

**Porta  Switch™**



**Handbook:**

Wholesale and Traffic Exchange Services  
Maintenance Release 21

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**PortaSwitch Handbook: Wholesale Services, August 2010  
Maintenance Release 21  
V1.21.2**

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## Preface

This document provides PortaBilling100 users with step-by-step instructions and examples for setting up various prepaid and postpaid services on a VoIP network.

### Where to Get the Latest Version of this Guide

The hard copy of this guide is updated at major releases only, and does not always contain the latest material on enhancements occurring between minor releases. The online copy of this guide is always up to date, and integrates the latest changes to the product. You can access the latest copy of this guide at: [www.portaone.com/support/documentation/](http://www.portaone.com/support/documentation/)

### Conventions

This publication uses the following conventions:

- Commands and keywords are given in **boldface**
- Terminal sessions, console screens, or system file names are displayed in fixed width font



The **exclamation mark** draws your attention to important information or actions.

**NOTE:** Notes contain helpful suggestions about or references to materials not contained in this manual.



**Timesaver** means that you can save time by performing the action described in the paragraph.



**Tips** provide information that might help you solve a problem.

# 1 . Setting up a Wholesale Traffic Exchange

This chapter will demonstrate how to set up a wholesale exchange platform, when you will be accepting calls from your customers (a customer in this context is a carrier, which terminates calls to your network) and sending these calls to the actual carriers, thus earning your profit margin on each call.

Please refer to the [PortaBilling Web Reference Guide](#) PDF file for detailed instructions on how to navigate and operate the web interface, as well as detailed explanations of particular fields.

## Checklist

Print the following page and use it to check off the operations you have completed while performing system setup according to the instructions in this chapter. Please be sure to perform all of the operations (all of the boxes must be checked), otherwise the service will not work.

Operation	Done
<b>General configuration</b>	
Enter company data in My Company.	[ ]
Specify a base currency.	[ ]
For any other currency you plan to use, specify the exchange rate source and define exchange rates.	[ ]
Create all the required destinations you plan to serve.	[ ]
<b>Network configuration</b>	
Create a node for PortaSIP.	[ ]
<b>Rating configuration</b>	
Create route categories.	[ ]
Create a tariff A, which contains your selling rates to customers.	[ ]
Enter rates in tariff A for destinations you will allow your customers to call.	[ ]
Create a tariff B, which describes your termination costs and routing for the first vendor (make sure it has the <b>Routing</b> type!).	[ ]
Enter rates in tariff B for destinations you plan to terminate to this vendor.	[ ]
Create a routing plan which will apply to your customers.	[ ]
Create a wholesale exchange product.	[ ]
Create an accessibility entry for this product, using the PortaSIP node and tariff A.	[ ]
Create an off-net calls vendor B.	[ ]
Create a connection for this vendor using tariff B.	[ ]
Create any other vendors required.	[ ]
<b>Account provisioning</b>	
Create a customer class for your traffic exchange customers.	[ ]
Create a retail customer who will use the traffic exchange service.	[ ]
Create an account to authorize this customer.	[ ]
<b>Testing</b>	
Check the routing by using the <b>Test Dialplan</b> feature.	[ ]
Make a test call.	[ ]

# PortaSwitch Configuration

## Initial Configuration of PortaSwitch

The following steps are normally performed only once, after the system is installed. Proceed as follows:



Visit **My Company** on the main menu. Enter information about your company and set up your base currency. Naturally, this does not limit your operations to this currency only. However, on cost/revenue reports and the like different currencies will be converted to the one you specify here.

**NOTE:** Once you set up a base currency it cannot be changed. If you make a mistake, you will have to start with a new PortaBilling environment.

From the main menu, choose **Users** and create login entries for users who will be working with the system. It is not recommended that the default PortaBilling root user (pb-root) be used for any operations other than initial setup. Make sure you are able to login as the newly-created user, and change the password for the pb-root user.

If you plan to do billing in multiple currencies, define these in the **Currencies** section and specify exchange rates in **Exchange Rates**.

Edit	ISO 4217	Name	Dec. digits	Major	Minor	Exchange Rate Source	Payment System	Payment Method	Minimum Payment	Delete
	alpha num									
	CAD 124	Canadian Dollar	2			Manual	AuthorizeNet		100.00000	
	USD 532	US Dollar	2	dollar	cent	XE.com	AuthorizeNet		10.00000	


## Create Destinations

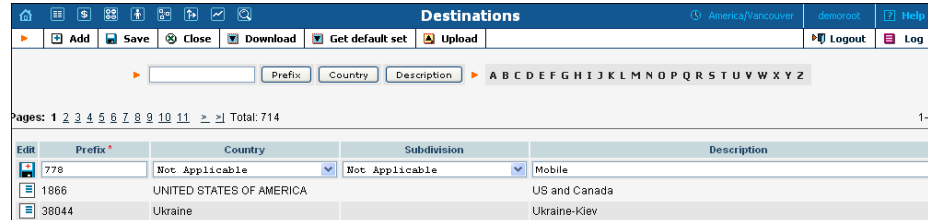
This step is only required if you have not previously defined the necessary destinations. There are two ways to insert a new destination into the system:

- One-by-one, using the **Add** functionality on the web interface.
- A bulk update, by uploading destinations from a file.

**NOTE:** PortaBilling supplies a file with a set default destination, which you can download and then upload to the server. However, it is possible that your business requires different types of prefixes, so please check the data in the file before uploading.

### Creating destinations “One by one”

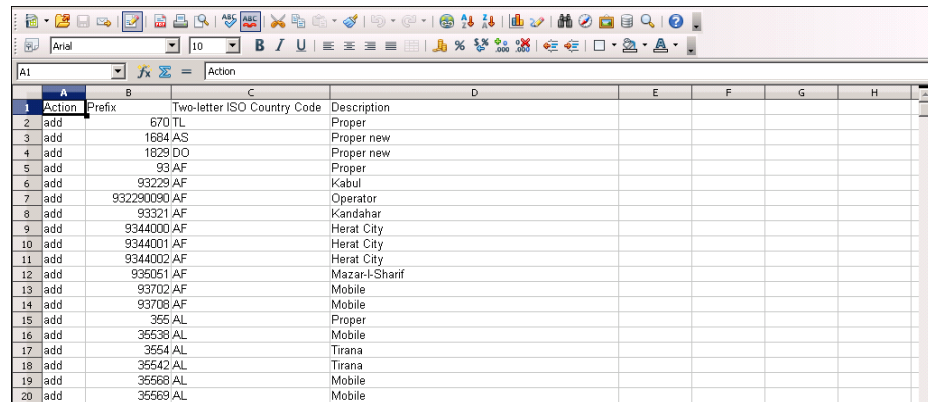
1. In the **Rating** section of Admin-Index, choose **Destinations**.
2. Click on the  **Add** button.
3. Fill in the required information. This includes the phone prefix and country name. The country subdivision is optional. You can use the **Description** column to store extra information about the destination (for example, if it is a mobile or fixed number).




4. Click **Save**.
5. Repeat these steps for any additional destinations you would like to add.

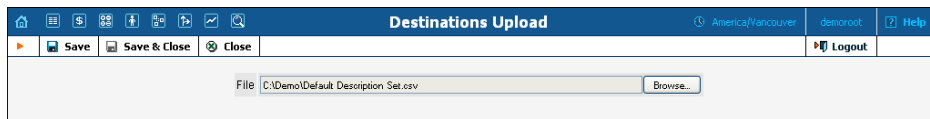
### Uploading a Set of Destinations from a File

1. In the **Rating** section of Admin-Index, choose **Destinations**.
2. Click on **Get default set** to download a set of destinations as a CSV (Comma-Separated Values) file.



3. Open this file in Microsoft Excel or any other suitable program. Edit the data if necessary.
4. Save the file and close it in Excel.
5. Switch back to the PortaBilling web interface, and click  **Upload** on the Destinations screen.

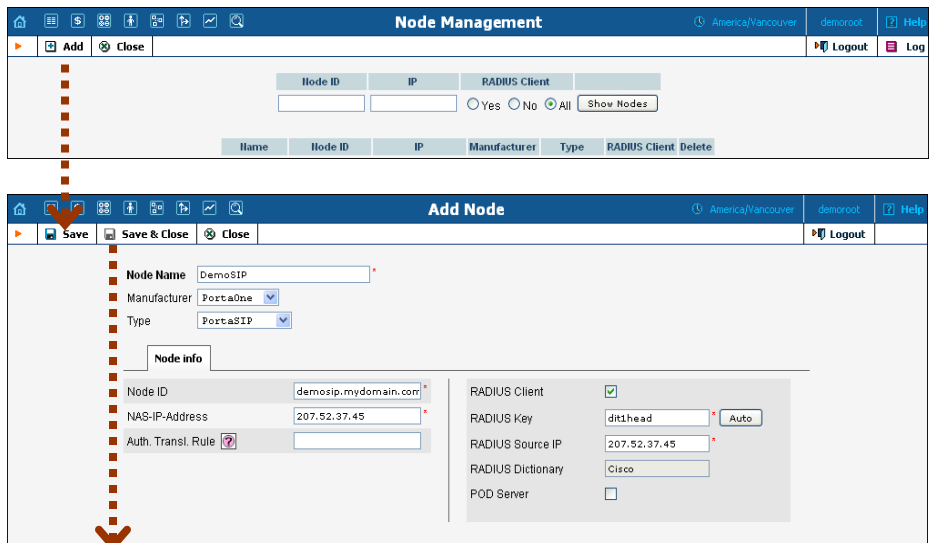




6. Type in the filename for the file you have edited, or click on the **Browse...** button and select the file.
7. Click **Save&Close**.

## Create PortaSIP Node

Now you have to enter your SIP server and, optionally, other gateways as nodes. PortaBilling requires some key information about your network equipment, such as the IP address, Node ID, Radius shared secret, and so on.



1. In the **Networking** section of the Admin-Index page, choose **Nodes**.
2. In the Node management window, click the **Add** icon.
3. Fill in the New Node form:
  - o **Node name** – a short descriptive name for your SIP server (this will be used in the select menus).
  - o **Manufacturer** – select **PortaOne**.
  - o **Type** – VoIP node type; select **PortaSIP**.
  - o **Node ID** – PortaSIP server’s hostname (recommended: hostname.domainname).
  - o **NAS-IP-Address** – the IP address of the PortaSIP server.
  - o **Auth. Translation rule** – leave this blank (you can use customer-based translation rules later to allow your customers to dial a number in their own numbering format).
  - o **Radius Client** – check this, since PortaSIP will need to communicate with the billing.

- **Radius Key** – enter the radius shared secret here; this must be the same **key** which you entered during the PortaSIP installation.
  - **Radius Source IP** – see the **Node ID, NAS IP address and Radius source IP** section in the [PortaBilling Administrator Guide](#) for more information. Unless your PortaSIP server uses multiple network interfaces, the value here should be the same as the NAS-IP-Address.
  - **POD Server** – this checkbox relates to ISP billing. Leave it unchecked for now.
4. Click  **Save&Close**.

**NOTE:** There is some propagation delay between the database and the Radius server configuration file; however, it is no more than 15 minutes.

## Create Route Categories

Route categories are tags (e.g. Cheap or Premium) which you use to designate specific routes, so that later you can organize individual routing plans for your customers. It is possible to have a separate route category for every termination carrier, although this is not advisable, as it would make maintenance of routing plans quite complicated due to the large number of categories in each. The recommended method is to create several route categories (Low-cost, Normal, Expensive, etc.) and then assign each route to one of them.

The first screenshot shows the 'Route Categories' management page with an 'Add' button highlighted by a red arrow. The table below shows existing categories:



Edit	Name *	Description	Delete
<input type="checkbox"/>	Low-cost	Cheap routes, low quality	<input type="checkbox"/>
<input type="checkbox"/>	Premium	Expensive routes, good quality	<input type="checkbox"/>

The second screenshot shows the 'Add' button being clicked, indicated by a red arrow. The table now includes a new 'Economy' category:

Edit	Name *	Description	Delete
<input checked="" type="checkbox"/>	Economy	Cheap routes, average quality	<input type="checkbox"/>
<input type="checkbox"/>	Low-cost	Cheap routes, low quality	<input type="checkbox"/>
<input type="checkbox"/>	Premium	Expensive routes, good quality	<input type="checkbox"/>

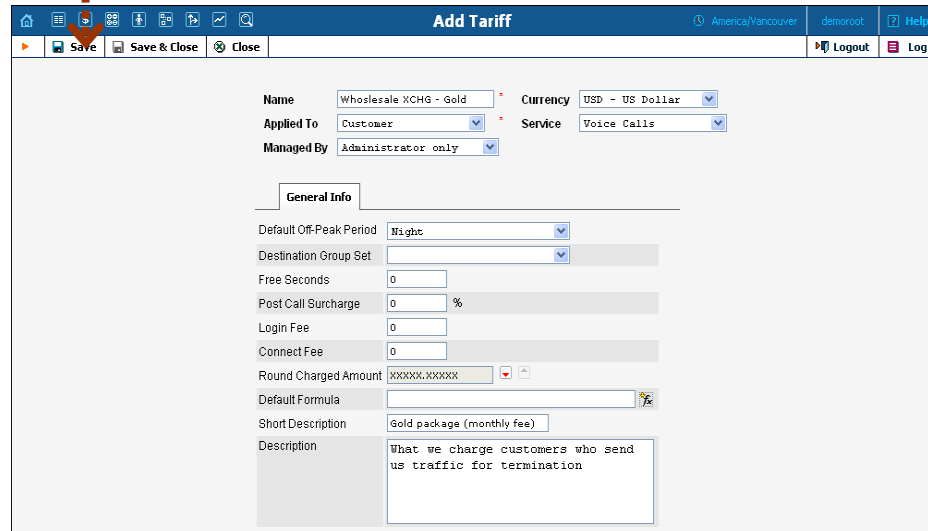
The third screenshot shows the 'Economy' category selected, highlighted in green, indicating it is the active record.


1. In the **Routing** section of the Admin-Index page, choose **Route Categories**.
2. On the Route Categories Management page, choose  **Add**.
3. Enter the route category name and description.

4. Click the  **Save** button in the toolbar, or the  icon on the left end of the row.
5. Repeat steps 2-4 if you need to create more route categories.

## Create Tariffs


- The tariff is a single price list for calling services or for your termination costs.

1. In the **Rating** section of the Admin-Index page, choose **Tariffs**.
2. On the Tariff Management page, choose  **Add**.
3. Fill in the **Add Tariff** form:
  - **Name** – A short name for the tariff object; this is the name you will then see in the select menus.
  - **Currency** – Indicates in which currency pricing information is defined. All pricing information for a single tariff must be defined in the same currency.

**NOTE:** The currency for the tariff may be chosen only once, and cannot be changed later.

- **Applied To** – If this is a tariff that describes your vendor’s termination costs, choose **Vendor** here and select **Routing** check-box, as this tariff will be used not only to calculate termination costs, but also to route SIP calls. Otherwise, choose the **Customer** in the **Applied To** field.

- **Managed By** – Choose “**Administrator Only**” here (this option is only visible after you select **Applied to: Customer** above).
  - **Service** – Choose **Voice Calls** here.
  - **Default Off-peak Period** – If you do not differentiate between peak and off-peak rates, just choose **Not defined**; otherwise, select one of the previously defined off-peak periods.
  - **Destination Group Set** – If you wish to enter rates in the tariff not for every individual prefix, but for a whole group of prefixes at once, you should create a destination group set and destination groups beforehand. Leave this select menu empty for now.
  - **Round Charged Amount** – Instead of calculating xDRs with a 5-decimal-place precision, round up xDR amount values (e.g. to cents, so that 1.16730 becomes 1.17). Set the rounding pattern to XXXX.XX000 (as shown on the picture) so every call will be rounded to the equal cent amount.
  - **Default Formula** – Default rating formula, which will be applied to every rate created in the tariff. If you leave this empty, the “old-style” rating will be used.
  - **Short Description** – A short tariff description. This will be shown in the rate lookup on the admin interface and the self-care pages for your accounts and customers.
  - **Description** – An extended tariff description.
4. Click  **Save**.
  5. Repeat steps 1-4 until you have entered all of the tariffs. You will need at least two tariffs – one, which you will use to charge your customers, and another, which describes your termination costs. Make sure you choose **Vendor** in the **Applied To** select menu and check the box **Routing** when creating tariffs for your vendors.

## Enter Rates

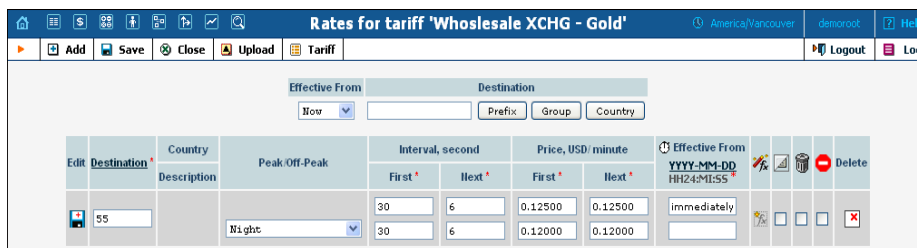
Rates are per-destination prices. Please refer to the *System Concepts* chapter for more details on billing parameters.



### Managing rates online

Managing rates online is very convenient for maintaining existing rate tables, as well as for reference purposes. For new price lists or for major updates, an offline method is better.



The screenshot shows a web application interface for managing rates. At the top, there's a navigation bar with buttons for 'Add', 'Save', 'Close', 'Upload', and 'Tariff'. Below this is a form for 'Effective From' and 'Destination'. The main part of the interface is a table with the following columns: 'Destination', 'Country', 'Peak/Off-Peak', 'Interval, second' (with sub-columns 'First' and 'Next'), 'Price, USD/minute' (with sub-columns 'First' and 'Next'), and 'Effective From' (with a date-time format YYYY-MM-DD HH24:MI:SS). There are also icons for 'Edit', 'Delete', and 'Add' for each row. A red dashed arrow points to the 'Add' button in the navigation bar.




1. On the Tariff Management page you will see a list of the available tariffs. Click the  **Rates** icon before the name of the tariff. When you are in Tariff Management for a particular tariff, click on **Rates** in the toolbar.
2. On the **Edit Rates** screen, click  **Add**.
3. Fill in the required information:
  - o **Destination** – A destination prefix may be entered directly, e.g. **55** for Brazil, or you can access the destinations directory by clicking the **Destination** link (in the column header). Here you can find the desired prefix by country name.

**NOTE:** The phone prefix you are trying to create a rate for must already exist in Destinations.



- o **Interval First** – first billing unit in seconds
- o **Interval Next** – next billing unit in seconds
- o **Price First** – per minute price for first interval
- o **Price Next** – per minute price for next interval
- o **Off-peak Interval First**– first billing unit in seconds for off-peak time
- o **Off-peak Interval Next** – next billing unit in seconds for off-peak time
- o **Off-peak Price First** – per minute price for first interval for off-peak time
- o **Off-peak Price Next** – per minute price for next interval for off-peak time

**NOTE:** Off-peak fields appear only if an **off-peak period** has been defined for the tariff.

- o **Rate Formula Wizard**  – Launches the wizard for creating a custom rating formula
- o **Effective from** – If you want this rate to take effect sometime in the future, you can either type in a date manually, or use the calendar (click on the DD-MM-YYYY link).

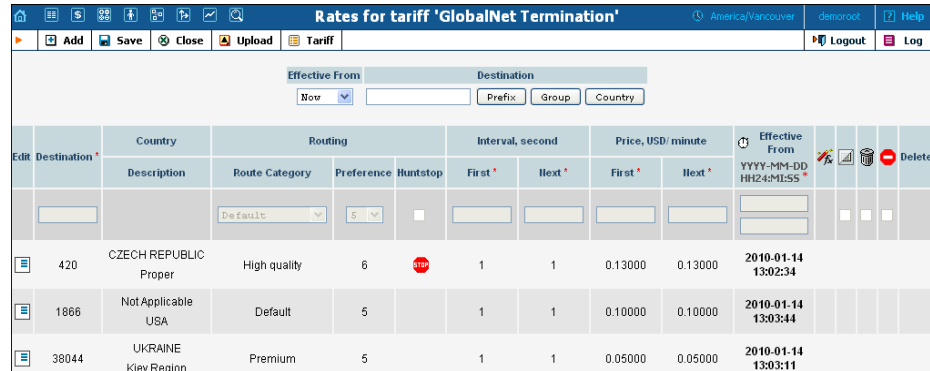
**NOTE:** When using the calendar, you can specify that the date you are entering is in a different time zone than your present one. PortaBilling will then automatically adjust the time.



- o The **Hidden**, **Forbidden** or **Discontinued** flags are optional.

4. Click the  **Save** button in the toolbar, or the  icon on the left side of the row.
5. Repeat these steps if you need to enter more rates.

## Tariffs with Routing Extensions

These tariffs are created for your vendors. In addition to the billing parameters described above, you can also specify your routing preferences.



Edit	Destination *	Country	Routing			Interval, second		Price, USD/minute		Effective From YYYY-MM-DD HH24:MI:SS	%	🗑️	🗑️	🗑️	Delete
			Description	Route Category	Preference	Huntstop	First *	Next *	First *						
			Default	5											
	420	CZECH REPUBLIC Prager	High quality	6		1	1	0.13000	0.13000	2010-01-14 13:02:34					
	1866	Not Applicable USA	Default	5		1	1	0.10000	0.10000	2010-01-14 13:03:44					
	38044	UKRAINE Kiev Region	Premium	5		1	1	0.05000	0.05000	2010-01-14 13:03:11					

- **Route category** – You can split your available routes into several categories, such as “High quality”, “Premium”, and so on, and then create routing plans for your customers. Choose one of the previously created route categories applicable to this particular route.
- **Preference** – Routing priority for the specific destination. 10 is the highest priority, 0 is the lowest (i.e. do not use destination for routing at all). For now, you can just set all of your vendor rates at preference 5, and the system will organize available routes according to cost (LCR).
- **Huntstop** – Do not try any routes with a lower preference.

## Managing Rates Offline

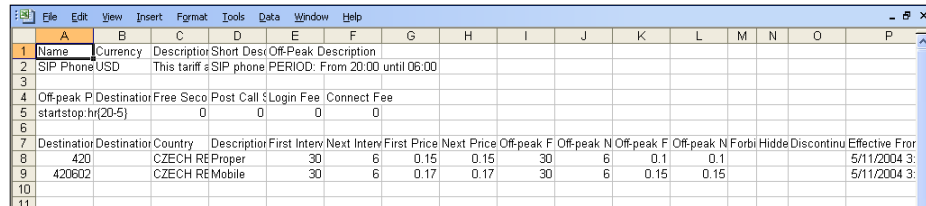
**NOTE: Templates** are available in PortaBilling, a powerful tool for uploading rates from custom format data files. However, in this particular example we assume that you will enter data using the PortaBilling default format.

The rates table may be prepared using a spreadsheet processor (i.e. Microsoft Excel) and easily imported into PortaBilling. This is very convenient if you are going to make many changes. For example, you might increase all prices by 10%.

1. If you are not in Tariff Management for your tariff, go to the main menu, click on **Tariffs**, and then click on the tariff name.
2. In the Edit Tariff window, move the mouse over the **Download** button and hold it there until a popup menu appears. Choose the

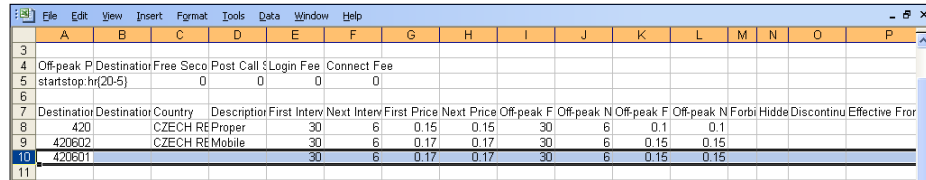
Now menu item and click on it. This will download the current set of rates (empty), but will also provide you with an overview of the file structure.

3. You will see the **File download** dialog and be prompted to choose whether to save the file or open it from the current location. We recommend that you save the file into the folder you will be using in the future to store tariff data files, then open it in Excel.
4. Now you should see something similar to the screenshot below:




1	Name	Currency	Description	Short Desc	Off-Peak	Description											
2	SIP Phone	USD	This tariff is SIP phone	PERIOD: From 20:00 until 06:00													
3																	
4	Off-peak P	Destination	Free Seco	Post Call	Login Fee	Connect Fee											
5	startstop:hr(20-5)		0	0	0	0											
6																	
7	Destination	Destination	Country	Description	First Interv	Next Interv	First Price	Next Price	Off-peak F	Off-peak N	Off-peak F	Off-peak N	Forbi	Hide	Discontin	Effective	From
8	420	CZECH RE	Proper		30	6	0.15	0.15	30	6	0.1	0.1				5/11/2004	3
9	420602	CZECH RE	Mobile		30	6	0.17	0.17	30	6	0.15	0.15				5/11/2004	3
10																	
11																	

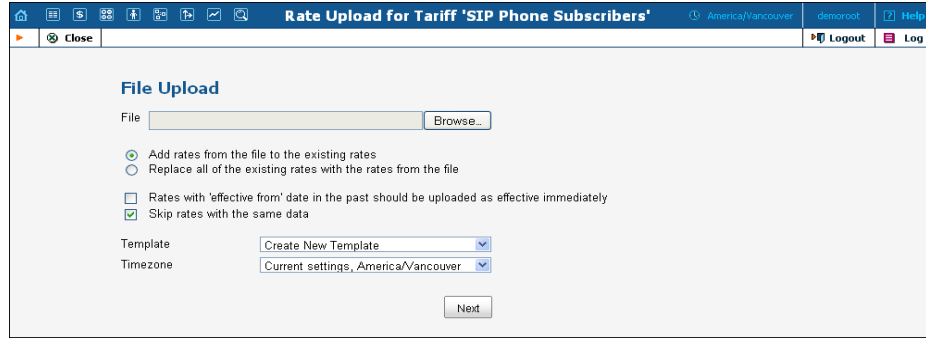
5. Edit the file by adding more rows with rate data, so that it resembles the screenshot below.
6. If you want some of your rates to be effective in the future, enter a future date in the **Effective from** column. If you are retaining past dates, make sure to check the box **Rates with 'effective from' date in the past should be uploaded as effective immediately** when uploading the file (see step 11 below). Otherwise, these rates will fail to upload.



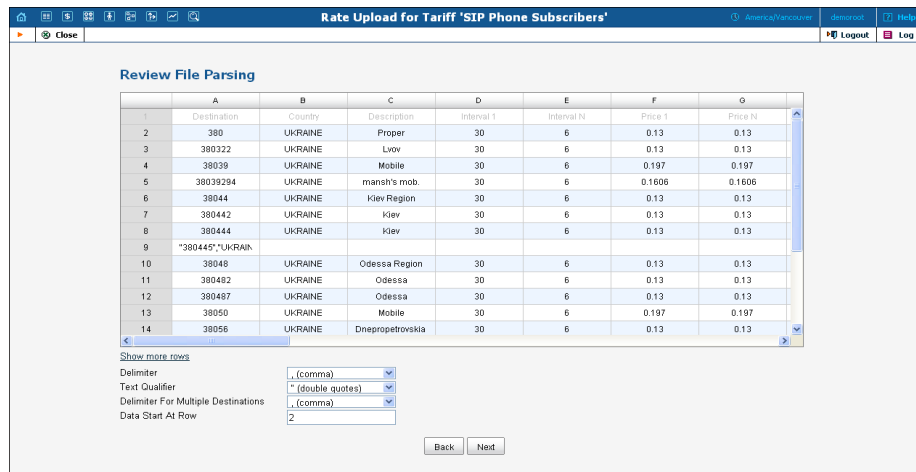
7	Destination	Destination	Country	Description	First Interv	Next Interv	First Price	Next Price	Off-peak F	Off-peak N	Off-peak F	Off-peak N	Forbi	Hide	Discontin	Effective	From
8	420	CZECH RE	Proper		30	6	0.15	0.15	30	6	0.1	0.1				5/11/2004	3
9	420602	CZECH RE	Mobile		30	6	0.17	0.17	30	6	0.15	0.15				5/11/2004	3
10	420601				30	6	0.17	0.17	30	6	0.15	0.15					
11																	



7. Save the file in Excel. You will probably get a warning from Excel that your file “*may contain features that are not compatible with CSV (Comma delimited)*”. Ignore this, and choose **Yes** to retain the CSV format.
8. Close the file in Excel. If you performed step 7, then disregard the message “*Do you want to save the changes you made*”, since this arises only because your format is not the default Excel XLS format.
9. Go back to the PortaBilling web interface, and then go to the **Tariff** screen.
10. Click on the  **Upload** button.
11. Select one of the options on the screen to add rates from the file to the existing ones, or to replace the existing ones, as shown on the screenshot below:

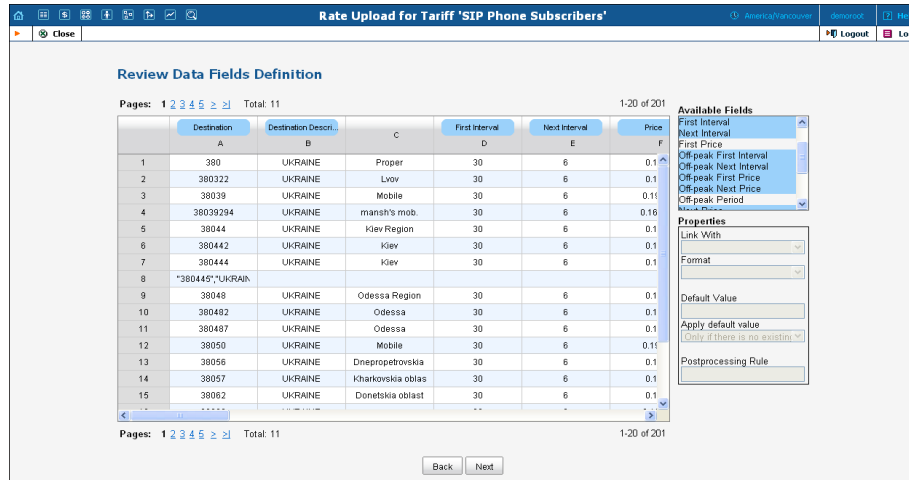


12. Either enter the name of your file manually, or click **Browse...** and choose the file; then click Next.
13. On the Review File Parsing page, you can verify whether the file was parsed correctly and, if necessary, change file parsing parameters such as delimiters.

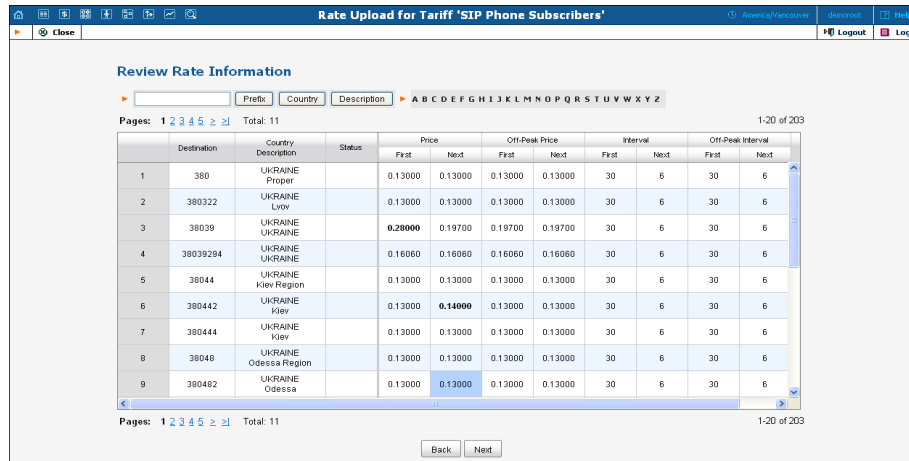


14. On the Review Data Fields Definition page, you can specify where individual data fields (e.g. destination or price) are located in the file. In order to associate a certain column in the file with a specific data field, drag and drop that field from the list on the right onto the column header.

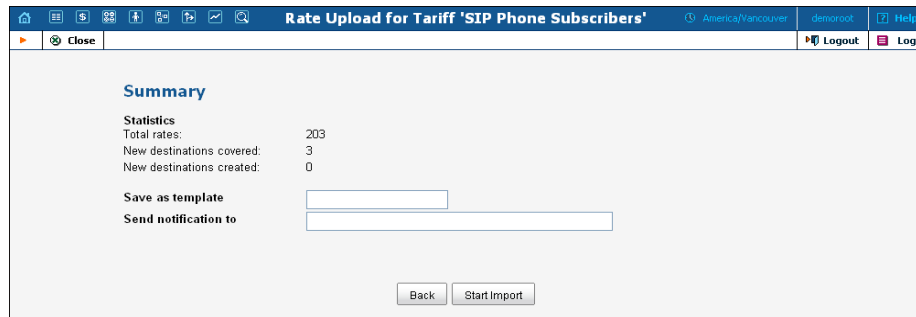




- On the Review Rate Information page, you can view information about rates and adjust the value of prices (just point your mouse at the window you want to change, click to modify the value, and press Save; the changed value will be in bold).



- On the Create New Destinations page, you can assign a country and destination group to destinations that were not in the system before, and which will be automatically created now.
- On the Summary page, you can find information about the number of rate records to be processed. You can also save the rate import options you have defined as a template, so that you can re-use them in the future.



18. Click Start Import. You will receive an email confirmation of the tariff upload. If any operations have failed, you will receive a notification about the error.

You can verify your work using the **Edit Rates** feature. After you have done so, go to the **Main menu** (by clicking on the **Home** icon).

## Create All Required Tariffs

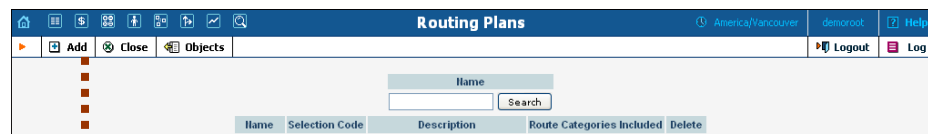


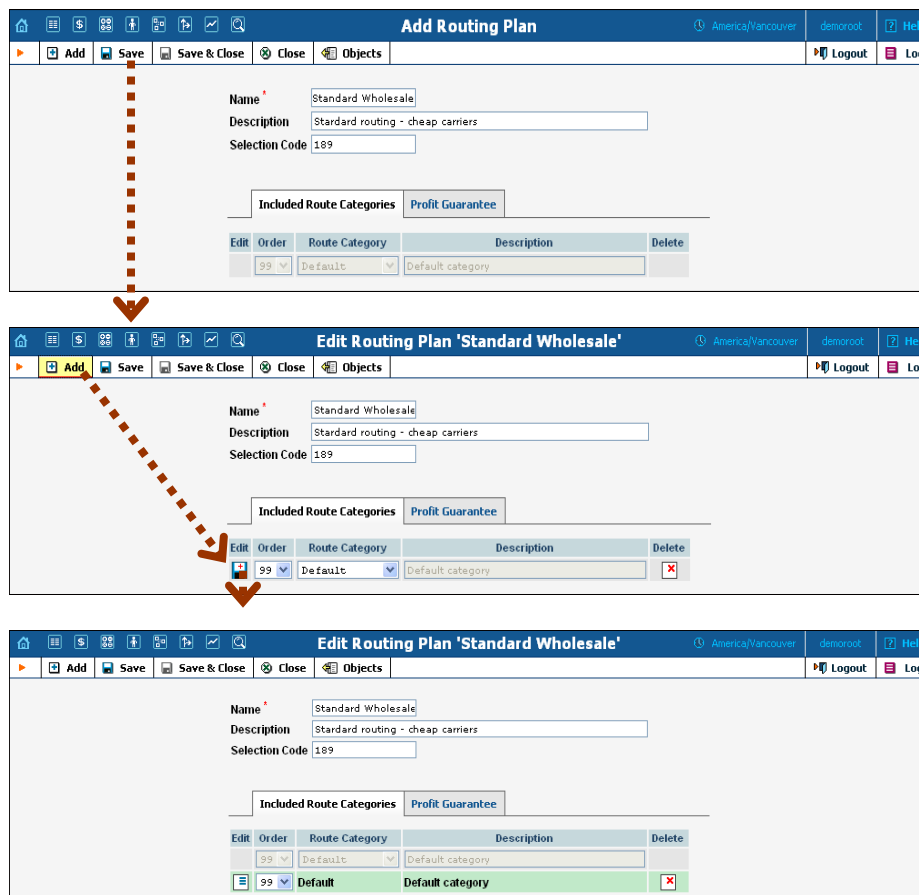
Repeat the *Create Tariff* and *Enter Rates* steps, after which you will create:

- A tariff for each billing scheme for your clients; these tariffs are created as “Applied to: Customer”. For example, if you plan to have two types of clients (e.g. Silver and Gold) with different rates, you will need two separate tariffs.
- A tariff with the termination costs for each termination partner you have; these tariffs are created as “Applied to: Vendor”.
- If you have resellers, you should also create tariffs for charging each of them; these tariffs are created as “Applied to: Reseller”. Do not create tariffs which will be applied to your resellers’ subscribers yet. First create the resellers, and then return to this step. When creating these subscriber tariffs, make sure you choose *Managed by NNN* in the menu, where *NNN* is the name of the corresponding reseller.

## Create a Routing Plan

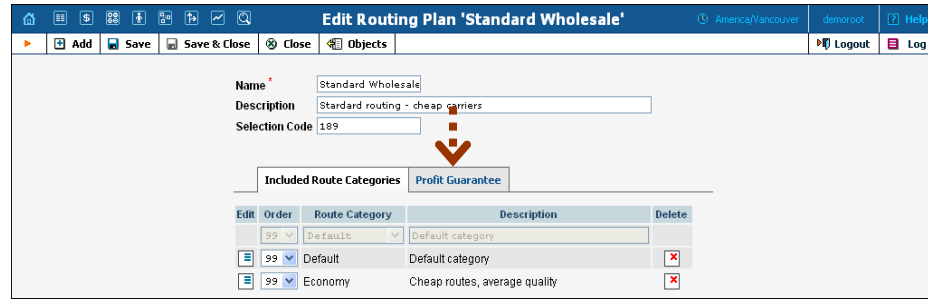
A routing plan allows you to apply individual routing methods to certain customers, i.e. blocking them from using certain carriers for termination, or, conversely, only allowing them to use certain carriers in a specific order. If you do not define any custom routing plans, the system default routing plan will be used, allowing access to all available carriers.





1. In the **Routing** section of the Admin-Index page, choose **Routing Plans**.
2. On the Routing Plans Management page, choose **Add**.
3. Fill in the “Add Routing Plan” form:
  - o **Name** – The name of the routing plan.
  - o **Description** – Your designation of the intended purpose of this routing plan.
  - o **Selection Code** – The code your customers will dial before the destination number to select this routing plan.
4. Click **Save**.
5. Define which route categories will be included in this routing plan:
  1. Click the **Add** icon on the **Included Route Categories** tab.
  2. Choose a route category from the list and define its order in the routing list. Higher numbers will be at the top of the routing list. It is possible to include two or more categories with the same order number; in this case, PortaSwitch simply sorts the routes according to preference and cost. If you do not include a certain route category in the list, customers will not have access to any routes in that category.
  3. Click the **Save** button in the toolbar, or the **Save** icon on the left end of the row.
  4. Repeat steps 1-3 if you need to include more route categories.

6. Click the **Profit Guarantee** tab and define your settings:

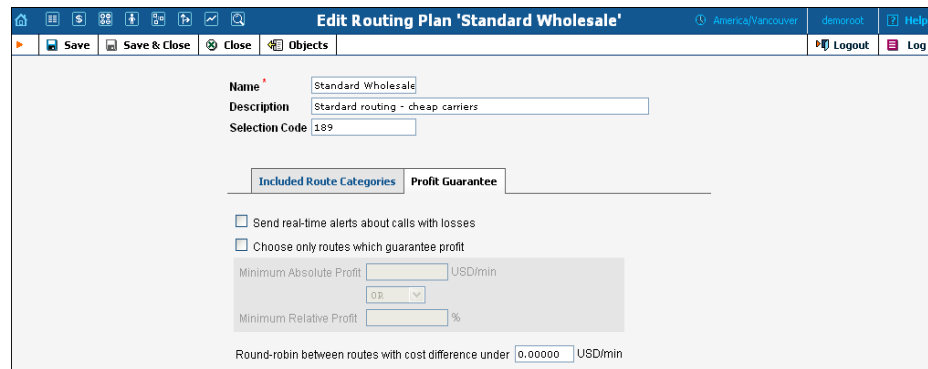


**Edit Routing Plan 'Standard Wholesale'**

Name: Standard Wholesale  
 Description: Standard routing - cheap carriers  
 Selection Code: 189

Included Route Categories: Profit Guarantee

Edit	Order	Route Category	Description	Delete
	99	Default	Default category	
	99	Default	Default category	<input type="checkbox"/>
	99	Economy	Cheap routes, average quality	<input type="checkbox"/>



**Edit Routing Plan 'Standard Wholesale'**

Name: Standard Wholesale  
 Description: Standard routing - cheap carriers  
 Selection Code: 189

Included Route Categories: Profit Guarantee

Send real-time alerts about calls with losses  
 Choose only routes which guarantee profit

Minimum Absolute Profit:  USD/min  
 Minimum Relative Profit:  %

Round-robin between routes with cost difference under  0.00000 USD/min


**Choose only routes which guarantee profit** – If this checkbox is selected, vendors whose price per minute is higher than the selling price to the customer will be automatically removed from the routing list. It is highly recommended that you use this option for wholesale traffic exchange, as it may protect you from financial losses in the case of routing problems.

6. Click  **Save**.

## Create a Product

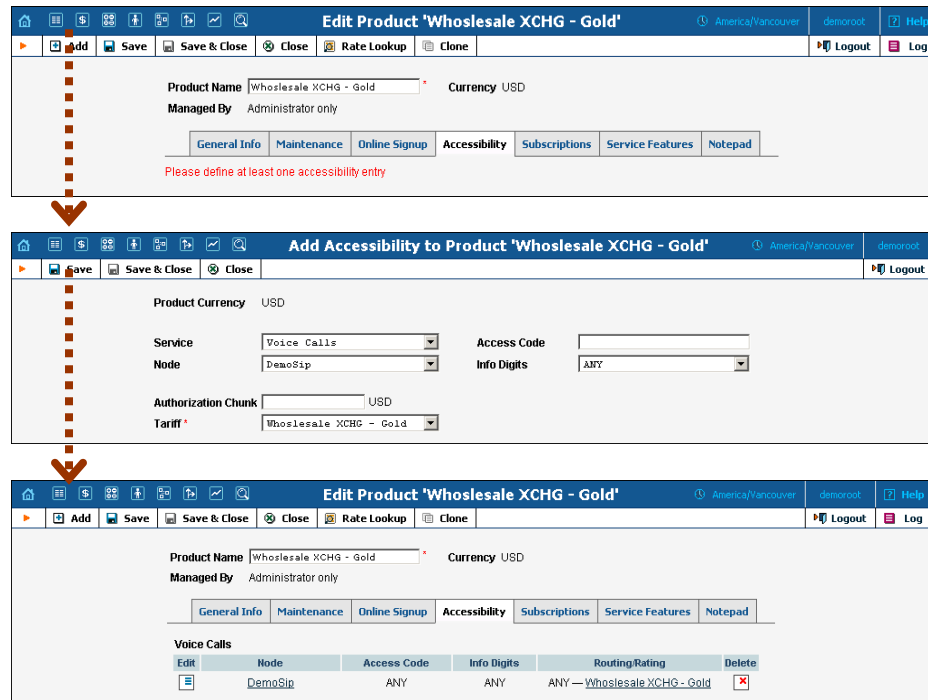
Accounts for accessing your SIP services will be issued for a specific product. Products are a powerful feature that defines different ways to bill an account. Product definition is always done in two steps: product definition and creation of an accessibility list.

1. In the **Rating** section of the Admin-Index page, choose **Products**.
2. On the Product Management page, click the **Add** icon.
3. Fill in the “Add product” form:
  - **Product name** – Product object name.
  - **Currency** – Product currency; only tariffs which have the same currency will be permitted in the accessibility list.
  - **Managed by** – If you want this product to be used for your reseller’s accounts, so the reseller himself can change the parameters of this tariff and create new accounts using this product, choose a customer name from the menu. Otherwise, choose **Administrator only** here.
  - **Breakage** – This parameter is typically used only for prepaid accounts, so leave it empty.

- **Account Default ACL** – The access level assigned by default to new accounts created with this product. The ACL determines which operations may be performed by accounts on the self-care pages. The default value is “Account self-care” (pre-defined ACL), which allows all possible operations.
  - **Default Discount Plan** – Leave **None** as the selected entry if you do not plan to offer any discounted rates based on call volume.
  - **Info URL** – If you have an external server with a description of product features, enter the URL here (e.g. http://www.myproduct.com). Your customers will be able to go there from their self-care page.
  - **Description** – your comments about the intended use of this product.
4. Click  **Save**.
  5. On the **Accessibility** tab, edit this product’s accessibility.


### Enter Node and Tariff in the Product’s Accessibility List


The Accessibility List has two functions: it defines permitted access points (nodes and access numbers) and specifies which tariff should be used for billing in each of these points.




The screenshots illustrate the following steps:

- Step 1:** The 'Edit Product' page for 'Wholesale XCHG - Gold'. The 'Accessibility' tab is selected. A red message states: "Please define at least one accessibility entry".
- Step 2:** The 'Add Accessibility to Product' form. Fields include:
  - Product Currency: USD
  - Service: Voice Calls
  - Node: DemoSip
  - Access Code: (empty)
  - Info Digits: ANY
  - Authorization Chunk: (empty)
  - Tariff: Wholesale XCHG - Gold
- Step 3:** The 'Edit Product' page showing the updated 'Accessibility' tab. A table lists the added entry:
 


Service	Node	Access Code	Info Digits	Routing/Rating	Delete
Voice Calls	DemoSip	ANY	ANY	ANY — Wholesale XCHG - Gold	

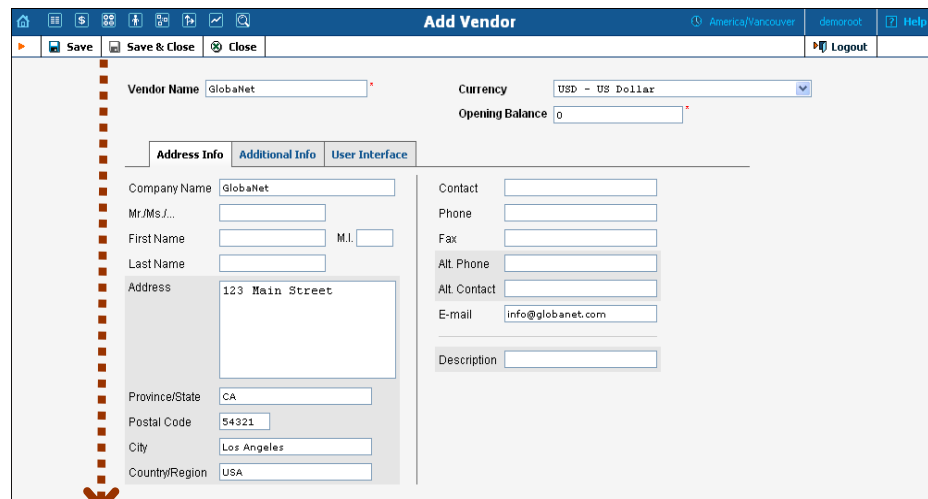
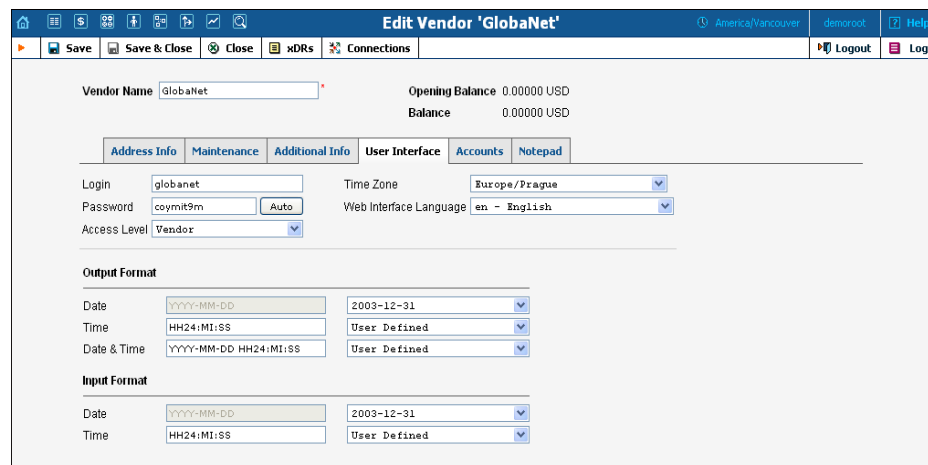
1. When the Accessibility tab is selected, click on the  **Add** icon.
2. Choose **Voice Calls** in the **Service** select menu.
3. In the accessibility entry window, select the PortaSIP node and choose the appropriate tariff which applies to your customers when they make outgoing calls.

4. The **Access code** or **Info Digits** fields only make sense when a call originates from your customer in a public telephony network. Therefore, just leave this empty for the SIP service.
5. Click  **Save** to save this accessibility entry.

## Create Vendors

Vendors are your termination partners, i.e. companies you send calls to.

1. In the **Participants** section of the admin interface, choose **Vendors**.
2. On the Vendor Management page, choose  **Add**.

3. Fill in the **Add Vendor** form. Please note that there are three tabs available on the screen. The most important fields are:

### Main form (top)

- **Vendor name** – short name for the Vendor object; this will be used on the web interface.
- **Currency** – the currency in which this vendor charges you.

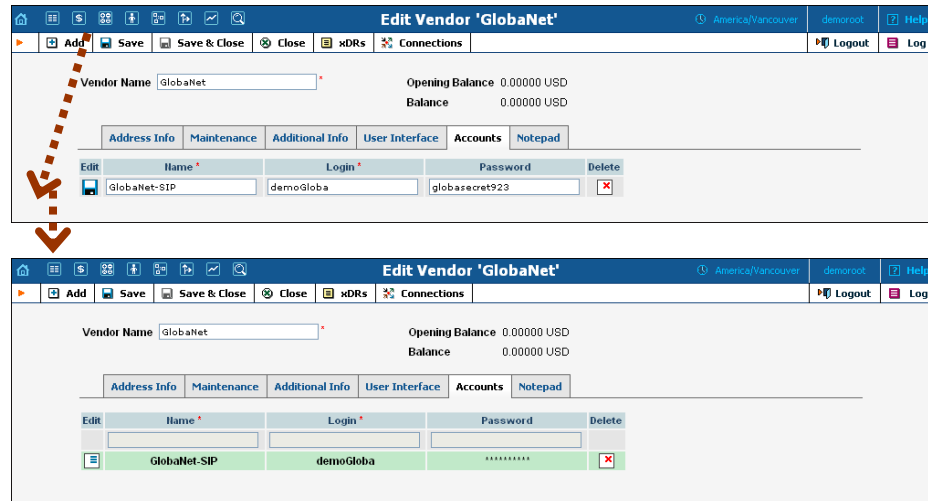
- o **Opening balance** – starting balance for the vendor; the default is zero.

Additional info:

- o **Billing period** – split period for vendor statistics.

User Interface:

- o **Time zone** – the time zone that the vendor uses for his billing period (when sending you an invoice). Statistics will be split into periods in this time zone, so your statistics will match the vendor's.
4. Click **Save**.
  5. Three more tabs now appear on the screen. If you plan to terminate your calls to the vendor's SIP server, typically he will provide you with a username/password authorizing you to send calls to his server. Click the **Accounts** tab, then click **Add** and enter this information.

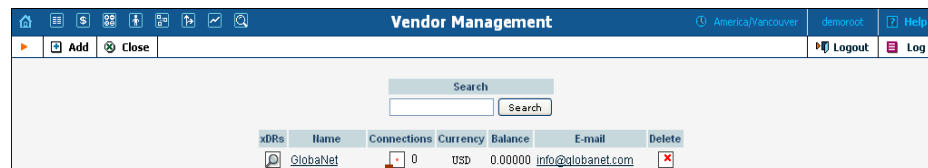


6. Click **Close** in order to return to the **Vendors** admin page.
7. Repeat steps 2-6 to add all of your vendors.

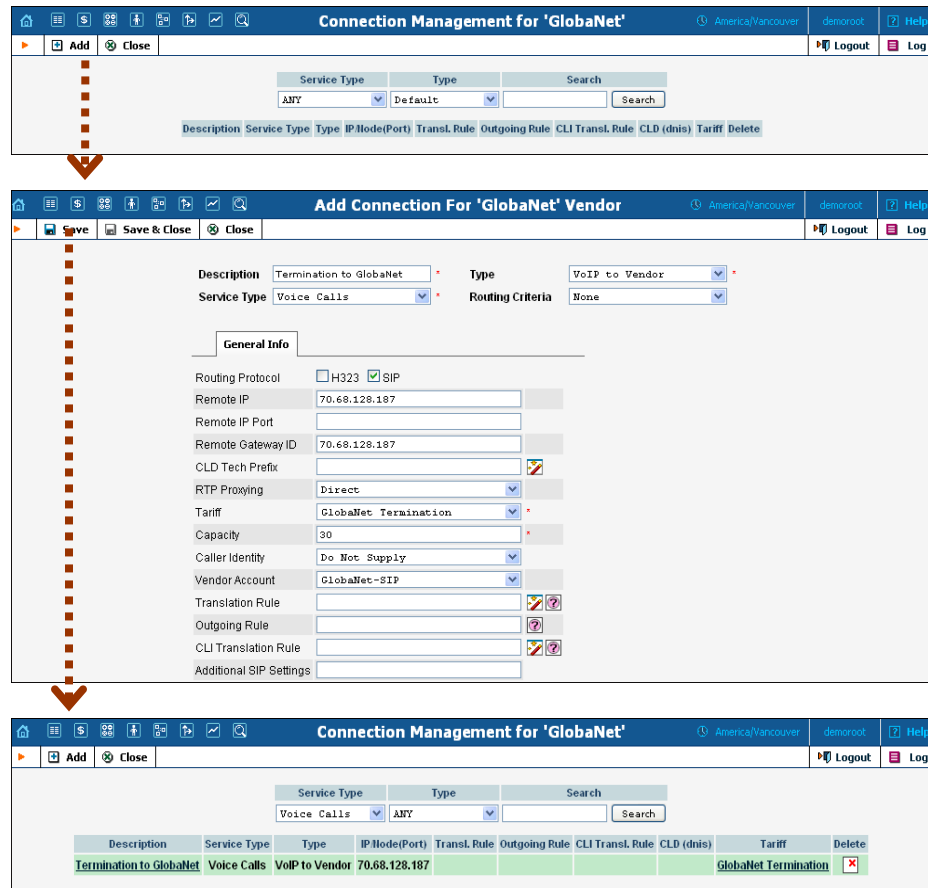
## Define Connections

Connections are points at which calls leave or enter a network and are directed to or from vendors, whereby costing occurs.

1. In the **Participants** section of the admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.







3. Press **Add** to add a new connection.
4. Fill in the connection information. Choose the type of connection (for a wholesale exchange platform, usually **VoIP to Vendor**) and enter the remote IP address (address of the vendor’s gateway or SIP server). Choose the tariff which defines your termination costs for this connection/vendor. **Description** and **Capacity** are mandatory for all connection types. For VoIP connections where you have been assigned a login name and password, choose the corresponding vendor account.
5. Click **Save&Close**.
6. Repeat steps 3-5 to add more connections to the same vendor, then click **Close** to exit to the **Vendor Management** screen.
7. Repeat steps 2-6 to add connections for other vendors.

## Create a Customer Class

Customer class provides the ability to define a group of parameters in a centralized way, then apply those parameters to many customers at once. (If you have already created a customer class that you can use for prepaid card distributors, skip this step and go to the next one.)

1. In the **Billing** section of the Admin interface, choose **Customer Classes**.
2. On the Customer Class Management page, choose **Add**.

The screenshot shows the 'Add Customer Class' form with the following details:

- Name:** Wholesale Exchange
- Managed by:** Administrator only
- General Info Tab:**
  - Send Statistics: Summary Only
  - Invoice Template: Wholesale invoice
  - Send Invoices:
  - Terms: Due on receipt
  - Invoice Grace Period: 14 Days
  - Invoice Notification Intervals: 7,4,1 Days
  - Invoice Re-send Intervals: 1,4 Days
  - Re-collect Intervals: Days
  - Suspension Time: 7 Days
  - Suspension Warning Time: 5 Days
  - Closing Time: 30 Days
  - Charge Credit Card When The Billing Period Is Closed:
  - Description: Default settings for the wholesale customers

3. Fill in the customer class parameters:
  - **Name** – Short name for this customer class.
  - **Send Statistics** – Select whether you want to send statistics to a customer.
  - **Invoice Template** – Select the appropriate template which will be used to create a PDF file with the invoice for your SIP customers. If you have not created a template yet, simply leave **Do not create invoice** for now. Later you can create an invoice template and assign it here.
  - **Terms** – Choose the appropriate description for the invoice payment terms.
  - **Send Invoices** – Check the box to automatically send an invoice to a customer at the end of the billing period.
  - Please consult the [PortaBilling Web Reference Guide](#) for a description of other parameters available here. For now you may leave these empty. If you change them later, these changes will automatically affect all customers who are already assigned to this customer class.
  - **Description** – Your comments about the intended use of this customer class.
4. Click **Save&Close**.

## Create a Customer

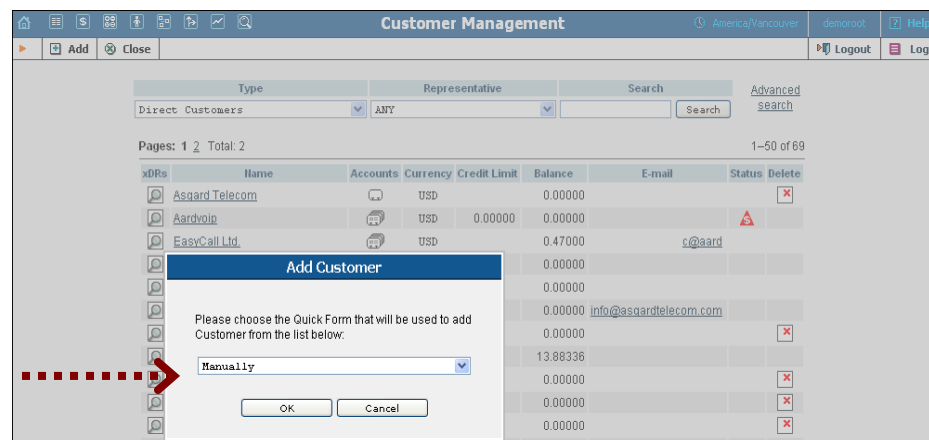
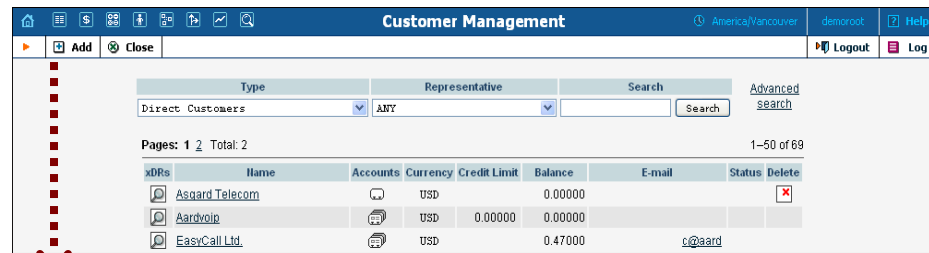
A customer is a company which sends you traffic for termination and pays you according to the amount of traffic sent. The customer's contact

information is used to distribute account usage information, call statistics, invoices, and so on.

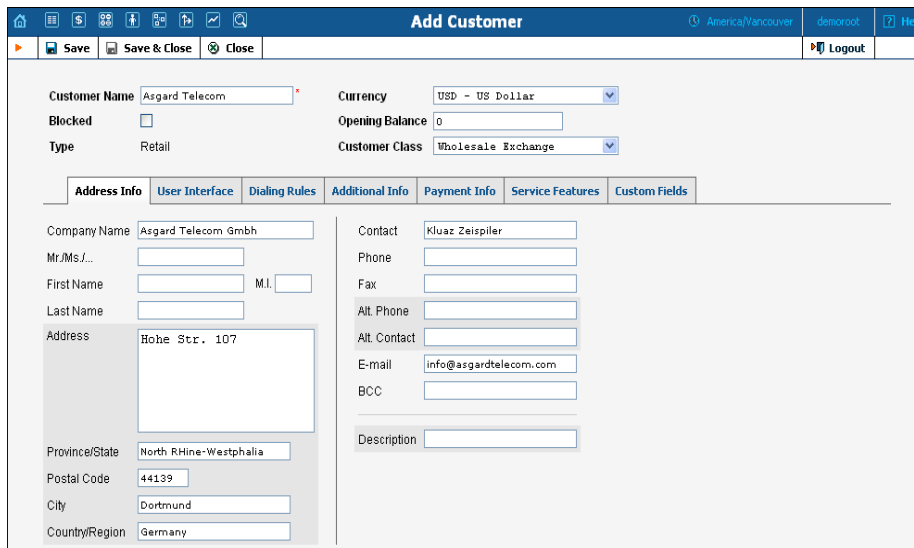
In this example we will describe how to create a new customer manually, without using a Quick Form.

1. In the **Participants** section of the Admin-Index page, choose **Customers**.
2. On the Customer Management page, click **+ Add Customer** and choose **Manually**.

**NOTE:** If no Quick Forms have been created, you will go directly to the **Add Customer** page.



3. Fill in the **New Customer** form. Please note that there are several tabs with extra information available on the screen.



The most important fields are:

#### Main form (top)

- **Customer Name** – short name for the customer object; this will be used on the web interface.
- **Currency** – the currency in which this customer will be billed.
- **Opening balance** – a starting balance for the customer; the default is zero.
- **Type** – Since your normal wholesale traffic exchange clients send you calls and pay for them, they are your **Retail** customers. Even if they resell the traffic to somebody else, they are not resellers in PortaBilling, since they do not manage their subscribers in your system.
- **Customer Class** – Choose the customer class you created in the previous step

#### Address info tab

- **Email** – An email address for the distribution of accounting information. After the billing period is over, a list of xDRs and other statistics will be sent to this address
- **Bcc** – Blind carbon copy in email; may be used for debug and archiving purposes.

#### Additional info tab

- **Routing Plan** – If you wish to assign an individual routing plan to this customer, select it here. Otherwise, the system default routing plan will be used.

- **Billing Period** – Frequency of invoice generation. For more details about the different available billing periods, see the [PortaBilling Administrator Guide](#).
- **Send Statistics** – If you choose “Summary only”, the statistics email will include only a brief call summary, without an attached details file; for most customers, the xDR file will be too large to send via email.

#### Payment info tab

- **Credit Limit** – For prepaid traffic exchange, enter 0 in this field, so that the customer can only send you calls after he makes a payment (deposit).
- **Balance Warning Threshold** – The customer can be notified by email when his balance is dangerously close to the credit limit and service will soon be blocked. Here you can enter the value for such a warning threshold. This can be entered:
  - as a percentage (e.g. 90%). The warning will be sent when the customer’s balance exceeds that percentage of his credit limit. So, if the credit limit is USD 1000.00 and the threshold is 90%, a warning will be sent as soon as the balance exceeds USD 900.00. This is only applicable when the customer has a positive credit limit.
  - as an absolute value. The warning will be sent as soon as the balance goes over the specified value. For prepaid traffic exchange, where the credit limit is zero, you can enter 100.00 here.

#### User Interface tab

- **Time Zone** – The time zone in which customer will see his xDRs and also that which defines his billing period. For example, if you choose **America/New\_York** here and the billing period is **Monthly**, it means the billing period will start on the first day of the month, 00:00 New York time.
- **Web Interface Language** – language to be used on the customer self-care web interface.

## Service Features tab

This tab allows you to define global call parameters for this customer's environment. Most of these are related to the IP Centrex service and are not used for wholesale traffic exchange, but there is one important:

- **Limit simultaneous calls** – This allows you to limit the number of concurrent calls for accounts of this customer. This may be useful in preventing service abuse. If selected **Yes** for this feature you will also have to specify the maximum number of simultaneous calls and the minimum funds received per call.

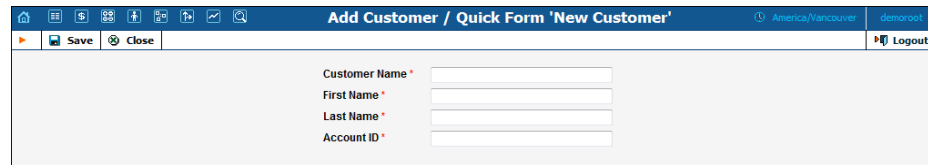
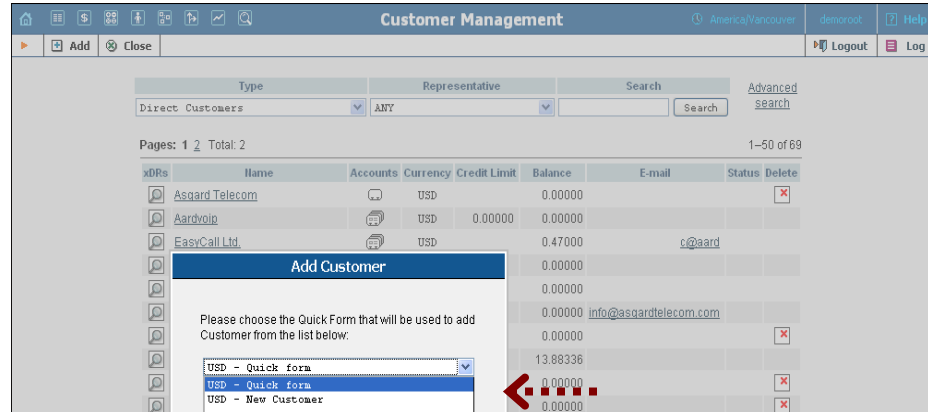
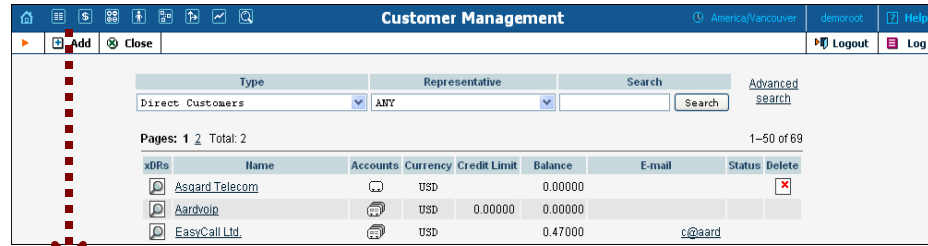
## Dialing Rules tab

Here you should specify how the customer will be dialing phone numbers; you may also use one of the pre-defined examples. For instance, if your customer wishes to use a tech-prefix when sending calls to your network, you may describe this in the dialing rules. PortaSwitch will then automatically strip this tech-prefix from all incoming calls from this customer.

4. Click **Save&Close**.

## Creating a new customer using a Quick Form:

1. In the **Participants** section of the Admin-Index page, choose **Customers**.
2. On the Customer Management page, click **Add Customer** and choose one of the available Quick Forms.
3. Fill in the **Add Customer** form.



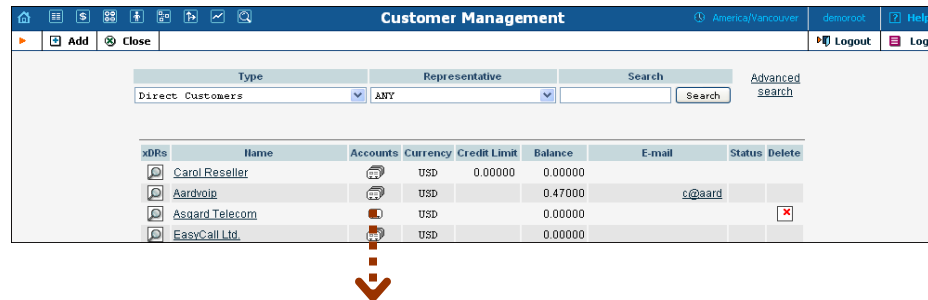
## Create Accounts

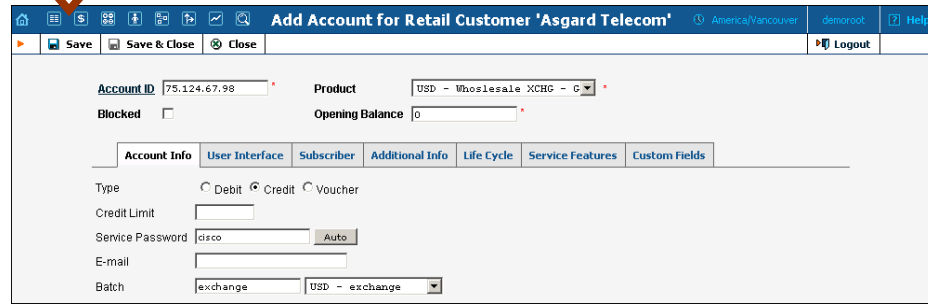
Accounts enable authorization of the customer’s actual end-points. There are two main types of applicable authorizations:


- via SIP digest (the most robust and secure method)
- via remote gateway (or proxy) IP address

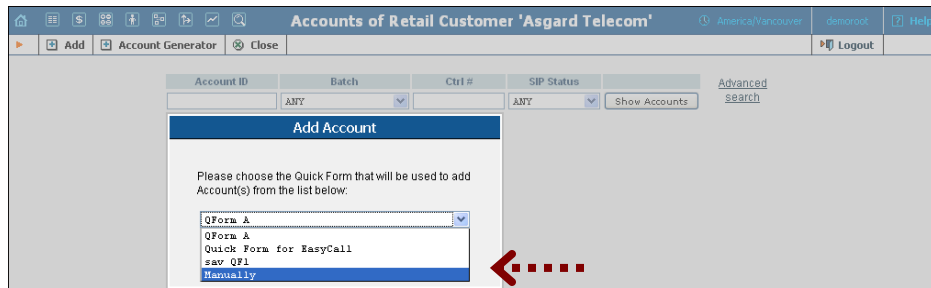
In the following examples, we assume that you are using the SIP digest method. In the case of IP authentication, the only difference is that the account ID must be identical to the signaling IP address of the remote gateway/proxy, and the password must be `cisco`.

1. Go to the **Customers** screen (the one containing the list of customers). It should resemble the screenshot below.





2. Next to the customer name, click on the  icon (the one in the **Accounts** column) to go to the account management for that customer.
3. Click on **Add**.
4. In this example, we assume that you are creating the account manually, so choose **Manually** from the drop-down menu (do not use any of the Quick Form options).




5. Fill in the “Add Account” form:
  - **Account ID** – SIP ID which will be used to authorize calls coming from the customer’s SIP proxy or gateway, or the IP address for the customer’s SIP proxy or gateway.
  - **Product** – Choose the previously created wholesale exchange product.
  - **Blocked** – You may create your account as blocked, although this is rarely done with SIP service accounts.
  - **Opening balance** – The initial balance on the account.





### Account Info tab

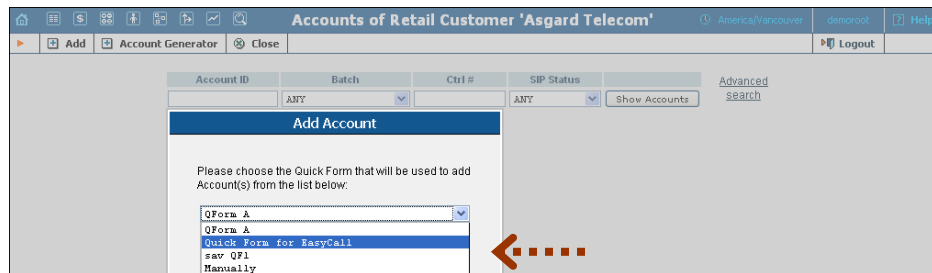
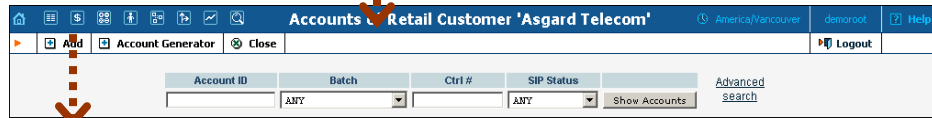
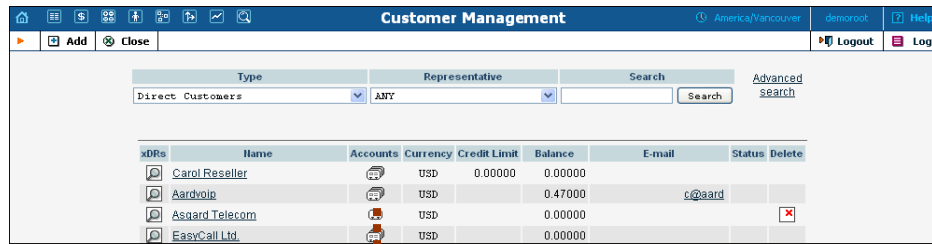
- **Type** – Select credit (yes, in general credit accounts are used for a post-paid service, but since credit limit is controlled on the customer level – you can set it up in such a way that customer will be working in the pre-paid mode).
- **Credit limit** – For a credit account, specify the credit limit. If you leave this field blank, it means there is no credit limit for this account (but a customer credit limit may still apply).
- **VoIP password** – The account ID and this password will be used to authenticate SIP server login. Make sure you choose a password which is difficult to guess or crack. Use the **Auto** button next to the **Password** field to generate a secure password.
- **Email** – Enter the account owner’s email address here. If he ever forgets his password for the web self-care pages, he will be able to reset it, and a new password will be sent to this email address. You can also just leave this field empty.
- **Batch** – A batch is a management unit for accounts. The batch name is alphanumeric. You can type a new name here, or use an existing name in order to generate more accounts for the same batch.

### Life Cycle tab

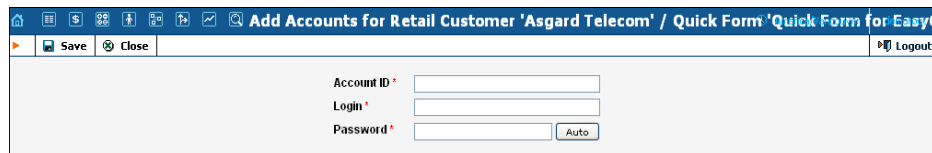
- **Activation date** – Account activation date.
  - **Expiration date** – Account expiration date; since we are setting up a postpaid service, which should function for a long time, leave this field blank.
  - **Life Time** – Relative expiration date; since we are setting up a postpaid service, which should function for a long time, leave this field blank.
6. After clicking  **Save&Close**, you will see a confirmation screen announcing that a new account has been created.
  7. Repeat steps 3-6 if the customer has more than one phone line (extension).

### Creating a new account using a Quick Form:

1. Go to the **Customers** screen (the one containing the list of customers).
2. Next to the customer name, click on the  icon (the one in the **Accounts** column) to go to account management for that customer.
3. Click on  **Add** and choose one of the available Quick Forms.



4. Fill in the “Add Account” form.



## Set up Dialing Rules for a Customer (Optional)

Your customer may wish to use a custom numbering format, e.g. if his VoIP system requires a tech-prefix for routing or adds an international dialing prefix to a number.

1. On the Customer Information screen, select the **Dialing Rules** tab.
2. Select **Enable Dialing Rules** from drop-down menu.
3. Click on the **Dialing rules wizard** button.



4. Click **Save&Close** to exit the wizard screen.
5. Now the new dialing rules are created and displayed on the screen, but are not yet stored in the database. Click **Save&Close** in the toolbar to save the new customer information.

## Test Routing with Test Dialplan

You may check the routing in your system prior to actually making a phone call. This significantly simplifies troubleshooting, especially when test calls are to be performed by the customer, who may be not be available at the moment.

1. In the **Routing** section of the Admin-Index page, choose **Test Dialplan**.
2. Enter the destination phone number and choose a specific routing plan.
3. Click **Search** to display a list of applicable routes.

#	Destination	Country	Description	Penalization	Route Category	Preference	Huntstop	Price, USD	Route CLD	Route To	Vendor	Connection	Tariff
1	552133	BRAZIL	BRAZIL RIO DE JANEIRO	N	Default	5	N	0.00118	552133232200	193.28.87.120	bridge test	bridge test	bridge test

## Test the Whole System

Make sure that the PortaBilling Radius and PortaSIP servers are running. Configure the remote gateway or SIP proxy to send calls to your PortaSIP server (make sure the authorization username and password are also configured on the remote side). Initiate a call and monitor the results in PortaBilling.

## Check Log Files with SIP Log Viewer



You can browse the SIP log file from the PortaBilling web interface using a SIP log viewer, which offers added convenience: for instance, automatically drawing call flow diagrams for you.

1. Choose the **SIP Log Viewer** item from the main menu.
2. Choose your PortaSIP node in the **PortaSIP node** select menu and select the time interval on the right side of the screen. Now you will see all call attempts in that interval. Press the **Generate** button to produce a call attempts list.

The screenshot shows the SIP Log Viewer interface. At the top, there's a navigation bar with 'America/Vancouver', 'demoroot', and 'Help'. Below that, a 'PortaSIP Node' dropdown is set to '193.28.87.36 - PortaSIP .36'. The main area is titled 'Trace a call' and contains several input fields: 'Call-ID' (with a note 'but not H323-Conf-ID!'), 'Another Call-ID' (with a note 'Optional, e.g. for callback calls'), and a 'Search log file for' dropdown. There are also checkboxes for 'Include log file for the previous day in the search' and 'Output format' (radio buttons for 'log with call diagram' and 'only text log'). On the right, 'Show call attempts' section has a 'For last' dropdown set to '30 minutes' and a 'Filter' checkbox checked for 'do not show selftest calls'. A 'Generate' button is at the bottom right.

The screenshot shows the SIP Log Viewer interface displaying a list of call attempts. The table has the following columns: Setup Time (in SIP server TZ), Caller's IP:UdpPort, CLI, CLD, Call-ID, and Caller's User Agent. The data row shows: 11 Jan 15:04:42.370, 91.212.34.242:53062, 999100, \*20, dc4a318f-38d30381@10.254.254.56, and Linksys/SPA941-5.1.8.

Setup Time (in SIP server TZ)	Caller's IP:UdpPort	CLI	CLD	Call-ID	Caller's User Agent
11 Jan 15:04:42.370	91.212.34.242:53062	999100	*20	dc4a318f-38d30381@10.254.254.56	Linksys/SPA941-5.1.8

The screenshot shows the SIP Log Viewer interface displaying a detailed SIP log view for a specific call. It includes a 'Send log(s) to PortaOne support ticketing system. Trouble ticket:' field with a 'Send' button. Below that, it shows the PortaSIP node, Call-ID, and H323-Conf-ID. The main part of the screenshot is a detailed SIP log showing the call flow between various servers and users, including INVITE, ACK, and 200 OK messages. A red box highlights a 'SUGGESTION: No audio in both directions!' message. The log ends with a 'RECEIVED message from' block containing call details like 'INVITE sip:\*208193.28.87.36 SIP/2.0', 'Via: SIP/2.0/UDP 10.254.254.56:5062', and 'User-Agent: Linksys/SPA941-5.1.8'.

3. To obtain a detailed log view, click on the call-id for the call you are interested in. In the lower frame you will see a detailed copy of all SIP messages in this call. The upper frame provides a call-flow diagram,

representing the main participating entities (SIP phone, SIP proxy, B2BUA, remote SIP UA, etc.). If you click on a particular dialogue element here, the lower frame scrolls automatically to display the corresponding SIP message.

## Check Call History

If you want to see a list of all calls going through the system, or perhaps only ones for a particular destination, use the **Trace Session** function.

The screenshot shows the 'Trace Session' window with a search form and a table of voice calls. The search form includes fields for 'H323-conf-id', 'Rate Pattern', 'Service', 'From', 'To', and 'Time Zone'. Below the search form is a table with the following columns: View, Error, Client, CLID, Country, Description, Connect Time, Disconnect Time, Duration, Amount, Account Alias, Customer, Vendor, and Disconnect Reason. The table contains several rows of call data, including call IDs, client IDs, descriptions, and disconnect reasons. A legend titled 'List of possible Disconnect reasons:' is located below the table, showing color-coded boxes for: Normal completed call (green), Normal uncompleted call (cyan), Call progress code (yellow), Calling side error (orange), Called side error (red), and Network error (dark red).

View	Error	Client	CLID	Country	Description	Connect Time	Disconnect Time	Duration	Amount	Account Alias	Customer	Vendor	Disconnect Reason
[icon]	[E]	123000	123004		ALL Destinations	2009-12-27 19:41:55	2009-12-27 19:41:57	0:02	0.00000	123000	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123008		ALL Destinations	2009-12-27 19:41:55	2009-12-27 19:41:57	0:02	0.00000	123008	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123008		ALL Destinations	2009-12-27 19:39:28	2009-12-27 19:41:50	2:21	0.00000	123008	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123004		ALL Destinations	2009-12-27 19:39:28	2009-12-27 19:41:50	2:21	0.00000	123000	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123008		ALL Destinations	2009-12-27 19:23:17	2009-12-27 19:23:29	0:12	0.00000	123004	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123004		ALL Destinations	2009-12-27 19:23:17	2009-12-27 19:23:29	0:12	0.00000	123000	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123008		ALL Destinations	2009-12-27 19:22:31	2009-12-27 19:23:04	0:33	0.00000	123004	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123004		ALL Destinations	2009-12-27 19:22:31	2009-12-27 19:23:04	0:33	0.00000	123000	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123008		ALL Destinations	2009-12-27 19:20:27	2009-12-27 19:22:18	1:51	0.00000	123008	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123000	123004		ALL Destinations	2009-12-27 19:20:27	2009-12-27 19:22:18	1:51	0.00000	123000	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123001	123008		ALL Destinations	2009-12-27 19:15:46	2009-12-27 19:16:13	0:26	0.00000	123008	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	123001	123004		ALL Destinations	2009-12-27 19:15:46	2009-12-27 19:16:13	0:26	0.00000	123001	SIP Accounts	Internal vendor	Normal call clearing
[icon]	[E]	00011199901	88800099902		Reserved for future global service	2009-12-27 15:17:28	2009-12-27 15:17:33	0:05	0.00000		MVTS		Normal call clearing
[icon]	[E]	00011199901	88800099902		Reserved for future global service	2009-12-27 14:12:53	2009-12-27 14:12:53	0:00	0.00000		MVTS		Temporary failure

- In the Helpdesk section of Admin-Index choose **Trace Session**.
- Fill in the check phone number form:
  - **h323-conf-id** – if you need to trace a specific call, enter h323-conf-id here; otherwise leave this empty.
  - **Rate Pattern** – the phone number you are looking for or a destination pattern (first digits and a percent sign, for example **380%**).
  - **From, To Date** – the date range. Click on the “10 min.” icon to limit the time interval to the last 10 minutes only.
- Click **Trace Session**.

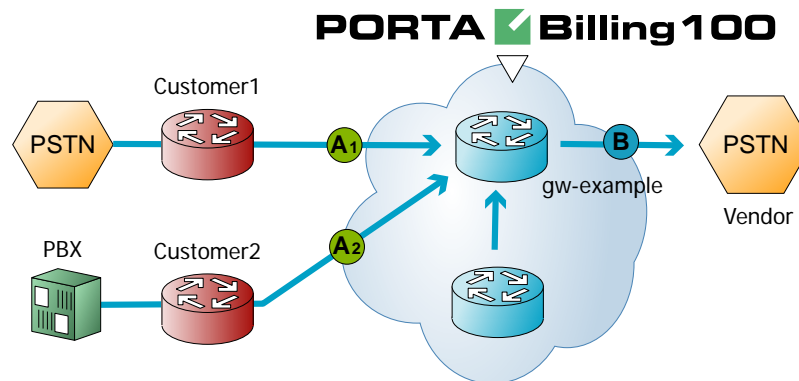
For the administrator’s convenience, account xDRs may also be accessed from the Account Management window by clicking the **xDR** icon for the account.

## 2. Wholesale Termination via a Gateway

Wholesale voice is a growth market, with service providers building new capacities and launching new services. The primary wholesale service is long-distance transport and aggregation, with the key advantage being that country-specific features and domestic calling regulations are not required. The principal beneficiaries are developing countries, where, in many cases, the quality of VoIP is superior to that of traditional PSTN services.

## Typical Business Case

Central to the delivery of wholesale voice services are voice points-of-presence (POPs), which are interconnected to other service providers. The Minutes Aggregation and Resale service (including ASP Termination) allows wholesale network providers to collect traffic from multiple originating providers, then aggregate and deliver it to the termination providers they select.



The provider in this scenario is the owner of termination node (POP) gw-example1. This is a typical example of a VoIP network where customers pay the provider to terminate traffic at point (A<sub>n</sub>), while the provider himself pays the vendor for traffic at point (B). The provider makes his profit on the difference between:

- the tariff he charges his customer (A<sub>n</sub>), and
- the tariff he is being charged by the vendor (B).

The following configuration assumes that the service is provided using only PortaBilling and a termination gateway. Please consult the [PortaSwitch Handbook: SIP services](#) for an example of advanced wholesale VoIP services using PortaSIP.

# Setting up Your Network Components

## Configuring Gateway

### Obtain the remote authentication script

The default Cisco remote IP authentication application (`app_remote_ip_authenticate.2.0.0.tcl`) is provided free of charge to all users with a valid Cisco support contract (CCO). Please note that this script does not support the extra features available in PortaOne's

**Advanced Remote Authenticate** script, such as:

- Ability to perform authentication by tech-prefix, ANI, DNIS, fixed string or SIP username, in addition to just an IP address
- Ability to translate the authentication ID in the script before sending it to RADIUS (e.g. remove the last part of the IP address after the dot)
- Ability to perform authorization (as opposed to only performing authentication)
- Ability to forward calls to an account's redirect number defined in the billing
- Using an authentication method different than the default (so that authentication requests from this script may go to a different RADIUS server)

You may obtain the **Advanced Remote Authenticate** script by contacting PortaOne sales team.

Place the authentication script on your TFTP server. For your convenience, the TFTP server is already pre-configured in the `/tftpboot` directory on the PortaBilling100 slave server.

### 1. Basic router configuration

It is highly recommended to use the latest telephony IOS and DSP firmware, and that the hostname be the same as the h323-id.

```
hostname <h323_id>
ip domain name <default domain>
```

**NOTE:** VSA `h323-gw-id="hostname.domain"`

### 2. NTP

**NOTE:** It is very important to have reliable time services.

```
ntp server <name/IP>
```



```
.....  
ntp server <name/IP>  
ntp master 5  
clock timezone <your time zone> 1  
clock summer-time <your summer time zone> recurring <your rules>
```

**NOTE:** It is important that you only use well-known time zone abbreviations which are supported by the billing engine. If unsure, use the UTC time zone.

### 3. AAA

```
aaa new-model  
aaa authentication login h323 group radius  
aaa authorization exec h323 group radius  
aaa accounting connection h323 stop-only group radius
```

### 4. VoIP interface

```
interface <your interface to the world>  
h323-gateway voip interface  
h323-gateway voip id <gatekeeper id> ipaddr <IP> <port>  
h323-gateway voip h323-id <h323_id>
```

**NOTE:** If you want to use a virtual interface then add the line:

```
h323-gateway voip bind srcaddr <IP>
```

### 5. Enable gateway functionality

```
gateway
```

### 6. Enable gateway accounting

For older IOS versions:

```
gw-accounting h323 vsa
```

For newer IOS versions (12.2T or 12.3):

```
gw-accounting aaa  
acct-template callhistory-detail
```

**NOTE:** VSA does not work for all platforms.

### 7. Radius

**IMPORTANT NOTE:** Ports 1645/1646 are the traditional Radius ports used by many vendors without obtaining an official IANA assignment. The official assignment is now ports 1812/1813, and users are encouraged to migrate to these new ports when possible.

#### Cisco notes:

- "radius-server" commands will be available only after issuing "aaa new-model" command.
- UDP port for RADIUS accounting server - default is 1646 (see note above)
- UDP port for RADIUS authentication server - default is 1645 (see note above)

**Keep in mind:**

- Default ports for Cisco are 1645/1646
- Defaults in /etc/ services are 1812/1813

```
radius-server host <name/IP> auth-port 1812 acct-port 1813
radius-server key <key>
radius-server vsa send accounting
radius-server vsa send authentication
```

## 8. voice-card

## 9. controller

## 10. voice-port

Depends on your hardware configuration

## 11. call application voice &amp; dial-peers

```
call application voice remote_ip ftp://.../app_remote_authenticate.tcl
call application voice remote_ip authenticate-by ip
call application voice remote_ip authorize yes
```

```
!
dial-peer voice 10 pots
  destination-pattern .
  port 0:D
!
dial-peer voice 11 voip
  application remote_ip
  incoming called-number .
```

## Checklist

Print the following page and use it to check off the operations you have completed while performing system setup according to the instructions in this chapter. Please be sure to perform all of the operations (all of the boxes must be checked), otherwise the service will not work.

Operation	Done
<b>General configuration</b>	
Enter company data under My Company.	[ ]
Specify a base currency.	[ ]
For any other currency you plan to use, specify the exchange rate source and define exchange rates.	[ ]
Create all the required destinations.	[ ]
<b>Network configuration</b>	
Create a node for your gateway.	[ ]
Configure your gateway.	[ ]
<b>Rating configuration</b>	
Create a tariff A, which will apply to customers who send you traffic for termination.	[ ]
Insert rates in tariff A for destinations which will be covered by your termination service.	[ ]
Create a tariff B, which describes your termination costs.	[ ]
Insert rates in tariff B for destinations you will terminate to PSTN.	[ ]
Create a wholesale product.	
Create one accessibility entry for this product, using the node you created and tariff A.	[ ]
Create a vendor.	[ ]
Create a connection for this vendor using tariff B.	[ ]
<b>Account provisioning</b>	
Create a customer class which will apply to your customers.	[ ]
Create a <b>retail</b> customer who owns the accounts representing remote gateways.	[ ]
Create an account for each of this customer's remote gateways.	[ ]
<b>Testing</b>	
Try to make a test call.	[ ]

## PortaSwitch Configuration

Please refer to the [PortaBilling100 Web Reference Guide](#) PDF file for detailed instructions on how to navigate and operate the web interface, as well as detailed explanations of particular fields.

### Initial Configuration of PortaBilling

The following steps are normally performed only once, after the system has been installed. This includes:

- Visit **My Company** from the main menu. Enter information about your company and set up a base currency. Of course this does not limit your operations to this currency only. However, on reports such as cost/revenue different currencies will be converted to the one you specify here.
- From the main menu, choose **Users** and create login entries for users who will be working with the system. It is not recommended that the default PortaBilling root user (**pb-root**) be used for any operations other than initial set-up.
- Make sure you are able to login as the newly-created user and change the password for the **pb-root** user.

**NOTE:** It is possible that you will require assistance from PortaBilling support personnel in the future. In order to provide support, they will need access to the web interface. Therefore, when you submit a problem report please either provide them with a new password for the **pb-root** user, or create a special user for them.

- If you plan to do billing in more than one currency, define these in **Currencies** and specify the exchange rates in **Exchange Rates**.

### Create Destinations

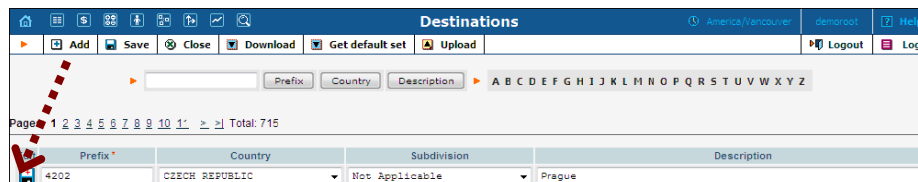
This step is only required if you have not defined the necessary destinations before. There are two ways of entering new destinations into the system:

- One-by-one, using the **+** **Add** functionality on the web interface
- A bulk update, by uploading destinations from a file

**NOTE:** A file with the default destination set is supplied with PortaBilling. You can download it and then upload it to the server. However, it may be possible that your business requires different types of prefixes, so please check the data in the file before uploading.

## Creating destinations “one-by-one”:

1. In the **Rating** section of Admin-Index, choose **Destinations**.



2. Click on the **Add** button.
3. Fill in the required information. This includes the phone prefix and country. The country subdivision is optional. You can use the **Description** column to store some extra information about the destination (for example, if it is a mobile or fixed number).
4. Click **Save**.
5. Repeat steps 2-4 for each additional destination.

## Uploading a set of destinations from a file

1. In the **Rating** section of Admin-Index, choose **Destinations**.
2. Click on **Get default set** to download a set of destinations as a CSV (Comma-Separated Values) file.
3. Open this file in Microsoft Excel or any other suitable program. Edit the data if required.
4. Save the file and close it in Excel.
5. Switch back to the PortaBilling web interface, and click **Upload** on the Destinations screen.
6. Type in the filename of the file you have edited, or click on the **Browse...** button and select the file.
7. Click **Save&Close**.

## Create Nodes


This step is only required if you have not entered your gateways into the system before. In this case, you must enter your gateways as nodes. PortaBilling requires some key information about your network equipment such as IP address, Node ID, Radius shared secret, etc.

**NOTE:** Only your own gateways have to be entered as nodes. Remote gateways which belong to the customer, or ones which legally belong to you but are used solely by your customer(s), are not considered nodes.

The screenshots illustrate the process of adding a new node to the system. The first screenshot shows the 'Node Management' page with a table of existing nodes. The second screenshot shows the 'Add Node' form with the following fields filled out: Node Name: cisco-gw, Manufacturer: Cisco, Type: VOIP-GW, Node ID: cisco-gw.mydomain.com, NAS-IP-Address: 192.168.0.99, Auth. Transl. Rule: (empty), RTP Proxying: Optimal, RADIUS Client: checked, RADIUS Key: asinc9en, RADIUS Source IP: 192.168.0.99, RADIUS Dictionary: Cisco, and POD Server: unchecked. The third screenshot shows the updated 'Node Management' page with the new node 'cisco-gw' added to the table.

Name	Node ID	IP	Manufacturer	Type	RADIUS Client	Delete
Demo Cisco	193.28.27.3	193.28.27.3	Cisco	VOIP-GW	<input checked="" type="checkbox"/>	
77.88.77.99	77.88.77.99	77.88.77.99	Cisco	VOIP-GW	<input checked="" type="checkbox"/>	
DemoSIP	demoSIP.mydomain.com	193.28.87.35	PortaOne	Generic	<input checked="" type="checkbox"/>	
<b>cisco-gw</b>	<b>cisco-gw.mydomain.com</b>	<b>192.168.0.99</b>	<b>Cisco</b>	<b>VOIP-GW</b>	<input checked="" type="checkbox"/>	
DemoSIP	demoSIP.mydomain.com	207.52.37.45	PortaOne	Generic	<input checked="" type="checkbox"/>	

1. In the **Networking** section of the Admin-Index page, choose **Nodes**.
2. In the Node management window, click the **Add** icon.
3. Fill in the New Node form:
  - **Node Name** – A short descriptive name for this node (will be used in the select menus).
  - **Manufacturer** – Select **Cisco** or **Quintum**.
  - **Type** – VoIP node type; select **VOIP-GW**.
  - **Node ID** – h323-id (recommended hostname.domainname)
  - **NAS-IP-Address** – IP address of the gateway.
  - **Auth. Transl. Rule** – Leave this empty for now; see the *Translation Rules* section of the [PortaBilling Administrator Guide](#).
  - **RTP Proxying** – Leave the default selection (Optimal); for more details regarding NAT traversal, see the [PortaSIP Administrator Guide](#).
  - **RADIUS Client** – Select if this node will be communicating with the billing system.
  - **RADIUS Key** – If this node is a radius client, enter the shared secret here; must be the same as that configured in NAS as a **key** in the radius server configuration.
  - **RADIUS Source IP** – Unless your gateway has multiple network interfaces, the value here should be the same as the NAS-IP-Address.

4. Click  **Save&Close**.
5. Repeat steps 2-4 until all of your nodes have been entered.


**NOTE:** There is some propagation delay between the database and the Radius server configuration file, but no more than 15 minutes.

## Create a Tariff

A tariff is a single price list for call services. A tariff combines:


- conditions which are applicable to every call regardless of the called destination;
- per destination rates.

Normally you need a separate tariff for each of your customers.

1. In the **Rating** section of Admin-Index, choose **Tariffs**.
2. On the Tariff Management page, choose  **Add**.
3. Fill in the **Add Tariff** form:
  - **Name** – A short name of the tariff object. This is the name you will see later in the select menus.
  - **Currency** – Indicates in which currency the pricing information is defined. All pricing information for a single tariff must be defined in the same currency.

**NOTE:** The currency for the tariff is chosen only once, and cannot be changed later.

- **Applied To** – Designates whether this tariff will be used to charge your pre-paid customers (in this case, choose a **Customer**) or to calculate costs associated with your vendors (in this case choose a **Vendor**).
- **Managed By** – Choose **Administrator Only** here.
- **Service** – Choose **Voice Calls** here.
- **Default Off-peak Period** – If you do not differentiate between peak and off-peak rates, just choose **Not defined**; otherwise, select one of the previously defined off-peak periods.
- **Destination Group Set** – If you wish to enter rates in the tariff not for each individual prefix, but for a whole group of prefixes at once, you should create a destination group set and destination groups beforehand. Leave this select menu empty for now.
- **Round Charged Amount** – Instead of calculating xDRs with a 5-decimal-place precision, round up xDR amount values (e.g. XXXXX.XX000 means rounding to cents, so that 1.16730 becomes 1.17).
- **Default Formula** – The default rating formula which will be applied to every new rate created in the tariff. If you leave this empty, “old-style” rating will be used.
- **Short Description** – A short tariff description. This will be shown in the rate lookup on the admin interface and the self-care pages for your accounts and customers.

- o Description – An extended tariff description.
4. Click  Save.

**Tariff Management** America/Vancouver demoroot Help

Applied To: ANY Service: ANY Managed By: ANY Search:

Pages: 1 2 3 Total: 3 1-50 of 135

Rates	Name	Currency	Applied To	Service	Managed By	Routing	Description	Delete
-------	------	----------	------------	---------	------------	---------	-------------	--------

**Add Tariff** America/Vancouver demoroot Help

Name: Termination services Currency: USD - US Dollar

Applied To: Customer Service: Voice Calls

Managed By: Administrator only

**General Info**

Default Off-Peak Period: NOT DEFINED

Destination Group Set:

Free Seconds: 0

Post Call Surcharge: 0 %

Login Fee: 0

Connect Fee: 0

Round Charged Amount: XXXXX.XXXXX

Default Formula:

Short Description: Termination services

Description: What we charge our customers for calls they terminate on our network

**Edit Tariff 'Termination Services'** America/Vancouver demoroot Help

Name: Termination Services Currency: USD

Applied To: Customer Service: Voice Calls

**General Info**

Default Off-Peak Period: NOT DEFINED

Destination Group Set:

**Rates for tariff 'Termination Services'** America/Vancouver demoroot Help

Effective From: Now Destination:

Edit	Destination *	Country	Interval, second		Price, ADP/ minute		Effective From YYYY-MM-DD HH24:MI:SS	Delete
			First *	Next *	First *	Next *		
	410		1	1	0.15	0.15	Immediately	<input type="button" value="X"/>

**Rates for tariff 'Termination Services'** America/Vancouver demoroot Help

Effective From: Now Destination:

Edit	Destination *	Country	Interval, second		Price, ADP/ minute		Effective From YYYY-MM-DD HH24:MI:SS	Delete
			First *	Next *	First *	Next *		
	420	CZECH REPUBLIC Proper	1	1	0.15000	0.15000	2010-01-28 11:50:39	<input type="button" value="X"/>






## Enter Rates

Rates are per-destination prices. Please refer to the *System Concepts* chapter in the [PortaBilling Administrator Guide](#) for more details on billing parameters.

### Managing rates online



Managing rates online is very convenient for maintaining existing rate tables, as well as for reference purposes. In the case of new price lists or major updates, the offline method is better.

1. On the Tariff Management page you will see a list of available tariffs. Click the  **Rates** icon in front of the name of the tariff. When you are in Tariff Management for a particular tariff, click on  **Rates** in the toolbar.
2. In the **Edit Rates** screen, click  **Add**.
3. Fill in the required information:
  - **Destination** – A destination prefix may be entered directly, e.g. **420** for Czech Republic, or you can access the destinations directory by clicking the **Destination** link (in the column header). Here you can find the desired prefix by country name.

**NOTE:** The phone prefix you are trying to create a rate for must already exist in Destinations.



- **Interval First** – First billing unit in seconds.
- **Interval Next** – Next billing unit in seconds.
- **Price First** – Per-minute price for first interval.
- **Price Next** – Per-minute price for next interval.
- **Off-peak Interval First** – First billing unit in seconds for off-peak time.
- **Off-peak Interval Next** – Next billing unit in seconds for off-peak time.
- **Off-peak Price First** – Per-minute price for first interval of off-peak time.
- **Off-peak Price Next** – Per-minute price for next interval of off-peak time.

**NOTE:** Off-peak fields appear only if an **off-peak period** has been defined for the tariff.

- **Rate Formula Wizard**  – Launches the wizard for creating a custom rating formula
- **Effective From** – If you want this rate to take effect sometime in the future, you can either type in a date manually, or use the calendar (click the DD-MM-YYYY link). Click on the  Stop Watch icon to make the rate effective **immediately**.

**NOTE:** When using the calendar, you can specify that the date you are entering is in a different time zone than your current one. PortaBilling will then automatically adjust the time.



- o **Hidden, Forbidden** or **Discontinued** flags are optional
4. Click the  **Save** button in the toolbar, or the  icon on the left end of the row.
  5. Repeat these steps if you need to enter more rates.

### Managing rates offline

You also can upload rates from a .CSV or .XLS file – please refer to the description of this process in the previous chapters.

## Create All Required Tariffs




Repeat the **Create Tariff** and **Enter Rates** steps until you have created:


- A tariff for each account’s billing scheme. For example, if you plan to have two types of service packages (Termination-Easy and Termination-Gold) with different rates, you will need to create two separate tariffs.
- A tariff with the termination costs for each termination partner you have.
- If you have resellers, also create tariffs that you will use for charging each of them. Do not create tariffs which will be applied to your resellers’ subscribers yet. First create customers and then return to this step. Make sure that, when creating these subscriber tariffs, you choose *Managed by NNN* in the **Type** menu, where *NNN* is the name of the corresponding reseller

## Create a Product

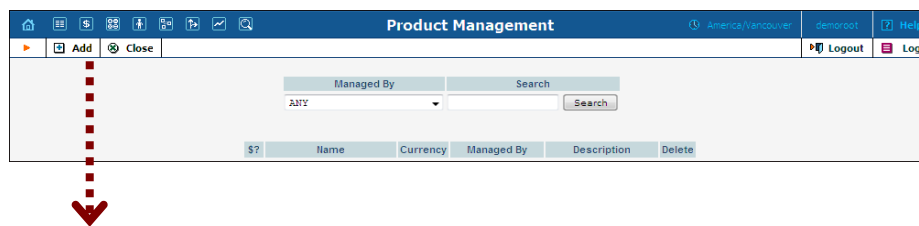
Each of the remote customer gateways will be represented as an account and billed accordingly. Hence we need to create a product for this account in order to have a defined way of billing it. If you have per-customer specific rates/tariffs, then you will need a product for each customer.

1. In the **Rating** section of the Admin-Index page, choose **Products**.
2. On the Product management page, click the  **Add** icon.
3. Fill in the “Add Product” form:
  - **Product name** – Product object name.
  - **Currency** – Product currency; only tariffs which have the same currency will be permitted in the accessibility list.
  - **Managed by** – If you plan for this product to be used for your reseller’s accounts, so that the reseller himself can change the parameters of this tariff and create new accounts with this product, choose the customer’s name from the menu. Otherwise choose **Administrator only** here.

General Info

- **Breakage** – This parameter is typically used only for prepaid accounts, so leave it empty.
  - **Account default ACL** – The access level assigned by default to new accounts created with this product. The ACL determines which operations may be performed by accounts on the self-care pages. The default value is “Account self-care” (pre-defined ACL), which allows all possible operations.
  - **Default Discount Plan** – Leave **None** as the selected entry if you do not plan to offer discounted rates based on call volume. Please refer to the description of volume-based discounts in the [PortaBilling Administrator Guide](#) for more details.
  - **Info URL** – If you have an external server with a description of product features, enter the URL here (e.g. <http://www.myproduct.com>). Your customers will be able to go there from their self-care page.
  - **Description** – Your description of the intended use of this product.
4. Click  **Save**.

Click on the **Accessibility** tab to edit this product’s accessibility.



**Add Product**

Product Name: Smartnet Termination  
 Managed By: Administrator only  
 Currency: USD - US Dollar

General Info Maintenance Fee

Breakage  
 Overdraft Protection: Debit accounts only  
 Account Default ACL: Account self-care  
 Default Discount Plan: None  
 Info URL  
 Description: What we charge our customer Smartnet for calls they terminate to us

**Edit Product 'Smartnet Termination'**

Product Name: Smartnet Termination  
 Managed By: Administrator only  
 Currency: USD

General Info Maintenance Online Signup Accessibility Subscriptions Service Features Notepad

Please define at least one accessibility entry

### Enter node and tariff into the product's accessibility list

For incoming VoIP traffic we normally do not really need different accessibility entries, as just one row with **ANY** node and tariff should be enough. However, if, for example, you want to let a customer send traffic to your gateway A but not gateway B, this can be achieved by using accessibility entries.

**Edit Product 'Smartnet Termination'**

Product Name: Smartnet Termination  
 Managed By: Administrator only  
 Currency: USD

General Info Maintenance Online Signup Accessibility Subscriptions Service Features Notepad

Please define at least one accessibility entry

**Add Accessibility to Product 'Smartnet Termination'**

Product Currency: USD

Service: Voice Calls  
 Node: ANY  
 Access Code:  
 Info Digits: ANY  
 Authorization Chunk:  
 Tariff: Termination Services

**Edit Product 'Smartnet Termination'**

Product Name: Smartnet Termination  
 Managed By: Administrator only  
 Currency: USD

General Info Maintenance Online Signup Accessibility Subscriptions Service Features Notepad

Voice Calls

Edit	Node	Access Code	Info Digits	Routing/Rating	Delete
<input type="checkbox"/>	ANY	ANY	ANY	ANY - Termination Services	<input type="checkbox"/>

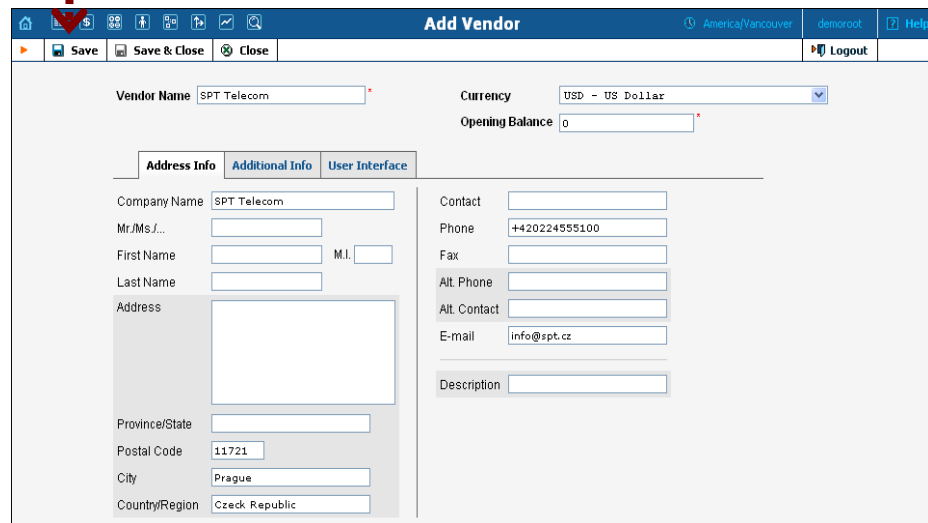
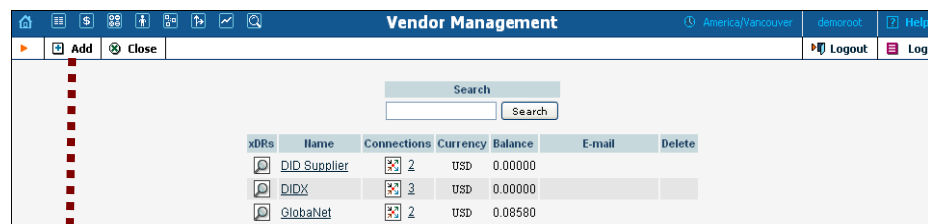
1. When the Accessibility tab is selected, click on the **Add** icon.

2. Choose **Voice Calls** in the **Service** select menu.
3. Choose **ANY** as node, choose the tariff with which you want to bill your customer, and leave the **Access Code** field empty.
4. Click **Save** to save this accessibility entry.

## Create Vendors

This step is only required if you have not entered information about your vendors into the system before. Vendors are your termination partners or the providers of incoming toll-free lines.

1. In the **Participants** section of the Admin interface, choose **Vendors**.
2. On the Vendor Management page, choose **Add**.



3. Fill in the **New Vendor** form. Please note that there are three tabs available on the screen. The most important fields are:

### Main form (top)

- o **Vendor Name** – A short name for the vendor object; this will be used on the web interface.
- o **Currency** – The currency in which this vendor charges you.
- o **Opening Balance** – Starting balance for the vendor; default is zero.

## Additional Info

- **Billing Period** – Split period for vendor statistics.

## User Interface

- **Time Zone** – The time zone which the vendor uses for his billing period. Statistics will be divided into periods according to this time zone.

4. Click **Save&Close**.
5. Repeat steps 2-4 to add all of your vendors.

## Define Connections

This step is only required if you have not entered information about your vendors into the system before. Vendors are your termination partners or the providers of incoming toll-free lines.



The screenshots illustrate the following steps:

- Vendor Management:** A table lists vendors: DID\_Supplier (2 connections), DIDx (3 connections), GlobaNet (2 connections), and SPT Telecom (0 connections).
- Connection Management for 'SPT Telecom':** Shows filters for Service Type (ANY) and Type (Default).
- Add Connection For 'SPT Telecom' Vendor:** A form where the following information is entered:
  - Description: Termination to SPT Telecom
  - Service Type: Voice Calls
  - Type: PSTN to Vendor
  - Routing Protocol:  H323,  SIP
  - Node: DemoSip
  - Remote Gateway ID: (empty)
  - Port: (empty)
  - Tariff: Termination to SPT Telecom
  - Capacity: 25
  - Translation Rule: (empty)
  - Outgoing Rule: (empty)
  - CLI Translation Rule: (empty)
- Connection Management for 'SPT Telecom':** The table now includes the newly added connection:
 

Description	Service Type	Type	IP/Node(Port)	Transl. Rule	Outgoing Rule	CLI Transl. Rule	CLD (dnis)	Tariff	Delete
Termination to SPT Telecom	Voice Calls	PSTN to Vendor	DemoSip					Termination to SPT Telecom	X


1. In the **Participants** section of the Admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.
3. Press **+ Add** to add a new connection.
4. Fill in the connection information. If you send traffic to the vendor via telephony, choose the node and enter an optional port pattern. If you send traffic via VoIP, enter the remote IP address. Choose the tariff which defines your termination costs for this connection/vendor. **Description** and **Capacity** are mandatory for all connection types.
5. The **Translation Rule** is necessary if you send calls to the vendor in a format different from the one you use (e.g. the number 420296111222 is sent to the vendor as 004202111222), so that you can convert the


phone number to the correct format. **Outgoing Rule** is only present if PortaSIP is installed, and is used to convert the number into the vendor-specific format.

6. Click  **Save&Close**.
7. Repeat steps 3-6 to add more connections to the same vendor, then click  **Close** in order to exit to the **Vendor Management** screen.
8. Repeat steps 2-7 to add connections for other vendors.

## Create a Customer Class


Customer class provides the ability to define a group of parameters in a centralized way, then apply those parameters to many customers at once. (If you have already created a customer class that you can use for prepaid card distributors, skip this step and go to the next one.)

1. In the **Billing** section of the Admin interface, choose **Customer Classes**.
2. On the Customer Class Management page, choose  **Add**.

3. Fill in the **Name** parameter; the other fields can be left empty for now.
4. Click  **Save&Close**.

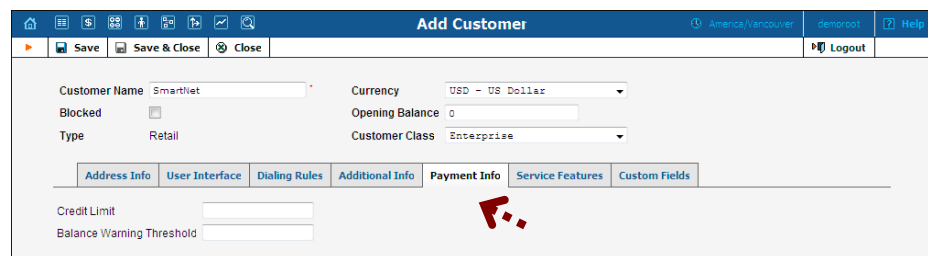
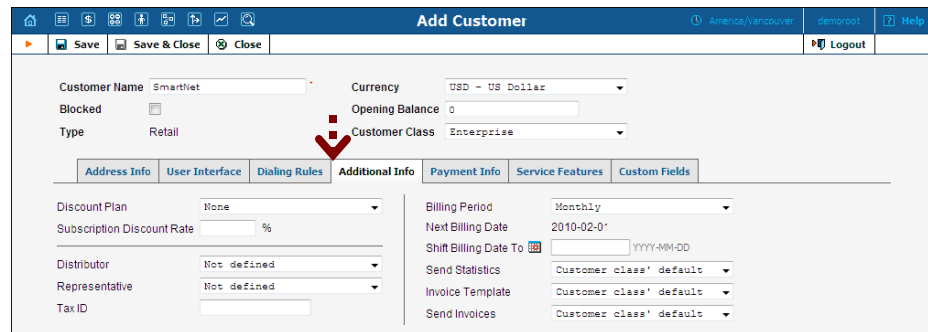
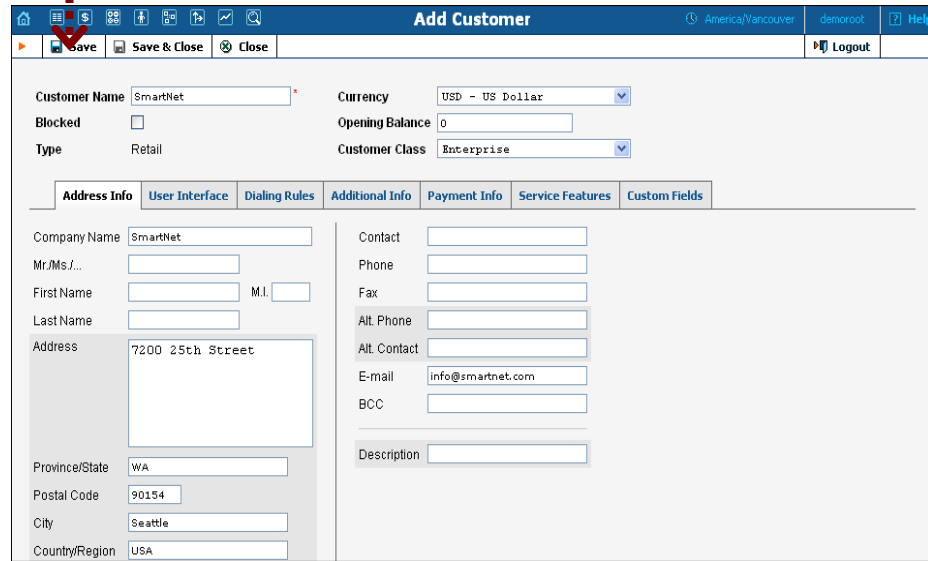
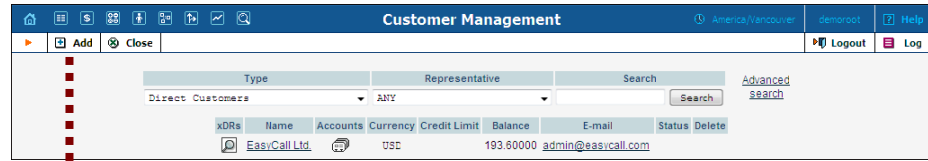
## Create a Customer

A customer is an owner of accounts. The customer's contact information is used to distribute account usage information, call statistics, invoices, and so on.

1. In the **Participants** section of Admin-Index, choose **Customers**.
2. On the Customer Management page, choose  **Add Customer** (In this example, we assume that you are creating the customer manually, so choose **Manually** from the drop-down menu (do not use any of the Quick Form options)).



- Fill in the **New Customer** form. Please note that there are several tabs with extra information available on the screen. The most important fields are:



Main form (top)

- **Customer Name** – A short name for the customer object; will be used on the web interface.
- **Currency** – The currency in which this customer will be billed.
- **Opening balance** – Starting balance for the customer; the default is zero.
- **Type** – Since this customer will be sending you traffic and paying for it, he is a **Retail** customer.
- **Customer Class** – Choose the customer class you created in the previous step.

Address Info

- **Email** – Email address for distribution of accounting information. After the billing period is over, a list of xDRs and other statistics will be sent to this address.
- **BCC** – Delivery to the specified email address of your account representative a copy of every outgoing email sent to the customer; this may be used for debug and archiving purposes.

### Additional Info

- **Billing period** – Frequency of distribution of accounting information. For more details about different available billing periods, see the [PortaBilling Administrator Guide](#).
- **Subscription Discount Rate** – Amount of discount applied by default to all subscriptions of this customer (assigned either directly to a customer or to one of his accounts).
- **Send Statistics – Summary only** – Distribute a call summary only, and do not attach a details file; this might be useful in the case of a large amount of calls. Other options are **full statistics** (attach a complete list of xDRs) or **do not send** (no not deliver call statistics to this customer via email at all).

### Payment Info

- **Credit limit** – If left empty, there is no credit limit for this customer.
- **Balance Warning Threshold** – Customer can be notified by email when his balance is dangerously close to the credit limit and his service will soon be blocked. Here you can enter the value for the warning threshold as follows:
  - As a percentage (e.g. 90%). A warning will be sent when the customer's balance exceeds this percentage of his credit limit. Thus, if his credit limit is \$1000.00 and the threshold is 90%, a warning will be sent as soon as the balance is over \$900.00. This is only applicable when the customer has a positive credit limit.
  - As an absolute value. A warning will be sent as soon as the balance exceeds the specified value.

### User Interface

- **Time Zone** - This parameter serves two purposes. First of all, it defines in which time zone the customer will see his xDRs. It also defines which time zone will be used to divide the customer's billing periods. For example, if you choose *America/New\_York* with a monthly billing period here, the customer's invoice will cover the period starting at 00:00 EST on the 1st of every month.
- **Web Interface Language** - The language to be used on the customer self-care web interface.

### Service Features


Using this tab, the administrator can activate/deactivate various features of the services provided to customers. Note that features are defined per *service type* (the physical service provided to the user) rather than per *service*.

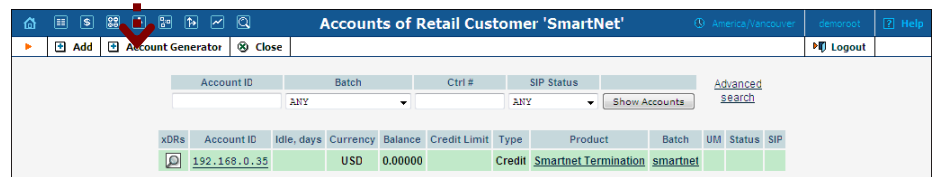
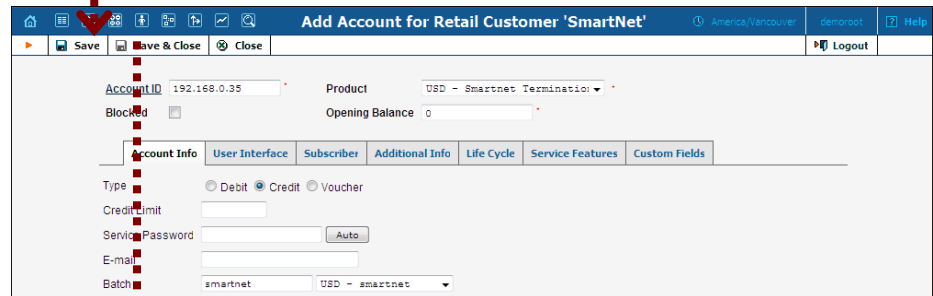
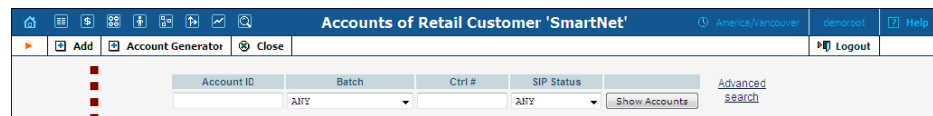
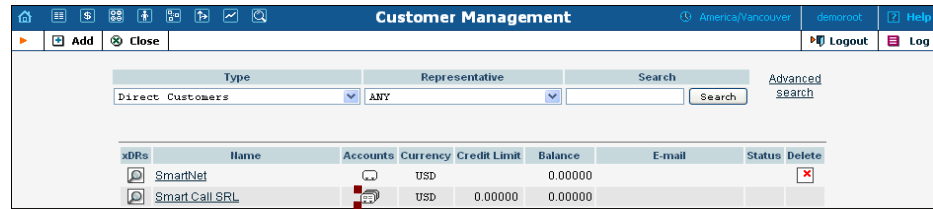
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The **Service Type** links on the left allow you to specify for which service type you would like to define parameters. Click on the **Voice Calls/Outgoing Calls** service type and define the following parameters

- **Max number of simultaneous calls** – Only allow a specific number of concurrent calls for accounts of this customer.
  - The other settings on this tab control various IP Centrex features which are available when using PortaSIP. Leave them as is, since they are not applicable in the case of termination services provided directly on a Cisco gateway.
4. Click  **Save&Close** to save your work. See the [PortaBilling Administrator Guide](#) for more information.

## Create Accounts

1. Go to the **Customers** screen (the screen which contains a list of customers).
2. Next to the customer name, click on the  icon (the one in the **Accounts** column), which will take you to the account management for that customer.



3. Now click on **Add** (In this example, we assume that you are creating the account manually, so choose **Manually** from the drop-down menu (do not use any of the Quick Form options)).
4. Fill in the **Add account** form:
  - **Account ID** – Identification of the account (value to be sent in the **User-Name** attribute). For an account which represents a remote gateway, this is normally an IP address.
  - **Product** – Choose the product which you would like your accounts to use.
  - **Blocked** – Check this if you want to create the account as initially blocked.
  - **Opening Balance** – The initial balance on the card. For credit accounts, the opening balance is normally zero.


### Account Info

- **Type** – Account type; select **Credit**.
- **Credit Limit** – Maximum allowed credit.
- **Service Password** – Password for authentication/authorization. If you are using the default Cisco `remote_ip_authenticate` script, put **cisco** here.
- **Batch** – A batch is a management unit for accounts. The batch name is alphanumeric. You can type a new name here, or use the existing name in order to generate more accounts for the same batch.

### Life Cycle

- **Activation Date** – Account activation date.
- **Expiration Date** – Account expiration date; since we are setting up a postpaid service, which should function for a long time, leave this field blank.
- **Life Time** – Relative expiration date; since we are setting up a postpaid service, which should function for a long time, leave this field blank.

### User Interface

- **Login** – The login name this account will use to access the self-care pages. This can be the same as the account ID, or a different one may be chosen for increased security. This field is mandatory.
  - **Password** – Password for the self-care pages.
  - **Time Zone** – When an account owner accesses the web self-care pages to see a list of his calls, the time will be shown in the time zone most appropriate for him.
  - **Web Interface Language** – The language to be used on the customer self-care web interface.
5. Click  **Save&Close**; a confirmation screen will indicate that the account has been created.
  6. Repeat steps 3-5 if the customer has more than one remote gateway.

# 3. Adaptive Routing and Quality of Service

PortaBilling allows you to automate the process for controlling the call quality which becomes increasingly important today. That is, if you want to evaluate acceptable vendors for terminating VoIP calls, there is no need to hire numerous human operators or network engineers, who will track and analyze the specific route. All you need is to implement adaptive routing model.

## Setting up Adaptive Routing

The main idea of adaptive routing is to dynamically measure a vendor's quality parameters, and adjust the routing priority accordingly. These quality requirements are predefined in the form of threshold parameters on the **Routing Criteria** page, and are then automatically applied to specific vendors. Any vendor who fails to satisfy your quality requirements will go to the "penalty box" – the very bottom of the routing list. This means that the system will try first to terminate calls using other carriers (with a good quality evaluation). However, if all of them fail or are unavailable, the "penalized" carrier will have a chance to terminate the call. It is still better to send a call via an inferior vendor than to have it fail completely.

Thus, if the quality requirements are applied, a carrier's place on the routing list is determined not only by the route category, the assigned preference value, and the cost parameters (LCR model), but additionally by quality criteria.

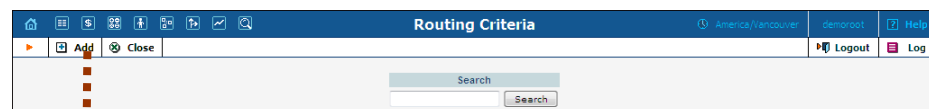
### Add/Edit Routing Criteria

1. In the **Routing** section of Admin-Index, choose **Routing Criteria**.
2. On the **Routing Criteria** page, choose **Add**.



An existing routing criterion can be edited by clicking on its name in the list.

3. Fill in the required information:
  - **Name** - The logical name of the routing criterion for use within PortaBilling;
  - **Description** - A description of the routing criterion.
  - **Sampling Interval** - The time interval for which statistics are computed. Smaller intervals will make the system "quicker" to notice any change in a vendor's quality, but there is also a higher chance that a short-term problem on the vendor's side (which can be fixed in a matter of minutes) will penalize his route for a relatively long period of time.
  - **Destination Group Set** - A set of destination groups you would like to use for more convenient quality criteria entry.





- In the **Criteria Defaults** table, specify the initial default values to be applied for all routing criteria you will create next:

Minimum Calls	Penalty Time, min	Threshold	ASR, %	Min. PDD, ms	Low PDD Calls, %	Max. PDD, ms	High PDD Calls, %	ALOC, sec	Profit per Minute, USD
30	10	Warning	80	5	30	10	30	90	10
		Penalty	70		40		70	90	10

- **Minimum Calls** – The minimal required amount of calls via a given connection for the statistics to be considered representative. If the number of calls is below the specified value, the quality parameters will not be matched against the threshold, and no routing adjustments will be made.
- **Penalty Time** – The time interval for which a connection will be “penalized” (at the very bottom of the routing list) if a given vendor does not meet the quality criteria.
- **ASR** – (Answer Seizure Ratio) – The number of successfully connected calls divided by the total number of call attempts. (Post Dial Delay) – The time interval between the connection request to the vendor and ring-back.
- **PDD** – (Post Dial Delay) – The time interval between the connection request to the vendor and ring-back.
- **ALOC** – Average Length of Call
- **PPM** – (Profit per Minute) – The aggregated profit, i.e. the difference between the actual charged amounts in your customers’ and vendors’ CDRs.

**NOTE:** The **ASR, PDD, ALOC, PPM parameters** require two values that define the warning and penalty thresholds, respectively.

- Click the **Save** button to save your progress when done.

## Define Routing Criteria for Individual Destination Groups

- Click **Add** in the toolbar to define routing criteria for the specific destination group.



An existing routing criterion can be edited by clicking the **Edit** icon on the row containing the details.

The screenshot shows the 'Edit Routing Criteria' interface for a 'High priority' routing model. The form includes fields for Name, Description, Sampling Interval, and Destination Group Set. Below these are 'Criteria Defaults' for various quality parameters. A table below the defaults shows values for 'Warning' and 'Penalty' thresholds for ASR, Min. PDD, Low PDD Calls, Max. PDD, High PDD Calls, ALOC, and Profit per Minute. At the bottom, a table lists 'Destination Groups' with columns for Minimum Calls, Penalty Time, Threshold, ASR, Min. PDD, Low PDD Calls, Max. PDD, High PDD Calls, ALOC, and Profit per Minute. The 'Europe' group is shown with default values for most parameters.

2. Click the **Destination Groups** column header link to choose a group from a searchable list inside the pop-up window. You can access only groups associated with **Destinations Groups Set** defined previously.
3. Provide the quality parameters to be applied to your vendors:
  - **ASR** - (Answer Seizure Ratio) – The number of successfully connected calls divided by the total number of call attempts.
  - **PDD** - (Post Dial Delay) – The time interval between the connection request to the vendor and ring-back.
  - **PDD** - (Post Dial Delay) – The time interval between the connection request to the vendor and ring-back.
  - **ALOC** -Average Length of Call
  - **PPM** - (Profit per Minute) – The aggregated profit, i.e. the difference between the actual charged amounts in your customers' and vendors' CDRs.

**NOTE:** The **ASR, PDD, ALOC, PPM parameters** require two values that define the warning and penalty thresholds, respectively.

4. Click the **Save** button to save your progress when done.



Instead of entering the same values for each destination group, you can simply leave quality parameters fields empty. They will be automatically filled with values from **Criteria Defaults** table.

## Define Routing Criteria for Specific Connection

After you configure the **Routing Criteria**, you can now apply your quality requirements to specific vendor's connection. Thus, when such a routing model is associated with a connection, PortaBilling will automatically arrange routes according to your quality preferences.

1. In the **Participants** section of the Admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.
3. In the **Routing Criteria** box, select the routing model you want to apply;

4. Click the **Save** button.

When saved, the additional **Tracking** tab will appear.

## Tracking Connection Status

When the value of a parameter reaches the predetermined threshold, the administrator receives an e-mail alert about the latest connection threats. The administrator can track the current connection status on the **Tracking** page. This status is represented by different colors, as follows:

- GREY – the number of calls is not enough to apply filtering differentiation;
- GREEN – the route meets the quality requirements;
- YELLOW – the route is active, but some of its quality parameters are outside the warning thresholds;
- BLOCKED - this route is currently being penalized.

**NOTE:** The penalized route will be on the “penalty row” for a certain period of time, specified in the **Penalty Time** box and then will be unblocked automatically. Alternately, you can click the **Unblock Now** button to unblock the penalized route manually.

- RED – the route was manually unblocked; this status will remain unchanged till the next time interval for which the statistics will be computed.

Status	Destination Group	Number of Calls	Threshold	ASR, %	Min. PDD	Max. PDD	ALOC	Profit per Minute	Blocked From	Blocked Till	Unblock Now
	US&Canada	0	30	0/70	0/40	0/70	0/90	0/10			

# 4 . Configuration Examples for Cisco Gateways

## Bill Customers Who Are Connected via T1/E1 Directly to a Port on Your Gateway

Typically, you do not use authentication or authorization for such “port-based billing”, since you are always sure that your customer is on the other end of the physical line. Although it might be a good idea to implement call authorization so that you can control which destinations the customer is allowed to call to, we will not discuss this here. For port-based billing, you need only do the following:

1. For each such customer, create a tariff that you want to use to bill the customer and a product. Only one row in Accessibility is necessary, with the node “ANY” and the tariff you have created.
2. Now you must make sure that each call made by that customer is tagged as belonging to him. Use the corresponding application on your gateway to handle the call. You can use the PortaOne’s “Session name” application, or create your own.

The often difficult part in gateway configuration is designing dial-peers to match certain voice ports. Dial-peers should resemble the following configuration:

```
dial-peer voice 1 pots
  application client_on_port_1
  direct-inward-dial
  port 1:D
```

They will be listed with an operation status of down, as the port specification must be accompanied by a number matching a specification, for example:

```
dial-peer voice 1 pots
  application client_on_port_1
  incoming called-number .
  direct-inward-dial
  port 1:D
```

This dial-peer is not adequate for our needs, because any number matching the specification will prefer the port specification, i.e. this dial-peer will match any port. The solution is to use a number-matching scheme that will not match any number.

```
dial-peer voice 1 pots
  application client_on_port_1
  incoming called-number A
  direct-inward-dial
  port 1:D
```

This solution may be considered a “hack”, yet it is functional and secure. For increased security, you may specify a 32-character string with a random sequence of “ABCD” characters. The probability of receiving such a number is near zero. So the configuration should look as follows:

```
aaa new-model
aaa authentication login h323 group radius
aaa authorization exec h323 group radius
aaa accounting connection h323 stop-only group radius
!
call application voice client_on_port_1
flash:app_session_name.2.1.0.tcl
call application voice client_on_port_1 user-name abc_ltd
!
call application voice client_on_port_2
flash:app_session_name.2.1.0.tcl
call application voice client_on_port_2 user-name xyz_inc
!
gw-accounting h323 vsa
!
dial-peer voice 1 pots
  application client_on_port_1
  incoming called-number A
  direct-inward-dial
  port 1:D
!
dial-peer voice 2 pots
  application client_on_port_2
  incoming called-number B
  direct-inward-dial
  port 2:D
!
gateway
!
```

1. Create customers who will own these accounts.
2. Create accounts with an Account ID identical to the name you entered in the configuration for the applications (**abc\_ltd** and **xyz\_inc** in our example).

## Authenticate and Bill Customers by the IP Address of their Gateway

This is another example of how easy it is to implement different billing schemes with PortaBilling. For IP-based billing, you just have to do the following:

1. Create a tariff and a product. Since “Node” and “Access Code” only make sense for incoming telephony calls, set node to “ANY” and leave Access Code blank for the IP-based billing product.

2. Use the corresponding application on your gateway to handle the call. You can use the Cisco application `remote_ip_authenticate`, PortaOne's "Advanced Remote Authenticate" (recommended), or create your own. The only important thing is that the IP address of the remote GW be in the User-Name attribute in the AAA requests which will go to the billing. Here is a sample configuration:

```
aaa new-model
authentication login h323 group radius
aaa authorization exec h323 group radius
aaa accounting connection h323 stop-only group radius
!
gw-accounting h323 vsa
!
call application voice remote_ip tftp://.../portaone.tcl
call application voice remote_ip authenticate-by ip
call application voice remote_ip_auth password cisco
!
dial-peer voice 11 voip
  application remote_ip
  incoming called-number .
!
```

3. Create a customer who will own these accounts.
4. Create accounts with an Account ID identical to the IP address of the remote gateway, and enter `cisco` as the VoIP password for this account. (The password `cisco` has been chosen only for backward compatibility with the Cisco `remote_ip_authenticate` script. With PortaOne's "Advanced Remote Authenticate" you can use a different password; just change the list in the application config).