixth Avenue store. Instructions on how to install the mall are in the Net.Commerce online help in the section “Install the Database for the Metropolitan Mall.”

4.3. Install Net Perceptions

Install the Net Perceptions server according to the directions in the *Net Perceptions for E-commerce Installation Guide*. You must specify the Key Identification mode during installation to ensure that the integration code functions properly. Depending on the configuration you select, you can install Net Perceptions on either the same machine as Net.Commerce, or on a separate machine.

4.3.1. Install the Net Perceptions Client

If you installed Net Perceptions on a different machine than Net.Commerce (configuration 3 or 4), you must also install the Net Perceptions client on the Net.Commerce machine. Follow the client installation instructions in the *Net Perceptions for E-commerce Installation Guide*.

4.4. Install the Integration

This integration package contains scripts to configure both the Net Perceptions and Net.Commerce servers. Instructions differ depending on the type of system you are using, Windows NT or the Solaris Operating Environment; and the type of Web server, Lotus Domino Go Webserver (LDGW) or Netscape Enterprise Web Server (NES). These instructions install the integration for the sample merchant ID number 2066 for Sixth Avenue. For your own installation, substitute your own merchant ID for 2066.

After installation, do the following for both NT and the Solaris Operating Environment to ensure that the cross-sell and recommendation links appear in your Web site:

1. Open the `db2www.ini` file.
2. Add a “;” to the end of the following `MACRO_PATH` and `INCLUDE_PATH` lines, and move the directory paths in boldface to the last position in the respective path list:
 - `MACRO_PATH`
`D:\IBM\NetCommerce3\instance\mser\teditor;D:\IBM\NetCommerce3\macro\en_US;D:\IBM\NetCommerce3\macro\en_US\demomall;D:\IBM\NetCommerce3\macro\en_US\ncsample`
 - `INCLUDE_PATH`
`D:\IBM\NetCommerce3\html\en_US;D:\IBM\NetCommerce3\instance\mser\teditor;D:\IBM\NetCommerce3\macro\en_US;D:\IBM\NetCommerce3\macro\en_US\ncsample`
3. Restart the Web server.

4.4.1. Install on Windows NT

To install the integration on Windows NT, do the following:

1. Unzip the `NetC_NetPerceptions_1_1.zip` package into a temporary directory using WinZip on the machine where Net.Commerce is installed.
2. From a DOS command prompt, switch to the temporary directory and run the `install_NTnetp.cmd` script by typing the following:
`install_NTnetp.cmd <drive:>/IBM/NetCommerce3`
3. Log on as an Oracle or a DB2 user depending on the database with which Net.Commerce was installed.
4. From the command prompt or window, go to the following directory:

```
DB2          <drive:>\IBM\NetCommerce3\nc_schema\db2
Oracle       <drive:>/opt/IBMnetc/NetCommerce3/nc_schema/oracle
```

5. Run the `pers_migrate.cmd` script by typing the following:

```
DB2          Pers_migrate.cmd <DB name> <DB user> <DB password>
             <merchant number> <log name>
Oracle       Pers_migrate.cmd <DB name> <DB user> <DB passwords or DB
             passwords@service name> <merchant number> <log name>
```

where *DB name* is your database name, *DB User* is your current user ID, *DB password* is the log on password for this user ID, *merchant number* is 2066 for the demo, and *log name* is optional.

6. If you are using a Net Perceptions client, you must configure the client to do the following:
 - Create dimensions, rating strategies, and prediction strategies required by the integration
 - Update the Net Perceptions database with information for cross-sell
 - Set up the Net Perceptions engine to service requests for any user ID

To configure the Net Perceptions client, do the following:

- a. Copy the `NPupdate.txt` and `cross-sell.cmd` files from the `NP_Scripts` directory to the Net Perceptions server home directory. The home directory is usually in the directory path `<drive:>\Program Files\Net Perceptions\Net Perceptions for E-commerce`. To determine the home directory, click **Start**, then select **Setting® Control Panel® System® Environment**. Under **System Variables**, the value for the **NP_Home** variable is the Net Perceptions server home directory. You must manually update these files with the product reference numbers. For more information, refer to the NetPAdmin commands section in the *Net Perceptions for E-Commerce User's Manual*.
- b. Invoke NetPAdmin. To invoke NetPAdmin, click **Start**, then select **Programs® Net Perceptions for E-commerce® NetPAdmin**.
- c. At the NetPAdmin prompt, type `read NPupdate.txt`
- d. At the NetPAdmin prompt, type `quit`
- e. From the command prompt, run `cross-sell.cmd`. You may need to manually update the product reference numbers contained in the `cross-sell.cmd` `echo` statement. The files contain product reference numbers from the Sixth Avenue store that are mapped for cross-sell in the Net Perceptions database. For more information, refer to the NetPAdmin commands section in the *Net Perceptions for E-Commerce User's Manual*. To determine if you must update the `cross-sell.cmd` script, do the following:

- i. From the database prompt, run the SQL statement
SELECT cgrfnbr, cgsdesc FROM category WHERE cgmenbr=2066
 - ii. Map the cgsdesc column to that given in cross-sell.cmd. The cross-sell.cmd script file only contains the clothing category of products.
 - iii. To get the product reference numbers, run the SQL statement from the database prompt:
iv. SELECT prrfnbr, prsdesc FROM product WHERE prmenbr=2066
 - v. If the cgsdesc column values are different than those in cross-sell.cmd, update the script file with the product reference numbers given for merchant 2066.
7. To ensure that the Net Perceptions server accepts all shopper reference numbers, issue the following commands from the command prompt of the Net Perceptions server:

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> // The default Net Perceptions server name is prod

Chmodit -v <Net Perceptions server name> -h <Net Perceptions server host name> i+all // To give invoke privileges to all

Chmodit -v <Net Perceptions server name> -h <Net Perceptions server host name> l+all // To give launch privileges to all

Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> // To ensure that the invoke and launch privileges are set to all
```

8. Restart the Net Perceptions server.
9. Start the Net.Commerce server.
10. From the NetCommerce3/instance/<instance name>/config directory, open the ncommerce.ini file. Append the following to the end of the file:

```
PERS_ENABLED      YES
NP_PORT           <port number> //9000 is the default
NP_HOST           <Net Perceptions server host name> //Fully qualified DNS name, for example www.ibm.com
NP_ROOT           <Net Perceptions root name> //For example bind:prod:prod:machine name
NP_SERVER         <Net Perceptions server name> //prod is the default
```

Note: To determine the values for NP_ROOT and NP_SERVER, click **Start** then select **Control Panel**→**System**→**Environment**.

4.4.2. Install on the Solaris Operating Environment

To install the integration on the Solaris Operating Environment, do the following:

1. Untar the NetC_NetPerceptions_1_1.tar package into a temporary directory by issuing the command tar -xf NetC_NetPerceptions_1_1.tar
2. Run the install_SUNnetp.sh script by issuing the command install_SUNnetp.sh <drive:>/opt/IBMnetc/NetCommerce3
3. Log on as an Oracle or a DB2 user, depending on the database with which Net.Commerce is installed.
4. From the command prompt (for DB2, log on to a DB2 instance user ID), go to the following directory:

DB2 <drive:>\IBM\NetCommerce3\nc_schema\db2
 Oracle <drive:>/opt/IBMnetc/NetCommerce3/nc_schema/oracle

5. Run the script `pers_migrate.sh`

DB2 `Pers_migrate.sh <DB name> <DB user> <DB passwords>`
 `<merchant number> <log name>`
 Oracle `Pers_migrate.sh <DB name> <DB user> <DB passwords or DB`
 `passwords@service name> <merchant number> <log name>`

where *DB name* is your database name, *DB User* is your current user IDS, *DB password* is the log on password for this user ID, *merchant number* is 2066 for the demo, and *log name* is optional.

6. If you are using a Net Perceptions client, you must configure the client to do the following:

- Create dimensions, rating strategies, and prediction strategies required by the integration
- Update the Net Perceptions database with information for cross-sell
- Set up the Net Perceptions engine to service requests for any user ID

To configure the Net Perceptions client, do the following:

- a. Copy the `NPupdate.sh` and `cross-sell.sh` files from the directory `NP_Scripts` to the Net Perceptions server home directory. You must manually update these files with the product reference numbers. For more information, refer to the NetPAdmin commands section in the *Net Perceptions for E-Commerce User's Manual*.
- b. Invoke NetPAdmin. To invoke NetPAdmin, open a DB2 command prompt and type `netpadmin`
- c. At the NetPAdmin prompt, type `read NPupdate.sh`
- d. At the NetPAdmin prompt, type `quit`
- e. From the command prompt run `cross-sell.sh`. You must manually update the product reference numbers contained in `cross-sell.sh` `echo` statement. The files contain product reference numbers from the 6ixth Avenue store that are mapped for cross-sell in the Net Perceptions database. For more information, refer to the NetPAdmin commands section in the *Net Perceptions for E-Commerce User's Manual*. To determine if you must update the `cross-sell.sh` script, do the following:
 - i. Open a database command prompt.
 - ii. Connect to the database, for example, type `CONNECT TO <DB name>`
 - iii. Run the SQL statement
`SELECT cgrfnbr, cgsdesc FROM category WHERE cgmenbr=2066`
 - iv. Map the `cgsdesc` column to that given in `cross-sell.sh`. The `cross-sell.sh` script file only contains the clothing category of products.
 - v. To get the product reference numbers, run the following SQL statement
 - vi. from the database command prompt, `SELECT prrfnbr, prsdsc FROM product WHERE prmenbr=2066`
 - vii. If the `cgsdesc` column values are different that those in `cross-sell.sh`, update the script file with the product reference numbers given for merchant 2066.

- To ensure that the Net Perceptions server accepts all shopper reference numbers, issue the following commands from the command prompt of the Net Perceptions server:

```
Catit -x <Net Perceptions server name > -h <Net Perceptions server host name> The default Net Perceptions server name is prod
```

```
Chmodit -v <Net Perceptions server name> -h <Net Perceptions server host name> i+all //To give invoke privileges to all
```

```
Chmodit -v <Net Perceptions server name> -h <Net Perceptions server host name> l+all //To give launch privileges to all
```

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> To ensure that the invoke and launch privileges are set to all
```

- Restart the Net Perceptions server.
- Start the Net.Commerce server.
- From the /opt/IBMnetc/NetCommerce3/instance/<instance name>/config directory, open the ncommerce.conf file. Append the following to the end of the file:

```
PERS_ENABLED YES
NP_PORT      <port number> //9000 is the default
NP_HOST      <Net Perceptions server host name> //Fully qualified DNS
              name. For example, www.ibm.com
NP_ROOT      <Net Perceptions root name> //For example,
              bind:prod:prod:machine name
NP_SERVER    <Net Perceptions server name> //prod is the default
```

4.4.3. Verify the Integration Installation

Once you have installed the integration, you may want to verify that the files are located in the correct directories and that the installation script has properly configured the integration code.

To verify the installation, do the following:

- For the Solaris Operating Environment, ensure that the following soft link exists between directory paths:

```
/opt/IBMnetc/NetCommerce3/bin/np_msg.cat
```

is linked to:

```
/usr/lib/locale/en_US/np_msg.cat
```

If the soft link does not exist, from the command line issue the following command:

```
ln -sf /opt/IBMnetc/NetCommerce3/bin/np_msg.cat
```

```
/usr/lib/locale/en_US/np_msg.cat
```

-  For Windows NT ensure that the following files are in the corresponding directories:

File Name	Directory
pers_server_cmd.dll	\IBM\NetCommerce3\bin
gl_server_api.dll	\IBM\NetCommerce3\bin
np_msg.dll	\IBM\NetCommerce3\bin
base_6th.htm	\IBM\NetCommerce3\html\<locale>\demomall

File Name	Directory
foot_gif	\IBM\NetCommerce3\html\ <i><locale></i> \demomall
foot_6th.htm	\IBM\NetCommerce3\html\ <i><locale></i> \demomall
pers_error.htm	\IBM\NetCommerce3\html\ <i><locale></i> \demomall
pers_na.htm	\IBM\NetCommerce3\html\ <i><locale></i> \demomall
rcmndinf.htm	\IBM\NetCommerce3\html\ <i><locale></i> \demomall
6ixth_storefront.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
cross_sell.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
explrat.inc	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
pers_center.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
ratinghistory.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
rcmnd1.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \demomall
s_prdd.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \ncadmin\storemgr
g_itemdsp.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
product1.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
product2.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
productNG.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
t_itemdsp.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempbas1.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempclo2.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempclo3.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempclot.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempcomp.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
temphard.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempite2.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
tempitem.d2w	\IBM\NetCommerce3\macro\ <i><locale></i> \product
demomall (directory)	\IBM\NetCommerce3\nc_schema\db2
pers_explicit_profiling.db2.sql	\IBM\NetCommerce3\nc_schema\db2
pers_implicit_profiling.db2.sql	\IBM\NetCommerce3\nc_schema\db2
pers_migrate.cmd	\IBM\NetCommerce3\nc_schema\db2
pers_register_tasks_etc.db2.sql	\IBM\NetCommerce3\nc_schema\db2
persdemo_migrate.cmd	\IBM\NetCommerce3\nc_schema\db2\demomall
persdemo_migrate_6ixth_ave_nue.db2.sql	\IBM\NetCommerce3\nc_schema\db2\demomall
persdemo_shoppers.db2.sql	\IBM\NetCommerce3\nc_schema\db2\demomall
demomall (directory)	\IBM\NetCommerce3\nc_schema\oracle
pers_create.ora.sql	\IBM\NetCommerce3\nc_schema\oracle
pers_explicit_profiling.ora.sql	\IBM\NetCommerce3\nc_schema\oracle
pers_implicit_profiling.ora.sql	\IBM\NetCommerce3\nc_schema\oracle
pers_migrate.cmd	\IBM\NetCommerce3\nc_schema\oracle
pers_register_tasks_etc.ora.sql	\IBM\NetCommerce3\nc_schema\oracle
persdemo_register_merchant_tasks.ora.sql	\IBM\NetCommerce3\nc_schema\oracle\demomall
persdemo_migrate_6ixth_ave_nue.ora.sql	\IBM\NetCommerce3\nc_schema\oracle\demomall
persdemo_shoppers.ora.sql	\IBM\NetCommerce3\nc_schema\oracle\demomall
cross-sell.cmd	<drive:>\temp\NP_scripts

File Name	Directory
NPupdate.txt	<drive:>\temp\NP_scripts
Np_msg.cat	<drive:>\temp\Source\src\messages
NCNetPerceptionsISV.doc	Any temporary directory

SUN For the Solaris operating environment, ensure that the following files are in the corresponding directories:

File Name	Directory
lib_pers_server_cmd.so	/opt/IBMnetc/NetCommerce3/bin
lib_gl_server_api.so	/opt/IBMnetc/NetCommerce3/bin
np_msg.so	/opt/IBMnetc/NetCommerce3/bin
base_6th.htm	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
foot_gif	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
foot_6th.htm	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
pers_error.htm	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
pers_na.htm	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
rcmndinf.htm	/opt/IBMnetc/NetCommerce3/html/<locale>/demomall
6ixth_storefront.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
cross_sell.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
explrat.inc	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
pers_center.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
ratinghistory.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
rcmnd1.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/demomall
s_prdd.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/ncadmin/storemgr
g_itemdsp.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
product1.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
product2.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
productNG.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
t_itemdsp.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempbas1.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempclo2.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempclo3.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempclot.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempcomp.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
temphard.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempite2.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
tempitem.d2w	/opt/IBMnetc/NetCommerce3/macro/<locale>/product
demomall (directory)	/opt/IBMnetc/NetCommerce3/nc_schema/db2
pers_explicit_profiling.db2.sql	/opt/IBMnetc/NetCommerce3/nc_schema/db2
pers_implicit_profiling.db2.sql	/opt/IBMnetc/NetCommerce3/nc_schema/db2
pers_migrate.cmd	/opt/IBMnetc/NetCommerce3/nc_schema/db2
pers_register_tasks_etc.db2.sql	/opt/IBMnetc/NetCommerce3/nc_schema/db2
persdemo_migrate.cmd	/opt/IBMnetc/NetCommerce3/nc_schema/db2/demomall
persdemo_migrate_6ixth_ave_nue.db2.sql	/opt/IBMnetc/NetCommerce3/nc_schema/db2/demomall
persdemo_shoppers.db2.sql	/opt/IBMnetc/NetCommerce3/nc_schema/db2/demomall

File Name	Directory
demomall (directory)	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
pers_create.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
pers_explicit_profiling.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
pers_implicit_profiling.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
pers_migrate.cmd	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
pers_register_tasks_etc.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle
persdemo_register_merchant_tasks.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle/demomall
persdemo_migrate_6ixth_avenue.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle/demomall
persdemo_shoppers.ora.sql	/opt/IBMnetc/NetCommerce3/nc_schema/oracle/demomall
cross-sell.sh	<drive:>/temp/NP_scripts
NPupdate.sh	<drive:>/temp/NP_scripts
Np_msg.cat	<drive:>/temp/Source/src/commands
NCNetPerceptionsISV.doc	Any temporary directory

5. Configuration

Once you have installed Net.Commerce, Net Perceptions, and this integration, you must perform several configuration steps. For the Net Perceptions configuration, these steps differ between Windows NT and the Solaris Operating Environment.

5.1. Configure Net.Commerce

Configure Net.Commerce according to the instructions in the *Installing and Getting Started Guide*. You also need to install the sample Metropolitan mall with the Sixth Avenue store. Instructions on how to install the mall are detailed in the Net.Commerce online help section "Install the Database for the Metropolitan Mall." Some additional Net.Commerce configuration steps are given below in section 5.2.2, "Configure the Solaris Operating Environment" because these steps must be completed *after* Net Perceptions is installed.

5.2. Configure the Net Perceptions Server

To configure the Net Perceptions server for both Windows NT and the Solaris Operating Environment, do the following:

- Create dimensions, rating strategies, and prediction strategies as required by this integration
- Update the Net Perceptions database with information for cross-sell
- Set up the Net Perceptions engine to service requests for any user ID

5.2.1. Configure Windows NT

To configure the Net Perceptions server, do the following:

1. Copy the NPupdate.txt and cross-sell.cmd files from the NP_Scripts directory to the Net Perceptions server home directory.
2. Invoke NetPAdmin. To invoke NetPAdmin, click **Start**, then select **Programs** ® **Net Perceptions for E-commerce** ® **NetPAdmin**.
3. At the NetPAdmin prompt, type read NPupdate.txt
4. At the NetPAdmin prompt type quit
5. From the command prompt run cross-sell.cmd
6. To ensure that the Net Perceptions server accepts all shopper reference numbers, issue the following commands from the command prompt of the Net Perceptions server:

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> //The default Net Perceptions server name is prod
```

```
Chmodit -v <Net Perceptions server name> i+all -h <Net Perceptions server host name> //To give invoke privileges to all
```

```
Chmodit -v <Net Perceptions server name> l+all -h <Net Perceptions server host name> //To give launch privileges to all
```

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> //To ensure that the invoke and launch privileges are set to all
```

7. Restart the Net Perceptions server.
8. Start the Net.Commerce server.

5.2.2. Configure the Solaris Operating Environment

If the Net Perceptions client is on a Solaris Operating Environment machine, a few extra steps must be completed because Net Perceptions does not have a client installation for the Solaris Operating Environment.

1. Copy the NPupdate.sh and cross-sell.sh files from the NP_Scripts directory of the kit into the Net Perceptions server home directory.
2. Invoke NetPAdmin. To invoke NetPAdmin, open a DB2 command prompt and type netpadmin
3. At the NetPAdmin prompt type read NPupdate.sh
4. At the NetPAdmin prompt, type quit.
5. From the command prompt run cross-sell.sh
6. To ensure that the Net Perceptions server has the right privileges, issue the following commands from the command prompt of the Net Perceptions server machine:

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> //The Net Perceptions server name default is prod
```

```
Chmodit -v <Net Perceptions server name> i+all -h <Net Perceptions server host name> //To give invoke privileges to all
```

```
Chmodit -v <Net Perceptions server name> l+all -h <Net Perceptions server host name> //To give launch privileges to all
```

```
Catit -x <Net Perceptions server name> -h <Net Perceptions server host name> To ensure that the invoke and launch privileges is set to all
```

7. If you are running the Net Perceptions client, copy the `shprofile` file from the Net Perceptions server's configuration directory to the client's `<Net Perceptions Home>/config` directory. Modify the file so that the Net Perceptions paths are set to the Net Perceptions home directory of the client machine.
8. Ensure that the Net Perceptions home directory has read privileges for the Net.Commerce DB2 instance user ID or for Oracle instance user ID depending on whether Net.Commerce was configured with DB2 or Oracle. If you are running the Net Perceptions client, it is the client's Net Perceptions directory that requires read privileges for DB2 or Oracle instance user IDs.
9. From the Net.Commerce server machine, change the profile of the DB2 or Oracle instance user ID to run `./<Net Perceptions Home>/config/shprofile` from the `.profile` file.
10. In the `.profile` file, include the path `<Net Perceptions Home>/lib` in the `LD_LIBRARY_PATH` environment variable.
11. From the Net.Commerce server machine, open the `/opt/IBMnetc/NetCommerce3/server/bin/netcprofile` file and do the following:
 - a. Extend the `LD_LIBRARY_PATH` parameter to include `<Net Perceptions Home>/lib`
 - b. Add the `./<Net Perceptions Home>/config/shprofile` to the end of the file.
12. Restart the Net Perceptions server.
13. Start the Net.Commerce server.

5.3. Test the Integration

Once you have installed and configured this integration for Sixth Avenue, complete the test below to verify that Net.Commerce and Net Perceptions are successfully integrated. You can also follow this procedure after you integrate your own store with Net Perceptions.

To verify your installation, do the following:

1. Open a browser.
2. Go to the Metropolitan mall at the following Web address:
`http://<host name>/demomall/basemall.htm`
3. Click **register** and complete the registration process as shopper A.
4. Enter Sixth Avenue. Verify that the personalization feature message and the link to additional personalization information display.
5. Click the **360 ° Fashion** link.
6. Click the **BOTTOMS** icon.
7. Click the **SHORTS** icon.
8. Click a shorts image. The shorts product page displays. Verify that the cross-sell link displays at the top of the page and that the explicit rating feature for shorts displays at the bottom of the page.
9. Click the cross-sell link. Verify that a related product displays.
10. Click the **Back** button on your browser.
11. From the list of ratings, select the **I am pleased** radio button and click the **Record My Rating** button. The shorts product page should refresh itself and display a verification message.

12. Click the **Add to Shopping Cart** button and complete the purchase process for the shorts.
13. Close your browser.
14. Open a new browser.
15. Repeat steps 3 through 12 as shopper B. Complete the purchase process for shorts and any additional item from Sixth Avenue.
16. Go to the Metropolitan mall and click **registered shopper**. At the prompt, enter your shopper A user name and password.
17. Enter Sixth Avenue. Verify that a recommended product appears.
18. Click the **360 ° Fashion** link.
19. Click the **BOTTOMS** icon.
20. Click the **PANTS** icon.
21. Click the dress pants image on the left. The dress pants product page displays. Verify that the cross-sell link displays at the top of the page and that the explicit rating feature for dress pants displays at the bottom of the page.
22. Click the cross-sell link. Verify that a related product displays.
23. Click the **Back** button on your browser.
24. Click the **Add to Shopping Cart** button and complete the purchase process for the dress pants.
25. On the navigation bar, click **RECOMMENDATIONS**. The personalization center page displays. Verify that product recommendations appear and that an explicit rating list displays at the bottom of the page.
26. Click the rating history link. The rating history page displays. Verify that the shorts display with a rating of **I am pleased**.

6. Files and Technical Notes

This table lists code, sample code, and other files included in the integration:

Table 2: Files and Technical Notes

Files	Technical Notes
gl_server_api.dll	Contains profiling tasks for Windows NT.
pers_server_cmd.dll	Contains Windows NT integration commands.
lib_gl_servre_api.so	Contains profiling tasks for the Solaris Operating Environment.
lib_pers_server_cmd.so	Contains all the integration commands for the Solaris Operating Environment.
base_6th.htm	Demomall footer. Contains the navigation bar.
foot_gif	Demomall footer image.
foot_6th.htm	Sixth Avenue footer page.
pers_error.htm	Message indicating that the Net Perceptions engine returned an error.
pers_na.htm	Message indicating that Net.Commerce is not enabled for personalization.
rcmndinf.htm	Displays personalization information.
6ixth_storefront.d2w	Demomall store front macro.
cross_sell.d2w	Cross-sell macro.
explrat.inc	Explicit rating macro.
pers_center.d2w	Personalization center macro.
ratinghistory.d2w	Rating history macro.
rcmnd1.d2w	Recommendation macro.
s_prdd.d2w	NCAdmin store manager.
g_itemdsp.d2w	Product page macro.
product1.d2w	Product page macro.
product2.d2w	Product page macro.
productNG.d2w	Product page macro.
t_itemdsp.d2w	Product page macro.
tempbas1.d2w	Product page macro.
tempclo2.d2w	Product page macro.
tempclo3.d2w	Product page macro.
tempclot.d2w	Product page macro.
tempcomp.d2w	Product page macro.
temphard.d2w	Product page macro.
tempite2.d2w	Product page macro.
tempitem.d2w	Product page macro.
cross_sell.sh	Loads Net Perceptions with cross-sell data.
pers_explicit_profiling.db2.sql	Creates GL_BEHRATE and BEHAVIOR tables, and loads them with explicit shopper profiling information.

Files	Technical Notes
<code>pers_implicit_profiling.db2.sql</code>	Creates GL_BEHRATE and BEHAVIOR tables and loads them with shopper profiling functions.
<code>pers_migrate.cmd</code>	Registers integration commands.
<code>pers_register_tasks_etc.db2.sql</code>	Updates Net.Commerce with personalization commands, tasks and Ofs.
<code>persdemo_migrate.cmd</code>	Registers integration commands.
<code>persdemo_register_tasks_etc.db2.sql</code>	Updates Net.Commerce with personalization commands, tasks and OFs. Commands, tasks and OFs defined in this script are invoked from 6ixth Avenue.
<code>persdemo_shoppers.db2.sql</code>	Loads demomall dummy shopper ids.
<code>pers_create.ora.sql</code>	Oracle script.
<code>pers_explicit_profiling.ora.sql</code>	Creates GL_BEHRATE and BEHAVIOR tables and loads them with explicit shopper profiling information.
<code>pers_implicit_profiling.ora.sql</code>	Creates GL_BEHRATE and BEHAVIOR tables and loads them with shopper profiling functions.
<code>pers_register_tasks_etc.ora.sql</code>	Updates Net.Commerce with personalization commands, tasks and Ofs.
<code>persdemo_migrate.cmd</code>	Demomall database migration script.
<code>persdemo_migrate.ora.sql</code>	Demomall database migration script.
<code>persdemo_migrate_6ixth_avenue.ora.sql</code>	Demomall database migration script.
<code>persdemo_register_tasks_etc.ora.sql</code>	Updates Net.Commerce with personalization commands, tasks and OFs. Commands, tasks and OFs defined in this script are invoked from 6ixth Avenue.
<code>persdemo_shoppers.ora.sql</code>	Loads demomall dummy shopper ids.
<code>cross-sell.cmd</code>	Cross-sell script.
<code>Np_msg.cat</code>	Message catalog.
<code>NPupdate.sh</code>	Cross-sell script.
<code>NPupdate.txt</code>	Cross-sell update script.
<code>NCNetPerceptionsISV.doc</code>	End-user document template.

7. Appendix A: Commands, Tasks, Overridable Functions, and Database Tables

Several commands, tasks, OFs and database tables are added to the existing Net.Commerce system as integration points to enable Net Perceptions features for this integration. Use this information as a reference when customizing your own Net Perceptions integration.

7.1. Profile Shopper Behavior

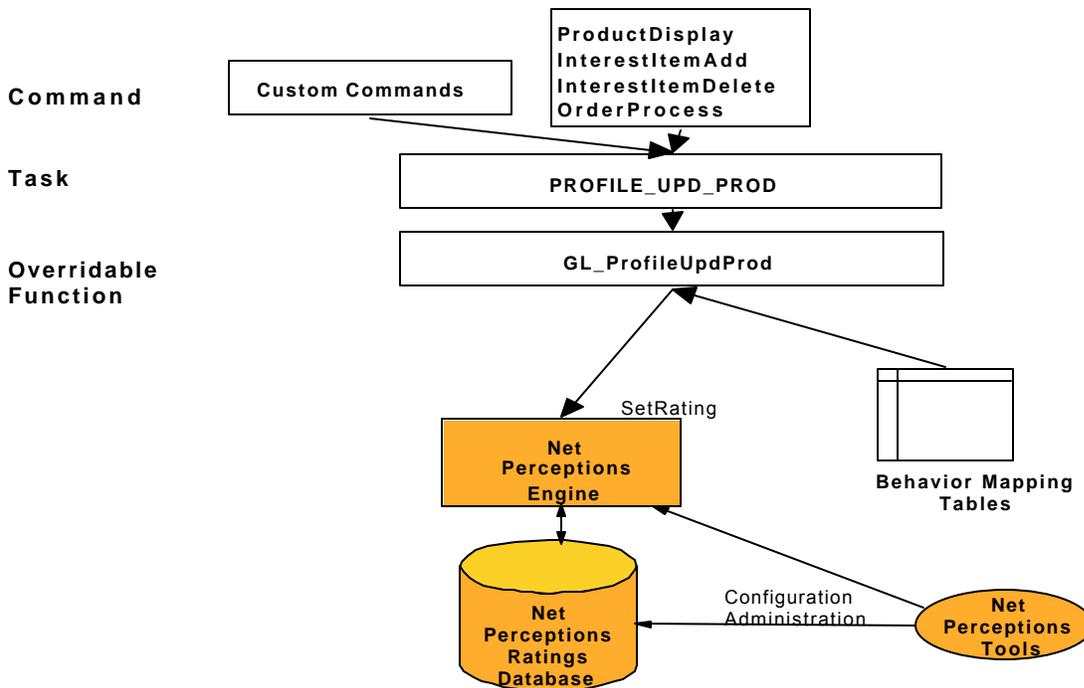
To profile a shopper's behavior with products and implicitly set product ratings in the Net Perception's rating database, this integration defines a shopper profile task and OF. Appropriate commands within the Net.Commerce shopping flow have been modified to call the Net Perceptions commands and tasks.

The following commands, task, OF, and database tables profile shopper behavior:

- `ProductDisplay` command
- `InterestItemAdd` command
- `InterestItemDelete` command
- `OrderProcess` command
- `PROFILE_UPD_PROD` task
- `GL_ProfileUpdProd` OF
- `BEHAVIOR` database table
- `GL_BEHRATE` database table

In the following figure, the PROFILE_UPD_PROD task profiles a shopper's behavior and translates that profile to the Net Perceptions engine. The GL_ProfileUpdProd OF retrieves the rating value for the behavior from the GL_BEHRATE table, and calls the Net Perceptions APIs to either remove product ratings or set product ratings to the Net Perceptions ratings database.

Figure 2: Profile Shopper Behavior



7.1.1. Profile Commands

The following Net.Commerce commands invoke the PROFILE_UPD_PROD task:

- ProductDisplay
- InterestItemAdd
- InterestItemDelete
- OrderProcess

The Net.Commerce commands have been modified to invoke the profiling task at appropriate points in the command implementation. For example, the InterestItemAdd command has been modified to include the following task invocation:

```
invoke PROFILE_UPD_PROD with behavior = AddInterestProduct
```

For more information on these commands, see *Net.Commerce Commands, Tasks, Overridable Functions and Database Tables*.

7.1.2. PROFILE_UPD_PROD Task

Calling Commands: ProductDisplay, InterestItemAdd, InterestItemDelete, OrderProcess

Expected Behavior: Profiles a shopper's behavior with products and translates profile information as ratings for the personalization engine.

Explicit Input Parameters :

- SESSION_ID - Current shopper
- PRODUCT_REF_LIST - The products the shopper is acting on
- MERCHANT_REF_NUM - The merchant that sells the products
- BEHAVIOR_LIST - The behavior of the shopper with products, for example, clicking on the product brief, or adding the product to the shopping cart
- PERS_RESULT_CODE - Set to 0 to initialize the task

Explicit Output Parameters:

- PERS_RESULT_CODE - Return code
- pers_error - If the personalization engine returns an error, returns pers_error.htm
- pers_disabled - If the personalization engine is not up and running, returns pers_na.htm

Default Overridable Function: GL_ProfileUpdProd

7.1.3. GL_ProfileUpdProd Overridable Function

Designed to be called by : The PROFILE_UPD_PROD process task.

Behavior:

1. Retrieves the rating value for the current behavior from the Net.Commerce GL_BEHRATE table.
2. Calls the Net Perceptions APIs to either remove ratings for a product set ratings for the product to the Net Perceptions shopper_product_likert_dimension dimension or set implicit ratings for the product to the Net Perceptions shopper_product_interest_dimension dimension.

Pseudo Code:

```
look up rating from database table, GL_BEHRATE (see section below),  
based on merchant reference number and behavior reference number
```

```
handle = NetPerception::Bind(NP_Root, NP_Host)  
If handle returned is Error Then return pers_disabled
```

```
for each of the product reference number on the list  
    If sku, get its parent reference number  
    set NetPerception ratee to product reference number  
    set NetPerception rater to shopper reference number  
    If product rating needs to be removed  
    Then Call NetPerceptionsI::ContainerDimension_var(likert  
dimension)::remove_rating(rater,ratee)
```

```

Else If product has been rated explicitly
Then Call NetPerceptionsI::RatingStrategy_var(likert rating
    strategy)::add_rating(rater,ratee, rating value, Current
    timestamp) to add ratings to the product
Else // Ensure that lower ratings do not overwrite higher
ratings. e.g
    if the shopper buys a // product and then returns to view
    the product then the ratings should not be lowered.
    Call NetPerceptionsI::RatingStrategy_var(Interest rating
    strategy)::rater_ratings(rater,ratee) to retrieve current
    ratings for the product
    If new ratings is less than current ratings
        Then do not update Net Perceptions
        Else Call NetPerceptionsI::RatingStrategy_var(Interest
rating
    strategy)::add_ratings(rater,ratee, rating value, Current
    timestamp)

Net Perception:: release(ORB pointer);

if any of above failed,
    log error messages
return true

```

7.1.4. BEHAVIOR: Shopper Behavior Database Table

The BEHAVIOR table contains explicit and implicit shopping behavior names for profile tasks.

Table 3: BEHAVIOR Table

Column Name	Column Type	Column Description
REFNUM	INTEGER NOT NULL	Behavior reference number.
NAME	CHAR	Behavior name.
DESCPT	CHAR	Behavior description.

The following shopper behaviors are defined by Net.Commerce commands:

- ClickOnProduct - Click on product brief for detailed information
- AddInterestProduct - Add product to shopping cart
- RemoveInterestProduct - Remove product from shopping cart
- OrderProduct - Purchase a product

You may customize this table by adding behaviors to the NAME field. If you customize this table, you must also modify the GL_BEHRATE table to match your new behavior to a rating level. For more information on these commands, see *Net.Commerce Commands, Tasks, Overridable Functions and Database Tables*.

7.1.5. GL_BEHRATE: Behavior Rating Database Table

The GL_BEHRATE table assigns ratings to shopper behaviors for the Net Perceptions profile OF. This table contains ratings for both explicit and implicit behavior. All the values loaded into

this table are described in the BEHAVIOR table. The rating values indicate how the recommendation engine recommends products to the shopper.

Table 4: GL_BEHRATE Table

Column Name	Column Type	Column Description
BEH_RN	INTEGER NOT NULL	Behavior reference number.
MER_RN	INTEGER NOT NULL	Merchant reference number (NULL for mall).
RATING	INTEGER	Rating value. For example, when a shopper views a product, the rating value is 2.
RATING_LEVEL	INTEGER	Rating level. Not used in this implementation.
ENABLE	INTEGER	Flag to turn the profiling function on (1) or off (0).

The following are default values for the identified shopper behavior:

Table 5: Default Behavior Rating Values

Shopper Behavior	Rating	Rating Level	Enable
ClickOnProduct	2	16	yes
AddInterestProduct	3	18	yes
RemoveInterestProduct	3	18	yes
OrderProduct	4	20	yes

You may customize these rating values to suit your business needs by changing the value in the rating field, or by adding rows for additional behaviors.

7.1.6. Profile Macros

Shopper profiling is an implicit function. The Net.Commerce shopping flow commands have been modified to call the personalization engine's profiling commands when a shopper views, orders, adds items to their shopping cart, or deletes items from their shopping cart. There are no links added to the shopping flow macros to invoke shopper profiling functions.

7.1.7. Profile Customization

You may customize this feature through the following commands, database tables, OFs, and tasks:

Commands

- Change existing commands or add new commands to invoke the supplied profiling task, or any customized profiling tasks.
- Write directly to the personalization APIs in commands without going through tasks (not recommended).

Database Tables

- Change the corresponding rating and rating level of each behavior in the GL_BEHRATE table to reflect how the merchant wants to use personalization ratings.
- Use the ENABLE flag in GL_BEHRATE to enable or disable the profiling of a behavior.
- Add custom defined behavior as a row in the GL_BEHRATE and BEHAVIOR tables.

The above customization may be done on either the mall or the merchant level.

Overridable Functions and Tasks

- Configure the GL_ProfileUpdProd OF to use dimension and rating strategies other than those provided in the implementation. The dimension and rating strategy names are passed in as input parameters to the OF.
- Additional personalization properties may be passed in as parameters in the profiling task.
- Write your own OF for the profiling task, instead of using the supplied default Net Perceptions implementation.
- Turn off the PROFILE_UPD_PROD profiling task by assigning the DoNothingNoArgs OF as its default behavior.

7.2. Set Explicit Ratings

This integration adds a specific command, `RateProduct`, to set explicit product ratings in the personalization engine database.

The following command and macros explicitly rate products:

- `RateProduct` command
- Personalization macro
- Product display macro

The PROFILE_UPD_PROD profile task and corresponding OF may be used to handle explicit ratings from shoppers. New behaviors must be defined in the GL_BEHRATE and BEHAVIOR database tables. The following table shows how a shopper might rate a product and the rating values associated with the rating.

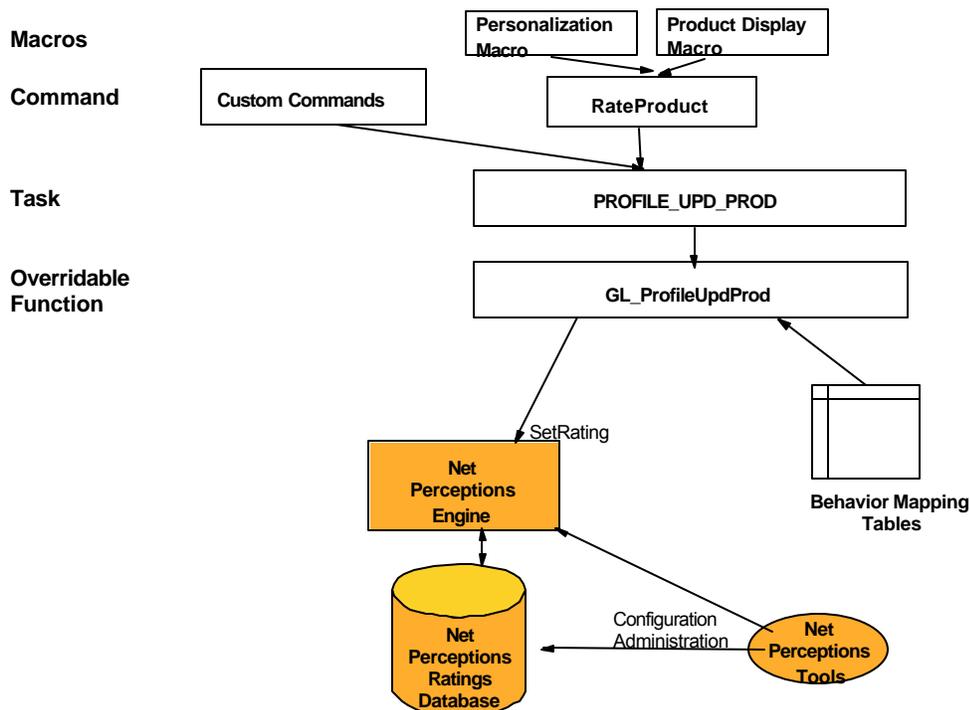
Table 6: Sample Ratings and Rating Values

Behavior	Rating	Enable
X_DISAPPOINTED	1	yes
X_NEUTRAL	2	yes
X_SATISFIED	3	yes
X_PLEASSED	4	yes
X_VERY_PLEASSED	5	yes
X_REMOVE_RATING	2	yes

You may add your own defined behavior or change the ratings of the existing behaviors.

In the following figure, the `RateProduct` command calls the `PROFILE_UPD_PROD` task from the personalization center and product display macros, to explicitly rate a product.

Figure 3: Set Explicit Ratings



7.2.1. RateProduct Command

The `RateProduct` command allows shoppers to explicitly rate products, and to delete existing product ratings from the personalization database.

Parameter Values

- `SESSION_ID`
Current shopper.
- `product_rn`
The products the shopper wants to rate.
- `merchant_rn`
The merchant that sells the products.
- `products_rated`
Product ratings list (for example, `X_VERY_PLEASED`).
- `url`
Return URL to display the appropriate Web page.
- `LIKERT_DIMENSION_NAME`
Likert explicit dimension name.
- `INTEREST_DIMENSION_NAME`
Interest implicit dimension name.
- `LIKERT_STRATEGY_NAME`
Likert explicit dimension name.
- `INTEREST_STRATEGY_NAME`
Interest implicit dimension name.
- `rate_result`
Return code for the product rating.
- `pers_error`
If the personalization engine returns an error, returns `pers_error.htm`
- `pers_disabled`
If the personalization engine is not up and running, returns `pers_na.htm`
- `success`
Profiling information successfully saved.

Behavior

Calls the `PROFILE_UPD_PROD` task from the personalization center (`pers_center.d2w`) and product display macros, to explicitly rate a product. The same task is called if a product rating is removed.

Exception Condition

None

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
Define Net Perceptions likert dimension name and likert rating
strategy.
Call task PROFILE_UPD_TASK with parameters
    shopper reference number
    list of product reference number
    list of product ratings
    Behavior name for the list of products
If TASK returns 'pers_error'
```

```

        Then load page 'pers_errors.htm'
    Else if task returns 'pers_disabled'
        Then load page 'pers_na.htm'
    Else redirect the url to return success;
If Net.Commerce is not enabled for personalization
    Then load page "pers_na.htm"
    return

```

7.2.2. Personalization and Product Display Macros

There are two places in the shopping flow where shoppers can explicitly rate a product:

- The Personalization Center (through the recommendation link on the navigation bar)
- Product display pages

The `demomall/pers_center.d2w` macro is invoked when the shopper selects the recommendation link. This macro displays recommendations and shows a list of unrated products. Shoppers set explicit ratings on an HTML form which invokes the `RateProduct` command.

Sixth Avenue uses different product display macros for each type of product category. All product display macros are available in the `macro/en_US/demomall/product` directory. The product display macros include the `demomall/explrat.inc` macro to allow shoppers to explicitly rate the product they are currently viewing.

7.2.3. Customization

You may customize this feature through the following commands, database tables, OFs, and tasks:

Commands

- Change existing commands or add new commands to invoke the supplied profiling tasks, or any customized profiling tasks.
- Write directly to the personalization engine APIs in commands without going through tasks (not recommended).

Database Tables

- Change the corresponding rating and rating level of each behavior in the `GL_BEHRATE` table to reflect how the merchant wants to use Net Perceptions ratings.
- Use the enable flag in `GL_BEHRATE` to enable or disable the profiling of a behavior.
- Add custom defined behavior may be added as a row in the `GL_BEHRATE` and `BEHAVIOR` tables.

Overridable Functions and Tasks

Since the same tasks and OFs defined for profiling shopper behavior are used, the customization techniques are the same.

- Configure the `GL_ProfileUpdProd` OF to use dimension and rating strategies other than those provided in the implementation. The dimension and rating strategy names are passed in as input parameters to the OF.

- Additional personalization properties may be passed in through the recommendation engine options parameter in the profiling task.
- Write your own OF for the profiling task, instead of using the supplied default Net Perceptions implementation.
- Turn off the PROFILE_UPD_PROD profiling task by assigning the DoNothingNoArgs OF as its default behavior.

The above customization may be done on either the mall or merchant level.

7.3. Retrieve Unrated Products

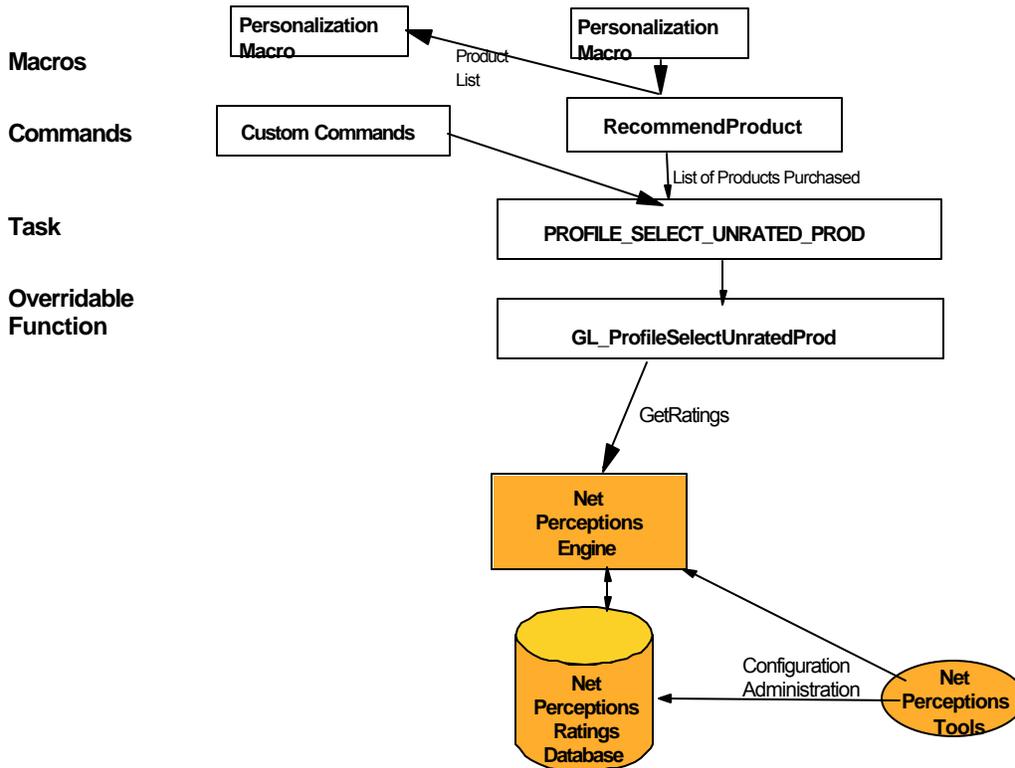
This integration defines a task and a default OF to retrieve a list of products that have not been explicitly rated. The recommendation command invokes this task. For more information on the `RecommendProduct` command, see section 7.6, “Recommend Products.”

The following command, task, and OF retrieve unrated products:

- `RecommendProduct` command
- `PROFILE_SELECT_UNRATED_PROD` task
- `GL_ProfileSelectUnratedProd` OF

In the following figure, the OF assigned to the PROFILE_SELECT_UNRATED_PROD task removes the products which have already been rated by the shopper from a given list of purchased products.

Figure 4: Retrieve Unrated Products



7.3.1. PROFILE_SELECT_UNRATED_PROD Task

Calling Command: RecommendProduct

Expected Behavior: Removes the products already rated by the shopper from a given list of purchased products.

Explicit Input Parameters:

- SESSION_ID - Current shopper
- MERCHANT_RN - The merchant that sells the products
- PRODUCT_REF_NUM_LIST - List of products purchased by shopper
- LIKERT_DIMENSION_NAME - Personalization Likert dimension name

Explicit Output Parameters:

- PRODUCT_REF_NUM_LIST - List of product reference numbers that have not been explicitly rated by the shopper, along with merchant_rn

Expected Return Codes: Return true.

7.3.2. GL_ProfileSelectUnratedProd Overridable Function

Designed to be called by: The PROFILE_SELECT_UNRATED_PROD task.

Behavior: Removes products already rated by the shopper from a given list of purchased products.

Pseudo Code:

```
handle = NetPerception::Bind(NP_Root, NP_Host)
If handle returns Error Then return pers_disabled

set NetPerception subject to shopper reference number
set NetPerception subject container dimension to Likert Dimension
Call NetPerceptionsI::ContainerDimension_var(likert
dimension)::get_rating(subject)
Parse list of products
  If product exists in the list of products purchased
    Then remove the product from the list
return a new list of products
```

7.3.3. Personalization Macro

The personalization center macro, `pers_center.d2w`, displays a list of unrated products when the shopper selects the recommendation link from the navigation bar. The macro uses simple form-based HTML to display the list of unrated products.

7.3.4. Customization

You may customize this function through the following commands, OFs, and tasks:

Commands

- The `RecommendProduct` command identifies the personalization dimension to be used by the `GL_ProfileSelectUnratedProd` OF through the `LIKERT_DIMENSION_NAME` parameter. You may modify this parameter in the command to effectively control the dimension used to retrieve rated products.
- The `RecommendProduct` command supplies a list of purchased products. You may customize the list before sending it to the `GL_ProfileSelectUnratedProd` OF.

Overridable Functions and Tasks

- Configure the `GL_ProfileSelectUnratedProd` OF to use different dimension and rating strategies other than those provided in the implementation. The dimension and rating strategy names are passed in as input parameters to the OF.
- The `GL_ProfileSelectUnratedProd` OF uses the Likert dimension to identify products that have been explicitly rated in the personalization engine. You may modify this OF to also use the interest dimension to identify products that the shopper has implicitly shown interest in.

- Write your own OF for the profiling tasks, instead of using the supplied default Net Perceptions implementation.

7.4. View Product Ratings

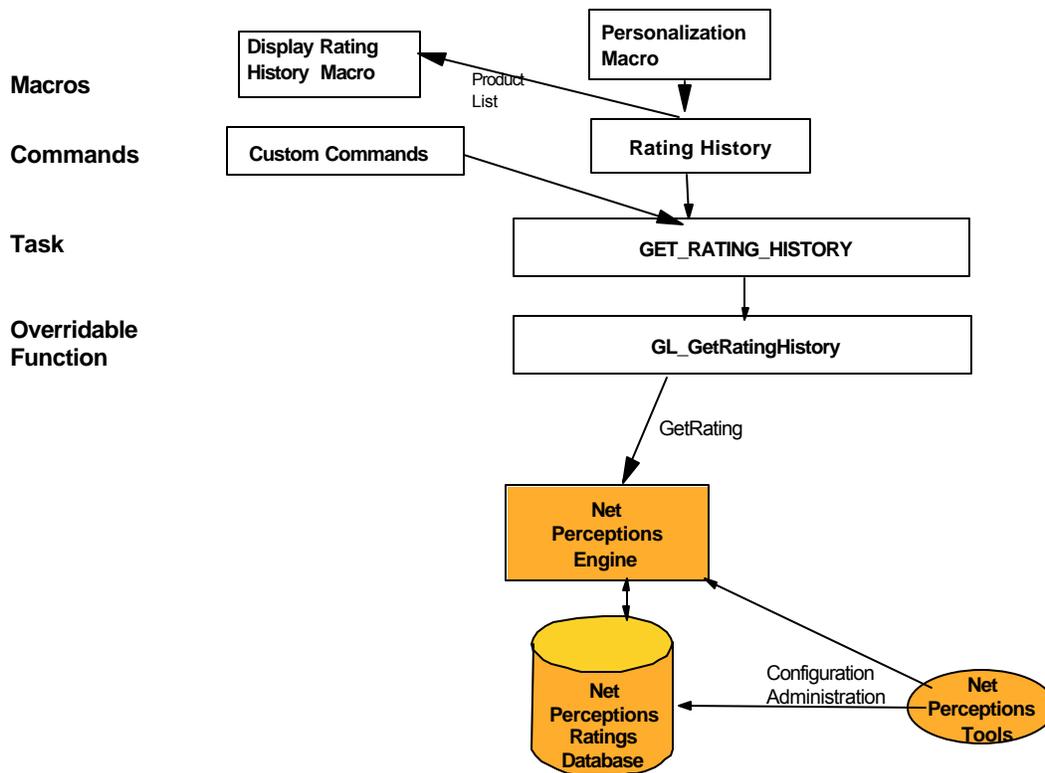
The command to view explicit shopper ratings may be invoked from the personalization center macro. The `RatingHistory` command builds a list of products with their ratings and invokes the display ratings macro to display the ratings.

The following command, task, OF, and macro display product ratings:

- `RatingHistory` command
- `GET_RATING_HISTORY` task
- `GL_GetRatingHistory` OF
- `ratinghistory` macro

From the personalization center macro, the `RatingHistory` command calls the `GET_RATING_HISTORY` task to retrieve a list of products and their corresponding rating values for a shopper. `RatingHistory` builds a list of products with ratings and invokes the display rating macro to display the ratings.

Figure 5: View Product Ratings



7.4.1. RatingHistory Command

The `RatingHistory` command allows shoppers to view a list of all explicit product ratings contained in the recommendation engine database for the shopper.

Parameter Values

- `merchant_rn`
Merchant reference number.
- `shopper_rn`
Shopper reference number.
- `url`
Return URL to display the appropriate Web page.
- `from_rank`
The ranking where recommendation starts, default = 1 or setting in configuration.
- `to_rank`
The ranking where recommendation stops, default = 10 or setting in configuration.
- `merchant_rn`
If the `GET_RATING_HISTORY` task is successful, then return the Web page with product ratings, along with merchant reference number.
- `pers_disabled`
If task returned disabled invoke `pers_na.htm`
- `pers_error`
If task returned invoke `pers_error.htm`
- `history_product_list`
List of product reference numbers.
- `history_rating_list`
List of product ratings.
- `history_result`
Rating history results.

Behavior

- From the personalization center macro (`pers_center.d2w`), the rating history command calls the `GET_RATING_HISTORY` task to retrieve a list of products and their corresponding rating values for the given shopper.
- Builds a list of products and their ratings and invokes the `ratinghistory.d2w` macro to display the ratings.

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
Define Net Perceptions likert dimension name and likert rating
strategy.

Call task GET_RATING_HISTORY with parameters
    shopper reference number
    place holder for product list
    place holder for product ratings
If TASK returns 'pers_error'
```

```

        Then load page 'pers_errors.htm'
    Else if task returns 'pers_disabled'
        Then load page 'pers_na.htm'
    Else redirect the url to return success;
If Net.Commerce is not enabled for personalization
    Then load page "pers_na.htm"
    return

```

Exception Condition

None

7.4.2. GET_RATING_HISTORY Task

Calling Command: RatingHistory

Expected Behavior: Gets a list of ratings for a shopper from the Net Perceptions recommendation engine.

Explicit Input Parameters:

- SESSION_ID - Current shopper
- MERCHANT_REF_NUM - The merchant that sells the products
- HISTORY_PROD_LIST - List of products
- HISTORY_RATING_LIST - List of ratings
- FROM_RANK - The ranking where recommendation starts, default = 1 or setting in configuration.
- TO_RANK - The ranking where recommendation stops, default = 10 or setting in configuration.
- LIKERT_DIMENSION_NAME - Net Perceptions Likert dimension name
- PERS_RESULT_CODE - Set to 0 to initialize task

Explicit Output Parameters:

- HISTORY_PROD_LIST - List of products
- HISTORY_RATING_LIST - List of ratings
- PERS_RESULT_CODE - Return code

Expected Return Codes: Return true.

Default Overridable Function: GL_GetRatingHistory

7.4.3. GL_GetRatingHistory Overridable Function

Designed to be called by: The GET_RATING_HISTORY process task.

Behavior: Gets a list of ratings for a shopper from the recommendation engine.

Pseudo Code:

```
handle = NetPerception::Bind(NP_Root, NP_Host)

set NetPerception subject to shopper reference number
set NetPerception subject container dimension to Likert Dimension
Call NetPerceptionsI::ContainerDimension_var(likert
    dimension)::get_rating(subject)
Build a list of products and their ratings
return
```

7.4.4. Rating History Macro

The link to view a history of product ratings is available from the recommendation link on the navigation bar. This link invokes the `RatingHistory` command. `RatingHistory` retrieves a list of products rated by the shopper, then invokes the `ratinghistory.d2w` macro to display the products. The `ratinghistory.d2w` macro receives the list of products, as in the following example for a single product:

```
product_rn1=x&rating_rn1=y
```

Recommended product reference numbers are linked up with the `Net.Data` macro through the following set of predefined variable names:

- `ProdRec1`
- `ProdRec2`
- `ProdRec3`
- `....`
- `ProdRec99`

The default `ratinghistory.d2w` macro defines product reference numbers 1 to 10. To parse more products, you must define additional variables.

7.4.5. Customization

You may customize the rating history feature through the following commands, OFs, tasks, and macros:

Commands

- The `RatingHistory` command identifies the personalization dimension to be used by the `GL_GetRatingHistory` OF through the `LIKERT_DIMENSION_NAME` parameter. You may modify this parameter in the command to control the dimension used to retrieve rated products.

Overridable Functions and Tasks

- Configure the `GL_GetRatingHistory` OF to use dimension and rating strategies other than those provided in this implementation. The dimension and rating strategy names are passed in as input parameters to the OF.
- The `GL_GetRatingHistory` OF uses the Likert dimension to identify products that have been explicitly rated in the personalization engine. You may modify the OF to also use

the Interest dimension to identify products that the shopper has implicitly shown interest in.

- Write your own OF for the profiling task, instead of using the supplied default Net Perceptions implementation.

Macros

- Modify the `ratinghistory.d2w` macro to display more than ten ratings. The product display restriction is due to limitations in Net.Data. The macro currently hard codes the variables for each input parameter. There is no easy way in Net.Data to parse for parameters with syntax `product_rn<x>`, where `x` is a variable. To parse the list of products, try using JavaScript.

7.5. Remove Product Ratings

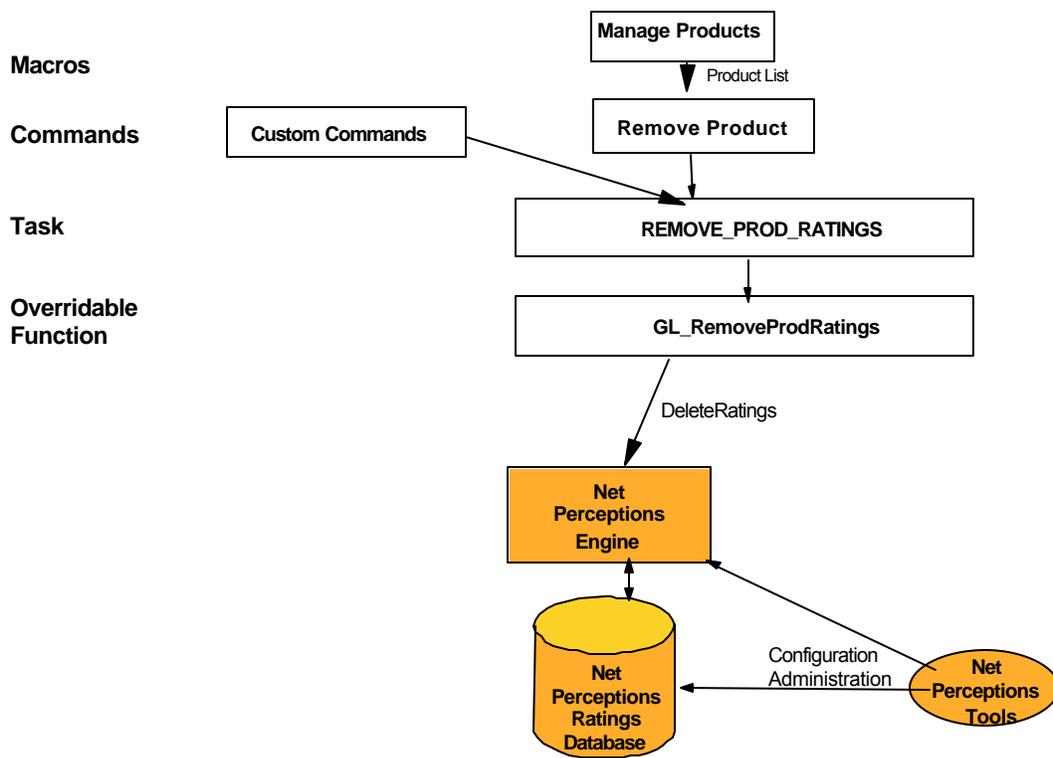
To delete product ratings from the Net Perceptions engine, use the `RemoveProdRatings` command. The product information section of the Net.Commerce Store Manager has been modified to call the `REMOVE_PROD_RATINGS` task when a merchant deletes a product from the Net.Commerce database. You may delete products from the Net.Commerce database through the store manager administrative interface. The `RemoveProduct` command receives a list of products and deletes all ratings for the product from the Net Perceptions engine. Unlike the other Net Perceptions features that appear in the store interface to shoppers, this feature is only used in the store manager interface by store managers or merchants.

The following command, task, OF, and macros remove product ratings:

- `RemoveProdRatings` command
- `REMOVE_PROD_RATING` task
- `GL_RemoveProdRatings` OF
- Remove ratings macro

In the following figure, the `RemoveProdRatings` command calls the `REMOVE_PROD_RATINGS` task from the store manager administrative interface. The `REMOVE_PROD_RATINGS` task removes a list of products and their corresponding rating values from the recommendation engine.

Figure 6: Remove Product Ratings



7.5.1. RemoveProdRatings Command

The RemoveProdRatings command allows store administrators to use the Net.Commerce administrative interface to delete products from Net.Commerce and the corresponding product ratings from the personalization engine database.

Parameter Values

- merchant_rn
Merchant reference number.
- product_rn
Product reference number.
- url
Return URL to display the appropriate Web page.
- available
1 if the recommendation status is available, and 0 if it is not available.
- token
Unique magic cookie passed from NCAdmin to avoid problems with cached documents.
- success
If task REMOVE_PROD_RATINGS is successful, then return success.
- pers_disabled
If task returned, returns pers_na.htm
- pers_error
If task returned, returns pers_error.htm

Behavior

From the store manager administrative interface, calls the REMOVE_PROD_RATINGS task to remove a list of products and their corresponding rating values from the recommendation engine.

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
  Define Net Perceptions likert dimension name and likert rating
  strategy.
  Define Net Perceptions interest dimension name and interest
  rating strategy.
  Call task REMOVE_PROD_RATINGS with parameters
    product list
    NetPerception dimension and rating strategies
  If TASK returns 'pers_error' Then return pers_error
  Else if task returns 'pers_disabled' Then returns
pers_disabled
  Else redirect url to return success;
If Net.Commerce is not enabled for personalization
  Then return pers_disabled
```

Exception Condition

None

7.5.2. GL_REMOVE_PROD_RATINGS Task

Calling Command: `RemoveProdRatings`

Expected Behavior: Removes ratings for the given product from the personalization engine.

Explicit Input Parameters:

- `MERCHANT_REF_NUM` - Merchant reference number
- `PRODUCT_REF_NUM_LIST` - Product reference number list
- `RECOMMENDATION_STATUS` - Available
- `LIKERT_DIMENSION_NAME` - Personalization Likert dimension name
- `INTEREST_DIMENSION_NAME` - Personalization Interest dimension name
- `PERS_RESULT_CODE` - Set to 0 to initialize the task

Explicit Output Parameters:

- `PERS_RESULT_CODE` - Return code

Expected Return Codes: Return true

Default Overridable Function: `GL_RemoveProdRatings`

7.5.3. GL_RemoveProdRatings Overridable Function

Designed to be called by: The `REMOVE_PROD_RATINGS` process task.

Behavior: Removes product ratings from the recommendation engine.

Pseudo Code:

```
handle = NetPerception::Bind(NP_Root, NP_Host)
If handle returns Error then return pers_disabled

set NetPerception ratee to product reference number
set NetPerception subject container dimension to Likert Dimension
Call NetPerceptionsI::ContainerDimension_var(likert
    dimension)::remove_rating(ratee)
set NetPerception subject container dimension to Interest Dimension
Call NetPerceptionsI::ContainerDimension_var(Interest
    dimension)::remove_rating(ratee)
return
```

7.5.4. Remove Ratings Macro

The link to remove product ratings displays after you successfully delete a product from Net.Commerce. Net.Commerce only allows store managers to delete products. Product deletion is available from the store manager administrative macros. The macro invoked is `storemgr/s_prdd.d2w`. When a product is successfully deleted, the macro displays a link to the store manager to remove ratings from the recommendation engine. By selecting the link, they invoke the `RemoveProdRatings` command. The macro displays the results from the command. If the return code from `RemoveProdRatings` is `pers_disabled` then the macro displays text to

indicate that personalization is disabled and that the store administrator should manually clean up the Net Perceptions database.

7.5.5. Customization

You may customize the remove product ratings feature through the following command, OFs, and tasks:

Command

- The `RemoveProdRatings` command identifies the personalization engine dimension to be used by the `GL_RemoveProdRatings` OF through the `LIKERT_DIMENSION_NAME` parameter. Modify this parameter in the command URL to control the dimension used to retrieve rated products.
- This command can also be invoked as a database trigger on product deletion.

Overridable Functions and Tasks

- Configure the `GL_RemoveProdRatings` OF to use dimension and rating strategies other than those provided in this implementation. The dimension and rating strategy names are passed in as input parameters to the OF.
- Write your own OF for the profiling tasks, instead of using the supplied default Net Perceptions implementation.

7.6. Recommend Products

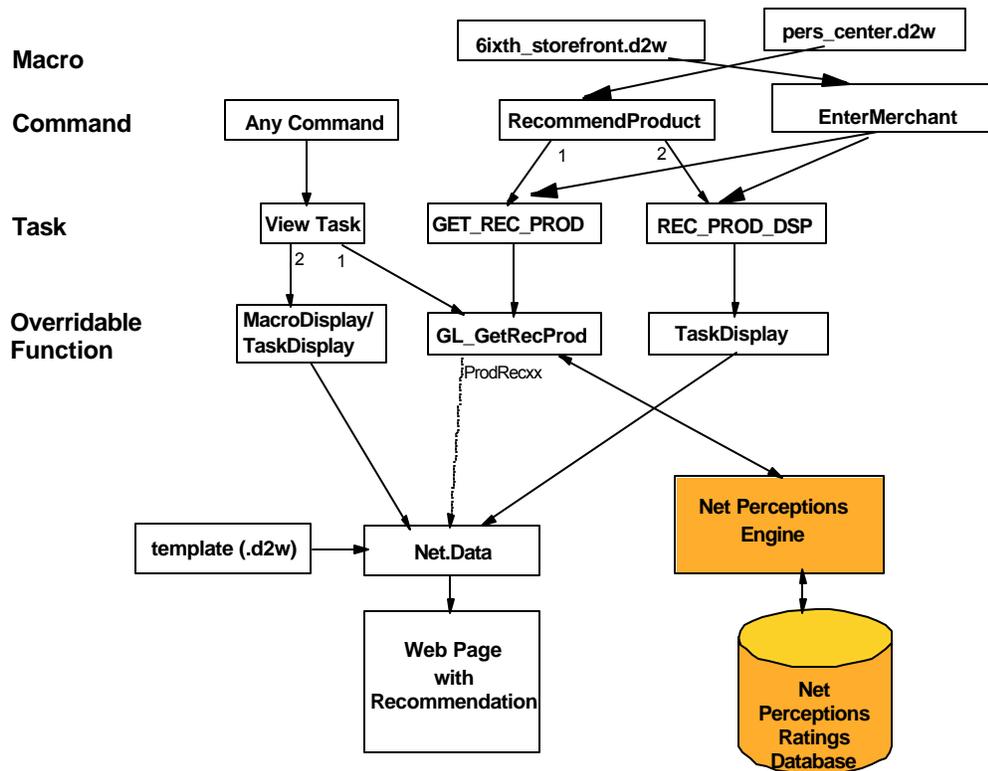
This integration used the `RecommendProduct` command to retrieve and display product recommendations. Links to view recommendations are available from the navigation bar and from the store home page.

The following command, task, and OF generate product recommendations:

- `RecommendProduct` command
- `EnterMerchant` command
- `PersonalizationCenter` command
- `GET_REC_PROD` process task
- `GL_GetRecProd` OF

In the following figure, the RecommendProduct command gets a recommendation from the GET_REC_PROD task and displays the recommendation with the REC_PROD_DSP task.

Figure 7: Recommend Products



7.6.1. RecommendProduct Command

The RecommendProduct command allows shoppers to view both implicitly and explicitly recommended products, and to explicitly rate products that have not yet been rated.

Parameter Values

- merchant_rn
Merchant reference number.
- from_rank
The ranking where recommendation starts, default = 1 or setting in configuration.
- to_rank
The ranking where recommendation stops, default = 10 or setting in configuration.
- url
Return URL to display the appropriate Web page with recommendation based on the Net.Data macro template.
- product_ref_num_list
List of recommended products.
- rate_result
Return code for the product recommendation.

Behavior

- Gets recommendation (invokes the GET_REC_PROD task)
- Displays recommendation (invokes the REC_PROD_DSP task)

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
Define Net Perceptions likert dimension name and likert rating
strategy.
Define Net Perceptions interest dimension name and interest
rating strategy.
// Retrieve a list of recommendations (unique list of
products)
Call task GET_REC_PROD with parameters
    shopper reference number
    list of product reference number
    NetPerception likert and interest dimension names
    NetPerception likert and interest rating strategy
names
If TASK returns 'pers_error'
    Then load page 'pers_errors.htm'
Else if task returns 'pers_disabled'
    Then load page 'pers_na.htm'
    Else redirect url to return success;
If Net.Commerce is not enabled for personalization
    Then load page "pers_na.htm"
    return
```

Exception Condition

None

7.6.2. EnterMerchant Command

The `EnterMerchant` command replaces the catalog home page as the primary entry point to the store. This command uses the `sixth_Avenue.d2w` macro to display the catalog home page and present dynamic product recommendations.

Parameter Values

- `merchant_rn`
Merchant reference number.
- `url`
Web page displaying the most recommended product on the `Net.Data` macro template.

Behavior

- Gets recommendation (invokes the `GET_REC_PROD` task)
- Displays recommendation (invokes the `REC_PROD_DSP` task)

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
  Define Net Perceptions likert dimension name and likert rating
strategy.
  Define Net Perceptions interest dimension name and interest
rating strategy.
  // Retrieve a list of recommendations (unique list of
products)
  Call task GET_REC_PROD with parameters
    shopper reference number
    list of product reference number
    NetPerception likert and interest dimension names
    NetPerception likert and interest rating strategy
name
  If TASK returns 'pers_error'
    Then load page 'pers_errors.htm'
  Else if task returns 'pers_disabled'
    Then load page 'pers_na.htm'
  Else redirect url to return most recommended product;
If Net.Commerce is not enabled for personalization
  Then load page "pers_na.htm"
  return
```

Exception Condition

None

7.6.3. PersonalizationCenter Command

The `PersonalizationCenter` command allows shoppers to view a list of products that are recommended by implicit and explicit ratings, and to explicitly rate products that have been purchased by the shopper but not yet explicitly rated.

Parameter Values

- merchant_rn
Merchant reference number.
- shopper_rn
Shopper reference number.
- perscenter_result
Return code for the product recommendation.
- url
Web page displaying the most recommended product on the Net.Data macro template.

Behavior

- Gets unrated products (invokes the SELECT_UNRATED_PRODUCTS task)
- Gets recommended products (invokes the GL_GET_REC_PROD task)

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
    Define Net Perceptions likert dimension name and likert rating
strategy.
    Define Net Perceptions interest dimension name and interest
rating strategy.
    Retrieve a list of products purchased by the current shopper
// Retrieve a list of products not rated by the shopper
Call task PROFILE_SELECT_UNRATED_PROD with parameters
    shopper reference number
    list of product reference number purchased by the
product
    NetPerception likert dimension names
// Retrieve a list of recommendations (unique list of
products)
Call task GET_REC_PROD with parameters
    shopper reference number
    list of product reference number
    NetPerception likert and interest dimension names
    NetPerception likert and interest rating strategy
names
    If TASK returns 'pers_error'
        Then load page 'pers_errors.htm'
    Else if task returns 'pers_disabled'
        Then load page 'pers_na.htm'
    Else redirect url to return success;
If Net.Commerce is not enabled for personalization
    Then load page "pers_na.htm"
    return
```

Exception Condition

None

7.6.4. GET_REC_PROD Recommendation Task

Calling Command: RecommendProduct

Expected Behavior: Gets a number of recommended products for a shopper from the recommendation engine.

Explicit Input Parameters:

- SESSION_ID - Current shopper
- MERCHANT_REF_NUM - The merchant that sells the products
- FROM_RANK - The rank where recommendation starts, default = 1 or setting in configuration
- TO_RANK - The rank where recommendation stops, default = 10 or setting in configuration
- PRODUCT_REF_NUM_LIST - List of recommended products
- LIKERT_DIMENSION_NAME - The personalization Likert dimension name
- INTEREST_DIMENSION_NAME - The personalization Interest dimension name
- LIKERT_STRATEGY - The personalization Likert prediction rating strategy name
- INTEREST_STRATEGY - The personalization Interest prediction rating strategy name
- URL - Return URL to display the appropriate Web page
- PERS_RESULT_CODE - Set to 0 to initialize task

Explicit Output Parameters:

- PRODUCT_REF_NUM_LIST - Product reference numbers recommended by the recommendation engine
- MERCHANT_RN - Merchant reference number
- PERS_RESULT_CODE - Rating result

Expected Return Codes: Return true.

Default Overridable Function: GL_GetRecProd

7.6.5. REC_PROD_DSP Recommendation Task

Calling Command: RecommendProduct

Expected Behavior: Displays the recommendation page.

Explicit Input Parameters:

- MERCHANT_REF_NUM - The merchant that sells the products
- PERS_RESULT_CODE - Set to 0 to initialize the task

Explicit Output Parameters:

- STR_RECOMMENDED_PRODUCTS_MACRO_NAME - Recommendation page
- PERS_RESULT_CODE - Return code

Expected Return Codes: Return false.

Default Overridable Function: TaskDisplay

7.6.6. GL_GetRecProd Overridable Function

Designed to be called by: The GET_REC_PROD process task.

Behavior: Returns recommendations given by the personalization engine.

Pseudo Code:

```
handle = NetPerception::Bind(NP_Root, NP_Host)

set NetPerception subject to shopper reference number
Call NetPerceptionsI::RatingStrategy_var(likert rating
    strategy)::get_recommendation(rater,ratee, rating value, Current
    timestamp) to get recommendation
set NetPerception subject to shopper reference number
Call NetPerceptionsI::RatingStrategy_var(interest rating
    strategy)::get_recommendation(rater,ratee, rating value, Current
    timestamp) to get recommendation
Merge the recommendations from Likert dimension and Interest dimensions
Net Perception:: release(ORB pointer);

if any of above failed,
    log error messages
return true
```

7.6.7. Display Recommendation Macros

The link to view recommendations is available from the navigation bar. In addition, the most frequent recommendation is displayed on the store home page. There are two macros from where the RecommendProduct command is invoked:

- pers_center.d2w
- 6ixth_storefront.d2w

The pers_center.d2w macro receives the list of products as in the following example for a single product:

```
product_rn1=x&product_rn2=y
```

Recommended product reference numbers are linked up with the Net.Data macro through the following set of predefined variable names:

- ProdRec1
- ProdRec2
- ProdRec3
-
- ProdRec99

The `pers_center.d2w` default macro defines product reference numbers 1 to 10. To parse more products, you must define more variable names. The `sixth_storefront.d2w` macro only displays the first product received.

7.6.8. Customization

You may customize the recommendation feature through the following commands, OFs, tasks, and macros:

Commands

- The `RecommendProduct` command specifies personalization dimensions and rating strategy names to be used by the `GL_GetRecProd` OF through the `LIKERT_DIMENSION_NAME` parameter. Modify this parameter in the command URL to control the dimension used to retrieve rated products.
- Currently, the `RecommendProduct` command shows recommendations along with a list of unrated products. If this is not desired, you may split the functionality of the command into two separate commands.
- The `RecommendProduct` command is not context-sensitive. You may easily modify the navigation bar HTML to provide context. For example, if the recommendation link is selected from a product display page, you may want to display only recommendations relevant to the current product.

Overridable Functions and Tasks

- Configure the `GL_GetRecProd` OF to use dimension and rating strategies other than those provided in the implementation. The dimension and rating strategy names are passed in as input parameters to the OF.
- The `GL_GetRecProd` OF returns recommendations as given by Net Perceptions. Modify the OF to constrain the products shown. For example, if the OF knows that the recommendation link was selected from the product display page for product `x`, then the OF may use Net Perceptions cross-sell information to show recommendations from the cross-sell database only. To learn how to obtain cross-sell information, see the OF and commands written to display the cross-sell function in section 7.7, “Cross-sell Products.”
- Write your own OF for the profiling tasks, instead of using the supplied default Net Perceptions implementation.

Macros

- The `pers_center.d2w` macro may be modified to display more than ten recommendations. The product display restriction is due to limitations in `Net.Data`. The macro hard codes the variables for each input parameter. There is no easy way in `Net.Data` to parse for parameters with syntax `product_rn<x>`, where `x` is a variable. To parse the list of products, try using JavaScript.

7.7. Cross-sell Products

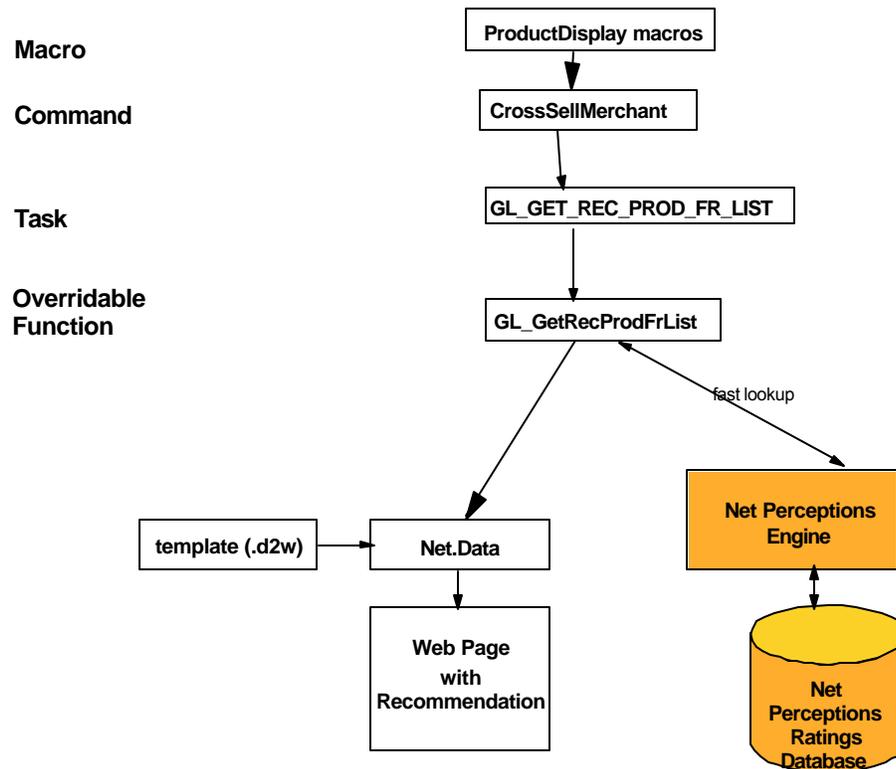
This integration defines the `CrossSellMerchant` command to retrieve and display products for cross-selling to shoppers. Links to view cross-sell products are available from the product display page.

The following command, task, and OF display cross-sell products:

- `CrossSellMerchant` command
- `GL_GET_REC_PROD_FR_LIST` task
- `GLGetRecProdFrList` OF

In the following figure, the `CrossSellMerchant` command gets products related to the shopper's selected product from the `GET_REC_PROD_FR_LIST` task.

Figure 8: Cross-sell Products



7.7.1. CrossSellMerchant Command

The CrossSellMerchant command allows shoppers to view products that merchants have pre-selected as related to the current product.

Parameter Values

- merchant_rn
Merchant reference number.
- subject_rn
Current product reference number.
- cross_sell_result
Related product reference number(s).
- url
Return URL to display the appropriate Web page with products related to the current product.

Behavior

- Gets related products (invokes the GET_REC_PROD_FR_LIST task)

Pseudo Code

```
Verify if Net.Commerce is enabled for personalization
Define Net Perceptions fast lookup dimension name and rating
strategy.
Retrieve a list of products purchased by the current shopper
Call task GET_REC_PROD_FR_LIST with parameters
    product reference number
    NetPerception fast lookup dimension names
    NetPerception fast lookup rating strategy names
If TASK returns 'pers_error'
    Then load page 'pers_errors.htm'
Else if task returns 'pers_disabled'
    Then load page 'pers_na.htm'
Else redirect url to return success;
If Net.Commerce is not enabled for personalization
    Then load page "pers_na.htm"
    return
```

Exception Condition

None

7.7.2. GET_REC_PROD_FR_LIST Cross-sell Task

Calling Commands: CrossSellMerchant

Expected Behavior: Gets products related to the current product from a recommendation engine.

Explicit Input Parameters:

- SUBJECT_RN - Current product reference number
- MERCHANT_REF_NUM - The merchant that sells the products

- `PRODUCT_REF_NUM_LIST` - Product reference numbers recommended by the recommendation engine
- `FAST_LOOKUP_DIMENSION_NAME` - Personalization FastLookUp Likert dimension name
- `FAST_LOOKUP_STRATEGY` - Personalization FastLookUp Interest dimension name
- `PERS_RESULT_CODE` - Set to 0 to initialize task

Explicit Output Parameters:

- `PRODUCT_REF_NUM_1` - Related product reference numbers
- `PERS_RESULT_CODE` - Return code

Expected Return Code: Return true.

Default Overridable Function: `GL_GetRecProdFrList`

7.7.3. `GL_GetRecProdFrList` Overridable Function

Designed to be called by: The `GL_GET_REC_PROD_FR_LIST` process task.

Behavior: Returns the list of products for cross-sell.

Pseudo Code:

```
handle = NetPerception::Bind(NP_Root, NP_Host)

set NetPerception subject to product reference number
Call NetPerceptionsI::RatingStrategy_var(fast lookup rating
strategy)::get_rating(rater,ratee, rating, timestamp)
Net Perception:: release(ORB pointer);
if any of above failed,
    log error messages
return true
```

7.7.4. Macros

The link for cross-selling products is available from the product display page. Sixth Avenue uses different product display macros for each type of product category. Currently, only the 360 degree fashion categories product display macro is customized. The customized macro is `macro/en_US/demomall/product/tempclot.d2w`.

7.7.5. Customization

You may customize the cross-sell feature through the following commands, OFs, and tasks:

Commands

- The `CrossSellMerchant` command specifies personalization engine dimensions and rating strategy names to be used by `GL_GetRecProdFrList` through the `LIKERT_DIMENSION_NAME` parameter. Modify this parameter in the command URL to control the dimension used to retrieve products.

Overridable Functions and Tasks

- Write your own OF for the profiling tasks, instead of using the supplied default Net Perceptions implementation.

8. Appendix B: Notices and Trademarks

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