

Selling and Fulfillment Foundation

Pricing Concepts Guide

Release 9.0

Last updated in HF1

May 2010

Sterling Commerce
An AT&T Company

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Overview of Pricing Service

The Pricing Service is a component of Selling and Fulfillment Foundation. It acts as a hub for every pricing calculation that occurs in Sterling Selling and Fulfillment Suite™. Even if pricing data is passed to a third party, the data is funneled back through the Pricing Service before being passed to the consuming application.

The Pricing Service provides the ability to store and maintain all the pricing data at the Pricing Organization. Either an organization can be defined as a Pricing Organization and maintain its own pricing data, or an organization can specify a Pricing Organization of its choice.

The Pricing Service enables users to define price lists, maintain prices for each product, define quantity tiers, and assign price lists either directly to customers or indirectly to customer attributes. The Pricing Service uses price lists, pricing rules, and customer assignments to manage customers' access to products and appropriate prices. For example, a Pricing Organization can define prices based on criteria such as the quantity of items ordered, the importance of the customer, the region where the item is sold, and the time period during which the item is sold. Price lists and pricing rules are defined and managed by the Pricing Organization. The assignment of customers or customer attributes to a price list or pricing rule is defined and managed by an Enterprise.

Overview of Price Lists

A price list is a list that defines pricing for specific items or SKUs. It consists of header information and a list of products and their list prices. The header information contains the name, description, currency, effectivity dates, and status of the price list. Each price list must have a currency assigned to it, and the price list can have a status of either Active or Inactive. The price list lines associate products with a list price and show either positive or negative adjustments. Each price list line has zero or more quantity tiers, and each tier can have its own list price.

A price list can be inherited from a master price list, and additional percentage adjustments or absolute adjustments can be defined for the child price list. For more information about inheriting price lists, refer to the topic “[Price List Inheritance](#)”.

A price list can be assigned to all the registered users of an Enterprise, anonymous users, and all B2B customers. In addition, a price list can be assigned to one or more customer attributes. For example, you can assign a price list to a region, for example, Boston, or to a customer level, for example, a Gold customer.

Price lists can be administered through the Business Center application.

Price List Lines

Each price list line in a price list associates a product with a list price.

The difference between list price, unit price, and line price is as follows:

- ◆ The list price is the price specified in the price list. The list price does not consider volume discounts, special pricing rules, or anything else that may affect the price.
- ◆ The unit price is the calculated price of an item after a percentage adjustment or an absolute adjustment has been applied to the list price.
- ◆ The line price is the price for a given line item. The line price depends upon the list price, quantity ordered, and pricing rules.

For example, the following table shows that MXWS-1000 has a list price of \$10.00. A -\$2.00 adjustment is applied to the list price, resulting in a calculated unit price of \$8.00. The line quantity ordered for MXWS-1000 is 100, resulting in a line price of \$800.00.

Product ID	List Price	Absolute Adjustment	Unit Price	Quantity Ordered	Line Price
MXWS-1000	\$10.00	-\$2.00	\$8.00	100	\$800.00

Each list price can have positive or negative adjustments associated to that price. The adjustments are usually discounts, and can be a percentage adjustment (such as, 10%) or an absolute adjustment (such as, \$10.00). For example, you can have a price list containing several MXWS products, and you can apply adjustments to some or all of the list prices, as shown in the following table:

- ◆ A -5% adjustment is applied to the \$100.00 list price of MXWS-2000, resulting in a unit price of \$95.00. A quantity of 2 is ordered, resulting in a line price of \$190.00.
- ◆ A -\$10.00 adjustment is applied to the \$120.00 list price of MXWS-3000, resulting in a unit price of \$110.00. A quantity of 3 is ordered, resulting in a line price of \$330.00.
- ◆ No adjustment is applied to MXWS-4000. The list price and the unit price are the same. A quantity of 2 is ordered, resulting in a line price of \$260.00.

Product ID	List Price	Adjustment	Unit Price	Quantity Ordered	Line Price
MXWS-2000	\$100.00	-5%	\$95.00	2	\$190.00
MXWS-3000	\$120.00	-\$10.00	\$110.00	3	\$330.00
MXWS-4000	\$130.00	None	\$130.00	2	\$260.00

You can specify quantity tiers for the items in a price list. In quantity-tiered pricing, either absolute adjustments or percentage adjustments are applied to a list price depending on the quantity ordered. For example, you can have quantity tiers for order boundaries between 10 and 19, 20 and 29, and 30 or greater. Generally, the greater the quantity ordered, the greater the absolute discount or percentage discount. When the order quantity falls within one of these boundaries, either an absolute adjustment or a percentage adjustment is applied to the list price. If the quantity falls outside the specified boundaries, an adjustment is not applied, and the price defaults to the base list price.

For example, you can set up quantity-tiered pricing, as follows:

◆ Percentage adjustments for product MXWS-1100

If a customer orders between 10 and 99 of item MXWS-1100, a -10% adjustment is applied to the list price. If a customer orders between 100 and 199 of item MXWS-1100, a -15% adjustment is applied to the list price. If a customer orders 200 or more of item MXWS-1100, a -20% adjustment is applied to the list price. If a customer orders less than 10 numbers of item MXWS-1100, it defaults to the base list price.

◆ Absolute adjustments for product RDMS-1100

If a customer orders between 10 and 99 of item RDMS-1100, a -\$1.00 adjustment is applied to the list price. If a customer orders between 100 and 199 of item RDMS-1100, a -\$2.00 adjustment is applied to the list price. If a customer orders 200 or more of item RDMS-1100, a -\$3.00 adjustment is applied to the list price. If a customer orders less than 10 numbers of item RDMS-110, it defaults to the base list price.

The following table illustrates these examples:

Product ID	List Price	Quantity Ordered	Percentage Adjustment	Absolute Adjustment	Unit Price	Line Price
MXWS-1100	\$10.00	50	-10%		\$9.00	\$450.00
MXWS-1100	\$10.00	150	-15%		\$8.50	\$1,275.00
MXWS-1100	\$10.00	200	-20%		\$8.00	\$1,600.00
MXWS-1100	\$10.00	5	None		\$10.00	\$50.00
RDMS-1100	\$10.00	50		-\$1.00	\$9.00	\$450.00
RDMS-1100	\$10.00	150		-\$2.00	\$8.00	\$1,200.00
RDMS-1100	\$10.00	200		-\$3.00	\$7.00	\$1,400.00
RDMS-1100	\$10.00	5		None	\$10.00	\$50.00

Effectivity dates can also be specified for the items in a price list. For more information about effectivity dates, refer to the topic [“Price List Line Item Effectivity Dates”](#).

Price List Line Item Effectivity Dates

You can set effectivity dates at the line item level. By default, the price of a line item is effective for the effective period specified for the corresponding price list. You can also specify a special price for a particular period at the line item level by overriding existing price list effectivity dates with new effectivity dates. This means that the same product ID can have more than one entry with varying prices in the same price list. In such a scenario, the system uses the lowest value of the effective prices.

For example, let us suppose that a price list is effective from 12/01/2009 through 12/01/2010. One product ID, ProductID1, has three entries in the price list:

- ◆ One entry defines a price of \$35.00. The entry does not define effectivity dates, so its effectivity dates are the same as the price list effectivity dates.
- ◆ The second entry defines a price of \$25.00 and has effectivity dates from 02/01/2010 to 08/01/2010.
- ◆ The third entry defines a price of \$30.00 and is effective from 01/01/2010 to 10/01/2010.

The following table provides prices for ProductID1 on various dates:

Date	Price
11/15/2009	Price not available from this price list. The price list is not effective.
12/02/2009	\$35.00: Only the first entry is effective.
01/03/2010	\$30.00: The first and third entries are effective, and the third provides the lowest price.
05/16/2010	\$25.00: All three entries are effective, and the second provides the lowest price.
09/20/2010	\$30.00: The first and third entries are effective, and the third provides the lowest price.
11/02/2010	\$35.00: Only the first entry is effective.

Price List Statuses

A price list can be in either Active status or Inactive status. A price list impacts the prices of the items in it only if the price list is in the Active status. A pricing organization user can assign a price list that is in the Inactive status to a customer, but that price list will have no impact on the price applied to the customer's orders until it is activated. A pricing organization user can change the status of a price list in order to either activate or deactivate the price list.

In addition to a price list having a status of Active or Inactive, price list lines within a price list can have a status of Active or Inactive. The following table provides scenarios of how the status of a price list and price list lines determines when prices are pulled from the price list:

If:	Then:
The price list is Active and the price list lines are Active	All the prices can be pulled from the price list and applied to a customer's order.
The price list is Active and the price list lines are Inactive	Only prices for items that have a price list line as Active can be pulled from the price list and applied to a customer's order.
The price list is Inactive and the price list lines are Active	Prices cannot be pulled from the price list and applied to a customer's order.
The price list is Inactive and the price list lines are Inactive	Prices cannot be pulled from the price list and applied to a customer's order.

Pricing Precision

Calculated prices are rounded to a fixed number of decimal places. Consider how many decimal places you want to store and display before you create your price lists. For example, you may want to set the unit price of some products to four decimal places.

The precision to which prices will be displayed is set during the implementation of Selling and Fulfillment Foundation. You can set system-level rules that control the precision of unit prices and total prices. By default, unit price precision is six decimal places, and total price precision is two decimal places.

Note: Sterling Distributed Order Management™ supports a maximum of six decimal places for unit prices and a maximum of two decimal places for total prices. If the maximum values are exceeded, truncation and rounding issues may occur.

Unit price precision should always be greater than or equal to total price precision. Otherwise, a loss of pricing precision will occur on the total prices. For example, if you set the unit price precision to 2 and the total price precision to 3, your order total prices will have only 2 instead of 3 decimal places because the calculated order total prices are based on the unit price.

Bulk Updates on a Price List

Price lists contain the prices of products in a catalog, and the catalog often contains millions of items. If the data has to be updated, it will not be efficient or cost-effective to update each item individually. The Pricing Service, however, enables the performance of bulk operations on items or a category of items with a reasonable response time. Following are some of the bulk operations that you can perform on items or a category of items:

- ◆ Delete all the price list lines from the price list.
- ◆ Add all the items from the catalog to the price list.
- ◆ Add a percentage adjustment, for example, 5%, or an absolute adjustment, for example, \$5.00, to all the list prices.

Maintaining and Customizing a Price List

You can use the Pricing Service to deliver prices to targeted customers. To do this, you must create price lists that are specific to customers or customer attributes, and then associate the price lists with the targeted customers. The Pricing Service calculates the lowest price for a product based on the active price lists associated with a customer or customer attributes. You can use multiple price lists to offer different prices to different customers.

When you create a price list, you select the products to be assigned to the list, and then set the unit prices for those products within the context of the price list. You must also set a currency, a status (Active or Inactive), and a start date and an end date (effectivity dates) for each price list. The start date and the end date define the range during which a price list is applicable. If the current date is not within this range, the price list will not be used for any price calculations that are performed for the current date. You can temporarily change a price list's status to Inactive while updating pricing information. After the changes are complete, you can change the status to Active. If a price list's status is Active and the current date is within the price list's effectivity dates, any change made by a pricing administrator takes effect immediately.

A customer cannot purchase a product unless that product has been assigned to at least one active price list associated with that customer.

Price List Inheritance

One price list can inherit the items and price information from another price list. When a price list has one or more dependent price lists inheriting the price information from it, that price list is called a master price list.

Some organizations maintain a master price list from which inherited price lists are created to give certain discounts or charges to a specific customer or group of customers. For example, if an organization has three divisions to cater to customers in three different regions, the organization can create one master price list in which the prices of all the items are defined, and three dependent price lists that inherit the items and price information from the master price list. A pricing organization user can either increase or decrease the prices that a dependent price list inherits from a master price list by a percentage, a fixed amount, or both a percentage and a fixed amount.

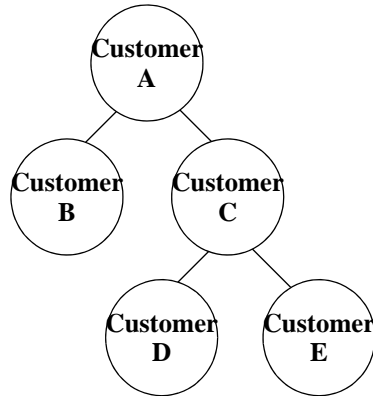
When a price list is inherited from a master price list, the inherited price list inherits all the products and their list prices, percentage or absolute adjustments, if any, effectivity dates, and the status and currency of the master price list. However, the inherited price list does not inherit the assignments. A pricing organization user can then define additional percentage adjustments or absolute adjustments to the unit prices in the inherited price list. For example, if you have an inherited price list for a region in which you want to charge higher prices, you may want to define that all the prices in this inherited price list are increased by \$5.00, 5%, or by both \$5.00 and 5%.

Note: If you create a new price list that is inherited from a master price list, the inherited price list cannot define new price list lines. In addition, only one level of inheritance is allowed.

You can also create a new price list from an existing price list by copying it. When you copy a price list, with the exception of assignments, everything is copied to the new price list, including the products and their list prices, percentage adjustments or absolute adjustments, if any, effectivity dates, and the status and currency of the price list. However, significant maintenance may be required if you have to keep these price lists synchronized. For example, when you make changes to one price list, such as adding an item or updating the price of an item, you must make the same changes in all the copied price lists. If you have to keep price lists synchronized, use the price list inheritance feature rather than copying a price list.

Making Price Lists Sharable

If one of your customers is a parent in an hierarchy of customers, you can assign price lists to the parent so that those price lists are automatically assigned to the customers who are below the parent in the hierarchy. For example, in the following figure, Customer A is parent to Customer B and Customer C. Customer C is parent to Customer D and Customer E. If you assign a price list to Customer A and mark that price list as sharable, the system automatically assigns that price list to Customer B and Customer C, as well as to Customer D and Customer E.



You can specifically assign that price list to the child customer and mark that price list as sharable. This ensures that the price list is assigned to the child (and to its children) even if the assignment is removed from the parent.

Pricing Rules and Coupons

In addition to managing prices for products using price lists, you can manage prices using pricing rules and coupons. Pricing rules and coupons manage special offers, discounts, and charges at either the order level or the line level.

Pricing rules and coupons can be administered through the Business Center application.

Pricing Rules

A pricing rule defines a set of conditions and actions. When the condition of a rule is satisfied, the corresponding action is taken. For example, you can set a bulk discount rule to specify that an item should sell for a lesser price if the customer buys more than a specified number of the product. In the case of order rules, these actions result in pricing adjustments, which can be either discounts or charges. For item quantity rules, conditions are evaluated on the basis of either item IDs or item attributes (features).

The status of a pricing rule can be either Active or Inactive. A pricing rule will be applied only if it is in the Active state and if it is effective at the time the pricing is performed.

Order rules are one of the following types:

- ◆ **Combination:** These rules are used to adjust the price of a target item ID if a certain combination of source item IDs is present in an order. The rule is applied only if the target item ID is already in the order. Combination rules can give a discount to either a single target item, all the target items, or each combination of trigger items. Combination rules may require certain quantities of item IDs to be present, for example, buy five PCs and get a printer free.
- ◆ **Item Quantity:** These rules enable the specification of quantity-tiered pricing for items. You can specify the price at which an item should be sold if a customer buys more than a specified number of the product. You can either specify the item by ID, or you can use item attributes (features) to select the items to which the rule applies.

An item quantity rule can enable a percentage adjustment or absolute adjustment on a single target item or all target items. For example, a rule can state that if a customer buys 10 or more of a target item, a 5% adjustment is applied to all the target items.
- ◆ **Order Total:** These rules take an action if the total value of the order (before shipping and tax) falls within a range. Typically, the action is to reduce the order total by a percentage discount or by an absolute value specified in the currency of the rule. For example, a rule can state that if the order is over \$25, a 10% adjustment will be applied to the order.
- ◆ **Shipping Charge Order Total:** These rules provide discounts on shipping charges based upon the order total. Discounts can be a fixed amount, a percentage, or a flat fee shipping charge. For example, a rule can state that if the order is over \$25, a \$5 discount will be applied to the shipping charge.
- ◆ **Item Shipping Surcharge:** These rules operate at the line item level to associate a shipping surcharge with items that have a specified feature.

For example, let us suppose that you want to charge an additional flat fee for shipping oversized items, such as refrigerators. You can create an item attribute type (feature type) called Oversized, and then create an Oversized: refrigerators item attribute (feature), and associate it with all the refrigerators.

When you create the item shipping surcharge rule, you attach the surcharge by selecting the Oversized: refrigerators feature.

When the rule applies to a product in an order, the system multiplies the surcharge by the quantity of the item being purchased, and adds the resulting amount to the shipping adjustment.

Note: You cannot use derived, computed, or reference attributes in pricing rules.

After you create a pricing rule, you must assign it to a certain set of customers. For example, you can assign a pricing rule to only Gold customers.

Coupons

Coupons are a type of pricing rule, but are slightly different from the pricing rules described earlier. The pricing rules described earlier apply to all orders, and customers do not have to do anything to have the rules modify the prices they see in their orders. By contrast, coupons modify the prices of items in orders only if customers actively add the coupons to their orders. Another difference is that pricing rules can be applied to one or more target items, whereas coupons can be applied to only one target item. For example, an item quantity rule can apply either a percentage adjustment or an absolute adjustment on a single item or all target items, whereas a coupon can apply the adjustment on only one target item.

Coupons are of the following types:

- ◆ **Combination:** A combination coupon adjusts the price of a target item ID if a certain combination of source item IDs is present in the order. The coupon is applied only if the target item ID is already in the order. A combination coupon can have one target item, many items, and one action. A combination coupon may require that certain quantities of item IDs be present, for example, buy two televisions and get a free DVD player.
- ◆ **Item Quantity:** An item quantity coupon adjusts the price of an item if the customer buys more than a specified number of the product. An item quantity coupon can give either a percentage adjustment or an absolute adjustment on a single target item, and it can have one or more actions. For example, buy between 5 and 10 DVDs and get a 10% discount; buy 11 or more DVDs and get a 15% discount.
- ◆ **Order Total:** An order total coupon takes action if the total value of the order (before shipping and tax) falls within a range. Typically, the action is to reduce the order total by either a percentage adjustment or an absolute discount. An order total coupon can have one target item and one or more actions. For example, if the order total is between \$100 and \$200, get a 10% discount on the order total; if the order total is greater than \$200, get a 15% discount on the order total.
- ◆ **Shipping Charge Order Total:** A shipping charge order total coupon applies a discount on the shipping charge based upon the order total. The discount can be a fixed amount, a percentage, or a flat fee shipping charge. A shipping charge order total coupon can have one target item, many target attributes, and one or more actions. For example, if the order total is between \$100 and \$200, the shipping charge is discounted by 10%; if the order total is greater than \$200, the shipping charge is discounted by 15%.

Note: You cannot use derived, computed, or reference attributes in coupons.

A customer can add one or more coupons to an order. A coupon affects the price of the items in an order only if a customer and the order meet the constraints defined for the coupon. When the pricing rules are applied, the rule associated with the coupon is also applied, and if it is valid for that order, the rule modifies a line item price in the same way as the other pricing rules.

You can set a flag on a coupon to indicate that the coupon is an exclusive coupon. The following rules govern the application of exclusive coupons in an order:

- ◆ Either a single exclusive coupon or multiple nonexclusive coupons can be applied to a coupon target.
- ◆ An item-targeted exclusive coupon does not conflict with any order-level coupon.
- ◆ An order-level exclusive coupon does not conflict with any item-targeted coupon.
- ◆ An item-targeted exclusive coupon is exclusive with another item-targeted coupon only if the targets are the same, and vice versa.
- ◆ An order total exclusive coupon is exclusive with any other order total coupon, and vice versa.
- ◆ If more than one exclusive coupon is specified in an order, only the first exclusive coupon is applied to the order.

The Pricing Service provides management APIs for pricing rules, coupons, and price lists. For more information about management APIs for pricing rules, coupons, and price lists, refer to the *Selling and Fulfillment Foundation: Javadocs*.

Order Pricing Examples

If a customer adds a coupon to an order, the rule associated with the coupon can apply an adjustment (discount or charge) to a line item. For example:

- ◆ Buy one, get one free
If you buy two of an item, the second item is free.
- ◆ Special offer for Gold distributors
If you buy more than \$1,000.00 worth of items, you get 10% off. If you are a customer user contact who belongs to a customer with a relationship type of Distributor, your customer level is Gold, and your order total (before tax and shipping) is greater than \$1,000.00, the order total is reduced by 10%.
- ◆ Orders over \$150.00 qualify for free shipping
If you buy products totaling \$150.00 or more, shipping charges are waived.

You can define some pricing rules using item attributes. For example, if you buy a wireless-ready laptop, you get a free carry case. Any order containing a laptop that has the wireless-ready feature satisfies this rule.

Assigning a Pricing Rule or a Coupon to Customer Attributes

You can assign a pricing rule or a coupon to one or more sets of customer attributes, such as vertical, relationship type, customer level, and region. Vertical indicates the industry a customer belongs to, such as Education or Government. Relationship type indicates whether a customer is a reseller, distributor, a contract manufacturer, and so on. Customer level indicates tiered values representing a customer's status, such as Gold, Platinum, or Silver. Region indicates a defined geographic territory.

For example, you can assign a pricing rule or a coupon as follows:

- ◆ If you want to assign a pricing rule or coupon to customers in the Boston area, you can assign it to attribute `region=Boston`.
- ◆ If you want to assign a pricing rule or coupon to customers serving the educational market, you can assign it to attribute `vertical=Education`.
- ◆ If you want to assign a pricing rule or coupon to gold-level customers, you can assign it to attribute `customer level=Gold`.
- ◆ If you want to assign a pricing rule or coupon to customers who are resellers, you can assign it to attribute `relationship type=Reseller`.

You can also assign a pricing rule or coupon to several customer attributes, such as all gold-level customers in the Boston area who are serving the educational market. For example, you can assign a pricing rule to attributes `region=Boston`, `vertical=Education`, and `customer level=Gold`.

The behavior of assigning pricing rules and coupons to customer attributes is similar to that of assigning price lists to customer attributes. The best matched region does not make sense in the case of rules; all the rules that are applicable for the U.S. region are also applicable for the East Coast region or West Coast region.

Generally, you assign rules to specific regions rather than hierarchically defining rules based on regions. The assignment of customer attributes to a pricing rule or coupon also happens at the Enterprise level.

Given a customer, pricing rules that are assigned explicitly to that customer and the pricing rules assigned based on customer attributes are used. There is no precedence as in price list selection.

Mapping a Pricing Rule or Coupon Adjustment to Charges

Order Management stores the adjustments that are generated as part of a pricing call using a charge category and charge name combination. The Pricing Service returns these attributes during the pricing call, based on the data configured for each pricing rule action. When multiple pricing rules are applicable, adjustments from the pricing rule actions are applied cumulatively.

The pricing module uses the charge category and charge name, as follows:

- ◆ The pricing module uses only the charge category and charge names that are defined within a given Pricing Organization, and for the document type Sales Order (0001 only).
- ◆ Every pricing rule can also be associated with a charge category and charge name that is defined within a given Pricing Organization as follows:
 - ◆ A pricing rule generating a charge (percentage or absolute) cannot have a charge name that is defined as discount only.
 - ◆ A pricing rule generating a discount (percentage or absolute) cannot have a charge name that is defined as billable only.
 - ◆ A pricing rule giving a flat fee discount cannot have a charge name that is defined as billable only. It should always be a discount.

Assigning a Price List

After you create a price list, you must make it available to customers. You can assign the price list to either specific customers or to customer attributes.

The following three financial rules that are part of Sterling Distributed Order Management™ can be enabled at the Enterprise level:

- ◆ Use The Price List Assigned To The Closest Customer In The Hierarchy
- ◆ Use The Price List Assigned To The Exact Or Closest Region In The Region Hierarchy
- ◆ Exclude Attribute Assignments Of A Price List If Direct Assignments Exist

Price list assignments can be administered through the Business Center application.

Assigning a Price List to Customers

The assignment of price lists to customers occurs at the Enterprise level, where the customer data resides.

Customers are of the following types:

- ◆ Business customers (B2B)
- ◆ Consumer customers (B2C) or registered users
- ◆ Anonymous users

You can assign a price list to all the registered users of an Enterprise, anonymous users, an all B2B customers.

You can also assign a price list to a specific business customer (B2B) and share the price list with that customer's child customers. If you do not assign a price list to a specific customer, the price list is assigned to all the customers.

You can have a hierarchy of customers, where each customer in the hierarchy shares its price lists with its child customers. When you enable the **Use The Price List Assigned To The Closest Customer In The Hierarchy** rule, the following behavior occurs. If a price list is assigned directly to a customer, that price list is used. If a price list is not assigned directly to a customer, the price list assigned to the parent customer is used. If a price list is not assigned to that parent customer, the price list of the next customer higher in the hierarchy is used.

Assigning a Price List to Customer Attributes

You can assign price lists to one or more customer attributes, such as vertical, relationship type, customer level, and region. For example:

- ◆ If you want to assign a particular price list to customers in the Boston area, you can assign the price list to attribute region=Boston.
- ◆ If you want to assign a particular price list to customers serving the educational market, you can assign the price list to attribute vertical=Education.

- ◆ If you want to assign a particular price list to gold-level customers, you can assign the price list to attribute customer level=Gold.
- ◆ If you want to assign a particular price list to customers who are resellers, you can assign the price list to attribute relationship type=Reseller.

You can also assign a particular price list to several customer attributes, such as all gold-level customers in the Boston area who are serving the educational market. For example, you can assign a price list to attributes region=Boston, vertical=Education, and customer level=Gold.

You can define additional attributes according to your business requirements. You assign price lists to attributes at the Enterprise level, where customer attributes data resides.

The Pricing Service uses the **Use The Price List Assigned To The Exact Or Closest Region In The Region Hierarchy** rule, which is defined at the Enterprise level, to determine the most specific region price list to use for pricing. If this rule is not set, the Pricing Service considers all the price lists from the region hierarchy. For example, assume that Customer A is assigned two price lists; one price list is assigned by the customer's region (such as Massachusetts), and the other price list is assigned by the customer's type (such as Gold member). When this rule is turned on, it uses the price list assigned by region, even if the price is higher. In addition, it uses the price list that is assigned to the region closest to the customer in the region hierarchy.

Assigning a Price List Based on Customers Or Customer Attributes

In the context of a B2B customer, the price lists that are assigned directly to that customer and the price lists that are assigned based on customer attributes are used for price determination.

Price list assignment behavior can be modified to pick the price lists that are assigned to a customer or to any customer higher in the hierarchy. If no such assignment exists, the price list is picked based on customer attributes. This behavior is controlled at the Enterprise level by the **Exclude Attribute Assignments Of A Price List If Direct Assignments Exist** rule. It gives precedence to the assignments that are based on customers over the assignments that are based on customer attributes.

Pricing Bundles

A bundle is a package containing both products and services. It comprises a bundle parent and one or more child lines. The child lines can be products, services, or other bundles.

A bundle parent is treated like any other order line as far as pricing is concerned. The line total is calculated like any other line. The order total includes the bundle parent as well as components, if any. A bundle can have a unit price, charges, and taxes like any other line.

There is an `IsLinePriceForInformationOnly` attribute at the order line level that can suppress a line's price so that it is excluded from the order total. If you want to have a price for a line, but do not want to include it in the order total, set this attribute for the corresponding component. For bundles, if a component's price is included in the package itself, but you want to store the individual line's price in case of cancellation or return, you can set the attribute on the line. In order to reflect the special price of a bundle, you can choose to set attributes for components so that the price of the components is not reflected in the total price of the order.

The following table shows an example of a bedroom package bundle and its components:

Bedroom Package	Line Total Amount	Price for Information Only
Bedroom Package (Bundle)	\$500	
Dresser	\$200	Y
Nightstand	\$100	Y
Bed Set Package (Bundle)	\$300	Y

Under normal circumstances, the order total will be the sum of all lines, which in this case is \$1,100. Instead, if the order is priced differently based on the bundle parent, and you do not want the component-level price to be included in the invoice, you can set an attribute at the component level during order creation. For more information about these attributes, refer to the *Selling and Fulfillment Foundation: Javadocs*.

When a bundle is added as a recommended line in an order, the `IsLinePriceForInformationOnly` flag is set to Y for the bundle's parent line and all its components, ensuring that the entire bundle is not included in the order total. The bundle total, however, is calculated based on the pricing strategy for the bundle. For example, as shown in the following table, if a Surround Sound System bundle is added as a recommended line in an order, and the pricing strategy for the bundle is COMP (consider only component prices), the calculated bundle total is \$750.00 (five satellite speakers at \$100.00 each = \$500.00, plus one subwoofer at \$250.00).

Item	Line Type	Price for Information Only	Qty.	Unit Price	Line Total	Bundle Total
Surround Sound System	Recommended	Y		\$1,000.00	\$1,000.00	\$750.00
Satellite Speaker		Y	5	\$100.00	\$500.00	
Subwoofer		Y	1	\$250.00	\$250.00	

Discount Distribution in an Order

Pricing rules and coupons that result in a discount or charge being applied to an order can be set up to distribute the adjustments in different ways. Discount distribution takes place at two levels:

◆ Distribution of header adjustment to lines

Order-level pricing rules have a flag to determine whether or not to distribute pricing adjustments to line items. Header-level adjustments are distributed to line items based on the weighted average by price.

The ability to choose distribution at the line item level accommodates legacy systems that may not be able to store adjustments at the order level, but instead store adjustments at the line item level. Such systems might use the shipping adjustments generated for an order to measure business throughput. The preferred method for such systems might be to distribute order total discounts.

◆ Distribution of adjustment among lines of same products

Consider discounts generated as part of rules and coupons. For example, consider a combination rule, Buy 3 of Item1 and get 10% off on an Item1, applied to the order shown in the following table:

SKU	Unit Price	Quantity	Discounts	Line Price
Item1	\$45.00	2	\$4.50	\$85.50
Item1	\$45.00	1	\$0.00	\$45.00

The discount of \$4.50 can be applied to either line, that is, the line with the quantity of 2, or the line with the quantity of 1.

However, some systems may want to distribute such discounts across all items, making it easier for the accounting system to keep track of the discount at the line level. The distribution of discounts across the lines is controlled at the Pricing Organization level using the **Distribute non-uniform item adjustment across the lines of the same item** rule. When this rule is enabled, the discount for the preceding order will appear as shown in the following table:

SKU	Unit Price	Quantity	Discounts	Line Price
Item1	\$45.00	2	\$3.00	\$87.00
Item1	\$45.00	1	\$1.50	\$43.50

Note: The **Distribute non-uniform item adjustment across the lines of the same item** rule is applicable only when the pricing rule adjustment applies to one target item. The rule is not applicable when the pricing rule adjustment applies to all target items, for example, Purchase a TV and get 10% off on all cables.

Manual Adjustments

The Pricing Service enables a Field Sales Representative or a Customer Service Representative (CSR) to manually adjust the price of a line total or an order total during the creation or modification of an order. The adjustment may be a discount or an additional charge. For example:

- ◆ In a quote scenario, a Field Sales Representative or a CSR can manually add a discount to a line, based on the negotiation between the buyer and the seller.
- ◆ If a customer is not satisfied, or has had a bad experience with any of the services that are provided, a Field Sales Representative or a CSR can appease the customer by manually applying a discount to the order total.

In addition, manual price adjustment rules that enable a Field Sales Representative to offer specific discounts in the form of coupons or promotions to certain customers, can be configured. When creating a quote for a customer, a Field Sales Representative can select a rule from the list of manual price adjustment rules offered, and apply that selected manual price adjustment rule to the corresponding quote. For example, a Field Sales Representative creates a quote for one HD TV and one BluRay Player, and then selects and applies the following manual price adjustment rule to the quote:

Apply up to 30% discount to the order total, with a default discount of 10%.

In this scenario, if the Field Sales Representative does not specify the percentage of discount to be applied, a default discount of 10% is applied to the quote, as illustrated in the following table:

Item	Quantity	Amount	Manual Discount	Total
HD TV	1	\$1,200.00	\$120.00	\$1,080.00
BluRay Player	1	\$300.00	\$30.00	\$270.00
Line				\$1,350.00
Order				\$1,350.00

If, however, the Field Sales Representative specifies that a 20% discount be applied to the order, a discount of \$240.00 is applied to the HD TV and a discount of \$60.00 is applied to the BluRay Player, resulting in an order total of \$1,200.00.

Note: A Field Sales Representative cannot apply an adjustment that exceeds the maximum adjustment specified in the rule.

When a pricing rule is applied to an order, the promotion and the PromotionGroup value of MANUAL are added to the order. Generally, a promotion applies to all current and future lines in an order. However, a promotion can be applied to only specific lines in an order. Also, the charges on the order and the order line will have the IsManual flag set to M, indicating a manually triggered pricing rule. An error is thrown if multiple IsManual values are set for a charge.

An attribute is set at the line level and order level of quotes, which enables users to see the manual discount percentages that have been applied to the applicable line total and order total. The ability to view the manual discount percentages applied to lines and orders can be particularly helpful for approvers during the approval process.

Price Locking

You can set a price lock on a line's unit price. Price lock freezes the unit price, which in turn protects the unit price from being repriced when it passes through the Pricing Service. Locking of prices is used by the Applications Manager and price match scenarios. The Pricing Service does not determine the unit price again from the price list for such locked lines.

Note: You can set a unit price for an item only if the IsPriceLocked flag is set to Y. Otherwise, the Pricing Service calculates the unit price for the item.

Coupons and some pricing rules can still be applied to price-locked lines, unless the flag IgnoreOnPriceLock is set to Y for the coupon or pricing rule. For example, let us suppose that item A1 is price locked, and you have a coupon that gives a 10% discount if a quantity of 10 or more of item A1 is ordered. If a customer orders 10 of item A1, the 10% discount will be applied to the A1 line item, unless the flag IgnoreOnPriceLock is set to Y for the coupon rule.

Shipping Charge Calculation

A shipping user exit is invoked during the getOrderPrice API call to get the shipping charge. Shipping charge calculation logic is externalized. The shipping user exit is invoked if implemented, even if the shipping charge is passed in the input. If the shipping user exit is not implemented, it uses the shipping charge provided by the caller of the API.

The following types of shipping rules govern shipping charge discounts and surcharges:

- ◆ **Shipping Charge Order Total:** These rules provide discounts on shipping charges based upon order total. Discounts can be a fixed amount, a percentage, or a flat fee shipping charge. You can attach the Shipping Charge Order Total rule to customer segments, and specify the shipping types, products, or product categories.
- ◆ **Item Shipping Surcharge:** These rules operate at the line item level to associate a shipping surcharge with items that have a specified feature. Surcharges apply only to the items that are shippable and have not been flagged for in-store pickup.

For example, let us suppose that you want to charge an additional flat fee for shipping oversized items such as refrigerators. You can create a feature type called Oversized, and then create an Oversized: refrigerators feature and associate it with all the refrigerators. When you create the item shipping surcharge rule, you attach the surcharge by selecting the Oversized: refrigerators feature.

When the rule applies to a product in the order, the system multiplies the surcharge by the quantity of the product being purchased and adds the resulting amount to the shipping charge.

Note: The shipping charge must never be less than zero.

Price Matching

A customer may discover that another retailer is selling the same items that the customer ordered, but at a lesser price. In such a situation, the user can investigate the customer's claims and price match the items, if necessary. After an order line is price matched, the order line's unit price for that item is locked.

For additional information about price matching, refer to the *Sterling Call Center and Sterling Store: Implementation Guide*.

Overview of Order Pricing

The Pricing Service acts as a hub for every order pricing calculation. Even if pricing data is passed to a third party, the data is funneled back through the Pricing Service before being passed to the consuming application.

When either pricing or repricing is triggered for an order, the Pricing Service is called to determine the price that is applied to the order. This price is based on price lists, pricing rules, and customer assignments.

What Triggers Order Pricing

Pricing (or repricing) is triggered for an order when you add a line, change prices, or change the following values:

- ◆ Billing address
- ◆ Sold to address
- ◆ Carrier service code
- ◆ Buyer organization or seller organization
- ◆ Currency
- ◆ Promotions
- ◆ Pricing date

For order lines, pricing is triggered when you cancel or delete a line, change a price, or change the following values:

- ◆ Delivery method
- ◆ Quantity
- ◆ Options
- ◆ Promotions

Pricing behavior for orders and order lines is configurable through the rules in Sterling Distributed Order Management™ according to the requirements of your Pricing Organization.

Configuration Rules for Pricing Orders

Several configuration rules determine pricing behavior.

You can configure the following pricing rules in Sterling Distributed Order Management™:

- ◆ Which date to use for pricing - Determines whether to use the current date or the order date for pricing. This rule is located in the Sterling Distributed Order Management Applications Manager.

Note: By default, the Pricing Service uses the date specified in the order, if available, to price orders.

- ◆ Name of the shipping charge adjustment field - Defines the charge category and charge name that represent the shipping charge.

This is either a customer-defined shipping charge field or the default that comes with Selling and Fulfillment Foundation, Release 9.0. This rule is located in the Sterling Distributed Order Management Applications Manager.

- ◆ Use deprecated pricing functionality - Installation rule used after upgrade to specify whether to use the integrated Pricing Service offered in Selling and Fulfillment Foundation, Release 9.0, or the legacy Pricing Service (deprecated functionality) from versions prior to Release 8.5.

By default, the deprecated pricing functionality is in effect after upgrade to Release 8.5. If you uncheck this box after upgrade in order to enable the Pricing Service for Release 8.5 or later versions, ensure that you define your pricing configuration rules in the Sterling Distributed Order Management Applications Manager and convert your price lists as described in the *Business Center: Pricing Administration Guide*.

Data Selection Criteria for Pricing Orders

Prices and price adjustments for the lines in an order are determined by the data that is passed to the Pricing Service. The Pricing Service uses the following types of data to price orders:

- ◆ Pricing Date

For confirmed orders and quotes, a rule can be configured to determine whether the Pricing Service uses the current date or the order date for pricing orders. For draft orders, the Pricing Service uses the current date.

Note: If a custom pricing date is specified in an order or a quote, the custom pricing date overrides the pricing date that is applied to the order or the quote by a pricing date rule.

- ◆ Address

The Pricing Service uses an address in the order to determine the prices for the items in the order. The address that is used is determined by the type of customer in the order.

- ◆ For B2B customers, the Sold To address in the order is used. If a Sold To address is not specified, the Bill To address is used.
- ◆ For all other customers, the Bill To address in the order is used.

- ◆ Customer Attributes

The Pricing Service uses the customer's attributes to determine the prices for the items in the order. Customer attributes include Vertical, Relationship Type, and Customer Level, and are tied to pricing rules and price lists. For example, if a customer in an order has Customer Level=Gold, the Pricing Service uses the price list and pricing rules that are assigned to Customer Level=Gold.

If a customer is not specified in the order, the Pricing Service will not consider customer attributes to determine pricing.

For additional information about the data selection criteria for pricing orders, refer to the *Selling and Fulfillment Foundation: Javadocs*.

Pricing of Recommended Lines in Quotes

Recommended line items in quotes are configured only for pricing information, that is, the pricing for recommended items is displayed, but is not included in the calculated total cost of the quote. However, if a customer decides to purchase a recommended item in a quote, the recommended line item is changed to a regular line item, the cost of the item is included in the calculated total cost of the quote, and repricing occurs. As a result of this, if additional discounts or uplifts are applied to the order, the changeOrder API throws an error, indicating that the quote must be reworked.

Example

Let us assume that a Field Sales Representative creates a quote that contains the items listed in the following table:

Item	Line Type	Qty.	List Price	Unit Price	Automatic Discount	Manual Discount	Line Total	Calculated Total Cost
HD TV		1	\$1,000.00	\$1,000.00	-\$200.00	-\$100.00	\$700.00	\$700.00
Remote Control	RECOMMENDED	1	\$50.00	\$50.00	-\$0.00	-\$5.00	\$45.00	

The calculated total cost of the quote in this table is \$700.00. It includes the cost of the HD TV, but does not include the cost of the Remote Control, which is a recommended line item.

The customer decides to also purchase the recommended item, the Remote Control. When the changeOrder API is called, the line type is changed from a recommended line item to a regular line item, as indicated in the following table. If the quote does not contain any additional pricing rules, the order is repriced as expected, that is, the cost of the Remote Control is included in the calculated total cost of the quote, which is now \$745.00.

Item	Line Type	Qty.	List Price	Unit Price	Automatic Discount	Manual Discount	Line Total	Calculated Total Cost
HD TV		1	\$1,000.00	\$1,000.00	-\$200.00	-\$100.00	\$700.00	\$745.00
Remote Control		1	\$50.00	\$50.00	-\$0.00	-\$5.00	\$45.00	

If, however, a quote contains a pricing rule that causes a price change to the order, the changeOrder API will throw an error, indicating that the quote must be reworked. For example, if a pricing rule, Buy one HD TV and get one Remote Control for -100%, is applied to the quote in this table, the changeOrder API will throw an error because the automatic discount of -100% for the Remote Control causes a price change of -\$45.00 in the quote. When the Field Sales Representative reworks the quote and the reworkQuote API is called, the calculated total cost of the quote is \$700.00, as shown in the following table:

Item	Line Type	Qty.	List Price	Unit Price	Automatic Discount	Manual Discount	Line Total	Calculated Total Cost
HD TV		1	\$1,000.00	\$1,000.00	-\$200.00	-\$100.00	\$700.00	\$700.00
Remote Control		1	\$50.00	\$50.00	-\$45.00	-\$5.00	\$0.00	

Profit Margins

When discounts are applied to order lines or order totals, users can benefit from understanding the profit margin for the applicable order line or order total. For example, if a Field Sales Representative sees that the profit margin for an order line is too low, the Field Sales Representative may decide to adjust the percentage discount applied to that order line. Also, an approver may look at the profit margin of an order total to determine whether or not to approve a quote.

Profit margins are calculated as follows:

◆ Order line:

$\text{ROUND}(((\text{Line Total} - \text{Item.UnitCost} * \text{Qty}) / \text{LineTotal}) * 100, 2)$

Note: Line Total represents the extended price of the line, which is the unit price multiplied by the quantity, plus or minus any charges or discounts considered for profit margin.

◆ Order total:

$\text{ROUND}(((\text{Grand Total} - \text{SUM}(\text{Item.UnitCost} * \text{Qty})) / \text{GrandTotal}) * 100, 2)$

Note: Grand Total represents the extended price of the order, which is the sum of the unit prices multiplied by their quantities, plus or minus the sum of any charges or discounts considered for profit margin.

A flag in the charge category table and the charge name table determines if the applicable charge or discount in an order, such as shipping charge or manual discount, should be included when determining the profit margin. By default, all charge categories are included when determining the profit margin. If a charge name does not have a value, its value will be inherited by its charge category.

Note: Taxes are not included in profit margin calculations.

For example, the following table shows the calculated profit margin for two items, Phone and Tape Recorder, in an order:

Item	Item Cost	Qty.	Unit Price	Automatic Discount	Manual Discount	Line Total	Profit Margin
Phone	\$60.00	1	\$100.00	-\$14.50	-\$0.00	\$85.50	$(85.5 - 60 * 1) / 85.5$ $(85.5 - 60) / 85.5$ $25.5 / 85.5$ 28.81%
Tape Recorder	\$35.00	3	\$50.00	-\$15.00 (10%)	-\$0.00	\$135.00	$(135.00 - 35 * 3) / 135.00$ $(135 - 105) / 135$ $30 / 135$ 22.22%

The profit margin for the order total is 25.17%, which is calculated as follows:

Grand Total:	\$220.50
Total Item Cost:	\$165.00
Order Profit Margin	$(220.5 - 165.00) / (2.205) = 25.17\%$

Bundle Pricing

You can set Item catalog pricing for bundles to compute in one of three ways:

- ◆ Parent-level pricing, where the bundle price is determined by the parent price. For example:

Living room seating arrangement	\$2800.00
Sofa 3 seats	\$0.00 (included)
Lounge chair	\$0.00 (included)
Ottoman	\$0.00 (included)
Coffee table	\$0.00 (included)

Total	\$2800.00
--------------	------------------

- ◆ Component-level pricing, where the sum of the components determines the bundle price. For example:

Living room seating arrangement	\$0.00
Sofa 3 seats	\$1820.00
Lounge chair	\$1100.00
Ottoman	\$50.00
Coffee table	\$80.00

Total	\$3050.00
--------------	------------------

- ◆ Mixed parent-level and component-level pricing, where the sum of both the parent and the components determines the bundle price. For example:

LWL Notebook A38	\$470.00
2GB Memory	\$0.00 (included)
60 GB HDD	\$0.00 (included)
Docking Station	\$120.00
3-year Service Plan	\$200.00

Total	\$790.00
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This bundle pricing strategy can be defined for each bundle item in the Item Administration catalog.

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