## openCRX Package product1

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# **Table of Contents**

1	About	this Book	4
	1.1	Who this book is for	4
	1.2	What do you need to understand this book	4
	1.3	Tips, Warnings, etc	4
2	Prerea	uisites	5
_	2.1	Sample data	5
3	Produc	cts	11
	3.1	AbstractProduct	12
	3.2	Product	13
4	UOMs	(Units of Measurement)	14
5	Basic F	۲ Pricing	15
	5.1	Prices of Products	15
	5.2	Price Levels	16
	5.2.1	Assigning Prices to Price Levels	18
	5.2.2	Assigning Products to Price Levels	22
	5.2.3	Assigning Accounts to Price Levels	23
	5.2.4	Price Lists	24
	5.2.5	Sample Price Level Sales	25
	5.3	Pricing Rules	25
	5.3.1	Pricing Rule LowestPrice	26
	5.3.2	Pricing Rule Precedence	27
	5.4	Calculation Rules	27
6	Some	Examples	29
	6.1	Widget A and Widget B with standard pricing	29
	6.2	Pricing per Pricing date or Active/Valid from date	32
	6.3	Volume Discounts	34
7	Useful	Wizards	37
8	Next S	Steps	38
		•	

# **List of Figures**

Figure 1:	Sample data – 2 products, 2 price levels, 5 base prices	10
Figure 2:	Wizard New Product	11
Figure 3:	Class Diagram product1.AbstractProduct	12
Figure 4:	Class Diagram product1.Products	13
Figure 5:	UOMs of the Root Segment	14
Figure 6:	Class Diagram uom1.Main	14

15
16
17
.17
.18
19
.22
.23
.23
24
25
26
28

# List of Listings

### **1** About this Book

This book is designed to help you understand some basic concepts of the openCRX package **product1**, which allows you to design, configure, and manage complex products and their prices.

#### **1.1** Who this book is for

The intended audiences are openCRX administrators and openCRX users.

#### **1.2** What do you need to understand this book

A basic understanding of how to read UML diagrams.

#### **1.3** Tips, Warnings, etc.

We make use the following pictograms:



Information provided as a "Tip" might be helpful for various reasons: time savings, risk reduction, etc. - it goes without saying that we advise to follow our guides meticulously

> **meticulous** \muh-TIK-yuh-luhs\, *adjective*: Extremely or excessively careful about details.



You should carefully read information marked with "Important". Ignoring such information is typically not a good idea.



Warnings should not be ignored (risk of data loss, etc.)

### 2 Prerequisites

If you intend to reproduce the examples given in this guide, you might want to make sure you have a access to a working instance of openCRX. For detailed information on how to setup/install an openCRX instance, see http://www.opencrx.org/server.htm for more information.

Enter the sample data as explained below.

#### 2.1 Sample data

With the following steps you can enter the test data used in this guide:

- launch your browser, connect to openCRX, and login as user guest
- navigate to [Products]
- in the grid tab [Active Price Levels] select New > Price Level and then enter values as follows to create the Price Level Standard:

Name: Based on:	Standard X		ls final: Valid from: Valid to:	1/1/2010 6:00:00 AM
Description:	Standard Prices			
Contract Filters Payment methods:		-	Shipping methods:	
Price Filters Currency:	EUR [Euro]		Price usage:	Retailer

click [Save] to complete the creation of the **Price Level Standard** 

 select New > Price Level again and then enter values as follows to create the Price Level Sales:

General System *			
Name: Based on:	Sales S	ls final: Valid from: Valid to:	05/01/2010 06:00:00 AM
Description:	Sales Prices		
Contract Filters Payment methods:		Shipping methods:	
Price Filters Currency:	EUR [Euro]	Priœ usage:	Retailer

click [Save] to complete the creation of the Price Level Sales

 still in [Products], select the Operation File > New Product to launch the product creation wizard:



 enter data as shown below and then click [Save] to create the Product Widget A:

1 ×										_	_	
S Pro	oducts								9	+ 🖂		
ile E	dit View	Actions	s Security	( Wizards								
roduct					<b>_</b>	- ·						
Name:		1	Widget A			Expires o	n:		_			
Product	t status:		Active	×	1	Sales tax	c type:		S Sal	es Tax	8.5%	<u> </u>
Product	t number:		WA-1000			Gross We	eight Kilo	gram:				
Jnit of	measurem	ient:	Piece(	s)	R.	Net Weig	ht Kilogr	am:				
Active/	Valid from:	:			1	Product [	Dimensio	n:				
Jesarip	tion:		caaso issus Large Wid	n Iget						1210	ME NATE	
Detaile	d descripti	on:	121616301 1890015	0						1410	ME SALK	4
rices												1.
rices Pric	ce U:	sage	Currency	Quantity from	n Quar	ntity to	Price		Discour	<sup>it</sup> Disco	ount	1
Prices	ce Us col Us	sage Retailer	Currency EUR	Quantity from	1 Quar	ntity to	Price	100	Discour is %	<sup>It</sup> Disco	ount	11
rices Prices - Sta	oe Us andard R Iles R	sage Retailer Retailer	Currency EUR EUR	Quantity from	Quar	ntity to 9	Price	100	Discour is %	<sup>it</sup> Disco	ount	1
rices Prices - Sta - Sa	oe Us andard R Ies R	sage Retailer Retailer Retailer	Currency EUR EUR EUR	Quantity from	Quar	ntity to 9	Price	100 90 80.00	Discour is %	<sup>tt</sup> Disco	ount	//
rices Prices - Sta - Sa - Sa roduct Pr	oe Us andard R Ies R Ies R	sage Retailer Retailer Retailer	Currency EUR EUR EUR	Quantity from	Quar	ntity to 9	Price	100 90 80.00	Discour is %	It Disco	punt	
rices Prices - Sta - Sa - Sa roduct Pri Jsage:	oe Us andard R Ies R Ies R	sage Retailer Retailer Retailer	Currency EUR EUR EUR Retailer	Quantity from	Quar	ntity to 9 Quantity	Price	100 90 80.00	Discour is %		ount	
rices Prices - Sta - Sa - Sa - Sa - Jsage:	oe Us andard R Ies R Ies R	sage Retailer Retailer Retailer	Currency EUR EUR EUR Retailer	Quantity from		9 Quantity	Price	100 90 80.00	Discour is %	It Disco	ount	
- Sta - Sa - Sa - Sa - Sa - Sa - Sa - Sa - S	oe Us andard R les R les R los R toe	sage Retailer Retailer Retailer	Currency EUR EUR EUR Retailer	Quantity from		Quantity Discount	Price to: is %:	100 90 80.00	Discour is %		punt	
Prices Prices - Sta - Sa - Sa roduct Pr Jsage: Based o Price:	oe Us andard R Ies R Ies R Ioe on:	sage Retailer Retailer Retailer	Currency EUR EUR EUR Retailer	Quantity from	Qual	Quantity Discount	Price	100 90 80.00	Discour is %		ount	
Prices Price - Sta - Sa roduct Pr Jsage: Based o Price: Quantit	oe Us andard R Iles R Iles R Ilos R Ilos tu tu from:	sage Retailer Retailer	Currency EUR EUR EUR Retailer	Quantity from	Quar	Quantity Discount Discount	Price	100 90 80.00	Discour is %		punt	



Use the auto-completer feature of openCRX to populate the fields Sales tax type and Based on (type the first few characters and then select the appropriate value from the drop down). To populate the field Unit of measurement you must use the lookup inspector (i.e. click on the lookup icon and then navigate to [UOMs (Root)] and select **Piece(s)** from the available UOMs); the autocompleter searches in the current segment (Standard) only and will not be able to find **Piece(s)**. If you started out with an empty database you might have to create a Sales Tax Type yourself; the database provided with the openCRX installer includes a sample Sales Tax Type Sales Tax 8.5% already.

product Widget A should look as follows and have 3 base prices:

Home Accounts Activit	ties Sales Products Depots	Folders & Documents »	Q,
44 Products > Widget	t A / WA-1000 - Product		9+ 🖂 📄 📕 🗶
File Edit View Action	*		
Name: Description:	Widget A Large Widget	Product number: Active/Valid from:	WA-1000
Product status:	Active	Expires on:	
Min positions: Max positions:		Default positions:	
Configuration type:			
Min quantity: Max quantity: Offset quantity:		Default quantity: [minmax] handling:	0
Detailed description:			
Active Base Prices Base F	Prices Price UOMs Addresses D	Descriptions » ^	
₩ ≪ < > >> •	New I	Edit View	(1-3)
🕪 🗌 Price Levels = Usag	ge Currency = Price = Unit	of measurement = Description	on = Quantity from = Quantity to =
🚭 Standard Reta	ailer EUR 100.00 Pier	De(s)	
🛃 Sales Reta	ailer EUR 90.00 Piec	De(s)	9.00
🚱 Sales Reta	ailer EUR 80.00 Piec	pe(s)	10.00

- navigate back to [Products] and select the Operation File > New Product again to launch the product creation wizard
- enter data as shown below and then click [Save] to create the Product Widget B:

	Home	Accoun	nts Activi	ties Sales	Products	Depots	Folders & I	Documents	3	•			Q I
Þ	•• PI	ouucis								9+ [22]			
	File E	Edit Vie	w Action	is Security	Wizards								
	Product Name:			Widget B		1	Expires on:						
	Produc	ct status:		Active	<b>~</b>	\$	Sales tax typ	e:	9.5	Sales Ta:	x 8.5%	٩	
	Produc	ct numbe	201	WB-1020		0	Gross Weight	Kilogram:					
	Unit of	fmeasur	ement:	🥄 Piece(	5)		Net Weight K	ilogram:					
	Active	/Valid fro	om:				Product Dime	ension:					
	Descrip	ption:		Small Wid	n get					60			
	Detaile	ed desœi	ption:		0					80			
	Prices												
	Pri	ice ret	Usage	Currency	Quantity from	m Quant	tity to Pri	œ	Disco is %	unt Diso	ount		
	- St	tandard	Retailer	EUR				60					
	- Sa	ales	Retailer	EUR				40.00	J				
	Usage	:		Retailer		<b></b>	Quantity to:						
	Based	on:		🔍 Sales		۹ ۲	Discount is %	c.					
	Price:				40.00	[	Discount:						
	Quant	ity from:											
	+												
	_	<b>.</b> .											
	Save	Cancel Cancel											

•

roduct <mark>Wi</mark>	<mark>dget B</mark> sh	ould look	as follows a	and have 2	2 Base	Prices:	
Home Accounts	Activities Sales	Products D	epots Folders & Do	cuments »			Q,
55 Products > V	Vidget B / WB-1	020 - Produ	ct		9+ 🖂		$\times$
File Edit View	Actions Securit	y Wizards					
General Details	System *						
Name:	Widget B		Product nur	mber: W	/B-1020		
Description:	Small Wie	lget	Active/Valie	d from:			
Product status:	Active		Expires on:				
Min positions:			Default pos	itions:			
Max positions:							
Configuration type Min quantity:	c		Default qua	antity:			
Max quantity:			[minmax]	handling: 0			
Offset quantity:							
Detailed description	n:						
Active Base Prices	Base Prices Price	e UOMs Addre	sses Descriptions	•			
$HH \leftrightarrow A \rightarrow W$	۹ 🛛	* -	New Edit View				(1-
H 🗌 Price Levels	- Usage Curr	ency = Price ·	Unit of measuremer	nt = Description	- Quanti	ty from = Qua	antit
Standard	Retailer EUR	60.00	Piece(s)				
Sales	Retailer EUR	40.00	Piece(s)				

The following figure shows an overview of the sample data created by the above steps:

	EUR 100 EUR 90 EUR 80	get A	
SalesTaxType Sale	es Tax 8.5%	PriceLevel Sales	PriceLevel Standard
tax rate in %: 8.5	D	valid from: 01-05-2010 valid to: 16-05-2010	valid from: 01-01-2010 valid to:
1	Product Wide	get B	1
	EUR 40		
	EUR 60		

Figure 1: Sample data – 2 products, 2 price levels, 5 base prices

## **3** Products

openCRX products are objects that typically fall into one of the following categories: **goods**, **services**, **ideas**, etc. While the default customizing of openCRX enables many attributes useful for goods (like for example weight and dimension information) it is easily possible to tailor the list of available and/or visible attributes to your specific requirements with customizing.

openCRX provides a wizard that helps you create new products interactively and populate the various attributes including price information. The wizard **New Product** is available from the product segment in the File menu:

Hama Assauts Astin	the Dissiling Deadure	to Departs in		0
Home Accounts Activ	ides ripeline rioduo	as Depots »		
• Products				
File Edit View Action Import Product Configuratio New Product	ns Security Wizards	File		
Name:		Expires on:		é.
Product status:	N/A 💌	Sales tax type:	<u>Ş</u>	
Product number:		Gross Weight Kilogram:		
Unit of measurement:	<u>ç</u>	Net Weight Kilogram:		
Active/Valid from:		Product Dimension:		
Description	CALIFORNI INTO SID		PERFORMANCE	
Detailed description:	KESTREETIN IPPINIERIDI		1207007442107000300	
Usage:		Quantity to:		
Based on: Price: Quantity from:	Q. Q.	Discount is %: Discount:		
•				
Save Cancel				

Figure 2: Wizard New Product

### 3.1 AbstractProduct

**AbstractProduct** is one of the core classes (all the relevant class diagrams are all located in the package **org.opencrx.kernel.product1**), but it contains only the most basic attributes. On the other hand, **AbstractProduct** inherits a lot of attributes from other classes, including **CrxObject** (and hence, it is very easy to add/enable additional attributes by customizing).



Figure 3: Class Diagram product1.AbstractProduct

For information on how to "attach" prices to products, see chapter 5 Basic Pricing.

### 3.2 Product

openCRX **Product** inherits from **AbstractProduct** and introduces additional concepts like

- Product Configurations
- Product Structuring (by means of relating products to one another)
- Product Phases



Figure 4: Class Diagram product1.Products

### 4 UOMs (Units of Measurement)

openCRX UOMs are what you would expect them to be: any division of quantity accepted as a standard of measurement or exchange. openCRX includes a variety of typical UOMs in the Root segment (but it is straight-forward to define your own UOMs):

	Home	Accounts	Activities Pip	eline Product	ts Depots :	0
Þ	0 U	OMs				
	Edit	View Sec	urity Wizards			
	Units o	of Measuren	nent UOM Schedul	es ^		
	H4 44	< ► ₩	٩ 🛛		New Edit \	/iew
	H 🗌	Name 🔺	Description -		Quantity =	UOM schedule =
	0	A	Ampere (electric ur	iit)	1.00	SI
	0	A0	0.840896415m x 1.	189207115m	1.00	ISO Standard Paper Sizes
	0	К	Kelvin (temperature	)	1.00	SI
	0	Piece(s)	Piece(s)		1.00	Other
	0	Unit(s)	Unit(s)		1.00	Other
	0	cd	Candela		1.00	SI
	0	kg	Kilogram (mass)		1.00	SI
	0	m	Meter (distance)		1.00	SI
	0	mol	Mole (amount of su	bstance)	1.00	SI
	0	s	Second (time)		1.00	SI

Figure 5: UOMs of the Root Segment



Figure 6: Class Diagram uom1.Main

## 5 Basic Pricing

In this chapter we will present a high-level overview of how product pricing works in openCRX. The relevant class diagrams are all located in the package **org.opencrx.kernel.product1** (AbstractProduct, PriceLevel, PriceList, and PricingRule).

### 5.1 Prices of Products

The following class diagram excerpt shows the classes and associations that are relevant for "attaching" prices to products:



Figure 7: Class Diagram product1.Prices – ProductBasePrice

There are a few things to note:

- you can attach any number of prices (called **ProductBasePrice**) to a **Product** (including no prices at all, i.e. prices are optional)
- **currency** (priceCurrency), **usage** and **unit of measurement** (uom) should be specified for each price

The following figure shows an example **Product Widget A** with 3 different Base Prices:

						<b>E</b> 11 <b>A B</b>					~
Hom	ne Accounts	Activities	Sales	Products	Depots	Folders & Documents »		L			4
55	Products > W	idget A / \	WA-100	00 - Proc	luct			9+ 🖂			$\times$
File	Edit View	Actions S	ecurity	Wizards							
Gene	eral Details Sy	ystem *									
Nam	ie:	Widg	get A			Product number:	WA-	1000			
Desc	aription:	Larg	je Widge	et 🛛		Active/Valid from:					
Proc	duct status:	Activ	ve			Expires on:					
Min	positions:					Default positions:					
Max	positions:										
Con	figuration type:										
Min	quantity:					Default quantity:					
Max	quantity:					[minmax] handling:	0				
Offs	et quantity:										
Deta	ailed description	1:									
Activ	e Base Prices	Base Prices	Price U	JOMs Add	dresses	Descriptions » ^					
<b>HI</b> 4	$( \rightarrow ) $	Q	X II *	✓ 🗌	New	Edit View					(1-3)
ы	Price Levels =	Usage	Curren	cy = Pric	e – Uni	t of measurement = Descr	iption -	Quantity	from = G	)uanti	ty to
<b>3</b> 3	Standard	Retailer	EUR	100	.00 Pie	ece(s)					
<b>3</b> 3	Sales	Retailer	EUR	90.0	00 Pie	ece(s)			9	00.0	
<b>3</b> 3	Sales	Retailer	EUR	80.0	00 Pie	ece(s)		10.00			

Figure 8: Widget A with 3 different Base Prices

The price of EUR 100.– is valid for any quantity and linked to the **PriceLevel Standard**, while the price of EUR 90.– is valid for quantities up to 9 pieces (linked to the **PriceLevel Sales**) and the price of EUR 80.– is valid for quantities of 10 and more pieces (and also linked to the **PriceLevel Sales**).



Please note that Base Prices "inherit" information like the validity range from the Price Level they are linked to.

#### 5.2 Price Levels

**PriceLevels** are very useful constructs to combine products and their prices and to define the **period of validity for prices** (think of price lists). With PriceLevels you can also establish relationships between accounts and prices, e.g. **define which accounts are eligible for which prices**. In addition to these basic "features", price levels also offer a variety of operations to highly automate the management of product prices and price lists in even the most complex environments.



Figure 9: Class Diagram product1.PriceLevel

Next, we will discuss how products, prices and accounts can be "linked" to price levels, based on this sample data (see chapter 2.1 Sample data):



Figure 10: Sample data – 2 products, 2 price levels, 5 base prices

### 5.2.1 Assigning Prices to Price Levels

The following class diagram excerpt shows the classes and associations that are relevant for "assigning" prices to **PriceLevels**:



Figure 11: Class Diagram product1.Prices – PriceLevel

There are a few things to note:

- you can assign a particular price to any number of price levels (and assigning prices to price levels is actually optional)
- prices do not have a date validity range as date validity ranges (valid from, valid to) are defined by price levels
- the currency of a price must be in agreement with the currency of the price level the price is linked to
- the default pricing rule (lowest price) requires that the usage(s) of a price and the respective price level must be in agreement
- you can (optionally) define a default price level for each product

While you can assign prices to price levels manually, such assignments (or even the calculation of prices to be assigned) is typically done in an automated manner, e.g. by means of executing operations like **Create Initial Prices**.

Let	us have	a look a	at the p	roduc	t Wid	get A:			
Hon	Accounts	Activities	Sales Proc	lucts Dep	ots Fol	ders & Documer	nts »		Q,
55	Products > V	Vidget A / V	VA-1000 -	Product				9+ 🖂	
File	Edit View	Actions Se	curity Wiz	ards					
Gen	eral Details	System *							
Nam	ie:	Widg	et A			Product numbe	r:	WA-1000	
Des	cription:	Larg	e Widget		1	Active/Valid fro	m:		
Proc	duct status:	Activ	/e			Expires on:			
Deta	ailed descriptio	on:							
Activ	e Base Prices	Base Prices	Price UOM	Address	es Descr	iptions » ^			
<b>H4</b> <	( + )	٩	× ¶ ∗ ✓	Ne	ew Edit	View			(1-3)
ы	Price Levels	- Usage	Currency -	Price =	Unit of m	neasurement =	Descriptio	on - Quantity f	from = Quantity to
53	Standard	Retailer	EUR	100.00	Pieœ(s)				
<b>3</b> 3	Sales	Retailer	EUR	90.00	Pieœ(s)				9.00
<b>3</b> 3	Sales	Retailer	EUR	80.00	Pieœ(s)			10.00	

Figure 12: Product Widget A and its prices

This product has 3 Base Prices, 1 linked to the **Price Level Standard** and 2 linked to the **Price Level Sales**. Not that the sales price depends on the quantity, i.e. up to 9 pieces the price is EUR 90.--, for 10 pieces and more the price is EUR 80.--. Let us now add another sales price that applies to quantities of 100 or more pieces:

 in the grid [Base Prices] select the menu New > Product Base Price and then enter data as shown below:

General System *			
Usage:	Retailer	Currency:	EUR [Euro]
		Price:	75
		Unit of measurement:	Riece(s) [Piece(s)]
Description:	CERTAGEN DESILIENT		
Quantity from: Quantity to:	100	Discount is %: Discount:	

 click [Save] and then click on the newly created Product Base Price as shown below to navigate to it:



• in the grid [Price Levels], enter a reference to the **Price Level Sales** (use the auto-completer) as shown below:

Home Accounts Act	tivities Sales Products D	epots Folders & Documents	30
🔩 Products > Widg	get A / WA-1000 > <b>75 EUR</b>	[Euro] - Product Base Pric	;
File Edit View Act	ions Security Wizards		
General System *			
Usage:	Retailer	Currency:	E
		Price:	7
		Unit of measurement:	P
Description:			
			_
Quantity from:	100.00	Discount is %:	L
Quantity to:		Discount:	
Price Levels »			
Edit			
🔍 sal	93		
N Curr	Name Based on	From hh To h	h
Sales [Sales]			
1			

• select Edit > Add Object as shown below:

Price Levels	в ^	
Edit		
Add object Remove obj	<u>_</u> 1	93
IN	Curr	Name

• the newly added reference to the **Price Level Sales** should now be shown in the grid [Price Levels] of this new sales price:

Price Levels » ^						
Edit						
ð.		ব				
ы	Curr	Name				
2	EUR	Sales				

 navigate back to the **Product Widget A** and verify that the new sales price of EUR 75.-- for quantities of 100 or more does actually show up in the grid [Base Prices]:

, r		-										
e Accounts	Activities	Sales	Products	Dep	pots Fol	ders & Docume	nts »					Q,
Products > <b>\</b>	/Vidget A	WA-10	)00 - Pro	duct				9+ 🖂			8	X
Edit View	Actions S	Security	Wizards									
and Details	Pustana +											
rai Details	system ~											
o:	Wed	not A			Prov	duct number:		WA 4000				
	vvid	gerA			0 mt	ve Malia fears		WA-1000				
nption:	Lar	ge widg	let		Acti	ve/valid from:						
uct status:	Act	ive			Exp	ires on:						
positions:					Defa	ault positions:						
positions:												
iguration type	2:											
quantity:					Defa	ault quantity:						
quantity:					[mir	nmax] handlir	ig:	0				
et quantity:												
iled descriptio	on:											
Base Prices	Base Price	s Price	UOMs Ad	Idress	es Descr	iptions » ^						
$\leftrightarrow$ $\mapsto$	٩	XT	* 🖌	Ne	ew Edit	View					(	(1-4)
Price Levels	- Usage	Curre	ncy = Pri	ce 🔻	Unit of n	neasurement =	Descr	iption = 0	Quantity	fror	n = (	Quan
Standard	Retailer	EUR	10	0.00	Piece(s)							
Sales	Retailer	EUR	90	.00	Piece(s)							9.00
Sales	Retailer	EUR	80	.00	Piece(s)				10.00			
Sales	Retailer	EUR	75	.00	Pieœ(s)			1	100.00			
	e Accounts Products > V Edit View ral Details e: ription: uct status: positions: positions: positions: iguration type quantity: quantity: et quantity: iled description e Base Prices Price Levels Standard Sales Sales Sales	e       Accounts       Activities         Products > Widget A /       Edit       View       Actions       S         ral       Details       System       *       *         e:       Wid       Wid       *       *         e:       Wid       *       *       *         positions:       Positions:       *       *       *         quantity:       *       *       *       *         quantity:       *       *       *       *       *         e       Base Prices       Base Prices       *       *       *         e       Base Prices       Usage       *       *       *       *         Price Levels =       Usage       Standard       Retailer       *       *       *	e       Accounts       Activities       Sales         Products > Widget A / WA-10         Edit       View       Actions       Security         ral       Details       System       *         e:       Widget A       *         ription:       Large Widget A         uct status:       Active         positions:       Active         positions:       Active         quantity:       Active         quantity:       Price         et quantity:       Price         et ages Prices       Base Prices         Price Levels =       Usage         Curree       Sales         Sales       Retailer         Sales       Retailer         Sales       Retailer	e       Accounts       Activities       Sales       Products         Products > Widget A / WA-1000 - Pro         Edit       View       Actions       Security       Wizards         ral       Details       System       *       *         e:       Widget A       Harge Widget       Harge Widget         e:       Widget A       Large Widget       Harge Widget         e:       Widget A       Large Widget       Harge Widget         uct status:       Active       Active       Harge Widget         positions:       positions:       Provide the second the s	e       Accounts       Activities       Sales       Products       Dep         Products > Widget A / WA-1000 - Product       Edit       View       Actions       Security       Wizards         ral       Details       System       *	e       Accounts       Activities       Sales       Products       Depots       Foll         Products > Widget A / WA-1000 - Product       Edit       View       Actions       Security       Wizards         ral       Details       System       *       *       *       *         e:       Widget A       Large Widget       Active       Active       Active         positions:       Active       Exp       Defails       Defails       Defails         iguration type:	e       Accounts       Activities       Sales       Products       Depots       Folders & Docume         Products > Widget A / WA-1000 - Product       Edit       View       Actions       Security       Wizards         ral       Details       System       *       Product number:       Active/Valid from:         e:       Widget A       Large Widget       Active/Valid from:       Expires on:         positions:       Active       Default positions:       Default positions:         positions:       Default positions:       Default quantity:         quantity:       guantity:       Image: Mandling in the maxet in t	e       Accounts       Activities       Sales       Products       Depots       Folders & Documents       >         Products > Widget A / WA-1000 - Product       Edit       View       Actions       Security       Wizards         ral       Details       System       *       Product number:       Active/Valid from:         e:       Widget A       Active       Expires on:       Default positions:       Default positions:         positions:       Active       Default positions:       Default quantity:       (minmax] handling:         quantity:       Edit       View       Addresses       Descriptions       *         iled description:       Price UOMs       Addresses       Descriptions       *         Price Levels =       Usage       Currency = Price View       View       *         Price Levels =       Usage       Currency = Price View       Init of measurement = Descriptions         Sales       Retailer       EUR       90.00       Piece(s)         Sales       Retailer       EUR       80.00       Piece(s)         Sales       Retailer       EUR       75.00       Piece(s)	e       Accounts       Activities       Sales       Products       Depots       Folders & Documents       >         Products > Widget A / WA-1000 - Product       9+ ∞         Edit       View       Actions       Security       Wizards         ral       Details       System       *        WA-1000         ral       Details       System       *        WA-1000         ription:       Large Widget       Active/Valid from:       WA-1000         ription:       Large Widget       Active/Valid from:          uct status:       Active       Expires on:           positions:       Default positions:        0          iguration type:	e       Accounts       Activities       Sales       Products       Depots       Folders & Documents       >         Products > Widget A / WA-1000 - Product       9+ ☑       □       □         Edit       View       Actions       Security       Wizards         ral       Details       System       >       □         e:       Widget A       Product number:       WA-1000         ription:       Large Widget       Active/Valid from:       □         uct status:       Active       Expires on:       □         positions:       Default positions:       □       □         iguration type:       □       □       □         quantity:       □       □       □       □         quantity:       □       □       □       □         iled description:       □       □       □       □         e Base Prices       Base Prices       Price UOMs       Addresses       Descriptions       □         e Base Prices       Base Prices       Price UOMs       Addresses       Description = Quantity       □         etailed description:       □       □       □       □       □         tetailed description: <td< td=""><td>e Accounts Activities Sales Products Depots Folders &amp; Documents *       +         Products &gt; Widget A / WA-1000 - Product       +         Edit View Actions Security Wizards       +         ral Details System *       *         e:       Widget A         Large Widget       Active/Valid from: Expires on:       WA-1000         positions:       Default positions:       *         positions:       Default positions:       0         iguration type:        Default quantity: [minmax] handling:       0         iduentity:        Default quantity: [minmax] handling:       0         iduentity:        New Edit View       Price Levels = Usage       Currency = Price V Unit of measurement = Description = Quantity from Standard Retailer EUR 100.00 Piece(s)       Sales       Retailer EUR 80.00 Piece(s)       10.00         Sales       Retailer EUR 80.00 Piece(s)       10.00       10.00       100.00</td><td>e       Accounts       Activities       Sales       Products       Depots       Folders &amp; Documents       &gt;         Products &gt; Widget A / WA-1000 - Product       9+ ○       ●       ●       ●         Edit       View       Actival       Security       Wizards         rai       Details       System       ●       ●       ●       ●         e:       Widget A       Product number:       Active/Valid from:       Expires on:       VA-1000         e:       Widget A       Large Widget       Active/Valid from:       Expires on:       ●         positions:       Default positions:       Default positions:       ●       ●       ●         guantity:      </td></td<>	e Accounts Activities Sales Products Depots Folders & Documents *       +         Products > Widget A / WA-1000 - Product       +         Edit View Actions Security Wizards       +         ral Details System *       *         e:       Widget A         Large Widget       Active/Valid from: Expires on:       WA-1000         positions:       Default positions:       *         positions:       Default positions:       0         iguration type:        Default quantity: [minmax] handling:       0         iduentity:        Default quantity: [minmax] handling:       0         iduentity:        New Edit View       Price Levels = Usage       Currency = Price V Unit of measurement = Description = Quantity from Standard Retailer EUR 100.00 Piece(s)       Sales       Retailer EUR 80.00 Piece(s)       10.00         Sales       Retailer EUR 80.00 Piece(s)       10.00       10.00       100.00	e       Accounts       Activities       Sales       Products       Depots       Folders & Documents       >         Products > Widget A / WA-1000 - Product       9+ ○       ●       ●       ●         Edit       View       Actival       Security       Wizards         rai       Details       System       ●       ●       ●       ●         e:       Widget A       Product number:       Active/Valid from:       Expires on:       VA-1000         e:       Widget A       Large Widget       Active/Valid from:       Expires on:       ●         positions:       Default positions:       Default positions:       ●       ●       ●         guantity:

### 5.2.2 Assigning Products to Price Levels

On the one hand products are assigned to price levels implicitly by manually assigning product prices to price levels. More interestingly, however, is the use of product filters to automatically "assign" products to price levels:



Figure 13: Class Diagrams product1.ProductFilter / PriceLevelProductFilter

The shared association **filteredProduct** yields all products that are assigned to a particular price level based on the defined product filters (or all products in case no filters are defined). This construct (combined with various price level operations) enables you to create price lists based on product criteria in a highly automated fashion.

If you create a new Price Level, there is (by default) no product filter defined. In the absence of a product filter, the grid [Products (Filtered)] of a Price Level includes all products.

### 5.2.3 Assigning Accounts to Price Levels

You can manually assign accounts to price levels with **AccountAssignments**. Such account assignments also allow you to define discounts that apply to a particular account only:



*Figure 14: Class Diagrams product1.PriceLevelAccountFilter* 

Account filters allow you to automatically "assign" accounts to price levels:



Figure 15: Class Diagram account1.AccountFilter

The shared association **filteredAccount** yields all accounts that are assigned to a particular price level based on the defined account filters (or all accounts in case no filters are defined). This construct (combined with various price level operations) enables you to create account-specific price lists highly automated.

If you create a new **Price Level**, there is (by default) no account filter defined. In the absence of an account filter, the grid [Accounts (Filtered)] of a **Price Level** includes all accounts.

### 5.2.4 Price Lists

In addition to the "global price list" (the price list containing all product prices in any currency) openCRX provides a **Price List** for each **Price Level**. Such a price list contains all product prices that are assigned to the particular price level.



Figure 16: Class Diagrams product1.PriceList

Please note that price lists are derived information, i.e. you do not explicitly define price lists, but rather you assign product prices (or products with prices) and accounts to price levels (see sections *Assigning Products to Price Levels* and *Assigning Accounts to Price Levels* for details).

### 5.2.5 Sample Price Level Sales

The following figure shows the **Price Level Sales** with the respective (derived) **Price List**:

н	ome	Accounts	Activities	Sales	Products	Depots	Folders & D	ocuments	в				
2	Pro	oducts > \$	Sales - P	rice Le	vel								
Fi	ile E	dit View	Actions	Security	Wizards								
-	eneral	System											
N	ame:		Sa	ales						Is final:			
	ased	on.								Valid from Valid to:		5/16/2010 11:00	:00 PM
D	escrip	tion:	S	ales Prio	es								
Co	ntract F	liters											
P	ayme	nt methods								Shipping n	nethods:		
Pri	ce Filte	rs											
C	urrend	ey:	El	JR [Euro	]					Price usage	e:	Retailer	
Pr	rice M	odifiers P	rice List	<b>^</b>									
н	-	> >>	٩	×Ψ	* 🖌 📄	View							
ы	🗌 Pr	rice Levels	- Produc	t name =	Product -		Usage	Currency	- Price	- MOU -	Description	- Quantity from -	Quan
E	S	ales	Widget	A	Widget A	/ WA-100	0 Retailer	EUR	90.0	0 Piece(s)			9.00
E	S	ales	Widget	A	Widget A	/ WA-100	0 Retailer	EUR	80.0	0 Piece(s)		10.00	
E	S	ales	Widget	A	Widget A	/ WA-100	0 Retailer	EUR	75.0	0 Piece(s)		100.00	
E	S	ales	Widget	в	Widget B	/ WB-102	0 Retailer	EUR	40.0	0 Piece(s)			

Figure 17: Price Level Sales with Price List

### 5.3 Pricing Rules

**Pricing rules are used to automatically determine an appropriate price level for a contract position** based on any algorithm you like (e.g. "select the price level with the lowest price a particular account is eligible for" - see section *Pricing Rule LowestPrice* for details). Pricing rules are basically "scripts" that are programmed in Java and have access to the complete API of openCRX (and anything else that is available, including third-party systems like billing systems, etc.); the scripts are compiled on the fly at runtime (we use Janino - http://www.janino.net/ - an embedded Java compiler) for maximum flexibility, i.e. scripts can be added/modified/deleted at runtime!

### 5.3.1 Pricing Rule LowestPrice

openCRX provides a sample pricing rule called Lowest Price:

Home Accounts Activit	ties Pipeline Products De	pots »			Q,
Products > Lowest	t Price - Pricing Rule				$\times$
File Edit View Action General System *	ns Security Wizards				
Name:	Lowest Price	ls default:	✓		
Description:	Get price level which returns t pricing date and quantity. If th the contract currency, price up	he lowest price of the ne product is not defin om and pricing date.	given product, contr ned return the price le	act currency, evel which matche	25
Priœ level script:	<pre>// public static org.openc org.openmdx.base.ac org.opencrx.kernel.; org.opencrx.kernel.; org.opencrx.kernel.; java.math.BigDecima java.util.Date pric ) {     return org.open rootPkg pricing contrac product priceUo quantit pricing ); } ///</pre>	<pre>rx.kernel.product cessor.jmi.cci.Re product1.jmi1.Pri contract1.jmi1.Ab product1.jmi1.Abs uom1.jmi1.Uom pri 1 quantity, ingDate crx.kernel.backer , Rule, t, , m, y, Date</pre>	:1.jmi1.GetPriceL :fPackage_1_0 roo .cingRule pricing .stractContract c .tractProduct pro .ceUom, .d.Products.getLo	evelResult get tPkg, Rule, ontract, duct, westPricePrice	:Pı

Figure 18: Pricing Rule Lowest Price

In a nutshell, here is how this pricing rule determines the price level with the lowest product price given a contract (e.g. a quote or a sales order, which also defines the customer [= account] and a contract currency), a product (on each contract position), and optionally a quantity (useful for quantity-based pricing), a pricing date (useful for look-back or forward pricing) and a unit of measurement for the price:

- determine candidate price levels such that
  - pricing date is within validity range of price level
  - contract currency matches currency of price level
  - customer is assigned to price level (manually with an account assignment or implicitly with an account filter)
  - product is assigned to price level (manually by assigning product price to price level or implicitly with a product filter)
- determine price level with lowest product price by checking relevant prices (matching usage, including discounts) of all candidate price levels

### 5.3.2 Pricing Rule Precedence

Pricing Rules can be defined both at the **Contract** level and at the **ContractPosition** level. The following rules apply:

- Specifying a **PricingRule** is optional at the time of creating a new **Contract**. If no Pricing Rule is specified, the respective field simply remains empty.
- Specifying a **PricingRule** is optional at the time of creating a new **ContractPosition** (with the operation Create Position). If no Pricing Rule is specified, then the Pricing Rule of the Contract (if specified) is assigned to the newly created Contract Position; if there is no Pricing Rule specified at the Contract level, then the default Pricing Rule (if specified) is assigned to the newly created Contract Position. If no default Pricing Rule is specified then the respective field simply remains empty.

Automated pricing of a **ContractPosition** requires that a **PricingRule** is assigned to the respective Contract Position (either automatically or then manually). Contract Positions without assigned Pricing Rules cannot be (re)priced automatically and their pricing status remains "dirty".

Automated pricing of a **Contract** requires that all of its Contract Positions can be priced automatically. If at least 1 Contract Position cannot be priced automatically (i.e. its pricing status remains "dirty") then the Contract cannot be priced automatically and its own pricing status is set to "dirty" as well.



**Properly assigned Pricing Rules are no guarantee that a Contract and its Contract Positions can be automatically priced**. Automated pricing also requires that at least 1 valid price is available, i.e. a price with matching currency that is assigned to a valid PriceLevel (i.e. pricing date of Contract or Contract Position within validity range of PriceLevel), etc.

### 5.4 Calculation Rules

Calculation rules are used to control the way prices are calculated in terms of rounding, number of significant decimals, etc. Calculation rules are basically "scripts" that are programmed in Java and have access to the complete API of openCRX (and anything else that is available, including third-party systems like billing systems, etc.); the scripts are compiled on the fly at runtime (we use Janino - http://www.janino.net/ - an embedded Java compiler) for maximum flexibility, i.e. scripts can be added/modified/deleted at runtime!

Calculation Rules can be defined both at the Contract level and at the Contract Position level.

openCRX provides a sample calculation rule called Default:

Home     Accounts     Activity       ■     Pipeline > Default       File     Edit     View       General     System     *	ties Pipeline Products De - Calculation Rule ns Security Wizards	epots »	
Name:	Default	ls default:	<ul><li>✓</li></ul>
Description:			
	<pre>public static org.opend org.opendx.base.ac org.opendrx.kernel. java.math.BigDecima java.math.BigDecima java.math.BigDecima ) { return org.open rootPkg calcula positic minMaxA uomScal salesTa ); } //</pre>	<pre>irx.kernel.contract1.jm ccessor.jmi.cci.RefPack contract1.jmi1.Calcula contract1.jmi1.Abstrac l minMaxAdjustedQuanti l uomScaleFactor, l salesTaxRate ccrx.kernel.backend.Com l, tionRule, m, djustedQuantity, .eFactor, xRate</pre>	il.GetPositionAmountsRes age_1_0 rootPkg, tionRule calculationRule tContractPosition positi ty, ttracts.getPositionAmount
Contract amounts script:	<pre>// public static org.opence org.openmdx.base.ac org.opencrx.kernel.</pre>	rx.kernel.contract1.jm cessor.jmi.cci.RefPack contract1.jmi1.Calcula	<pre>ii1.GetContractAmountsRes age_1_0 rootPkg, itionRule calculationRule</pre>

Figure 19: Calculation Rule Default

### 6 Some Examples

In this chapter we create some samle contracts and contract positions based on the sample data (see chapter 2.1 Sample data) and the additional sales price of EUR 75.-- for **Widget B** (created at the end of chapter 5.2.1 Assigning Prices to Price Levels) to show how this all fits together.

#### 6.1 Widget A and Widget B with standard pricing

Let us create a sales order with 2 positions as follows:

- navigate to [Sales]
- execute File > New Sales Order and populate at least the fields Contract name, Account, Active/Valid from, Currency and Contract number in the first field group and then enter a delivery and billing address in the second field group:

Contract				
Contract name:	standard pricing	Sales rep:	<u>Ş.</u>	q
Account:	🔍 Guest, [Guest,]	Contract number:	SO-1	
Active/Valid from:	4/19/2010 7:00:00 PM	Expires on:		₽
Currency:	EUR [Euro]	Payment terms:	N/A	
Priority:	N/A 💌	Origin:	ð.	٩
Pricing				
Pricing rule:	🔍 Lowest Price			٩
Calculation rule:	🔍 Default			q
Addresses (Shipping / Billing)				
Shipping method:	N/A			
Address line(s):	Mr. Guest	Address line(s):	Mr. Guest	
Street / PO Box:	#1 Delivery Loop	Street / PO Box:	#1 Billing Drive	
City:	Delivery	City:	Bill	
ZIP/Postal code:	98765	ZIP/Postal code:	56789	
Country/Region:	United States of America [US] 💌	Country/Region:	United States of America [US] 💌	



Please note that the Active/Valid from date should be later than 1-Januar-2010, but outside of the period 1-May-2010 through 16-May-2010 as this ensures that positions are priced with the price level **Standard** as defined by our sample data.

• next we add a position with 25 Widgets A as follows:

Contract Position		
Quantity:	25	
Product:	🔍 Widget A / WA-1000 [Widget A]	٩
Pos-Name:	A	
+		
12 N		

 click on the button [+] to add this position A and verify that the price was (automatically) set to 100:
 Positions

Quantity	Product	Pos-Name	Price per unit	Base amount	
-	25 Widget A / WA-100	Α	100.00000000	2500.00000000	
Contract Position					
Quantity:				25.00	1
Product:	🔍 Widget A / WA-1000	)			٩
Pos-Name:	A				
+					

next we add a position with 5 Widgets B as follows:

Contract Position		
Quantity:	5	
Product:	🔍 Widget B / WB-1020 [Widget B]	٩
Pos-Name:	B1	
13		

click on the button [+] to add this position **B1** and verify that the price was (automatically) set to 60:

Quantity	Product	Pos-Name	Price per unit	Base amount
•	25 Widget A / WA-10	0( A	100.00000000	2500.00000000
-	5 Widget B / WB-10	2( B1	60.00000000	300.00000000
Contract Position				
Quantity:				5.00
Product:	🔍 Widget B / WB-10	20		٩
Pos-Name:	B1			
+				

• click on the button [Create Sales Order] to create this sales order

• your newly created sales order should look as follows:

General System *					
Account:	Guest.	5	Sales order number:	SO-1	
Name of sales order:	standard pricing	5	State:	N/A	
Description:		F	Priority:	N/A	
Sales order language:	N/A	A	Active/Valid from:	4/19/201	0 7:00:00 PI
Origin:		E	Expires on:		
Sales rep:	Guest,	(	Cancel on:		
Broker:		(	Closed on:		
Supplier:					
Submit date:	423/2010 1/27/20 PM	5	Status description:		
Submit status:	N/A				
Shipping method:	N/A	5	Shipping instructions:		
Carrier:		(	Gift:		
Tracking number:		(	Gift message:		
Freight terms:	N/A				
Pricing Information					
Pricing rule:	Lowest Price	F	Pricing status:	dirty / r	epricing re
Calculation rule:	Default	F	Pricing date:		
Financial Information	FUD (From 1		Fatal base amount:	0.000.00	
Currency.	EUR [EURO]		Fotal discount:	2,800.00	
Sales commission:	N/A		Fotal (avail tav):	0.00	
Sales commission.	0.00		Total (exci. tax).	2,800.00	
		1	Fotal (incl. tax):	238.00	1
				_,	
Positions Addresses [	Delivery Requests Accou	nt Assignments Co	ompetitors Related A	Activities Link	ed To Inbo
Hel		View			
🕨 🗌 Pos-# = Pos-Nar	me = Product = Quantit	ty = UOM (quantity)	) = Pricing status =	UOM (price)	<ul> <li>Price per</li> </ul>
💕 100,000 A	Widget A / 25.00 WA-1000	Piece(s)	dirty / repricing required	Piece(s)	100.00
\$200,000 B1	Widget B / 5.00	Piece(s)	ок	Piece(s)	60.00



Please note that the wizard does not set the Pricing date.

WB-1020

Please note that pricing of the sales order positions (and hence the sales order is based on the value of the attribute **Pricing date** (if set!); if **Pricing date** is not set, then the pricing is based on prices applicable on the sales order's **Active/Valid from** date.

You can reprice the sales order at any time by executing the operation Actions > Reprice.

#### 6.2 Pricing per Pricing date or Active/Valid from date

Let us continue with the sales order created in the previous chapter 6.1 and see what happens if we change the **Pricing date**:

- navigate to the sales order named standard pricing and change into edit mode (execute Edit > Edit)
- set the Pricing date to 5/2/2010 2:00:00 PM and then click [Save]:
   General System \*

Account:	🤍 Guest,	٩	Sales order number:	SO-1		
Name of sales order:	standard pricing		State:	N/A	~	
Description:			Priority:	N/A	~	
Sales order language:	N/A 💌		Active/Valid from:	4/19/2010 7	:00:00 PM	٠
Origin:	<u>Q</u>	9	Expires on:			٠
Sales rep:	🤤 Guest,	٩	Cancel on:			٠
Broker:	ĝ.	٩	Closed on:			٠
Supplier:	<u>Ç</u>					٩
Submit date:	4/23/2010 1:27:30 PM	٠	Status description:			
Submit status:	N/A					
Shipping method:	N/A		Shipping instructions:			
Carrier:	<u>Ş</u>	٩	Gift:			
Tracking number:			Gift message:			
Freight terms:	N/A 💌					
Pricing information		0	Pricing status:	dirty / ropri	aing rogu	
Calculation rule:	Default	à	Pricing date:	5/2/2010 2	-00-00 PM	
Financial Information	boldan			0.2.2010 2		
Currency:	EUR [Euro]		Total base amount:		2,800.00	
Payment terms:	N/A 💙		Total discount:		0.00	
Sales commission:	0.00		Total (excl. tax):		2,800.00	
			Total tax:		238.00	
			Total (incl. tax):		3,038.00	

Save Cancel

 execute Actions > Reprice and verify that the prices per unit dropped to 80.00 for Widget A and to 40.00 for Widget B, i.e. setting the pricing date to a date inside the sales period (1-May-2010 through 16-May-2010) causes the lowest price algorithm to pick the sales prices. At the contract level all the totals were automatically recalculated as well:

Financi	al mormation								
Curre Payn	ency: nent terms:		EUR [Euro] N/A		Tota Tota	l base amount: I discount:	2,200.00 0.00		
Sales	s commissio	on:	0.00		Tota	l (excl. tax):	2,200.00		
					Tota	I tax:	187.00		
					Tota	l (incl. tax):	2,387.00		
<u>Posit</u> Links	ions Addr	esses D	elivery Requests	Account	Assignments	Competitors	Related Activities	Linked To	Inbound
<b>H4</b> <-	( < > >>	q		✓ 🔳	View				(1-2)
PI	Pos-# =	Pos-Nam	e = Product =	Quantity	UOM (quan	tity) = Pricin	g status = UOM (p	orice) = Pric	e per unit
§ <b>'</b>	100,000	A	Widget A / WA-1000	25.00	Piece(s)	ок	Piece(s	s) 80.(	00
§ <b>*</b>	200,000	B1	Widget B / WB-1020	5.00	Piece(s)	ОК	Piece(s	s) 40.(	00

Let us now continue with this sales order and see what happens if we change the **Active/Valid from** date:

- navigate to the sales order named standard pricing and change into edit mode (execute Edit > Edit)
- set Active/Valid from to 5/20/2010 8:00:00 AM and then click
   [Save] (the Pricing status changes to "dirty / repricing required")
- execute Actions > Reprice and verify that the prices did not change (because Pricing date overrides Active/Valid from), but the Pricing status was set to OK:

Pricing Information			
Pricing rule:	Lowest Price	Pricing status:	ОК
Calculation rule:	Default	Pricing date:	5/2/2010 2:00:00 PM
Financial Information			
Currency:	EUR [Euro]	Total base amount:	2,200.00
Payment terms:	N/A	Total discount:	0.00
Sales commission:	0.00	Total (excl. tax):	2,200.00
		Total tax:	187.00
		Total (incl. tax):	2,387.00

#### 6.3 Volume Discounts

The sales price of Widget A is prepared for volume discounts, that is in quantities up to (and including 9) the price is EUR 90.00, in quantities from 10 to 99 the price is EUR 80.00, and in quantities of 100 or more the price drops to EUR 75.00:

<b>5</b> 5	٠	WA-1000			Widg	et A		Large	Widget	
×	н	$\ll$ $\rightarrow$ $\gg$	٩	X ¶ * ✓	N	lew Edit	View			(1
	ы	Price Levels -	Usage	Currency =	Price 🔺	Unit of mea	surement =	Description -	Quantity from =	Quantity to
	<b>3</b> 3	Sales	Retailer	EUR	75.00	Pieœ(s)			100.00	
	<b>3</b> 3	Sales	Retailer	EUR	80.00	Pieœ(s)			10.00	
	<b>3</b> 3	Sales	Retailer	EUR	90.00	Piece(s)				9.00

Let us now change the quantity of the position with Widget A from 25 to 150:

- navigate to the sales order named standard pricing and change into edit mode (execute Edit > Edit)
- in the Grid [Positions], hover your mouse over the area just to the right of the position icon and once the context menu shows up select the entry Edit to load the respective position with Widget A in edit mode:



• change the quantity from 25 to **150** and then click [Save]:

§ <b>^</b> `	100,000 A	/ WA-1000	25.00	Piece(s)	ок	Piece(s)
X	General Details System	ż				
	Pos-#: Pos-Name: Pos-Text:	A				100,000
	Quantity: UOM (quantity):	Q Piece(	s)			<mark>150</mark> מ

 execute Actions > Reprice and verify that for Widget A the price per unit changed from 80.00 to **75.00**: (and the totals of the sales orders were also recalculated):

		turt Breat			0
Home Accounts	Activities Pipeline Proc	ucts Depots »			
Pipeline > stan	dard pricing - Sales O	rder			
File     Edit     View     A       General     System     *	ctions Security Wizards	5			
Account: Name of sales order: Description: Sales order language: Origin: Sales rep:	Guest, standard pricing N/A Guest,	Sales orde State: Priority: Active/Val Expires on Cancel on:	r number: id from: :	SO-1 N/A N/A 5/20/2010 8:00:00	АМ
Broker:		Closed on:			
Supplier:					
Submit date: Submit status:	4/23/2010 1:27:30 PN N/A	Status des	cription:		
Shipping method: Carrier: Tracking number:	N/A	Shipping in Gift: Gift messa	structions: ge:		
Freight terms:	N/A				
Pricing rule: Calculation rule:	Lowest Price Default	Pricing stat Pricing date	tus: e:	OK 5/2/2010 2:00:00 P	м
Financial Information Currency: Payment terms: Sales commission:	EUR [Euro] N/A 0.00	Total base Total disco Total (excl Total tax: Total (incl.	amount: unt: . tax): tax):	11,450.00 0.00 11,450.00 973.25 12,423.25	
Positions Addresses	Delivery Requests Acco	ount Assignments Co	mpetitors Relate	d Activities Linke	ed To
₩ ≪ < > >>	९ ⋈⋓⋻⊿⊟	View			(1-2)
Pos-# - Pos-	Name = Product = Quan	tity = UOM (quantity)	<ul> <li>Pricing status</li> </ul>	= UOM (price) =	Price per
🐓 100,000 A	Widget A / 150.0 WA-1000	00 Piece(s)	ок	Piece(s)	75.00
	Widget B / 5.00 WB-1020	Piece(s)	ОК	Piece(s)	40.00

Finally, let us clear the **Pricing date** and see how that effects the prices:

- navigate to the sales order named standard pricing and change into edit mode (execute Edit > Edit)
- set Pricing date to empty (by deleting the value in the input field) and then click [Save] (the Pricing status changes to "dirty / repricing required").
- execute Actions > Reprice and verify that the prices are changed back to standard prices (because Active/Valid from does not fall into the range 1-May-2010 to 16-May-2010), i.e. Widget A is priced at EUR 100.00 per unit and Widget B is priced at EUR 60.00 per unit:

Account:	Guest,	Sales order number:	SO-1
Name of sales order:	standard pricing	State:	N/A
Description:		Priority:	N/A
Sales order language:	N/A	Active/Valid from:	5/20/2010 8:00:00 AM
Origin:		Expires on:	
Sales rep:	Guest.	Cancel on:	
Broker:		Closed on:	
Supplier:			
Submit date:	4/23/2010 1:27:30 PM	Status description:	
Submit status:	N/A		
Shipping method:	N/A	Shipping instructions:	
Carrier:		Gift:	
Tracking number:		Gift message:	
Freight terms:	N/A		
Pricing information			
Pricing rule:	Lowest Price	Pricing status:	ОК
Calculation rule:	Default	Pricing date:	
Inancial Information			
Currency:	EUR [Euro]	Total base amount:	2,800.00
Payment terms:	N/A	Total discount:	0.00
	0.00	Total (excl. tax):	2.800.00
Sales commission:	0.00		
Sales commission:	0.00	Total tax:	238.00

Links	>> ^							
₩ ≪	${} \longleftrightarrow {} {} {} \circledast$	٩	╳╙囲	✓ 🔳	View			
H 🗌	Pos-# =	Pos-Name =	Product =	Quantity =	UOM (quantity)	Pricing status =	UOM (price) =	Price pe
§ <b>*</b>	100,000	A	Widget A / WA-1000	25.00	Piece(s)	ок	Piece(s)	100.00
8	200,000	B1	Widget B / WB-1020	5.00	Piece(s)	ок	Piece(s)	60.00

## 7 Useful Wizards

You might want to have a look at some of the wizards included in the standard distribution of openCRX if you want to learn about how to program against the openCRX API and make use of the built-in business logic:

- CreateContractWizard.jsp
- CreateLeadWizard.jsp
- CreateProductWizard.jsp

## 8 Next Steps

You might want to have a look at some of the additional documentation published at http://www.opencrx.org/documents.htm.