

**QuoteAdvantage  
for Microsoft CRM  
User's Guide**

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# CHAPTER 1

# Introduction

## Welcome to QuoteAdvantage for Microsoft CRM

QuoteAdvantage provides valuable enterprise-class extensions to Microsoft CRM's product quoting system. The software is designed to assist businesses with complex pricing and quoting needs. QuoteAdvantage protects a business from losing revenue from quotes that are incomplete or contain inaccurate pricing. Quoting errors can lead to lost sales, unprofitable sales, and low customer satisfaction ratings if there are problems handling orders that were incorrectly specified. QuoteAdvantage is designed to help sales professionals create error free orders using Microsoft CRM.

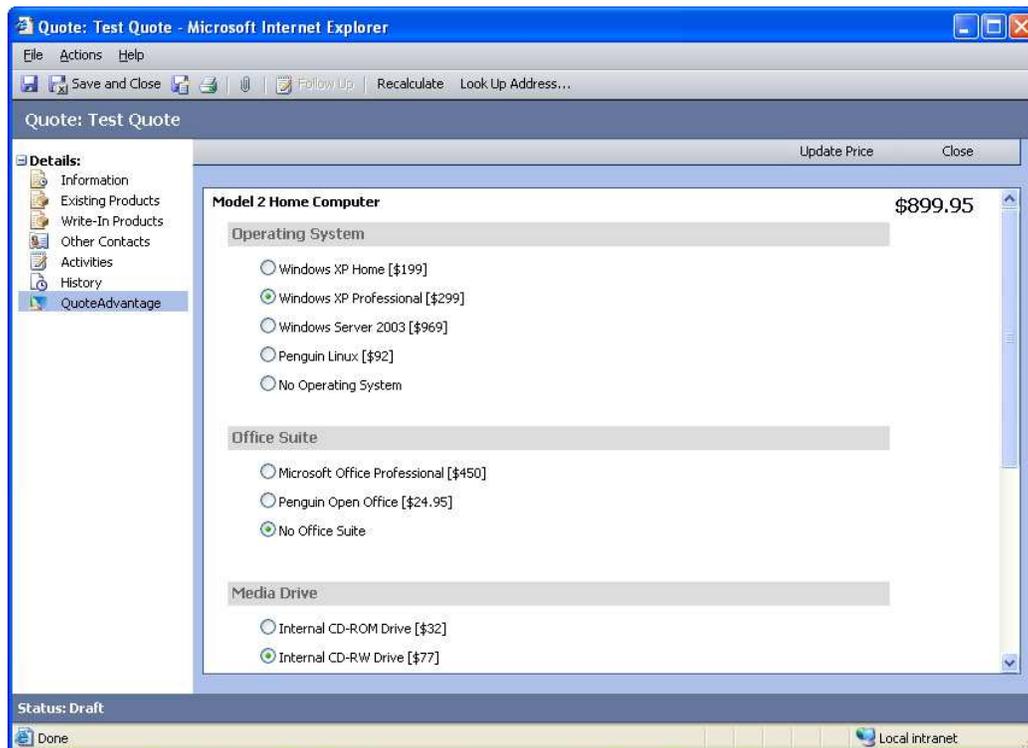
QuoteAdvantage enhances quoting in Microsoft CRM in eight important ways:

### 1. Solid Integration with Microsoft CRM

QuoteAdvantage is closely coupled with Microsoft CRM. The user interface will be immediately familiar to new users that are comfortable with Microsoft CRM. From its initial conception, QuoteAdvantage was created with Microsoft .NET and XML technology so that it would be a seamless extension to Microsoft CRM.

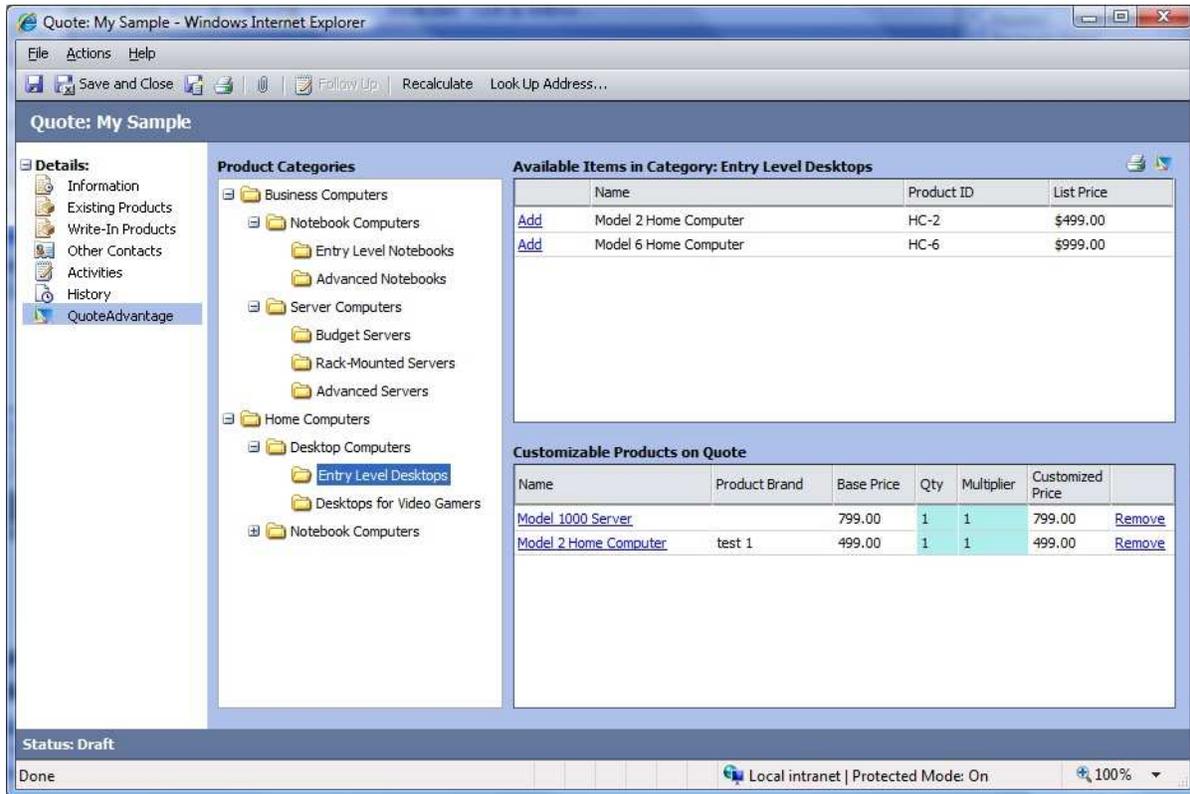
### 2. Fast Price Quotes

QuoteAdvantage makes it easy to add complex groups of related products to a quote with just a few clicks. This is a major advance beyond the standard quote creation user interface that is included with Microsoft CRM. The software will allow sales professionals to quickly and accurately build quotes for sophisticated product lines.



### 3. Easy Access to the Product Catalog

QuoteAdvantage groups large product catalogs into logical categories for easy navigation. This allows you to browse through the catalog instead of having to use a cumbersome search interface or remember complex part numbers. QuoteAdvantage allows you to arrange your products in Microsoft CRM the same way that your traditional product catalog is organized.



### 4. Pricing for Product Add-Ons

Products with add-ons and optional enhancements can be priced quickly and accurately. QuoteAdvantage introduces the concept of closely linking add-ons to the parent product that they are enhancing. This makes it possible to easily manage a quote with a large number of items. Customizations are represented as child products that are clearly associated with their parent product.

### 5. Upselling

QuoteAdvantage encourages upselling by automatically suggesting appropriate add-ons. This feature ensures that your sales professionals are always well informed about additional products and upgrades that may be of interest to your customers.

## 6. Error-Free Price Quotes

Complex rules for building quotes are automatically enforced. Configuration requirements allow you to define mandatory rules that define which items can and cannot be sold together. QuoteAdvantage ensures that your quotes are complete and valid. Producing error free quotes is the first step toward creating error free orders.

## 7. Intuitive Customization

Changes to the quoting system are easy to make. Complex product relationships can be expressed through simple rule definitions. As your product catalog changes and evolves over time, QuoteAdvantage can be quickly adapted to handle new requirements.

## 8. Powerful Authoring Tools

The QuoteAdvantage Editor provides an easy to use, graphical utility to create all necessary QuoteAdvantage data. You can quickly lay out your product catalog's hierarchy and then easily define the relationships between your parent and child products. Finally, you can apply the necessary configuration rules to your product – all by using the Editor's straightforward point and click interface.

## Error Free Orders

When you add QuoteAdvantage to your Microsoft CRM server, your sales professionals will be empowered to quickly build accurate quotes that contain large numbers of line items. Business and engineering rules for pricing and implementation are automatically enforced. QuoteAdvantage encourages upselling in order to maximize opportunities for sales professionals. QuoteAdvantage is designed to improve your company's revenue by allowing your salesforce to deliver error free orders.

## CHAPTER 2

# Licensing

### Open Source Licensing

QuoteAdvantage is an open source application that is released under the terms of the Microsoft Public License. Licensees are free to view, modify, and redistribute the source code for either commercial or non-commercial purposes. Please refer to the next section for precise details about the licensing terms.

For further information about the software, please refer to the QuoteAdvantage website at [www.errorfreeorders.com](http://www.errorfreeorders.com) and the development project for QuoteAdvantage at: [www.codeplex.com](http://www.codeplex.com)

### Licensing Terms

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## CHAPTER 3

# Overview

This guide will introduce you to the basics of using QuoteAdvantage to enhance the effectiveness of your organization's ability to offer fast and accurate pricing to your customers. Before beginning, confirm that the product has been properly integrated with your Microsoft CRM server by following the steps that are outlined in the Installation Guide. The Installation Guide explains the entire process for getting QuoteAdvantage up and running as quickly as possible.

## Getting Started

We recommend that you adopt the QuoteAdvantage system in an incremental fashion. This guide will introduce the features of the product one by one. It's easy to adopt the more basic features at the beginning and to try them out in the context of your business model. More complex functionality can be activated as you become more comfortable with the architecture of the quoting system.

QuoteAdvantage's functionality is broken down into three sets of features that can be adopted one by one in the following order:

### 1. Product Categories

Product categories organize the most commonly quoted items in your product catalog into logical groups. This makes it easy to quickly find the appropriate items that you need to add to a quote in Microsoft CRM. Product categories provide a fast and easy-to-use alternative to searching for each product by name or part number. Using product categories, you can adjust Microsoft CRM to exactly match the layout of your company's product catalog.

### 2. Parent and Child Products

Establishing a relationship between "parent products" and "child products" will allow you to associate appropriate add-ons with the customizable products in your catalog. By taking advantage of this feature, you will be able to rapidly build price quotes that contain products and precise lists of any necessary add-ons and enhancements. This feature is valuable for building price quotes for complex products that have a wide range of possible customizations. Common examples of this type of product include: computers, cars, communication services, insurance policies, furniture, telephone equipment, etc.

### 3. Configuration Rules

Configuration rules make it possible to enforce relationships between add-ons that are used to customize a product. This allows you to easily handle situations where one item requires another item or where an item is not compatible with a certain product. Configuration rules provide a way to manage the complexity of a difficult price quote.

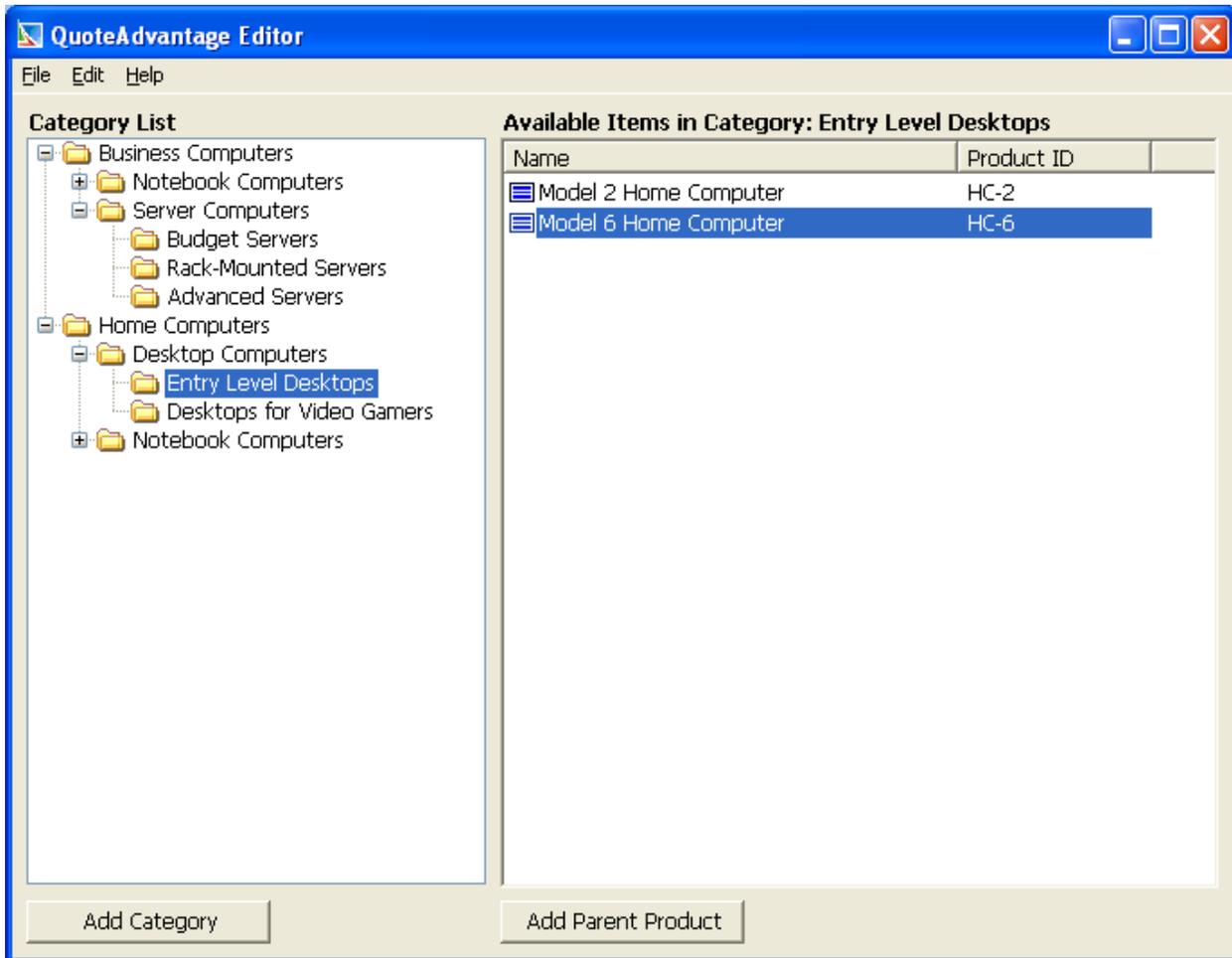
Each of these three groups of features builds upon the concepts from the previous step. By implementing each concept incrementally, you will be able to quickly recognize the maximum benefit of QuoteAdvantage.

## QuoteAdvantage Editor

The QuoteAdvantage Editor is a stand-alone Windows desktop application that provides a facility for customizing how product catalog information is displayed inside of QuoteAdvantage. The editor application is installed at the following location:

\Program Files\QuoteAdvantage\QuoteAdvantageEditor.exe

The QuoteAdvantage Editor can be started by clicking Start – All Programs – QuoteAdvantage – QuoteAdvantage Editor. Optionally, a second installer is available for deploying the editor onto a separate system that can connect to the Microsoft CRM server remotely.



## Documentation and Samples

The documentation for QuoteAdvantage is installed to the following location:

\Program Files\QuoteAdvantage

In this directory, you will find the following items:

Installation Guide – Instructions for system administrators that are deploying the product

User Guide – Guidelines for customizing the system to meet specific business needs

Sample Data – This folder contains several different samples that are referenced by the Installation Guide and the User Guide. Please refer to this folder if you need additional information about the concepts that are discussed in this manual.

## **Microsoft CRM Web Application Folder**

In order to customize QuoteAdvantage, you will need access to the file system on your Microsoft CRM server. Generally, this requires administrative privileges for the web server.

The location of the Microsoft CRM web application will vary depending upon the edition of Microsoft CRM that you are using and how your deployment was customized. Typical locations for the Microsoft CRM web application folder are as follows:

Microsoft CRM Professional: C:\inetpub\wwwroot\

Microsoft CRM Small Business Edition: C:\Program Files\Microsoft CRM\CRMWeb\

Please identify the correct location of this folder on your server before customizing QuoteAdvantage. If necessary, inspect the IIS configuration to determine where Microsoft CRM was deployed.

## **QuoteAdvantage Web Application Folder**

QuoteAdvantage will automatically deploy its web application files into a folder that is located beneath the Microsoft CRM web application folder. Typical locations for the QuoteAdvantage web application folder are:

Microsoft CRM Professional: C:\inetpub\wwwroot\QuoteAdvantageWeb

Microsoft CRM Small Business Edition: C:\Program Files\Microsoft CRM\CRMWeb\QuoteAdvantageWeb

The location of this folder is based on where Microsoft CRM is deployed, and is not adjustable.

In order to customize QuoteAdvantage, you must have access to the QuoteAdvantageWeb folder. If your company's security policy prevents you from having access to this directory, then you will need to create a separate Microsoft CRM test environment where you can customize QuoteAdvantage before deploying to your production server.

## **Compatibility**

QuoteAdvantage is designed for use with Microsoft Dynamics CRM version 4.0 or 3.0. It is compatible with both the Professional version and the Small Business Edition of Microsoft CRM.

QuoteAdvantage is compatible with the Microsoft CRM web client and the connected Microsoft Outlook client. The disconnected Outlook client is not supported. In order to access QuoteAdvantage from Microsoft Outlook, you must be connected to the network.

## **International Support**

QuoteAdvantage is designed to support Internet Explorer clients that are in either English or Spanish. If a client computer with Spanish locale settings connects to QuoteAdvantage, then the user interface will automatically switch to display in Spanish. English and Spanish clients can be connected to the server simultaneously.

Please contact us if your business requires localization support for other languages. Callisto Systems may be able to assist you with creating a new language translation layer for your deployment.

# Getting Started

## Overview

QuoteAdvantage is designed to make quote creation quick and efficient by separating the quote building process into four phases:

1. Select parent products
2. Select child products
3. Adjust quantity and apply discounts
4. Generate proposal

The following sections will provide a brief overview of each of these steps.

## Parent and Child Products

A “Parent Product” is the basic type of product that a company sells, such as a car or a computer. Parent products are usually accompanied by “Child Products” that are added to enhance an item’s value. A good example of this would be a car that has optional alloy wheels and an extended warranty. The car is represented as a parent product. The wheels and warranty are child products that are added to the car. QuoteAdvantage uses this concept of parent and child products to associate related items with one another.

## Product Catalog and Pricing

QuoteAdvantage derives all product entries and pricing from the Microsoft CRM Product Catalog. QuoteAdvantage does not have a separate product database. All information is pulled directly from Microsoft CRM. QuoteAdvantage loads pricing information directly from price lists as they are defined in the Microsoft CRM Product Catalog.

Currency types are loaded from Microsoft CRM’s system settings. In general, pricing information in QuoteAdvantage will be exactly like Microsoft CRM.

Changes that are made to a quote with QuoteAdvantage will be reflected immediately in Microsoft CRM. Since the database is the same, there is no need to migrate data back and forth between Microsoft CRM and QuoteAdvantage.

## Select Parent Products

After you create a quote in Microsoft CRM, you can switch to QuoteAdvantage by pressing the QuoteAdvantage tab at the lower left corner of the navigation list for the quote. The QuoteAdvantage window will be displayed within Microsoft CRM (a separate application is not launched). Use the tree list at the left to navigate through the categories that have been defined for your Product Catalog.

The screenshot shows the QuoteAdvantage interface within a Microsoft Internet Explorer browser window titled "Quote: My Sample". The interface is organized into several panels:

- Details:** A sidebar on the left with a tree view containing: Information, Existing Products, Write-In Products, Other Contacts, Activities, History, and QuoteAdvantage (selected).
- Product Categories:** A tree view in the middle-left showing a hierarchy of computer categories: Business Computers, Notebook Computers, Entry Level Notebooks, Advanced Notebooks, Server Computers, Budget Servers, Rack-Mounted Servers, Advanced Servers, Home Computers, Desktop Computers, Entry Level Desktops (selected), Desktops for Video Gamers, and Notebook Computers.
- Available Items in Category: Entry Level Desktops:** A table in the middle-right showing items available for selection.
 

	Name	Product ID	List Price
<a href="#">Add</a>	Model 2 Home Computer	HC-2	\$499.00
<a href="#">Add</a>	Model 6 Home Computer	HC-6	\$999.00
- Customizable Products on Quote:** A table in the bottom-right showing items already added to the quote.
 

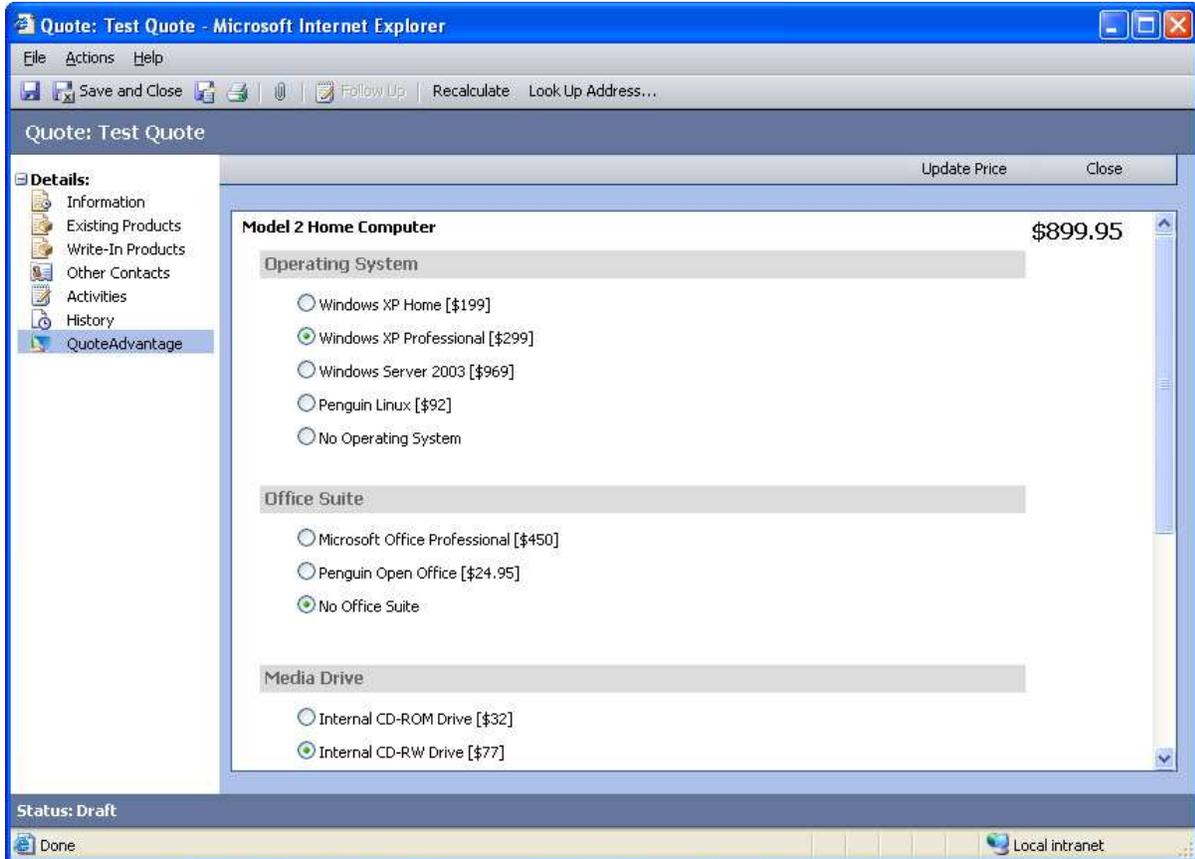
Name	Product Brand	Base Price	Qty	Multiplier	Customized Price	
<a href="#">Model 1000 Server</a>		799.00	1	1	799.00	<a href="#">Remove</a>

At the bottom of the window, the status is "Draft" and the browser address bar shows "Local intranet | Protected Mode: On" with a zoom level of 100%.

When a category is selected, the Available Items list at the upper right will automatically refresh to display the items in the category. Click one of the "Add" commands in this list to add the item to your quote. After an item has been added to the quote, it will appear in the Customizable Products list at the lower right. Each of these items is typically a parent product that can be customized by adding child products. You can remove a parent product by clicking the "Remove" link at the right edge of the lower list.

## Select Child Products

After you have added one or more parent products to your quote, you can customize them by clicking the name of a parent product in the Customizable Products list at the lower right. When you click one of these links the child products screen will be displayed.



Next, navigate through the list of available child products and select one item from each category. When you are finished, press the Update Price button to see the price of the parent item with each of the child items included. If there is a configuration issue, you will be warned and you might have to adjust your selections to resolve the problem. When you are finished, press the "Close" button at the upper right to return to the parent product screen. Complete the creation of the quote by repeating this process for each parent product.

## Adjust Quantity and Apply Discounts

The quantity for parent products can be adjusted by changing the appropriate value that is displayed in the “Qty” column at the lower right. You can change the quantity by double-clicking the entry in this column and typing a new number. A change in the quantity of a parent product will be applied uniformly to all of the child products. Child product quantities cannot be adjusted individually because this might lead to a violation of the product configuration rules.

The pricing for parent products can be discounted by adjusting the value in the Multiplier column. The multiplier is applied as a percentage of the total cost of a parent product with its children. You can use this multiplier value to either raise or lower the price of an item.

The standard multiplier is 1 (for no price adjustment). As an example, you could set the multiplier to 0.8 to change the price to 80% of its normal value. This will apply a 20% discount. Alternatively, you could adjust the multiplier to 1.2 to raise the price by 20%.

Adjustments to prices using the multiplier field are visible in Microsoft CRM’s “Existing Products” quote screen as a manual discount. In Microsoft CRM, discounts are based on fixed prices. QuoteAdvantage provides a mechanism for creating fixed price discounts using percentages instead of absolute numbers.

The screenshot displays the Microsoft CRM QuoteAdvantage interface within a Windows Internet Explorer browser window. The window title is "Quote: My Sample - Windows Internet Explorer". The interface includes a menu bar (File, Actions, Help) and a toolbar with buttons for Save and Close, FollowUp, Recalculate, and Look Up Address... The main content area is titled "Quote: My Sample" and is divided into several sections:

- Details:** A sidebar menu with options like Information, Existing Products, Write-In Products, Other Contacts, Activities, History, and QuoteAdvantage (selected).
- Product Categories:** A tree view showing categories such as Business Computers, Notebook Computers, Server Computers, Budget Servers, Rack-Mounted Servers, Advanced Servers, Home Computers, Desktop Computers, Entry Level Desktops, Desktops for Video Gamers, and Notebook Computers.
- Available Items in Category: Budget Servers:** A table listing items with columns for Name, Product ID, and List Price.
 

Name	Product ID	List Price
<a href="#">Add</a> Model 1000 Server	SC-1000	\$799.00
<a href="#">Add</a> Model 2000 Server	SC-2000	\$899.00
- Customizable Products on Quote:** A table listing products with columns for Name, Product Brand, Base Price, Qty, Multiplier, Customized Price, and a Remove button.
 

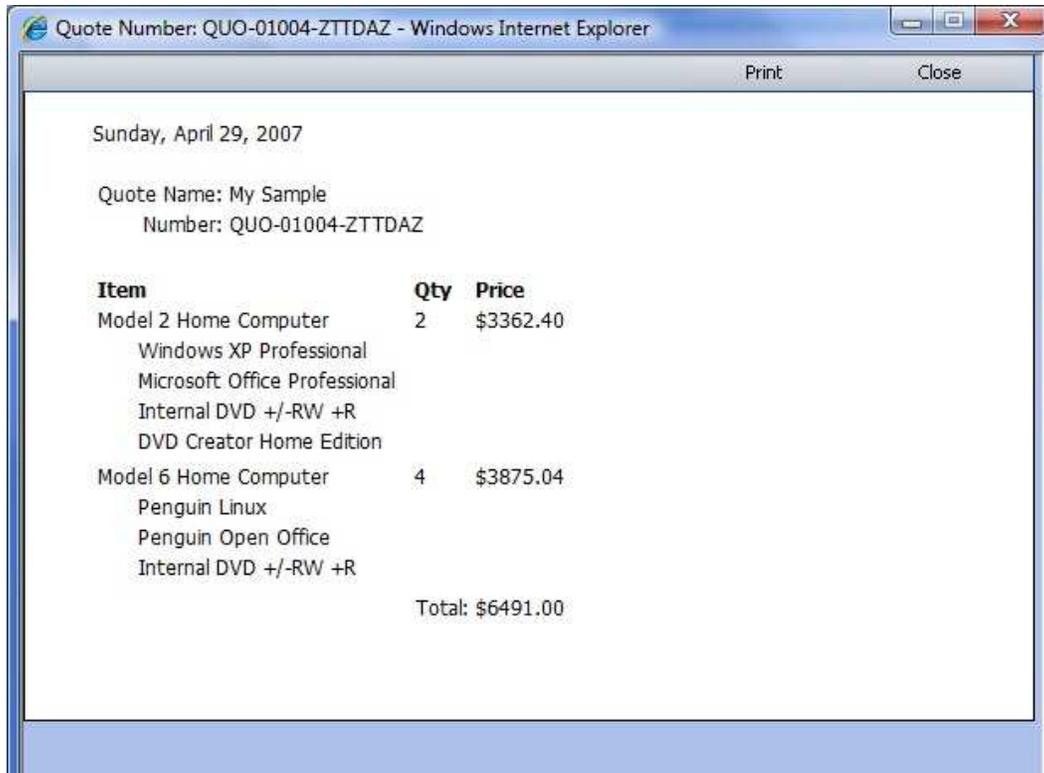
Name	Product Brand	Base Price	Qty	Multiplier	Customized Price	
<a href="#">Model 2 Home Computer</a>	test 1	499.00	2	1.2	3362.40	<a href="#">Remove</a>
<a href="#">Model 6 Home Computer</a>		999.00	4	0.8	3875.04	<a href="#">Remove</a>

The status bar at the bottom indicates "Status: Draft" and "Done". The system tray shows "Local intranet | Protected Mode: On" and a zoom level of "100%".

## Generate Proposal

Basic proposal generation is available by clicking the Printer icon at the upper right corner of the QuoteAdvantage window. When you press this button, a printer friendly version of the quote will be displayed with child items indented underneath of their corresponding parent item.

You can print the contents of the proposal window by clicking the Print command at the upper right. Alternately, you can select the text of the quote and then copy and paste it into another document. This can be a good way to insert pricing information into a predefined proposal template in Microsoft Word.



Sunday, April 29, 2007

Quote Name: My Sample  
Number: QUO-01004-ZTTDAZ

Item	Qty	Price
Model 2 Home Computer	2	\$3362.40
Windows XP Professional		
Microsoft Office Professional		
Internal DVD +/-RW +R		
DVD Creator Home Edition		
Model 6 Home Computer	4	\$3875.04
Penguin Linux		
Penguin Open Office		
Internal DVD +/-RW +R		
		Total: \$6491.00

## Marketing Encyclopedia

If a value is supplied for the “Product URL” field in the Microsoft CRM product catalog, then a question mark icon will be displayed next to the child product on the configurator screen. If the user clicks the question mark, then a second window will be opened to display the product URL location. This makes it easy to add context sensitive information about the product choices that are presented to the user. For complex configuration scenarios this can provide additional guidance to the sales person that is building the quote.

## Conclusion

This completes the introduction to the basic features of QuoteAdvantage. The remaining chapters of the User’s Guide provide a detailed explanation of how to customize the system using the QuoteAdvantage Editor. Each chapter provides an incremental step for using additional functionality in the system. We recommend experimenting with the concepts in each chapter using actual items from your company’s product catalog.

# Product Categories

## Overview

QuoteAdvantage streamlines building quotes with Microsoft CRM by separating the items in your product catalog into manageable groups. Products are organized in two ways. First, the parent products are separated from the child products. Next, each item is placed in an appropriate category with other similar items.

## Parent and Child Products

A “parent product” is the basic type of product that a company sells, such as a car or a computer. Parent products are usually accompanied by “child products” that are added to enhance an item’s value. A good example of this would be a car that has optional alloy wheels and an extended warranty. The car is represented as a parent product. The wheels and warranty are child products that are added to the car.

QuoteAdvantage groups your parent products into one set of categories and your child products into a second set of categories. When you build a quote, first you will select a specific parent product from the list of available parent products that your company sells. This list of parent products is organized into categories so that it will be easier to find the specific item that you are looking for. Once you have chosen a parent product, you can customize it by adding child products to it.

## Design the Category List

The first step for adopting QuoteAdvantage is to organize the parent products in your Microsoft CRM product catalog into categories. Categories are used to organize your products into a hierarchical list. The goal is to be able to navigate through your product catalog using an approach that is similar to how you navigate through the folders on your computer with Windows Explorer. This will make it easy to browse through your product catalog so that you can quickly locate the products that you want to add to your quote.

Here is an example of a possible category list for a company that sells computers to business and home users:

```
Business Computers
    Notebook Computers
        Entry Level Notebooks
        Advanced Notebooks
    Servers
        Budget Servers
        Rack-Mounted Servers
        Advanced Servers
Home Computers
    Desktop Computers
        Entry Level Desktops
        Desktops for Video Gamers
    Notebook Computers
        Entry Level Notebooks
        Advanced Notebooks
```

In the above example, the indentations are used to represent categories that are nested inside of other categories.

The following screenshot demonstrates how this category list would be displayed in QuoteAdvantage. When a category is clicked, the Available Items list in the right upper corner is updated to display the products in the selected category.

The screenshot shows the QuoteAdvantage interface. On the left is a 'Product Categories' tree with the following structure:

- Business Computers
  - Notebook Computers
    - Entry Level Notebooks
    - Advanced Notebooks
  - Server Computers
    - Budget Servers
    - Rack-Mounted Servers
    - Advanced Servers
  - Home Computers
    - Desktop Computers
      - Entry Level Desktops**
      - Desktops for Video Gamers
    - Notebook Computers

On the right, the 'Available Items in Category: Entry Level Desktops' table is displayed:

	Name	Product ID	List Price
<a href="#">Add</a>	Model 2 Home Computer	HC-2	\$499.00
<a href="#">Add</a>	Model 6 Home Computer	HC-6	\$999.00

Below this is the 'Customizable Products on Quote' table:

Name	Product Brand	Base Price	Qty	Multiplier	Customized Price	
<a href="#">Model 1000 Server</a>		799.00	1	1	799.00	<a href="#">Remove</a>
<a href="#">Model 2 Home Computer</a>	test 1	499.00	1	1	499.00	<a href="#">Remove</a>

When you are designing your category list, you will only need to create categories for your parent products. At this point, you should not create categories to track add-on or enhancement items that are attached to your parent products. In the above example, categories for child products (such as hard-drives and video cards) are not listed. Enhancements are managed separately from the base-level items that they are attached to.

At this stage, you should plan the basic outline of the category list for your parent products. We recommend that you pattern the layout of the tree after the structure of your existing product catalog. Ideally, the arrangement of the category list should be familiar to sales professionals that are already accustomed to your products.

The first draft of your category list does not have to be complete. We recommend starting out small with just a few categories in order to experiment with how it will appear in Microsoft CRM. It's easy to modify the category list as you progress through your implementation. You will be able to add, remove, or modify Categories as much as you need to.

## QuoteAdvantage Configuration Files

QuoteAdvantage loads product catalog information from two types of XML configuration files:

1. CategoryList.xml - Provides category information about parent products
2. ChildProducts.xml – Provides detailed information about child products

A typical system will have one CategoryList.xml file and many ChildProduct.xml files. The ChildProduct.xml files are usually given descriptive file names to indicate the type of child products that are being tracked. For example, a set of files for tracking computer sales might be named: CategoryList.xml, HomeComputers.xml, ServerComputers.xml, and NotebookComputers.xml.

These XML files are deployed to the QuoteAdvantageWeb\bin folder. Typical locations for the QuoteAdvantage web application folder are:

Microsoft CRM Professional: C:\inetpub\wwwroot\QuoteAdvantageWeb\bin

Microsoft CRM Small Business Edition: C:\Program Files\Microsoft CRM\CRMWeb\QuoteAdvantageWeb\bin

## QuoteAdvantage Editor

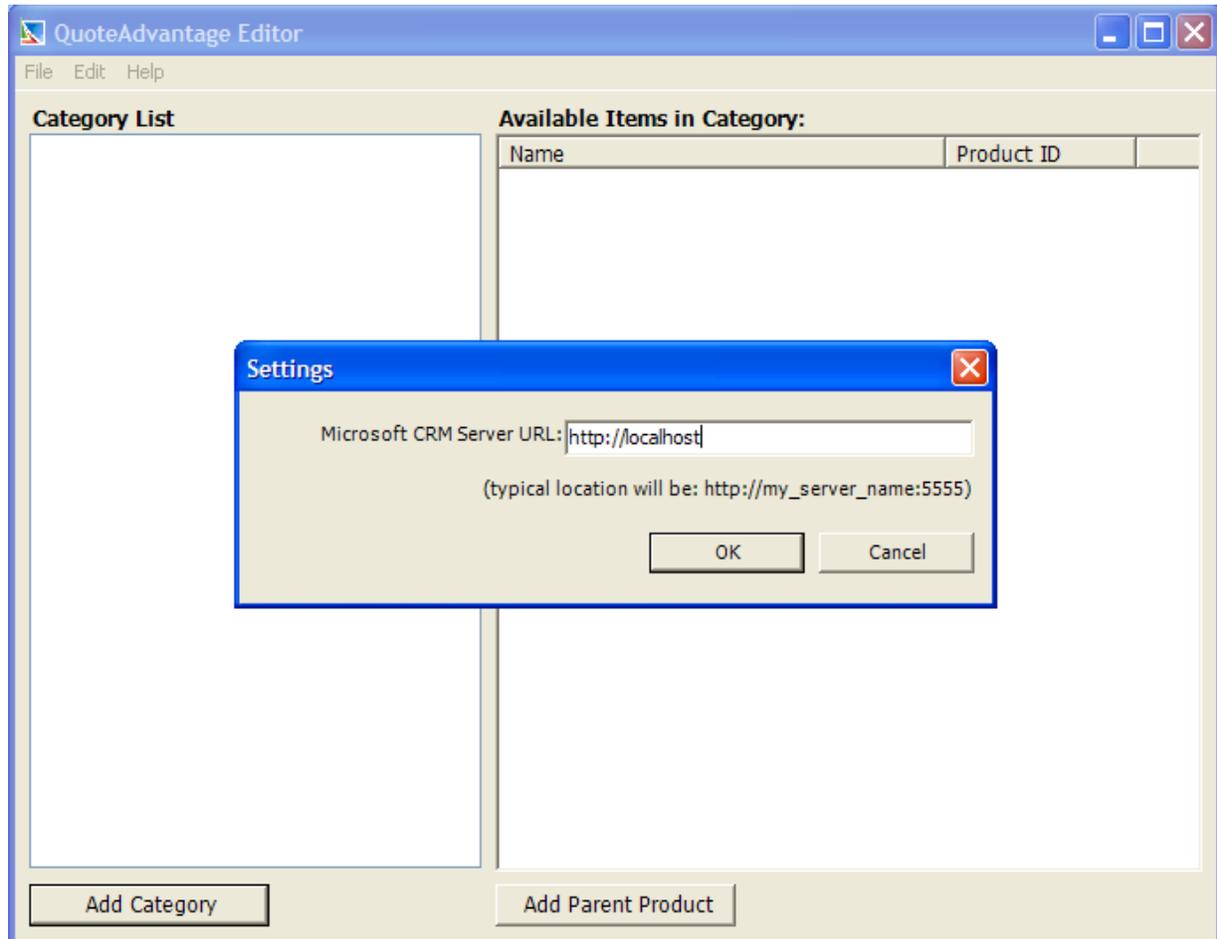
The QuoteAdvantage Editor is a stand-alone Windows desktop application that provides a facility for customizing how product catalog information is displayed inside of QuoteAdvantage. The editor application is installed at the following location:

\Program Files\QuoteAdvantage\QuoteAdvantageEditor.exe

The QuoteAdvantage Editor can be started by clicking Start – All Programs – QuoteAdvantage – QuoteAdvantage Editor. Optionally, a second installer is available for deploying the editor onto a separate system that can connect to the Microsoft CRM server remotely.

## Connecting to Microsoft CRM

The first time that you start the QuoteAdvantage Editor, the application will automatically attempt to connect to Microsoft CRM on the local machine. If this connection is not successful, then you will be prompted to specify connection information to your Microsoft CRM server.



Please enter the URL to your Microsoft CRM server. Typical examples might be similar to one of the following:

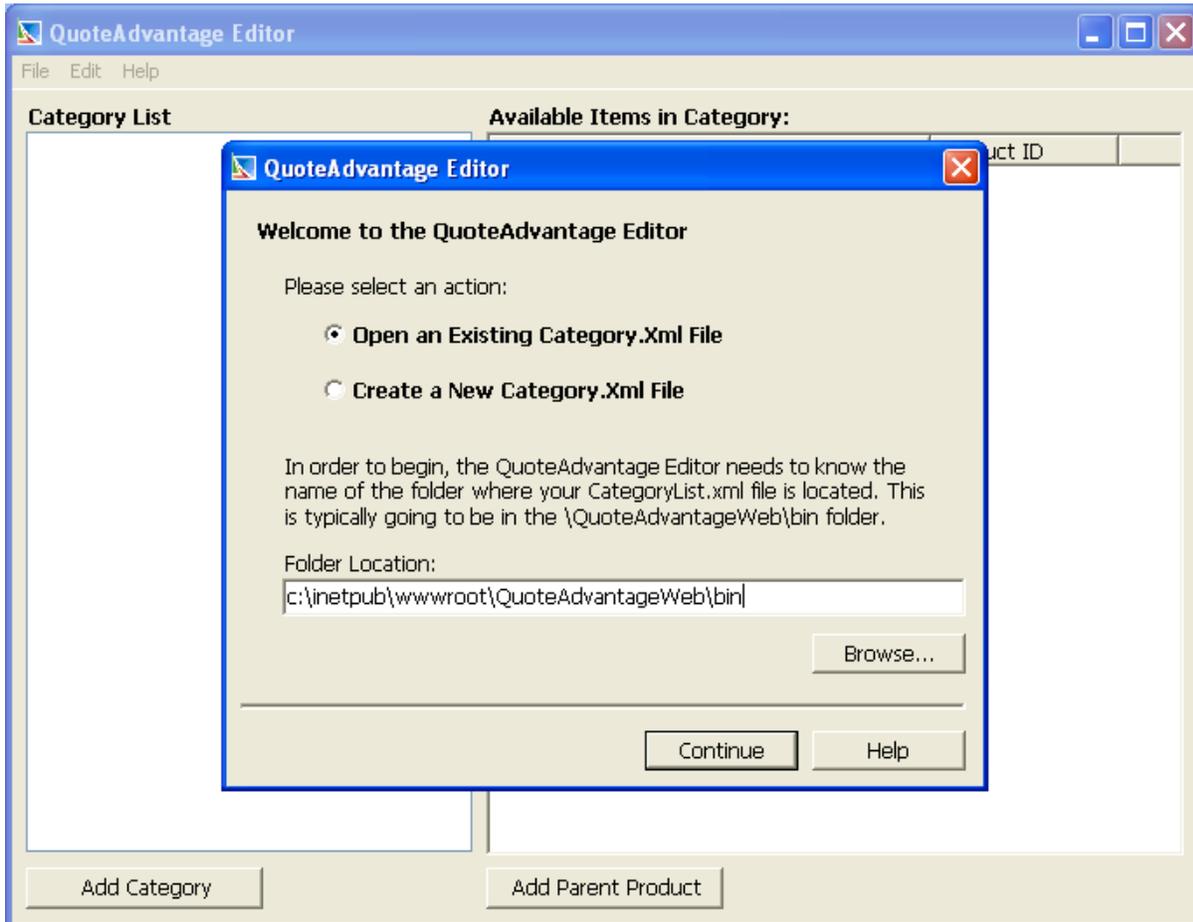
http://MyServerName  
http://MyServerName:5555  
http://localhost  
http://192.168.1.123

If your server is located on a remote machine, then you will need to replace “MyServerName” with the correct machine name. If you need to adjust this setting in the future, the CRM connection string is accessible from the File – Settings command in the QuoteAdvantage Editor.

## Welcome to the QuoteAdvantage Editor

The first step for working with the QuoteAdvantage Editor is to specify the location of your CategoryList.xml file. Typically, the path to this file will be: C:\inetpub\wwwroot\QuoteAdvantageWeb\bin

Optionally, you may choose to work with a CategoryList.xml file that is not located in the QuoteAdvantageWeb folder.



You can create a new CategoryList.xml file by clicking the second option on the Welcome screen and entering the path to where you would like to store your data.

Specifying your categories is a two step process. First, you should design your category list. Second, you should place specific products into specific categories. The next three sections provide detailed information about each of these concepts

## Create the Category List

You can now specify the structure of your category list using the QuoteAdvantage Editor. Press the “Add Category” button to add a new category at the root level of the product catalog. Choose a Category Name (which will be displayed to users), as well as a Category ID to uniquely identify the category in the system and press OK. The new category is displayed in the category list.



**Category**

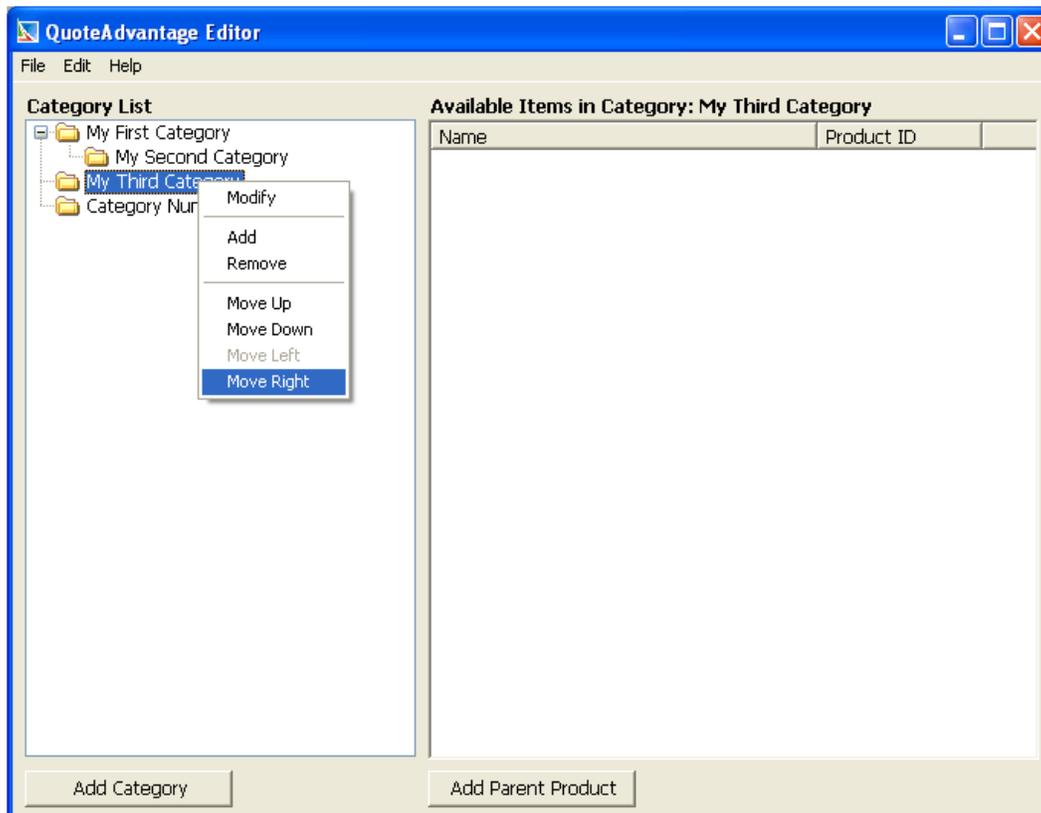
Category Name:  
My First Category

Category ID:  
FIRST\_CATEGORY

OK Cancel

To move a category to its proper position in the category hierarchy, select the category you wish to move and right-click. The context menu options for “Move Up”, “Move Down”, “Move Left”, and “Move Right” may be used to position the category appropriately.

Note that to position a category as a child of another category, the child category should first be positioned below the parent category, and then “Move Right” for the child category should be selected.



## Category Names and IDs

Each category in a category list has two attributes associated with it:

“Category Name” - The name of the category that should be displayed for the user

“Category ID” - A unique identifier that distinguishes one category from another

The Category ID is specified separately from the name because it may be desirable to have two categories that share the same name. In the computer example, there are two categories named “Entry Level Notebooks”. One is used for business computers and one is used for home computers. When a category is selected, the Category ID is used to determine which products should be displayed as available.

For each category, you should specify a unique Category ID. This value can be any XML-legal attribute value. For consistency and easy recognition, we recommend using all capital letters and underscores. (For example: “HOME\_ENTRY\_LEVEL\_NOTEBOOKS”). In all cases, categoryId values must be unique. Never re-use a categoryId value for more than one category. We recommend using categoryId values that contain plain English and are easy to recognize.

## Product ID Values for Parent Products

In Microsoft CRM, each product in the Product Catalog is assigned a unique Product ID value. This value is typically a part number, SKU or other unique identifier. QuoteAdvantage also uses the Product ID to work with items in the Product Catalog. This is necessary in order to handle situations where two different products might share the same product name. Whenever a product is referenced in a QuoteAdvantage configuration file, it is identified by its Product ID value. The QuoteAdvantage Editor always shows you both the Product ID as well as the Product Description, and allows you to search the CRM product catalog by either attribute.

## Adding Parent Products

A parent product is assigned to a specific category by selecting the category and pressing the “Add Parent Product” button. The “Add Parent Product” window is displayed:



The screenshot shows a dialog box titled "Parent Product". The "Category Name" field is set to "Entry Level Desktops". The "Product ID" field is empty, with a "Search..." button to its right. The "Product Name" field is empty, showing "---". The "Rule File Name" field is a dropdown menu currently set to "[None]", with a "New..." button to its right. At the bottom of the dialog are "OK" and "Cancel" buttons.

To add a product, you may either directly enter a Product ID value for the product, or you may press the “Search” button to search for a product in the CRM product catalog by Product ID or Product Description.

Search Microsoft CRM

Search the Microsoft CRM Product Catalog

For Product Descriptions that contain:

Mountain

Search

For Part Numbers that contain:

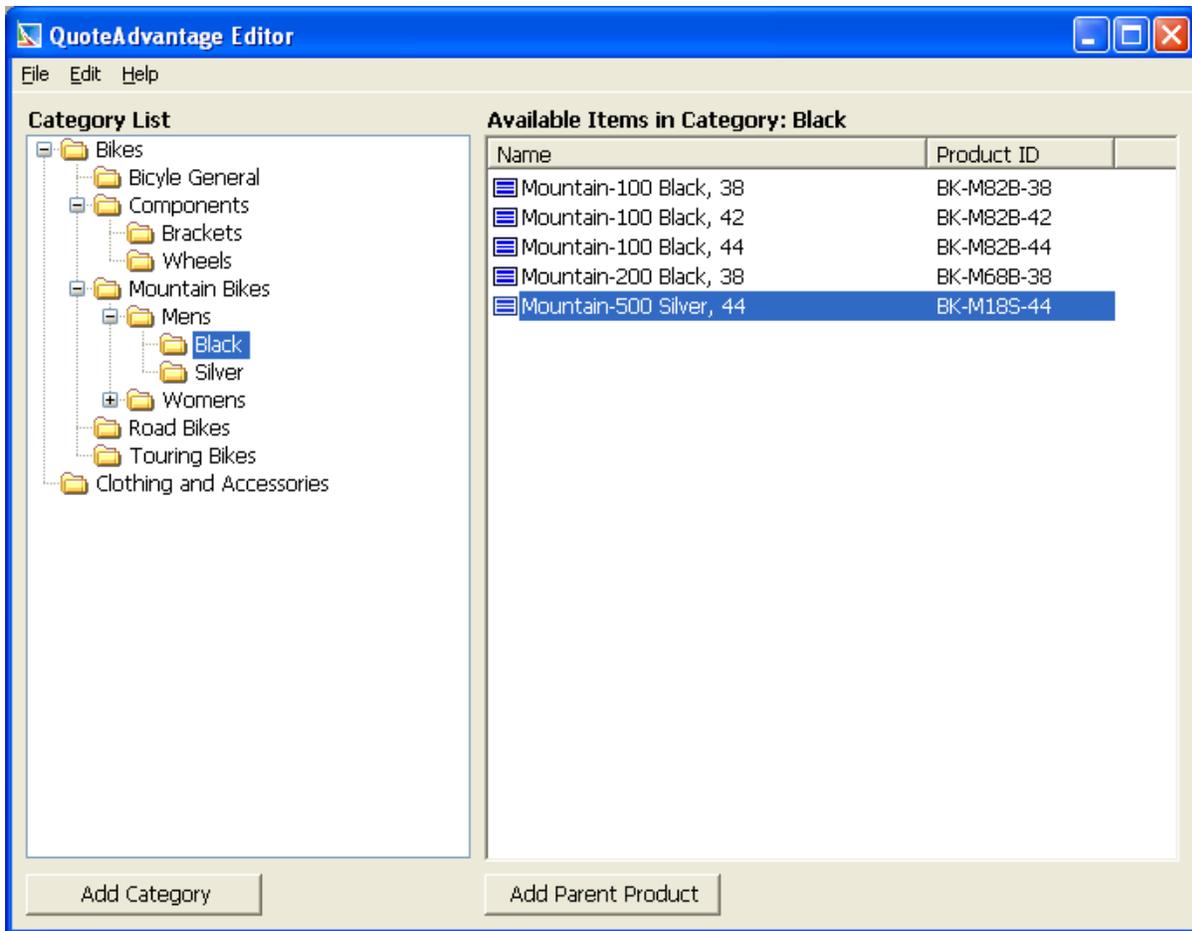
Search

Search Results:

Name	Product ID
Mountain-500 Silver, 44	BK-M185-44
Mountain-300 Black, 40	BK-M47B-40
Mountain-500 Black, 42	BK-M18B-42
Mountain Bike Socks, M	SO-B909-M
Mountain-100 Silver, 38	BK-M825-38
Women's Mountain shorts, L	SH-W890-L
Mountain-100 Silver, 48	BK-M825-48
Mountain-200 Black, 46	BK-M68B-46

OK Cancel

Choose your product and press OK. You should see your newly added parent product under the “Available Items in Category” list:



Note: You should ignore the “Rule File Name” section of the Parent Product window for the moment. We will discuss this in the next chapter.

## Putting It All Together

At this point, you should try implementing the concepts that have been described using a few of your company’s products. You should select a few products that would make a good test case. We recommend starting with just a small number of products rather than immediately attempting to use your entire catalog. Perform the following steps:

1. Separate your list of products into parent products and child products. For this test, we will only be using the parent products. The child products will be added to the system in the next chapter.
2. Using Microsoft CRM’s product catalog, open each parent product and make a note of the item’s Product ID.
3. Design your category list
4. Implement your category list using the QuoteAdvantage Editor to add the categories and place them appropriately in the product catalog hierarchy.
5. Use QuoteAdvantage Editor to add each of your parent products to the corresponding category.

6. Test the system. In Microsoft CRM, open a quote and switch to the QuoteAdvantage page. The QuoteAdvantage screen should correctly display your category list. When you click a category, the products in that category should be displayed in the Available Items window. You should be able to add your products to a Quote by clicking the Add link.

If you have problems completing the steps outlined in this section, you should consult the troubleshooting section in Chapter 8. You should not attempt to implement the steps that are outlined in the next chapter until you are confident that you have a small number of product categories working correctly.

## CHAPTER 6

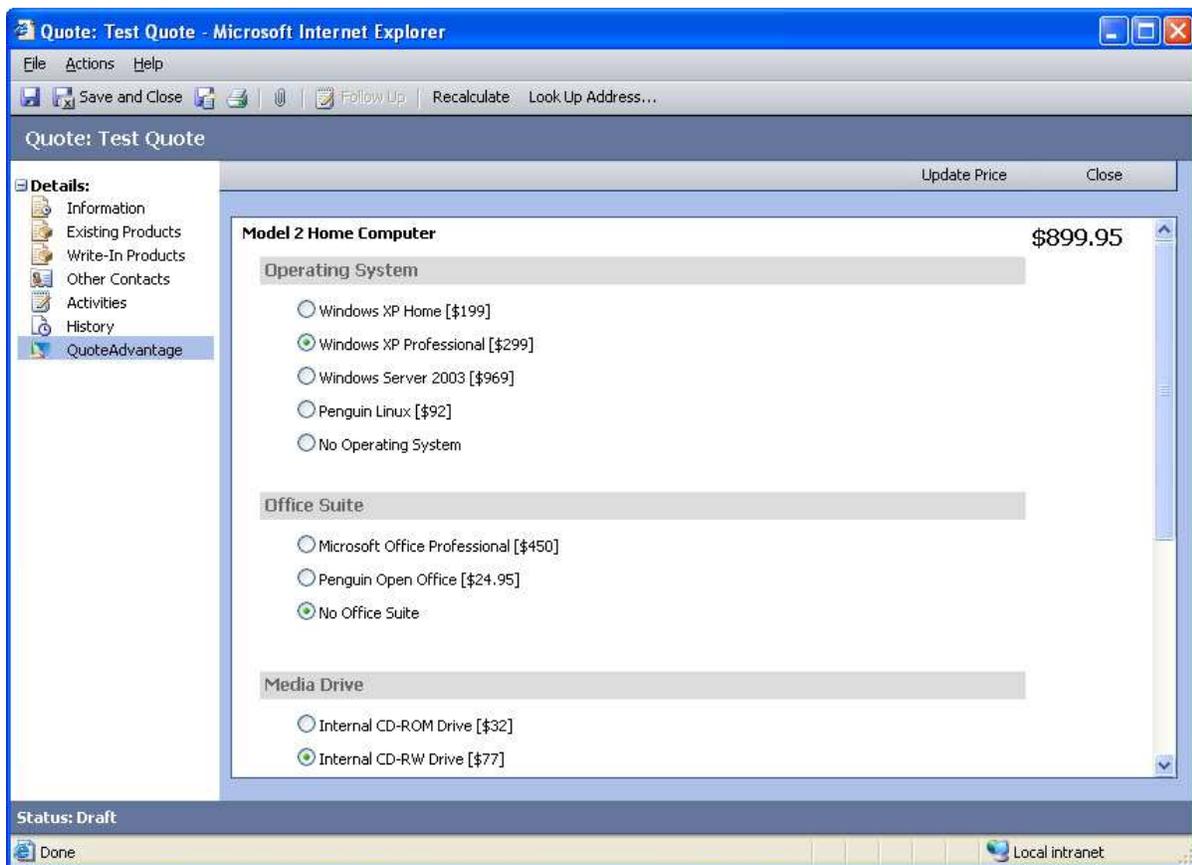
# Child Products

## Overview of Child Products

After creating a category list that contains your parent products, the next step of the implementation process is to add support for your child products. Child products are add-on or enhancement items that are attached to a parent product. For example, a hard drive is a child product that is attached to a parent product which is a desktop computer.

You will need to assign a list of available child products to each parent product in your catalog. If necessary, you can assign a child product to more than one parent product. For example, a 100GB hard drive child product might be used with several different parent products. A list of child products can also be re-used and applied to several parent products that all have similar customization options.

Implementing support for child products will make it possible to quickly customize a parent product with QuoteAdvantage's easy-to-use product customization screen:



Implementing support for child products can be broken down into the following steps:

1. Design the categories for your child products.
2. Lookup the Product ID values for your child products.
3. Associate a rule file with one or more parent products.

4. Create rules and implement the categories for your child products.

## Categories for Child Products

When a parent product is customized, QuoteAdvantage will present the user with a list of choices from several categories. Each category will have a set of radio buttons representing individual child products. The user will have to select one item from each category in order to complete the quote.

For example, if you are selling computers, the user will need to select one choice from several categories such as: hard drive size, operating system, pointing device, etc. Here is a sample list of categories and child products:

**Operating System**  
Windows XP Home  
Windows XP Professional  
Windows Server 2003  
Penguin Linux  
No Operating System

**Office Suite**  
Microsoft Office Professional  
Penguin Open Office  
No Office Suite

**Media Drive**  
CD-ROM  
CD-RW  
DVD-ROM  
DVD-RW  
No Media Drive

**Additional Software**  
CD Maker  
DVD Player  
DVD Creator  
No Additional Software

The user will have to select exactly one item from each category. In this example, each category also contains an “empty” choice that lets them select nothing from the category (ex. “No Operating System”). This concept of an “empty item” is optional. In many cases, it may be preferable to force the user to make a selection from a category.

Using this example as a model, you should design a list of categories and child products that would be appropriate for customizing one of your parent products. We recommend starting off with just a few items so that you can familiarize yourself with the process for managing child products.

## Product ID Values for Child Products

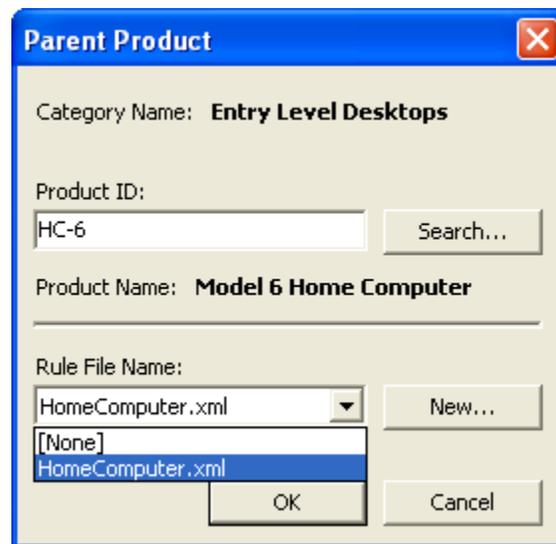
In the previous chapter, we explained how Product ID values were used to uniquely identify parent products. This concept also applies to child products. Every child product that is available through QuoteAdvantage will need to be referenced by its unique Product ID value. The QuoteAdvantage Editor makes this simple by allowing you to lookup Product IDs by searching the CRM product catalog by Product ID or Product Description.

## Rule Files for Child Products

QuoteAdvantage manages child product categories with an XML file that is similar to the CategoryList.xml file that was used to handle parent products. This new XML file has a unique file name that should describe the type of the item that is being quoted. We recommend naming this new file as something that will be easy to recognize. For example, the file that manages child products for home desktop computers might be named: HomeComputers.xml.

It will be common to have several different XML files for managing different types of products and the specific types of customizations that are available. Parent products that are similar to one another can share the same rule file.

The name of the rule file needs to be specified for each parent product that can be customized with QuoteAdvantage. The rule file needs to reside in the \QuoteAdvantageWeb\bin folder alongside the CategoryList.xml file. When creating the parent product in the QuoteAdvantage Editor, you may select the correct rule file for the product, or create a new one. QuoteAdvantage Editor takes care of creating the file and putting it in the proper location.



The screenshot shows a dialog box titled "Parent Product" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

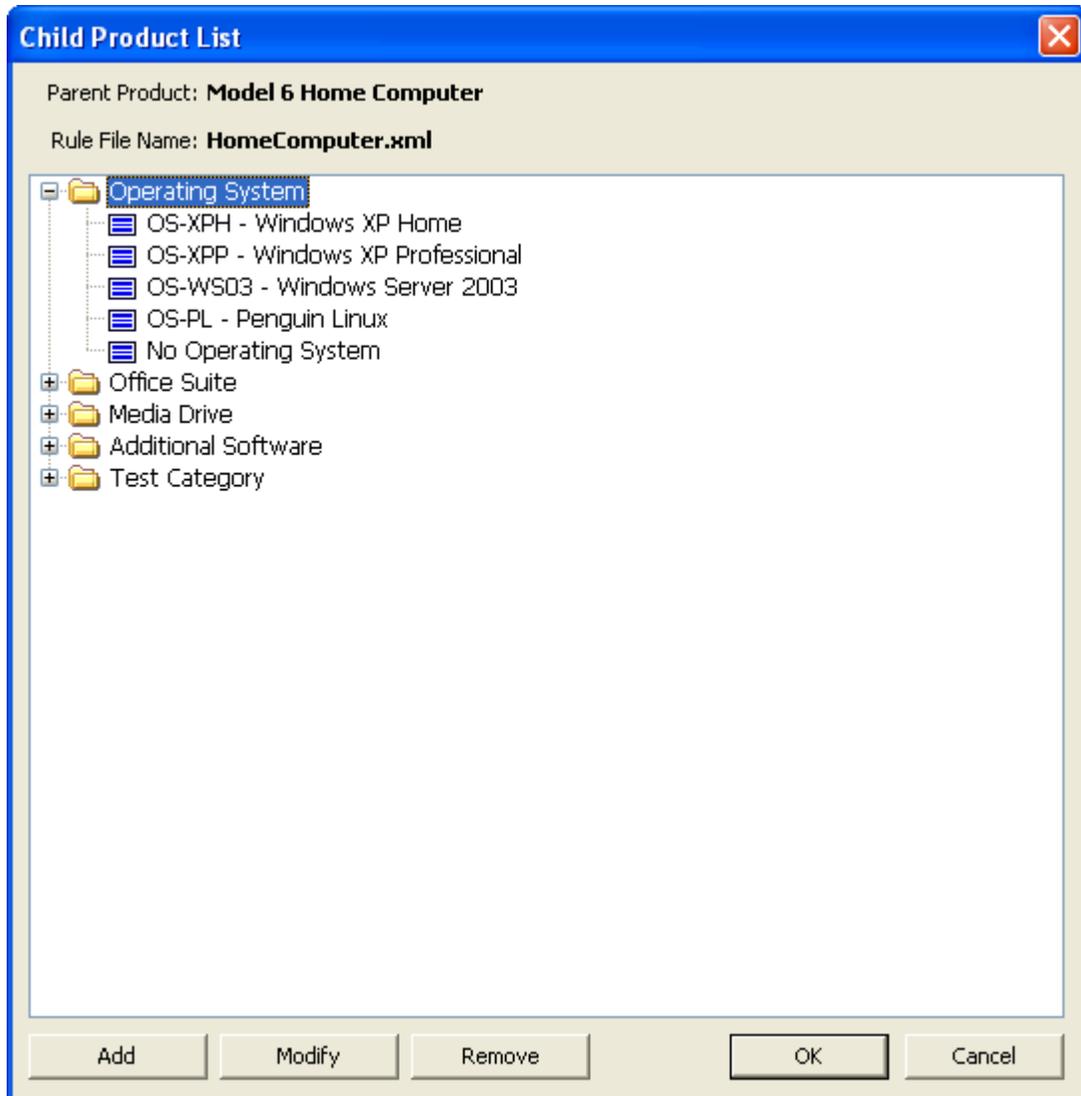
- Category Name:** Entry Level Desktops
- Product ID:** HC-6 (with a "Search..." button to the right)
- Product Name:** Model 6 Home Computer
- Rule File Name:** A dropdown menu currently showing "HomeComputer.xml". Below the dropdown, a list is open with "[None]" and "HomeComputer.xml" (the latter is highlighted in blue). To the right of the dropdown is a "New..." button.
- At the bottom of the dialog are "OK" and "Cancel" buttons.

Please note that the rule file name attribute is only used for parent products. Child products will not need a Rule File Name. Rule files can be re-used on more than one parent product if two products have identical customization requirements.

We recommend starting your implementation with just a single rule file and expanding into additional files as you become more comfortable with the process.

## Add Child Products

After creating a rule file for the parent product, right-click on the product and select “Child Products”. The Child Product window will be displayed with a default category.

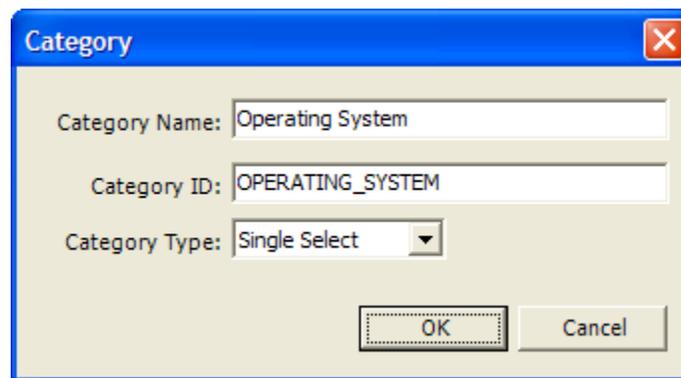


Pressing the “Add” button lets you choose to add a new Category, Child Product, or Rule.



## Categories

Select “Category”, name your new category, press OK, and the category dialog is displayed.



Each category needs a name and a unique identifier. Category names can be re-used. Category ID values must be unique. This makes it possible to reference a specific category in a configurator rule.

The Category Type field is used to specify whether a category allows only one selection (radio buttons) or multiple selections (checkboxes). For ease-of-use, we recommend using single-select categories in most cases. However, there are situations where multiple picks from the same category might be appropriate.

## Child Products

Once you have set up your child product category list, you can add child products. Select the category you wish to work with and press the “Add” button. Choose “Child Product” and press OK. The Child Product window is displayed. The interface is similar to the Parent Product window. Enter a Product ID or use the Search button to find your child product.

**Child Product**

Category Name: **Operating System**

Child Product

Product ID: OS-XPP Search...

Product Name: **Windows XP Professional**

Unit of Measure: Each

Auto-Add Item

Rule File Name for Nested Items: [None] New...

No Child Product Required (Empty Selection)

OK Cancel

Once you have found the appropriate item, press OK and the child product is displayed in the corresponding category.

Optionally, the “Unit of Measure” drop-down can be used to specify a unit of measure that will be applied to the item when it is added. This can be useful in situations where a specific quantity is required. With this setting, it is possible to automatically add items in pairs or by the dozen. If a specific unit of measurement is not required, the setting can be left on the [Default] value and the default unit of measure from the Microsoft CRM Product Catalog will be used.

## Auto-Add Items

The auto-add indicator is used to denote child products that should be automatically added as soon as the parent product is added. The auto-add feature is activated with the “Auto-Add Item” checkbox on the child product screen.

Multi-select categories can have several auto-add items while single select categories can only have one. If there are many categories, then each category might automatically add a specific child product. When the corresponding parent product is added to a quote, several default child product selections will also be added all at once.

This feature makes it possible for a sales person to add a parent product and automatically add an appropriate list of related child products without having to open the customization screen.

## Nested Items

Nested items are an advanced feature for complex scenarios where a child product can be added to another child product. In most situations, a single level of child products is all that is required. By default, the “Rule File Name for Nested Items” field should be left on the “[None]” setting to disable this feature.

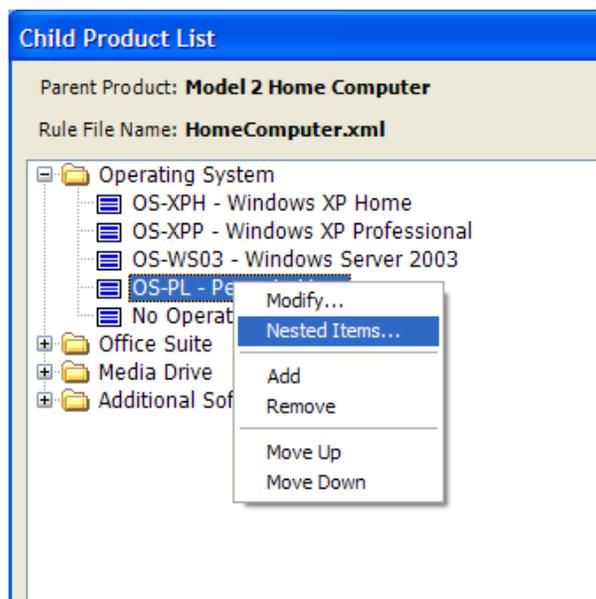
For advanced scenarios, it is possible to add additional rule files that will specify nested child items that will be attached to another child product. This would allow for a price quote such as this:

Model X Desktop Computer

- 500 GB Hard Drive
- X-100 Graphic Card
  - 512 MB Graphics Memory
  - Physics Accelerator
  - High Capacity Cooling Fan
- DVD-RW Drive
- Deluxe Desktop Case
  - Pretty Blue Lights
  - Case Window
  - Silent Cooling Fan
- 22" LCD Monitor

In this desktop computer example, nested child options are used to customize the graphics card and the computer case. Using this feature, additional configurator screens will be presented to the user with choices that are appropriate for these sub-items.

To specify nested child items, first provide a rule file name for the child item. Then use the “Nested Items...” command on the right-click context menu to open a new child products window for specifying which items will be available as nested child products.



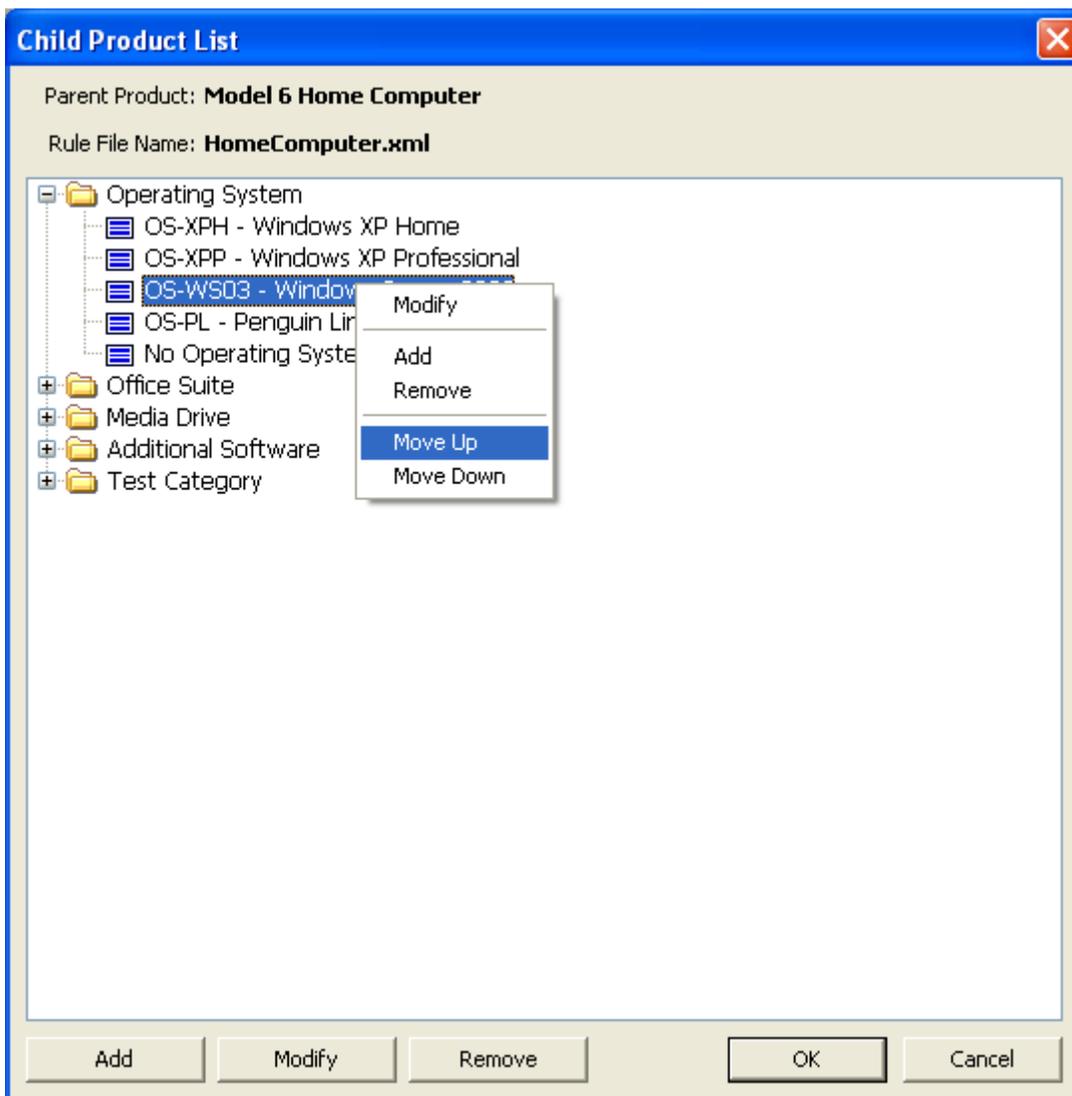
If a set of nested child items has been specified, than the QuoteAdvantage configurator screen in Microsoft CRM will display a “Customize” link on the child item that will lead the user to a second screen for selecting the additional items.

Nested items can be combined with the auto-add feature to automatically add several levels of child products as soon as the parent product is added.

Rule files for nested items can be re-used across multiple products. This makes it easy to handle situations where there are groups of similar products that offer similar configuration choices.

## Display Order for Child Products

The list of child products for a particular category may be ordered by selecting a product, right-clicking, and selecting “Move Up” or “Move Down” from the context menu.



## Empty Items

The “Empty Item” is a special type of child product that represents the situation where a user wants to choose nothing from a given Category. In some cases, you may want to present the user with a range of child products in a category, but you still want to give the user the option of choosing nothing from that category.

For example, a company that sells computers may offer several different types of operating systems that can be pre-installed. The user may select from several different flavors of Windows or Linux. Or, at their option, some advanced customers may prefer to have “No Operating System”. This would be a situation that could be handled with an “Empty Item” child product.

To add an empty item, choose a child product category, press the “Add” button, and select “Child Product”. When the Child Product window is displayed, choose “No Child Product Required”, enter an English description (for example “No Operating System”), and press OK.



Empty item entries are optional. Most of the time, you will want to require the user to select one item from each category. Inserting an empty item entry allows you to handle the special cases where “no choice” is an acceptable option.

## Test the System

Before continuing to the next section, you should use QuoteAdvantage and Microsoft CRM to create a set of child product categories that are based on your company’s product catalog. At this point, you should be able to quickly build a quote that contains parent products that are customized with lists of appropriate child products. To verify that your changes are working, perform the following steps as a test:

1. Open a Quote in Microsoft CRM and switch to the QuoteAdvantage page.
2. Select a category that contains the parent products you are testing with.
3. Add a parent product to your quote.

4. In the Customizable Products list at the lower right, click the Name field of the product that you added.
5. The Customize Product screen should appear with your child product choices listed in groups.
6. Select an item from each child product category.
7. Press the Update Price button at the upper right. The total price should update to reflect your choices.
8. Press the Close button at the upper right to return to the QuoteAdvantage window.
9. Switch to the Existing Products tab. On the Products screen, click the green “Refresh Grid” button at the upper right hand corner of the product list. The two newly added items should appear in the product list.

If you have problems completing the steps outlined in this section, you should consult the troubleshooting section in Chapter 8.

## **What’s Next**

Chapter 5 of this guide provides another example of the concepts that are covered in this chapter. Please refer to this example if you would like to see how categories and child products can be applied to the Adventure Works Cycle sample data that is included with Microsoft CRM.

Chapter 6 introduces configuration rules, which provide an additional degree of control over how child products are added to a quote. Chapter 6 builds upon the child product architecture that you have just created. You should not attempt to implement the steps that are outlined in the Chapter 6 until you are confident that you have a small number of child products working correctly.

Chapter 7 provides a second example that demonstrates how configuration rules can be applied to computer sales. This example expands on the Home Computer example that was used to introduce child products in Chapter 4.

## CHAPTER 7

# Example One

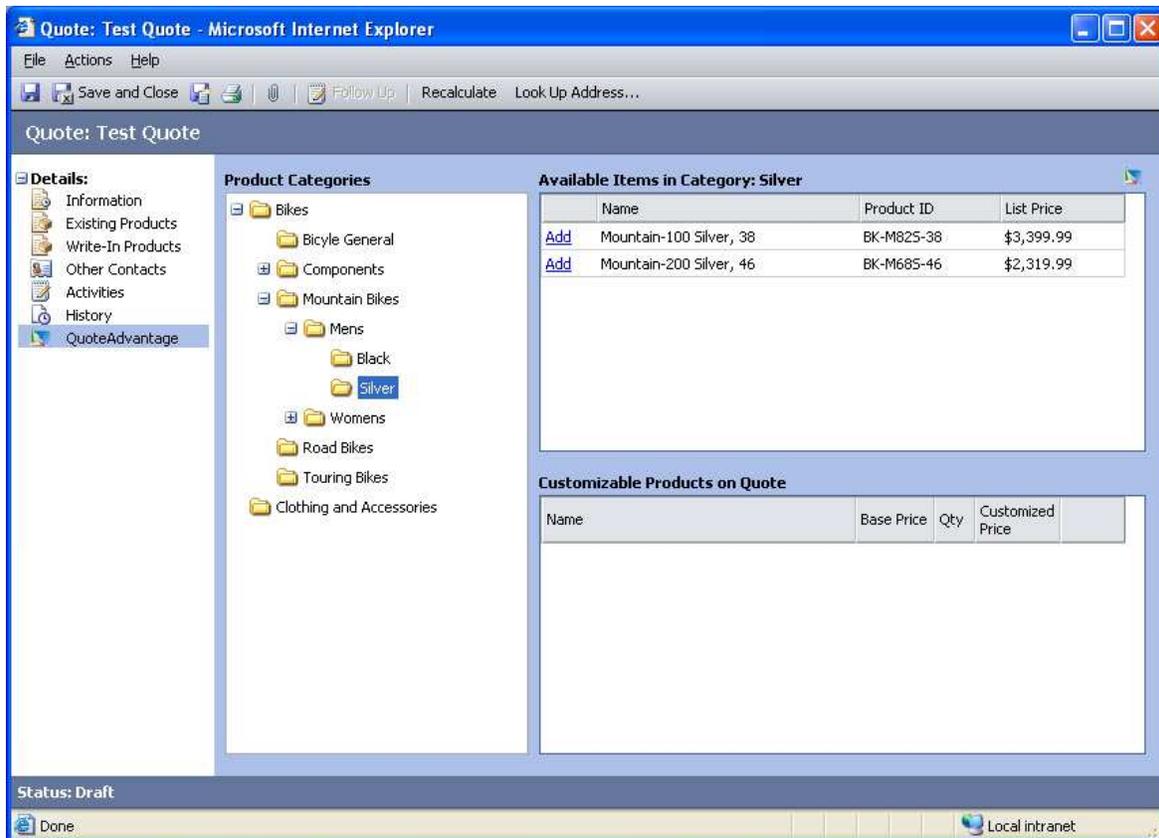
### Adventure Works Cycle Sample Data

This example demonstrates how categories and parent and child products can be applied to the Adventure Works Cycle sample that is included with Microsoft CRM. For simplicity, this example does not use any configuration rules. Example Two in Chapter 7 demonstrates a more complex scenario that includes configuration rules.

For this sample, refer to the CategoryList.xml and BicycleRules.xml files that are located in the \Program Files\Callisto Systems\QuoteAdvantage\Sample Data\Bicycle folder. If you decide to experiment with these files, you will need to copy both XML files from the Bicycle folder to the \QuoteAdvantageWeb\bin folder.

If you would like to experiment with these files, you will need to have the Adventure Works sample data installed on your Microsoft CRM server.

This example file only includes eleven products from the Adventure Works product catalog. This is a minimal amount of data that can be helpful for demonstrating the features of QuoteAdvantage for Microsoft CRM. The following screenshot shows how the XML file is interpreted and then displayed by the user interface:



Open the AdventureWorks Cycle sample data CategoryList.xml file in the QuoteAdvantage Editor. You can compare how the data is displayed in the Editor with how it is displayed in the Microsoft CRM QuoteAdvantage user interface.

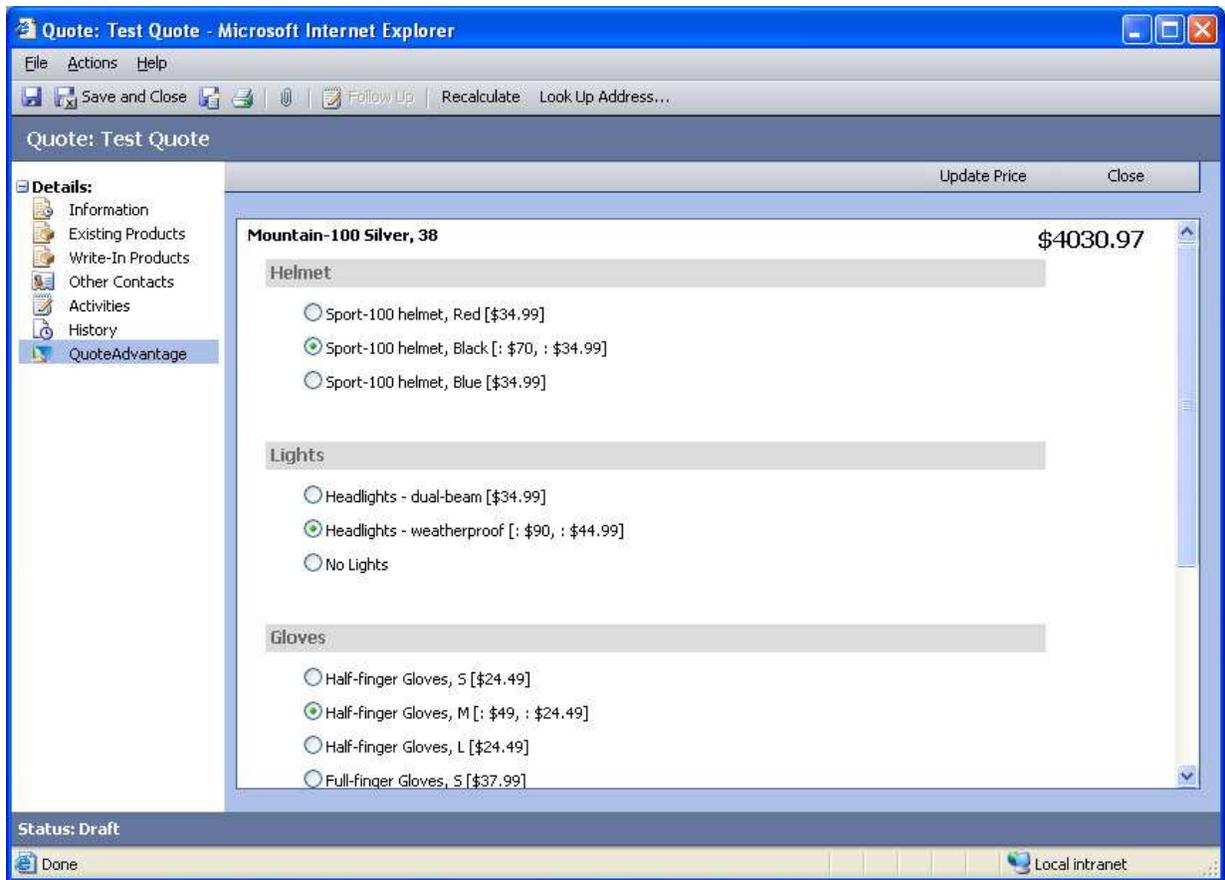
In the QuoteAdvantage Editor, select the “Silver” category under “Mountain Bikes”, “Mens”. Choose on of the parent products, right-click and select “Modify”. You can see that the child product configuration file being used for this product is “BicycleRules.xml”.

The “Components” category contains two sub-categories: “Brackets” and “Wheels”. The items in this category do not contain a Rule File Name. This means that even though these items are parent products, they are not customizable. These items are sold as stand-alone parts that do not have child products.

## BicycleRules.xml File

Next, cancel the Parent Product window and select “Child Products” on one of the parent product’s context menus. You can see the categories and child products in each category for the “BicycleRules.xml” configuration file.

When this XML data is loaded by QuoteAdvantage, the following user interface is displayed:



In order to create a valid quote, the user will need to select an item from each category. The user has to select a type of helmet and hydration system. But, the gloves and lights categories are optional. When the user clicks the Update Price button, the quote is refreshed and any missing selections are highlighted.

## CHAPTER 8

# Configuration Rules

## Overview

QuoteAdvantage allows you to manage how quotes are built by specifying configuration rules. Configuration rules make it possible to ensure that your quotes are valid and complete by enforcing your company's business and engineering rules.

A Quote is considered to be "complete" when all required components have been specified. A possible example of this might be a computer product that cannot be built unless the customer has specified the type of hard-drive that they would like to have installed. QuoteAdvantage protects against this type of problem by requiring the user to select an item from each Child Product category.

A "valid" quote contains products that are compatible with one another. In some cases, there may be compatibility limitations concerning which child products are allowed to be installed with one another. An example of this would be a computer sales situation where a customer could choose Microsoft Windows with Microsoft Office or Penguin Linux with Open Office. If the customer chooses Penguin Linux with Microsoft Office, then they have chosen an invalid configuration. If a quote is properly checked for validity, this type of problem cannot occur.

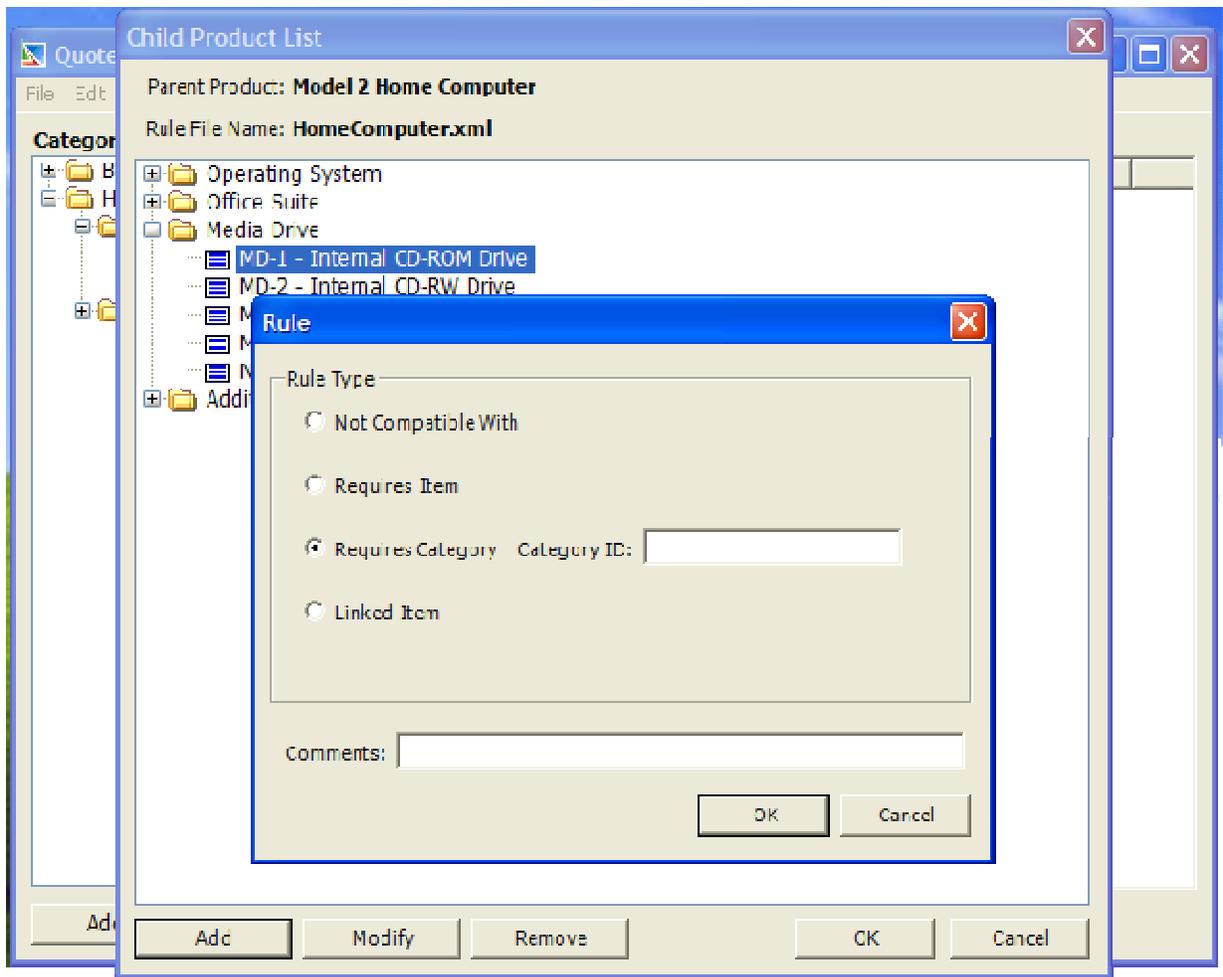
## Introduction to the Configuration Rule Types

QuoteAdvantage provides the following types of configuration rules:

1. "Requires Item" – A certain product is only valid if another related product is also included on the quote.
2. "Not Compatible With" – A certain product cannot be valid if another specific product is also included.
3. "Requires Category" – A certain product is only valid if one of the items in a specific category is also included.
4. "Linked Item" – Used to automatically add required items. Linked items are not visible to the user. Please refer to Chapter 10 for a complete discussion about linked items

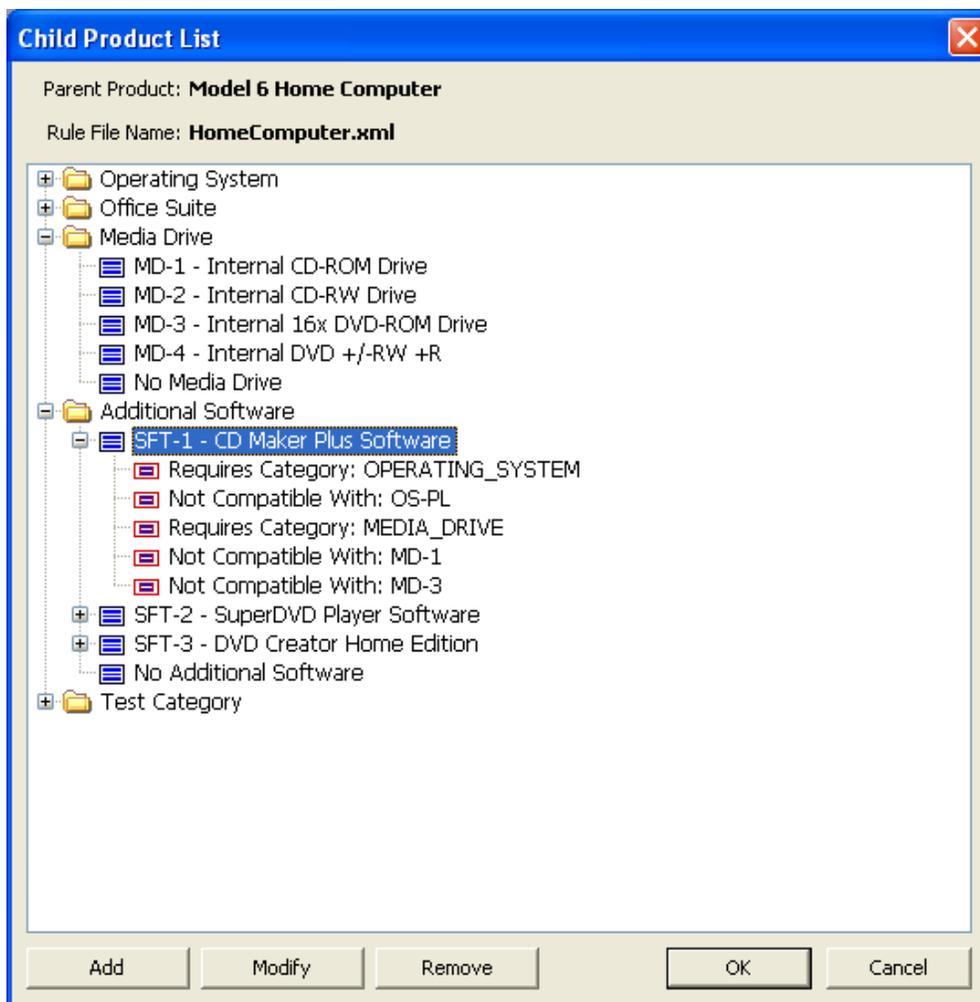
These rules are specified for individual child products in the rules XML file that is specified by each parent product. Each child product entry in a rule file can include one or more rule references as needed.

To create a rule for a particular child product, choose the parent product, right-click and select "Child Products" from its context menu. Then choose your desired child product, click "Add", and select "Rule". You will be presented with the Edit Rule window.



You can select one of the rule types listed above, then enter the relevant Item ID or Category ID, a comment for your notes, and press OK. The rule will be listed below the child product.

You may add additional rules for a single child product by following the same process.



In this example, the child product with Product ID = “SFT-1” has the following constraints:

1. The parent product must also include a selection from the category with categoryId = “OPERATING\_SYSTEM”
2. The parent product is not allowed to include a child product with Product ID = “OS-PL”
3. The parent product must also include a selection from the category with categoryId = “MEDIA\_DRIVE”
4. The parent product is not allowed to include a child product with Product ID = “MD-1”
5. The parent product is not allowed to include a child product with Product ID = “MD-3”

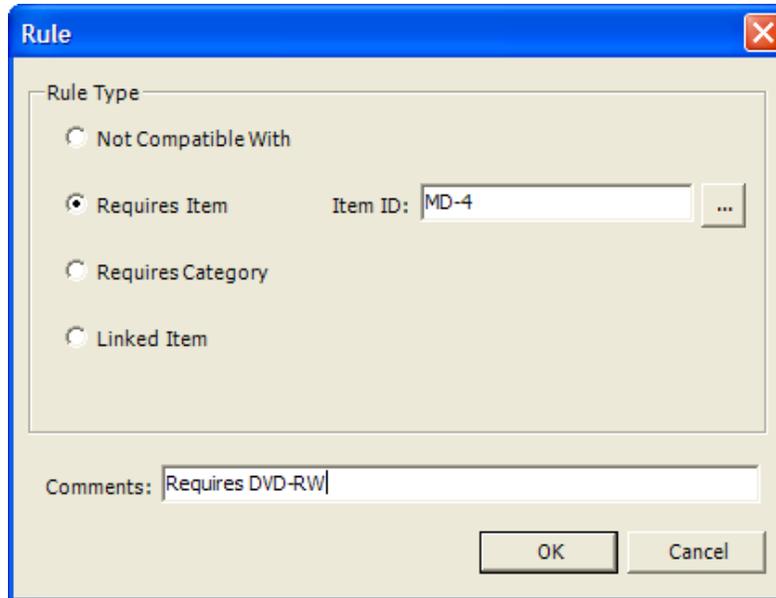
In order for the quote to be valid, all of these constraints must be met. Constraints are verified between parent products and their children. Rules are not applied against all of the items on a quote as whole. Child products are closely tied to their parent item. This allows you to handle situations where you are quoting more than one parent product that has customizations. The child products that are applied to Parent Item A should not have any influence over the child products that are applied to Parent Item B.

The next three sections will describe each of the configuration rule types in detail.

## Requires Item Rule

The Requires Item rule is used to handle a situation where: “Product A requires Product B”.

Example:



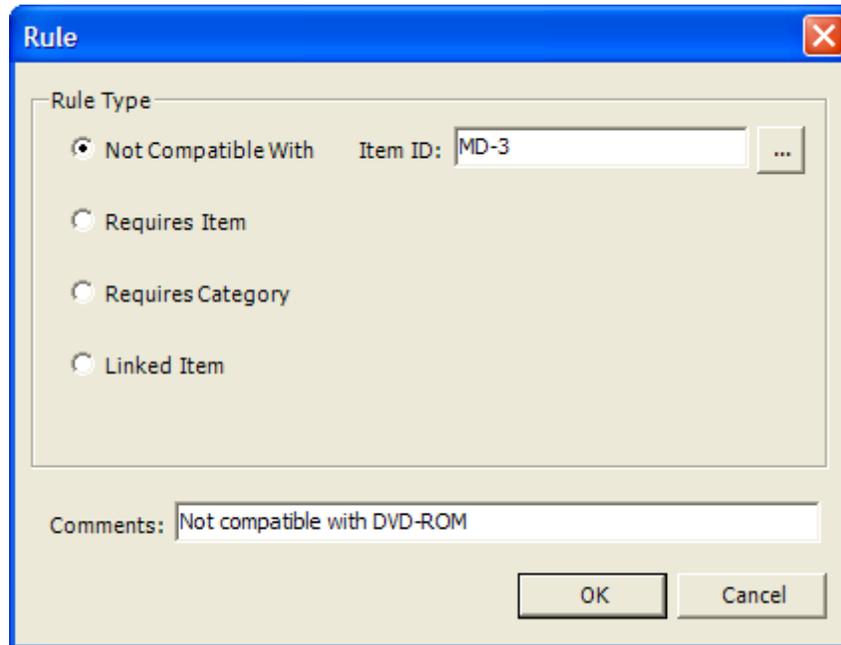
The image shows a dialog box titled "Rule" with a blue title bar and a close button in the top right corner. The dialog is divided into two main sections. The top section, labeled "Rule Type", contains four radio button options: "Not Compatible With", "Requires Item", "Requires Category", and "Linked Item". The "Requires Item" option is selected. To the right of this option is a text field labeled "Item ID:" containing the text "MD-4", followed by a small button with three dots. The bottom section of the dialog is a text field labeled "Comments:" containing the text "Requires DVD-RW". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

This rule is used to enforce a compatibility requirement where one product can only be installed if another related product is also installed. In the sample above, the “DVD Movie Creator” software application is only valid if the “DVD-RW” item is also included on the quote.

## Not Compatible With Rule

The Not Compatible With rule is used to handle a situation where: “Product A is not compatible with Product B”.

Example:



The screenshot shows a dialog box titled "Rule" with a blue header and a red close button. The dialog is divided into two main sections. The top section, labeled "Rule Type", contains four radio button options: "Not Compatible With" (which is selected), "Requires Item", "Requires Category", and "Linked Item". To the right of the "Not Compatible With" option is a text field labeled "Item ID:" containing the text "MD-3" and a small "..." button. The bottom section of the dialog is labeled "Comments:" and contains a text field with the text "Not compatible with DVD-ROM". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

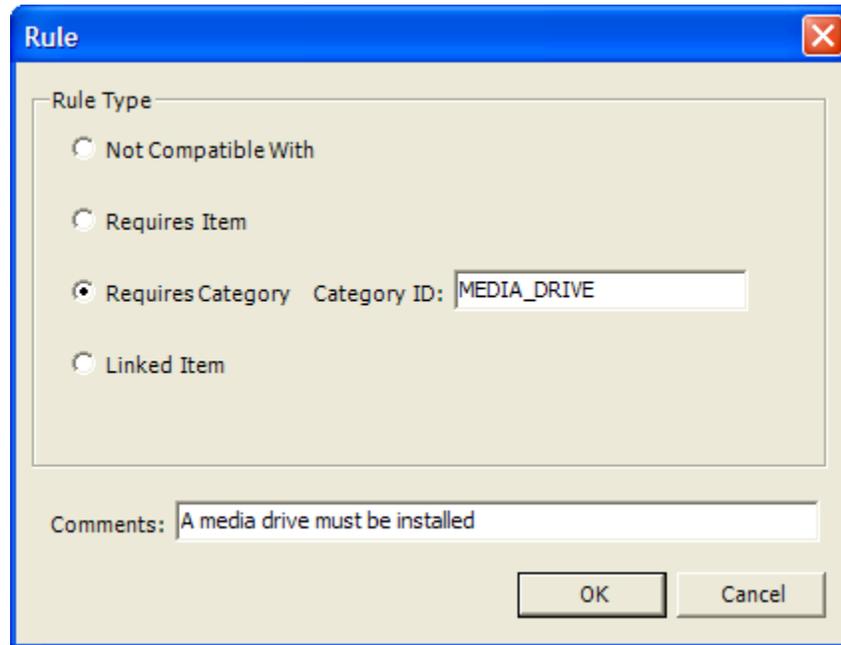
In the sample above, the “CD Maker” software product should not be placed in a computer along-side the “CD-ROM” or “DVD-ROM” products. This would be a requirement if the software requires hardware that is capable of writing to optical discs.

The Not Compatible With rule is the reverse of the Requires Item rule. It is used to enforce a compatibility requirement where one product can only be installed if another related product is NOT installed. If both child products are installed together, then the Quote will not be valid.

## Requires Category Rule

The Requires Category rule is used to handle a situation where: “Product A requires a selection from Category C”.

Example:



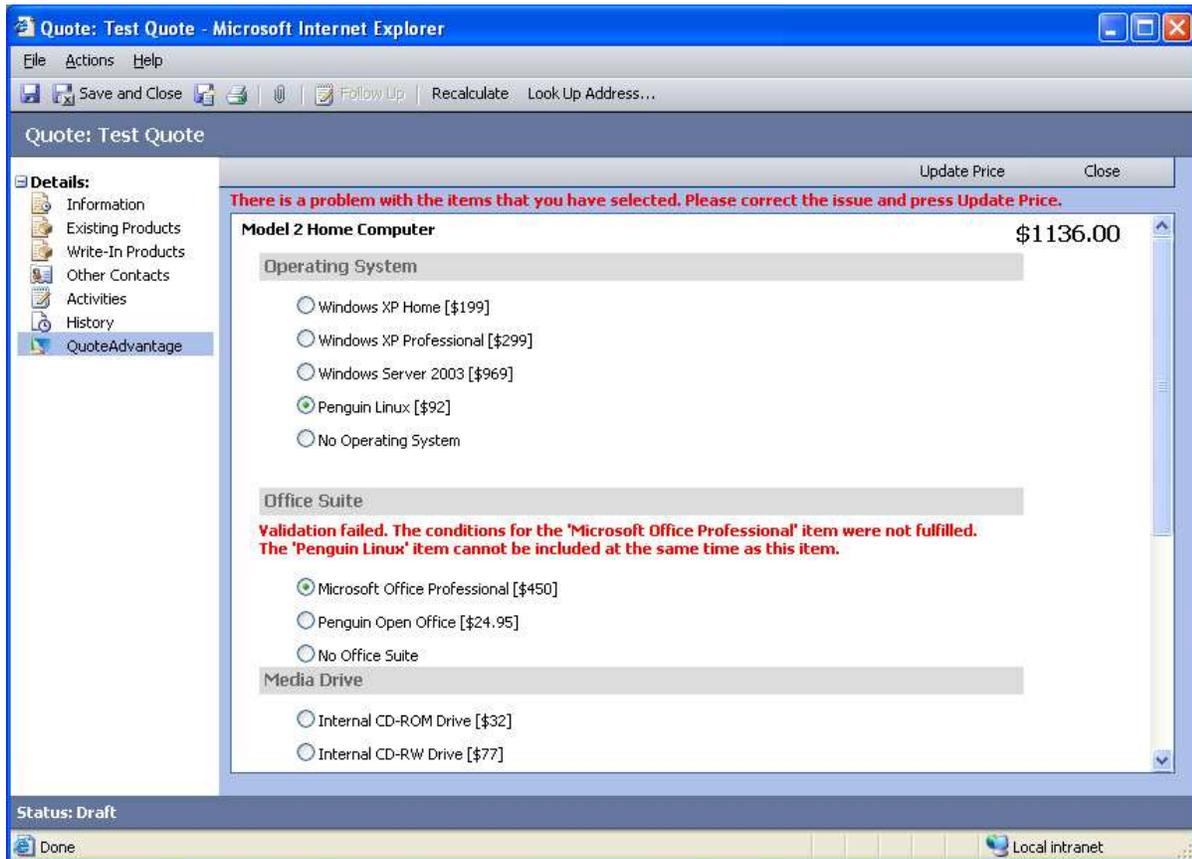
The image shows a dialog box titled "Rule" with a close button in the top right corner. Inside the dialog, there is a section labeled "Rule Type" containing four radio button options: "Not Compatible With", "Requires Item", "Requires Category", and "Linked Item". The "Requires Category" option is selected. To the right of this option is a text input field labeled "Category ID:" containing the text "MEDIA\_DRIVE". Below the "Rule Type" section is a "Comments:" label followed by a text input field containing the text "A media drive must be installed". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

In this sample, the “CD Maker” software requires a selection from the “Operating System” category and the “Media Drive” category. Any item from these categories would fulfill the requirement except for an Empty Item selection which indicates that the user intentionally chose nothing.

The Requires Category rule is similar to the Requires Item item constraint, except in this case, any item from a specific category will satisfy the requirement. In order for this rule to be useful, the target category must contain an Empty Item that allows the user to choose nothing. By default, a choice is required from all categories. Therefore, the Requires Category is only needed in situations where an Empty Item choice is presented.

## Quote Validation

After the user specifies the items that they want to add to the quote from each category, they should press the Update Price button to refresh the price and validate their selections. When the price is updated, the configuration rules are checked for all of the child products that are attached to the parent product that is being customized. If there are any problems with the quote, then QuoteAdvantage will highlight the items that were improperly specified.



# Example Two

## Home Computer Sample Data

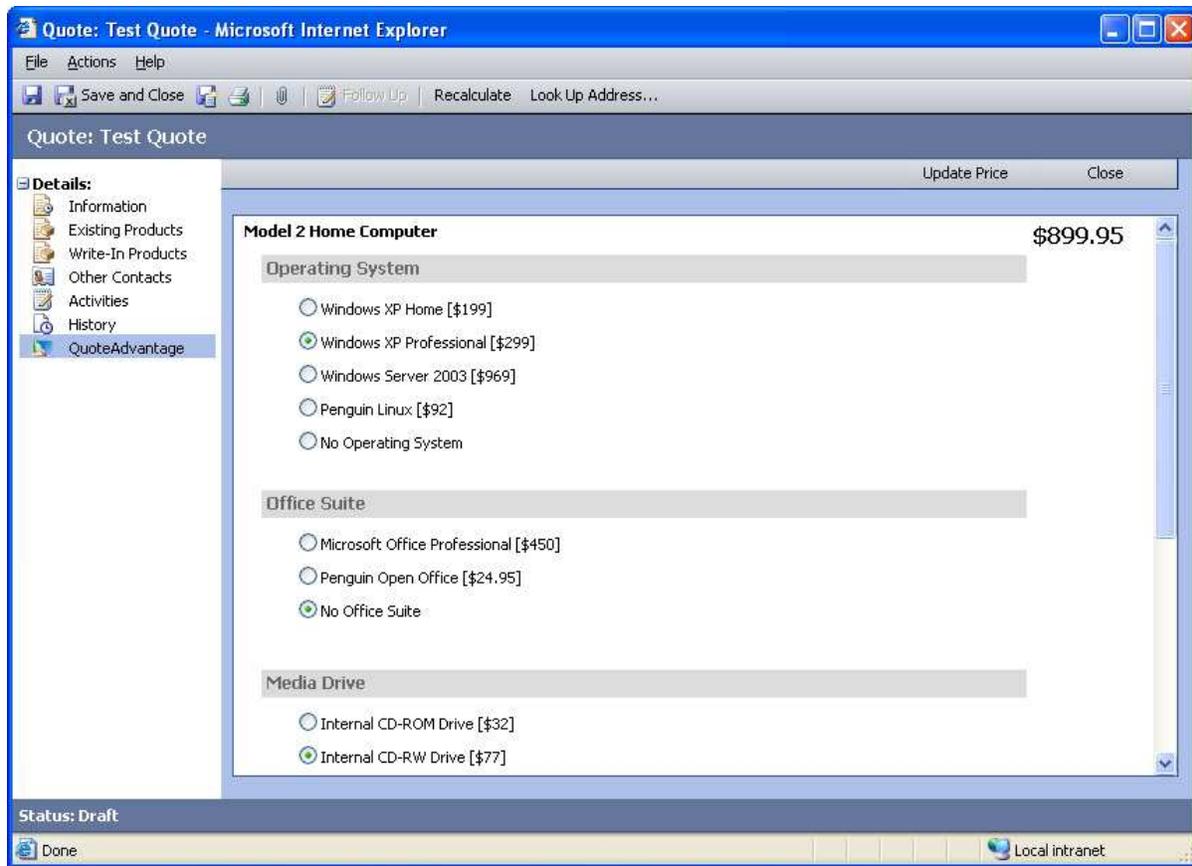
The advanced home computer sample provides examples of how each of the different types of configuration rules can be used together. This example is designed to be an extension of the home computer example that was described in Chapters 3 and 4. The sample files that are discussed in this chapter are available in the \Program Files\QuoteAdvantage\Sample Code\Home Computer Advanced folder. If you would like to experiment with these files, you will need to copy them to your \QuoteAdvantageWeb\bin folder.

Use the QuoteAdvantage Editor to take a look at the list of rules that exist in the HomeComputer.xml file. They are configured for the HC-2 and HC-6 parent products in the Home Computer Desktops category.

At first glance, the list of rules seems quite complex, but if you break it down into individual pieces, the overall meaning becomes clear. The first step to making sense of the data is to understand the product line that it is describing. In this example, a home computer needs to have one selection from each of the following categories:

1. Operating System
2. Office Suite
3. Media Drive
4. Additional Software

When this set of configuration rules is loaded by QuoteAdvantage, the following user interface is displayed:



The next few sections will describe the configuration rules for each of these items and categories in detail. The relationships that are described should provide valuable insight into how the various rule types could be applied to your company's product catalog.

## Operating System

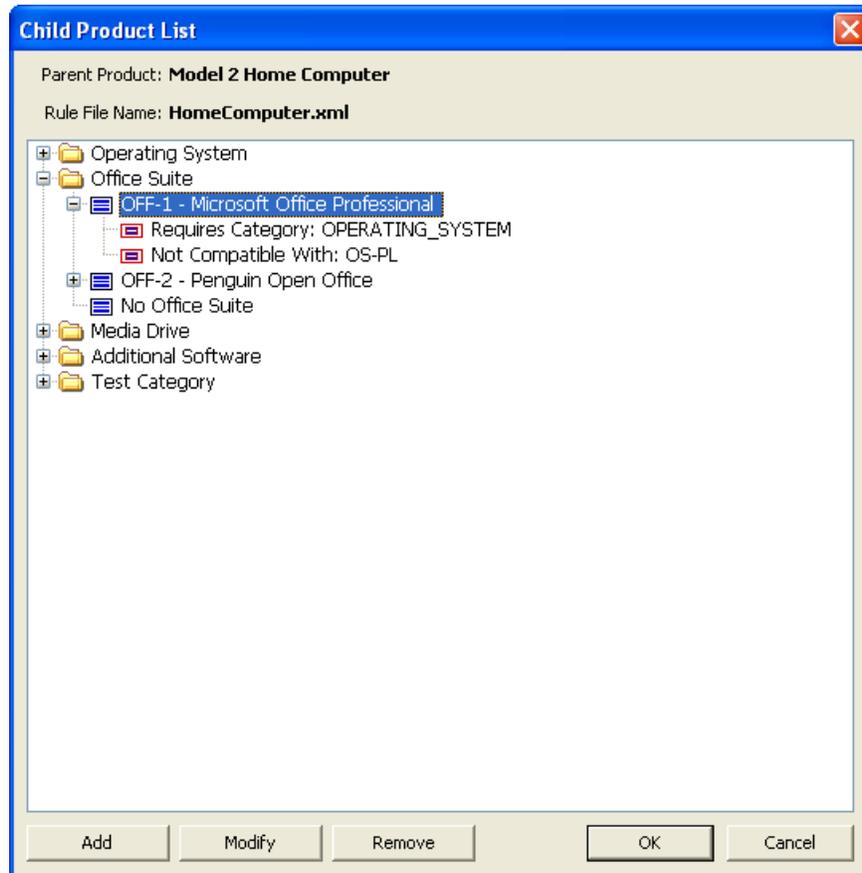
In the "Operating System" category, there are five possible choices:

1. Windows XP Home
2. Windows XP Professional
3. Windows Server 2003
4. Penguin Linux
5. No Operating System

The first four items are straight-forward child products. The last item is an "EmptyItem" that allows advanced users to purchase a computer with no software installed. This category doesn't contain any configuration rules.

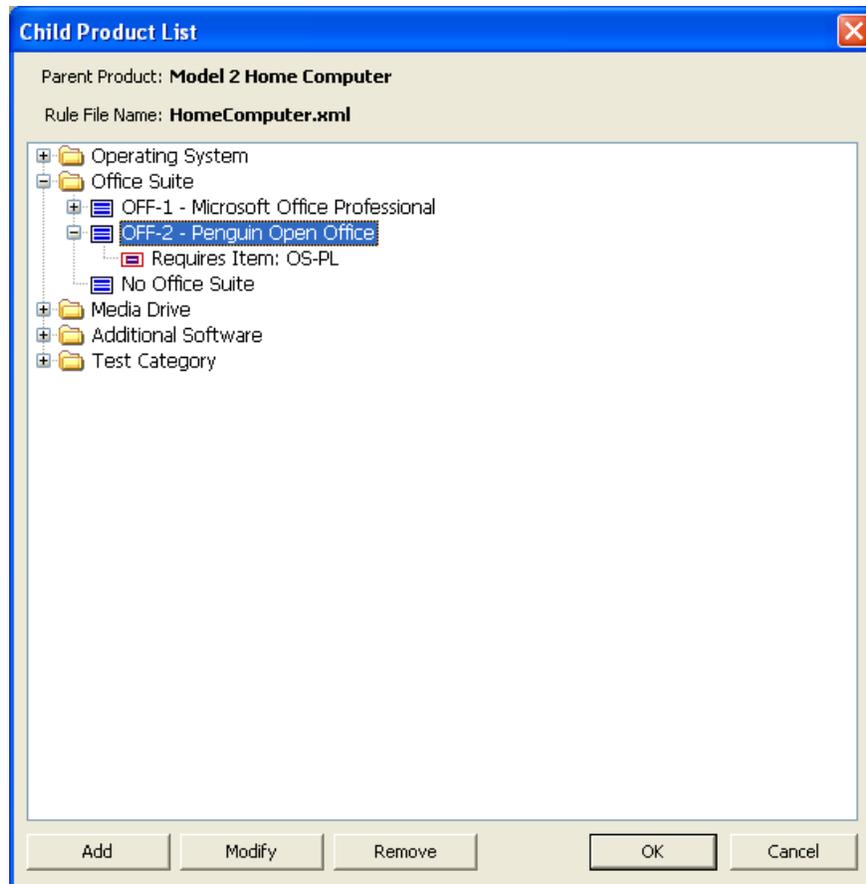
## Office Suite

The “Office Suite” category contains two types of office suite software packages and an “EmptyItem” that allows the user to choose not to purchase an office suite. Each of these office suites has a set of rule requirements. The Microsoft Office suite is only compatible with Windows operating systems. It will not work with Penguin Linux. This set of requirements is represented by the following rules:



The RequiresCategory rule allows any of the choices in the operating system category to work. The NotCompatibleWith rule is used to prevent the one possible Linux choice from being selected.

As an alternative, the Penguin Open Office suite is available for Linux users, but it is not compatible with Windows operating systems. This case is handled by the following rule:



These rules prevent invalid quotes where the user selects an office suite that is not compatible with the operating system that they chose. The user is also prevented from purchasing an office suite without any operating system.

## Media Drive

The Media Drive category allows the user to select the type of removable storage drive they would like to purchase (CD, DVD, etc). There are no rules for this category, because any type of drive is compatible with any type of operating system. This category will be referenced later by the Additional Software category.

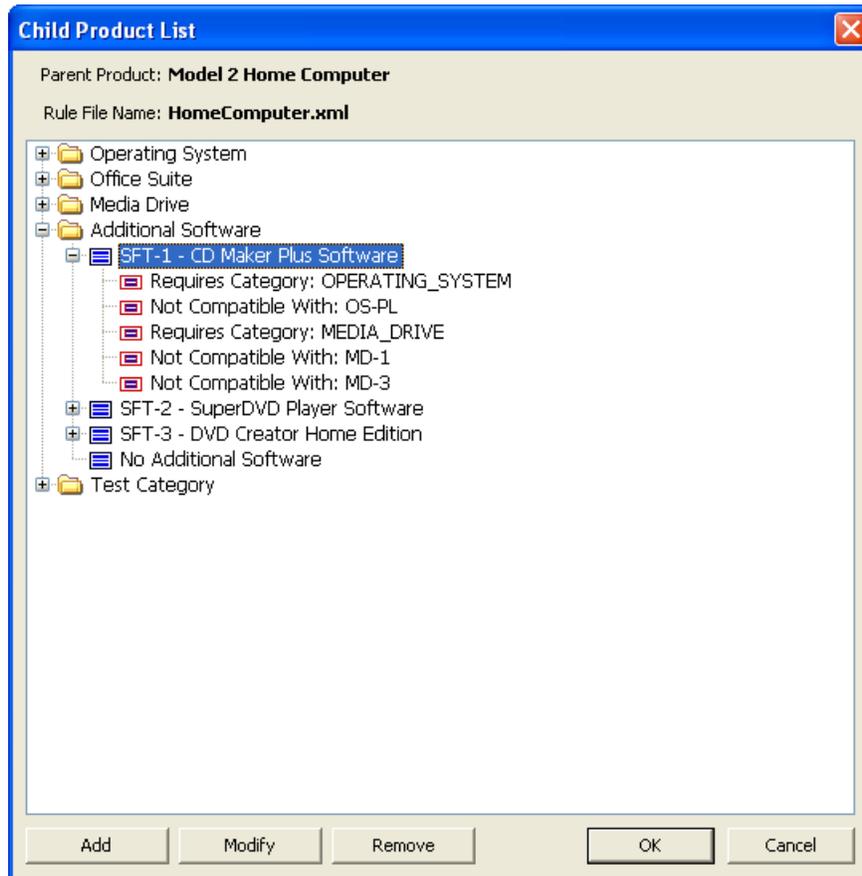
## Additional Software

The Additional Software category offers three types of software for Windows operating systems:

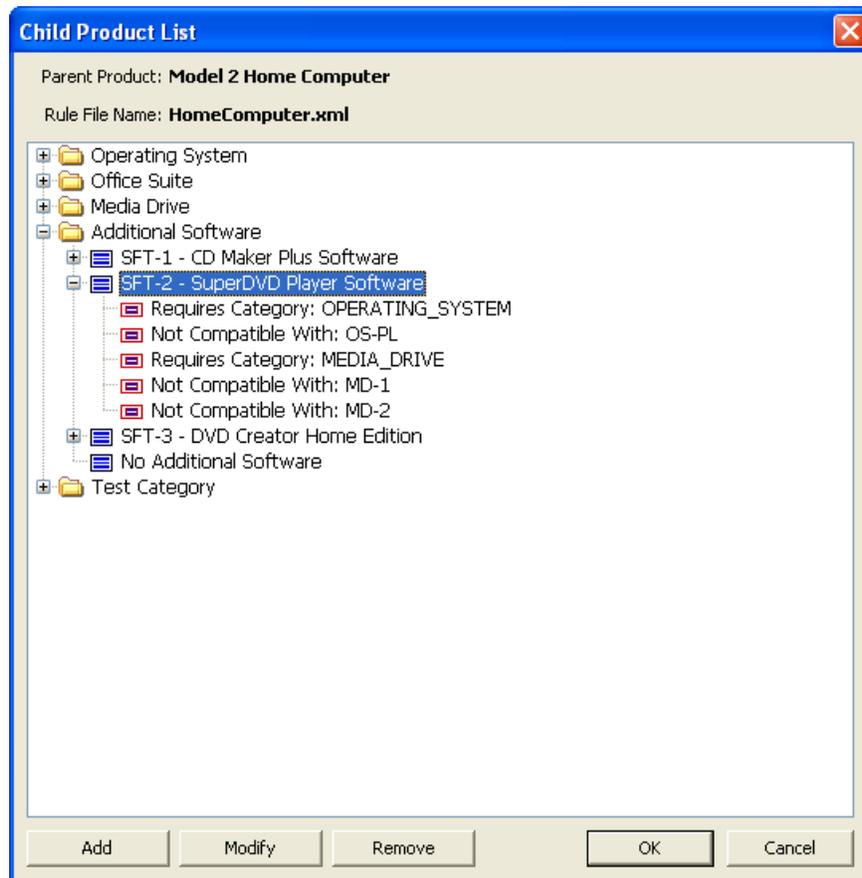
1. CD Maker
2. DVD Player
3. DVD Creator

For sales and marketing purposes and for compatibility reasons, these software packages are offered only with specific media drives.

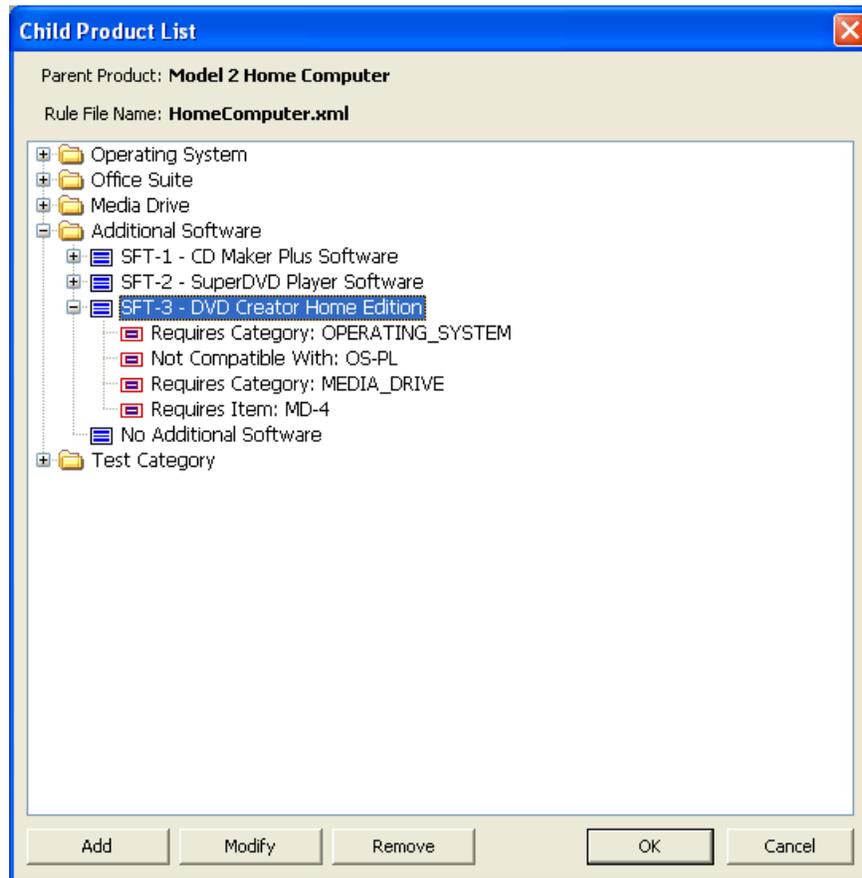
The CD Maker software requires CD write capabilities, so it's not compatible with CD-ROM or DVD-ROM drives. This software is only compatible with Windows operating systems, and to get the special pricing, it needs to be sold with a copy of Windows. This set of requirements is expressed with the following rules:



The DVD Player software is designed to play DVD movies, and therefore won't work with the CD-ROM or CD-RW drives. This software also has the same operating system limitations as the CD Maker application in the previous example.

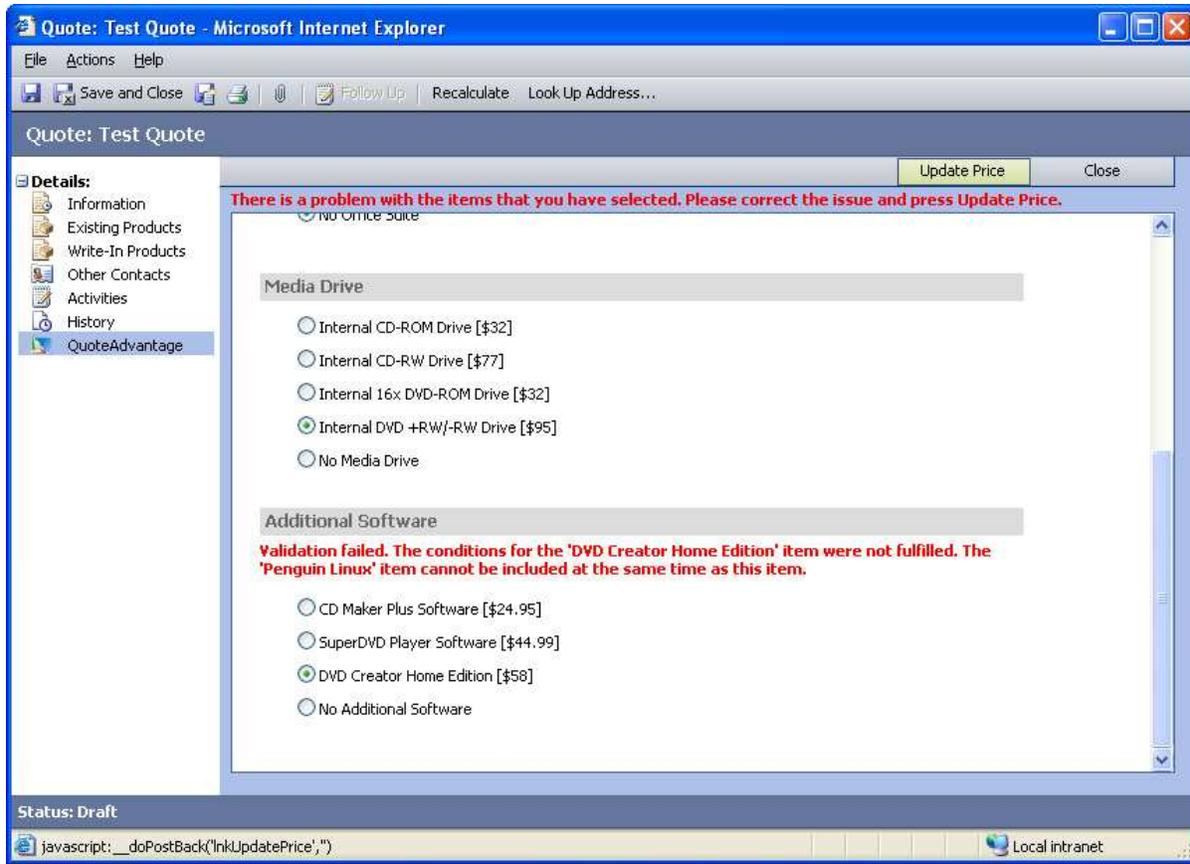


The DVD Creator software has the same operating system limitations again, but this time it only works with the DVD-RW drive. This case is handled by the following XML:



## Quote Validation

If the user accidentally chooses an invalid combination of options, then QuoteAdvantage will warn them by placing an indicator on the invalid item and describing the configuration rule that was violated. The following screenshot demonstrates what would happen if the user chose the Linux operating system, a DVD-RW drive and the DVD Creator software. In this situation, the <NotCompatibleWith> rule would trigger a configuration failure because this item is not compatible with Linux.



## Error Free Orders

This example has demonstrated a possible scenario for pricing computer products. QuoteAdvantage's configuration rules made ensured that several different types of business and engineering rules were enforced during the quote creation process. Quotes that were built with this system were automatically guaranteed to include:

1. A selection from the operating system category
2. An office suite selection that was compatible with the operating system
3. A selection from the media drive category
4. An additional software package that was compatible with the operating system and media drive

QuoteAdvantage makes it easier for sales professionals to create error free orders by making them aware of all of the available product choices for their quote and ensuring that they don't accidentally specify items that would lead to an inaccurate quote.

# Linked Items

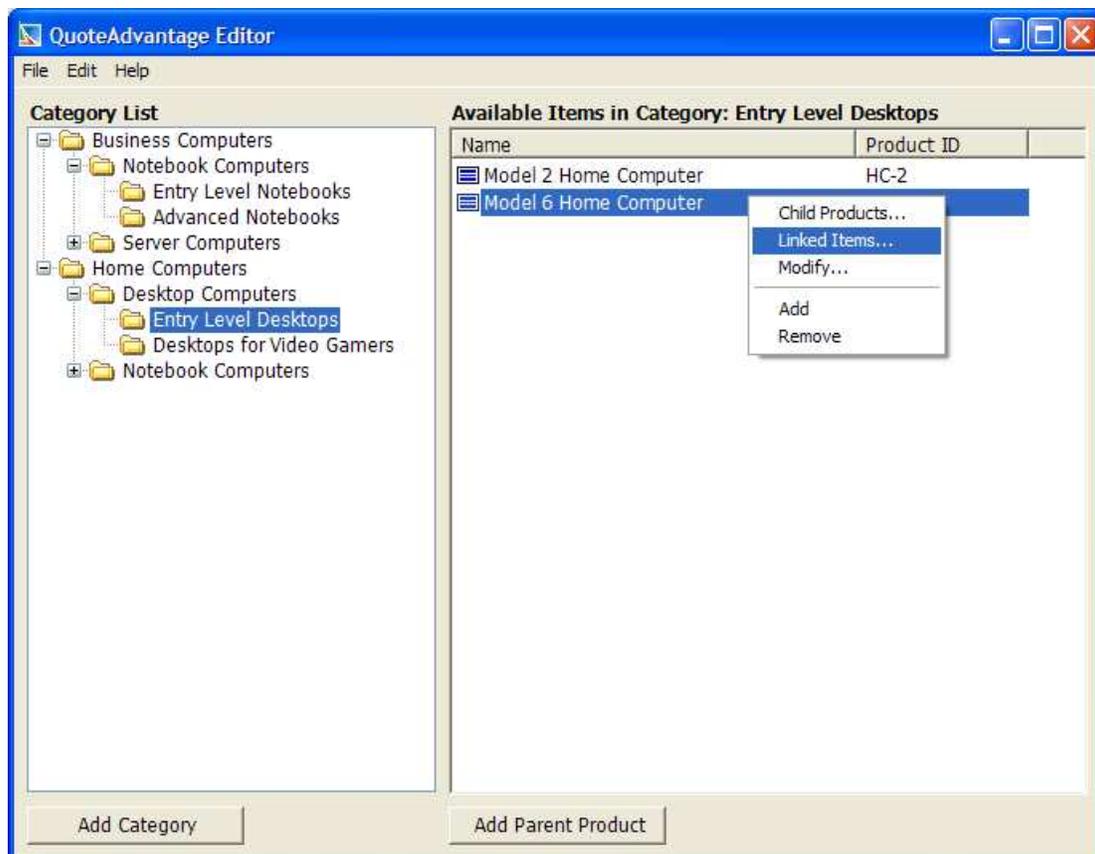
## Overview

Linked items are a special type of required product that is not visible in the configurator user interface. When a parent or child product is added, any related linked items are automatically added as well. If the parent or child product is removed, then the linked items are also removed. In order to reduce the complexity of the quote, the linked items are added to the quote, but they are not immediately visible to the user. This feature is useful for special required items that the sales person does not need to be concerned about. Possible examples might include installation labor or additional related accessories that need to appear on the item list for the quote. For scenarios when the user needs to make decisions about which items are included, the “required item” configurator rule may be a more appropriate solution.

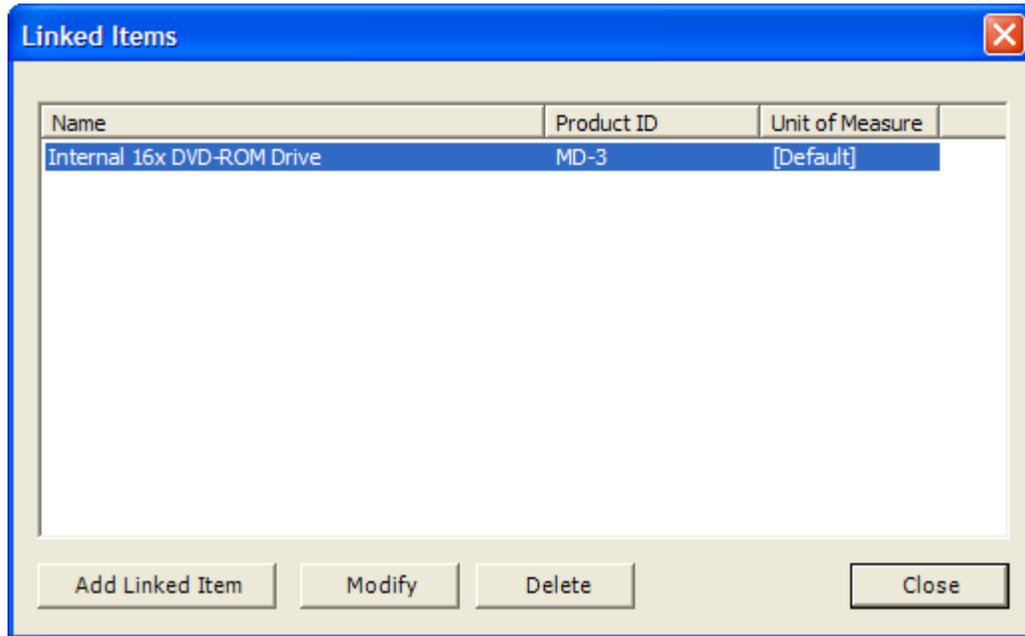
As an example, if the salesperson adds Widget X to the quote, they may be required to also include a mounting bracket, power cable, and installation labor. Linked items can be used to automatically add all of these additional products without requiring the user to remember the additional details.

## Linked Items for Parent Products

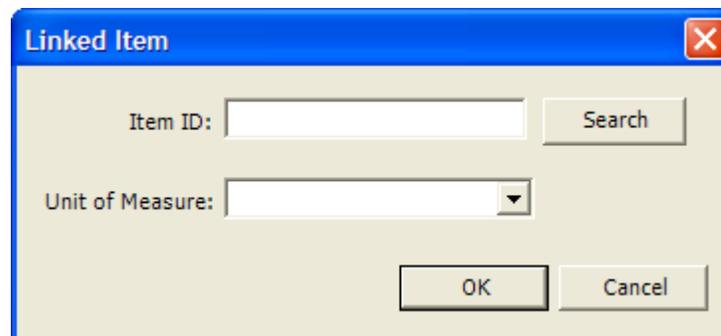
To specify a list of linked items for a parent product, right click the product and select the Linked Items command.



The Linked Items screen provides commands for adding and removing linked items to the parent product.



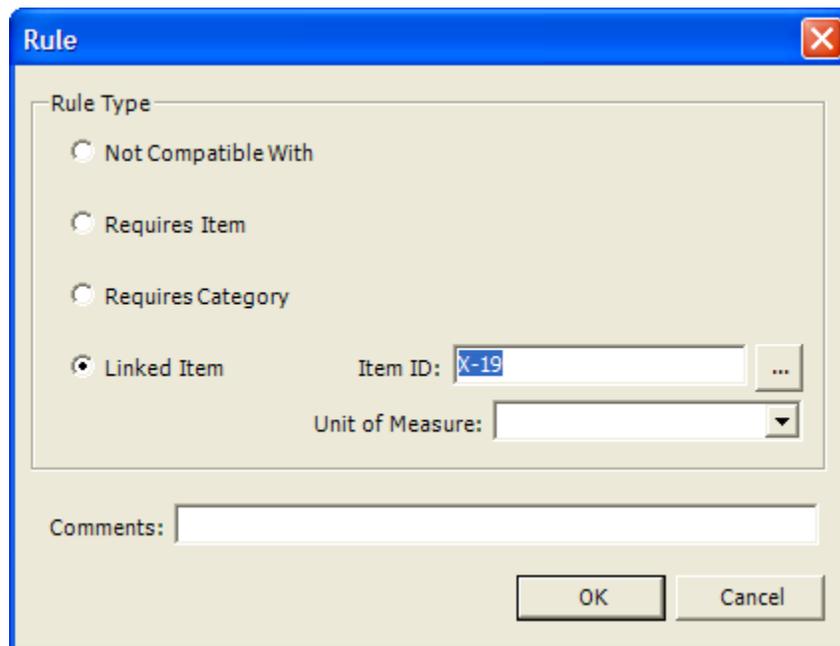
Press the “Add Linked Item” button to attach an item to the parent product.



In Microsoft CRM, when the parent product is added to a quote, each of the linked items will also be added as child products that are attached to the parent. These child products are not visible in the configurator interface. If you print the quote or view the item list on Microsoft CRM's Existing Products screen, you will see the linked items.

## Linked Items for Child Products

To add linked items to a child product, open the child products screen and add a configurator rule to one of the child products in the list. Use the “Linked Item” configurator rule to specify a linked item for a child product.



The image shows a dialog box titled "Rule" with a close button (X) in the top right corner. Inside the dialog, there is a section labeled "Rule Type" containing four radio button options: "Not Compatible With", "Requires Item", "Requires Category", and "Linked Item". The "Linked Item" option is selected. To the right of the "Linked Item" option, there is an "Item ID" field with the text "X-19" and a small dropdown arrow. Below the "Item ID" field is a "Unit of Measure" dropdown menu. At the bottom of the dialog, there is a "Comments:" text box and two buttons: "OK" and "Cancel".

When the child item is added to a quote, the linked items will be added as nested child items that are attached to the child item. These nested child items will not be visible in the configurator interface. If you print the quote or view the item list on Microsoft CRM’s Existing Products screen, you will see the linked items.

## CHAPTER 11

# Troubleshooting

### Enable Error Messages in QuoteAdvantage

If a runtime error occurs inside QuoteAdvantage then a “friendly” error message will be displayed in the Internet Explorer window. This protects the user from seeing a potentially cryptic error message and also prevents security-related information from being unintentionally disclosed. In order to effectively diagnose a problem, it is usually necessary to display detailed error messages. To enable error messages in QuoteAdvantage, perform the following steps:

1. Using Windows Explorer, navigate to the QuoteAdvantageWeb folder
2. Open the web.config file in Notepad or your favorite XML code editor.
3. Find the <system.web> section near the top of the file.
4. Within the <system.web> section, locate the <customErrors> section.
5. Set the value for “mode” to “Off”. This will enable verbose error messages to be displayed.
6. Save your changes to the web.config file. Close and re-open Microsoft CRM in the web browser. Re-test the area where you suspect a problem was occurring. A detailed error message should be displayed.
7. If a detailed error message is still not displayed, check the settings for Internet Explorer on the client machine. In IE, click Tools – Internet Options – Advanced. The “Show Friendly HTTP error messages” setting should be turned off.

### Resolving Common Errors

Error: Could not find file "c:\inetpub\wwwroot\QuoteAdvantageWeb\bin\CategoryList.xml"

This problem is caused when the CategoryList.xml file was not found. This file must be available in the QuoteAdvantageWeb\bin folder. Refer to Chapter 3 for information about how to create this file.

The 'ABCDEF' start tag on line 'X' doesn't match the end tag of 'XYZ' in file 'file:///c:/inetpub/wwwroot/QuoteAdvantageWeb/bin/CategoryList.xml'. Line J, position K.

This type of error is usually caused by mistyping something in one of the XML files. Carefully inspect the XML file on the line number that was mentioned in the error message. All of your starting XML tags must be precisely matched with a corresponding end tag. For example, a <Category> entry must be ended with a </Category> entry. If the start and end tags are not exactly symmetrical, then error messages will be displayed.

The product with Product ID = ABCDEF could not be loaded

A Product ID value was not specified correctly in either the Microsoft CRM database or the Parent Product’s rules.xml file. First, inspect the XML file where the rule was loaded. Make sure the Product ID value is spelled correctly everywhere that it is used. If it seems to be correct, open the Product that uses this Product ID with the

Microsoft CRM product catalog. The Product ID that is displayed in the catalog should match the Product ID that is used in the rule files. Refer to Chapter 3 for additional information about how to specify Product ID values.

Error in CategoryList.xml. A categoryId value was not found for the 'Category X' category.

In the CategoryList.xml file, each <Category> entry should include a “categoryId” value. If this value is missing, then you will see errors when a user clicks on the category entry in the tree list. Carefully inspect your XML file to find the missing entry. Refer to Chapter 3 for additional detail.

## Technical Support

QuoteAdvantage is open source software. Technical support may be available from the QuoteAdvantage software development project that is hosted at [www.codeplex.com](http://www.codeplex.com).

Additionally, Callisto Systems (the original authors of the software) is available to assist you. Please visit our website at [www.errorfreeorders.com](http://www.errorfreeorders.com) or send email to: [support@errorfreeorders.com](mailto:support@errorfreeorders.com)

We will be happy to help you with any installation or setup issues that you are experiencing. Callisto Systems also offers consulting services to help you with customizing QuoteAdvantage to handle your company’s business needs. We have over sixteen years of experience with building software to solve sophisticated pricing and quoting problems.

Please let us know if we can help you!