PORTA ONE

Porta Billing100™

Web Reference

Maintenance Release 19

www.portaone.com

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Maintenance Release 19
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Please address your comments and suggestions to: Sales Department, PortaOne, Inc. Suite #400, 2963 Glen Drive, Coquitlam BC V3B 2P7 Canada.

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Preface

This document provides a general overview of the PortaBilling100 administrator web interface.

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/**

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`

Caution indicates that the described action might result in program malfunction or data loss.

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.

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Document Objectives

The target audience of this document are system administrators, VoIP engineers, and system or helpdesk operators who will be managing your services via the PortaBilling100 web interface.

How to Get Technical Assistance

The dealer from whom you purchased this product is the *first place* you should go for technical assistance. The dealer is usually the most qualified source of help, and is the person most familiar with your system and how this product should be installed. Many dealers have customer service and technical support programs that offer varying levels of support, depending on your needs and computer knowledge.

If your dealer cannot assist you

If you cannot get assistance from your dealer, the vendor provides varying levels of technical assistance.

PortaOne's Customer Support Service (e-mail: support@portaone.com) can supply quick answers to specific inquiries regarding product features and technical questions. You can visit our website (**http://www.portaone.com**) for more information.

Hardware and Software Requirements

Client System Recommendations

- OS: Windows 95-XP, UNIX or Mac OS
- Web Browser: Internet Explorer 6.0, FireFox 2.0 with JavaScript and cookies enabled.
- Spreadsheet processor (MS Excel)
- Display Settings:
  - Min. Screen Resolution: 1024 x 768
  - Color Palette: 16 bit color (minimum)

NOTE: To view downloaded CSV (Comma-Separated Values) files in Windows, please do the following to match PortaBilling's default list separator: My Computer -> Control Panel -> Regional Settings -> Number -> List Separator type ",".

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1. Introduction

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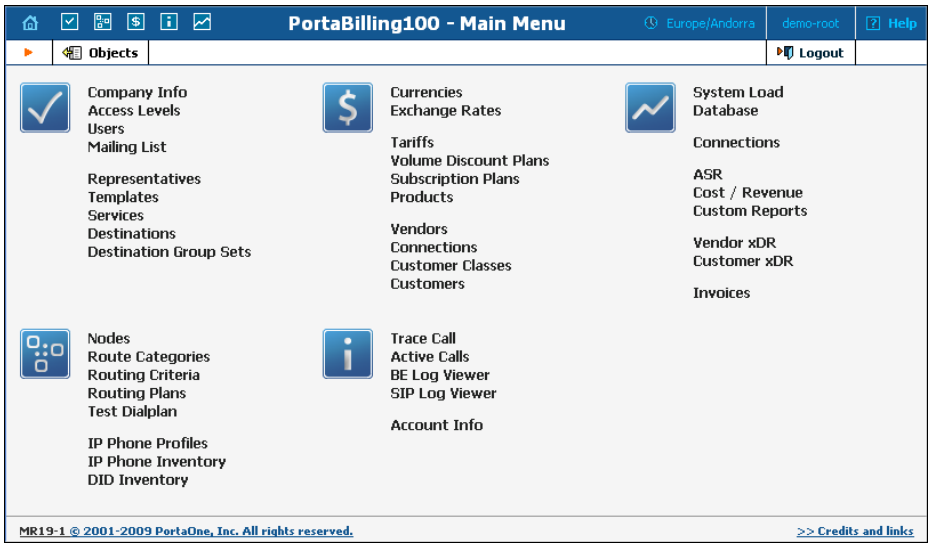
PortaBilling's front-end design and functionality are simple and intuitive. The web interface of the PortaBilling home page is the main point of entry to all system objects and tools. Divided into five functional blocks, the icons below link to pages containing tools for system management, VoIP networking, billing, customer help, and generating statistics. Each second-level page contains a link back to the home page.



These are the five functional blocks:

Management

Global system maintenance tasks, such as adding administrative users, managing the list of services provided, and maintaining the database of rate codes (destinations).

Networking

Configuration of network components: registering new nodes (network endpoints) in the system; configuration of IP phone profiles; tools for configuring and testing call routing.

Billing

Tasks related to billing, such as customer, vendor and account management and rate plan definition; maintenance of currencies and exchange rates.

Help Desk

Tasks available to help desk staff for assistance in troubleshooting problems that clients may inquire about.

Statistics

A variety of statistics and reports are available, reflecting the status of the system or providing information on call records, costing and revenue.

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PortaBilling Security

PortaBilling100 is compliant with Visa Security Standards.

User Interface

- Inactivity logout
- Unconditional logout

User Passwords:

- The minimum password length is six (6) characters. In the case of long passwords, only a certain number of the leading characters will actually be used (however, at least eight (8) characters).
- Passwords include both alphabetical and numerical components.
- Passwords are stored under irreversible encryption.
- It is required that the current password be used before allowing a new password to become effective.
- The user's last four (4) passwords cannot be re-used (see the note above about long passwords; new passwords must differ in at least one of their first 8 characters).
- It is prohibited to change a password within one (1) day of the previous change.
- The initial password must be changed on the first login.
- Passwords must be changed at least once every 30 days.
- Use dictionary checking to restrict password selection.

Credit Card Information

- Credit card information is displayed as 1234xxxxxxx567
- Credit card information is stored using the same encryption as for the Payment System password.

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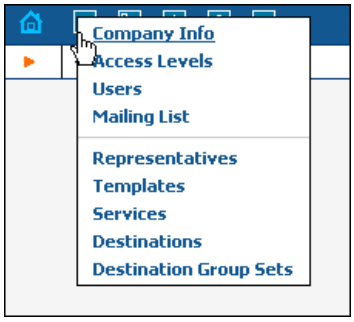
Common Features

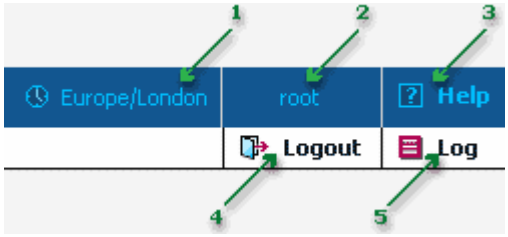
All of the functions available from the home page (main menu) are also available using the drop-down menus:



The Home icon on the left also contains a menu with shortcuts to all the other PortaBilling interfaces:

Admin - Shortcut to this interface; same result as clicking the Home icon
Customers - Customer Self-Care interface
CC-Staff - Customer Care Staff interface
Accounts - Interface for account owners (end-users)
Vendors - Interface for your termination partners
Representatives – Interface for your sales agents or distributors

The top right-hand side of the interface provides users with the following information:



1. The time zone where the current user operates. Click on this link to select a time zone for your current session.
2. Login name of the user currently logged in.
3. Context help for the current screen. Click this link and the Help window will pop up.
4. Logout button. Used to end the current session or, when necessary, to re-login as another user.
5. View Log. This link is only available to users with corresponding access rights and where applicable. Clicking it will open a window showing all logged activities performed on the current screen.

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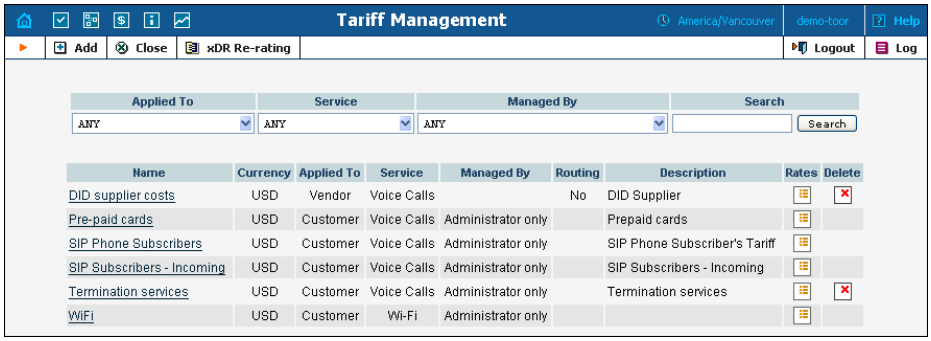
The toolbar often also shows a list of available actions relative to the current page:

This toolbar acts as the equivalent of the "File" menu for the application, i.e. the usual location for the "Save", "Close" and "Add" operations.

Delete an Object in the Database

If you see the icon next to an object name in the list of objects, this means it can be deleted from the system. Note that only objects which are not used elsewhere in the system may be deleted. For instance, in the screenshot below, the **DID supplier costs** and **Termination services** tariffs can be deleted, whereas the rest of tariffs are being used by some product or connection.



Show Objects

The **Objects** icon is only available to the Root user; when selected next to any web element (such as a data field or select menu) it displays an **ACL** control. Move your mouse over the ACL control for the given element to see the object properties, as illustrated below. These object properties can be used by the administrator when configuring access levels for certain users in the system. See the **Access Levels** section for more information.

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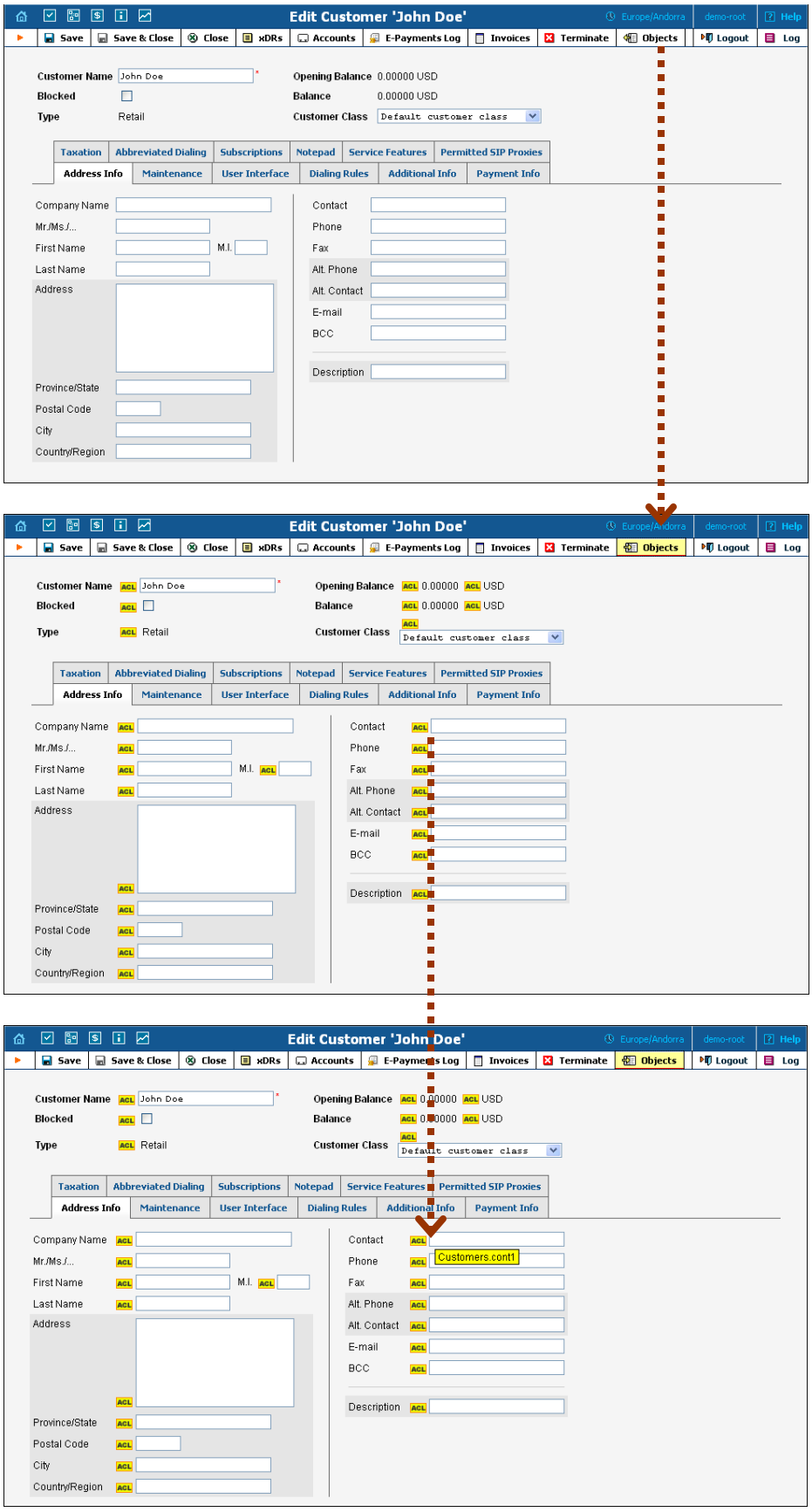

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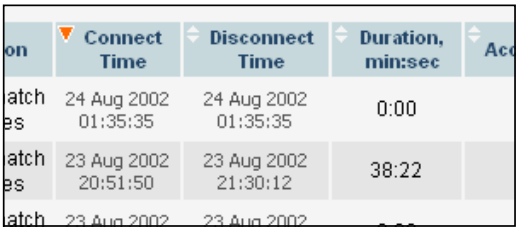
Sorting Tables



This feature is available for all xDR browsers in order to sort the displayed information according to different criteria, where necessary. The table header cell with the orange triangle shows the sorted row. A triangle pointing downward indicates descending order, while a triangle pointing upward means ascending order.

Sorting is available for all columns with a bi-directional white arrow in the top left-hand corner of the header cell. To sort a column, simply click on the header; click the same column again for the opposite sorting order.

Another handy feature for sorting tables is that the table header is always visible, even if you scroll to the bottom of a large table which does not fit completely on the screen.

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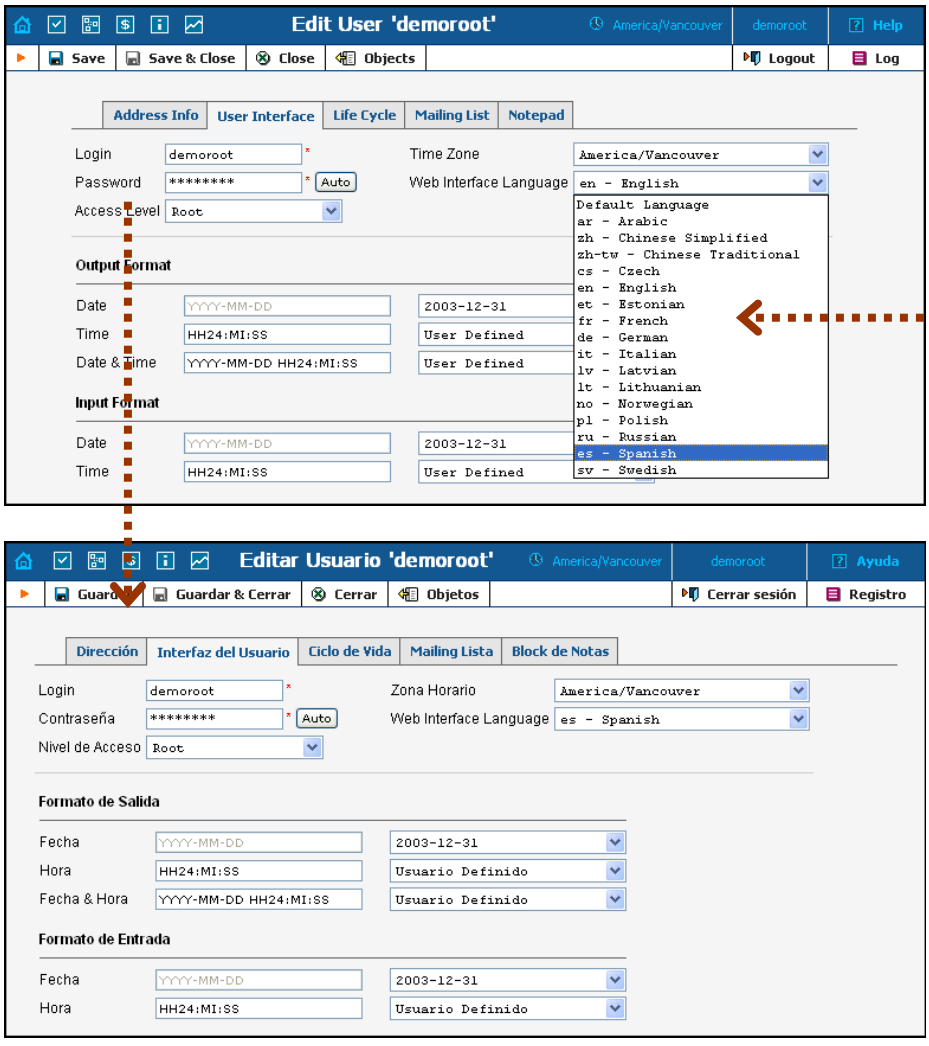
Multiple Languages

PortaBilling uses a flexible and extensible localization system. Every user of the system (admin user, account, customer, vendor, customer care admin) can choose the language of the web interface for his session. This does not, of course, affect other users; thus user John can work with the system using English as his interface language, while user Peter can make use of Chinese simplified as his language. Currently, PortaBilling supports such commonly-used languages as Arabic, Chinese, French, German, Portuguese, Russian and Spanish, in addition to English. New languages may easily be added on request; please contact Porta Software to obtain the XML template files if you would like to perform the translation yourself.



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Currently the following languages are supported:

- Arabic
- Chinese (traditional and simplified)
- Czech
- English
- Estonian
- French
- German
- Hebrew
- Hungarian
- Italian
- Latvian
- Lithuanian
- Norwegian
- Polish
- Portuguese (and Brazilian Portuguese)
- Russian
- Spanish
- Swedish

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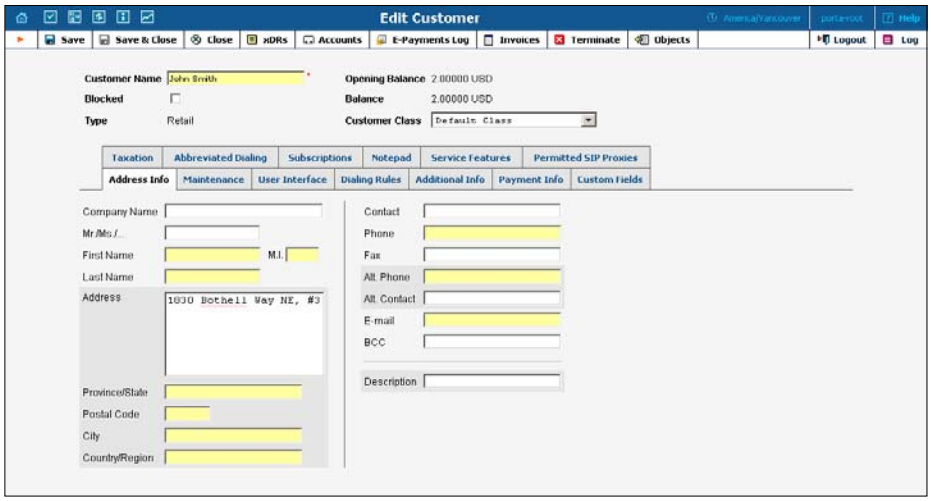
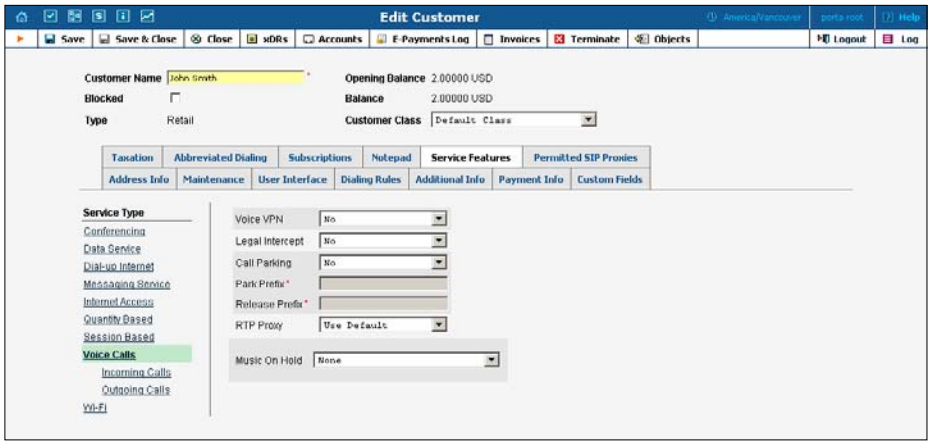
Tab Controls

Some forms (e.g. customer or account information) contain so much information that it is not feasible to display it all on a single screen. The standard practice in this case is to divide the information between multiple tabs, each of which contains only a portion of the information and can be individually selected for display. To provide a better user experience with a high number of tabs, PortaBilling provides two rows of tab controls.



When you click on a tab's name, it is selected (black font on a white background) and you can see the associated information. Note that even if a tab from the upper row is selected, the row order does **not** change, and all the tabs stay in their original location. Thus you can always remember where a particular tab control is located on the form; see below for an example where a tab from the upper row has been selected.



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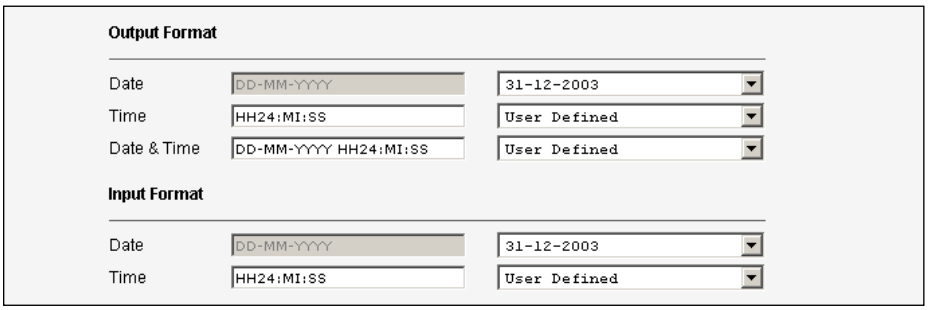
Date & Time Format

PortaBilling allows users to define both the input and output formats for date and time.



Making changes to the date and/or time format on this page enables users to enter dates and times in the desired format throughout the entire PortaBilling100 web interface. Correspondingly, all pages generated at a user's request will contain the date and time in the previously set-up format.

Date/Time format strings are composed using specifiers that represent the values to be inserted into the formatted string.

In the following table, the specifiers are given in upper case. Formats are case-insensitive.

Specifier	Value	Description
Date		
DD	01-31	Day of the month
D	1-31	Day of the month without a leading 0
MM	01-12	Number of the month
MON	Jan-Dec	Name of the month
MONTH	January-December	Full name of the month
YYYY	2003 +	Year
YY	00-99	Last two digits of the year
Time		
HH, HH24	0-24	Hours
HH12	0-12	12-hour time format; requires AM/PM Specifier
MI	0-60	Minutes
SS	0-60	Seconds
AM, PM, AM/PM	AM, PM	
Separators		
A separator can be any symbol except for letters and digits, or may be left blank		

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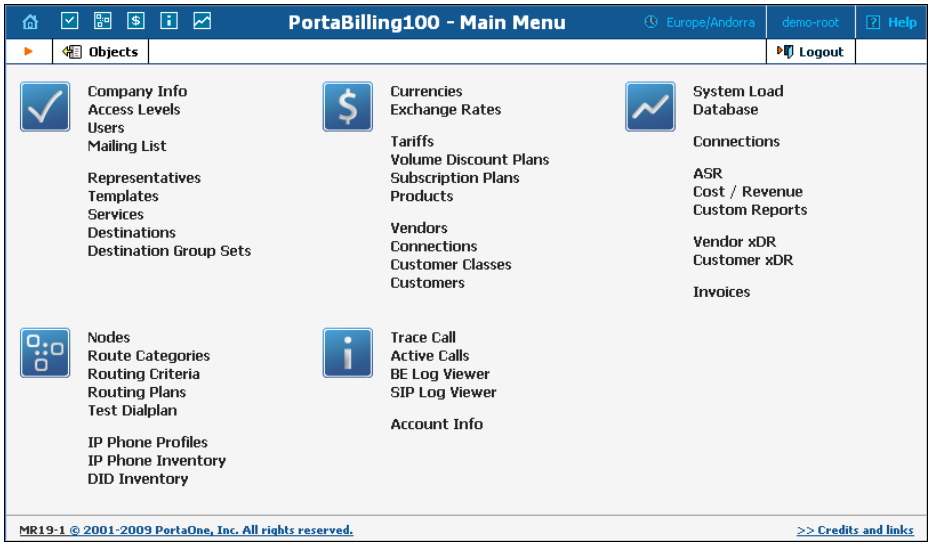
Example	Value
DD/MM/YYYY	12/03/2003
MON-DD-YY	MAR-12-03
HH:MI:SS	12:30:00
HH12 MI:SS	WRONG! AM/PM Specifier is missing
HH12mi pM	1230 AM

Current Release and Build information

In the bottom left corner of the main menu screen, you can see information about the maintenance release and build of the software currently installed, e.g. `MR19-3` means "Maintenance Release 19" and "Build 3".



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2. System Management

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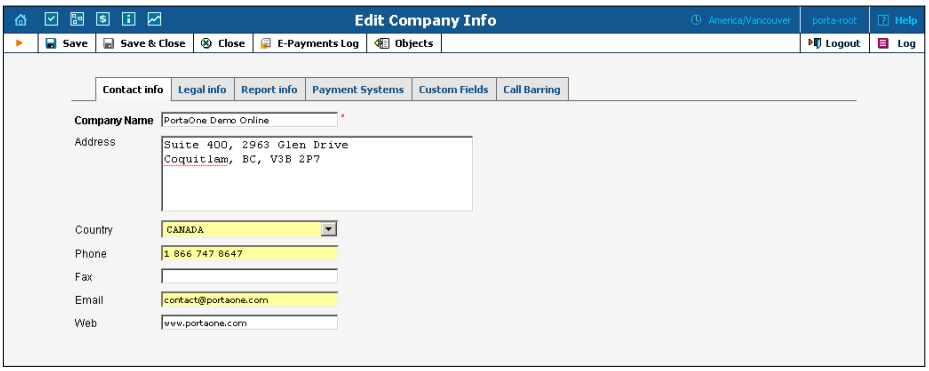
Company Info

The Company Info screens allow the administrator to maintain corporate information relating to your business. This data will be included on reports such as invoices.



Contact Info

The information provided in the Contact Info tab is typically used on reports as the primary point of contact for your vendors and customers. This information is the same as that which appears on your letterhead and business cards, for example.

Field	Description
Company Name	The conventional form of your company's name. (For example, "EasyCall, Inc.")
Address	Street address of the company.
Country	The country may be selected from a drop-down list.
Phone	Primary telephone number for the company.
Fax	Primary fax number.
E-mail	Primary e-mail contact for the company. If defined, this email address will appear in the From: field of all outgoing emails, e.g. statistics/invoices or low credit warnings sent to your customers.
Web	Web address of the company.

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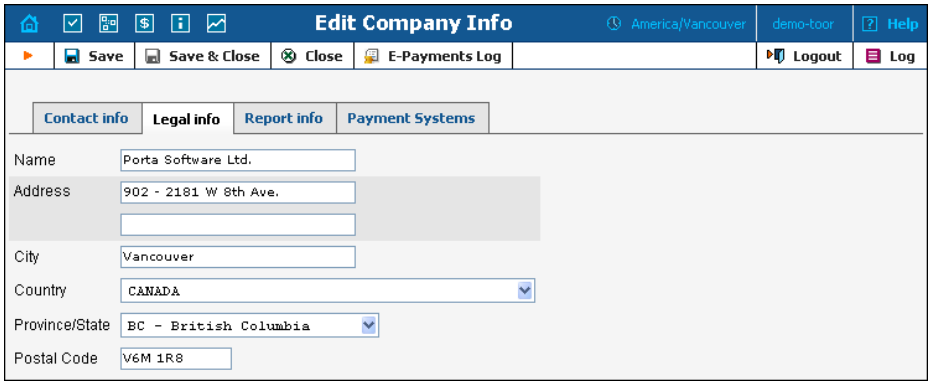
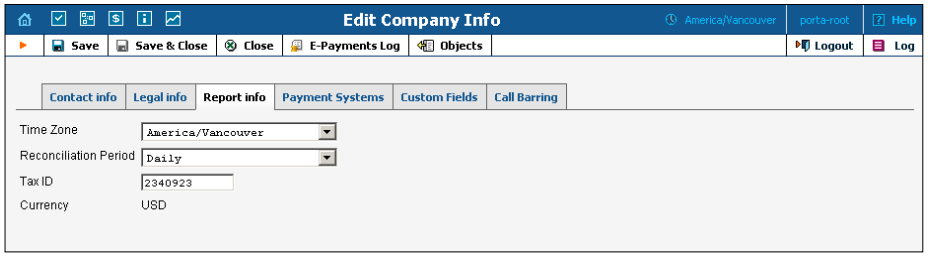
Legal Info



The Legal Info tab allows you to enter information about your company that could be used for any legal transactions, e.g. for taxation purposes.

Field	Description
Name	Proper, legally-recognized form of the company's name.
Address	Address where this company name is legally registered. Two lines are provided.
City	City in which the company is legally registered.
Country	The country in which the company is legally registered.
Province/State	The province or state where the company is registered may be selected from a drop-down list, depending on the Country option selected.
Postal Code	Postal code for the company's registered location.

Report Info



The data contained in the Report Info tab may be used for any financial reports, e.g. for invoicing or taxation purposes.

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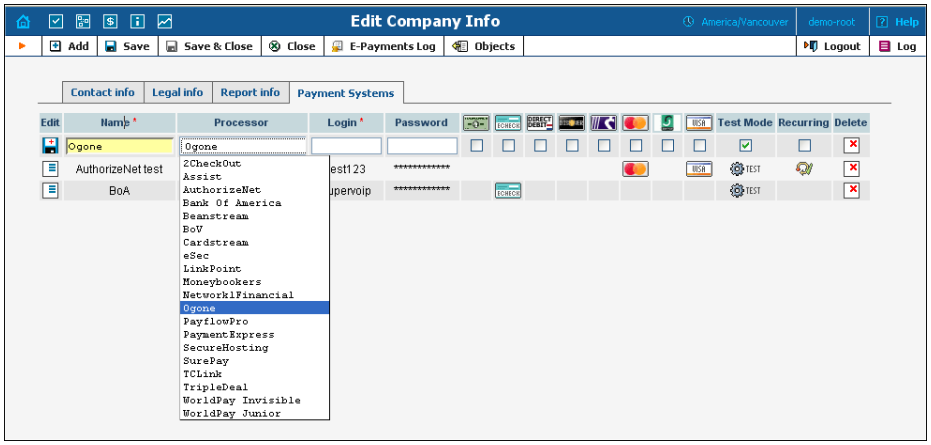
Field	Description
Time Zone	Time zone in which global reports for the environment (e.g. Cost/Revenue Report) will be generated.
Reconciliation Period	One of the following: daily, weekly, bi-weekly or monthly. This will also set up the periodicity of the **Unresolved xDR Reports**. (See the *Statistics* section below.)
TaxID	Locally-designated tax number.
Currency	The company's internal currency. You can use different currencies for your customers or vendors, but Cost/Revenue Reports will be generated in this currency. The value for this parameter is set permanently for the new environment, and cannot be changed later.

Payment Systems

The Payment Systems tab lists all existing payment systems, and allows you to enter information related to payment gateways used to receive payments from customers.



One or more payment systems may be utilized for electronic payments. In order to make use of these services, you must first register with one of the currently-supported* merchants, as shown below:

* Supported means that a corresponding Business: OnlinePayment plugin module is available at **www.cpan.org**. This does not guarantee that the module will support all the required features, and some extra work may be required to integrate it into the solution and perform testing. Please contact **support@portaone.com** for a current list of payment modules which have been thoroughly tested and work "out of the box", such as AuthorizeNet.

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Name	Web Page
2CheckOut	www.2checkout.com
Assist	www.assist.ru
AuthorizeNet	www.authorize.net
Beanstream	www.beanstream.com
BoV	www.bov.com
eSELECTplus	www.moneris.com
GlobalColect	www.globalcollect.nl
LinkPoint	www.linkpoint.com
Moneybookers	www.moneybookers.com
Netaxept	www.paynet.no
Ogone	www.ogone.com
PaymentExpress	www.paymentexpress.com
ProxyPay3	www.eurobank.gr
SecureHosting	www.securehosting.com
TripleDeal	www.docdatapayments.com
WorldPay Invisible	www.worldpay.com
WorldPay Junior	www.worldpay.com

To add a new payment system, click **Add** and enter the Account Name, Login, Password and Merchant in the edit row at the top of the listing. Choose one or several payment methods which will be used for payments made by these payment systems. To edit an existing account, click **Edit** and copy the information from the current row into the form above. Save changes using the **Save** button. A recurring payment allows customers to set up periodic payments on this payment system. Payment systems with recurring payment enabled are indicated by the icon.

After adding the payment system, it is necessary to assign it to one or several currencies in which payments will be processed using the chosen payment methods (see the *Currencies* section). Only after doing so can this payment system be used for payments by customers and accounts defined in these currencies. Please note that several (more than one) systems may not be assigned to the same currency using the same allowed payment method, i.e. you cannot have two systems with VISA as the allowed payment method assigned to the currency USD. However, you can assign both a system with VISA as the allowed method and another with MasterCard as the allowed method to the currency USD. Similarly, you can assign one system with VISA to the currency USD and another with the same method to the currency EUR.

Test Mode is a special mode of interaction with the system. It is useful during the initial setup phase, when a merchant may want to test its setup without processing live card data.

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What is a Payment Processor?

A payment processor is a real-time transaction processing system that functions as a payment service using a secure transaction server on the Internet. Merchants with a valid merchant account at an acquiring bank ("payment system") can use this system to submit, authorize, capture and settle credit card or eCheck transactions without the need for a separate transaction terminal.

Payment System Basics

This section is provided for information purposes only. The terms and conditions of your payment system are subject to agreement between you and your bank or merchant service provider, and should be consulted for specific information relating to your payment system.

A payment system is required to accept credit cards using the system. A payment system is a special account with a bank that is a member of the Visa and MasterCard associations (American Express may also be part of your payment system). Such a bank has been certified by the Visa and MasterCard associations and can provide you, as the merchant, with all the services related to your payment system.

You *must* have a credit card payment system in order to use a payment processor for credit card transaction processing. The payment processor system is separate from your payment system, but it may be purchased at the same time from the bank or merchant service provider which is creating your payment system.

The merchant service provider normally does the following:

- Assigns you a payment system number.
- Sets up your payment processor account.
- Assigns you a login ID and password for use with your payment processor account.
- Acts as your main point of contact for basic issues regarding your merchant and payment processor accounts.
- Enables you to add certain types of credit cards to your payment system.
- If the merchant service provider is also your payment processor reseller, it also activates the processing capability for these cards on your payment processor account.
- Deposits credit card funds to your account.

Your merchant service provider may also provide you with MID and TID numbers. The payment processor does not need these numbers, but some third-party solutions (such as certain Shopping Cart providers) may require them.

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Once your payment system is set up and "live" on the credit card system, you can begin accepting credit cards from customers. It is your responsibility to configure the payment processor to meet your own needs, and to provide a hosting environment which is appropriate for the choices you have made within the payment processor.

The **E-Payments Log** button in the toolbar allows you to access information about credit card or direct debit charge attempts for the whole environment. Please see section *E-payments Log* for further details.

Custom Fields

Custom Fields are used for storing a set of extra attributes (e.g. driver's license ID or tax code) to supplement the standard PortaBilling100 information. You can create your own custom fields and give them whatever name you like, set a field type, and so on. Custom fields are treated like any other field; they can be set on the Customer/Account Info page and used for search queries.

Administrators can manage extra user information with the help of the **Custom Fields** tab on the Company Info page. For each new custom field, the following attributes must be set:

Field	Description
Object	Defines whether the custom field applies to the Customer or the Account.
Name	The descriptive name of the field. This is the name that will be displayed next to the custom field on the Customer/Account Info page.
Type	Choose the type of field: • Text – basic single-line input field; • Number – input field used to store and validate numerical values; • Date – field type used to store dates; • Date & Time – custom field that stores dates with a time component; • List – single select list with a configurable set of options.
Properties	Enables you to customize properties of the field that define its form, appearance, or value. These properties are specific to the field type. Click **Properties** or the wizard icon to invoke the wizard. This will enable you to define a new field format or change an existing one and to specify the default value a custom field should have.
Default	Read-only attribute which must be specified in the

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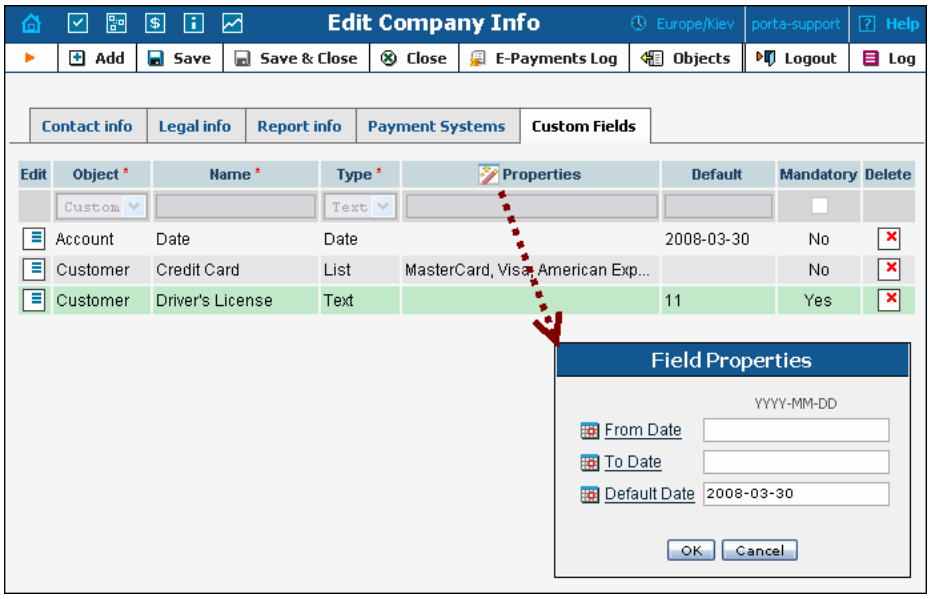
	Properties attribute.
Mandatory	Defines the mandatory status of the field.



You can delete a custom field at any time. All records of its values will also be deleted then.

Access Levels

Introduction to the ACL System

Different types of users have different responsibilities within the billing system. Some users may not be allowed to use or see certain portions of the system. To this end, PortaBilling supports the concept of **Access Control Lists** (ACL). ACLs allow the PortaBilling100 administrator to decide, for example, that a particular sales representative can look at customers' data, but cannot create new customers.

ACLs allow you to control what users of your site can and cannot do. Without such restrictions, it is almost impossible to guarantee that users will see or change only the information that they are allowed to.

ACL Types

An access level can be one of the following:

- Account
- CC Staff
- Component (cannot be assigned to users; used only as a building block to construct other access levels)

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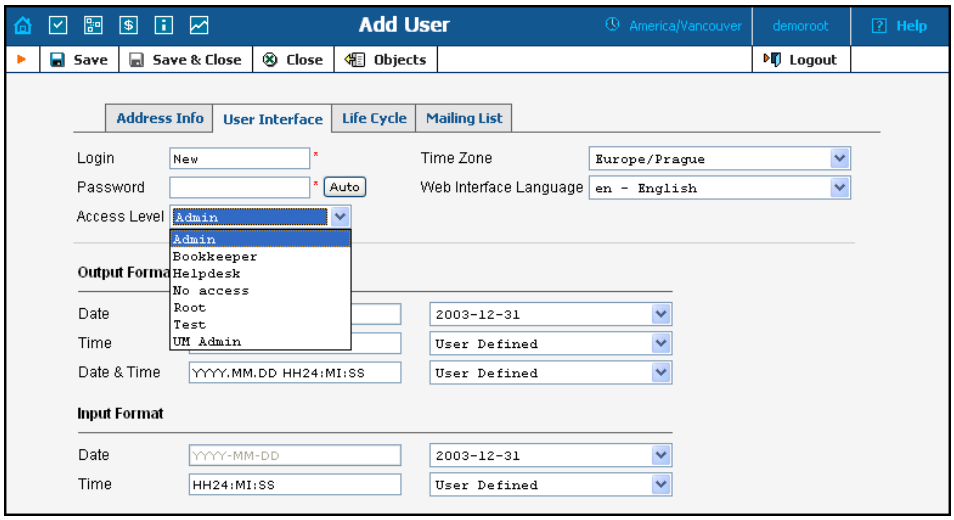
- Customer (to be applied to retail customers or sub-customers)
- Representative
- Reseller (to be applied to your resellers)
- User (access level for users of the admin interface)
- Vendor

These levels are composed of permissions and, optionally, other components. A permission is the lowest level of access control resources. It contains a set of permissions that are granted when using a component.

Newly created ACLs will be available in the select menu of the corresponding form when creating a new object or modifying an existing object's details. For instance, a User ACL will appear in the select menu of the **Add User** form (see below), a Customer ACL will be available when creating or editing a customer, and so on.



Permissions

A permission is the fundamental unit of exchange in the PortaBilling100 security model. Permissions are composed of an access type, whether or not this is an allowed action, the relevant object, and the relative attribute of the object.

Let's take the example of ASR reports. An access level called "Access to 'ASR' reports" is provided within the PortaBilling100 installation. It defines only one permission, which appears as in the following screenshot:

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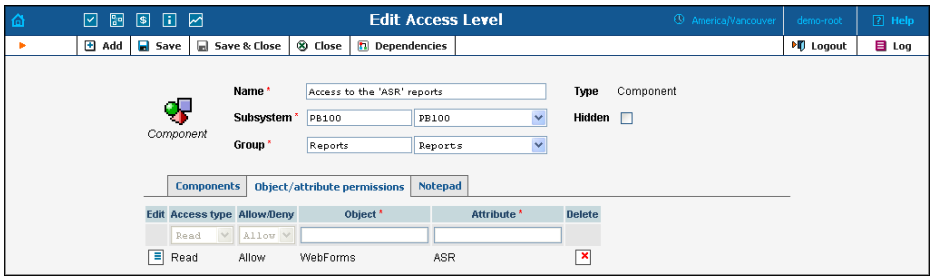

The "Access type" is set to "Read", and the permission to "Allow". This permission applies only to "WebForms" objects which have the attribute "ASR".

There are four possible access types:

- **read** - view the specified resource
- **update** - modify the resource
- **insert** - create new instances of the resource type
- **delete** - remove instances of the resource from the system

The field "Allow/Deny" defines whether this permission has been granted or withheld.

You should never have to provide fine-grain permission information yourself, as all possible permissions are already encapsulated in the components of your PortaBilling100 installation. For this reason, we will not discuss the "Object" and "Attribute" fields further in this section. However, it may be useful to know that wildcards can be used in these fields. For example, to allow Read access to all web pages, an ACL could be defined with the following permissions:

Access type:	"Read"
Allow/Deny:	"Allow"
Object:	"WebForms"
Attribute:	"*"

As may be guessed, the "*" in the attribute field means "all attributes".

NOTE: Should you find it necessary to modify these basic components or create new ones, please contact PortaOne Support. We can provide you with a list of Object and Attribute resources, or otherwise assist you in maintaining ACLs.

Components and User ACLs

Components will be made up of zero or more permissions, and can include other components (as dependencies). If access level ACLX includes access levels ACL1, ACL2 and ACL3 (or, in other words, is *derived* from ACL1, ACL2 and ACL3), then ACLX will contain all the

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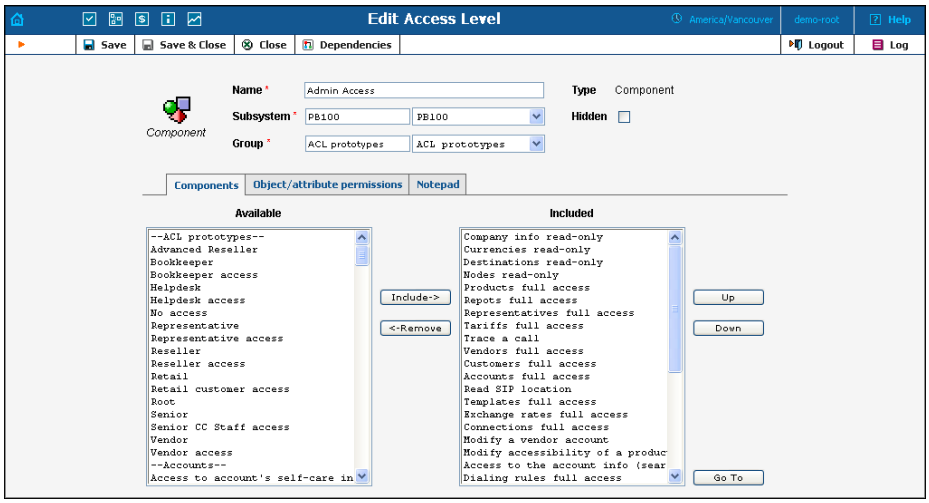
permissions defined in ACL1, ACL2 and ACL3 (along with all of the access levels they in turn are derived from).

What happens if there is a contradiction; for example, if ACL1 denies read access to Accounts.password, and ACL2 grants it? In such a case, the first available definition will be used. Thus, in the example above, access will be denied according to ACL1, which is first in the list of included access levels. In addition to these, a component has several other aspects.

When editing a component, you will first see a screen as in the following screenshot:



Including components as dependencies within other components gives the system its power. Here we see that the "Admin access" level is defined by over a dozen dependant components. Note that this component does not actually define a permission itself, but rather relies on the implementation of its dependants.

By deriving new components from existing components in the system, you can implement fine-grain access control and define User ACLs specific to your operational environment.

ACLs for Sub-customers and Visibility

Normally you would not want reseller A to be able to use (or even see) ACLs for his sub-customers that were designed for reseller B. To ensure this, you can mark certain ACLs as visible only to a particular reseller.

ACL Subsystems

In some cases, the same object and attribute can be interpreted differently according to the context. For instance, a reseller can access his own

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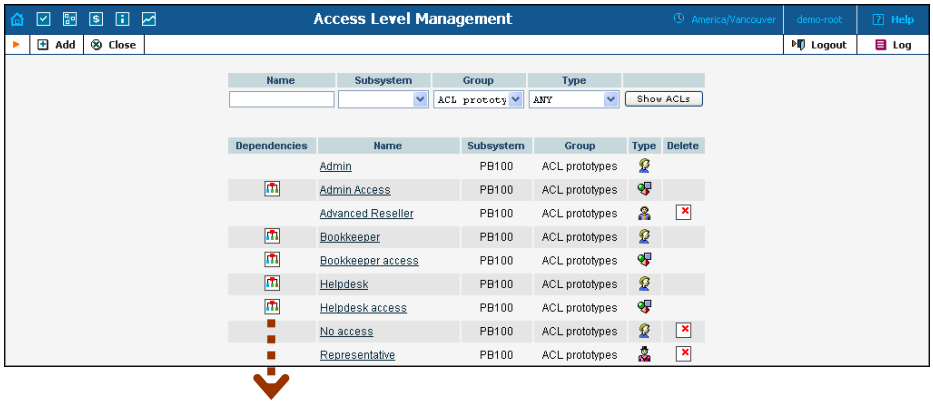
customer information, or information about his sub-customer. Although in both cases he will work with the same physical fields in the database, he needs to have fundamentally different sets of permissions. This is accomplished using subsystems in the ACL definition. In this example, there would be two ACLs defining applicable operations with the **Customers.name** attribute (or other attributes of a customer). One of these ACLs will have the subsystem **PB100**, defining access in a global context, i.e. the reseller's access to his own information. The other ACL will have the subsystem **Sub-customers**, which defines the reseller's access to information about his sub-customers.

Access Level Management Interface

In this discussion of the ACL system, we have proceeded by starting with the fundamentals and building up your skills from there. Now we will discuss the entry point for ACL management. On the PortaBilling100 administrative interface you will find a link to "Access Levels". This link takes you to the Access Level Management main screen pictured below.

This screen is similar to many others in the PortaBilling100 system, including a search interface at the top and a results listing at the bottom. (By default, all ACLs are shown in a paged format on this screen.) You may search for ACLs using any combination of Name and Type.

In the results listing, you may also see the dependencies icon and delete icon. ACLs can only be deleted when they are not in use. If a component contains any included components, you will be able to click on the dependencies and see search results for all dependants. The following screenshot shows all dependants for "Accounts full access". Note that some of the dependants have their own dependencies.



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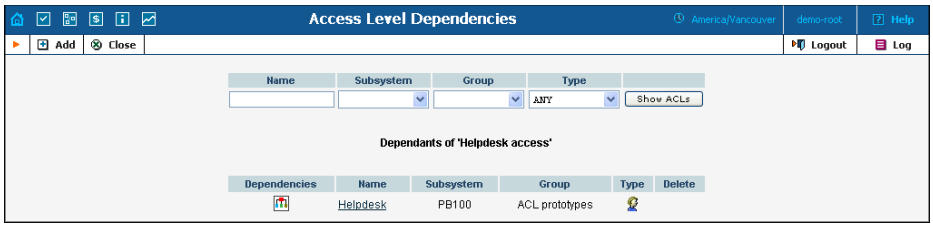

We have already talked about the necessary parameters for creating or editing components, but we have not yet discussed component inclusion in detail. Each access level may have zero or more dependant components. These components are ordered, and likewise are applied in order until the first matching permission is reached.

In order to understand this better, we will use the previous example. Suppose a user is trying to view ASR reports. His access level must allow reading of "WebForms.ASR" (object "WebForms", attribute "ASR"). For the sake of simplicity, we will say that his access level includes "A", "B", and "C", where "B" allows this permission, but "C" explicitly denies it. In this case, the user's ability to view these reports is based on the ordering of these components. If "B" appears before "C", then it will work. In the opposite case, he will not have access.

This may sound complex, but in practice the user interface is quite simple. Two columns are shown on the "Components" tab of the edit screen for each access level. On the left, you have a list of the available components, while on the right are the included components. Between these two columns you have the "Include->" and "<-Remove" buttons, which move selected items between the two lists. As for ordering, the "Up" and "Down" buttons on the far right-hand side of the screen allow you to rearrange selected elements of the "Included" column. The "Go To" button opens the edit screen for the selected component.

Creating a New User ACL

From time to time you will find that the predefined user ACLs (Admin, Helpdesk, and so on) offer too few, or too many, restrictions for a particular class of user. In such a case, it is time to create a new user ACL.

The easiest method is to take an existing access level and create a new one modeled on it, and then modify it to fit your needs. You should examine the permissions granted to the model access level, and verify that you want to grant access to those resources. Next, you can include other components to suit your needs. As a style recommendation, we suggest that you first create a component containing the dependant components you wish to utilize. Finally, create a new user ACL which includes only this new component. Now you can assign this ACL to new users.

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The PortaBilling100 ACL management system contains style conventions which you would be well-advised to follow:

- The name of a component should be descriptive, based on the actions which it allows. Examples are "Delete a node", "Currencies read-only", and "Access to Vendor Reports".
- Create a new group for any components or user ACLs which you define, so as to keep them separate from PortaBilling100's built-in ACLs.
- By convention, when defining a new user ACL (for example, "DemoUser"), we append "access" to the name of a component ("DemoUser access") to include any dependant components.

You should now have the skills necessary to implement the PortaBilling100 security model and customize it to suit your business environment.

Default User ACLs

PortaBilling is supplied with the following predefined ACLs:

Name	Description
Root	Super User, read and write access to all PortaBilling objects
Admin	Like Root user, but with some limitations: - cannot create new users - cannot modify company info - read-only access to Destinations, Currencies, Nodes
Bookkeeper	Read-only access to billing information (Tariffs, Products); can change balances for Accounts/Customers, block/unblock.; no access to xDRs; access to reports.
Helpdesk	Read-only access to billing information (Tariffs, Products); can modify Customer and Account parameters; access to Trace Call.

Default Customer ACLs

PortaBilling is supplied with the following predefined ACLs for customers (or sub-customers):

Name	Description
Retail	Access to xDRs, ability to change customer information, make online payments and access information about all accounts under this customer.

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Default Reseller ACLs

PortaBilling is supplied with the following predefined ACLs for resellers:

Name	Description
Reseller	Ability to set up online payment processors, change rates in the subscriber's tariff, modify parameters of the subscriber's product, create sub-customers and accounts under them, make online payments, and create CC staff accounts.
Advanced Reseller	Same as above, plus read-only access to customer's own tariff (the tariff used by the PortaBilling owner to charge the reseller).

Default Customer Care ACLs

PortaBilling is supplied with the following predefined ACLs for customer care administrators:

Name	Description
Customer Care	Ability to see customer/account information and change service parameters, give refunds (daily and transaction limits applied), and trace a call and see the call details.

Default Vendor ACLs

PortaBilling is supplied with the following predefined ACLs for vendors:

Name	Description
Vendor	Access to CDR data and the vendor's information.

Default Representative ACLs

PortaBilling is supplied with the following predefined ACLs for representatives:

Name	Description
Representative	Read-only access to customer information, customer's XDR records, and account information.

User Management

The User Management screen shows existing users registered in the system, and also allows you to edit current user information or add and

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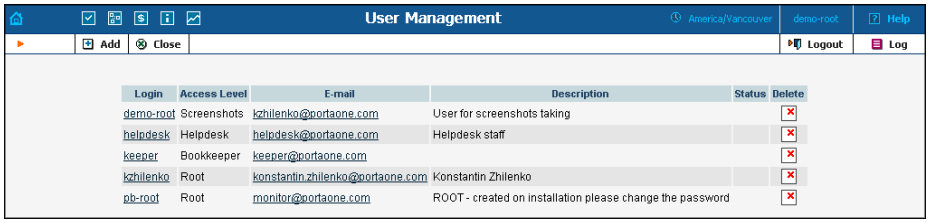
delete users. To add a new user, select the **Add** button from the User Management screen. The user list table contains the following information and operations:

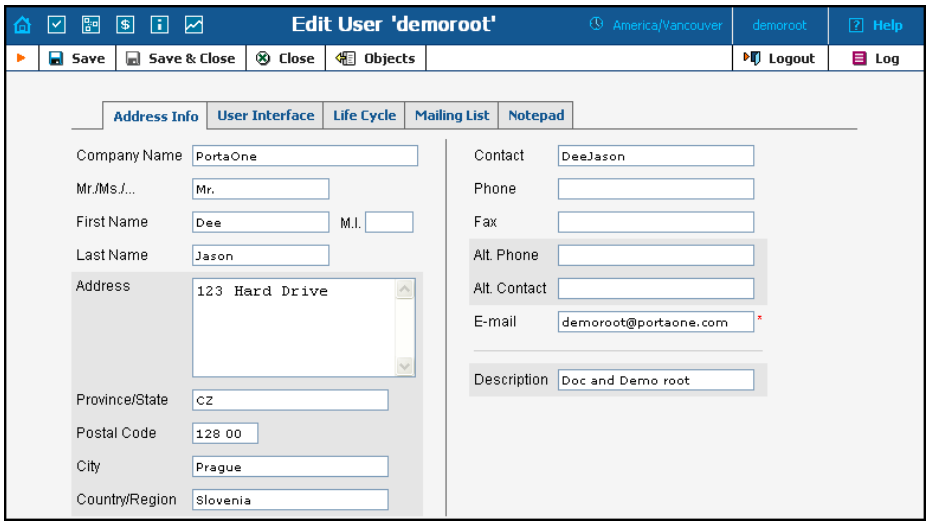


Column	Description
Login	The username for login and user identification. The username provides a link to the edit screen for that particular user.
Access Level	The privilege level or role assigned to the user. See the **Access Levels** section for more information.
E-mail	An e-mail contact for the user. For convenience, this is provided as a link, so you can send an e-mail to the user directly from this screen.
Description	A short description associated with the user.
Delete	A delete button appears next to all users except for the Root user created on installation. This permanently deletes the user from the system.

Add/Edit User

The Add User screen allows you to enter details to create a new user account. The Edit User screen allows you to change details for a particular user account.

Address Info



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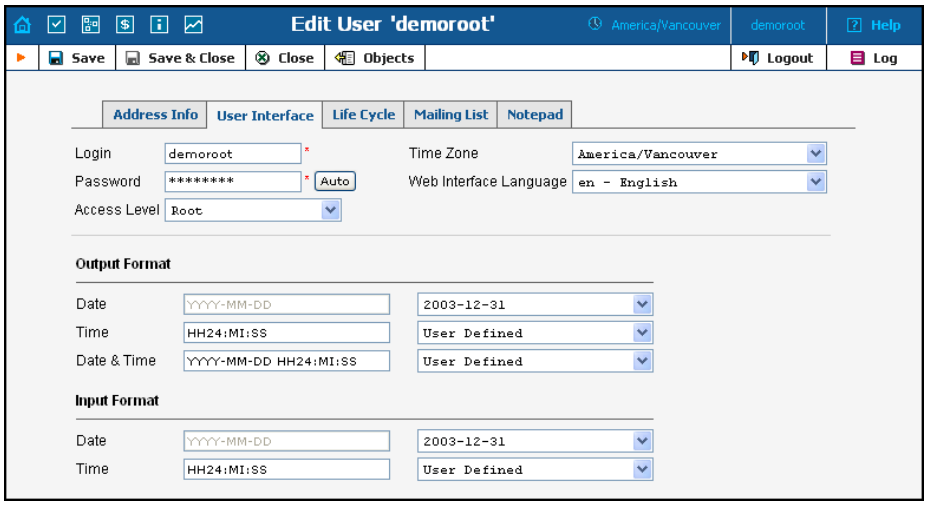
Mandatory fields for user contact information:

Field	Description
Description	A short description of the user that will be visible on the main User Management screen.
E-Mail	An e-mail contact for this user.

User Interface



Field	Description
Login	The new user ID to be used at login and elsewhere throughout the system.
Password	The password for this login. A secure and easy-to-remember password may be automatically generated by pressing the "Auto" button.
Access Level	The privileges or role associated with this user. See the **Access Levels** section for more information.
Time Zone	The time zone in which this user will be operating.
Web Interface Language	The language to be used on the admin web interface for this user.

For a description of the input and output formats, please refer to the **Common Features** section.

Life Cycle

This allows the administrator to set up the user account's activation and expiration dates.

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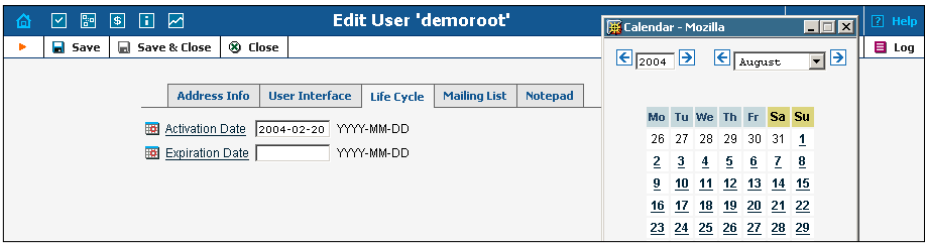
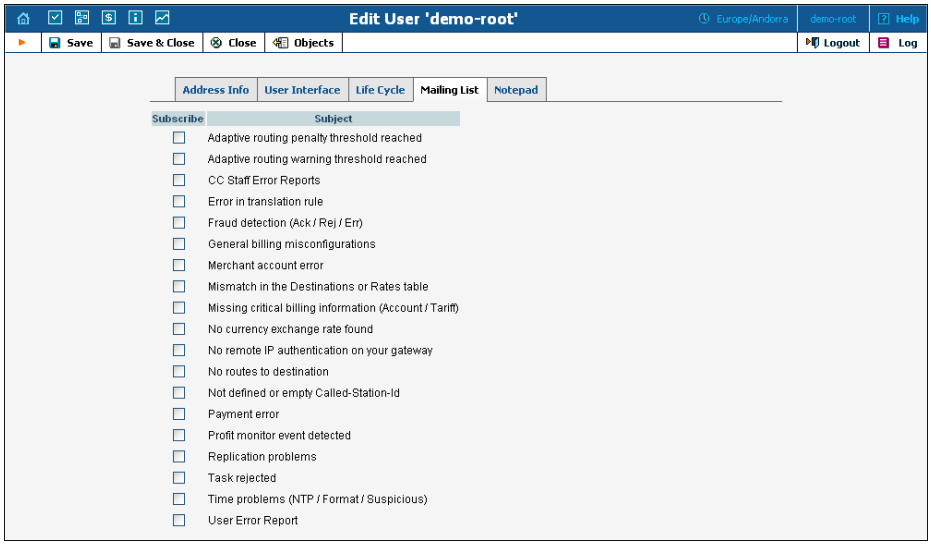


The account will not expire if the Expiration Date field is left blank.

Mailing List

PortaBilling dispatches e-mail alerts (e.g. error messages and notifications) during normal production. E-mails are dispatched to each user according to the Mailing List settings.



To add different notifications for a specific user, check/uncheck one or more boxes on the left for the corresponding Subjects. The available alert types and their conditions of activation are as follows:

Alert Type	Description
Adaptive routing penalty threshold reached	The adaptive routing module detects that some quality parameters of the connection are below the specified acceptable level. The vendor is penalized, and this connection is temporarily moved to the bottom of the routing list.
Adaptive routing warning threshold reached	The adaptive routing module detects that some quality parameters of the connection are below the specified level.
CC Staff Error Reports	Customer care (your reseller's customer support) may discover a problem they are

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	unable to solve themselves, and thus may need to escalate this problem to your support staff. When they send an error report from the CC web interface, it will be received by users subscribed to this mailing list.
Error in translation rule	A translation rule could not be properly applied, due to a programming error.
Fraud detection (Ack / Rej / Err)	Attempt to login more than once using the same debit account number.
General billing misconfiguration	A debit account made a call that cost more than its available funds; an unresolved call was detected (unresolved calls may be normal when they are on-net calls, but in most cases they indicate connection misconfiguration); and so on.
Merchant account error	An error was received from the online payment processor while trying to execute a transaction.
Mismatch in Destinations or Rates table	The cost of a call could not be determined, because no matching rate was found in the specific tariff.
Missing critical billing information (Account/ Tariff)	A call could not be billed due to missing information (e.g. unable to identify the account which is to be charged for the call).
No currency exchange rate found	Unable to do cost/revenue reconciliation for some calls, since no exchange rate is defined for the base currency and currency used for those calls.
No remote IP authentication on your gateway	It seems that your gateway accepts all incoming VoIP calls. See the "*Remote IP authentication*" section in Portabilling100 User Guide vol. I for more details.
No routes to destination	Customer attempted to place a call to a destination, which is covered by his tariff plan – but there are no valid routes for it in the system.
Not defined or empty Called-Station-ID	The Called-Station-ID (DNIS) field is empty in the request, so PortaBilling is unable to determine which number was dialed. This might happen due to a firmware problem on Quintum.
Payment error	Unable to perform periodic payment (credit card is blocked or no funds are available).
Profit monitor event detected	Sends an alert if the call cost (amount charged by a vendor) is greater than the revenue (amount charged to the customer).
Replication problems	Database replication may be performing

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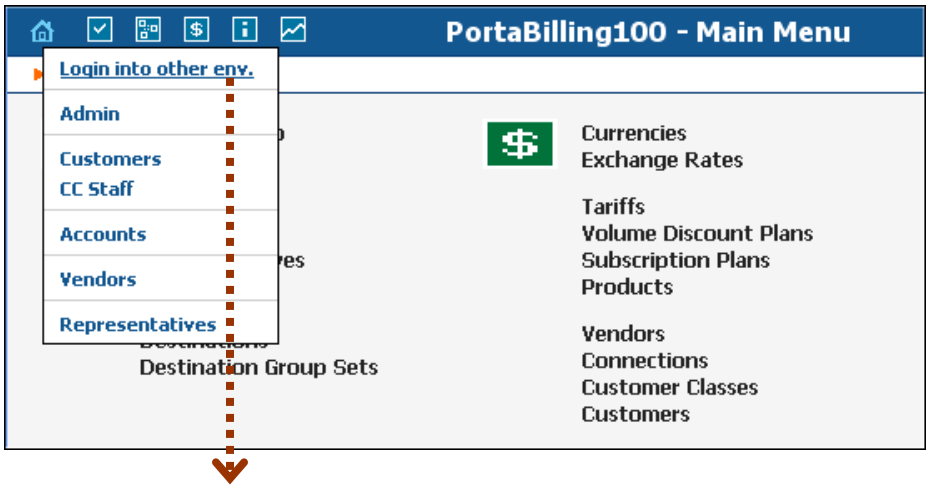
	poorly or not at all, so that CDRs for the most recent calls are absent from the slave database.
Task rejected	A deferred task (such as account generation) could not be run.
Time problems (NTP / Format / Suspicious)	This alert may be generated if the time in the accounting record is in the wrong format or seems suspicious (such as a point in the future, or one too far in the past).
User error report	Your customer support may discover a problem they are unable to solve themselves (e.g. only the network administrator can do it) and thus may need to escalate this problem to your technical staff. When they send an error report from the web interface, it will be received by the admin users subscribed to this mailing list.

Superusers

"Ordinary" administrator-level users can be promoted to "superuser" status – this is done by adding their numeric IDs (i_user) to the `Superusers` configuration variable in the `Global` section of `porta-admin.conf`. Superuser status permits certain operations that ordinary users do not have access to. One of the most important abilities of a superuser is switching between virtual environments. This is why superuser status cannot be configured via the web interface: by giving a virtual environment to someone, you allow him full control of that environment. However, he should not be able to re-configure his account to "jump" into another environment.



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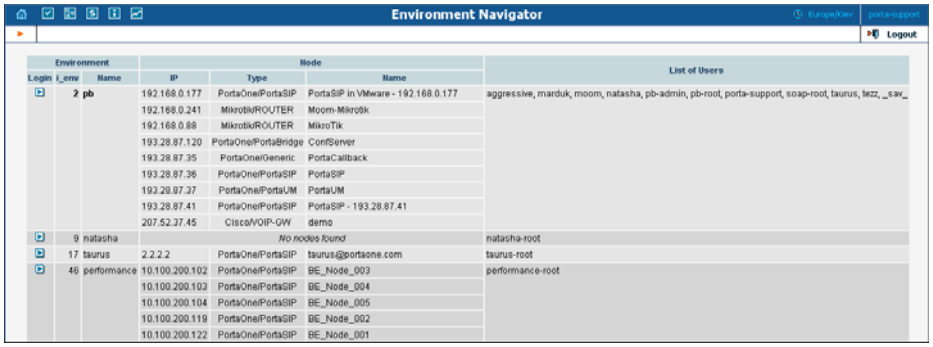
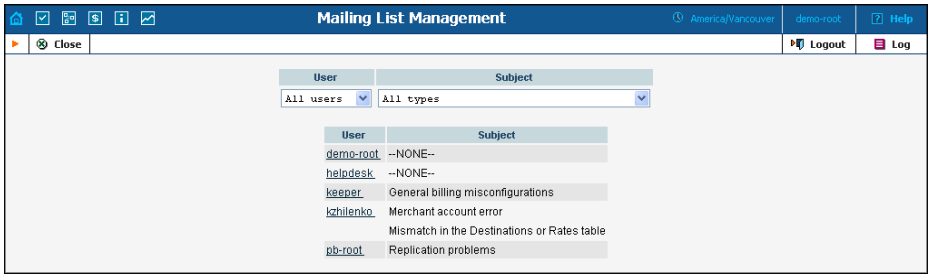


Mailing List

The Mailing List Management page allows you to define which e-mail alerts are to be sent to different users (see **Mailing List Subscription**).



Select a user from the **User** drop-down list to view which mailing lists a particular user is subscribed to. Select a mailing list from the **Subject** drop-down list to view all users subscribed to a particular mailing list.

Representatives

You may need to track income associated with people with whom you have a business relationship. These people may sometimes be employees, while in other cases they are dealers, partners at a law firm, or independent contractors.

NOTE: Representatives do not participate in billing or revenue sharing. They are listed for information purposes only, as required when PortaBilling is integrated into back-office CRM for calculating commissions and the like.

Each sales representative is assigned initials. Their names and initials appear on sales forms, allowing you to associate specific sales reps with specific sales in order to track their income.

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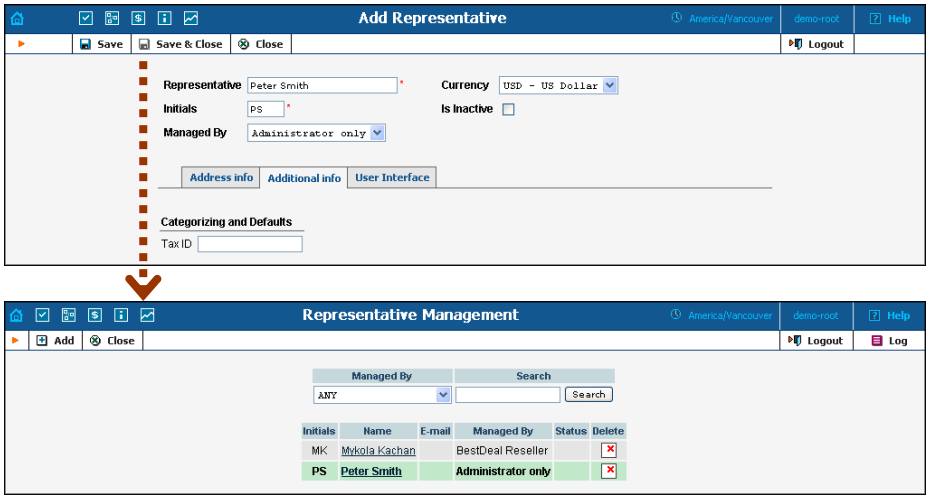


NOTE: Once a new representative is created, the **Currency** and **Managed By** properties cannot be changed.

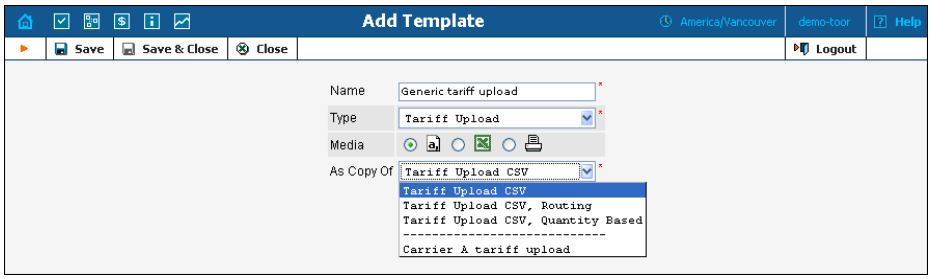
Templates

The purpose of templates is to maintain all data uploaded to and downloaded from the system. Templates automate the processing of user input and create customized output in various data and media formats.

Read more about using the templates functionality in the PortaBilling Template Guide, available for download from: **www.portaone.com/support/documentation/**

Add a New Template

To add a new template, select the **Add** button.



Field	Description
Name	The logical name of the template object

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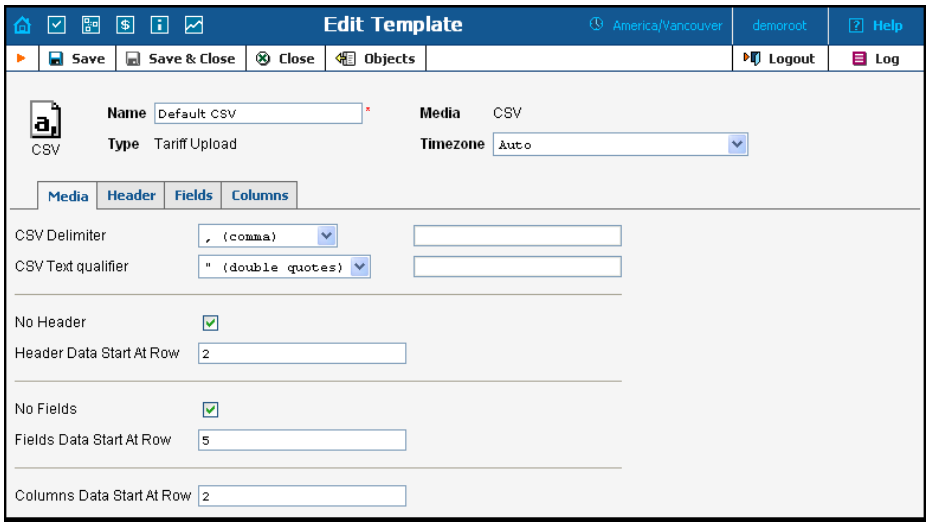
Type	One of the following: - Invoice - Tariff Upload - Tariff Download
Media	One of the following media types:
	CSV – Comma Separated Values
	XLS – Excel
	Print format (HTML, PDF) – only applicable for templates of the **Invoice** type
As copy of	PortaBilling is supplied with a set of default templates for each type of document, i.e. for both information upload and download. Documents in print format, i.e. invoices, can only be "downloaded" from the system. After selecting **Type** and **Media**, the list will be populated with the default template (always at the top of the list); all existing templates with the current Type and Media formats will be listed under the "-----" separator.
Managed By (only for Type Invoice)	By default – administrator only. The template can be assigned to a reseller so that it is visible in the list of available invoices on the Customer Self-Provisioning web interface.

To enter editing mode for this template, save your input using the **Save&Close** button. Next, select the template you would like to edit from the Templates window.

Edit Template



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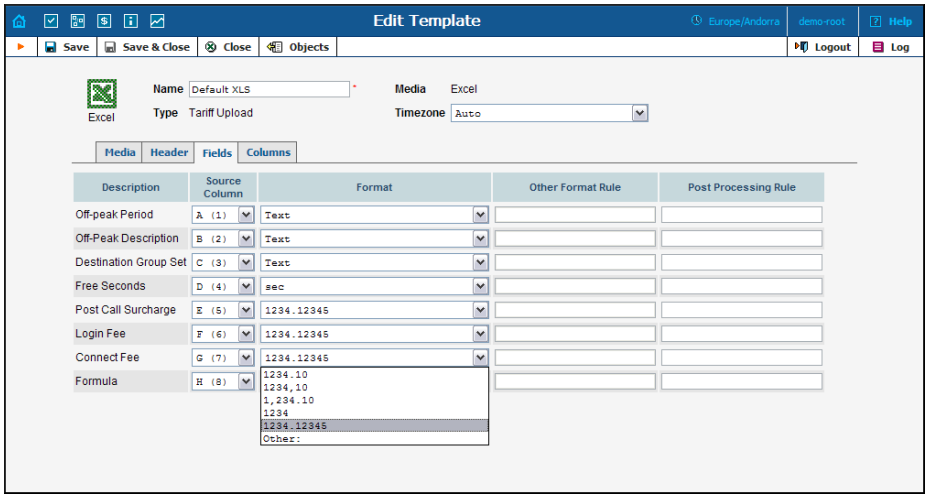
Once a new template is saved, the document's Media, Type and Managed By properties cannot be changed.

Each Template object consists of several logical components. For example, the Invoice Template's components are Media, Header, Fields, and Footer.

The Media tab is present for all types of templates, and shows the media available for upload or download. For Tariff upload in CSV format, it is important to know what delimiter was used, whether there is a header, or in what row the tariff information starts. For Invoices, the Media tab contains a link to the PortaBilling Layout Designer, which allows you to customize the appearance of your invoices and receipts.



The content of the Header, Fields, Columns, and Footer tabs is arranged in a similar way, and allows flexible mapping of information related to user documents and information in the PortaBilling Database.

Column	Description
Description	Description of template components.
Source Column	Defines the mapping of template information to the original/destination document.
Format	Data format. Choose a format from the list, or choose Other if the desired format is not available. Provide a format definition in the following field.
Other Format Rule	Perl code. Active only if Format = "Other:".
Post Processing Rule	Perl code.

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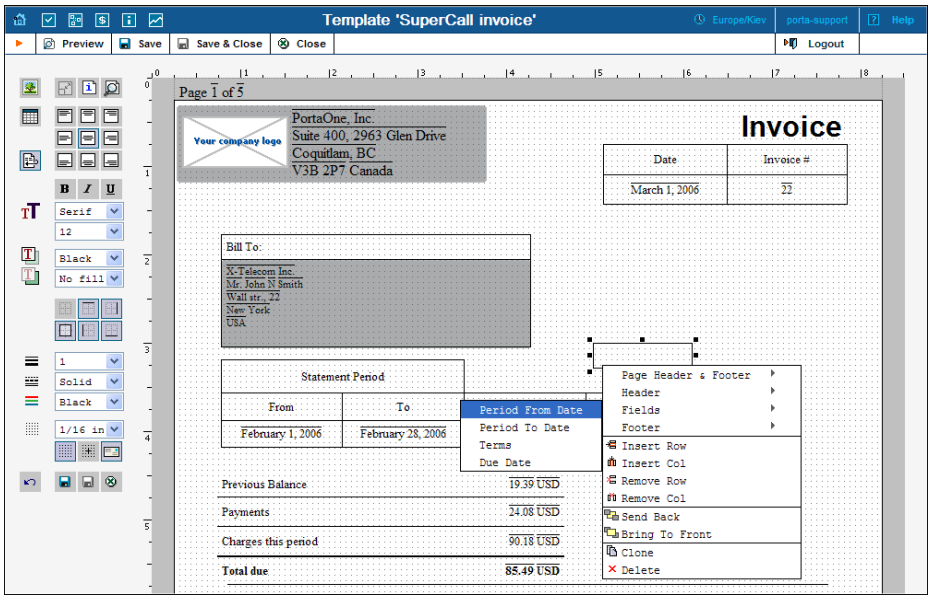
Layout Designer

The Layout Designer allows you to customize the appearance of all types of printed output in PortaBilling.



Layout Designer (LD) Quick Start

To launch, click the **Layout Designer** button on the Media tab in the Template Management window. The sliding toolbar on the left side provides most of the controls for manipulating content in the editor window. There are three different states for most of the toolbar icons: normal, active, and not available.

Icon state	Description
	Normal - Click to activate
	Active - Click to deactivate
	Not available

Icon	Description
	Add Picture: Click to select a picture (e.g. your company logo) from a file select window. Click the **Open** button to place the picture on the worksheet. To remove the picture, right-click on it and choose **Remove.** Another way of deleting a picture is to press **Delete** on your keyboard.
	Lock Aspect: Fixes image proportions during scale operations.
	Preview: Click to preview your work in a browser window.
	Add Table: Click to place a table on the worksheet. A table can be removed by using the context (right-click) menu or by

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	pressing **Delete** on your keyboard. Click the table cell to make it active. To add another table, click on the worksheet to deactivate the currently active object. Read more about tables below.
	Text Align: A section of nine buttons used to align text in an active table cell.
	Word Wrap
	Text controls: The tools and selects from this section control font attributes such as font style (bold, italic, underline), font family (serif, sans-serif, cursive, fantasy, monospace), and font size.
	Foreground Color: Change the text color by selecting from this list.
	Background Color: Change the color of the active table cell by selecting from this list.
	Border: A section of six buttons for showing or hiding the border of the active table cell.
	Stroke: A section of three controls for changing the active cell's border weight, style and color.
	Grid: On by default; click to turn off the grid.
	Snap to Grid: On by default; click to allow arbitrary positioning of elements on the worksheet.
	Envelope Window: Two half-transparent gray boxes displaying the positions of envelope windows; click to turn off.
	Undo: Click to cancel the last action.
	Save and Close: For convenience in editing the bottom of the worksheet, these controls duplicate the main toolbar controls.

A straight line in the Layout Designer can be simulated by using a table with only one visible border.

Table

The main Layout Designer object is the table, which is a placeholder for all inserted information. A table or a table cell within a table can be moved and scaled by dragging the cell handlers. Double-click a table or a cell within a table to enter cell editing mode, where you can type in or edit a cell's text. To change the attributes of a cell's text, make sure the cell is selected (8 black square handlers are visible) and set the text attributes in the toolbar on the left.

Changing the text attributes of a cell in the toolbar will affect all text in the current cell. To change the attributes of part of the text, enter cell editing mode (double-click), select that part of the text, and use the keyboard shortcuts listed below.

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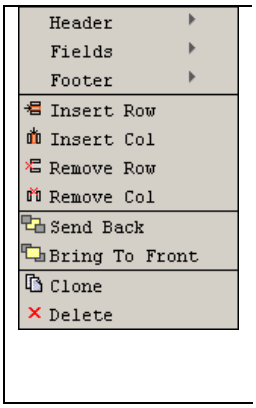
Context Menu

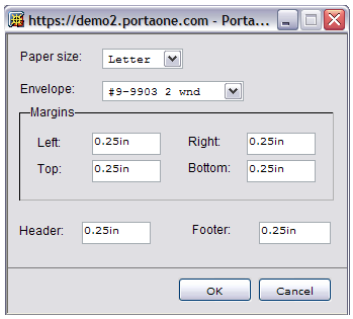


The context (right-click) menu provides you with greater control over tables and other objects, and allows certain data located in the PortaBilling database to be displayed in the table cell. To show the menu, right-click on a table or cell. The three top elements of the context menu correspond to the template components (tabs); in the case of an invoice, for example, these would be Header, Fields and Footer. Users can also set the order of all objects in the window and clone or delete selected objects.

Select one of the menu elements to activate a submenu containing a list of all the fields specified in the template editing window. The selected item will appear in the selected cell as the item's value. Double-click the cell to enter editing mode; the cell now displays the corresponding variable.

Page/Print Setup

The page context menu (right-click on the worksheet) provides access to the Web-Page Dialog for page, envelope and print setup.



Open your browser prior to printing. In your browser's **File** menu, select **Page Setup.** In the dialog window, set up the paper size (A4 or Letter), delete all Header and Footer symbols, and set all margins to zero or a value close to zero.

Envelope Formats: America

Envelope	Envelope Measurements	Window size	Window From Left	Window From Bottom
#6-3/4	3-5/8" x 6-1/2"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#7	3-3/4" x 6-3/4"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#7-3/4	3-7/8" x 7-1/2"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#8-5/8	3-5/8" x 8-5/8"	1" X 4"	1"	3 / 4"
#9	3-7/8" x 8-7/8"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#10	4-1/8" x 9-1/2"	1-1/8" X 4-1/2"	7/8"	1 / 2"

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#11	4-1/2" x 10-3/8"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#12	4-3/4" x 11"	1-1/8" X 4-1/2"	7/8"	1 / 2"
#14	5" x 11-1/2"	1-1/8" X 4-1/2"	7/8"	1 / 2"

Double-window envelopes

Envelope	Window Size	Location	Placement
#9-9903	TOP WINDOW		
	3 7/8" x 8 7/8"	From Left	3/8"
		From Top	1/2"
3 5/8" x 8 5/8"	BOTTOM WINDOW		
	1" x 4"	From Left	7/8"
		From Bottom	5/8"
# 8-5/8	TOP WINDOW		
	7/8" x 3-1/2"	From Left	5/8"
		From Bottom	2 1/4"
3 5/8" x 8 5/8"	BOTTOM WINDOW		
	1" x 4"	From Left	5/8"
		From Bottom	5/8"
#9-13036	TOP WINDOW		
	7/8" x 3-1/4"	From Left	3/8"
		From Bottom	2-1/2"
3 7/8 x 8 7/8"	BOTTOM WINDOW		
	1-1/8" x 4-1/2"	From Left	1/2"
		From Bottom	7/16"
#9-13037	TOP WINDOW		
	7/8" x 3-1/4"	From Left	3/8"
		From Bottom	2-1/2"
3 7/8 x 8 7/8"	BOTTOM WINDOW		
	1" x 4"	From Left	1/2"
		From Bottom	3/4"
#9-13038	TOP WINDOW		
	7/8" x 3-1/2"	From Left	3/8"
		From Bottom	2-3/8"
3 7/8 x 8 7/8"	BOTTOM WINDOW		
	1-1/8" x 4"	From Left	3/8"
		From Bottom	5/8"

NOTE: Envelope #9-9903 (3 7/8" x 8 7/8") is QuickBooks compatible.

Envelope Formats: Europe

Format	Size [mm]	Content Format
C6	114 × 162	A4 folded twice = A6
DL	110 × 220	A4 folded twice = 1/3 A4
C6/C5	114 × 229	A4 folded twice = 1/3 A4
C5	162 × 229	A4 folded once = A5
C4	229 × 324	A4

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DIN 680 specifies that a transparent address window should be 90 × 45 mm in size, and the window's left edge should be located 20 mm from the left edge of the envelope. For C6, DL, and C6/C5 envelopes, the bottom edge of the window should be 15 mm from the bottom edge of the envelope. For C4 envelopes, the top edge of the window should be either 27 or 45 mm from the top edge of the envelope.

Keyboard Shortcuts

Shortcut	Action
Arrow keys	Move objects with grid size increments.
Ctrl - arrow key	Use to scale table cells or images with current grid size increments.
cell editing mode	
Ctrl-A	Selects all objects in the Template window if nothing is selected, or selects all text in an active table cell.
Ctrl-C	Copy selected text.
Ctrl-V	Paste clipboard text starting from the current cursor position.
Ctrl-X	Cut highlighted text.
Ctrl-I	Change selected text style to *Italic*.
Ctrl-B	Change selected text style to **Bold**.
Ctrl-U	Change selected text style to Underline.
Ctrl-K	Hyperlink selected text (opens hyperlink editing dialog).

Netscape or Mozilla users may experience the lack of a movable cursor allowing them to select text from the keyboard in cell editing mode. Press the **F7** button to turn the edit cursor (caret browsing) on and off.

Users with a small screen resolution may enjoy the benefits of their browser's full-screen mode. Simply press the **F11** button to switch your Mozilla, Netscape or IE into full-screen mode.

Services

Services in PortaBilling define the naming and billing parameters of the physical services you offer to customers. Each service is associated with a particular service type (which defines what the customer is actually doing – making a phone call, sending a message, using WiFi, etc.). Services allows you to specify which parameters are used to calculate charges and, finally, what the rates for each service are.

For your convenience, PortaBilling now provides a set of pre-defined services with all the required parameters. You can easily change an

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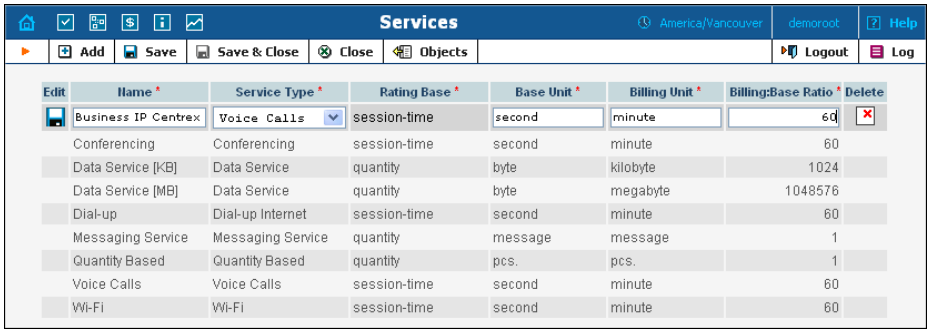
existing service name to make it more descriptive for your administrators and customers; or you can define new services.

Add/Edit Services Online

Click the **Add** button to add a new service. Services you create can be edited later by clicking the **Edit** icon. Standard PortaBilling services cannot be changed, and are shown in gray. Press the **Save** button to save your work when done.



Edit	Name *	Service Type *	Rating Base *	Base Unit *	Billing Unit *	Billing:Base Ratio *	Delete
	Business IP Centrex	Voice Calls	session-time	second	minute	60	
	Conferencing	Conferencing	session-time	second	minute	60	
	Data Service [KB]	Data Service	quantity	byte	kilobyte	1024	
	Data Service [MB]	Data Service	quantity	byte	megabyte	1048576	
	Dial-up	Dial-up Internet	session-time	second	minute	60	
	Messaging Service	Messaging Service	quantity	message	message	1	
	Quantity Based	Quantity Based	quantity	pcs.	pcs.	1	
	Voice Calls	Voice Calls	session-time	second	minute	60	
	Wi-Fi	Wi-Fi	session-time	second	minute	60	

Column	Description
Name	Service type name (currently this is the only column which can be changed by the user).
Service Type	Choose the service type (physical service) supplied to the customer. See below for a description of the available service types.
Rating Base	Specification of which particular parameter is used to calculate charges, e.g. "session time", "amount of data transferred" and the like.
Base Unit	Abbreviation for units in which service use is measured (your network nodes will report values to billing in these units).
Billing Unit	Abbreviation for units used to calculate service charges. You will use these units to specify your rates, and usage details in xDRs will be shown in these units.
Billing:Base Ratio	If billing units are different from base units, this parameter defines how many base units make up one billing unit (for instance, 1024 bytes makes 1 kilobyte). This parameter is extremely important, as it affects calculations in all xDRs for this service. If you decide to deploy a new service with a different ratio between units (e.g. 1 kilobyte equaling 1000 bytes), a new service type must be created before you attempt to do any further configuration.

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Supported Service Types

Once installed, PortaBilling supports the service types shown in the table below. The Rating Base column refers to the applicable rating base options. S ("session-based") means that the service type is charged based on the duration of its use, while Q ("quantity-based") means that some other numerical parameter supplied by the network node is used, e.g. the amount of data transferred.

Name	Rating Base	Description
Conferencing	S	Rating conference calls via PortaBridge (or some other conferencing server).
Data Service	Q	Data transfers rated using the amount transferred as the billing parameter.
Dialup Internet	S	Dialup Internet access sessions, rated based on session duration.
Internet Access	S	Internet access sessions (DSL, PPPoE, etc.), rated based on session duration.
Messaging Service	Q	Rating messages (text, SMS, MMS, other) based on the number of messages sent.
Quantity-Based	Q	Generic quantity-based service type; can be used to apply charges for any service use expressible in numerical form (e.g. the number of pizzas ordered).
Session-Based	S	Generic time-based service type; it can be used to apply charges for any service use based on the length of time the service was accessed.
Voice Calls	S	Rating telephony calls (incoming or outgoing) made via PortaSIP, VoIP gateways or other equipment.
Wi-Fi	S	Wireless Internet access sessions, rated based on session duration.

Destinations

Destinations are a list of all possible phone number prefixes to be used in your system, which will later be used in creating price lists (Tariffs). For convenience, destinations are grouped in alphabetical order by country.

In the case of a non-telephony service (e.g. video-on-demand), destinations define various service categories (e.g. VIDEO-NEWRELEASE and VIDEO-FOREIGN), and so a different rating may be defined. For some services (e.g. WiFi access) you would only need one destination for the whole service, since there is no further differentiation.

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Destinations may be edited and, if a destination is not being used in any tariff, it will also have a Delete button. Of course, it is not necessary to include every destination in a given price list; only enter the prefixes (destinations) used by this particular vendor or customer.

PortaBilling can support different numbering plans, but it is highly recommended to keep all of your destinations in the E.164 numbering space. The Destinations table contains the valid E.164 prefixes. Different standardization and governmental bodies control the E.164 numbering space, and some private numbering spaces also exist.

Click here to view the Official ITU Dialing Procedures document (PDF)

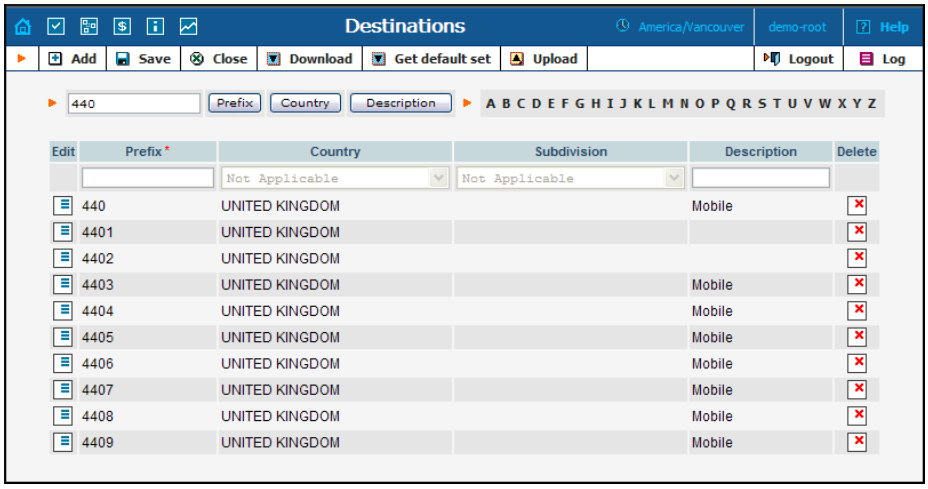
PortaBilling is supplied with a file containing a basic set of destinations. It covers all countries of the world and some of the major destinations in each country, linking prefix information to:

- country (if applicable)
- subdivision (if applicable)
- description

Of course, you can edit the supplied destinations list according to your needs. Also, you can always add more destinations later, if needed.

Add/Edit Destinations Online

To add new destinations, click the **Add** button. The **Save New** icon will appear on the Destinations form. Enter the prefix and choose a country from the drop-down list. After selecting the country, the subdivision field will be refreshed. Choose a subdivision if necessary. Click the **Save New** icon to save the new destination.



To edit an existing destination, enter a prefix, country or description (i.e. proper, mobile, etc.) in the search field and click the corresponding

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button. You can also select a country alphabetically from the top right-hand part of the interface. Choose the destination you wish to edit from the list by clicking the **Edit** icon. The content of the row will be copied into the Destinations form above, and the **Save Edit** icon will appear in the first column. Choose Subdivision from the refreshed drop-down list and type in the Description, if any. Save your work by clicking the **Save Edit** icon.

Destination Access Levels

User Type	Access Description
Root, or if ACL includes **Use country code during upload**	Full access
ACL which allows read/write operations on Destinations, e.g. **Admin**	Can perform all types of operations with destinations *except* for manually specifying a country during upload. If Admin uploads a new destination, the system chooses the appropriate country automatically, using the longest match from the available destinations.
all other types	Read-only

Destination Upload/Download Procedures

Upload

The CSV file header contains the following fields: Action, Prefix, iso_3166_1_a2, Description.

Field	Description
Action	Add or delete; encoded as "+" and "–" or "add" and "remove". **Note:** Only unused destinations that do not appear in the Rates table can be deleted. If the action is "+" and the prefix is already in Destinations, then the update action will be performed.
Prefix	Value to be stored in Destinations.
Two-letter ISO Country Code	Value to be stored in Destinations.iso_3166_1_a2. **Note:** *Ignored* if the uploader is not Root or does not have "Use country code during upload" in his ACL; in this case, the system chooses the appropriate country automatically, using the longest match from the available destinations. If the Country property is not applicable, then the value must be encoded as N/A. If the field is empty and the uploader's access

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	level is Root, then the system chooses the appropriate country automatically, using the longest match from the available destinations.
Description	Value to be stored in Destinations.

Download

The CSV file header contains the following fields: Action, Prefix, Country Code (iso_3166_1_a2), Description.

Field	Description
Action	Add or delete, encoded as "+".
Prefix	Missing prefix
All other fields	Empty

NOTE: For tariff uploads, new destinations will be e-mailed as a CVS attachment in an error report using the Destinations Upload format: Action, Prefix, Country Code (iso_3166_1_a2), Description.

Uploading Destinations

The system is supplied with a predefined set of countries and the most common destinations for those countries. If required, new countries may be inserted into the database manually. When uploading new destinations, a super user can specify the country using its ISO country code. If empty, the system tries to find a country via existing destinations.

For example, if "16045" is uploaded, the system finds that "1604" is already in the database as "Canada". If it is not possible to find the country in this way, or if the country is "N/A", the destination will not be imported. An uploaded file with such a destination will be sent back for correction in a format suitable for upload.

ISO 3166-1 Country Codes

For more information on this standard, visit the **ISO 3166 Maintenance Agency website**.

The complete title of ISO 3166-1 is "Codes for the representation of names of countries and their subdivisions".

Country Codes

- ISO 3166-1 gives coded representations of more than 230 names of countries or areas dependent on a country.
- ISO 3166-1 contains a two-letter code (Alpha-2-code), a three-letter code (Alpha-3-code) and a three-digit numeric code, (Numeric-3-code) for every entry in its list of country names.

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ISO 3166-1 does *not* code:

- Names of languages (e.g. Gaelic)
- Names of nations or peoples (e.g. Dutch)
- Names of groups of countries (e.g. Scandinavia)
- Names of continents (e.g. Asia)
- Names of organizations (e.g. OAS, NAFTA, WHO)
- Top-level Internet domains

Applications

ISO 3166-1 codes are used in many applications in all branches of industry, trade and statistics worldwide. One example of their use are the "code elements from ISO 4217" codes for currencies and funds, which are based on the ISO 3166-1 Alpha-2-Code (e.g. USD for US Dollars, where US comes from ISO 3166-1).

ISO 3166-2 Country Subdivision Codes

ISO 3166-2 "Country Subdivision Codes" establishes a code for the names of principal administrative subdivisions within countries coded in ISO 3166-1. ISO 3166-2 was published on December 15, 1998.
The code elements used consist of the Alpha-2 code element from ISO 3166-1 followed by a separator and a further string of up to three alphanumeric characters.

The names of the subdivisions are given in more than one language if the country has more than one official language (and if the alternative language versions were available to ISO). In Uzbekistan, for example, there are two official languages, Uzbek (uz) and Russian (ru), so the subdivision names are also listed in these two languages. The Romanization systems used to convert the country subdivision list from non-Roman to Roman script (e.g. from Cyrillic, in the case of Uzbekistan) are also given. The abbreviations and language codes (ISO 639) used in the header preceding the subdivision list for each country are explained in annexes to the standard.

Destination Group Sets

Very often a logical destination (e.g. Czech Republic – Mobile) will consist of multiple prefixes (420601, 420602, 420604, 420732 and so on). It would be quite inconvenient to repeat the same "create a new rate" operation for every individual prefix, since all of the price parameters are the same. Thus you could create a destination group "CZ-Mobile" and then perform "create a new rate" only once, with the rates for all of the prefixes being created automatically. However, since different carriers might include different prefixes in the "Czech Republic – Mobile"

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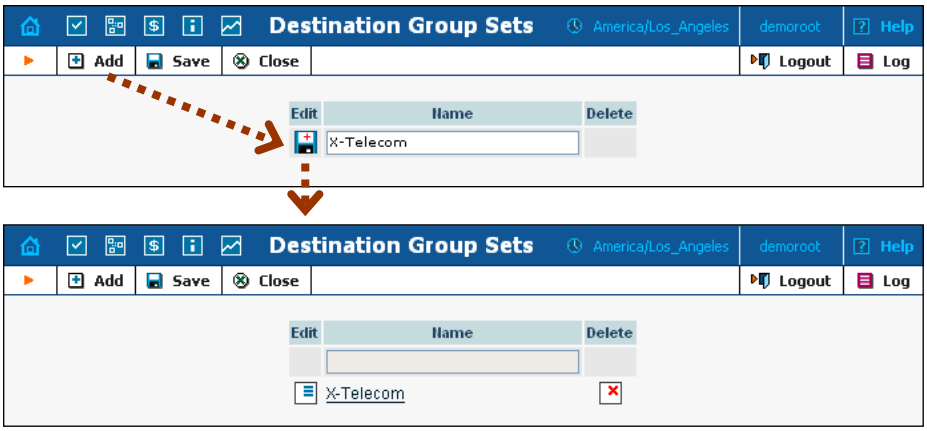
category, we need to be able to maintain different sets of destination groups.

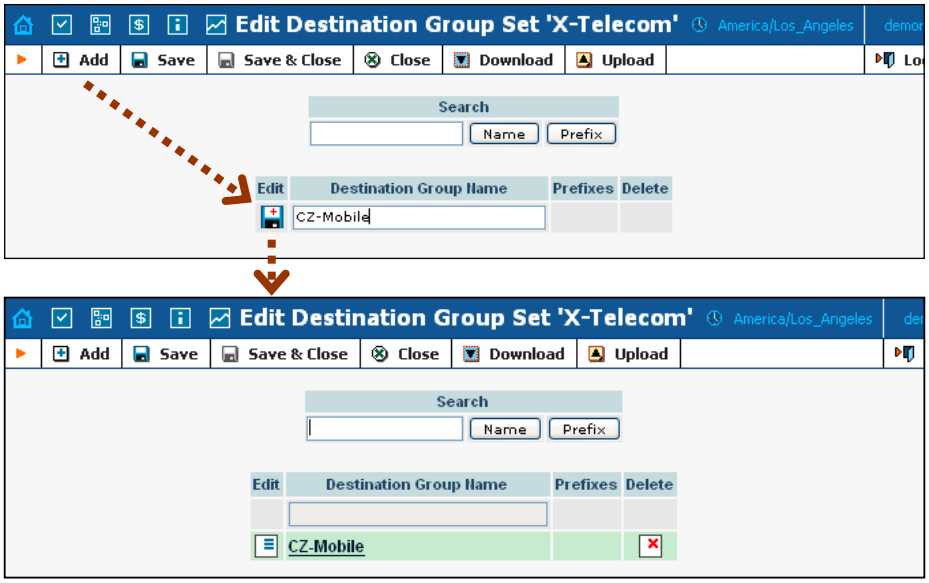
Creating a New Destination Group Set

To add a new destination group set, click the **Add** button. The **Save New** icon will appear next to the name.



After the destination group set has been saved, click on the hyperlinked name to manage the destination groups included in this set.

Creating a Destination Group



Column	Description
Destination Group Name	Convenient short name for the destination group, e.g. **UK-Mobile**. This will be used to enter new rates for this group of destinations.

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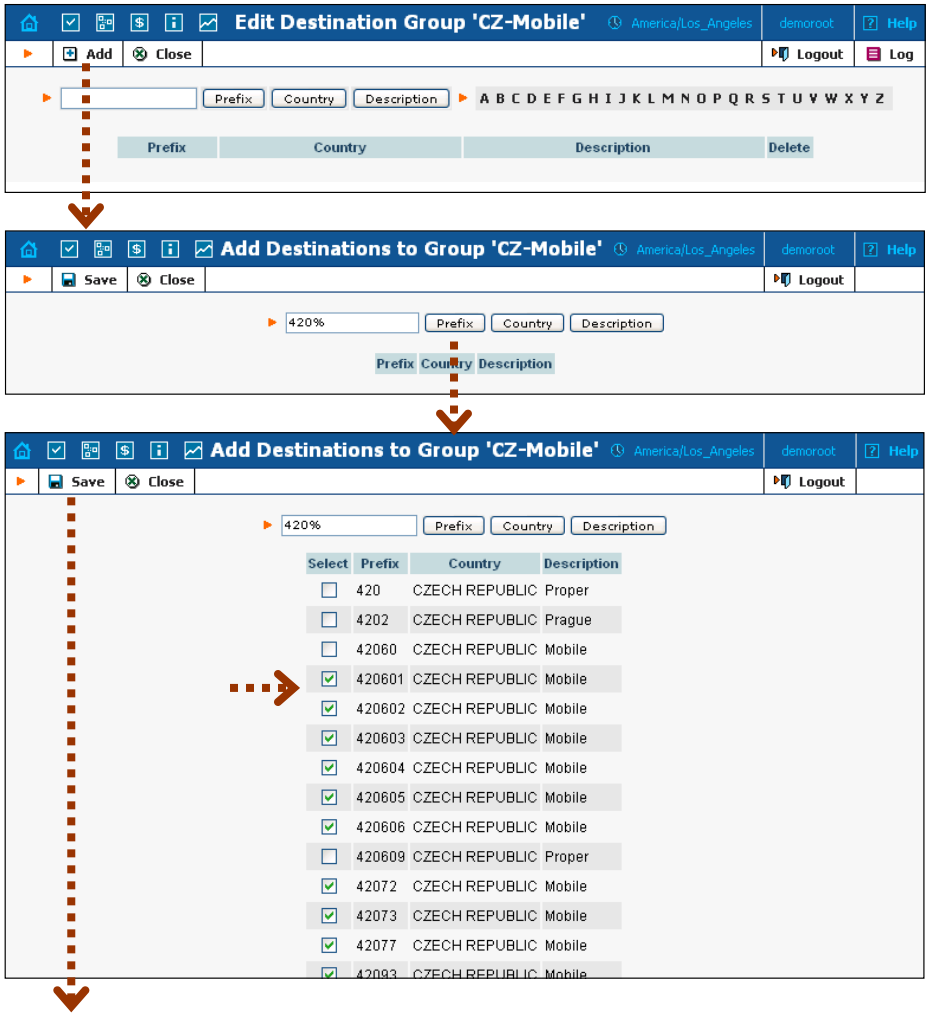
Prefixes	List of prefixes included in this group. For a destination group with many prefixes, only the first few will be displayed. Click on **Destination Group Name** to see a complete list of destinations belonging to this group.

Managing Destinations (Prefixes) within a Group

Click on the hyperlinked destination group name to edit its contents. Click on **Add** to add more prefixes to the destination group.



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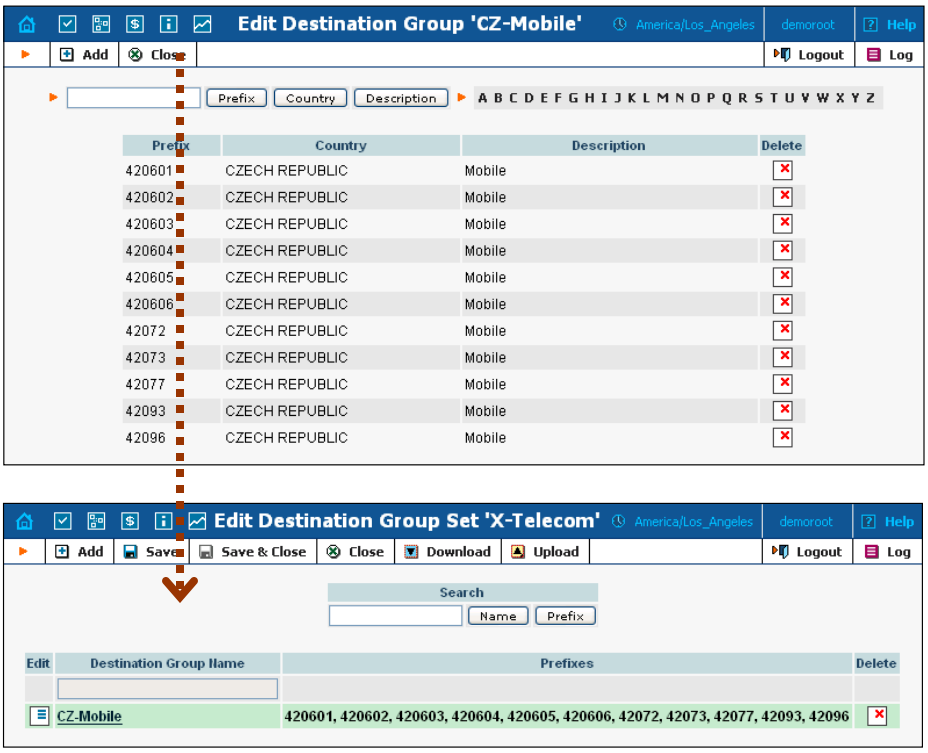

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3. Networking

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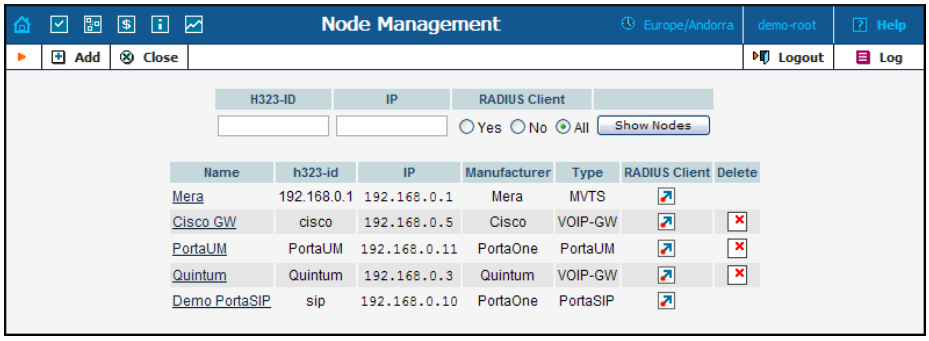
Nodes

The Node Management screen enables registration, removal and maintenance of the gateway list. Nodes are gateways which provide accounting records to PortaBilling or exchange authentication/ authorization requests with it. On this screen the user is provided with a list of all nodes currently registered.

The search form at the top of the screen allows filtration by any combination of H.323 ID, IP address and/or whether or not the node is a Radius client. Providing any of this information and selecting **Show Nodes** will refresh the Node listing according to the new filtration criteria.



To add a new node to the system, click **Add** in the toolbar. The following information is provided within the listing:

Column	Description
Name	Logical name of the node. This is also a link to the edit screen for the given node.
h323-id	Registered H.323 ID of the node.
IP	IP address of the node.
Manufacturer	Choose "Cisco", "Quintum", "PortaOne" or another from the drop-down list, depending on the manufacturer of the equipment.
Type	Select what role the node plays in the network from the drop-down list. The options are as follows (according to Cisco naming conventions): • `VOIP-GW`: the node functions as a gateway • `H323-GW`: the node is an H.323 proxy • `H323-GK`: the node is an H.323 gatekeeper • PortaSIP: PortaSIP server • PortaUM: PortaUM server

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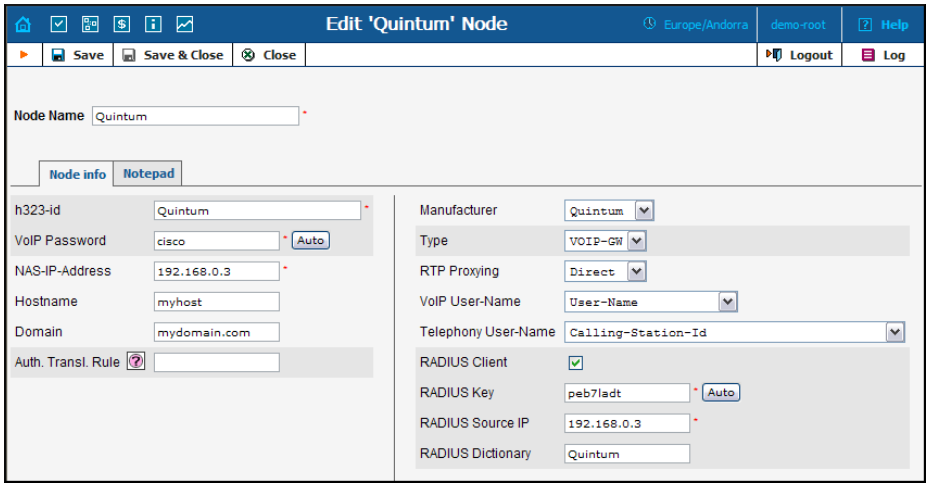
	• MVTS: Mera Networks VoIP Softswitch

Add/Edit Node



In order to register a new node in PortaBilling or edit an existing one, the following information must be provided:

Field	Description
Node Name	The logical name of the node for use within PortaBilling
Node ID	Node identifier used by the terminating node within your network of trusted nodes in order to identify the originating gateway which is attempting to send a call. Enter the ID used for this node. The default behavior is to authenticate a node by its IP address; however, this may be changed if you use your own custom application to handle incoming VoIP calls. This field is available only if "Node ID" is enabled in advanced features. If you are not sure what value to choose, enter **the same value as in the NAS-IP-Address**.
H323-ID	For a VoIP node, the H.323 ID is equivalent to a hostname for an internet server (e.g. `mail1.cyberdyne.com`), namely, a descriptive, human-readable name used for identification purposes. Make sure the value you enter here matches the "hostname" parameter configured on the gateway, since that value is returned from this node in the `h323-gw-id` attribute, and the ability to match these values with data in billing significantly simplifies troubleshooting.
VoIP Password	The password which will be used for remote IP authentication of calls originated on this node. If you

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	are using the Cisco default app_remote_ip_authenticate, enter **cisco** here.
NAS-IP-Address	The IP address of the node.
Hostname	The internet hostname (without the domain).
Domain	The internet domain which the node is operating in.
Auth. Transl. Rule	The authentication translation rule used to transform a dialed phone number into the E.164 format used in PortaBilling. Node translation rules have become obsolete with the introduction of customer-based translation rules.
Manufacturer	Choose "Cisco", "Quintum", "PortaOne" or another from the drop-down list, depending on the manufacturer of the equipment.
Type	Select what role the node plays in the network from the drop-down list. The options are as follows (according to Cisco naming conventions): • `VOIP-GW:` the node functions as a gateway • `H323-GW:` the node is an H.323 proxy • `H323-GK:` the node is an H.323 gatekeeper • `PortaSIP:` PortaSIP server • `PortaUM:` PortaUM server • `MVTS:` Mera Networks VoIP Softswitch Note that only types applicable to the chosen manufacturer will be shown.
RTP Proxying	Describes the NAT traversal capabilities of this node: • Direct - RTP stream should be send directly to this node; RTP proxy should not be used. • Optimal - this node is capable of NAT traversal; no RTP proxying is required unless specifically requested. • OnNat - this node is not capable of NAT traversal; engage RTP proxy if the other party is behind the NAT. • Always – when sending a call to this node, always engage RTP proxy, so that no direct media stream goes to it.
VoIP User-Name	Defines which parameters (e.g. ANI, IP, DNIS, etc.) should be used to identify which account the call should be billed to. This applies to calls that arrived to this node from the IP network (values taken from the answer/VoIP call leg). Note that this parameter is only applicable to Quintum gateways.
Telephony User-Name	Defines which parameters (e.g. ANI, port ID, DNIS, etc.) should be used to identify which account the call

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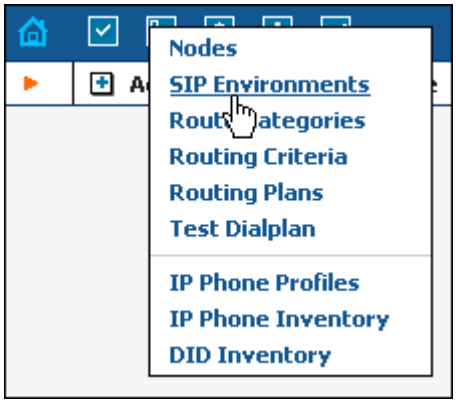
	should be billed to. This applies to calls that arrived to this node from PSTN (values taken from the answer/Telephony call leg). Note that this parameter is only applicable to Quintum gateways.
Radius Client	Check this box if the node will provide accounting records to the Radius server.
Radius Key	This input will be available only if the node has been designated as a Radius client. This is the authentication key for all Radius interactions. An easy-to-remember password may be generated automatically by selecting the **Auto** button.
Radius Source IP	More than one interface can be present on the node; specify the IP address of the one that communicates with the Radius server.

SIP Environments

The **SIP Environments** page allows administrators to create and edit virtual PortaSIP instances on the SIP server using the web interface. On a single PortaSIP installation (one physical server, one license) you can run multiple virtual PortaSIP instances that can be used in a PortaBilling100 virtual environment.

The SIP Environments page can be accessed using the **Networking** drop-down menu.

NOTE: SIP Environments is only available to superusers (for more details, see the Superusers section).



To add a new PortaSIP instance, click **Add** in the toolbar, fill in the required information, then click the **Create** button.

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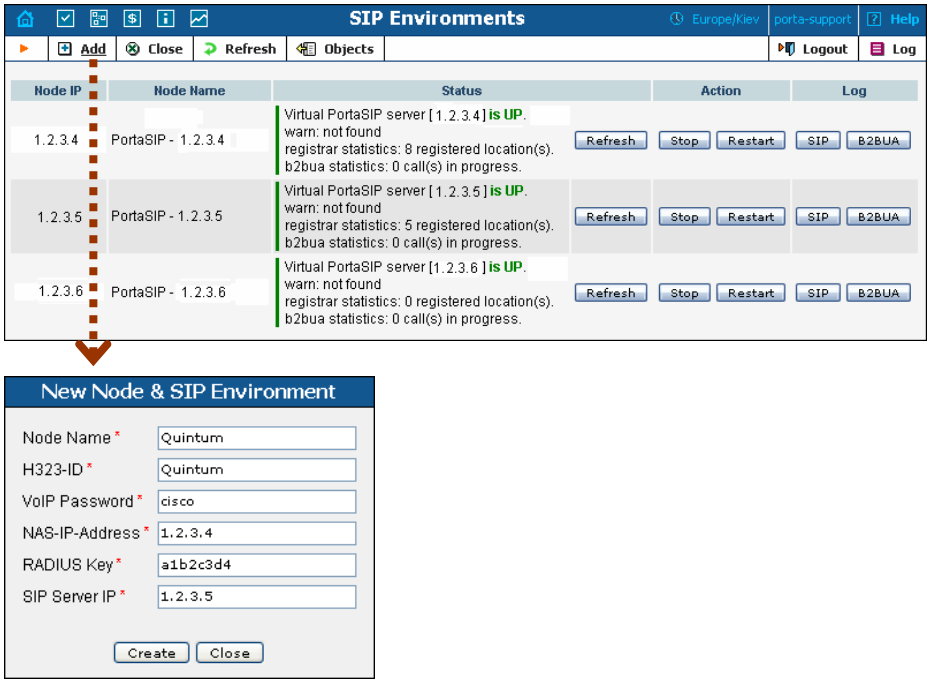

Field	Description
Node Name	The logical name of the node for use within PortaBilling.
H323-ID	For a VoIP node, the H.323 ID is equivalent to the hostname for an internet server (e.g. `mail1.cyberdyne.com`), i.e. a descriptive, human-readable name used for identification purposes.
VoIP Password	The password to be used for remote IP authentication of calls originated on this node.
Nas-IP-Address	IP address of the node.
RADIUS Key	The authentication key for all Radius interactions.
SIP Server IP	IP of the SIP server

To create a new SIP instance on the SIP server side, you must provide an additional unique IP address (IP alias), since a gateway (node) may be registered to only one environment. You cannot have a node with the same IP address in two different environments.

Route Categories

This screen allows you to define new categories into which you can divide your available routes. To create a new category, select **Add** from the toolbar.

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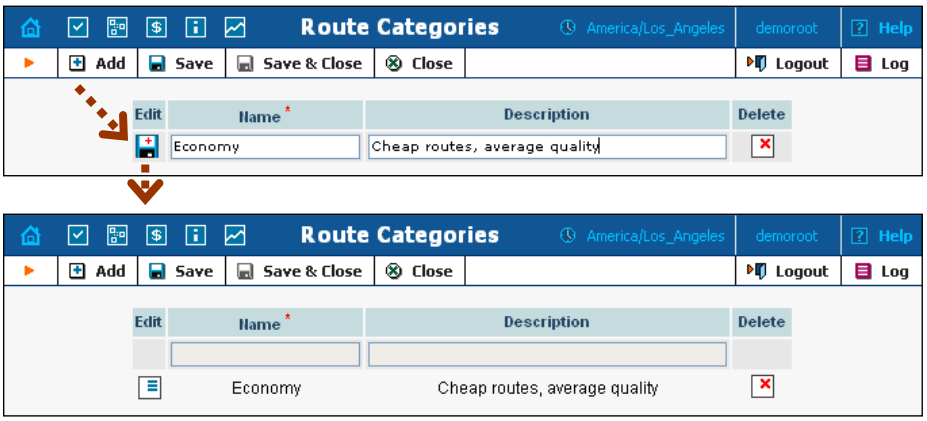


Column	Description
Name	Name of the route category. This is the name you will see in the select menu when assigning a route category for the rate.
Description	A description of this route category.

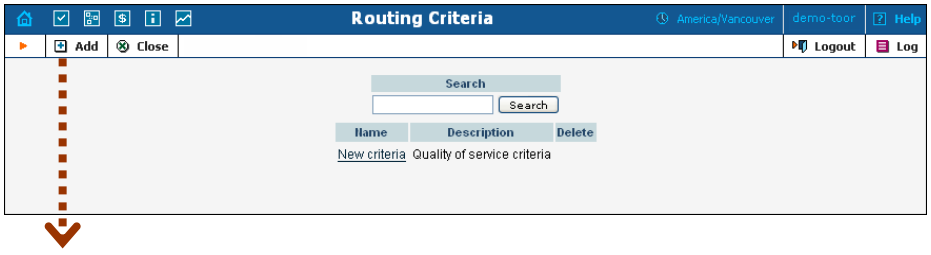
If you do not wish to define any custom route categories, the **Default** route category is always available.

Routing Criteria

This screen allows you to predefine the quality requirements to be applied to your vendors. PortaBilling will continually measure the quality parameters and adjust the routing if these fall below the specified thresholds. 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 first try to terminate calls using other carriers (with a good quality rating). However, if all of them fail or are unavailable, the "penalized" carrier will have a chance to terminate the call. For more information about adaptive routing, see the **PortaBilling Administrator Guide**.

Add/Edit Routing Criteria

To add new routing criterion, click **Add** in the toolbar. An existing routing criterion can be edited by clicking on its name in the list.



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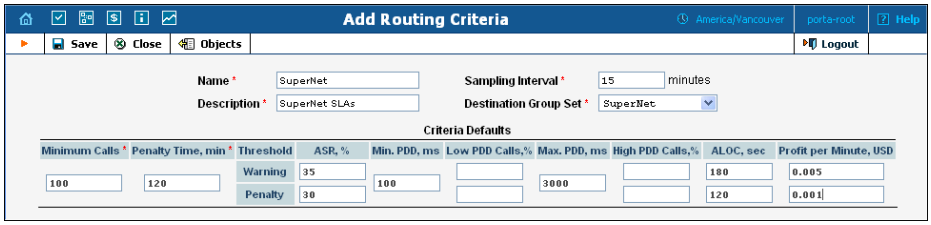

Field	Description
Name	The logical name of the routing criterion for use within PortaBilling.
Description	A description of the routing criteria.
Sampling Interval	Quality measurements will be computed for all calls within this interval. Smaller intervals will make the system "quicker" to notice any change 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 destination group set; you can define routing criteria for individual groups in this set.

Using the **Criteria Defaults** table, specify the initial default values to be applied to routing criteria for specific destinations which you will create later on.

Field	Description
Minimum Calls	The minimum required amount of calls via a given connection within the sampling interval in order 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" (put at the very bottom of the routing list) if a given vendor does not meet the quality criteria.
The following threshold parameters require two values that define the warning and penalty thresholds, respectively. The warning threshold specifies when an alert will be sent to the administrator (but no changes in the routing will be done). The penalty threshold defines when the route should be penalized if the quality statistics are outside the threshold value.	
ASR	Average Success Rate: the number of successfully connected calls divided by the total number of call attempts.
Min PDD, ms	Defines the minimum acceptable PDD (Post-Dial Delay), i.e. the time interval between the moment a

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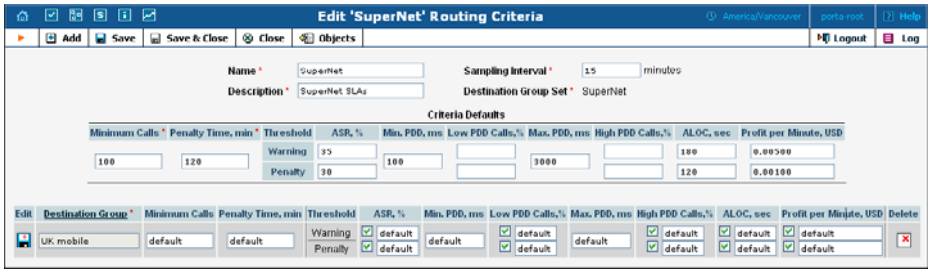
	connection request is sent to the vendor and the moment ring-back is received. Too low a PDD is suspicious, and in this case the vendor is probably doing "false ringing" to hide the long time it actually takes him to route the call.
Low PDD calls, %	Maximum acceptable percentage of calls with a PDD below the specified value.
Max PDD, ms	Defines the maximum acceptable PDD. Too high a PDD has a strong negative impact on your business, since during the delay time the end-user hears only silence, and generally assumes that there is a problem with the service.
High PDD calls, %	Maximum acceptable percentage of calls with a PDD above the specified value.
ALOC, sec	Average Length of Call
Profit per Minute	Profit per Minute (expressed in the monetary units of your base currency): the aggregated profit, i.e. the difference between the actual charged amounts in your customers' and vendors' CDRs.

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

Defining Routing Criteria for Individual Destination Groups

After the **Criteria Defaults** settings have been saved, 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.



Click the **Destination Groups** column header link to choose one of the groups defined in the **Destination Group Set** from a searchable list inside the pop-up window.

When adding new criteria – all the fields are initially "default" – the values you have defined as **Criteria Defaults** will be used. This allows you to quickly define criteria for multiple destination groups with minimum effort. If you wish to override the default value, simply enter a new value

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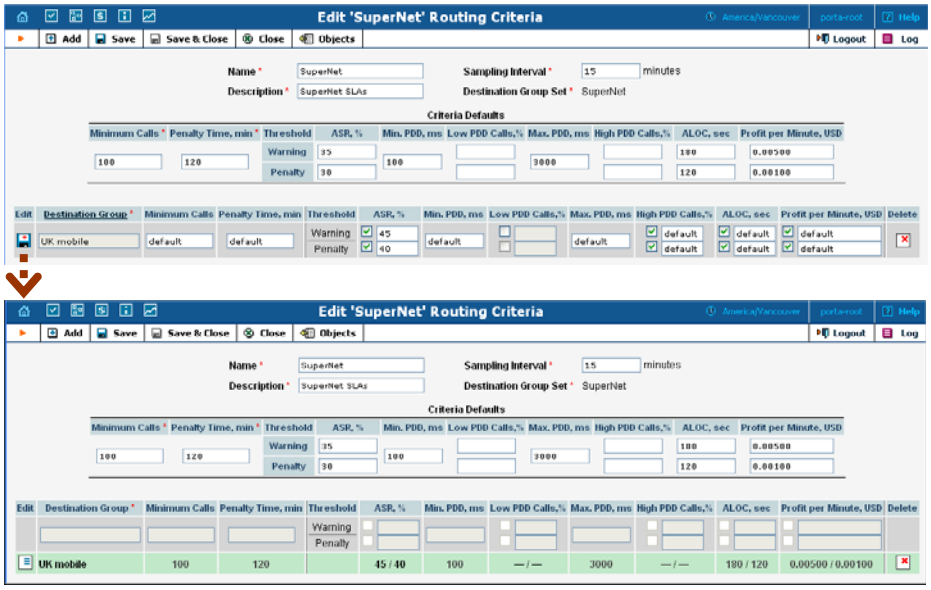
in the field. If you wish to exclude a certain quality metric from the criteria (e.g. **Low PDD Calls**, in the example below), de-select the checkbox next to it.



When the criteria have been saved, the quality parameters are presented as follows:

- Parameter values, which override the default ones, are shown in black;
- Default values applying to these criteria are shown in grey
- For quality metrics that are switched off, dashes (--) are displayed instead of values.

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. Moreover, 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.

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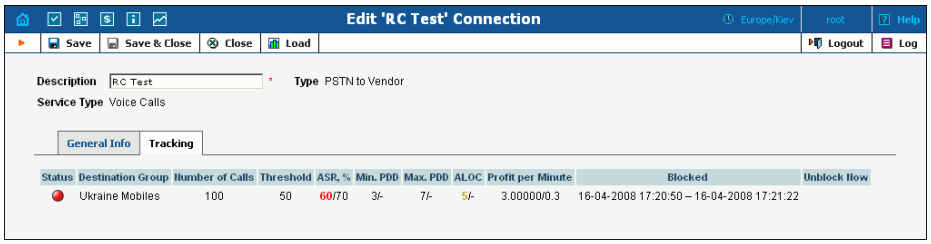
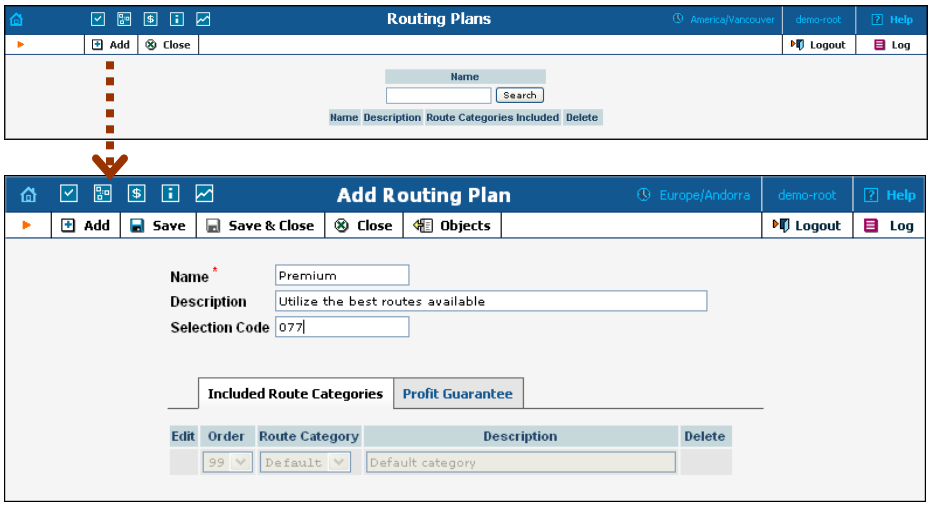
Alternately, you can click the **Unblock Now** button to unblock the penalized route manually.

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



Routing Plans

A routing plan is a combination of route categories in a specific order. It defines which categories of vendors will be available for termination and in what sequence.



After a routing plan has been created, you can specify which route categories will be included in it. To add a new route category, select **Add** from the toolbar, then click the **Save New** icon to save this row.

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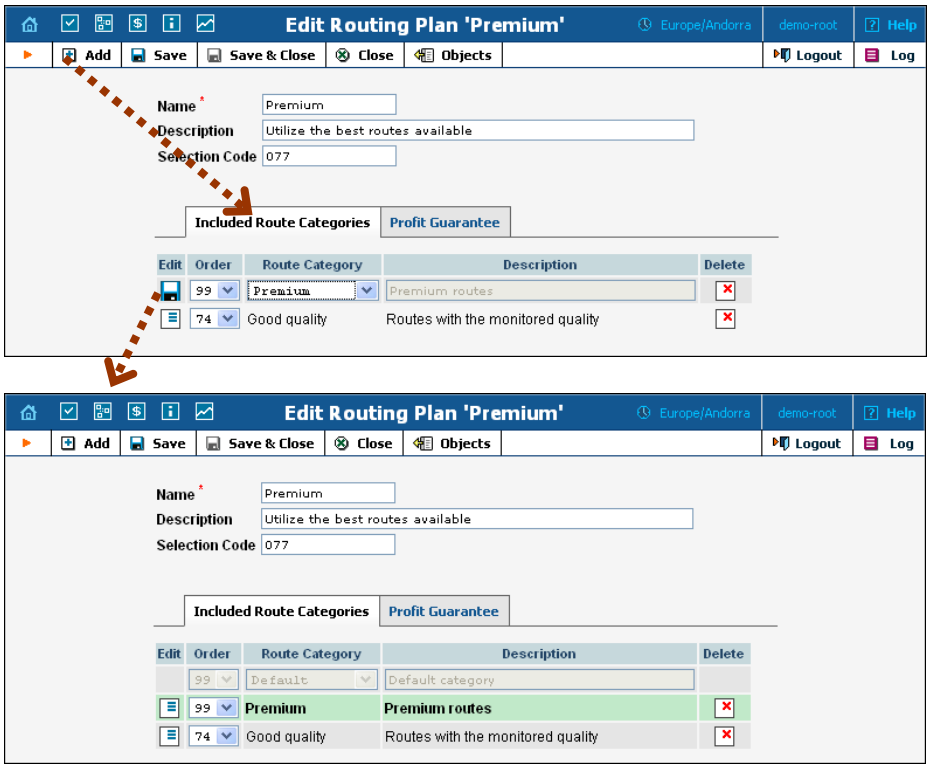
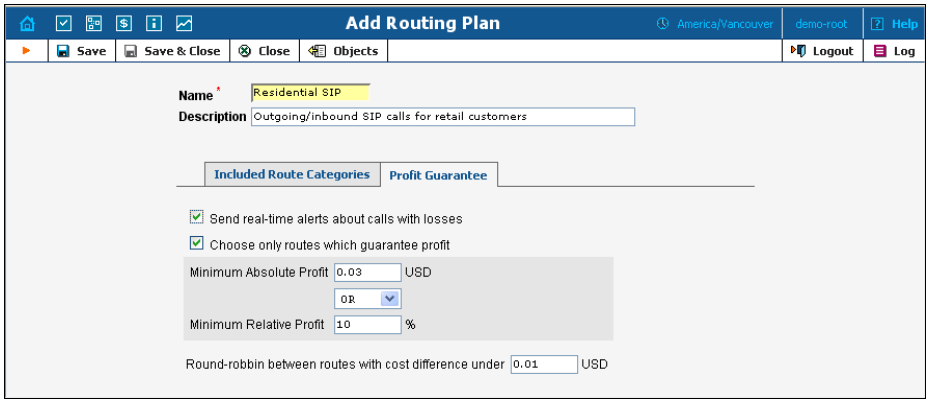


You can change the route category order by choosing an **Order** number. Remember that if a route category is not included in the routing plan, a customer with this routing plan will not have access to such routes. Click the **Save** icon to make your changes take effect.

Please note that a larger value in the **Order** column pushes the given route category towards the top of the routing list (i.e. 99 is the first route category which will be tried).

Profit Guarantee

On this tab you can specify how the system chooses routes for call termination, in order to maximize your profits.



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If you switch off the "profit guarantee" in PortaBilling, it is possible that your carrier will charge you more than you have charged your customer. (Sometimes these situations can arise even with "profit guarantee" switched on, e.g. when a random surcharge was not triggered, or if you charged your customer for just a few seconds, but were charged by a vendor for a full minute, due to different time rounding increments).

Please note that the **Profit Guarantee** functionality only calculates the approximate profit you could earn, by comparing the price per minute used to charge the customer with the termination cost of each vendor. In this latest release, a new **Adaptive Routing** feature has been introduced, including a **PPM** (Profit Per Minute) control parameter. PPM is based on statistics for already completed calls. It calculates the amounts actually charged by considering all special rating elements which are applied to calls, such as fixed and relative surcharges, rounding intervals, and so on. As a result, it provides accurate profit figures that will help you to maximize profits in the future. For information about how to set up the PPM control parameter, see the previous section, "Routing Criteria".

When the **Profit Guarantee** functionality is activated, "unsuccessful" vendors will be removed by the billing engine from the routing list during real-time route calculation. This differs from when you specify the **PPM** control parameter on the **Routing Criteria** page. The latter only moves problematic vendors to the "penalty box", i.e. the very bottom of the routing list. This ensures that the system will first try to terminate the call via other carriers (with good call quality). However, if they all fail or become unavailable, the "penalized" carrier will have a chance to terminate the call.

Field	Description
Send Real-time Alerts about Calls with Losses	Turn this option on in order to receive real-time email alerts whenever a customer (with this routing plan assigned) makes a call on which you lose money.
Choose Only Routes Which Guarantee Profit	When calculating a routing list for a customer with this routing plan, compare the price used to charge the customer with the termination cost of each vendor. If the vendor's costs are higher than the customer's rate, exclude the vendor from the list (see note below).
Minimum Absolute Profit	Allows you to create a more aggressive profit guarantee route selection: the vendor's cost per minute must be lower than the customer's rate by at least the amount specified. (Amounts are specified in your base currency).
Minimum Relative Profit	In some cases, specifying the amount of profit per minute does not yield the desired results, e.g. for risky

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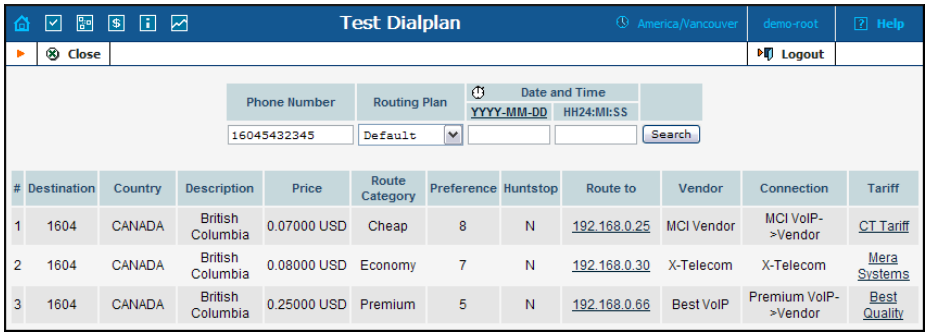
	destinations such as Somalia you would like to get at least $0.10 per minute, yet $0.10 on calls to the US is simply not feasible, since you charge your customers only $0.05/minute. In this case, you can use a relative threshold, so that for expensive destinations the profit must be high, while for low-cost destinations a small profit is acceptable.
Combination of Absolute and Relative Profit Parameters	You can specify that a route must satisfy both conditions, i.e. both absolute and relative profit, or at least one.
Round-robin between Routes with Cost Difference under	If you would like to share the load among several carriers where the difference in cost is insignificant (e.g. carrier A charges you $0.023 and carrier B $0.025), specify the maximum allowed threshold for two carriers to be granted the same priority in LCR.

PortaBilling allows at least two different price per minute values for rating (potentially, you can have an unlimited set of different prices applied within the same call when you use a rating formula). For comparison purposes, however, only one specific value should be used. PortaBilling uses the value of the **Price_Next** parameter for profit guarantee calculations. In order for the profit guarantee to work properly when you use rate formulas to charge your customers, make sure that you populate **Price_Next** in the customer's rates with a meaningful value.

Test Dialplan

This screen allows users to test a dialplan for a specific telephone number or certain destinations at any moment in time.



#	Destination	Country	Description	Price	Route Category	Preference	Huntstop	Route to	Vendor	Connection	Tariff
1	1604	CANADA	British Columbia	0.07000 USD	Cheap	8	N	192.168.0.25	MCI Vendor	MCI VoIP->Vendor	CT Tariff
2	1604	CANADA	British Columbia	0.08000 USD	Economy	7	N	192.168.0.30	X-Telecom	X-Telecom	Mera Systems
3	1604	CANADA	British Columbia	0.25000 USD	Premium	5	N	192.168.0.66	Best VoIP	Premium VoIP->Vendor	Best Quality

To test a dialplan, type a number in the Phone Number field. The search can be performed in real time: select the stopwatch icon or click the date input format link to set a date using the pop-up calendar.

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Column	Description
Ctrl#	Sequential number of this route.
Destination	Matching destination from the corresponding tariff.
Country	Country where the tested destination is located.
Description	Destination description.
Price	Next interval price for the given destination (per minute).
Route Category	Route category for this route. See the Route Categories section for more info.
Preference	Routing preference for this destination. See the Call Routing section of the PortaBilling User Guide for more info.
Huntstop	If one of the routes has huntstop enabled, then all routes with a lower preference will be ignored.
Route to	The node (or remote gateway IP) where the call will be routed. Click the link to open the connection screen.
Vendor	Call terminating vendor.
Connection	Description of the vendor connection.
Tariff	The tariff used to bill this call. Click the link to open the tariff screen.

IP Phone Profiles

IP phone profiles and the IP phone inventory allow service providers to reconfigure a large number of end-user devices before sending them to customers, as well as those already on a customer's premises. Instead of entering the same values for codec, server address and the like into each of a thousand user agents, you can simply create a profile which will describe all of these parameters. After that, PortaBilling automatically creates a configuration file for each user agent using account-specific parameters such as ID or password, which it will then fetch (for instance, from a TFTP server) and update.

If you decide later to change the address of the SIP server, you need only update it once in the profile in order for new configuration files to be built for each user agent. The user agents will then fetch them next time they go online. The config file is specific to each user agent since it contains information such as username and password, and so the user agent must fetch his own designated config file.

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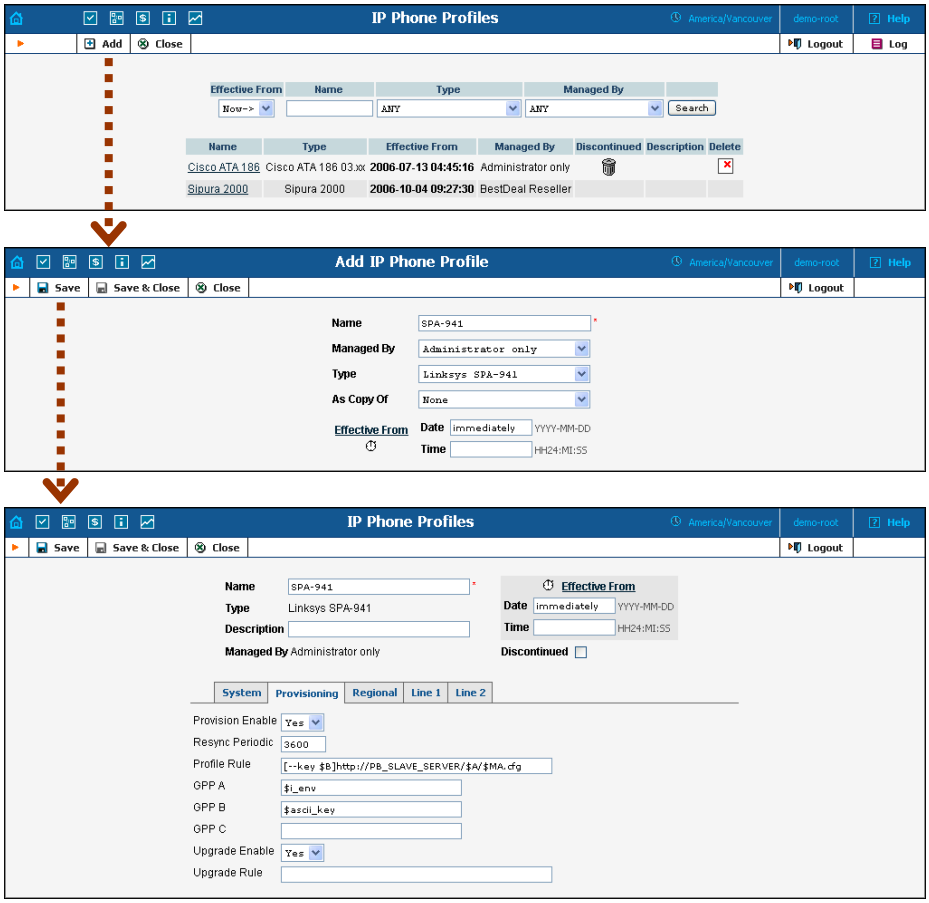

Profile list mode:

Column	Description
Name	Logical name of the profile.
Type	Telephone adaptor or SIP phone.
Effective From	Date and time when the profile becomes effective.
Managed By	**Administrator only** (default) means that this profile will be used for your direct customers and is accessible only to your administrators. Select a PortaBilling reseller to assign this profile for use by a particular reseller.
Discontinued	Indicates that the current profile is no longer in use.
Description	Short text description of the profile.
Delete	The delete icon is only visible when the current profile's effective date has not arrived yet.

Add Profile mode:

Column	Description
As copy of	Similar to templates; a user can create new profiles using previously created ones, so there is no need to re-enter a large amount of information.

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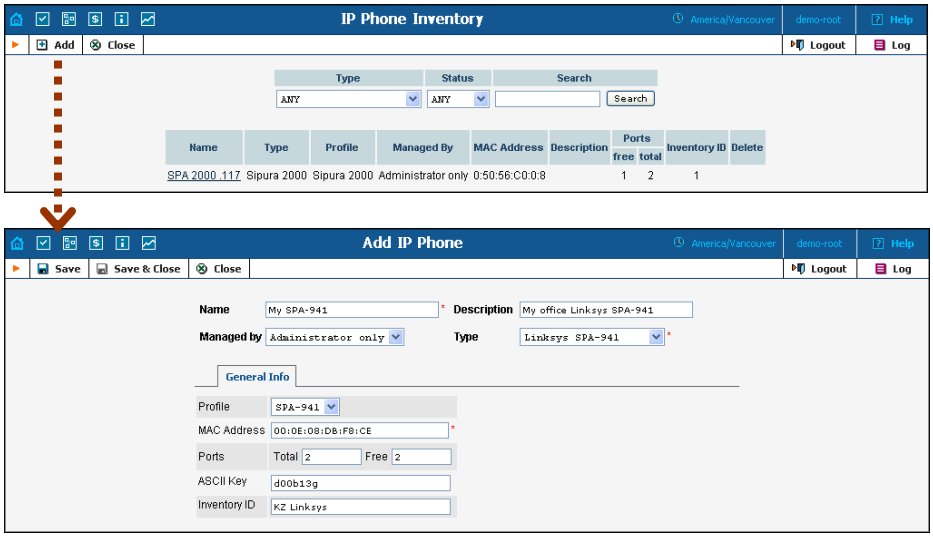
Effective From	Set the time when the profile is to become effective. Click the stopwatch icon for the profile to become effective immediately.

In Edit mode, the Profile Management screen will differ depending on the UA.

IP Phone Inventory

The IP phone inventory allows you to keep track of IP devices (SIP phones, SIP ATAs, etc.) which are distributed to your customers. You will assign a profile that defines general configuration settings for each device (preferred codecs, address of the SIP server, etc). You can then assign a specific account (basically representing a phone number) to a specific port (phone line) on the IP phone. PortaBilling will create a config file for auto-provisioning all of these devices, thus allowing you to easily manage thousands of user IP phones remotely.



Field	Description
Name	IP phone name.
Description	Short description.
Managed by	**Administrator only** (default) means that this IP device will be used for your direct customers and is accessible only to your administrators. Select a PortaBilling reseller to assign this IP device for use by a particular reseller.
Type	One of the available device types (e.g. Cisco ATA, Sipura, etc.).
Profile	Select one of the defined IP phone profiles.
MAC Address	MAC Address of the IP phone.

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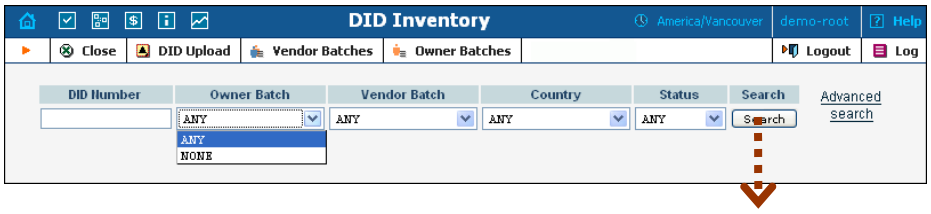
Ports	Number of the IP phone ports (phone lines).
ASCII Key	The key which is used to encrypt the configuration information.
Inventory ID	An ID which allows you to identify this device in the external system (e.g. your warehouse management application).

DID Inventory

DID inventory allows you to keep track of phone numbers (DIDs) that you purchase from various telco partners for distribution to your customers or resellers. In order to see the DID numbers currently available in the database, choose **DID Inventory** in the Management section of the admin interface, specify the search filters, and click **Search**. You can search for DIDs which:

- match a specific phone number pattern, e.g. enter `1800%` to find all 1-800 numbers;
- belong to a particular owner batch (to search for unallocated DIDs, choose **NONE**);
- belong to a specific vendor batch;
- are in use (there is an account using this DID) or are free (not used by any account).

Hint: Often a business will request a phone number that can be "spelled out" so customers can remember it easily (for instance 1-866-SIP-VOIP). You can search for such easy-to-remember phone numbers by entering the letter string in the **DID Number** field. For example, in order to search for all 1-800 numbers containing VOIP in them, enter `1800%VOIP`.



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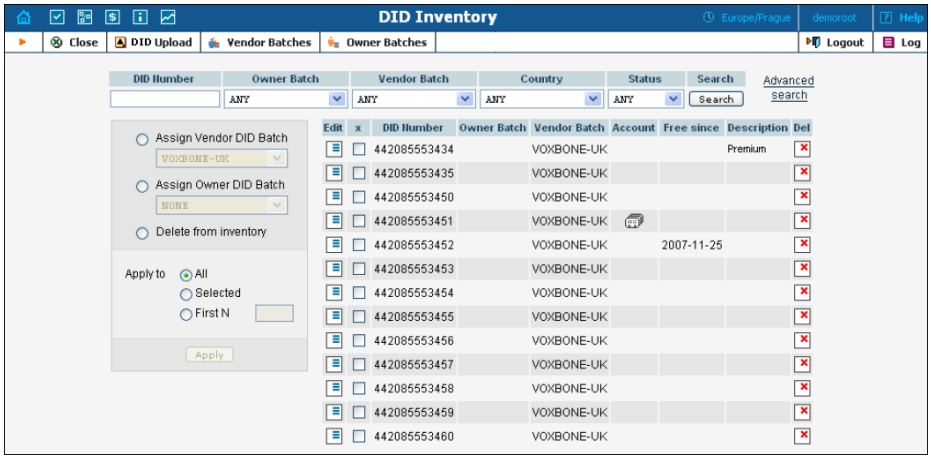
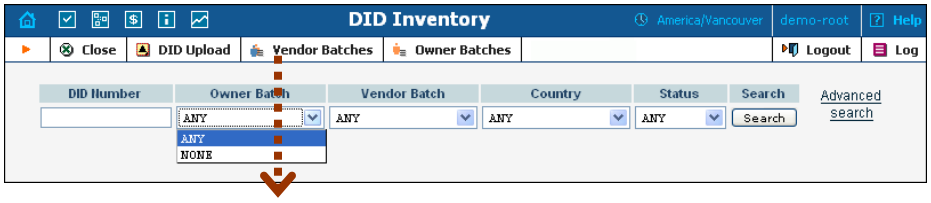


Column	Description
DID Number	Phone number.
Owner Batch	Name of owner batch this DID is assigned to (if empty, the DID is unallocated).
Vendor Batch	Name of vendor batch this DID belongs to.
Account	If the icon is shown in this column, this DID is currently being used by an account. Click on the icon to access the account information.
Free since	For DIDs used in the past but now available, the date when they became available is displayed.
Description	Comments about a particular DID number.

Vendor Batches

When you receive a set of phone numbers from a vendor, they will be registered in PortaBilling as a vendor DID batch. Vendor batches allow you to keep track of which phone numbers were purchased from which vendors. (Every number entered into the DID inventory must reside in a certain vendor batch). The vendor batch also contains various administration parameters, e.g. a description of which country and city these numbers are from.



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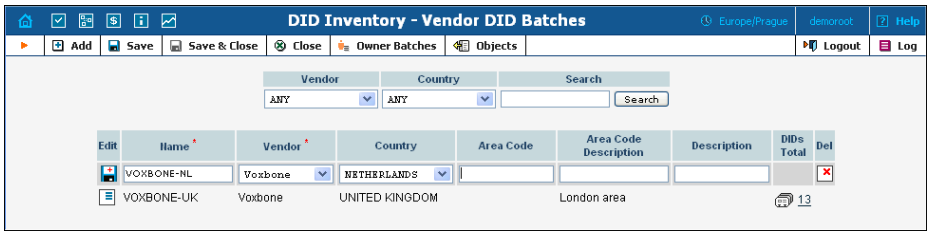
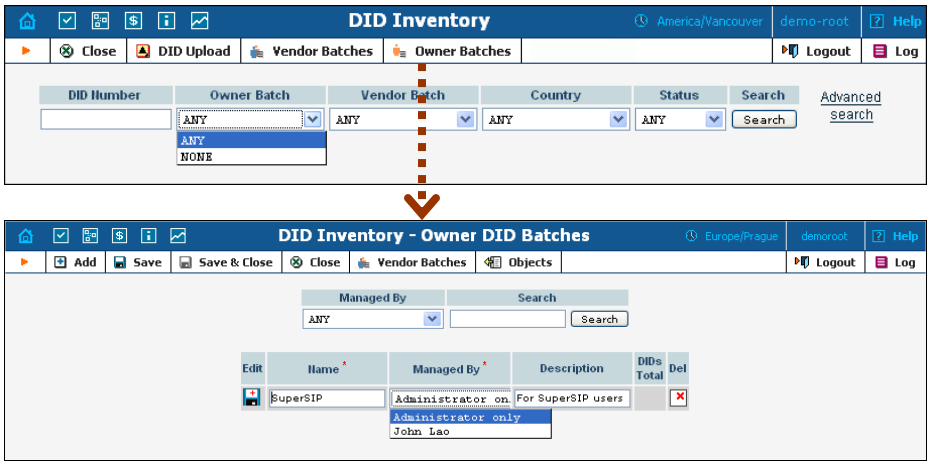


To add a new vendor batch, first select **Vendor Batches** in the toolbar, then click **Add** in the toolbar. The **Country**, **Area Code**, **Area Code Description**, and **Description** columns are optional, and serve only to simplify management of multiple batches. When you are done entering data, click the **Save New** icon to save this row.

Owner Batches

After the DIDs have been entered into the system, you can create owner batches and allocate some of the numbers to them. An owner batch contains numbers to be provided to an end-user by a particular reseller or your administrators. The purpose of owner batches is to keep track of how numbers are used internally.



To add a new owner batch, first select **Owner Batches** in the toolbar, then click **Add** in the toolbar.

Column	Description
Name	Unique name of the batch.
Managed By	Designates who will be using the DID numbers in this batch. If you plan for the numbers to be used by your administrators for direct customers, choose **Administrator only**. If you plan to make these numbers available to a reseller, select the reseller's name here.
Description	Comments about this batch.

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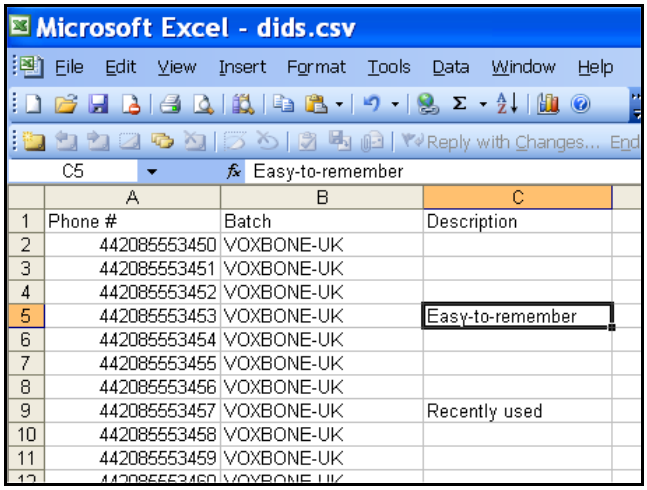
When you are done entering the data, click the **Save New** icon to save this row.

Importing Numbers into the DID Inventory

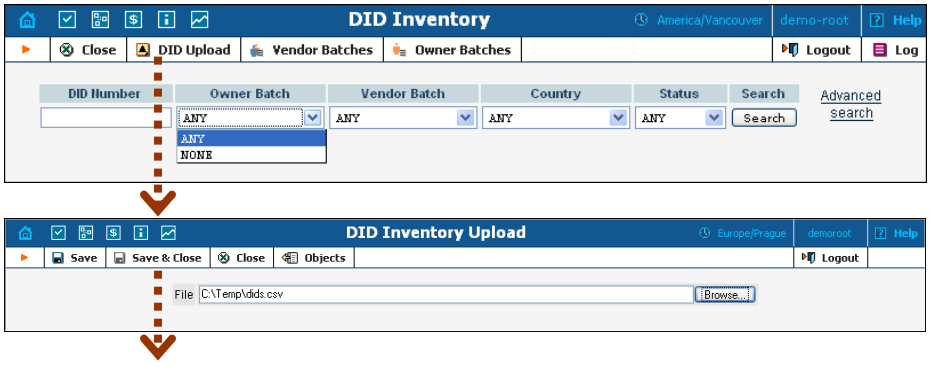
You can upload DID numbers from a CSV file. The structure of the CSV file should be as shown in the picture below: the first column contains the phone number, the second contains the vendor batch name, and the third contains an optional description.



	A	B	C
1	Phone #	Batch	Description
2	442085553450	VOXBONE-UK	
3	442085553451	VOXBONE-UK	
4	442085553452	VOXBONE-UK	
5	442085553453	VOXBONE-UK	Easy-to-remember
6	442085553454	VOXBONE-UK	
7	442085553455	VOXBONE-UK	
8	442085553456	VOXBONE-UK	
9	442085553457	VOXBONE-UK	Recently used
10	442085553458	VOXBONE-UK	
11	442085553459	VOXBONE-UK	

NOTE: The first row in the file is skipped, since it usually contains column titles and not actual data.

To upload a DID file, first select **DID Upload** in the toolbar, then specify the file location (you can use the Browse button to select a file in the explorer window), and then click **Save & Close** in the toolbar.



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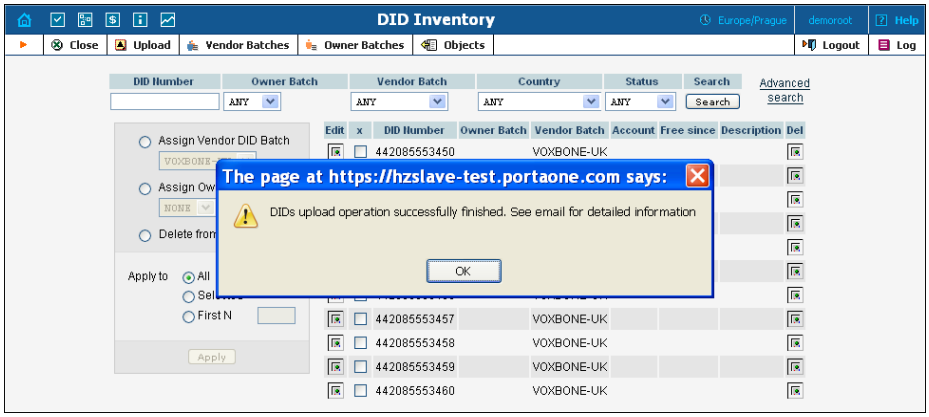


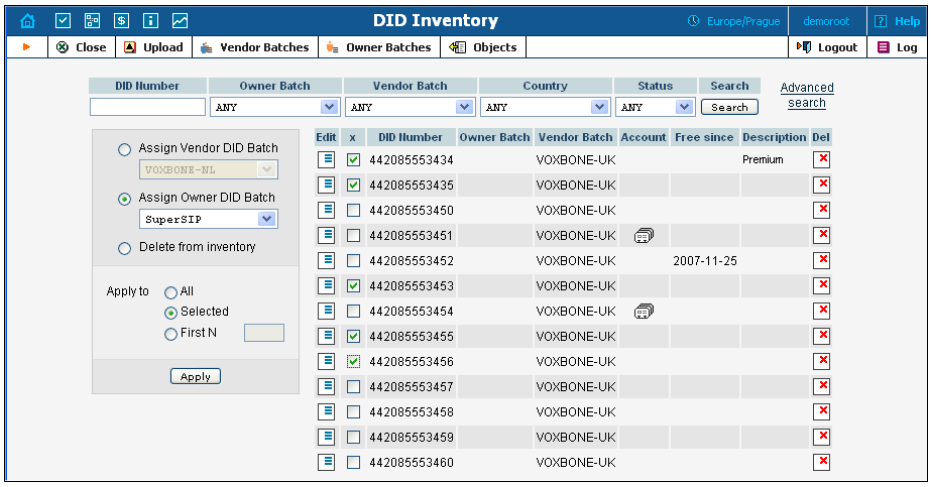
A popup window will inform you of the import results.

Managing DID Number Allocation

On the main screen of the DID inventory you can view DID numbers that match certain criteria (e.g. all numbers in a specific vendor batch). You can then perform number allocation for some of these numbers. This includes:

- re-assigning a vendor batch for some numbers (this may be required if you decide to change the way you organize your vendor batches, or if some DID numbers are now provided by a different vendor);
- allocating numbers to an owner batch, or returning them to the unallocated pool;
- deleting DIDs from the DID inventory.

These operations may be applied to all numbers matching the original search, only to the first N DIDs among them, or only to those you manually select.



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Hint: If you would like to assign the first N unused numbers from some vendor batch to an owner batch, specify the vendor batch and the **Free** status in the search condition, then apply an assign operation to the **First N** numbers. If you just select DIDs from a vendor batch and then assign the first N to an owner batch, you might also re-assign to it some numbers which are already in another owner batch.

Press **Apply** to submit the changes. After the update is completed, a pop-up window will inform you of the results.

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4. Adjusting Billing Parameters

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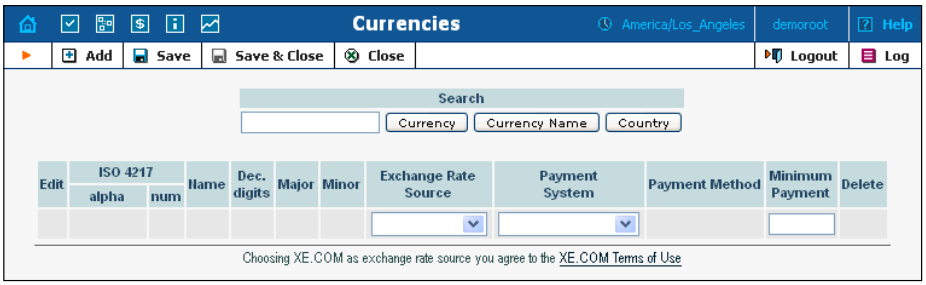
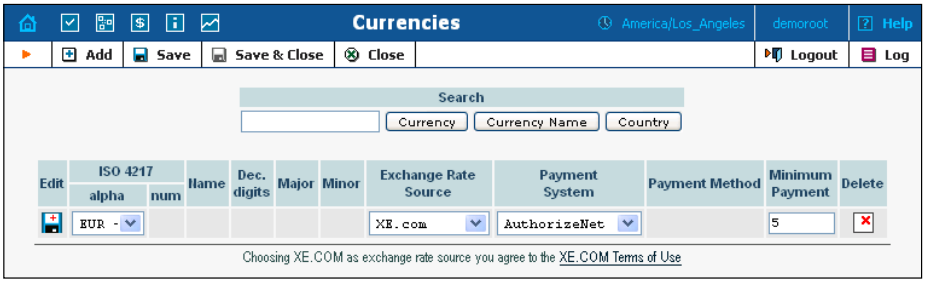
Currencies

The **Currencies** page allows you to define a method for determining exchange rates between currencies. Supported methods include explicitly defined exchange rates or the use of external services such as yahoo.com or xe.com.

NOTE: Before relying on an external exchange rate service, read its terms of use thoroughly, as the rates it provides are usually given at a delay of at least fifteen minutes from the actual values.

To define an exchange rate source for a currency, first click **Add** in the toolbar.





From the Exchange Rate Source drop-down list, choose "Manual", "yahoo.com", or "xe.com". (The specific exchange rate is defined on the Exchange Rates page, available from the PortaBilling home page.)

The next drop-down list shows all payment systems registered by the system's administrator. Choose one which will be responsible for all payments in this currency using the payment methods chosen for it. If this is not required, select an empty value. It is possible to add multiple combinations of the same currency with different payment systems; in this case, all of them will use the same exchange rate source.

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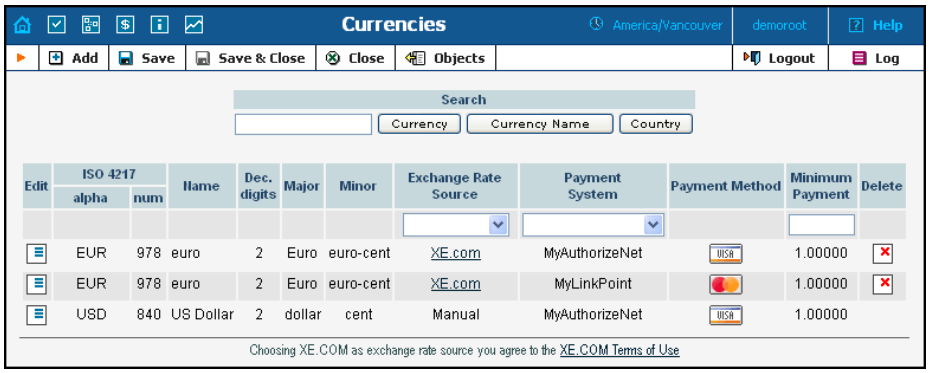

Please note that it is not allowed to have several (more than one) systems assigned to the same currency using the same payment method.
Because of charges for the use of online payment systems, it is recommended that a non-zero value be entered in the Maximum Allowed Payment field.

Column	Description
ISO 4217	
alpha	Official three-letter currency code (e.g. USD).
num	Numeric currency code according to ISO standard.
Name	Commonly used name of the currency.
Dec. digits	Maximum number of decimal places allowed by the currency, e.g. for US dollars or euros it will be 2, since the smallest unit is one cent (0.01), while for yen it will be 0, because an amount in yens can only be a whole integer.
Major	The main currency unit, e.g. dollar.
Minor	The lesser currency unit (if applicable), e.g. cent.
Exchange Rate Source	Defines the method of entering the exchange rate for this currency: updated either manually by an administrator, or by PortaBilling from exchange rate sites such as xe.com or yahoo.com. For an existing row in the table, click on the underlined xe.com or yahoo.com line in a column to immediately fetch the current exchange rate.
Payment System	Selects an online payment processor to process payments in this currency.
Payment Method	Read-only column; lists all available payment methods (e.g. VISA) for the selected payment system.
Minimum Payment	The smallest allowed amount for an online payment (in the corresponding currency), in order to prevent service abuse.

Select **Save** or click the **Save** icon in the Edit field to make your changes take effect.

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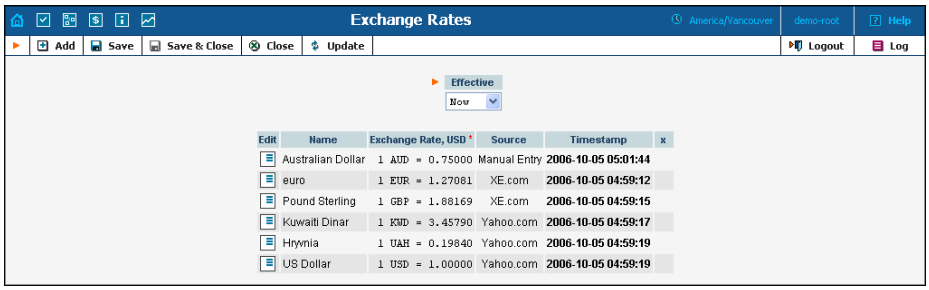
The ISO 4217 currency code is normally composed of a country's two-character ISO 3166 country code plus an extra character denoting the currency unit. For example, the code for Canadian Dollars is simply Canada's two-character ISO 3166 code ("CA") plus a one-character currency designator ("D"). Currency unit names (major and minor) are not defined in ISO 4217, and are listed in the table only for user convenience. Visit **BSI Currency Code Service (ISO 4217 Maintenance Agency) website http://www.bsi-global.com/** for more information.

Exchange Rates

All exchange rates used within the system are listed. The **Effective** drop-down list allows you to define whether only current exchange rates ("Now") or all exchange rates ever used ("->Now") will be shown. The following information is provided in the exchange rate listing:



Field	Description
Edit	Click the **Edit** icon to modify the given exchange rate. Select **Save** or click the **Save** icon in the Edit field to make your changes take effect.
Name	The currency unit name (for example, "Canadian Dollar").
Exchange Rate	Currency exchange rate. Defines the number of units of the base currency equal to one unit of the foreign currency. (For example, with British Pounds as the foreign currency and U.S. Dollars as the base currency , the base currency units would be "1.5326" and the value of this column would be "1 GBP = 1.5326")
Source	Shows the exchange rate source for the given currency as defined on the **Currency** page.
Timestamp	The effective date for the given currency. Newer exchange rates supersede older ones.

To add a new exchange rate, click the **Add** button; this will start a new row in the table header. Select the currency from the list, and enter the exchange rate. Click the **Edit** icon to modify an existing exchange rate.

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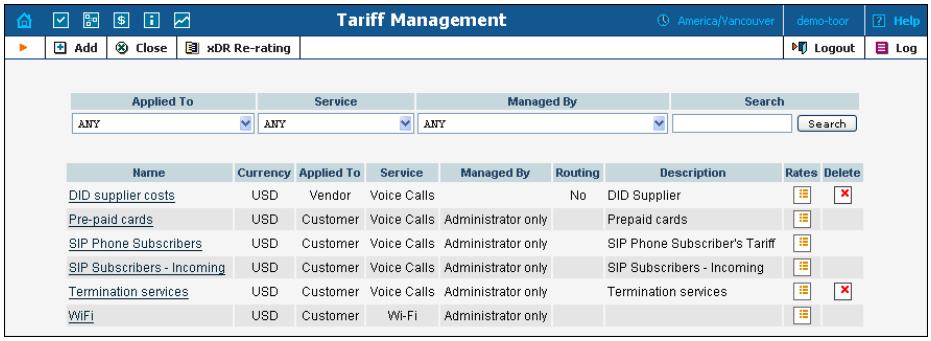
This will copy the content of the current row into the table header. The source will be changed to Manual. Enter the new exchange rate, then select either **Save Edit**, **Save** or **Save&Close** to save changes.

Tariffs

A tariff is a collection of individual rates, a rate being a per-destination price. Each tariff has its own set of rates. Call billing is based on billing units. You can define two billing units for each destination: the first billing unit (interval) and the next billing unit (interval). Billing unit precision is one second, and the minimum length of each unit is likewise one second.

Typical billing unit configurations include 60/6 (the first unit, i.e. the minimum charged call duration, is one minute, and subsequent intervals are one-tenth of a minute, i.e. six seconds) and 1/1 (per-second billing).



The main Tariff Management screen shows a list of all existing tariffs. Tariffs can be located using the Search form, by selecting a reseller from the drop-down list, or choosing the tariff's name. To edit a tariff, click on its name in the list. Click the Edit Rate icon to edit individual rates for the given tariff. The Delete icon will be visible only when the tariff is not in use (not assigned to any customer or vendor and not being used in any product's accessibility), and enables permanent deletion of the given tariff.

Add/Edit Tariff

To add a new tariff to the system, select **Add** to go to the Add Tariff screen. Existing tariffs can be edited by clicking on the tariff's name in the list.

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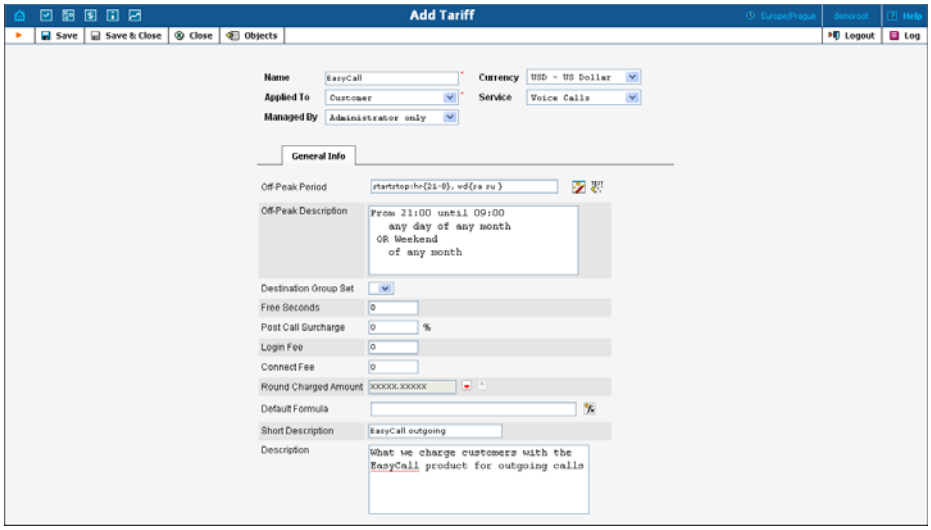

Field	Description
Name	The logical name for the tariff object.
Currency	Indicates the currency in which pricing information is defined. All pricing information for a single tariff must be defined in the same currency.
Applied To	Designates whether this tariff will be used to charge your customers or resellers or to calculate costs associated with your vendors. You must select a value here to get access to certain fields that are available only for a specific type of tariff.
Service	Select the service for which this tariff will be used (by default the **Voice Calls** service type will be selected).
Managed By	(Only available for tariffs of the **Customer** type). Allows you to designate this tariff as managed by the administrator only (so this tariff will be applied to your direct customers), or by a specific reseller (so this tariff will be used to charge the reseller's sub-customers).
Routing	(Only available for tariffs of the **Vendor** type). The tariff contains information about the carrier's routing preferences, in addition to the usual cost data.
Off-Peak Period	Off-peak period definition; click the wizard icon to launch the period format definition wizard; click the test icon to run the off-peak period test.
Off-Peak Description	Human-readable description of the off-peak period (e.g. "From 21:00 until 09:00, Working Days"). This field is automatically filled in by the wizard.
Destination Group Set	A set of destination groups (UK-Mobile, CZ-Mobile, etc.) you would like to use for more convenient rate entry.
Free Seconds	Number of free seconds granted for each call. In order to claim free seconds, the length of the call must be at

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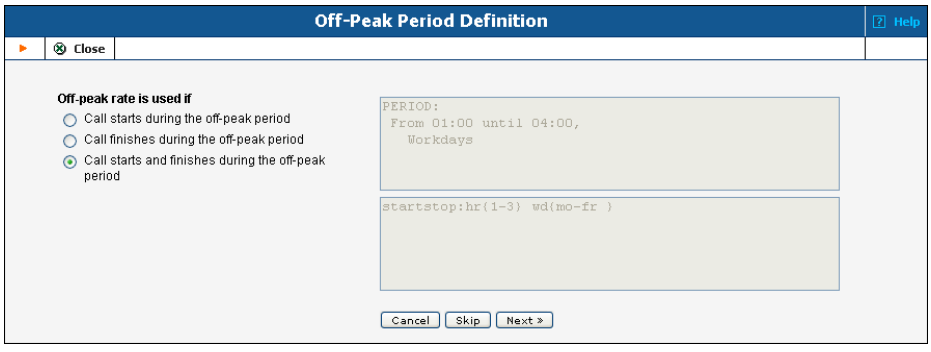
	least one billing unit (i.e. the first interval; see the 'Enter Rates' section above).
Post Call Surcharge	Increases the total call cost by the given value.
Login Fee	Amount to be charged immediately after the first user authentication.
Connect Fee	Amount to be charged for each successful call, in addition to other charges.
Round Charged Amount	Pattern that defines the rounding of a charged amount in an individual xDR. This pattern takes the form XXX000. An X (to the left) means that the digit in this position will be left unchanged, while a zero (to the right) means that this position will be rounded. For example, XXXXX.XX000 means that the amount will be rounded up to two decimal places, so that 1.2345 becomes 1.24. Note that rounding is **always** done upwards.
Default Formula	Default call rating formula applied to new rates. Note that the value of this parameter is only used when a new rate is inserted. Modification of this parameter has no effect on existing rates.
Short Description	While the name of a tariff is for your internal use, and is usually created according to your internal rules, you can also add a name meaningful to your reseller. For example, for the tariff name **aABC-SmartCall-USD-1800**, the short description will be **Smart call using a toll-free number**.
Description	Tariff description.

Free Seconds, Connect Fee and Post-Call Surcharge are only applied when the default rating method is used. For more about different call rating methods, see the **PortaBilling Administrator Guide**.

Off-Peak Period Definition Wizard



The Off-Peak Period wizard provides users with a flexible tool for defining the off-peak period of any tariff. On a sequence of screens, the

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user may select a time interval, day of the week, day of the month, and month; multiple select is allowed. The following example illustrates the process of creating an off-peak period that starts at 6pm every day and lasts until 6am the next morning. Another off-peak interval is on weekends. We will also include some holidays, i.e. January 1st and December 24-26.

In the first screen, select 6pm in the **From** column, and 6am in the **Until** column. Now click the **Next** button. The two text areas on the right of the screen give the user a display of the current period definition. The top text area displays a verbal definition of the period -- `From 6:00pm until 6:00am`, and the bottom one contains this same information in a format that can be parsed by PortaBilling -- `hr{6pm-5am}`. This sets up the first period; in order to continue, skip the following screens by pressing the **Skip** or **Next** button until the "Period definition completed" message is displayed, then press the **Add** button to add another definition to this period. The wizard now returns to the first screen.

NOTE: Time::Period treats all formula elements as "inclusive". Thus, in the example above, 6pm to 6am will be represented as hr{6pm-5am}. This is perfectly correct, since 5am actually means "all of the 5th hour – 05:00:00 ... 05:59:59".

Now for the weekends: pressing the **Skip** or **Next** button, go to the second screen and select *Weekend*, or, holding down the <Ctrl> key, select *Saturday* and *Sunday* from the list. Select the **Next** button and skip until the "Period definition completed" message is displayed. Press the **Add** button to add another definition to this period.

To include January 1st in the off-peak period definition, skip to the Day of Month screen, and select *1*. Click the **Next** button. Now select *January*, click **Next**, skipping forward to the next screen. Follow the same steps to select the December 24-26 interval. Hold the <Ctrl> key down to select multiple entries.

On the next screen, you can choose how the system will charge calls which overlap with your off-peak period, i.e. cover both peak and off-peak time. There are three options you can choose from:

- If the call starts in the off-peak period, it will be charged using off-peak rates (even if part of the call was made during peak time). This method is the easiest and most transparent for end-user authorization of outgoing calls.
- If the call finishes during the off-peak period, it will be charged using off-peak rates; it does not matter whether it starts within the off-peak period or not.
- Or, the off-peak rate will only be used if the call both started and finished during the off-peak period. In this case, any call which partly extends into the peak period will be charged at the peak rate.

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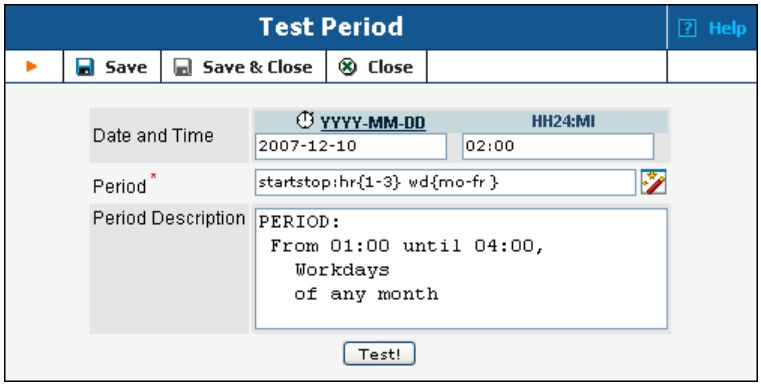
To evaluate your work, look at the top text area. The following text should be displayed:

```
From 6:00pm until 6:00am
   any day of any month
OR Sunday and Saturday
   of any month
OR 1
   of January
OR 24-26
   of December
```

If the definition is correct, click the **Finish** button.

Test the Off-peak Period

If you are unsure whether you have created a correct off-peak period definition, you may use the test utility to check if a specific moment in time fits into the period or not. In order to run the off-peak period test, either click the icon in the tariff information window, or use the **Test Period** button on the last page of the off-peak period wizard.



Now simply enter any time/date and click the Test button to check whether this moment fits into the off-peak period definition.

Web Upload/Download

Choose appropriate templates for web upload/download of tariffs. Read more about this in the **Templates** section.

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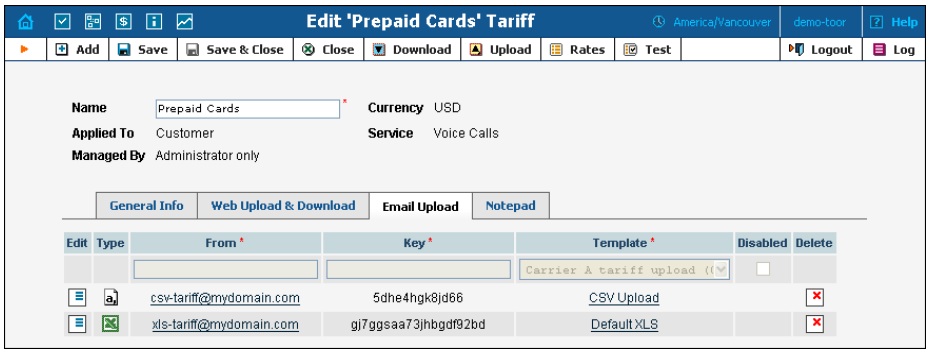
E-mail Upload



Tariffs can be uploaded to the system from an e-mail received with an attached document in either CSV or XLS format.

Field	Description
Edit	Click the Edit icon to copy the current row in the form above for editing.
Type	Uploaded document type, either CSV or XLS file.
From	Sender's e-mail; to prevent unauthorized access, only trusted e-mail will be allowed.
Key	Security key; tariff will be accepted only if the correct key is specified in the message's subject line or body.
Template	Select a template to map information in the uploaded file using PortaBilling. Read more in the **Templates** section.
Disabled	Disable receipt of tariffs from this source.
Delete	Click the delete icon to remove this source.

NOTE: Due to the security risk, the processing of incoming e-mails is disabled by default. To reactivate, enable e-mail forwarding to the mail processing script in the /etc/aliases file on your slave server.

Rates

Peak and Off-peak Prices

It is possible to have two different sets of prices, one for peak and one for off-peak time. A call is always billed using one rate or another; this also applies to calls which start in the off-peak period and end in the peak period, or vice versa, i.e. there is no proration. See above regarding how you to define whether the peak or off-peak rate should be used in this situation. By default, everything is considered peak time.

Off-peak periods are defined using a powerful and flexible `Time::Period` module. The Off-Peak Period Wizard is also available to help you construct a period definition in an easy manner.

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Charging the Call (Old Method)

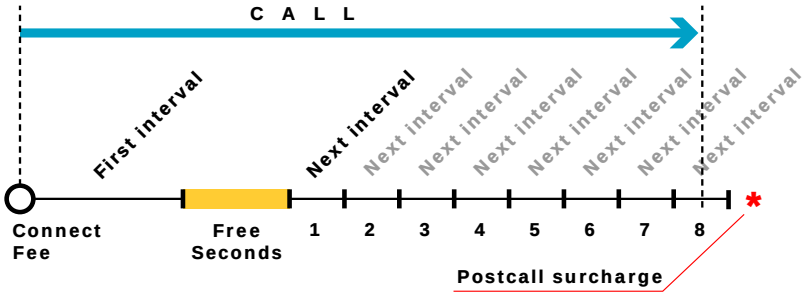


Figure 4-1

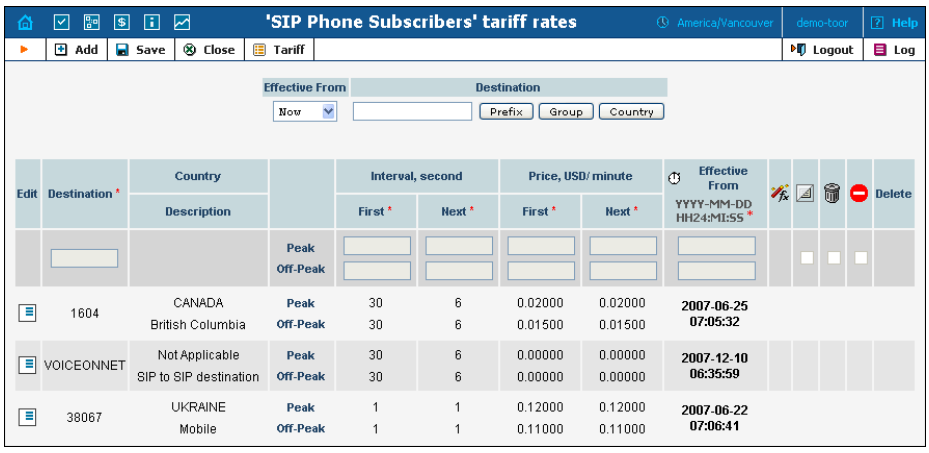
Figure 4-1 demonstrates how calls are charged. A **Connect Fee** is charged immediately upon connection, and all calls shorter than *First Interval_1* will be rounded to **First interval** seconds. Free seconds are granted after the *First interval*, so this part of the call is not charged. Calls longer than *(First interval+Free Seconds)* will be rounded up to multiple **Next interval** seconds. After that, a **Post Call Surcharge** is applied. The call illustrated in the figure above will be charged using the following formula:

```
Amount_Charged = ( Connect_Fee +
   First_Interval * Price_First/60 +
  8 * Next_Interval * Price_N/60) * (1+Post_Call_Surcharge/100)
```

Parameters such as **First interval**, **Next interval**, **Price First** and **Price Next** can be specified per destination. **Connect Fee**, **Free Seconds** and **Post Call Surcharge** are defined on a per-tariff basis, and so are the same for all destinations in the tariff.

Managing Rates Online

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



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On the Tariff Management page, click the **Rates** icon for a tariff.

The filter at the top of the screen allows you to view rates depending on their Effective From date or Destination. The **Effective From** drop-down list allows you define whether only current rates ("Now") or all rates ever used ("->Now") will be shown.

To edit an existing rate, click the (**Edit**) icon next to it to copy rate details into the form. Note that if a tariff contains peak and off-peak rates there will be two rows of fields: the top one is for peak rates, and the bottom one is for off-peak rates.

Usually you will enter rate data for each destination separately. However, if the tariff has a **Destination Group Set** defined, by clicking on **G** in the Destination column header you can switch into Destination Group mode. Now you can enter a destination group name (e.g. UK-Mobile) instead of a prefix, and the system will automatically create rates for all of the destinations in that group.

Field	Description
Destination	Destination prefix. May be entered directly, e.g. "47" for Norway; or you can access the destinations directory by clicking the Destination link. In the destinations directory pop-up window, you can search for the desired prefix by country name.
Country	Country corresponding to the current destination.
First interval	First billing unit in seconds.
Next interval	Next billing unit in seconds.
Price first	Per minute price for first interval.
Price next	Per minute price for next interval.
Off-peak First interval	First billing unit in seconds for off-peak time.
Off-peak Next interval	Next billing unit in seconds for off-peak time.
Off-peak Price first	Per minute price for first interval in off-peak time.
Off-peak Price next	Per minute price for next interval in off-peak time.
Effective Time	Exact time when the rate becomes effective. Click the icon to make the rate effective immediately. Click the **DD-MM-YYYY** link to set up the desired date using the pop-up calendar.
	Indicates if this rate uses a call rating formula. The icon indicates that there is no formula, thus old-style rating is used. The icon indicates that the rate already has a formula defined. Click on the icon to invoke the

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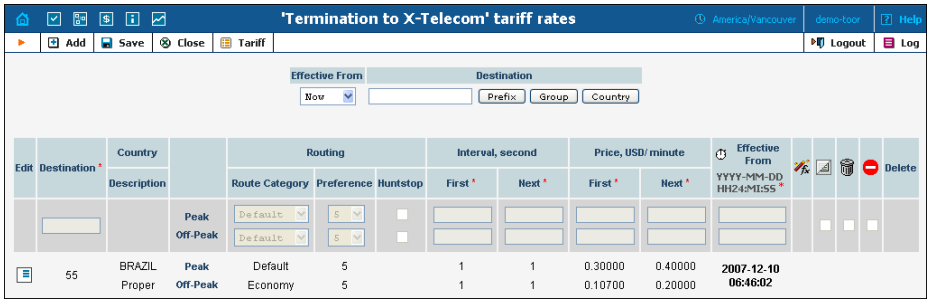
	call rating formula wizard.
Rate Properties	**Hidden**. This means that the rate is excessive (e.g. there are usually more than 500 rates for Argentina mobile because of different prefixes). This flag does not affect usage of the rate by the billing engine. It simply indicates that this rate may be omitted when making a list of rates for the end user. **Discontinued**. Note that marking a rate as discontinued takes effect immediately; you cannot discontinue a rate sometime in the future **Forbidden**. This means that no calls are authorized for this particular destination.
Delete	Click the delete icon to delete this rate. Only rates which are not yet active can be deleted.



The following columns are available only for tariffs of the **Routing** type:

Field	Description
Route Category	Route category, selected from among those already defined. If you do not wish to use different route categories, use the **Default** one.
Preference	Routing priority for this destination. 10 is the highest priority, 0 is the lowest (i.e. do not use this destination for routing at all).
Huntstop	If turned on, the billing engine will not try any routes for other vendors with a lower preference.

Click the **Save** icon to save your changes.

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

Call Rating Formula Wizard

Because of the extreme flexibility of the call rating formula, it has a quite complex syntax. To avoid possible errors, the call rating formula wizard allows you to design a call rating formula easily.

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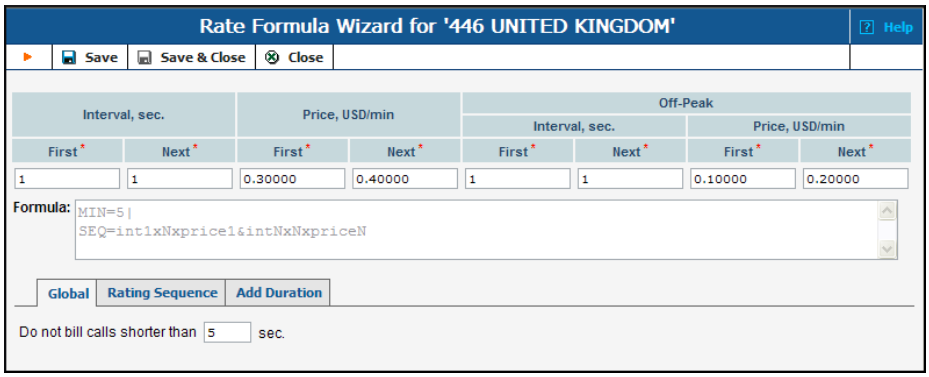
The top table allows you to edit rate parameters (such as interval or price per minute) directly; below it, the current formula is displayed (read-only); and, finally, there are three tabs for managing different formula parameters:

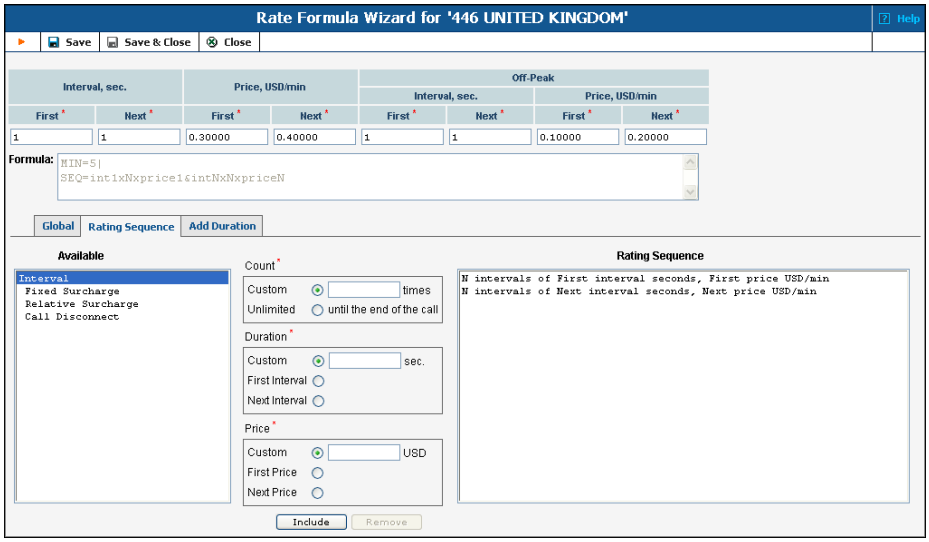
Global:

- **Do not bill calls shorter than** - For a detailed description of this feature, see the **PortaBilling Administrator Guide**.



Rating Sequence:

Here you can construct the actual call charge plan by defining a sequence of time intervals and surcharges.



1. Choose the element type from the list on the left (**Available**).
2. Fill in the element parameters (such as interval duration, price, etc.).
3. Click the **Include** button to add this element to the formula.

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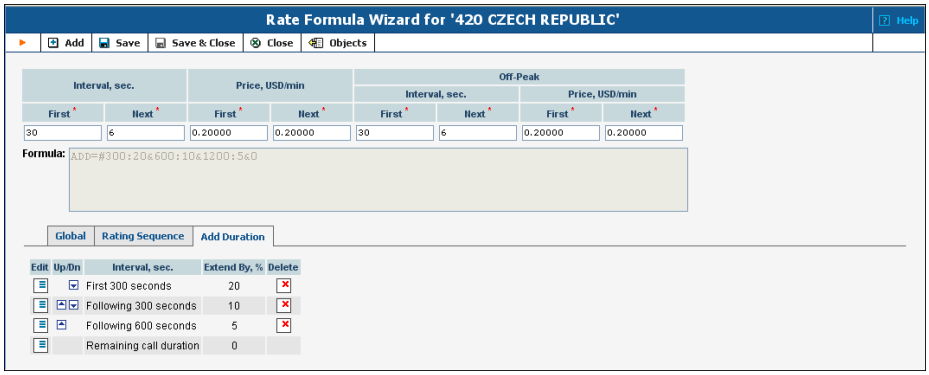
Add Duration:

NOTE: This option must be enabled in the config; by doing so, you accept the responsibility for any legal issues related to use of this billing feature.



- **Interval, sec.** – The duration of a specific call interval to which "add duration" should be applied. Initially there will be only one row in the Add Duration table, defining the rule to be applied to the whole call. Click the **Add** button to add a rule for another interval. Intervals are interpreted according to the order in which they appear in the table, e.g. the first row covers the *first* 300 seconds, the second row covers the following 300 seconds, and so on.
- **Extend By, %** – Defines how the call duration for this interval should be changed (increase in percentage; a 0 value means that the call duration should not change).

Managing Rates Offline

The rates table may be prepared using a spreadsheet processor (e.g. MS 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%. To upload your rates file, proceed as follows:

1. On the Tariff Management page, click on the tariff name.
2. In the Edit Tariff window, click the **Upload .CSV** icon.
3. In the Upload Rates window, click Browse…
4. Locate the Tariff-sample.csv, then click Open.
5. In the Upload Rates window, click Upload.
6. In the Edit Tariff window, click Close.

You can verify your work using the **Rates** feature.

Test Call Rating

This screen allows testing of the call rating formula and shows the resulting cost and duration of the call. The formula can be used both

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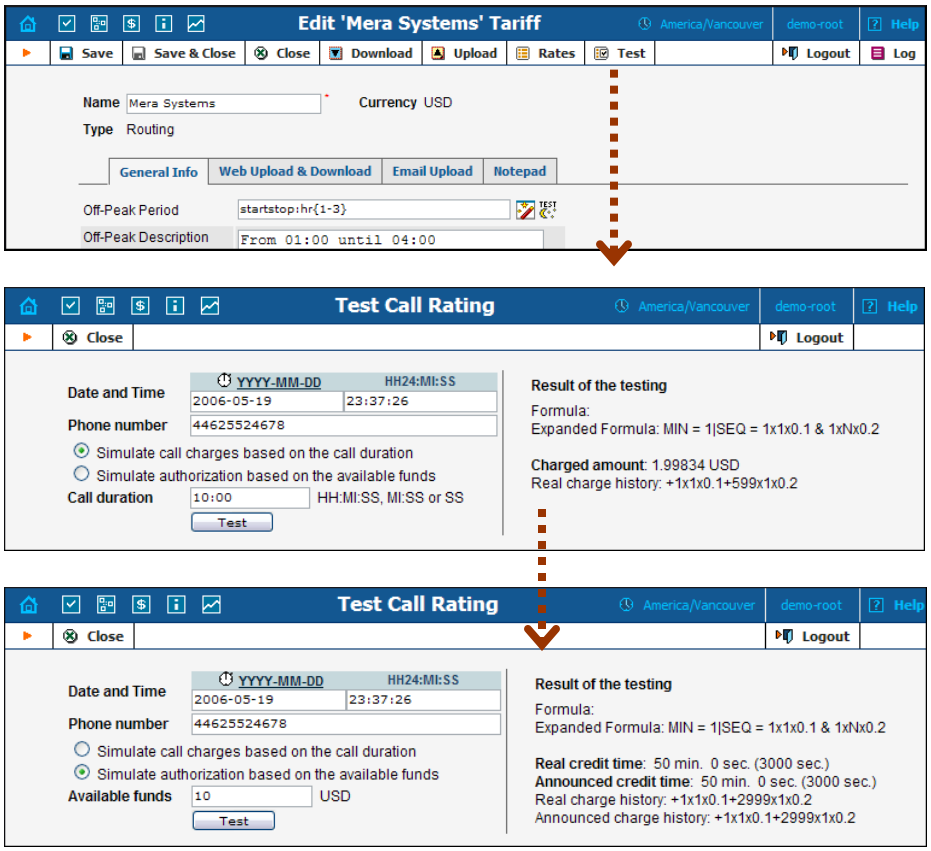
ways: either to calculate the call's cost given its duration, or to see how long a call ought to last given its cost.



Field	Description
Date and Time	The date and time when the call is initiated. Click on icon to set the current time. The "YYYY-MM-DD" opens a calendar that can be used to select a date.
Phone number	The phone number to call.
Call duration	Estimated call duration.
Available funds	Estimated available funds.
Results of the testing	
Formula	The rate formula used for the given destination.
Expanded Formula	The rate formula with the real interval and price values.
If the formula calculates the call cost based on its duration	
Charged amount	Charged amount for test call
Real charge history	A short description of how the **Charged amount** was calculated
If the formula calculates the call duration based on available funds	
Real credit time	The true maximum call duration.

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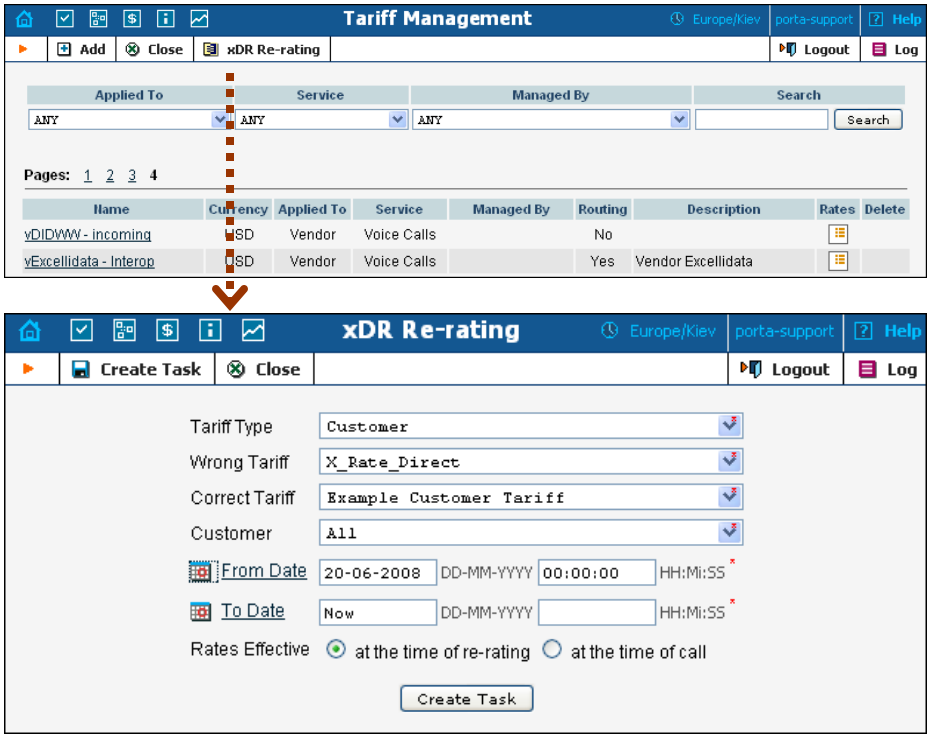
Announced credit time	The announced maximum call duration.
Real charge history	A short description of how the **Real credit time** was calculated.
Announced charge history	A short description of how the **Announced credit time** was calculated.

xDR Re-rating

The xDR-rating page allows you to fix the most common problem: incorrect pricing information entered into a tariff. This may happen, if, for example, someone sends you the wrong pricelist, or your administrator simply clicks the wrong button, resulting in incorrect charges in the database.

To run the re-rating task, click the **xDR Re-rating** button on the Tariffs page.



Field	Description
Tariff Type	Select a specific type of tariff. Can be of the following type: **Customer**, **Reseller** or **Vendor**.
Wrong Tariff	Select the "original" tariff with incorrect pricing information entered.
Correct Tariff	Select the tariff with correct pricing information entered. This tariff should be of

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	the same type as the **Wrong Tariff** one.
Customer/Reseller/ Vendor	Select the specific customer, reseller or vendor due to the **Tariff Type** specified to narrow the set of xDRs to be processed.
From Date	Specify the start of the time interval for xDRs to be re-rated. Click the icon to set up the desired date using the pop-up calendar.
To Date	Specify the end of the time interval for xDRs to be re-rated. Click the icon to set up the desired date using the pop-up calendar.
Rates Effective	Choose the time when the rates associated with **Correct Tariff** become effective.

Click the **Create Task** button to launch the re-rating task.

Re-rating and Volume Discount Counters

If volume discounts are used when calculating call charges, it is no longer possible to treat such calls separately from others, since the way one call is charged affects all other calls made subsequently. For instance, if a call is charged $5, this is the amount added to the volume discount counter. If the charged amount is then changed to $1 during re-rating, this will affect all other calls in the same destination group, since they can now be charged at a different discount rate.

To overcome possible confusion when volume discount counters are involved in re-rating, this process should always be run from a specific moment in the past (when the error occurred) to the present moment. In this case, all discount counters will be rolled back before recalculation actually starts, and then updated with each re-rated call.

NOTE: Re-rating with volume discount counters only works with XDRs generated following an upgrade to the MR16 version, since older versions of XDR data do not have the full information required to roll back volume counters.

Volume Discount Plans

Volume discount plans allows you to dynamically modify your rates depending on how much traffic a customer has already sent you. For instance, after he makes calls for 200 minutes (charged at the normal rate) he will get a 10% discount for every minute he calls over this limit.

A discount plan includes one or more discount schemes applicable to a certain destination group. “First 200 minutes for free, then normal rate with 10% discount over 500 minutes” is one such discount scheme, and it

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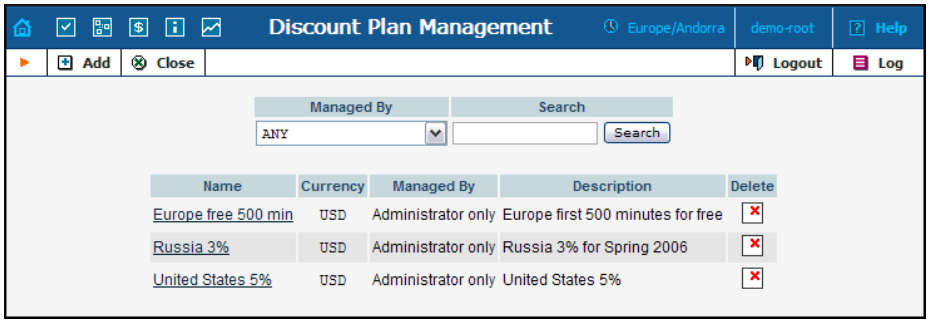
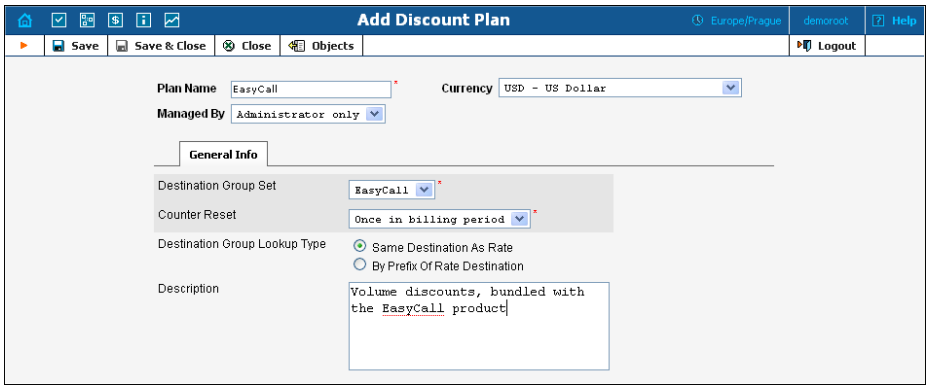
may be applied to the destination group "Asia", which includes China, Hong Kong, Singapore, Thailand and other countries.



Use the main Discount Plan Management screen to list all existing plans. Plans can be located using the search form, by selecting a reseller from the drop-down list, or entering the plan's name. To edit a discount plan, click on its name in the list. The Delete icon will be visible only when a discount plan is not in use (not assigned to any customer, account or product), and enables permanent deletion of the discount plan.

Add/Edit a Discount Plan

To add a new discount plan to the system, select Add to go to the discount plan creation screen. An existing discount plan can be edited by clicking on its name in the list.



Field	Description
Name	The logical name of the discount plan object.
Currency	Indicates which currency is used for billing calculations. All discounts in a plan are to be defined in this currency. A discount plan can only be assigned to customers, accounts and products using the same currency.
Managed By	By default – administrator only. The plan can be assigned to a reseller (Managed by NNN) so that it is manageable from the Customer Self-Provisioning web interface.

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Destination Group Set	Discounts can be defined for individual groups (e.g. US&Canada, Asia, Western Europe) within this set. Once chosen during discount plan creation, they cannot be changed later on.
Counter Reset	Each discount has internal counters associated with a corresponding account or customer. These counters store the current value in minutes (or charged amount) of calls made to a specific destination group. The counters go up according to the customer's or account's billing. • **Never** means the plan counters will never be reset (zeroed). This is convenient if you wish to provide a special promotion such as "500 free minutes of calls to Western Europe". In this case, the counter will always go up, and the normal rate will be applied after it reaches 500 minutes. • **Once in billing period** means the counters of the plan will be reset when the customer's next billing period begins. If you have defined a "first 500 minutes for free" discount, then the customer will have 500 free minutes in every billing period (month, week, etc.). Once chosen, this setting cannot be changed later on.
Lookup Type	• Same Destination As Rate – This requires exactly the same prefix as the one in the tariff to be used in the destination group for the volume discount definition. • By Prefix Of Rate Destination – This provides more flexible matching, but puts more load on the billing engine. See the details below regarding the different matching models.
Description	Short description of discount plan.

Phone Number Matching in Discount Plans

When volume discounts are involved alongside "normal" rating as per the tariff plan, the billing engine must obviously match the ID of the service used (e.g. the phone number dialed) with one of the destination groups used in the volume discount definition.
The fastest and the most efficient way is to check whether the destination in the customer's tariff applicable to this call is included in any destination groups in the volume discount plan, and then keep using this volume discount. For instance, if a customer makes a phone call to 4206025551234 and a matching rate is defined in his tariff for 420602 (Czech Republic, Mobile), the billing engine will search whether any

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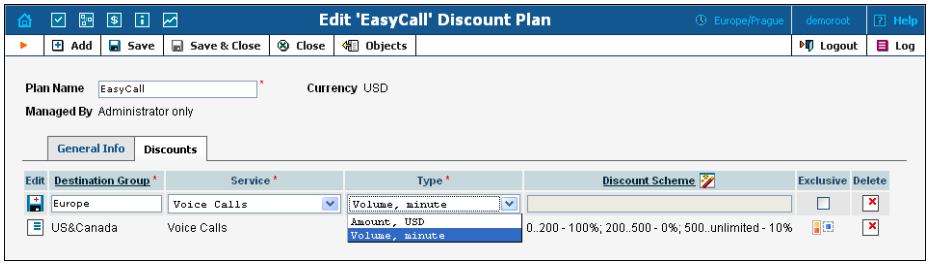
discounts in the volume discount plan are assigned to a destination group containing 420602.
But what if you would like to include the whole Czech Republic in your volume discount? One option would be to simply list all applicable prefixes (420, 4202, 420602, etc.) in a destination group, then use this group in the volume discount definition. Alternatively, you could use the other discount plan lookup option – "by prefix". In this case, the billing engine will look not for the exact same prefix, but rather for a destination group which contains a **matching** prefix. So if a call is made to 4206025551234 and there is a 420602 rate applied in the tariff, the billing engine will search for a destination group in the volume discount plan that includes a prefix matching 420602; such matching prefixes could be 420602, 420, or even 4. In this case you could just enter 420 in your volume discount definition, and it will then be used for calls rated by different tariff rates (e.g. 4202 and 420602).
Such extensive lookups put a higher load on the billing engine, so they should be used with caution, and only in volume discount plans where they are truly needed.

Defining Discounts for Individual Destination Groups

After a volume discount plan has been saved, the Discounts tab will become available. To add a new discount to the plan, click the **Add** button. An existing discount can be edited by clicking the **Edit** icon on the row containing its details.



Field	Description
Destination Group	Enter the name of a destination group manually, or click the column header link (**Destination Group**) to choose a group from a searchable list inside the pop-up window.
Service	Choose a specific service (voice calls, messaging, data transfer, etc.) that this volume discount will apply to. You can bundle discounts for multiple services into the same volume discount plan.
Type	Select the threshold type: will you use thresholds based on the charged amount, or on the total call time?

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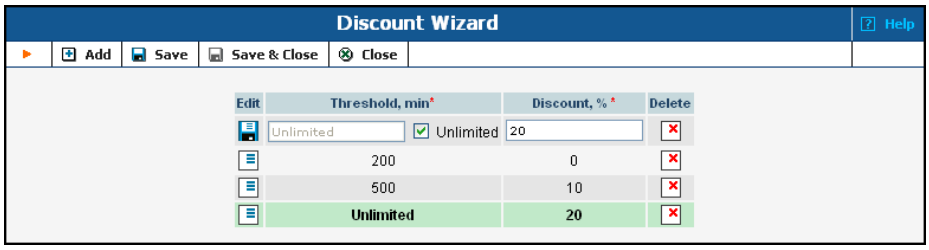
	• **Amount** means the threshold is measured in currency units (e.g. USD), and the counters will go up by the amount which the customer should have been charged for the call before the volume discount was applied. • **Volume** means the unit is minutes, and the counters will go up by the same value as the charged call duration. Note the difference between *call duration* and *charged call duration*. For instance, if a rate specifies 5 minutes rounding and a customer has spoken for 3 minutes 42 seconds, he will be charged for 5 minutes and the counter will go up by 5 minutes as well.
Exclusive	Defines whether an account should be granted exclusive free calls, i.e. calls to which a 100% discount is applied (these calls do not affect the customer's counters). See the **PortaBilling Administrator Guide** for more details.
Discount Scheme	Since the discount formula is complex, you cannot edit it directly. Click on the column header or the icon in order to launch the discount definition wizard (see the section below).

Discount Definition Wizard

The discount wizard provides users with a flexible tool for defining threshold values and corresponding discount values. A threshold defines the maximum counter value (call duration or charged amount) within which the current discount may still be applied. If the last available discount is to be applied regardless of the counter value (e.g. first 200 minutes – normal rate, up to 500 minutes – 10% discount, and 20% discount after that) then this last discount will be created with a special unlimited threshold.



Field	Description
Threshold	The threshold value is measured either in currency units or time units (minutes), according to the type of discount. The value entered must be numeric (with a period allowed) and greater than zero. To provide a

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	special unlimited value for the threshold, check the **Unlimited** box. You cannot have two discount rows with the same threshold values.
Discount	The percentage discount value must be numeric (with a period allowed) in the 0 – 100 range. A 0% discount means "standard rate applied", while a 100% discount means "free call".

The billing engine decides which discount is to be applied, depending on whether the counter for the given destination has reached one of the defined thresholds. Note that the "charged amount" counters record charges as they are defined in the tariff, i.e. before a volume discount is applied. If there is no "Unlimited" threshold discount, and the counter exceeds the last (i.e. biggest) threshold, any further calls will be billed according to the standard tariff rate.

For example:
Discount type - Volume, minutes

The discount is defined as 0..100 - 50%; 100..200 - 20%; 200..unlimited - 10%
The first 100 minutes are billed at a 50% discount (half the price specified in the tariff), the next 100 minutes are billed at a 20% discount, and thereafter all calls receive a 10% discount.

The discount is defined as 0..100 - 100%
The first 100 minutes are free; all minutes above that are billed at the tariff rate.

Discount type - Amount, USD. The tariff rate for the given destination is a flat 0.5 USD per minute.

The discount is defined as 0..10.00 - 0%; 10.00..20.00 - 10%; 20.00..unlimited - 20%
When the customer begins making calls, each call is charged according at the normal rate until the total charged amount exceeds $10.00. After that, the customer is given a 10% discount on calls.

NOTE: Let's look at a situation in which a customer's balance is $10.00 (and the volume discount counter is also $10.00). The customer makes a 30-minute call, and the tariff rate is $0.20/min. The call is charged as 30 * 0.20 – 10% = $5.40, and this value is stored in the CDR for the call. Thus the customer's balance will be modified by $5.40, to become 15.40. At the same time, the volume discount counter will go up by the amount without the discount. Thus the counter will go up by $6, to become $16.00.

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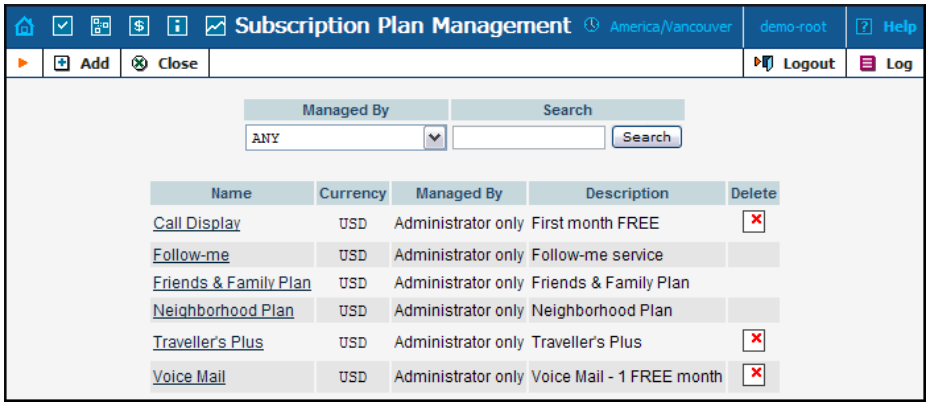
Subscription Plans

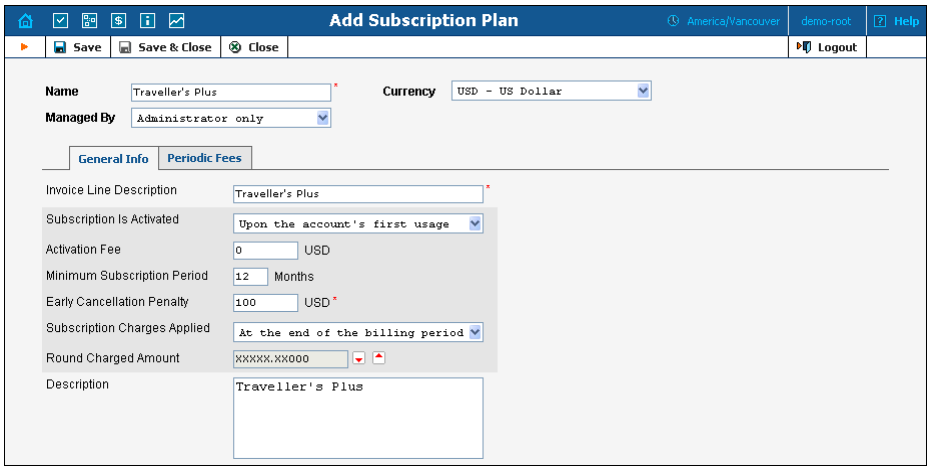
Subscription plans enable automation of recurring non-call related charges applied to your customers: for instance, basic monthly fees or fees for additional services such as voicemail or hardware rental.



Use the main Subscription Plan Management screen to list all existing plans.

Add/Edit a Subscription Plan

To add a new subscription plan to the system, select Add to go to the subscription plan creation screen. An existing subscription plan can be edited by clicking on its name in the list.



Field	Description
Name	The logical name of the subscription plan object.
Managed By	By default – administrator only. The plan can be assigned to a reseller (Managed by NNN) so that it is manageable from the Customer Self-Provisioning web

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	interface.
Currency	Indicates which currency is used for billing calculations. All fee amounts in the plan are to be defined in this currency. A subscription plan can only be assigned to customers, accounts and products using the same currency.

General Info tab

Field	Description
Invoice Line Description	The subscription plan name as the end-user will see it on the invoice.
Subscription Is Activated	Specifies from which date subscription charges will apply: • At the given start date – the first billed day is the subscription start date. • At the account's first usage – charges are applied only from the later of the subscription start date or the account first usage date.
Activation Fee	A one-time fee applied when the subscription is activated.
Minimum Subscription Period	Time interval (in months) during which the subscription must remain uninterrupted so as to avoid penalties.
Early Cancellation Penalty	A one-time fee applied if the subscription is cancelled earlier than the minimum subscription period.
Subscription Charges Applied	Defines the way subscription charges are applied to a customer's account: • At the end of the billing period - The customer is charged the full subscription fee at the end of the billing period. • Progressively - A prorated service charge is applied on a day-by-day basis, depending on the time the service was used during this period. For example, if the monthly subscription fee is $9.99, a progressive charge of $0.33 will be made daily, so that on the 10th day the subscription charges will total $3.33. • In advance - Subscription charges are applied in a such way that when a billing period is closed, the customer is charged for N consecutive billing periods following the current one. For instance, if N is set to 2, and the customer has a monthly billing period, subscription charges for May and June will be made when the April billing period is closed.

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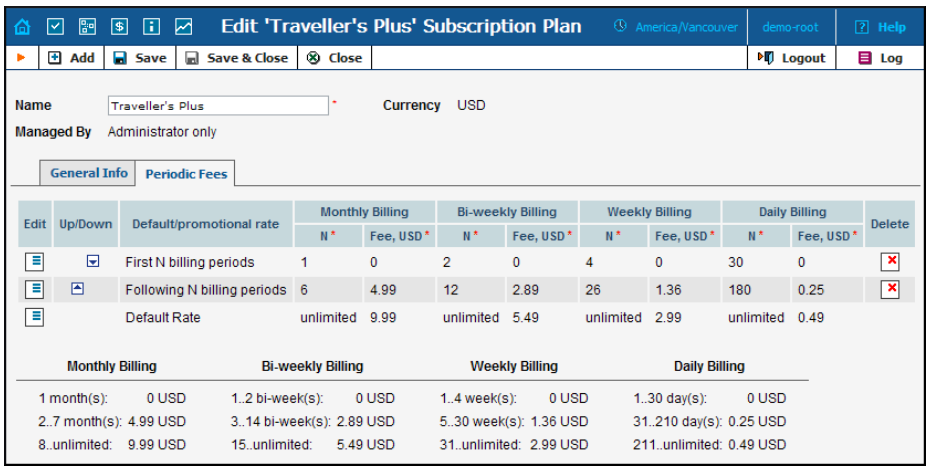
Periods In Advance	Only available for subscription plans charged in advance; specifies for how many periods advance charges should be made.
Round Charged Amount	A pattern that defines the rounding of the amount charged for a billing period (e.g. when the monthly subscription amount is $10.00, but the service was only used for 10 days, it is desirable to round the applicable charge of $3.33333). This pattern takes the form XXX000. An X (to the left) means that the digit(s) in this position will be left unchanged, while a zero (to the right) means that this position will be rounded. For example, XXXXX.XX000 means that the amount will be rounded up to two decimal places, so that 1.2345 becomes 1.24. Note that rounding is **always** done upwards.
Description	An extended description of this subscription plan.

Periodic Fees tab

In this tab you may define recurring fees which are applied to your customers while a subscription is active, as well as special promotion periods. The rate structure is organized as a table, where columns define the rates for different billing periods, and table rows specify the rates for different phases of the customer's lifetime. The table of periodic fees must include at least one row (marked **Default Rate**) which specifies the normal rates applied by default. If you wish to define a special promotion (e.g. a reduced rate for the first three months), you may insert an extra row into the table to cover this period.



Field	Description
Default/Promotional rate	Specifies whether this is a rate which applies for a certain initial period, which rate which follows it (additional promotion), or if it is a default rate.
N	Promotion span – the number of billing periods

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	covered by this fee.
Fee	Amount of the fee.

After you have edited a specific row, click **Save** to confirm that you have finished editing this row. (You still need to save the whole form – use **Save** in the toolbar for this.)

For your convenience, the periodic fee table in Edit mode provides auto-population of the fields:

- If you type a value in one of the span (**N**) columns, a re-calculated value will be entered automatically in all other empty columns. For instance, say you plan to define a special promotion for the first month. If you type 1 in the **N** column under the **Monthly** billing period, the **N** columns for Bi-Weekly, Weekly and Daily billing periods will be automatically filled with 2, 4 and 30 respectively.
- If you type a value in one of the **Fee** columns, a re-calculated value will be entered automatically in all other empty columns. For instance, when defining a special promotion for the first month as mentioned above, if you type 9.99 in the **Fee** column under the **Monthly** billing period, the **Fee** columns for Bi-Weekly, Weekly and Daily billing periods will be automatically filled with 4.995, 2.331 and 0.333 respectively.

Also, below the table in which you enter periodic fees you may see another table providing an extended explanation of the fee structure.

Products

A product is a combination of services that you provide to a customer for a price. For example, you decide to sell calling cards with 10 cents/minute calls to the Czech Republic for calls to a local access number in New York, and 15 cents/minute + 50-cent connection fee for calls to a toll-free line. In this case, your product will include two types of service:

- access via the local New York number, and
- access via the toll-free line,

with price parameters associated with each service.

Accessibility is the main component of a product definition. It specifies where your customers are allowed to use a service and how they should be charged for it. Accessibility allows you to specify the following parameters which define an access point:

1. The type of service provided.
2. The node on which the service is used. What exactly does "node" mean in this context? If, for example, a customer calls to gateway A, enters his PIN, and makes an outgoing call which is terminated

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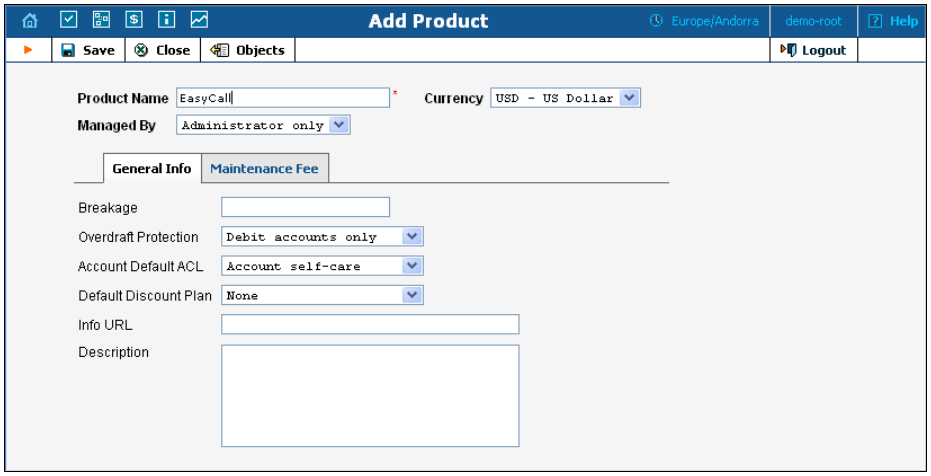
on gateway B, is he using a service on node A, node B, or both? The correct answer is that the service is regarded as having been provided at the point where authorization was performed. In this example, since PIN authorization is performed on node A, it is node A which must be listed in the accessibility.

3. Identification of the access code (method) on that node. This parameter allows you to use different rate plans for the same service. For example, you may choose a rate plan according to the PSTN access number (local or toll-free) that the customer has dialed. Or you may use different rate plans for outgoing, incoming and forwarded calls in your IP calls service. (While for services such as prepaid cards the access code is a number, for other services any string may be used, so long as it is one provided by the application handling the call).
4. Originating line information (this is applicable only to the voice call service, where the call originates on the PSTN network). You can separate accessibility entries based on originating line information (e.g. whether the call was made from a home phone or a pay phone). Make sure your telecom provider supplies you with this information in the call setup.



The basic information for defining a product is as follows:

Field	Description
Product Name	The logical designation of the product.
Currency	The currency in which the product will be maintained. To edit a currency, delete all accessibility entries for this product.
Managed By	**Administrator only** (default) means that this product will be used for your direct customers and is accessible only to your administrators. Select a PortaBilling reseller to assign this product for use by a particular reseller.

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Breakage	This value should be set by the administrator based on the currency and minimum price per minute. It is used in Account Management to obtain a summary of "depleted" (practically unusable) accounts. How it works: An account user could have a very small balance, e.g. 0.015. This is not enough to make calls to most destinations, except perhaps calls to technical support and certain local calls. Thus, even though the account's balance is not yet zero, the account is basically unusable (and the customer will probably never use it). The administrator is interested in how many accounts are in this state, i.e. how many accounts are depleted.
Overdraft Protection	• **None** – When the locking of funds is requested, this will be done separately for each session, and will not affect other sessions; so, effectively, there will be no "locked" funds. This method provides backward compatibility with "Fraud Protection Off" mode in previous releases. For obvious reasons, it is not recommended for general use. • **Debit accounts only** – Fund locking is done only for debit accounts. This is identical to PortaBilling's default behavior in Maintenance Release 18 and older. • **All accounts** – Fund locking is done for all account types.
Account Default ACL	Which ACL should be assigned to new accounts created with this product.
Default Discount Plan	Which Discount Plan will be used with all the product's accounts by default.
Info URL	URL to an external website describing product features. Customers can access it by clicking on the **Product Info** link in the main menu of their self-care interface.
Description	Product description.

Maintenance Fee

In most cases, you will use subscription plans rather than maintenance fees to apply periodic charges to your customers.

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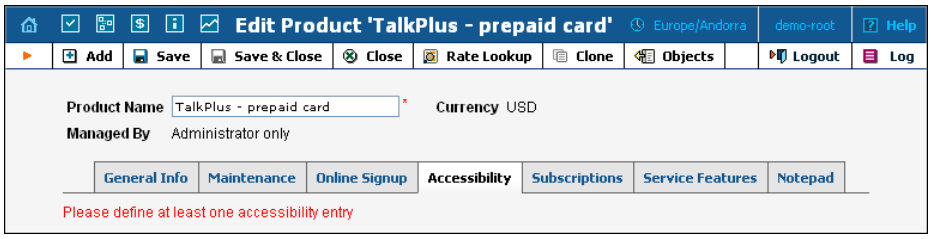
Field	Description
Period	Defines how often to apply the maintenance fee. The maintenance fee will be charged on the first day after an account is used for the first time, or on the date specified in the Maintenance Charging option, and thereafter according to a specified period, e.g. every week.
Fee	Only defined when a maintenance period is set; the amount to charge any account using this product according to the schedule defined by the maintenance period.
Effective From	Defines when the maintenance fee starts to be applied.

Product Accessibility

Accessibility defines where users of this product can use the service, and how they will be charged for it.

Tariff per Access Point

By default, you define different ways of charging for your service based on the way the service is accessed (a combination of parameters such as node, access code, etc.). For example, when a user calls your gateway via a toll-free access number, a different (more expensive) tariff will be applied than if he were calling via a local access number.



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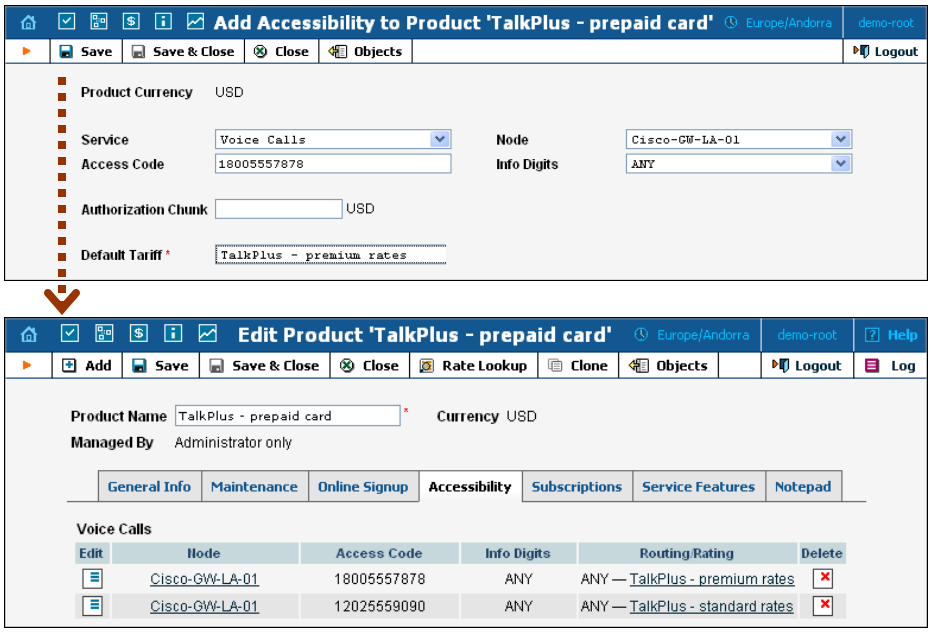

NOTE: The Accessibility tab is invisible in Add New mode, and will appear only when editing an existing product.

To add a new Accessibility entry:

1. Click the **Add** button to access the **Add Accessibility** screen.
2. Choose a **Service.**
3. Choose a **Node** where the service will be provided.
4. Type in the **Access Code** value (if required) and select the appropriate value from the **Info Digits** menu.
5. In the **Default Tariff** drop-down list, you can choose a specific tariff that should applied to the customer.
   For the **Voice Calls** service, you can also choose the special entry **Assign Tariff per Routing Plan**, in order to define additional tariff – routing plan combinations. A specific tariff will be applied based on which routing plan was used for a particular call.
6. Click the **Save** button.

Assign Tariffs per Routing Plan

For a voice call service, you can also choose to apply a different tariff based on which routing plan (i.e. which set of vendors – cheaper or more expensive ones) was used to terminate the call to the PSTN network. Thus if a customer chooses to use premium routes, he will be charged more, while if he uses a routing plan that includes low-cost carriers, he will be charged less.

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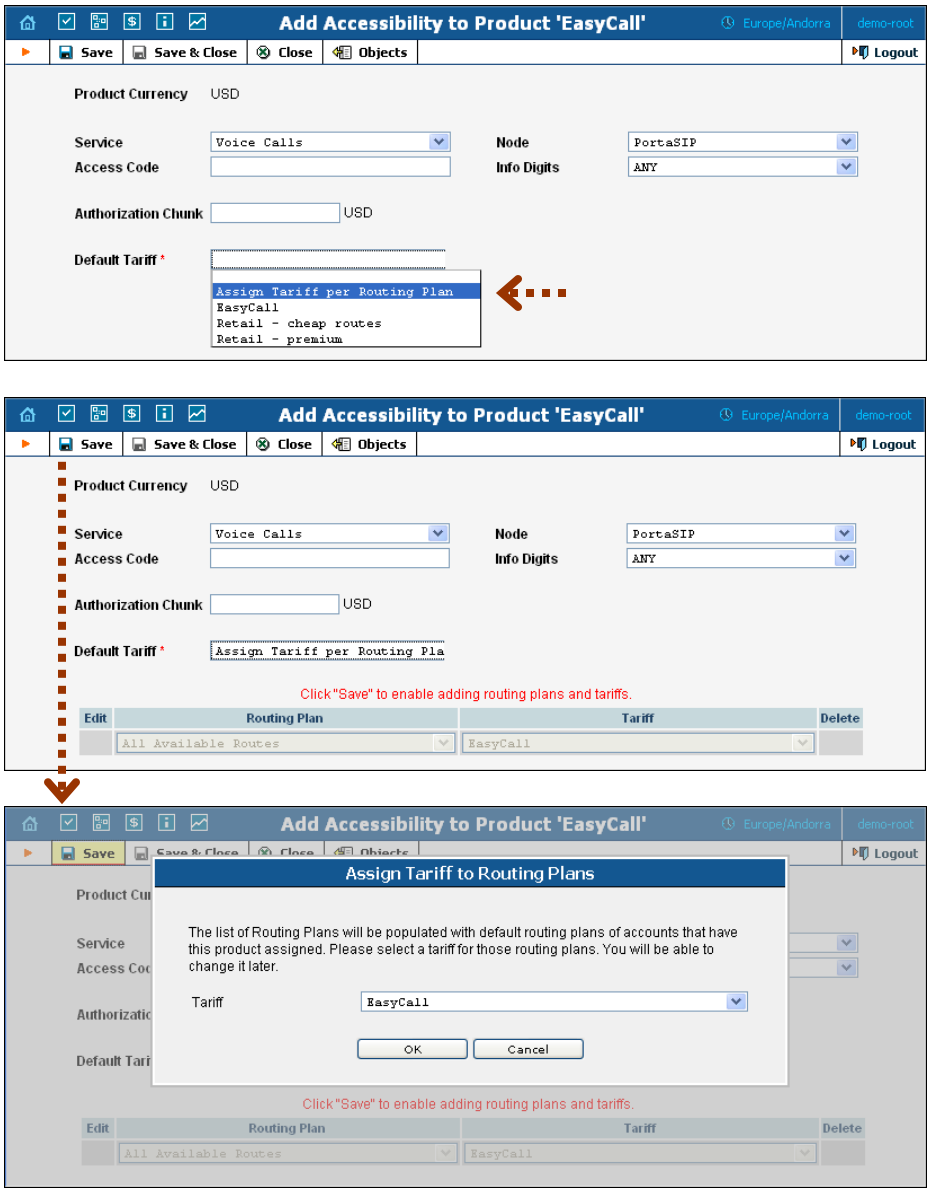

Switching from the "simple" use of one tariff for outgoing calls, regardless of the routing plan, is a step that requires attention to detail. You are already able to assign any routing plan to any customer; and in MR19 all accounts will automatically be assigned the same routing plan that was previously assigned to their customer. If the administrator now reconfigures the product to use "tariff per routing plan", but does not take into consideration that some customers had a particular routing plan assigned to them, and thus omits that routing plan from the accessibility, an unpleasant situation may arise. Now when a customer with an account whose routing plan has been omitted tries to make a phone call without specifying a selection code, the call will be rejected, since the product's accessibility effectively says: "We don't want customers of this product to use this routing plan!". In order to prevent this happening through an operator error, PortaBilling pre-populates the table for routing plan/tariff

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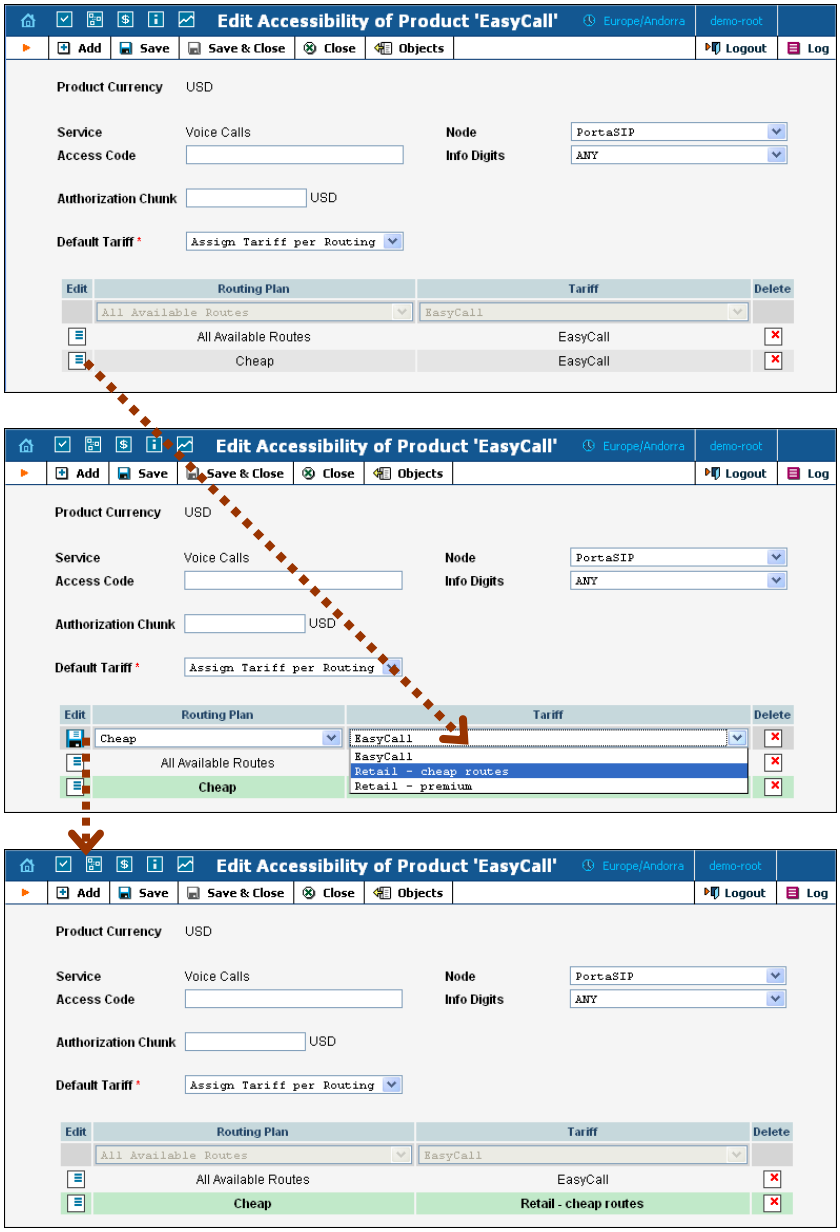
mapping with **all** the routing plans currently assigned to accounts of this product. You then have a clear overview of all the routing plans that are being used, and can decide which tariff should be applied to each of them.



To edit the Accessibility list:

1. Click the (**Edit**) button
2. Choose the service, node, info-digits and tariff from the drop-down lists
3. Type in the Access Code value, if any
4. Click the **Save** button

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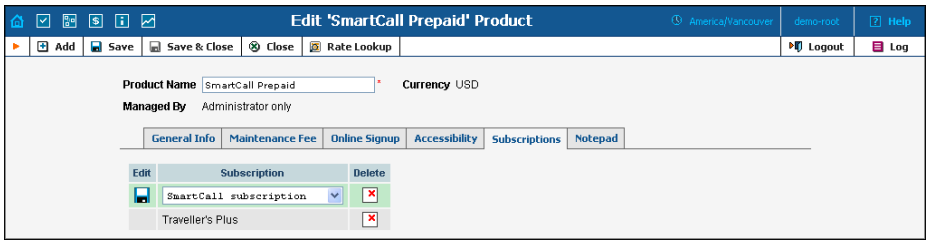
Subscriptions

This tab allows you to define a list of subscription plans which are mandatory for this product, so that these subscriptions will be automatically applied to every account to which this product will be assigned.



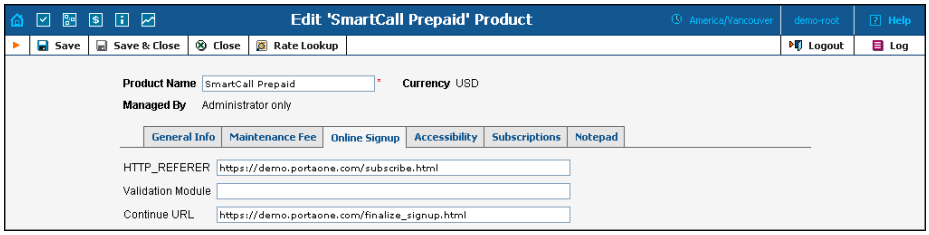
NOTE: The Subscriptions tab is invisible in Add New mode, and will appear only when editing an existing product.

To add a new Subscription entry:

1. click the **Add** button
2. choose a subscription plan from the drop-down lists
3. click the **Save** button

Online Signup

Online signup allows automated creation of accounts (and customers, if necessary) when an end-user fills in a subscription form and payment card information and then, having successfully completed the subscription process, receives the credentials necessary to make phone calls.



Numerous online signup frontends can be developed using a combination of the "HTTP_REFERER" and "Validation Module" fields.

Read about "How to configure online web signup" in the **PortaBilling Administrator Guide**.

Service Features

You can define the default values of service attributes for all accounts which this product will be assigned to (naturally, you can override them at the account level later on).

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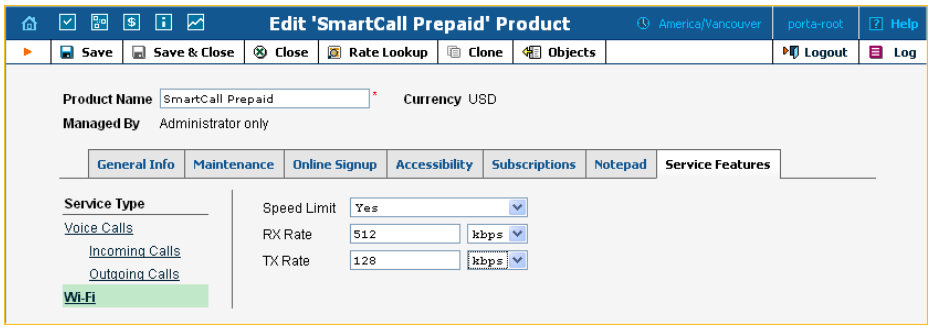
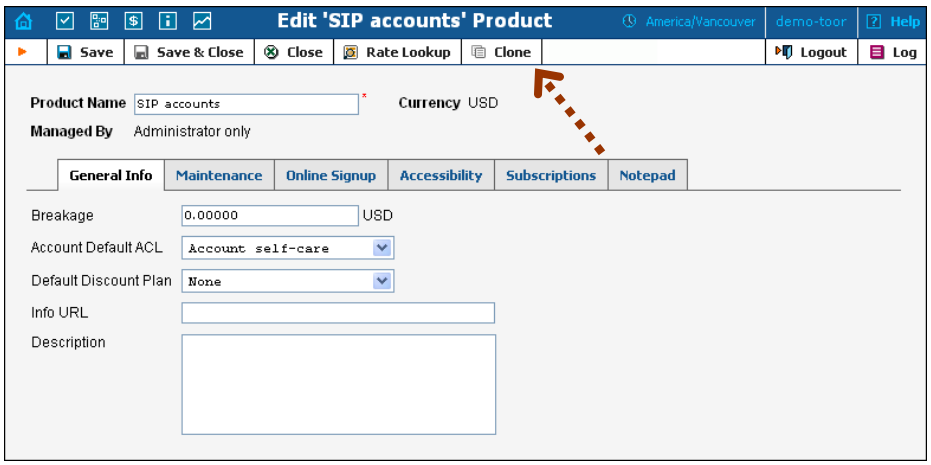


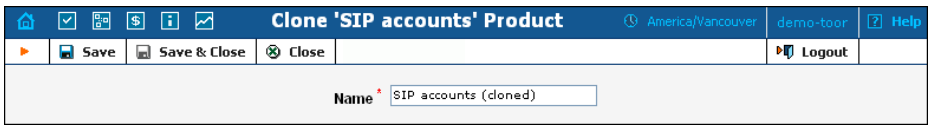
Clone Product

Product configuration is an important step, since you need to specify all the accessibility entries properly in order to ensure the correct functionality. To minimize the amount of work required to create new products, PortaBilling100 allows you to create them as clones of existing ones. In this case, PortaBilling100 will copy all the tariffs used in an old product and generate a replica of it. The new product will have exactly the same accessibility entries, except that they will now refer to the newly created tariffs.

Administrators can clone all existing products within the environment, while resellers are limited to cloning only those products they have access to. Any modifications in the newly created product will not affect tariff or rate data configuration within the old product.

To clone a specific product, click the **Clone** button in the toolbar on the Edit Product page. Give the new product a name, then click the **Save** button.





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NOTE: Cloning may take a significant amount of time, depending on the amount of data involved. The new product will appear in the product list only after the cloning is complete.

Vendor Management

Vendors are your service providers, e.g. termination partners or incoming toll-free line providers. Every time a call travels from your network to a vendor (via telephony or VoIP) there is a cost associated with it, and at this point PortaBilling will charge the account and customer for the call, as well as calculate your termination costs.

On the Vendor Management screen, you can view a list of all registered vendors. This list provides the following information and activities:

Column	Description
xDRs	Click the View ( ) icon to go to the xDR view page for this vendor.
Name	The vendor's name.
Connections	Click the connections ( ) icon to be taken to the connections management page for this vendor. The number next to the icon shows the number of connections defined for this vendor. Read more in the Connections section below.
Currency	The currency in which the vendor's account is maintained and paid.
Balance	The vendor's current balance.
E-mail	E-mail contact for the given vendor.
Delete	Click the delete ( ) icon to remove the vendor. The delete button will only appear if there are no xDRs or connections defined for the vendor.

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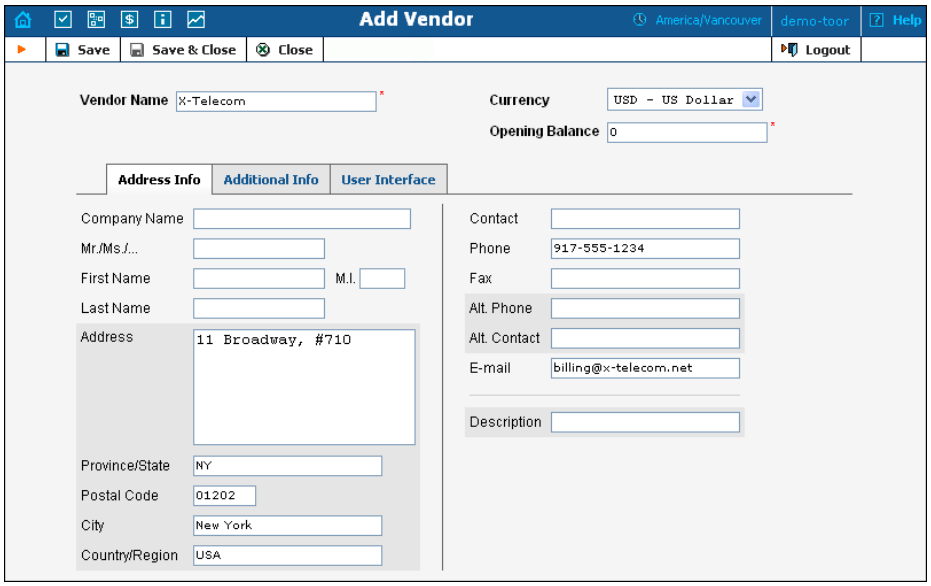
Add/Edit Vendor



The Add Vendor page allows definition of a new client entity within PortaBilling. The information required is split into two tabbed sections: Address Info and Additional Info. The Edit Vendor page also contains the Notepad tab for making notes. The following information is required at the top of the form:

Field	Description
Vendor Name	Defines the vendor name as it will appear within the PortaBilling system. This is distinct from the **Company Name** field in the **Address Info** tab.
Currency	A currency must be specified by selecting it from the drop-down list of available currencies.
Opening Balance	The starting balance for the vendor.

The information in all the other tabs is optional, and need not be specified when creating a vendor.

Maintenance

The Maintenance tab allows the administrator to correct a vendor's balance.

Field	Description
Action	**Manual charge:** Use this transaction to adjust the vendor's balance in case of non-call related charges from the vendor. For instance, if the vendor is charging you for an equipment purchase.

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	Manual refund: Use this transaction if you have received credit to your account. For instance, if you complained about the vendor's service quality and have agreed for certain funds to be credited toward future services.
Amount	Amount to charge/refund.
Visible comment	A comment on this transaction visible to the vendor in the xDR browser.
Internal comment	An internal comment on this transaction; not visible in the xDR browser, and only accessible directly from the database.

Additional Info

Field	Description
Billing Period	Defines the frequency of invoicing for this vendor.
Offset Balance with Customer	Defines the customer for automatically offsetting the vendor's balance (if this vendor also sends you traffic, i.e. he is also your customer). You may only choose a reseller or retail customer defined with the same currency.
Minimum Amount to Offset	When the balance reaches the threshold value, the current vendor's balance will be applied as credit to the chosen customer and reduced to zero. xDR records for both the vendor and the customer will be created for this transaction.

User Interface

The User Interface tab content is identical to that described in the *User Interface* subsection of the *User Management* section of this guide.

Accounts

When you send traffic to the vendor's network, both parties are interested in securing the connection so that no one else can send traffic to the vendor, as this would then be billed to your account. When using SIP, it is possible to do this in a very convenient and secure way: by using digest authentication. In this case, the vendor will provide you with a username/password, which will be used to authorize every outgoing call from your network to this vendor. Here you can enter information about such accounts, so that they can be provided automatically by billing to the SIP server.

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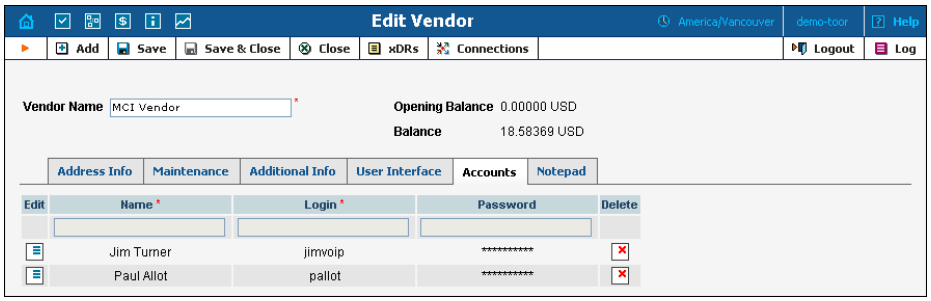


Connections

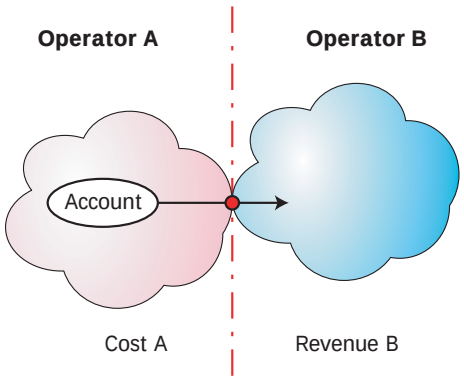
Definitions

Network

VoIP network - one or more VoIP entities that belong to a single operator.

Connection

Point of change of network ownership. Defined as a set of physical and logical parameters i.e. IP, Port, Timeslot, Call Type, Call Direction, etc.



Cost A = Revenue B

Operator

Network owner. Responsible for internetworking and wholesale in its network.

A connection defines the point where a call travels between the networks of two operators, one of whom is a PortaBilling owner. At this point, we will create an xDR for the vendor (the other operator) describing our costs. Also, if this was an outgoing call, we will create xDRs for both the account and the customer.

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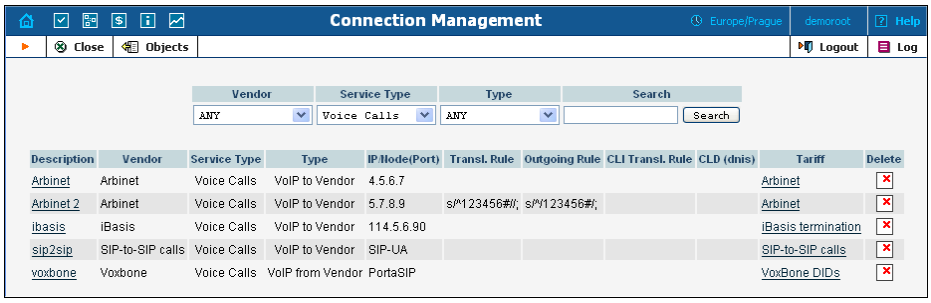
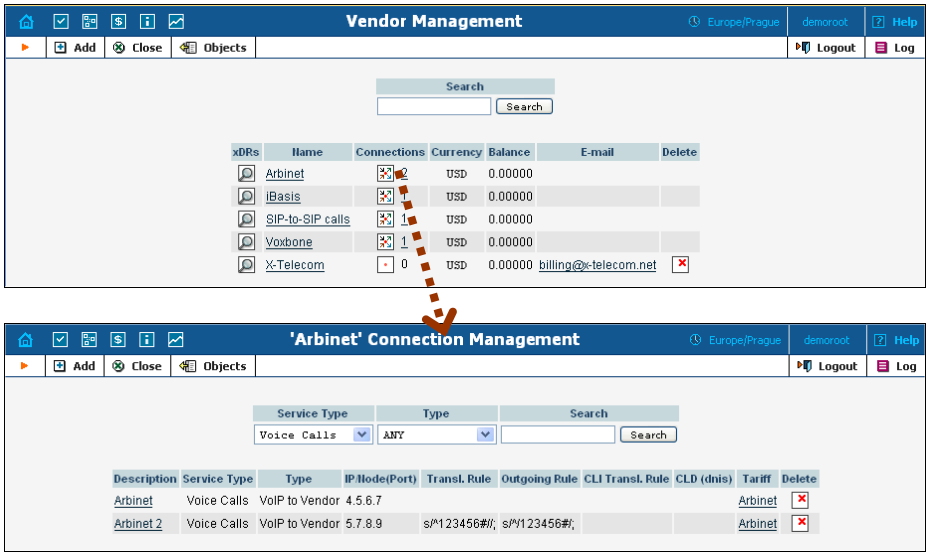
You can access connection information directly from the main menu. In this case, all connections defined in the system will be displayed.



Alternatively, you can access a list of connections for a particular vendor. To do so, click the icon next to the vendor name in the vendor list, or click **Connections** in the toolbar on the vendor info screen.



To edit a connection, simply click on the connection description in the table. To add a new connection, first go to the list of connections for a specific vendor, then select **Add**.

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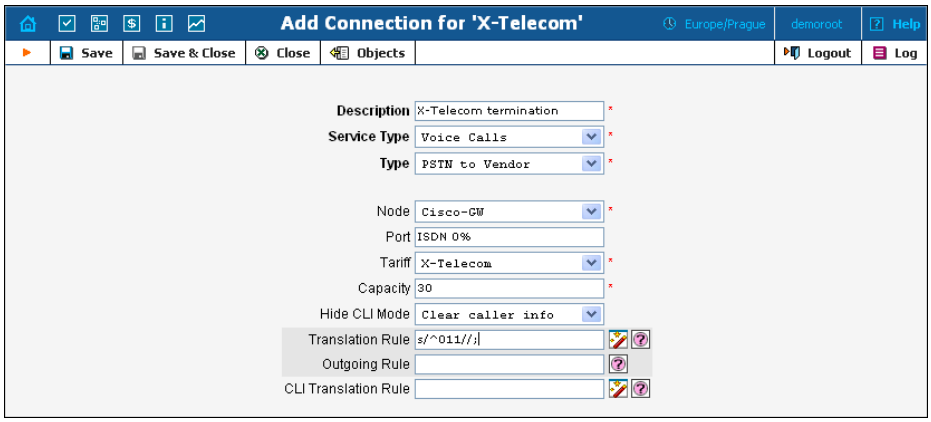

Field	Description
Description	A logical description of the connection.
Service Type	The type of service this connection is used to transport (voice calls, Internet connectivity, etc.). **NOTE:** While services are used to represent and bill your customers' activities to them, you use service types to define a connection, since in this case it is important to know what actual (physical) service was provided.
Type	The type of this connection. The available types depend on the service type chosen above. For the **Voice Calls** service, the applicable types are: • PSTN from Vendor - Vendor-related expenses for delivering calls from your customers to your network (e.g. toll-free lines) via a PSTN trunk to your gateway. • VoIP from Vendor - Vendor-related expenses for delivering calls from your customers to your network (e.g. foreign DIDs) via VoIP to your SIP server. • PSTN to Vendor - Your expenses for terminating calls on a vendor's network via a PSTN trunk on your gateway. • VoIP to Vendor - Your expenses for terminating calls on a vendor's network by sending them over an IP network to his gateway or proxy.

Other available fields on the **Add Connection** form vary depending on the service type and type of connection chosen.

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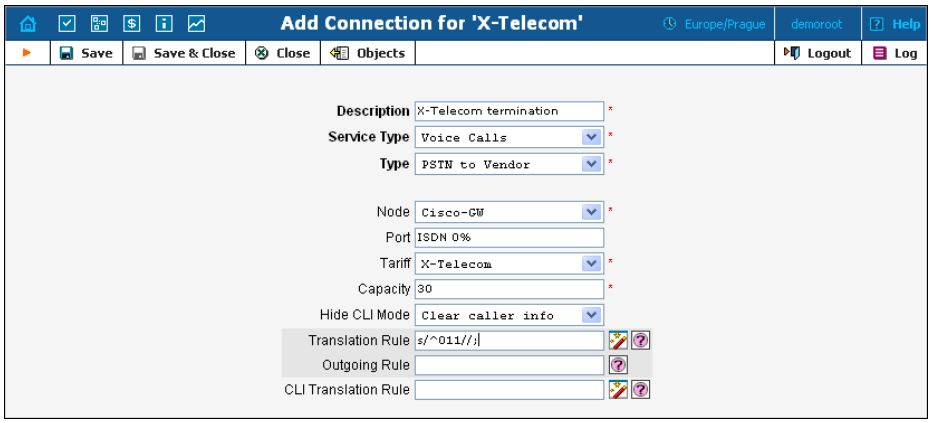
Connections with Voice Calls Service Type and PSTN Type



Field	Description
Node	Name of the node used for this connection. Not available for "VoIP to Vendor" connections.
Port	Only on PSTN-related connections. The specified port for PSTN origination or termination. The port can be set using wildcards: **"_'** - match any symbol **'%'** - match any sequence of symbols The wildcard symbols **'*'** and **'?'** should not be used.
Tariff	The tariff used to calculate the cost of terminating calls via this connection.
Capacity	The number of simultaneous sessions this connection can support. This parameter is only used to correctly scale the load graph for the connection, and not for actual call handling – this is done by the gateway itself.
The following column is only available for "PSTN from Vendor" connections:	
CLD	Specifies the access number the customer dialed in order to reach your network.
Info Digits	Info Digits is ISDN Originating Line Information sent by the gateway, which allows accounts to be billed depending on where the call is originated from. Simply associate the corresponding tariff with any OLI in Accessibility. Please note that the gateway should be configured to support OLI.
The following column is only available for "PSTN to Vendor" connections:	
Hide CLI Mode	Describes how outgoing calls for which privacy has been requested by the caller should be displayed to the vendor. • Clear caller info – PortaSwitch will remove all information about the caller from the call initiation info sent to the vendor.

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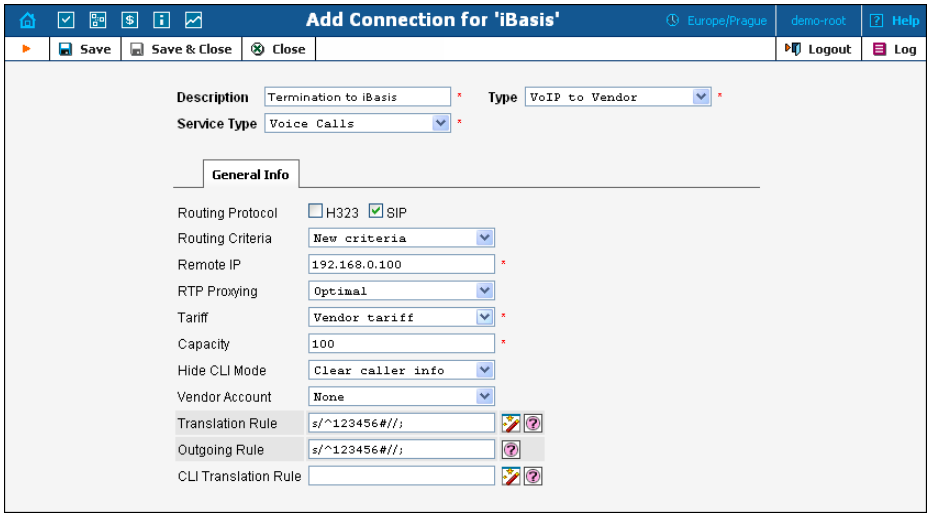
	• Use private headers – The outgoing call initiation request will contain special flags requesting the vendor to hide the caller information from the call recipient.
Translation Rule	Rule applied to convert a number from a vendor-specific format into the unified format used in billing. Click the wizard icon to launch the Dialing Rules wizard; click the test icon to pop up the Test Rule window.
Outgoing Rule	If necessary, a received number can be modified before sending it to the vendor (for example, if a tech prefix is required). This is only applicable if the node which routes the call retrieves routing information from PortaBilling (e.g. PortaSIP or MVTS). This will be filled in automatically if you use the Dialing Rules wizard.
CLI Translation Rule	Translates the CLI (ANI) to a vendor-specific format when routing a call to the vendor's network.

Connections with Voice Calls Service Type and VoIP Type



Field	Description
The following column is only available for "VoIP to Vendor" connections:	
Routing Criteria	Defines what routing criteria will be applied to this connection.
Remote IP	IP of the remote gateway. The value in this field should take one of the following forms: • An IP address, e.g. `23.45.67.89` • An IP address and port, e.g. `34.56.78.90:5062`.

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	This is required if the remote gateway uses a port different from the standard one. • Special keywords `ANY` or `SIP-UA` • Prefix with IP address and port, in the form PREFIX:<prefix>[@[<gwname>/]<ip>[:<port>]]; e.g. `PREFIX:1234@1.2.3.4:5061`; Such a combination of prefix-based and IP-based connection is used for both prefix-based billing and routing. This may happen if the same gateway without Radius capability is used to terminate calls to several vendors.
RTP Proxying	Describes the NAT traversal capabilities of the remote gateway: • Direct - RTP stream should be sent directly to this node; RTP proxy should not be used. • Optimal - This node is capable of NAT traversal; no RTP proxying is required unless specifically requested. • OnNat - This node is not capable of NAT traversal; engage RTP proxy if the other party is behind NAT. • Always - When sending a call to this node, always engage RTP proxy, so that no media stream goes to it directly.
Tariff	The tariff used to calculate the cost of terminating calls via this connection.
Capacity	The number of simultaneous sessions the connection can support. This parameter is used only to correctly scale the load graph for the connection, and not for actual call handling – this is done by the gateway itself.
Hide CLI Mode	Describes how outgoing calls for which the caller has requested privacy are to be displayed to the vendor. • Clear caller info – PortaSwitch will remove all information about the caller from the call initiation info sent to the vendor. • Use private headers – The outgoing call initiation request will contain special flags requesting the vendor to hide the caller information from the call recipient.
Vendor Account	Defines which username/password should be used for authorization of calls via this connection.
Translation Rule	Rule applied to convert a number from a vendor-specific format into the unified format used in billing. Click the wizard icon to launch the Dialing Rules wizard; click the test icon to pop up the Test Rule window.

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Outgoing Rule	If necessary, a received number can be modified before sending it to the vendor (e.g. if a tech prefix is required). This only applies if the node which routes the call retrieves routing information from PortaBilling (e.g. PortaSIP or MVTS). This will be filled in automatically if you use the Dialing Rules wizard.
CLI Translation Rule	Translates the CLI (ANI) to a vendor-specific format when routing a call to the vendor's network.

The following two columns are visible only if you are using multiple protocols in your system and have the `ShowConnectionProtocol` feature enabled. By default this option is turned off, and every connection is assumed to be SIP-capable only.

Field	Description
H323	Check if this connection is capable of handling H323 calls.
SIP	Check if this connection is capable of handling SIP calls.

Connection Load

PortaBilling automatically updates load graphs based on the number of calls going through a connection. To access the load graph for a specific connection, open the connection details page and click the **Load** icon in the toolbar.

Customer Classes

A customer class is a definition of various properties (e.g. invoice terms) which can be easily applied to a large number of customers.

On the Customer Class Management screen, you can view a list of all currently defined classes. This list provides the following information:

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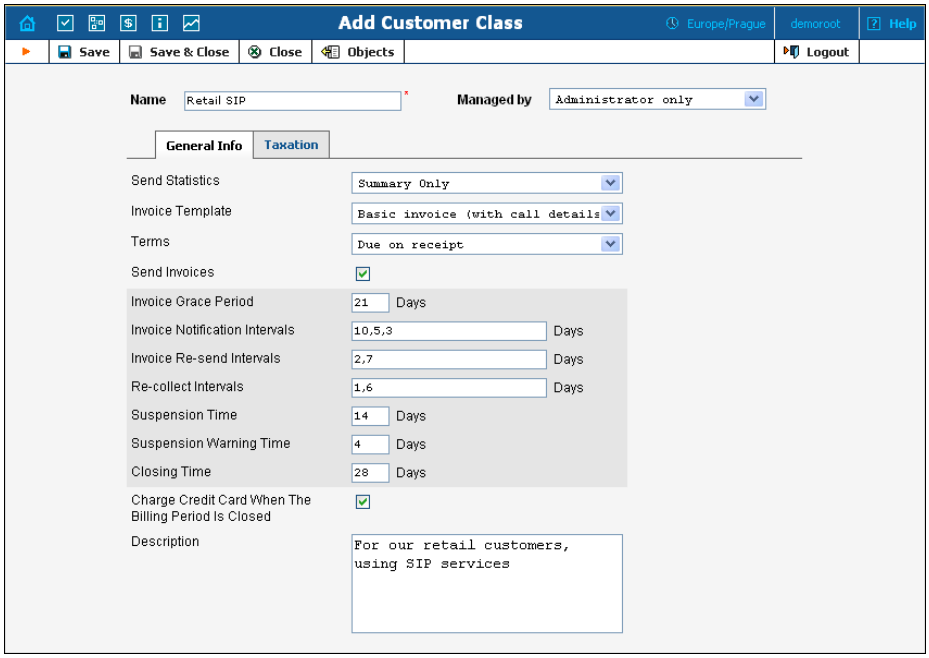
Column	Description
Name	The name of a specific customer class
Managed by	**Administrator only** (default) means that this class will be used for your direct customers, and is accessible only to your administrators. Select a PortaBilling reseller to assign this class for use by a particular reseller.
Description	A logical description of this customer class.

Add/Edit Customer Class

The Add Customer Class page allows you to define a new customer class within PortaBilling.



The following parameters are available:

Field	Description
Name	Name of the specific customer class.
Managed by	**Administrator only** (default) means that this class will be used for your direct customers, and is accessible only to your administrators. Select a PortaBilling reseller to assign this class for use by a particular reseller.
The following specifies various parameters to be assigned by default to customers within this customer class:	
Send Statistics	Defines what kind of xDR statistics should be delivered to the customer by email: • Full Statistics – Send a CSV file with a complete list of xDRs.

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	• Summary Only – Do not send a full list of xDRs, only a brief summary. • Do Not Send – Do not send any statistics by email. For more details see *Additional Info* in the *Add/Edit Customer* section.
Invoice Template	Choose either "Do not create invoice" (in this case no invoices will be created, only CSV xDR statistics) or a particular invoice template.
Terms	Description of the invoice terms for a customer to be printed on the invoice.
Send Invoices	Defines whether a PDF copy of the invoice should automatically be sent to the customer when a new invoice is created.
Invoice Grace Period	Invoice terms, i.e. how many days after invoice generation payment is expected.
Invoice Notification Intervals	Comma-separated list of numbers; each number represents a number of days prior to the invoice due date when a notification regarding an unpaid invoice should be sent. For instance, `14,7,3` means that the customer should receive a notification 14, 7 and 3 days before the due date. (Obviously, if the customer pays after the first notification, no further notifications will be sent). Leave this field empty to disable notifications completely.
Invoice Re-Send Intervals	Comma-separated list of numbers; each number represents a number of days after the invoice due date when a notification regarding the overdue invoice should be sent. For instance, `0,7,14` means that the customer will receive a notification on the due date and then 1 and 2 weeks later. (Obviously, if the customer pays after the first notification, no further notifications will be sent). Leave this field empty to disable notifications completely.
Re-collect Intervals	Comma-separated list of numbers; each number represents a number of days after the invoice due date when an attempt should be made to charge a customer's credit card for the invoice amount due. For instance, `0,3,10` means that PortaBilling will attempt to charge the customer's credit card on file on the due date and then 3 and 10 days later. (Obviously, if one of the charge attempts succeeds, no further attempts will be made). Leave this field empty to disable re-collect attempts completely.

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Suspension Time	How many days after the due date will the customer's services be suspended if the invoice is still unpaid. Leave this field empty to disable service suspension.
Suspension Warning Time	How many days after the due date should notification of possible suspension of services be sent to the customer. Leave this field empty to disable such notification.
Closing Time	How many days after the due date will the customer's account be closed if the invoice is still unpaid. Leave this field empty to disable automatic account closing. Note that, if defined, the **Suspension Warning Time** must be less than the **Suspension Time**, and the **Suspension Time** must be less than the **Closing Time**.
Charge Credit Card When Billing Period Is Closed	Automatically charge the customer's credit card on file for the full amount due when his billing period is closed – as a result, an invoice will be created with a zero amount due.
Description	A logical description of this customer class.

Customer Management

On the Customer Management screen, you can view a list of all registered customers, or use search filters to display a specific set of customers only.

Filter value	Description
ANY	All customers registered in the system
Direct Customers	Customers directly owned by your company (who have a business relationship with you, receive bills from you, and pay to your accounts). This may include both resellers and retail customers.
All Resellers	Only customers of the reseller type.
All Retail	All retail customers; this includes your own retail customers and those of your resellers.
Direct Retail	Only retail customers who are owned by your company.
Sub-customers of Reseller NNN	All sub-customers of a specific reseller.
Representative	Only customers related to a specific representative.
Search	Filter by name and contact details. When you enter a value in the search field, all customers who have the search string in their customer

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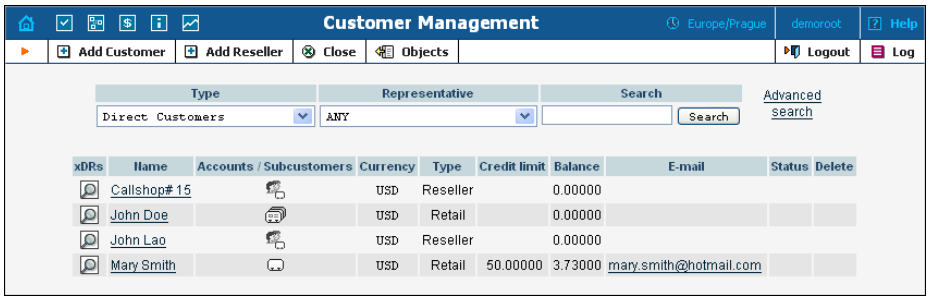
	name, company name, first/last name or contact info (e.g. state, city, country, zip code, phone, email, login) will be displayed.
Advanced Search	Allows you to specify complex search conditions (see more info below)

The screen provides the following information and activities:



Column	Description
xDRs	Click the View ( ) icon to go to the xDR view page.
Name	The customer's name.
Owned By	The name of the reseller owning the customer (none are displayed if the **Direct Customers** filter is applied).
Accounts/ Sub-customers	Click the Accounts icon to go to the Account Management screen (for retail customers) or the sub-customers icon for the Sub-customers Management screen (for resellers). If there are no accounts under the customer, the icon is changed accordingly to , so that you can easily see this. The same applies to resellers; in this case the "no sub-customers" icon is shown.
Currency	The currency in which the customer's account is maintained and billed.
Type	The customer may be either a reseller or a retail customer.
Credit Limit	The credit limit applicable to the customer's account (if any).
Balance	The customer's current balance.
E-mail	E-mail contact for this customer.
Status	The status of the customer's account. The icon will appear if the customer's credit has been exceeded. The customer blocked icon means that all accounts of this customer have been administratively blocked. The icon means all

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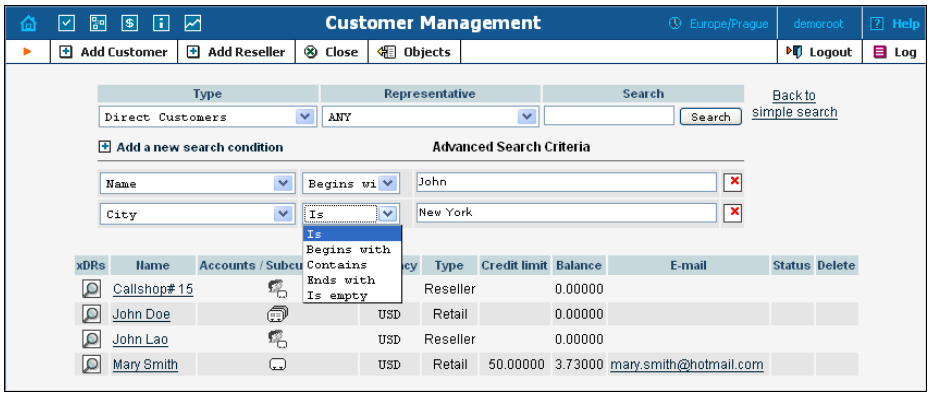
	services to this customer have been suspended because of an overdue invoice, and the icon means that this customer was closed. The frozen icon means that periodic payments for this customer have been suspended due to repeated errors (for instance, the customer canceled his credit card and did not enter the information for his new card in PortaBilling).
Delete	Click the delete ( ) icon to remove the customer. The delete icon will only appear if there are no xDRs, accounts or sub-customers owned by the customer, or other entities (products, tariffs, etc.) managed by the customer.

Advanced Search

In advanced search mode, you can specify an unlimited number of search conditions. Every condition applies to a particular field (e.g. customer's ZIP code). Click on **Add a new search condition** to add another condition.



Operation	Description
Is	The value of the field in the customer information must match the search criteria exactly.
Begins with	The value of the field in the customer information must start with the specified value (e.g. if you enter the filter value "John", customers with the names "John" and "Johnny" will be selected).
Contains	The value of the field in the customer information must contain the specified value somewhere (e.g. if you enter the filter value "Eric", customers with the names "Eric", "Erica", "Maverick" and "American" will be selected).
Is empty	The corresponding field in the customer information must be empty.

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All search operations are case-insensitive, so you can enter "Eric" as a search criteria and, even if the customer's name was originally entered as "eric" or "ERIC", you will still see him in the list.

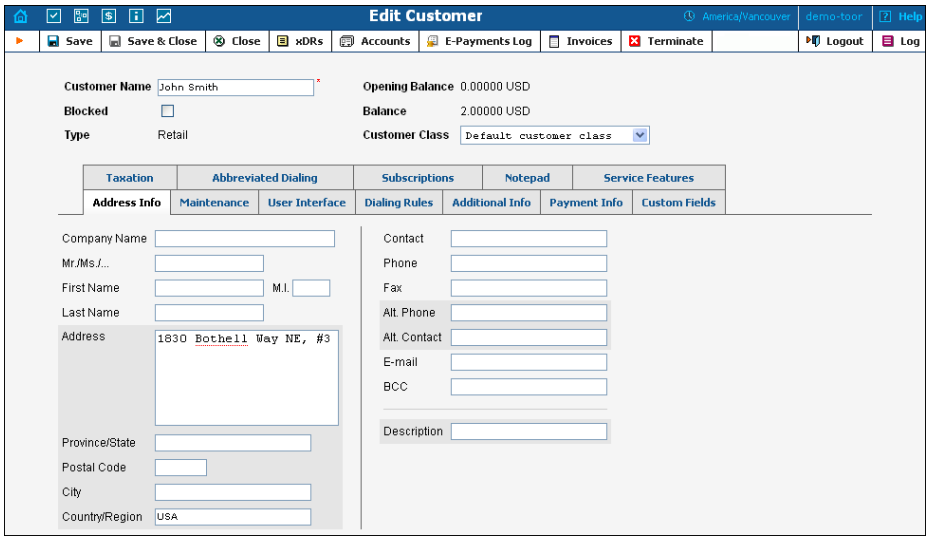
All conditions work in conjunction, so in the case of multiple search criteria the customer's record must satisfy all of them in order to appear in the result list.

During a search operation using auxiliary fields (e.g. fax) or the "contains" comparison, the database cannot use indexes. This will result in a full table scan, meaning an increased load on the server and a longer time to produce the final result. Please avoid using such search operations if not necessary.

By clicking on **Back to simple search** you can switch the form to its original mode.

Add/Edit Customer

The Add Customer page allows you to define a new client entity within PortaBilling. The information required is divided into four tabbed sections: Address Info, Additional Info, Payment Info, and Self-Care Info. The information on the top of the form is required . Information on all the other tabs is optional, and need not be provided when creating the customer. Once created, the customer cannot be changed from a retailer to a reseller, or moved under another reseller.



Field	Description
Customer Name	Defines the customer name as it will appear in the PortaBilling system. This is distinct from the

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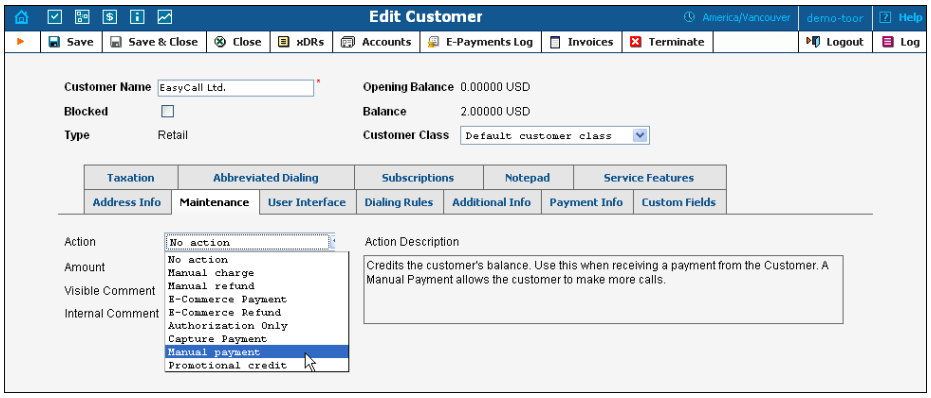
	Company Name field in the **Address Info** tab.
Blocked	Blocks *all* accounts of this Customer.
Currency	The currency must be specified by selecting it from the drop-down list of available currencies. Once saved, the currency cannot be changed.
Opening Balance	The starting balance for this customer.
Type	This can be either "Reseller" or "Retail".
Customer Class	The customer class assigned to this customer.

Address Info

The Address Info tab provides most of the commonly required contact information. Also note that you may enable your account manager to receive a copy of every e-mail sent to the customer by entering his e-mail address in the **BCC** field.

Maintenance

The Maintenance tab allows the administrator to correct a customer's balance (this tab is only available in **Edit Customer** mode).



Field	Description
Action	**Manual Charge:** Debit (increase) the customer's balance in PortaBilling100; for instance, if you are selling SIP phones to a customer. This means the balance will be changed so that the customer is able to make fewer calls. **Manual Refund:** Credit (decrease) the customer's credit balance in PortaBilling100; for instance, if the customer files a complaint and you agree to give him credit toward future service use. This means

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	the balance will be changed so that the customer is able to make more calls. **E-Commerce Charge:** Transfers a given amount from a customer's e-commerce account to a company merchant account and issues credit toward the customer's balance in PortaBilling100. **E-Commerce Refund:** Transfers a given amount from a company merchant account to a customer's e-commerce account; for instance, if a customer files a complaint and you agree to a refund. **Authorization Only:** Verifies whether the customer's e-commerce account is valid and reserves a given amount. This will return a transaction ID, which may be used later in a capture payment transaction. This transaction will not affect the customer's balance in PortaBilling100, nor the customer's e-commerce account. Note: the transaction ID will be written to the customer's Notepad entry. **Capture Payment:** Transfers a given amount from a customer's e-commerce account to a company merchant account and issues credit toward the customer's balance in PortaBilling100. This requires the transaction ID obtained via an Authorization Only transaction. The amount must be equal to or less than that in the corresponding Authorization Only transaction. **Manual Payment:** Credits the customer's balance. Use this when receiving payment from the customer. Manual payment allows the customer to make more calls. **Promotional Credit:** Credits the customer's balance. Use this when giving the customer credit toward future service due to a sales promotion. A promotional credit allows the customer to make more calls.
Amount	Amount to charge/refund.
Visible Comment	A comment on this transaction visible to the administrator as well as the customer, in the xDR browser or on the invoice.
Internal Comment	An internal comment on this transaction; not visible in the xDR browser, and accessible only from the database directly.

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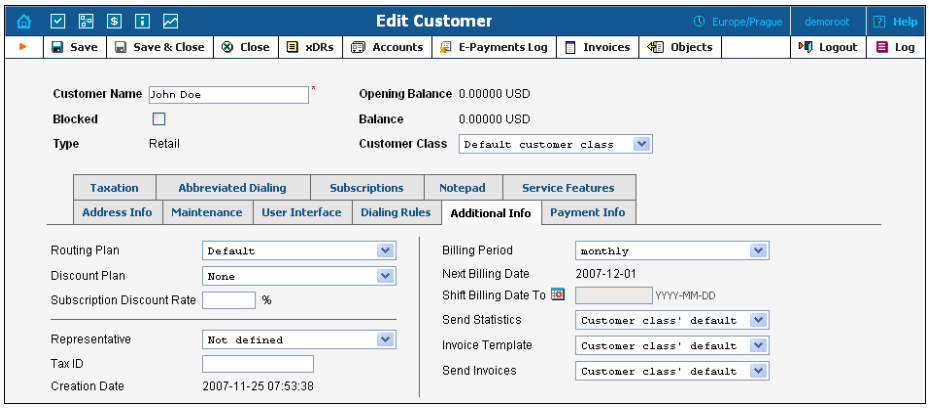
Additional Info



Field	Description
Discount Plan	Volume discount plan to be applied to this customer.
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).
Representative	Assigns a representative to this customer. See the **Representatives** section for more information.
Tax ID	Customer's tax ID.
Callshop Enabled	Defines whether callshop features (timer, receipt, etc.) are available. Not available for direct retail customers. To use the callshop functionality with accounts of a particular sub-customer, you should first enable this option for the reseller, then enable it for the sub-customer as well.
Creation Date	The date and time the customer was created (read-only).
Billing Period	Defines the frequency of invoicing for this customer.
Next Billing Date	Read-only field; displays the date when the customer's current billing will be closed (and invoice and statistics generated).
Shift Billing Date	Applicable only for "monthly anniversary" and 30-day billing periods; allows you to set the billing date to a different day of the month in the future (see below for more details).
Send Statistics	Defines what kind of xDR statistics should be delivered to the customer by email: • Customer class default – Use the settings for the customer class. • Full Statistics – Send a CSV file with a complete list of xDRs. • Summary Only – Do not send a full list of xDRs, only a brief summary • Do Not Send – Do not send any statistics by

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	email.
Invoice Template	Defines the invoice template for this customer. Choose **Customer class default** in order to apply the invoice template defined for this class, and so avoid defining an invoice template for each customer specifically. See the **Templates** section for more information.
Send Invoices	Defines whether new invoices should be delivered to the customer by email. Customer class default – Use the settings for the customer class.

Regarding statistics, the default choice is **Full Statistics**, whereby the customer receives an e-mail after the billing period has closed, including an attached CSV file containing all the calls made by his accounts. If invoices are generated for this customer and invoice delivery is enabled, an invoice will also be attached to the e-mail. The CSV file containing all the calls may be rather large, so it is possible to use the **Summary Only** option. In this case, the customer receives only a brief summary of calls by e-mail. Finally, it is possible to disable e-mail statistics by choosing the **Do Not Send** option. Note that these options only affect the delivery of xDR files by email. The actual statistics files will always be generated and accessible for download from the administrator interface or customer self-care.

Shifting the billing date may be required if, for instance, your customer has a monthly anniversary billing cycle in which his billing period closes on the 3rd day of each month. Since this may be inconvenient either for customers or your administrators (who are busy with corporate reports during the first week of the month), it may be desirable to change the billing date to some other day of the month. In this case, you can specify a new date between today's date and the date when the current billing period will close. Upon reaching this date, an "intermediate" invoice will be created (covering the period from the end of the previous billing period to that date), and subsequent billing will start from that date in the normal way.

Payment Info

The Payment Info screen defines customer payment characteristics. In addition to customary payment information (e.g. preferred payment method, credit card number), there is also a **Credit Limit** field. If left empty, no credit limit is enforced. Otherwise, if Radius authentication is enabled, calls exceeding the limit can be denied. Also, if a **Balance Warning Threshold** is defined and the customer balance reaches this value (defined either as an amount or as a percentage of a positive **Credit Limit** value), an alarm e-mail will be sent to the customer owners (i.e. the system administrators if the customer is direct, or else the reseller).

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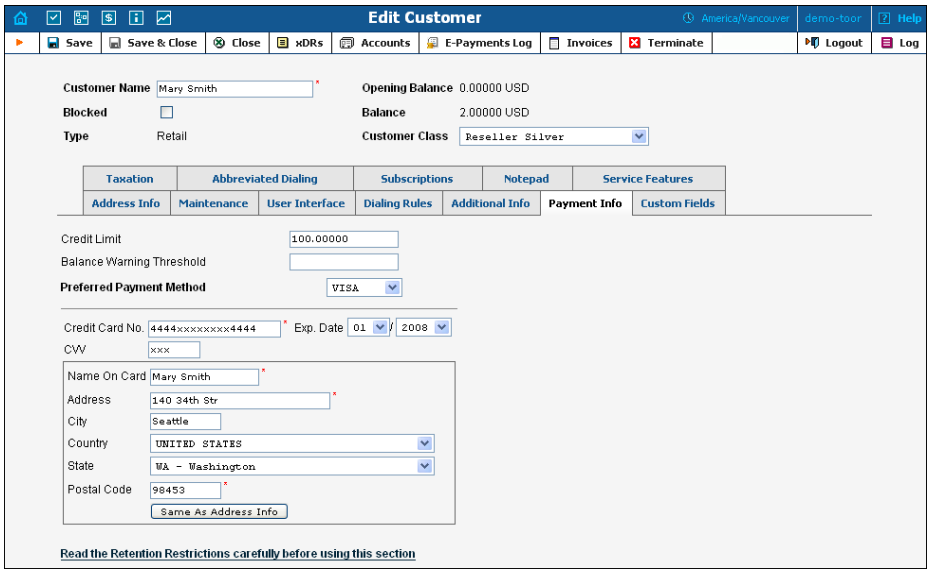

The **Preferred Payment Method** drop-down contains a list of available payment methods. Some of these, e.g. Cash and Cheque, are "virtual" methods that do not allow manual e-commerce transactions from the administrator interface, payments from customer self-care, or running periodic payments. Any other online methods will be available only if a payment system with such methods has been defined, and is assigned to the same currency as the customer's currency. Other Payment Info fields depend on the currently selected **Preferred Payment Method**, and may vary accordingly.

NOTE: There are a few payment systems which use external authorization. If such a system has been chosen as a preferred method, no other payment information details may be entered. This is because the payment processor does not allow the system to store and reuse customer payment credentials. For example, if you add a payment system with the Moneybookers payment processor and VISA payment method, and then assign it to the currency USD, customers defined in the USD currency and using VISA as their preferred payment method will not be able to enter their payment credentials. Therefore, it will not be possible to run periodic payments for them or make manual e-commerce transactions with them.

NOTE: Only resellers, direct retail customers, and their accounts are allowed to use a company's payment systems and payment methods for e-commerce payments, both manual and periodic. A reseller should define his own payment systems and assign these to the appropriate currencies in his self-care, so that those payment systems will be used by his sub-customers and their accounts.

Retention Restrictions

IMPORTANT! A merchant may not use account and transaction information for any purpose other than assisting completion of a payment card transaction, or as specifically required by law. Merchants may collect a payment card number and expiration date independently of a payment card transaction only with the express consent of the cardholder. A merchant may only retain this information for the sole purpose of

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facilitating future payment transactions. A merchant must not provide this information to any other person, except for the sole purpose of assisting completion of a payment card transaction.

You may click the **Invoices** button in the toolbar to quickly access the list of all customer's invoices.

User Interface

The login and password information for Customer Self-Care refer to the credentials required on the self-care web page. An easy-to-remember yet secure password may be generated automatically by clicking the **Auto** button.

Check the "Periodic payment management enabled" option to enable the customer himself to manage periodic payments on the Customer Self-Care interface (this does not prevent the administrator from editing this information!). The **Periodic Payment** tab will appear only if the customer's currency can be processed by at least one of the existing payment systems, and if the customer's preferred payment method has been set to any available online method which allows storage of his payment credentials.

Check the "Dialing rules management enabled" option to enable the customer himself to manage dialing rules on the Customer Self-Care interface. This option is not available for resellers.

Date & Time Format
PortaBilling allows the administrator to define both input and output date and time formats for each customer registered in the system.

By making changes to the date and/or time format on this page, customers will be able to enter dates and times in the desired format throughout the entire PortaBilling100 Customer Self-Provisioning Interface, on invoices, and so on (see the screenshot below).

See the **User Management** section for examples of date and time format usage.

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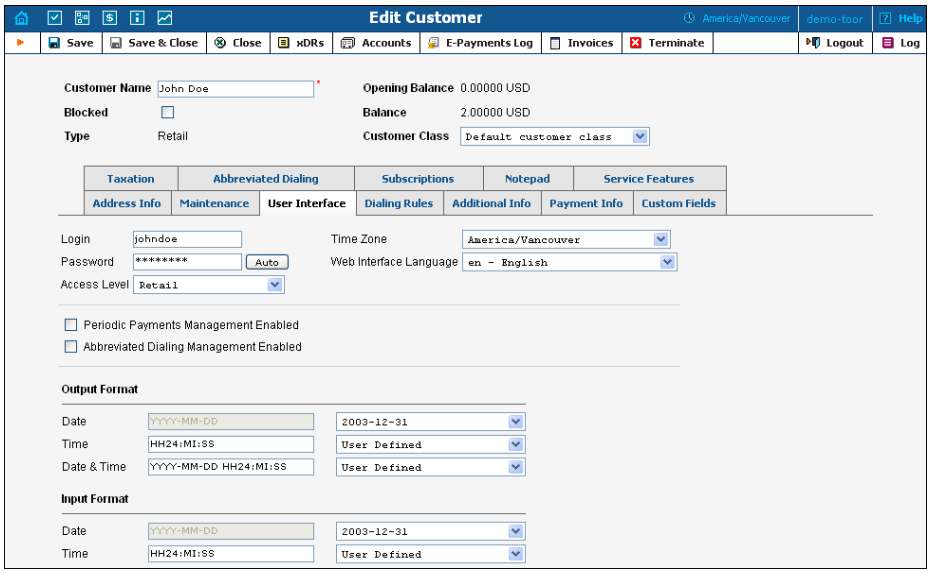
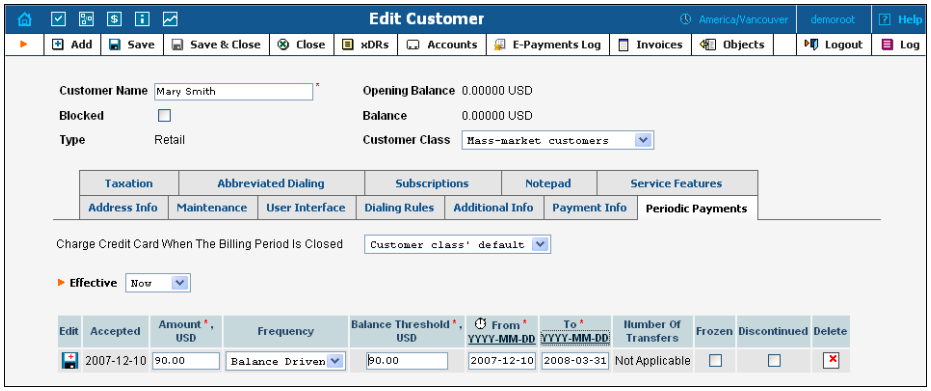


Periodic Payments

NOTE: The Periodic Payment tab will appear only if a suitable payment system has been set up, and the appropriate online payment method has been selected as the customer's preferred payment method.

Periodic payment management allows the administrator and customers to set up the following parameters for automated periodic payments.
All registered payments for a customer are listed. The **Effective** drop-down list allows you to define whether only current payments ("Now") or all payments ever processed ("->Now") will be shown.

Choose ("Now->") to see "future" payments, or "All" to list all payments. ("Now") is the default value for this filter. The information in the chart below is provided in the payments listing. To add a new payment, click the **Add** button.



Field	Description
Amount	Specify a fixed amount to be paid, or click the **Pay**

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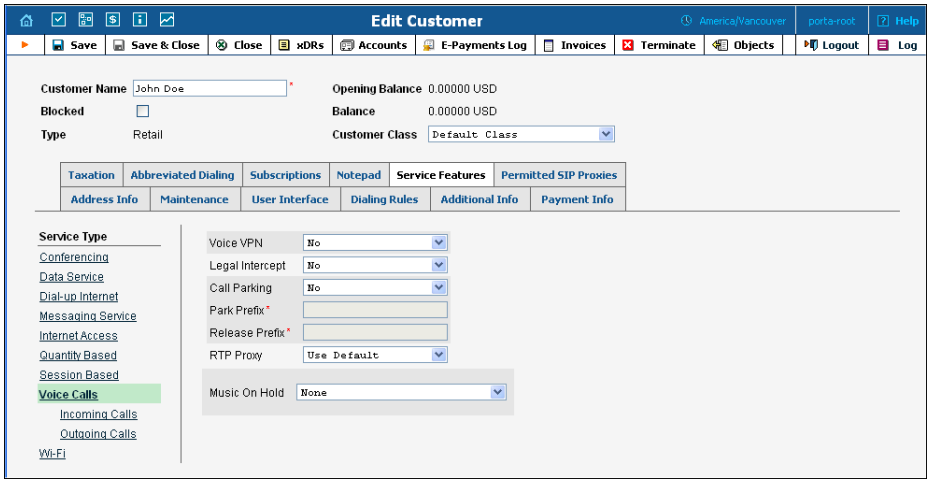
	Balance icon (not available when the frequency is balance-driven) to pay the current balance with a certain periodicity.
Frequency	Balance-driven, weekly, or monthly.
Balance Threshold	Only available when the frequency is balance-driven. Payment will be triggered when the balance is higher than the specified threshold.
From, To Date	Dates when the payment will remain active. Click the stopwatch icon to make the payment active **immediately**.

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* (the name used in the billing configuration and "visible" to the end-user). Thus if you decide tomorrow to bundle your VoIP services under a different name, and create a new service called "Internet Telephony" rather than the old name, "Voice Call", you do not actually have to change the configuration settings for any of your customers.



The **Service Type** links on the left allow you to specify for which service type you would like to define parameters.

Parameters for the Voice Calls Service Type

Field	Description
Voice VPN	Charge calls between IP phones in this IP Centrex according to a special pre-defined rate, rather than using the destination phone number to look up the rate.

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Legal Intercept	Intercept all incoming and outgoing calls of this customer for law enforcement purposes.
Call Parking	Enable call parking for this customer's IP Centrex.
Park Prefix	Only appears if **Call Parking** is activated; allows you to specify a key combination to park a call.
Release Prefix	Only appears if **Call Parking** is activated; allows you to specify a key combination to dial from the original phone which parked a call in order to remove the call from parked status and continue the conversation.
First Login Greeting	When a new account (phone number) in this IP Centrex environment is provisioned and registers for the first time, call this phone back and play a pre-recorded voice message confirming service activation, giving information about various available options, and so on.
RTP Proxy	Specifies the RTP proxying policy for this particular customer. For a description of possible values, see the *Connections with Voice Calls Service Type and VoIP Type* section.
Music On Hold	Defines the music on hold to be used with the IP Centrex environment. Choose **None** to disable this feature, or select the default setting for the customer. To upload your own music, select a file on your local file system using the Browse button. To rename the music, enter the desired name in the Music Name field; otherwise the local file name will be used. The uploaded music will replace the previous entry in the list, and is usually enabled within 10 minutes.

Parameters for the Incoming Calls Service Type

Field	Description
Voice VPN Distinctive Ring	For incoming calls from phones within the IP Centrex environment, use a ring pattern different from the default one.
Group Pickup	Activates the **Group Pickup** feature, which allows phones in the same IP Centrex environment (all accounts under the same customer) to answer each other's calls by dialing a **Group Pickup Prefix** on their phones.
Group Pickup Prefix	Only appears if **Group Pickup** is activated. Specify the special code for picking up calls here.

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Parameters for the Outgoing Calls Service Type

Field	Description
Set CLI to	For outgoing calls, always override the CLI (ANI) value supplied by the IP phone. This is done to prevent service abuse via CLI (ANI) number spoofing. The available options are: • **Original CLI** – Do not alter the CLI. • **Account ID** – Replace the CLI with the username (phone number) value used for authorization of the call. • Centrex Number – Use a different phone number for CLI (see below).
Centrex Number	When **Set CLI** mode has been activated for outgoing calls to off-net destinations (PSTN network), this field can be used to assign one of the other phone numbers in the same IP Centrex environment as the CLI. This is typically done so that calls between extensions within an IP Centrex environment (IP phones of this customer) will carry the caller's original CLI, while calls to PSTN numbers will display a reception/switchboard number as the CLI. Hint: click on the Centrex Number field label to invoke a pop-up window, where you can browse through the customer's available accounts.
Hide CLI	Remove CLI (ANI) information for outgoing calls.
Hide CLI Prefix	Prefix to be dialed before an outgoing number in order to prevent the called party from seeing your phone number.
Show CLI Prefix	Prefix to be dialed before an outgoing number in order to allow the called party to see your phone number.
Limit Simultaneous Calls	Engage real-time checks of the number of concurrent outgoing calls made by accounts under this customer.
Max number of simultaneous calls	Allow only a specific number of concurrent calls for accounts of this customer.
Minimum Funds Reserved Per Call	When a new call starts, ensure that at least this amount of funds is available. (This reduces the risk of account overdrafts.)
Paging / Intercom	Enable the intercom feature for accounts under this customer.
Paging / Intercom Prefix	Only appears if **Paging/Intercom** has been activated; allows you to specify a key combination to answer a call on someone else's extension.

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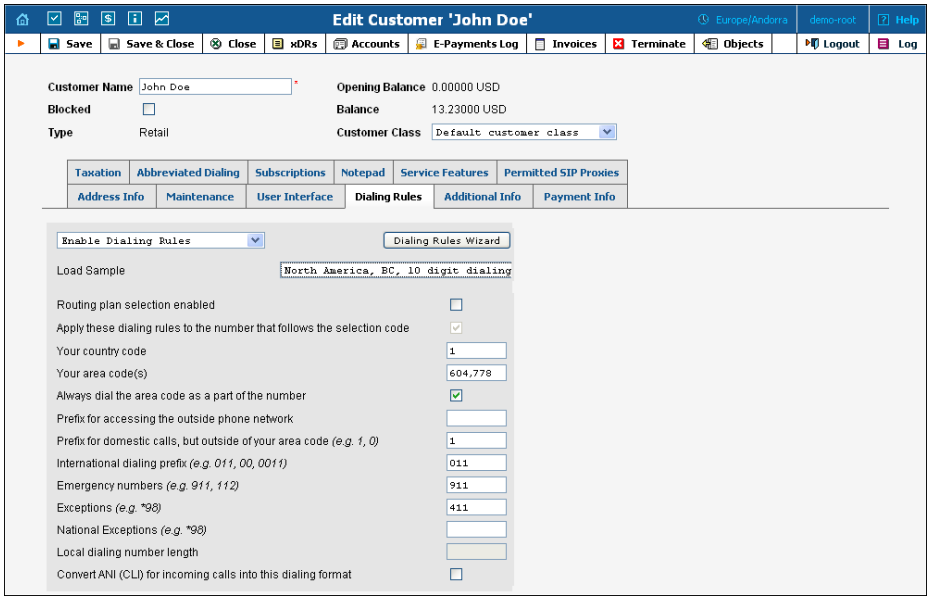
Dialing Rules

Using this tab, the administrator can define how phone numbers are dialed by users in this customer's IP Centrex environment.



By default, a new customer will have dialing rules disabled. This means that the system regards calls arriving from him as being in the E.164 format. If you wish to define the way in which your customer dials phone numbers, you can use the **Enable Dialing Rules** option. This will allow you to enter various dial plan parameters such as an international dialing prefix or area code. You may type your own number translation rules instead (as Perl regular expressions) if you select the **Use Custom Translation Rules** option.

To define the phone number format which is used by this customer's accounts, click **Dialing Rules Wizard** to activate the wizard.

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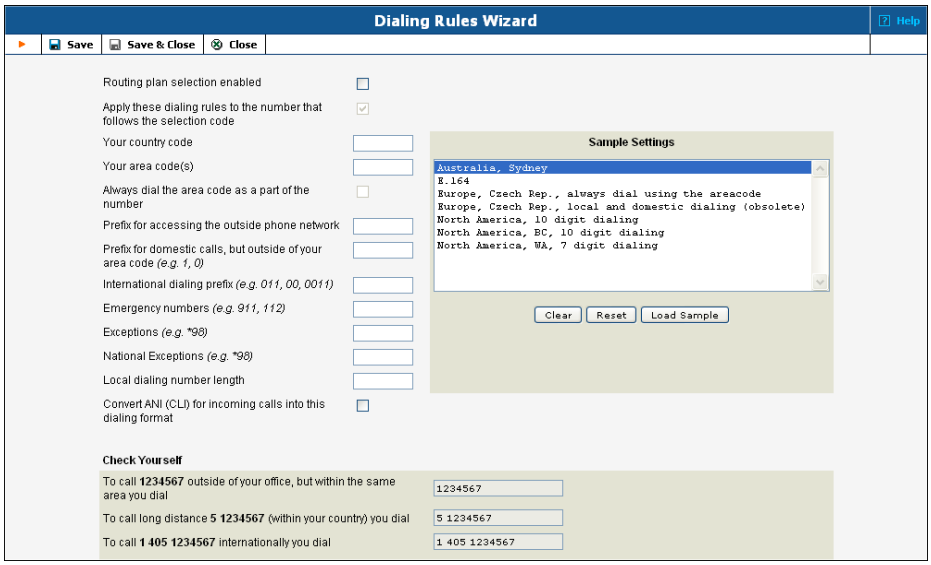

The upper part of the wizard screen allows you to enter important dialing parameters, such as your international dialing prefix. Several sample settings are provided for your convenience. For instance, in order to load sample settings for "traditional" North American dialing, select "North America, WA, 7 digit number dialing" and click **Load Sample**. Click **Clear** to reset all parameters. Click **Reset** to revert to the last saved settings.

In the bottom part of the wizard screen you can check whether you have described the numbering format correctly. Make sure for all three examples provided (local, domestic and international call) that this is the way you want to dial the numbers.

Abbreviated Dialing

Here the customer may define a list of phone extensions for his IP Centrex environment, plus create abbreviated dialing for external phone numbers. The **Abbreviated Dialing** feature works with both SIP and H.323, with adequate support from either the SIP Server or Cisco TCL IVR.

A PortaBilling customer can set up dialing rules as an international prefix, outside prefix, direct number (e.g. 911), or abbreviated dialing for his accounts.

NOTE: To be able to add extensions / abbreviated numbers, you should enter the maximum length of anticipated digits (e.g. 3 in the case of 123-like numbers) in the **Abbreviated Number Length** field.

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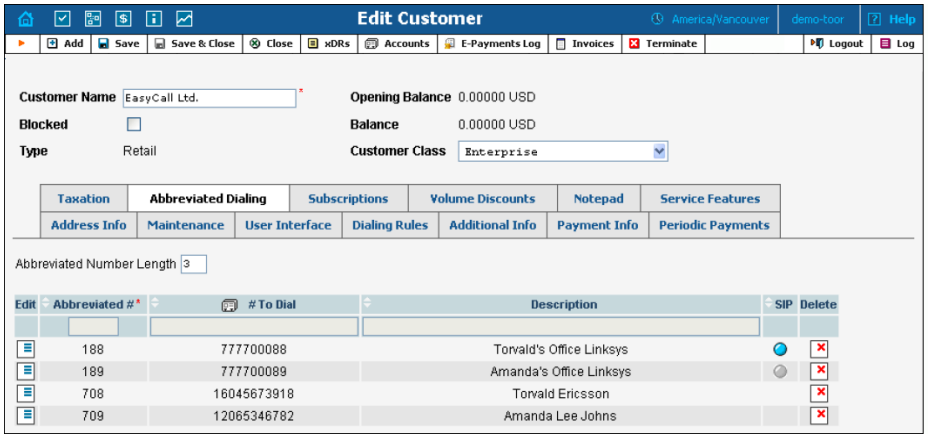

To add a new abbreviated dialing number, click the **Add** button and enter the following information:

Field	Description
Abbreviated #	The number the end-user will dial on his phone (extension number).
# to Dial	The number that the call will be forwarded to. You may enter the ID of one of the customer's accounts (use the icon for a pop-up window where you can see all of them) or any phone number. If you leave this field blank, then the abbreviated number is considered to be a direct number, or "dial as is". This is useful for making sure that special numbers (e.g. 112) are never converted by other translation rules. Note: Phone numbers must be entered in the E.164 format.
Description	Description of this abbreviated number, e.g. "Andrew's IP phone".
SIP	If # to Dial represents the ID of one of the customer's accounts, you will see the SIP "lamp" icon here. It will light up if the account is currently being used by a SIP UA to register with the SIP server; otherwise it will be gray.

Taxation

On this tab you can choose which plugin module will be used to make tax calculations and set up parameters that affect taxation.

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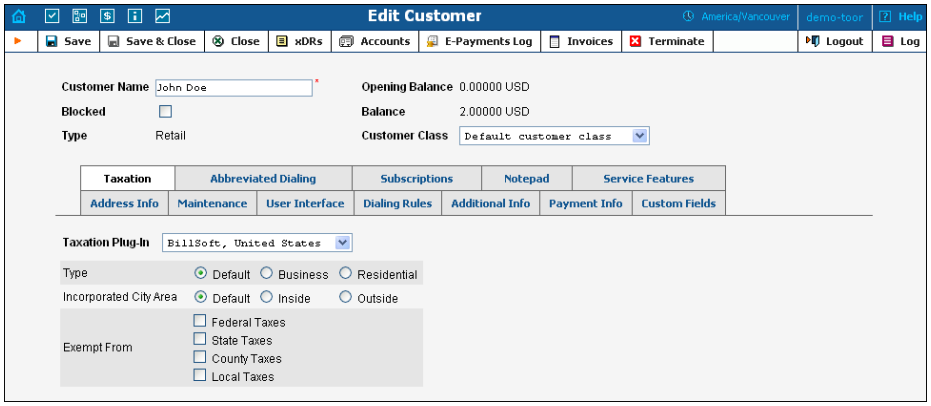
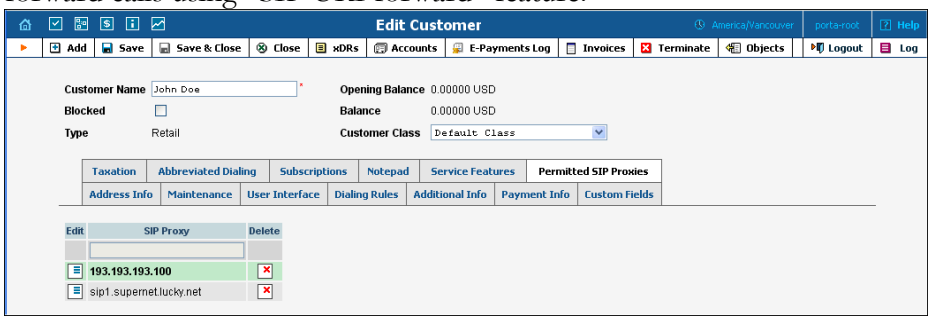


Since these parameters depend on the specific taxation module and your local tax laws, please consult your tax attorney for details regarding their use.

Permitted SIP proxies

On this tab you can choose to which external SIP proxies customer can forward calls using "SIP URI forward" feature.



Add/Edit Reseller

The Add Reseller page allows you to create a new reseller. The form is very similar to that for Add Customer, as described above. See below for a description of additional fields not available in the Add Customer form.

Additional Info

Field	Description
Default Tariff for Voice Calls	When you are subsequently creating products managed by this reseller, this tariff will be assigned by default for calculating charges to him for calls made by his sub-customers using this product. This provides backward compatibility with the reseller functionality in PortaBilling prior to Maintenance Release 16, since you will now use different tariffs to charge resellers based on the product or the

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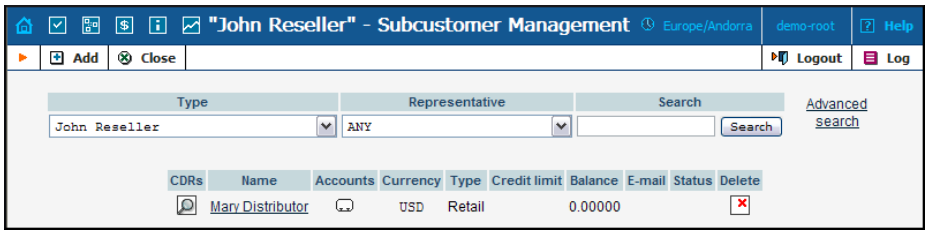
	accessibility entry within a product.

Add/Edit Customer under a Reseller

This is essentially the same as management of customers as described above, the sole difference being that you can only create sub-customers of the Retail type.



Account Management

An account is a user of a product such as prepaid cards, voucher-based cards, or credit calling plans. Each account in PortaBilling is associated with a customer. The Account Management screen, accessible from the Customer interface by clicking the **Accounts** button, shows you a query screen for listing existing accounts.

Account Listing

Search Filter

There may be a very large number of accounts in the system, so it is advisable to limit your search using the filter functionality.

Field	Description
Account ID	The primary identification for this account; an alphanumeric string. Note: the % wildcard symbol may be used.
Batch	Logical name for a group of accounts. Select from a list of all the customer's batches to enable the batch update pane.
Ctrl#	Enter control numbers and/or number ranges separated by commas (for example: 1,3,8-12).
SIP Status	Default – ANY; this function allows you to display either logged-in or logged-out accounts only.

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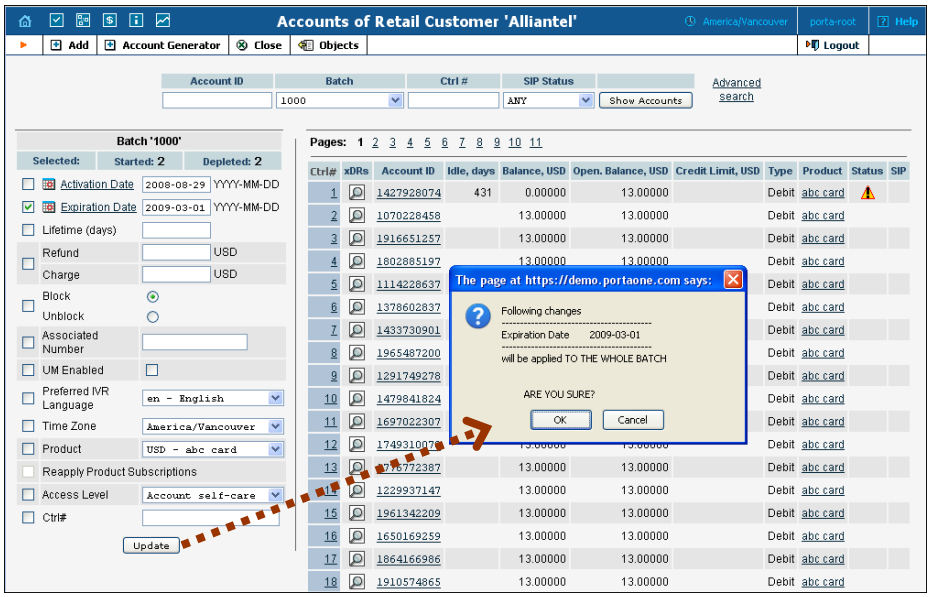
Batch Update Pane



Field	Description	
Account ID	The primary identification of this account; an alphanumeric string.	
Ctrl#	Enter control numbers and/or number ranges separated by commas (for example: 1,3,8-12).	
ACCOUNTS		
Status	Zero balance Not active Credit exceeded	Expired Blocked Customer blocked (see **Edit Customer**)
Ctrl#	Click using Ctrl#, or enter control numbers and/or number ranges separated by commas (for example: 1,3,8-12).	

The batch update pane can be activated by selecting a batch in the filter at the top of the interface, or by selecting the batch name from the list of customers' accounts. The basic functionality of this update pane allows users to specify which attributes of all accounts in the results set should be modified. For example, in order to increase the balance of all accounts by 10 USD, users should:

- Check the box next to **Refund/Charge** to indicate that this is one of the updates that should occur,
- Enter "10" next to **Refund**,
- Click the **Update Batch** button at the bottom, and
- Approve the changes when the confirmation dialog appears.

When the page refreshes, the changes will be reflected in the result listing.

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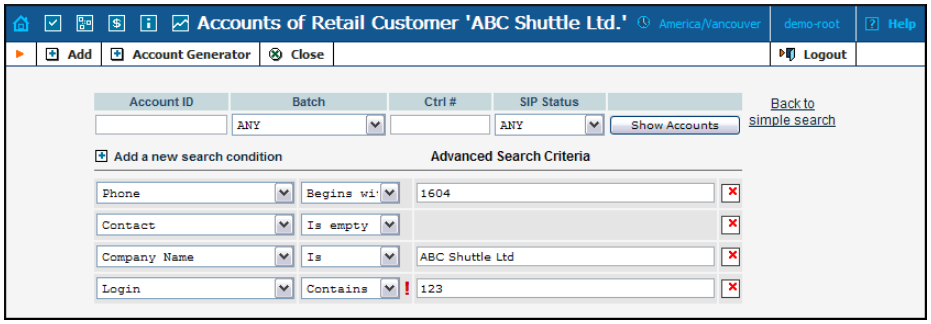
NOTE: If you perform a balance adjustment *before* an account is used, it will be regarded as a change to the opening balance, and will not be reflected in the CDRs. For example, if you create a prepaid account worth $10, then realize you have actually sold it to the customer for $20, and so add the extra $10 to the card, it will look to the customer as if the card originally had $20 on it.

Advanced Search

In advanced search mode you can specify an unlimited number of search conditions and the system will fetch the relevant accounts. Click on **Add a new search condition** to add another condition.



Operation	Description
Is	The value of the field in the customer information must match the search criteria exactly.
Begins with	The value of the field in the customer information must start with the specified value (e.g. if you enter the filter value "John", customers with the names "John" and "Johnny" will be selected).
Contains	The value of the field in the customer information must contain the specified value somewhere (e.g. if you enter the filter value "Eric", customers with the names "Eric", "Erica", "Maverick" and "American" will be selected).
Is empty	The corresponding field in the customer information must be empty.

All search operations are case-insensitive, so you can enter "Eric" as a search criteria and, even if the customer's name was originally entered as "eric" or "ERIC", you will still see him in the list.

All conditions work in conjunction, so in the case of multiple search criteria the customer's record must satisfy all of them in order to appear in the result list.

During a search operation using auxiliary fields (e.g. fax) or the "contains" comparison, the database cannot use indexes. This will result in a full table scan, meaning an increased load on the server and a longer time to

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produce the final result. Please avoid using such search operations if not necessary.

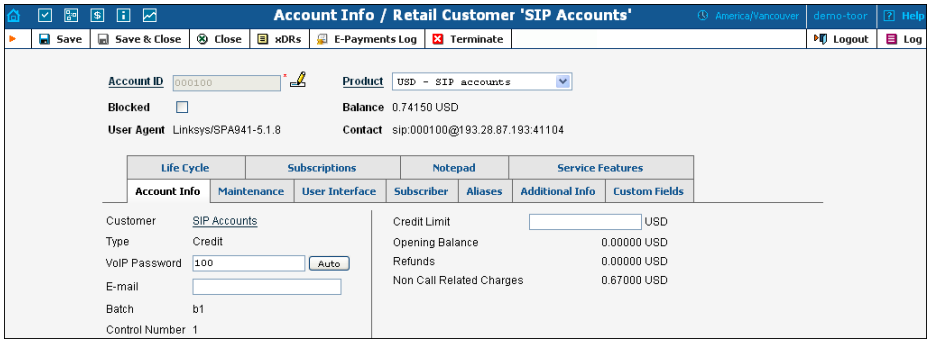
By clicking on **Back to simple search** you can switch the form to its original mode.

Account Info / Add Account

To add a new account, select **Add**. For bulk account generation, select **Account Generator**.

The Account Info page provided for the administrator is similar to the Add Account interface; however, some account details are read-only. The administrator is unable to modify Type, Batch, Control Number and Opening Balance. When making changes, the administrator can use the Notepad tab to provide a comment detailing the reason for these changes (for example, "product changed, credited $50").

Changes can be confirmed by selecting **Save** or **Save&Close**.



Field	Description
Account ID	The primary identification of this account. The ID is read-only by default; you can modify it by clicking the Edit ID icon. The maximum allowed ID length is 32 characters.
Blocked	Specifies whether the account is blocked or unblocked. If this is checked, the account will be unusable; it is usually unblocked automatically when the account is used for the first time.
Product	The product providing pricing plans for this account.
Balance	The balance for this account.
User Agent	If this account is currently used by a SIP UA to register with the SIP server, the user agent identification info is displayed.
Contact	The URI of the user agent used by the SIP Proxy to contact the IP phone.

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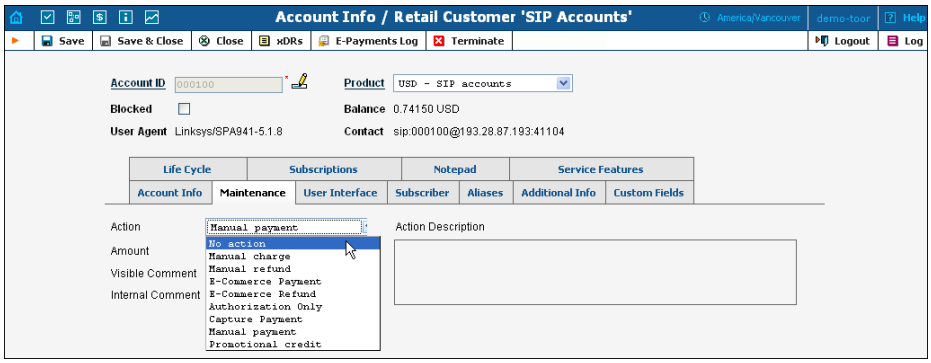
Account Info

Type	The account type may be "Debit", "Credit", or "Voucher". Debit is usually associated with prepaid cards. Credit is an account that will be invoiced for incurred costs. Voucher accounts are "refill coupons" for other types of accounts.
Credit Limit	Only available when the account type is set to "Credit". Defines the credit allowance in the account's currency.
VoIP Password	The password used to authenticate any calls made using this account.
E-mail	If an account has e-mail info associated with it, the owner of the account can reset the password for self-care access, and the new password will be sent to this e-mail address.
Batch	Accounts are grouped into batches. If a new batch name is provided in the text field, a new batch will be created when you add the account. Otherwise, an existing batch should be selected from the drop-down list.
Control Number	Read-only. The sequential number of the account in the current batch. Batch name and control number uniquely identify an account, and are often used for prepaid calling cards.
Zero Balance Date	Applicable only for debit accounts; specifies when the account has used up all of its available funds.
Opening Balance	The opening balance for this account.
Refunds	The amount refunded to the account owner.
Non-Call Related Charges	Charges not directly associated with calls the account has made; for instance, a maintenance fee or login fee.

Maintenance



Field	Description

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Action	**Manual Charge:** The debit account balance in PortaBilling100; for instance, if you are selling SIP phones to a customer. This means the balance will be changed so that the account is able to make fewer calls. **Manual Refund:** The credit account balance in PortaBilling100; for instance, if the account files a complaint and you agree to give credit toward future service use. This means the balance will be changed so that the account is able to make more calls. **E-Commerce Charge:** Transfers a given amount from an account's e-commerce account to a company merchant account and issues credit toward the account's balance in PortaBilling100. **E-Commerce Refund:** Transfers a given amount from a company merchant account to an account's e-commerce account; for instance, if a customer/account files a complaint and you agree to a refund. This transaction will not affect the account's balance in PortaBilling100. **Authorization Only:** Verifies whether the account's e-commerce account is valid and reserves a given amount. This will return a transaction ID, which may be used later in a capture payment transaction. This transaction will not affect the account's balance in PortaBilling100, nor the account's e-commerce account. **Capture Payment:** Transfers a given amount from an account's e-commerce account to a company merchant account and issues credit toward the account's balance in PortaBilling100. This requires the transaction ID obtained via an authorization only transaction. The amount must be equal to or less than that in the corresponding authorization only transaction. **Manual Payment:** Credits the account balance. Use this when receiving payment from the account owner. Manual payment will allow the account to make more calls. **Promotional Credit:** Credits the account balance. Use this when you are giving the account owner a credit toward future service due to a sales promotion. A promotional credit will allow the account to make more calls.
Amount	Amount to charge/refund.
Visible Comment	A comment on this transaction visible to the customer in the xDR browser.
Internal Comment	An internal comment on this transaction; not visible in the xDR browser, and accessible only from the database directly.

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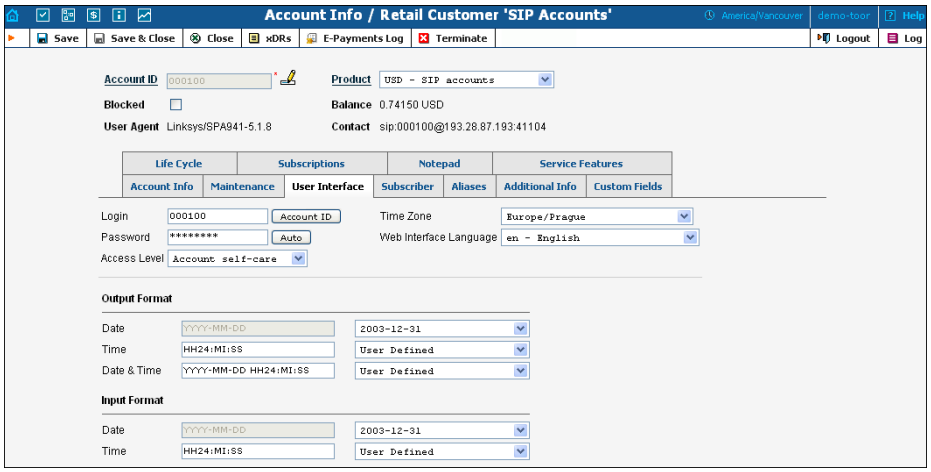
User Interface

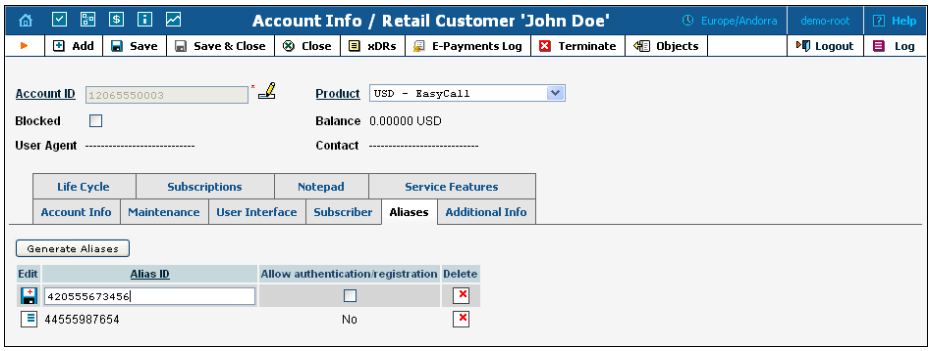


Login	Account login for the account user interface. Click the Account ID button to make the login identical to the Account ID.
Password	User interface password for the account.
Access Level	Access level assigned to the account.
Time Zone	Time zone for the account.
Web Interface Language	Displays the account user interface in a particular language.

Subscriber

The Subscriber tab provides most of the commonly required contact information for the account's owner.

Aliases



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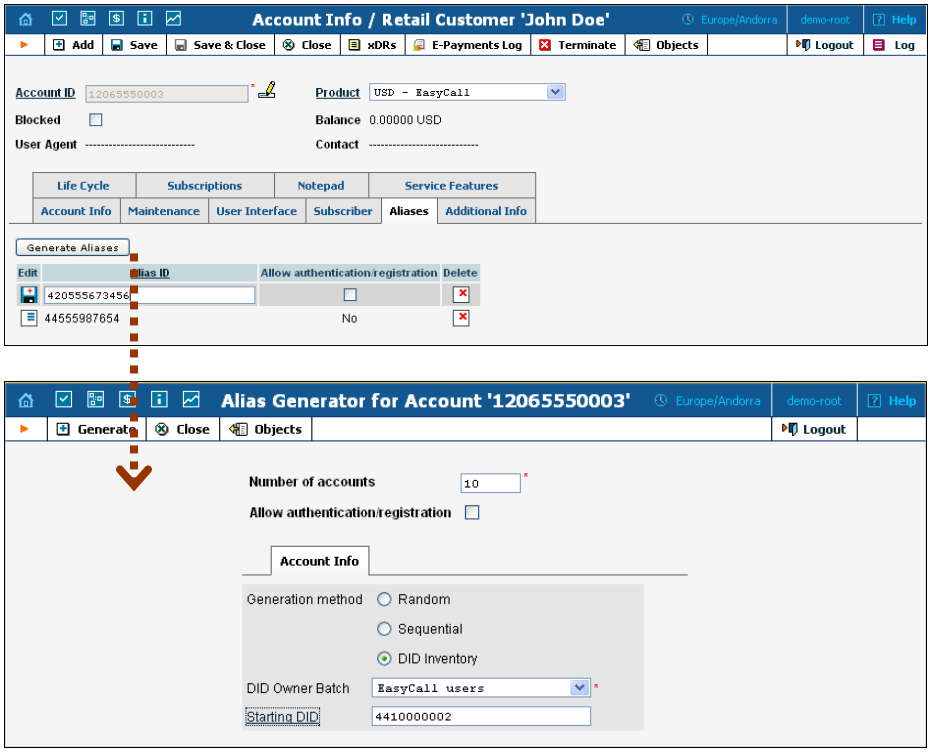
Alias ID	Contains alternative IDs for this account.
Allow authentication/ registration	Defines whether this ID can be used independently for authentication and registration (e.g. having two IP phones concurrently registered to PortaSwitch, one using the main account ID and the other using an alias) or, alternatively, it can only be used to forward calls to the main account (since only it can register).

If you need to create multiple aliases (e.g. a customer with his own IP PBX who buys a range of DIDs to be forwarded there) you can use the Alias Generator to produce aliases in a similar way as with the Account Generator.



NOTE: that aliases are generated as a background task, so it may take a few minutes before they appear in Account Info.

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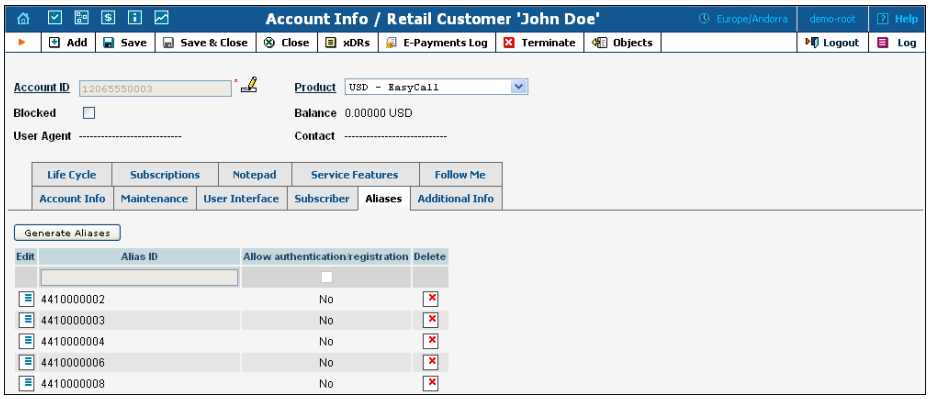
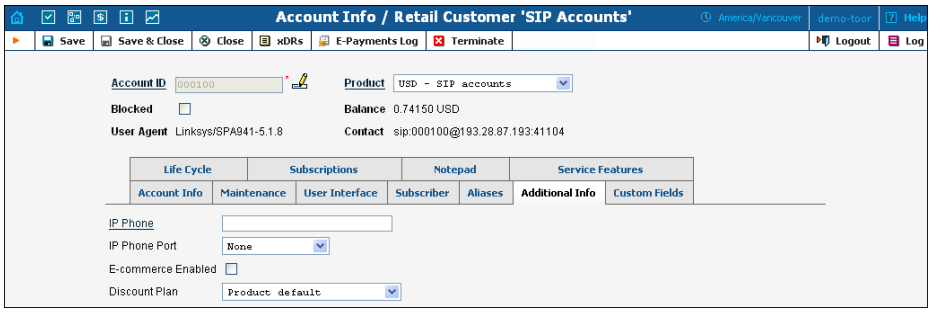
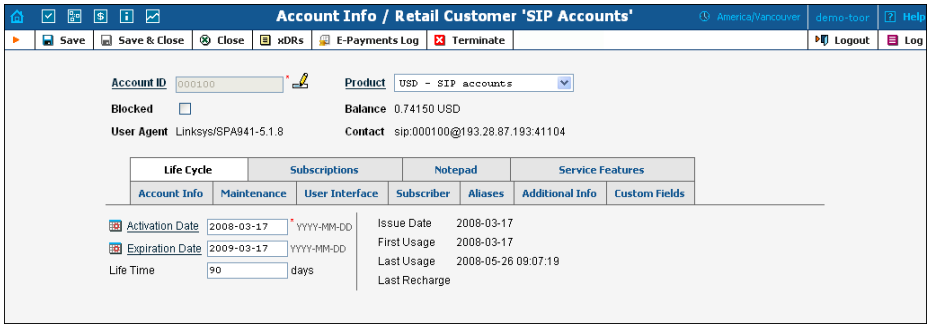


Additional Info



IP Phone, IP Phone Port	Indicates the IP phone and associated port assigned to the account. Default – not set.
E-commerce Enabled	Allows the account's owner to make online payments or set up periodic payments on the account self-care page. Note: Configuring the account to enable online payments (both manual and periodic) is done in exactly the same way as for customers. First you should set up a suitable payment system.
Discount Plan	Assign a discount plan to this account. When a new account is created, it will be assigned by default a discount plan associated with the account's product.

Life Cycle



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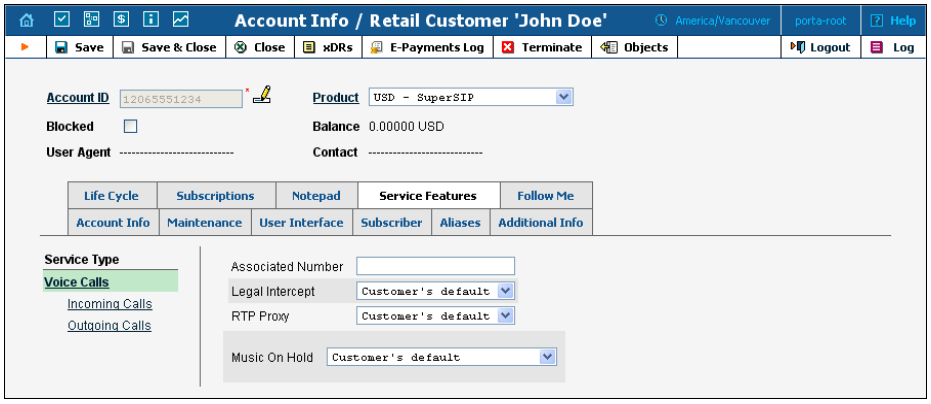
Activation Date	The date from which the account is usable.
Expiration Date	The date from which the account will be unusable. If you do not want the account to expire, leave this field blank. Note: This date is assumed to be in the billing server's time zone, not the account's.
Lifetime	Relative to the activation date, the account will expire on first usage date + lifetime days. If you do not want to use this feature, leave the field blank.
Issue Date	The date when the account was created.
First Usage, Last Usage	The date when the account was in use for the very first/last time.
Last Recharge	Specifies the last time the account was recharged using a voucher (either via the self-care page or IVR).

Service Features



You have the option of expressly specifying the value of a given parameter or using the "Customer default" option. In the latter case, this parameter is assumed to be the value defined in the customer's configuration (the global value for this IP Centrex).

Field	Description
The *Voice Calls* section	
Associated Number	Specifies the number to be sent back to the IVR in an authorization confirmation. For example, this might be a redirect to a technical support number in an IVR application. Another example might be a quick-dial number for prepaid accounts. (In this case, the redirect number may be maintained via web self-provisioning.)
Legal Intercept	Intercept all incoming and outgoing calls of this customer for law enforcement purposes.

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RTP Proxy	Specifies the RTP proxying policy for this particular customer. For a description of possible values, see the *Connections with Voice Calls Service Type and VoIP Type* section.
Music On Hold	Defines the music on hold to be used with the account. Choose None to disable this feature, or select the default setting for the account's customer. To upload your own music, select a file on your local file system using the Browse button. To rename the music, enter the desired name in the Music Name field; otherwise the local file name will be used. The uploaded music will replace the previous entry in the list, and is usually enabled within 10 minutes.
The *Incoming Calls* section	
UM Enabled	Allows the account user to access the unified messaging system. See the **PortaUM Administrator Guide** for more details. Please note that if an account has **UM Enabled** activated, there will be an additional link next to it on the administrator interface: Manage UM Account. By clicking on this you will go automatically to the account's UM administration pages. This is extremely useful for helpdesk people, since they can quickly check the configuration of an account's auto-attendant, call queues, and the like. Also note that it may take a few minutes before an account is fully provisioned in PortaUM. Thus if you click on the link immediately after activating **UM Enabled**, it most likely will not work yet.
Forward Mode	Assigns a call forwarding mode to this account: • No Forwarding: Disables call forwarding entirely. • Follow-me: Enables standard follow-me forwarding. • Advanced Forwarding: Activates advanced call forwarding mode. • Forward to SIP URI: Replaces the **Follow-me** tab with a simplified **Forward** tab, where you can enter a forwarding destination as a CLD@IP. • Forward to CLD: A simplified type of forwarding where you specify a single phone number to which calls will be sent.
Maximum Forwards	When you select follow-me or advanced call forwarding, you must also provide a value for the **Maximum Forwards** parameter, so as to limit the number of concurrently active forwarding destinations allowed. Please note that you do not have to limit the total

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	number of phone numbers entered, but rather the number of phone numbers active at any given moment of time. For instance, a user may have a list of 20 numbers, each active in its own time period, some temporarily turned off, and so on. When call forwarding is done, PortaBilling will compute a list of numbers which may be used at that moment, and choose only the first N in the list, where N is the number specified in **Maximum Forwards**.
Timeout, sec	How long the IP phone will ring before a call goes to follow-me numbers (if any) or voicemail.
Call Processing Enabled	Enables selective call processing / conditional call forwarding features.
Default Answering Mode	Specifies the method of processing incoming calls to this account if selective call processing has been disabled, or if none of the selective call processing rules apply.
Voice VPN Distinctive Ring	For incoming calls from phones within the IP Centrex environment, use a ring pattern different from the default one.
Present Caller Info	Display caller info on incoming calls.
Disable Call Waiting	Forcibly disables call waiting (even if it has been enabled on the phone).
The *Outgoing Calls* section	
Set CLI To	**Account ID:** for outgoing calls, always override the CLI (ANI) value supplied by the IP phone with the username value used for authorization. This is done to prevent service abuse via CLI (ANI) number spoofing. **Centrex Number:** Use a different phone number for CLI (see below).
Centrex Number	When **Set CLI** mode has been activated for outgoing calls to off-net destinations (PSTN network), this field can be used to assign one of the other phone numbers in the same IP Centrex environment as the CLI. This is typically done so that calls between extensions within an IP Centrex environment (IP phones of this customer) will carry the caller's original CLI, while calls to PSTN numbers will display a reception/switchboard number as the CLI. Hint: click on the Centrex Number field label to invoke a pop-up window, where you can browse through the customer's available accounts.
Preferred IVR	The language the user prefers when interacting with an IVR application.

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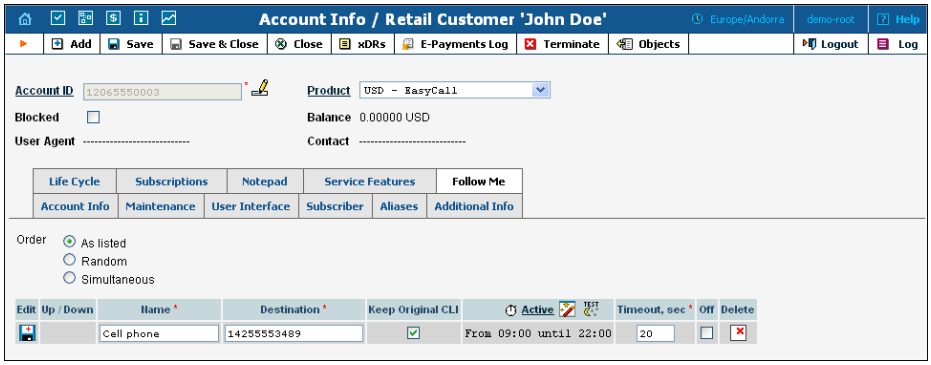
Language	
Favorite Numbers Enabled	Allows you to define a list of phone numbers for this account, so that calls made to these numbers by the owner of the account will be charged according to a special FAV rate.
E911	Activate emergency services for this account
Hide CLI	Remove CLI (ANI) information for outgoing calls.
Hide CLI Prefix	Prefix to be dialed before an outgoing number in order to prevent the called party from seeing your phone number.
Show CLI Prefix	Prefix to be dialed before an outgoing number in order to allow the called party to see your phone number.
Call Barring Enabled	Activates the Call Barring feature (a new Call Barring tab will appear, where you can configure destinations which this user is not allowed to call).
Default Routing Plan	The routing plan to be used for outgoing calls when the end-user dials a number without using a specific selection code.

Follow-me



This tab is only available when **Forward Mode** on **Service Features** tab is set to **Follow-me** or **Advanced Forwarding**.

Order	Specifies the order for redirecting a call. **As listed**: call every active follow-me number from the first (topmost) number to the last, until the call is answered. **Simultaneous**: call every active follow-me number from the list at the same time until the call is answered. **Random:** use a random order.
Edit	Click the **Edit** icon to edit the follow-me number details. To add a new number to the list, click the **Add** button.
Up, Down	Click these buttons to move a row before the previous

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	one or after the next one in the list.
Name	The name of the follow-me number (e.g. "Mobile Phone").
Destination	Specify a number for redirecting calls, formatted according to the customer dialing rules.
Keep Original CLD	(This field is only available in **Advanced Forwarding** mode.) When forwarding a call to another account, this ensures that the originally dialed number is still present in the call information. A remote IP PBX, which registers only a single account (phone number) to PortaSwitch, but receives incoming calls to multiple phone numbers (all of which are forwarded to the main account), can then correctly deliver these calls to internal extensions.
Keep Original CLI	If switched on (by default), a call is forwarded with the CLI of the original caller. So if A calls B, but the call is forwarded to C, C will see that it is A who is calling. The alternative is to put B's phone number in the CLI of the forwarded call. This is a popular feature for multi-tenant attendants. Phone numbers for company A (18005554545) and company B (12025556767) are then forwarded to the same secretary, who can see the actual DID dialed by the customer on her phone, and answer accordingly.
SIP Proxy	(This field is only available in **Advanced Forwarding** mode.) Enables you to choose one of the SIP proxies defined in the **Permitted SIP Proxies** properties for the customer.
Active	Defines the period when the number is active, i.e. is allowed to receive a forwarded call. Click the **Active** link or wizard icon to create the first period definition or add the next one using the Period Wizard (this is virtually the same as the Off-peak Period Wizard in Edit Tariff). Click the **Always** button in the wizard to make the follow-me number active permanently. Click the Test Period icon to run a period test.
Timeout	Specify the amount of seconds to wait until a call is answered. Following timeout, the call will be redirected to the next follow-me number or disconnected.
Off	Check this option to temporarily disable forwarding to a follow-me number.

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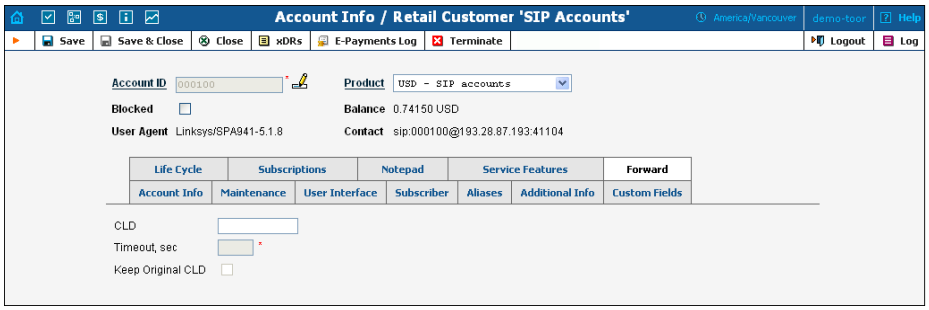
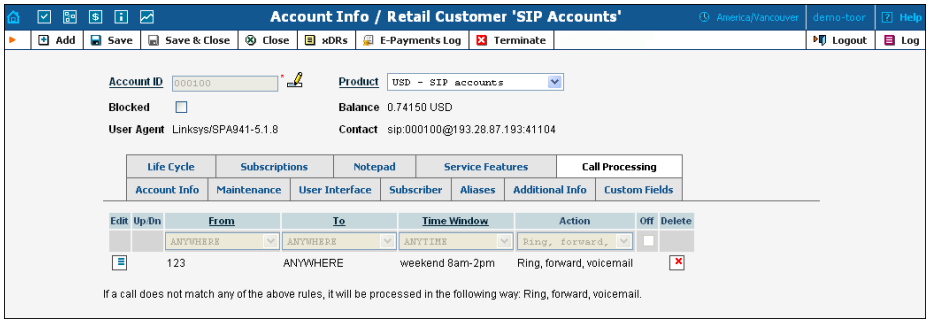
Forward



This tab is only available when **Forward Mode** on **Service Features** tab is set to **Forward to SIP URI** or **Forward to CLD**.

CLD/SIP URI	Here you will enter CLD or two parts of the SIP URI: • The CLD part may contain only digits, the letters A-D, and the signs # and *. • The address part should contain a valid IP address (four numbers separated by dots, e.g. 12.34.56.78)
Timeout	Specify the amount of seconds to wait until a call is answered. Following timeout, the call will be redirected to the next follow-me number or disconnected.
Keep Original CLD	Allows you to preserve the originally dialed number during forwarding. This is useful when forwarding a call to a remote IP PBX. For more details, see the **PortaSIP Administrator Guide**.

Call Processing



This tab allows you to define a list of rules for handling incoming calls to this account. It is only available when **Call Processing Enabled** box is checked on **Service Features** tab.

From	Allows you to select a condition applicable to an incoming phone number (phone number of a person trying to contact you). Click on the column header with the corresponding rule to invoke the wizard, which will

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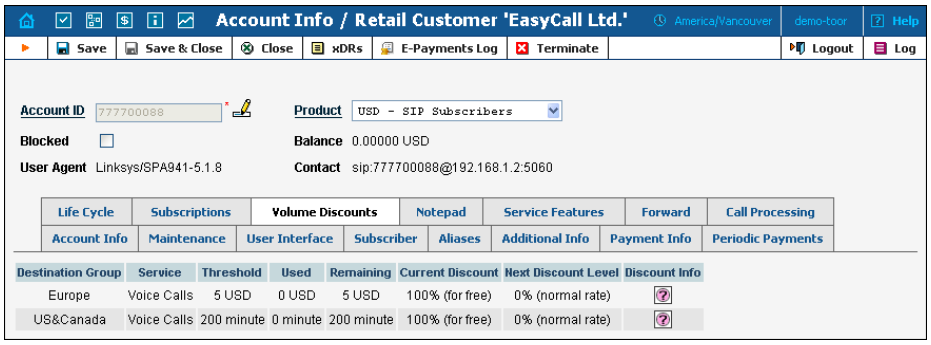
	enable you to define a new rule or change an existing one.
To	Allows you to select a condition applicable to a dialed phone number (one of your phone numbers that a person trying to contact you has dialed).
Time Window	Allows you to select a condition applicable to the time when a call is made.
Action	Specifies which actions should be taken if a particular phone call satisfies the conditions for this rule.
Off	Allows you to temporarily disable a rule without actually deleting it (so it can be used later on).

Volume Discounts



Destination Group	Information about discounts used and remaining is shown, grouped by Destination Group names. Each name represents one group included in the volume discount plan assigned to the account.
Threshold	The threshold value for the currently used discount level. When an account's internal counter reaches this value, the next level discount will start to be applied according to the discount scheme. When the counter reaches the last numeric threshold value, it will be shown here. N/A means that there is no numeric threshold defined in the scheme, or no scheme has been defined at all.
Used	The current value of the account's counter associated with this destination group.
Remaining	The amount remaining before the threshold value.
Current Discount	The value of the discount currently applied to the account.
Next Discount Level	The value of the next level discount.
Discount Info	Click the information icon for a textual representation of the discount scheme.

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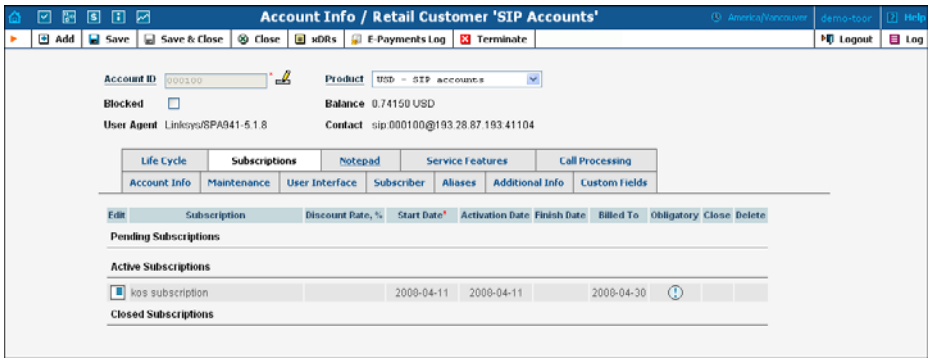
Subscriptions



This tab displays the subscription plans currently applied to this account. Subscriptions are divided into three groups

- **Pending Subscriptions** displays subscriptions which are not active yet (i.e. they will be activated sometime in the future).
- **Active Subscriptions** displays currently activated (and billed) subscription plans.
- **Closed Subscriptions** displays subscriptions which have already been closed.

Subscription	Choose one of the available subscription plans from the list.
Discount Rate, %	Enter a discount rate for this subscription. If you leave this field empty, it means that the discount rate defined in the customer information should be applied. If you enter any value, it will override the customer discount rate. 0 means no discount (i.e. the rate defined in the subscription plan is applied).
Start Date	Enter the desired subscription activation date: immediately, or sometime in the future.
Activation Date	(Read-only) Displays the date when the subscription was activated.
Finish Date	Enter the date when this subscription should be automatically canceled.
Billed To	(Read-only) The date to which subscription charges have already been applied.
Mandatory	A flag indicating that this subscription comes from the account's product, and so cannot be closed until the account has this product assigned to it.
Close	Allows you to close one of the optional subscriptions.

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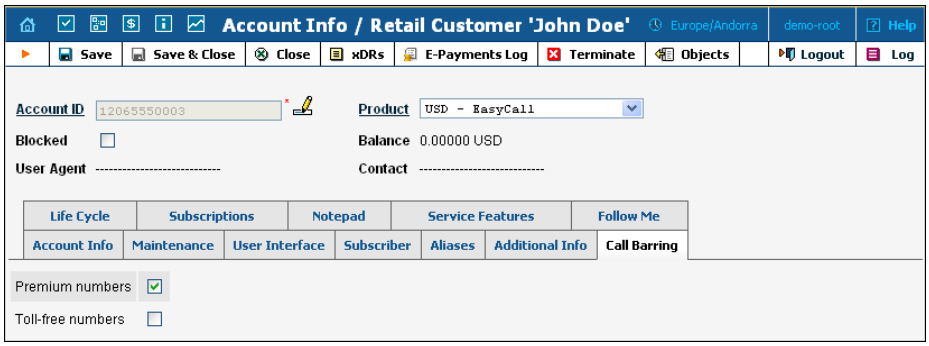
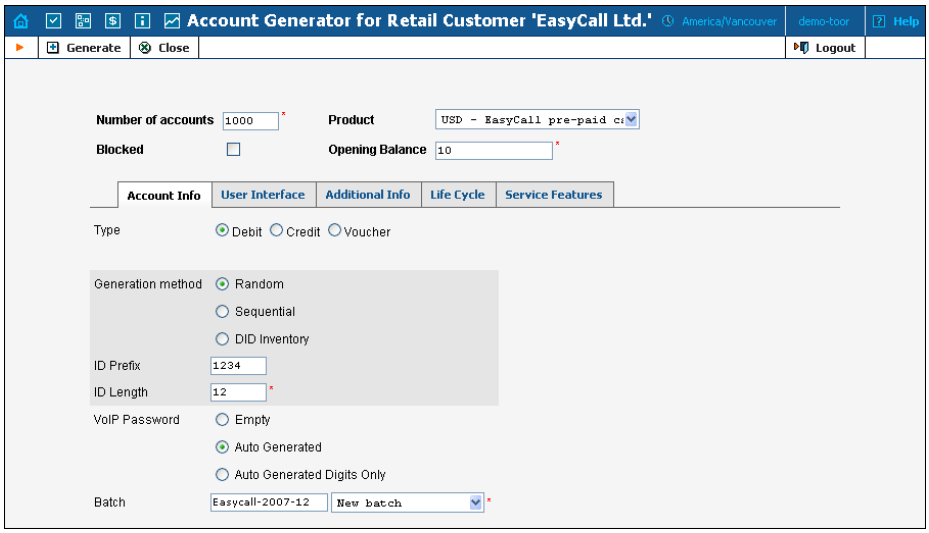
Call Barring



This tab is only available when the **Call Barring** feature for **Voice Calls/Outgoing** has been activated on the **Service Features** tab. Here you can enable call barring for specific classes of phone numbers.

Account Generator

The Account Generator should be used when large numbers of accounts are to be generated (for example, when issuing prepaid cards) so that individual accounts need not be entered manually. The account IDs will be generated either sequentially or randomly, as will the web password, so as to prevent possible defrauding. The generation process will run offline, so that the accounts are not visible from the Account Management page until the process is complete. The customer will then receive an e-mail notification regarding completion of the task, as well as another e-mail listing all the accounts in CSV format, including the values "Batch", "Control Number" (a sequential index), "PIN" (account ID), "Web login" (by default identical to the account ID) and "Password" (web password).



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The **Account Generator** interface is very similar to **Add Account**, with the following exceptions:

Field	Description
Number of Accounts (replacing Account ID)	The number of accounts to be generated.
Account Info tab	
Generation method	**Random** will produce unique unpredictable account IDs with a specified length and prefix. **Sequential** will create accounts with incremental IDs, e.g. if the starting ID is specified as 55540000, it will create accounts 55540000, 55540001, 55540002 and so on; see below for more details. **DID Inventory** will generate accounts by assigning account IDs from the available DIDs in a specific DID batch; the user has the option of choosing the starting DID.
ID prefix	Preset leading digits in the account ID; leave empty to make the account ID totally random.
ID length	Total ID length, including ID prefix.
Starting ID	Only available in sequential generation, and always numeric.
VoIP Password	Can be generated automatically, or left empty to allow end-users to login using account ID only (typically used for prepaid cards). The "Auto-generated digits only" option allows you to create sufficiently secure passwords (with a specified password length) consisting of digits only, so that they can be entered from a phone's touchpad.
User Interface tab	
Login	Can be set as identical to the account ID, or left empty to disable access to the account self-provisioning interface.
Password	Can be generated automatically, or left empty to allow end-users to login using account ID only.

Assigning an Account ID

Choose Random if you want a relatively small amount of unpredictable IDs within a large enough range of possible numbers. Please note that "random" means not only "generated randomly" but also "difficult to guess"; therefore, the ratio between the number of generated PINs and the number of total possible PINs should be sufficiently low. For instance, PortaBilling will refuse to generate 5,000 PINs with ID prefix

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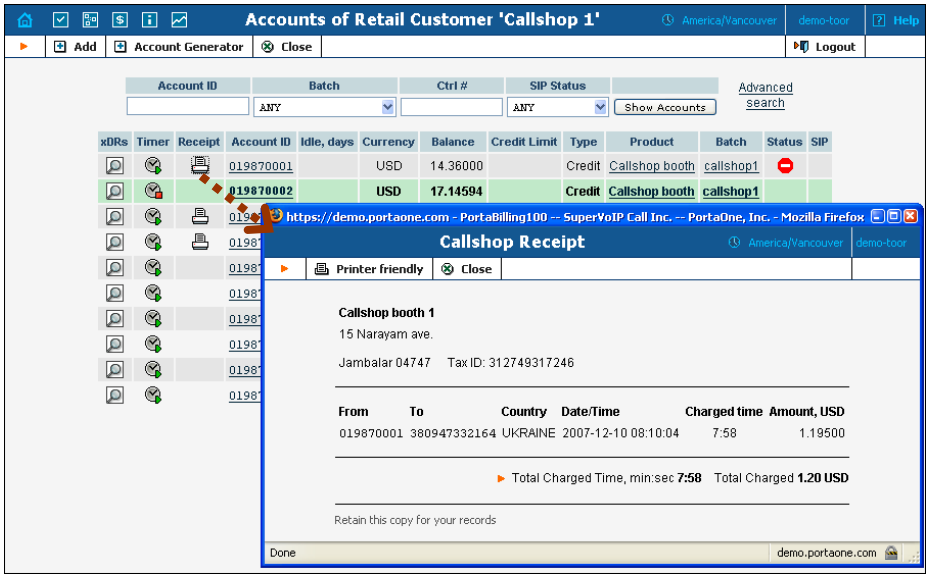
33333 and ID length 9, because in this case there are 10,000 possible PINs; if we generate 5,000 actual pins, there is a 50% chance of using someone else's PIN just by entering one wrong digit. Thus, in the example above, the PIN length should be set at 10 or even 11 digits (with a 5% or 0.5% chance of guessing the PIN, respectively). Note that random account PINs are never generated with leading zeroes, as these zeroes could be truncated when working with PIN data in programs like Microsoft Excel.

Choose Sequential if you want to generate a large number of accounts at once. You can choose the starting ID for the first account to be generated, and the system will generate IDs sequentially by an increment of one. If a given account ID is already used, it will be skipped and the system will continue until it generates the specified number of accounts. For example, if you requested 100 accounts with the starting ID prefix "1000000", and there are already three accounts within the defined range (1000010, 1000011, 1000012), the first generated ID will be 1000000, the second 1000001, and the last 1000103. Account ID length is always the same for all generated accounts. So if there is not enough room to generate the specified number of accounts (e.g. you request 1,000 accounts with starting ID 999900), generation will not begin and a warning e-mail will be sent immediately.

Callshop Features



The account list screen can be used by a callshop operator to track calls made in callshop cabins, to block an account after a call has been placed, and to print receipts for services provided. When a user wants to place a call, the operator clicks the Start Timer icon, which automatically unblocks the account. After the call, when the user is ready to pay, the

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operator clicks the Stop Timer icon, and the Print Receipt icon appears. Clicking this icon will initialize the receipt pop-up.

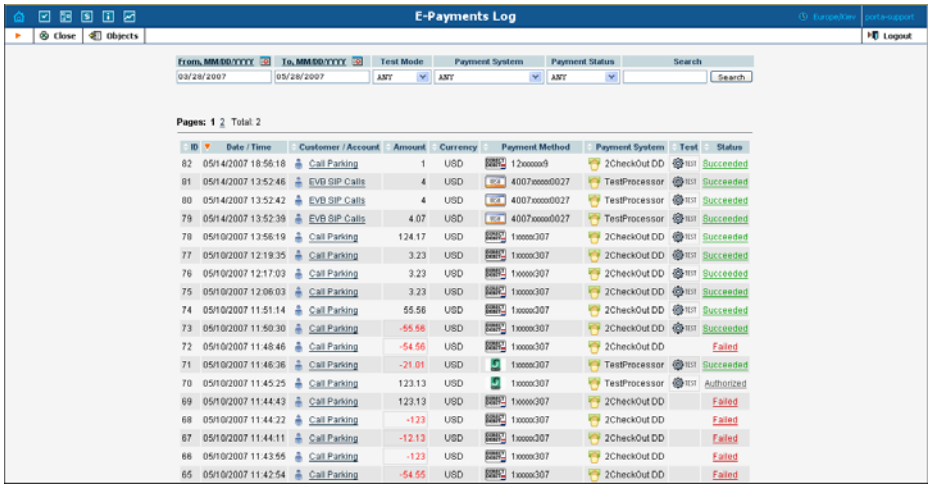
NOTE: Callshop features are not available for accounts of direct retail customers. In order to enable these features for accounts of a reseller's sub-customer, both the reseller and the sub-customer must have "Callshop enabled" on.

E-payments Log

This form is not directly accessible from the main menu, since it should be accessed in the specific context of:

- the whole environment (accessible from **Company Info**) – this allows you to see charge attempts for any direct customer;
- a specific customer (accessible from **Customer Info**) – this allows you to monitor charge attempts related to a particular customer;
- a specific account (accessible from **Account Info**) – this allows you to monitor charge attempts related to a particular account.

Adjust the search parameters to see a list of all transaction attempts (by default, only transactions for the current day will be displayed, so the values in the From/To fields may need to be changed) and then press the **Search** button.



Column	Description
Date/Time	Specifies when the charge attempt occurred.
Customer/Account	Specifies to which customer or account the charge was applied.
Amount	Gives the total amount of the transaction.
Currency	Specifies the currency used in the transaction.
Payment Method	The icon on the left specifies which type of

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	payment method was used (e.g. VISA or MasterCard); the actual card/account number is displayed in the "safe" form (some of the digits are masked by an x).
Payment System	Specifies the payment system used to carry out this transaction.
Test	Indicates whether this transaction was done in "test" mode.
Status	Indicates the result of the transaction: • Succeeded – the transaction was successful, funds were transferred. • Failed – the transaction has failed (click on Failed to get further information, such as the error code or a response from the remote payment processor). • Authorized – a "check funds" transaction was successful (but no actual charges were applied to the credit card and no balance modification in the billing was done). • Incomplete - when using payment systems with "external authorization" it is possible that a transaction was interrupted (e.g. user has pressed the "cancel" button when entering credit card info on the remote processor website).

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5. Help Desk

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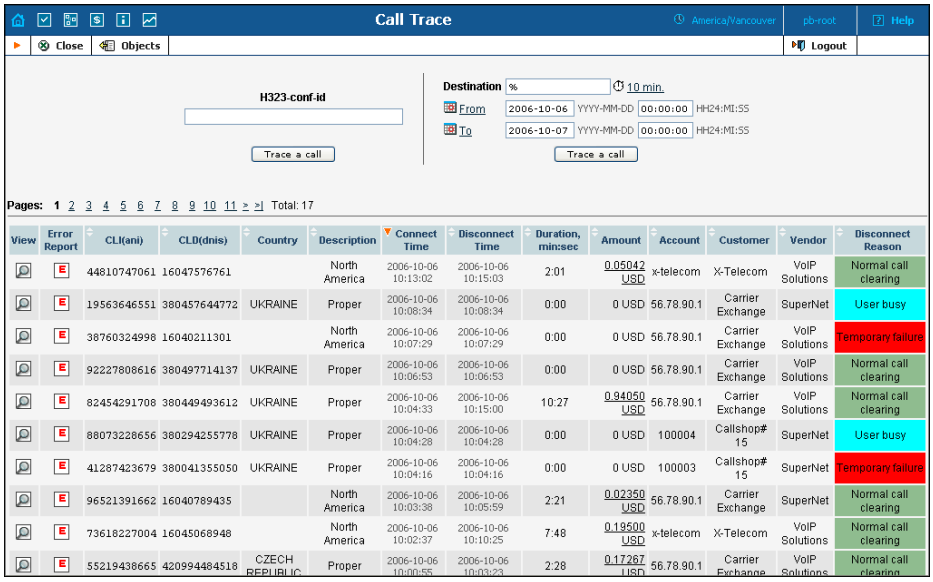
Call Trace

The call tracing utility allows you to determine the characteristics of a specific call when you know the **h323-conf-id** or the **destination**, which may be specified exactly, or using a wildcard. (For example, all calls to England may be specified as "44%" in the destination field). A date range for the search must be specified; however, it is highly recommended to set it to the smallest range necessary, in order to reduce waiting time and server load. Ideally, the search window should contain one day only.

To initiate a query, click the **Trace Call** button. If no results appear, try broadening the query. When the results appear, locate the desired call within the result set. If there are too many results, they will be divided across pages, although in this case it is advisable to narrow the query.



View	Error Report	CLI(ani)	CLD(dnis)	Country	Description	Connect Time	Disconnect Time	Duration, min:sec	Amount	Account	Customer	Vendor	Disconnect Reason
	E	44810747061	16047576761		North America	2006-10-06 10:13:02	2006-10-06 10:15:03	2:01	0.05042 USD	x-telecom	X-Telecom	VoIP Solutions	Normal call clearing
	E	19563646551	380457644772	UKRAINE	Proper	2006-10-06 10:08:34	2006-10-06 10:08:34	0:00	0 USD	56.78.90.1	Carrier Exchange	SuperNet	User busy
	E	38760324998	16040211301		North America	2006-10-06 10:07:29	2006-10-06 10:07:29	0:00	0 USD	56.78.90.1	Carrier Exchange	VoIP Solutions	Temporary failure
	E	92227808616	380497714137	UKRAINE	Proper	2006-10-06 10:06:53	2006-10-06 10:06:53	0:00	0 USD	56.78.90.1	Carrier Exchange	VoIP Solutions	Normal call clearing
	E	82454291708	380449493612	UKRAINE	Proper	2006-10-06 10:04:33	2006-10-06 10:15:00	10:27	0.94050 USD	56.78.90.1	Carrier Exchange	VoIP Solutions	Normal call clearing
	E	88073228656	380294255778	UKRAINE	Proper	2006-10-06 10:04:28	2006-10-06 10:04:28	0:00	0 USD	100004	Callshop# 15	SuperNet	User busy
	E	41287423679	380041355050	UKRAINE	Proper	2006-10-06 10:04:16	2006-10-06 10:04:16	0:00	0 USD	100003	Callshop# 15	SuperNet	Temporary failure
	E	96521391662	16040789435		North America	2006-10-06 10:03:38	2006-10-06 10:05:59	2:21	0.02350 USD	56.78.90.1	Carrier Exchange	SuperNet	Normal call clearing
	E	73618227004	16045068948		North America	2006-10-06 10:02:37	2006-10-06 10:10:25	7:48	0.19500 USD	x-telecom	X-Telecom	VoIP Solutions	Normal call clearing
	E	55219438665	420994484518	CZECH REPUBLIC	Proper	2006-10-06 10:00:55	2006-10-06 10:03:23	2:28	0.17267 USD	56.78.90.1	Carrier Exchange	VoIP Solutions	Normal call clearing

The result listing shows the origination number, the number dialed, the destination location, connect and disconnect times, duration, account and customer (in the case of product usage), vendor (in the case of normal vendor termination), and the call status while disconnecting, which is color-coded according to the table below. Select the View ( ) icon to go to a detailed page describing the call.

Possible Reasons for Disconnect:

Reason	Color		Reason	Color
Normal completed call			Calling side error	
Normal uncompleted call			Called side error	

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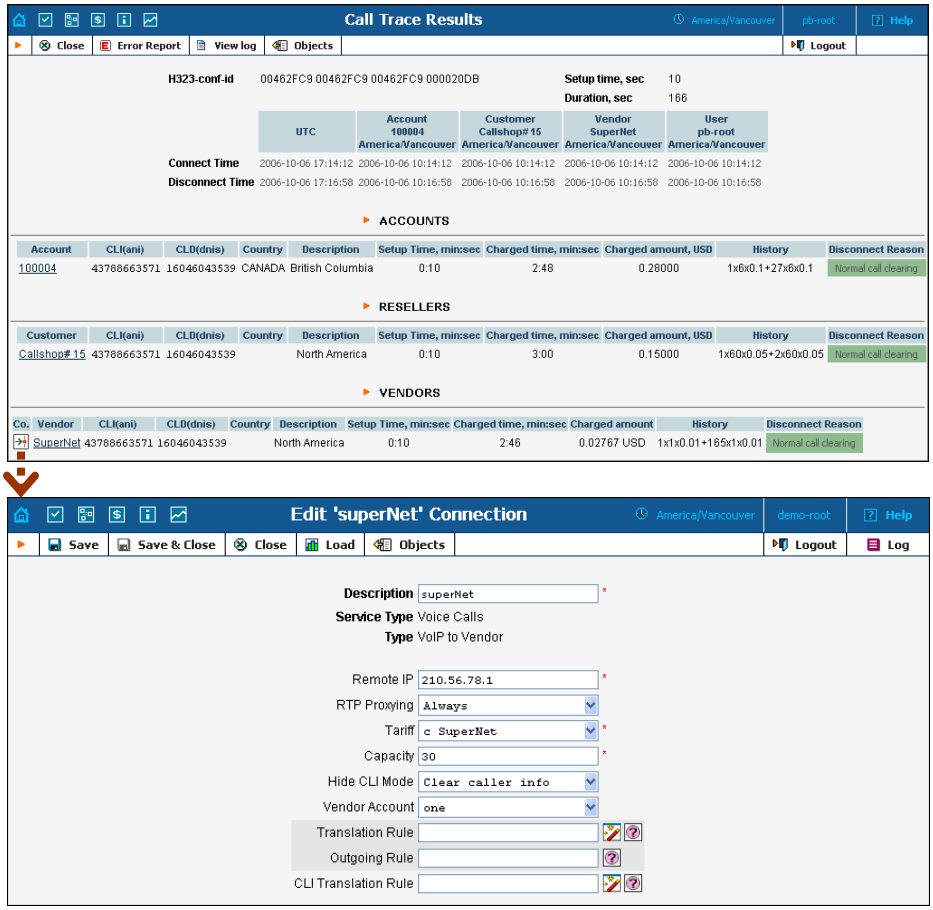
Call progress code			Network error	

Call Trace Detail

The detailed Call Trace Results page shows additional call details, such as the h323-conf-id for the call and the setup time, as well as a detailed breakdown of the charges applied to each entity (accounts, resellers, and vendors). You may view the connection details for a particular vendor by selecting the Connection icon. On the subsequent Connection detail page, you may view all connections for a particular vendor by clicking the Connections icon.



View Billing Engine Logs

The **Log Viewer** page allows you to see a list of all sessions (voice calls, Internet access, etc.) processed by the billing engine, and to examine a detailed processing log for each of them, if required.

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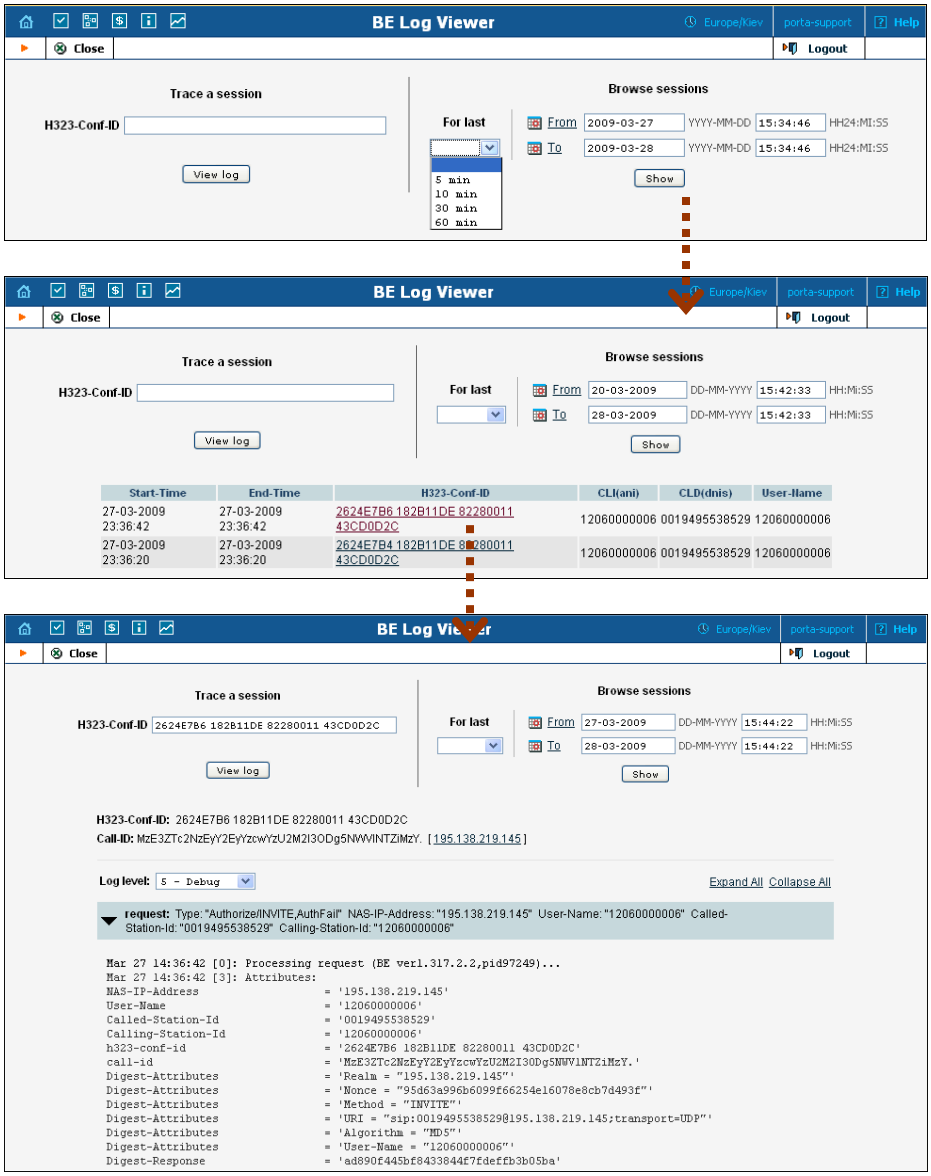

Field	Description
H323-Conf-ID	The H323-Conf-ID of a call.
For last	Display all sessions in a recent time period.
From, To	Choose a specific time period.

If you do not know the H323-Conf-ID for a call you have just made, you can use the right side of the form to display all call attempts made within a certain interval (this will also include failed call attempts, which makes it extremely useful for troubleshooting problems when you are unable to make outgoing calls, e.g. due to an authorization failure).

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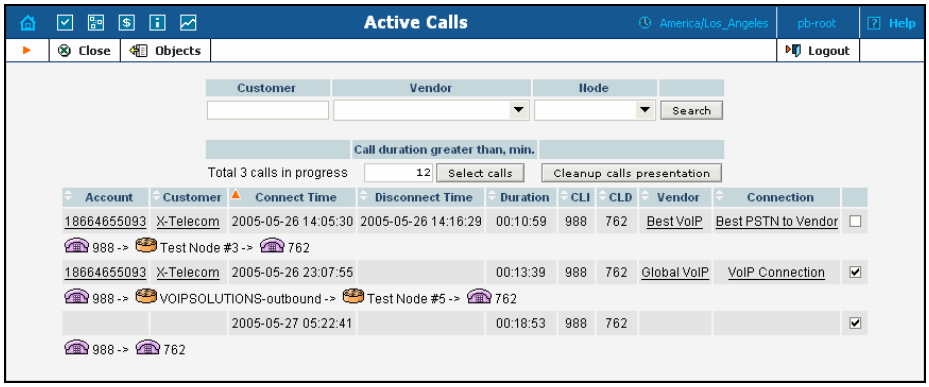
You will see a list of call attempts, with the call initiation time, H323-Conf-ID and CLI/CLD for each; click on the underlined H323-Conf-ID to see the billing engine log for it.

Active Calls

The Active Calls page shows calls that are currently in progress or have been completed recently. It indicates the time the call started, the elapsed call duration, and who is making the call, and describes which gateways the call is going through.

Since the total number of simultaneous calls in your system can be quite large, you can display only a certain subset of all calls, by setting a filter for:

- **Customer** – name of the customer who is making a call;
- **Vendor** – carrier to whom the call has been terminated;
- **Node** – element of your network (PortaSIP server, gateway, etc.) the call is going through (e.g. you would like to see all calls originating on your Cisco AS5300 gateway in New York);
- **Call duration** – only displays calls lasting for more than a certain number of minutes.



Field	Description
Account	Account ID of the call originator.
Customer	Customer who originated the call.
Connect time	The Call-ID used to trace callback calls when one logical call consists of several independent SIP calls.
Disconnect time	Empty if the call is still in progress.
Duration	The total call duration.
CLI	Calling station ID (ANI) for the

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	originator.
CLD	Called station ID (DNIS) – the destination number.
Vendor	Carrier used for call termination.
Connection	Specific connection for this vendor.
Checkbox	By ticking this checkbox for a particular call, you can group several active calls into a single group for further operations (e.g. remove them from the active call registry)

The line below these fields shows a schematic call flow diagram.

Sometimes a call displayed in the active calls registry may have already been disconnected (the most common reason for this being that one of your gateways was rebooted and calls were cut off, although billing never received accounting records about this). In this case, you are able to clean up such "stalled" calls from the web.

NOTE: A cleanup operation only affects billing's internal registry of active calls, and will not disconnect a call that is still in progress.

If you want to delete such calls, just mark all of them (using the checkbox in the column on the far right) and press the "Cleanup calls presentation" button. The "Call duration greater than, min." option allows you to auto-select calls with a duration greater than the entered value, so that you can quickly select suspiciously long calls.

SIP Log Viewer

The SIP Log Viewer page allows you to view billing logs of PortaSIP calls. You need to know the Call-ID of the specific call in order to trace it. If you do not know the call-id (e.g. you just made a phone call from a SIP phone and it failed), you can display all call attempts for a recent period and locate the call-id of "your" call according to CLD or other parameters.

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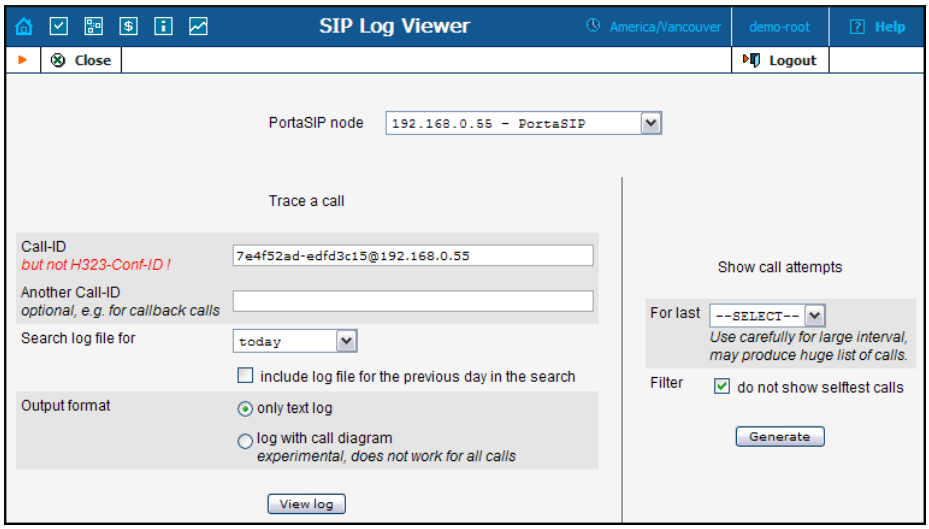

Text-only log:

```
27 Jul 00:00:14/GLOBAL/ser: RECEIVED message from 219.74.184.194:10581:
        REGISTER sip:demo.portaone.com SIP/2.0
        Via: SIP/2.0/UDP 192.168.0.138:5060
        From: ;tag=4033808185
        To:
        Call-ID: 2379060364@192.168.0.138
        CSeq: 10 REGISTER
        Contact: ;expires=3600
        User-Agent: Cisco ATA 186  v3.1.1 atasip (040629A)
        Authorization: Digest username="18667478647711",realm="demo.portaone.com",nonce="42e6c9ce1e0b2e10ca02cf9312
        Content-Length: 0

27 Jul 00:00:14/2379060364@192.168.0.138/ser: processing REGISTER received from 219.74.184.194
27 Jul 00:00:14/2379060364@192.168.0.138/ser: sending AAA request for 18667478647711, method REGISTER:
        Calling-Station-Id              = '18667478647711'
        User-Name                       = '18667478647711'
        Digest-User-Name                = '18667478647711'
        Digest-Realm                    = 'demo.portaone.com'
        Digest-Nonce                    = '42e6c9ce1e0b2e10ca02cf9312a40309b1b95fc2'
        Digest-URI                      = 'sip:demo.portaone.com'
        Digest-Method                   = 'REGISTER'
        Digest-Algorithm                = 'MD5'
        Digest-Response                 = 'c94b02480755281bc33cf7010b571b26'
        Service-Type                    = 'Sip-Session'
        Cisco-AVPair                    = 'call-id=2379060364@192.168.0.138'

27 Jul 00:00:14/2379060364@192.168.0.138/ser: AAA request accepted, processing response:
        h323-billing-model              = 'h323-billing-model=0'
        Cisco-AVPair                    = 'h323-ivr-in=Tariff:Apollo SIP'
        Cisco-AVPair                    = 'h323-ivr-in=available-funds:9996007.08'
        h323-return-code                = 'h323-return-code=0'
        h323-currency                   = 'h323-currency=USD'
        h323-preferred-lang             = 'h323-preferred-lang=en'
```

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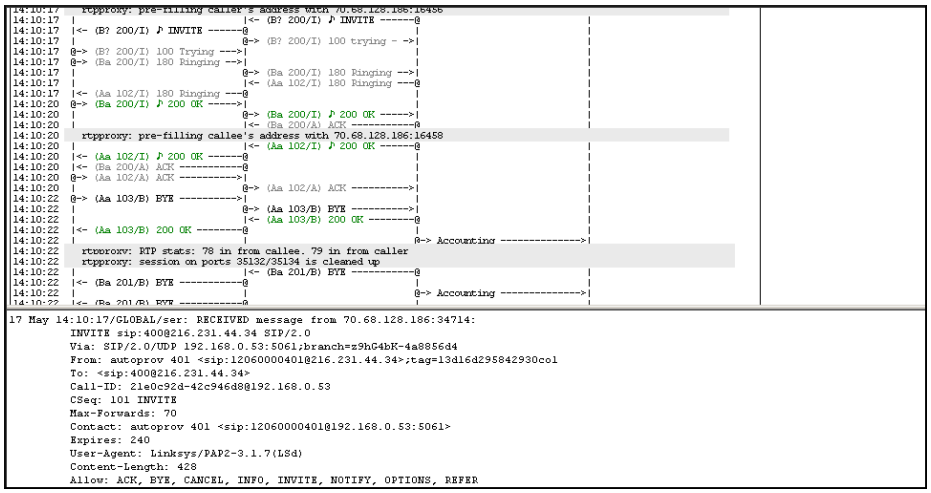
Log with call diagram:



Field	Description
SIP Environment	The PortaSIP node (virtual SIP instance) whose log files will be processed.
Call-ID	The SIP Call-ID (typical format is **XXXXX@some.domain** or XXXX@IP).
Another Call-ID	The Call-ID used to trace callback calls when one logical call consists of several independent SIP calls.
Search log file for	The day when the call was made.
Include log file for the previous day in the search	This option extends the search by adding the previous day.
Output format	Raw text log, or with diagram.
Show call attempts for last …	Displays all call attempts on this node, so that you can find the call-id for a call and use it to obtain log information.

Account Info

The Account Info page is provided for Help Desk staff responsible for answering questions from account holders. The interface requires the account holder to give the Help Desk an account ID or a batch and control number. The Help Desk operator can also browse xDRs for this account by selecting the Browse xDRs icon.

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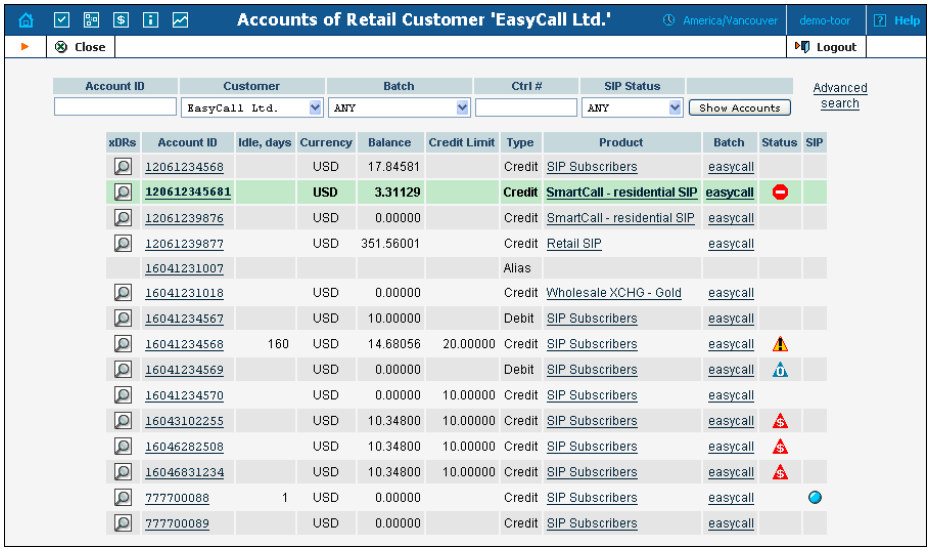
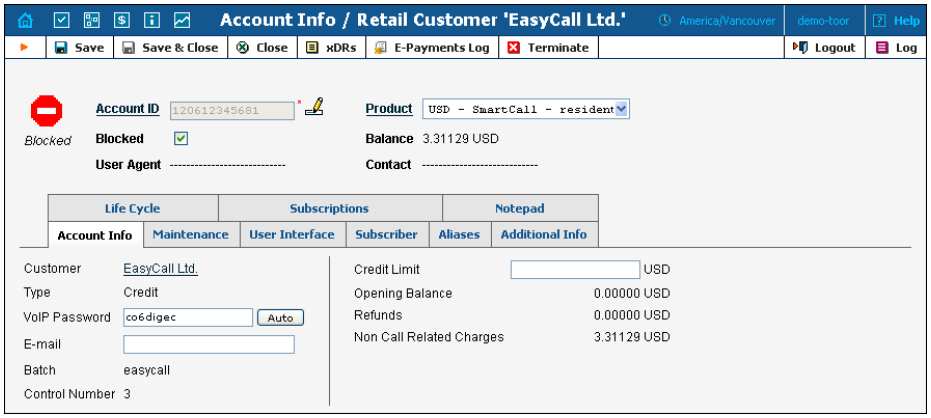


Once specified, clicking on **Account ID** will take the user to the Account Info for that account.



The majority of account details on the Account Info page are read-only. This interface is similar to the one accessible via the customer's **Accounts**. Help Desk staff has the ability to modify only Web Password, VoIP Password, Account Balance, Time Zone, Redirect Number, Blocked Status, and Preferred Language. When making such changes, Help Desk staff should also provide a comment detailing the reason for these changes (for example, "user unable to call due to network outage, credited $5"). Changes may be confirmed by clicking **Save** or **Save&Close**.

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6. Statistics

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Graphs

The default timeframe for all graphs is 30 hours. The dates above the graph are the boundary timeframe for the current graph. If the graph is shown in more than one color, a legend for color use will be displayed below the graph. If there are two graphs, captions will be provided on the left. The use of navigation is explained in the table below.

Icon	Description
	Zoom Out. Click the icon or the top part of the graph to see a 50% longer time interval.
	Zoom In. Click the icon or the bottom part of the graph to see a 50% shorter time interval and a more detailed graph.
	Back in time. Click the icon or the left part of the graph to move back in time by 50% of the current timeframe.
	Forward in time. Click the icon or the right part of the graph to move forward in time by 50% of the current timeframe.

Reports

The middle portion of the report screen is a one-year calendar.

PortaBilling keeps reports for one year, after which they are removed from the system. The current month is displayed in the bottom right-hand corner of the calendar.

Look at the following diagram of a calendar:

1. If present, this arrow notifies the user that a report for this month is available for download by clicking the month link.
2. Three-letter abbreviation for the month, followed by the year.

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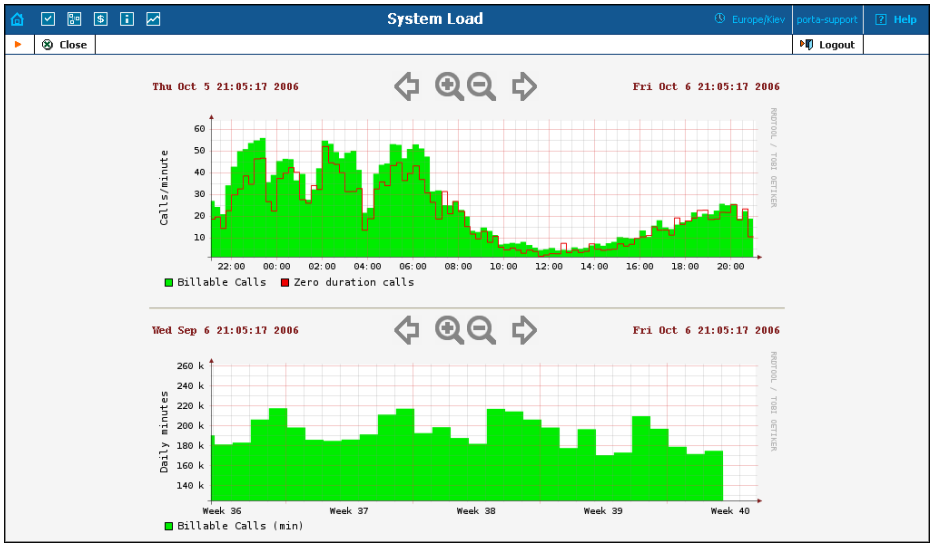
3. If present, this arrow notifies the user that two semi-monthly reports are available for download by clicking the links on the right.
4. Click this icon to download statistics for the first half of the month.
5. Click this icon to download statistics for the second half of the month.
6. The number of the week in the current year. No report was generated for this week, so there is no link.
7. Same as 6, but here a report has been generated and may be downloaded by clicking the link.
8. The day of the month. No report has been generated, so the link is inactive.
9. Days with linked reports are bolded and underscored. Click to download the report.

If a report is available, the corresponding link is bolded and underscored.

NOTE: Links are not displayed if reports have not been configured.

System Load

The **System Load** graph provides a general overview of the billing system status in terms of the number of call attempts per minute and the total volume of calls per day.



The **Calls/minute** graph at the top shows the number of calls, and is broken down into "Billable" and "Zero Duration" calls.
The **Daily minutes** graph shows the total call volume (in minutes) that passes through your system per day.

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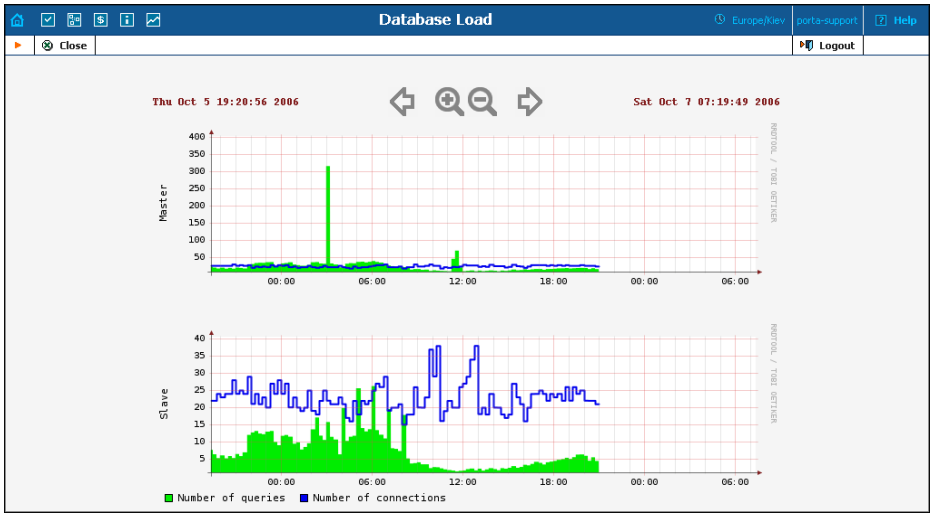
Database

The Database Load graph shows the load (in number of queries) and the number of active threads on the master and slave databases. This information may be useful in the event that database interactions seem slow, or for other debugging scenarios.



Connections

The Connection Load screen provides the user with access to load graphs for all connections set up in the system. To view the graph, select the vendor to whom the connection being searched has been assigned from the list on the left side of the screen. Also, the search feature may be used by entering the vendor's name in the search field and clicking the **Search** button. For a search wildcard, the symbol '%' can be used.

After locating the vendor, all connections related to him will be displayed on the right side of the screen, grouped similarly as on the Connection Management screen: PSTN from Vendor, VoIP from Vendor, PSTN to Vendor, and VoIP to Vendor. Click the description under the corresponding connection type to view the Load Graph for a given connection.

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Defined in terms of connection threshold, the connection utilization graph shows the saturation of your connections, as well as the setup time and ASR.

ASR

The Vendor ASR reports screen gives the user easy access to downloads of all ASR reports that have been defined for a vendor. Reports for the desired vendor may be found by selecting the vendor from a list on the left side of the screen, or by entering the vendor's name in the search field and clicking the **Search** button. The wildcard symbol '%' may also be used for the search.

Download Options

The default report download format is CSV. Check the box next to the **ZIP** icon to download zipped CSV files.

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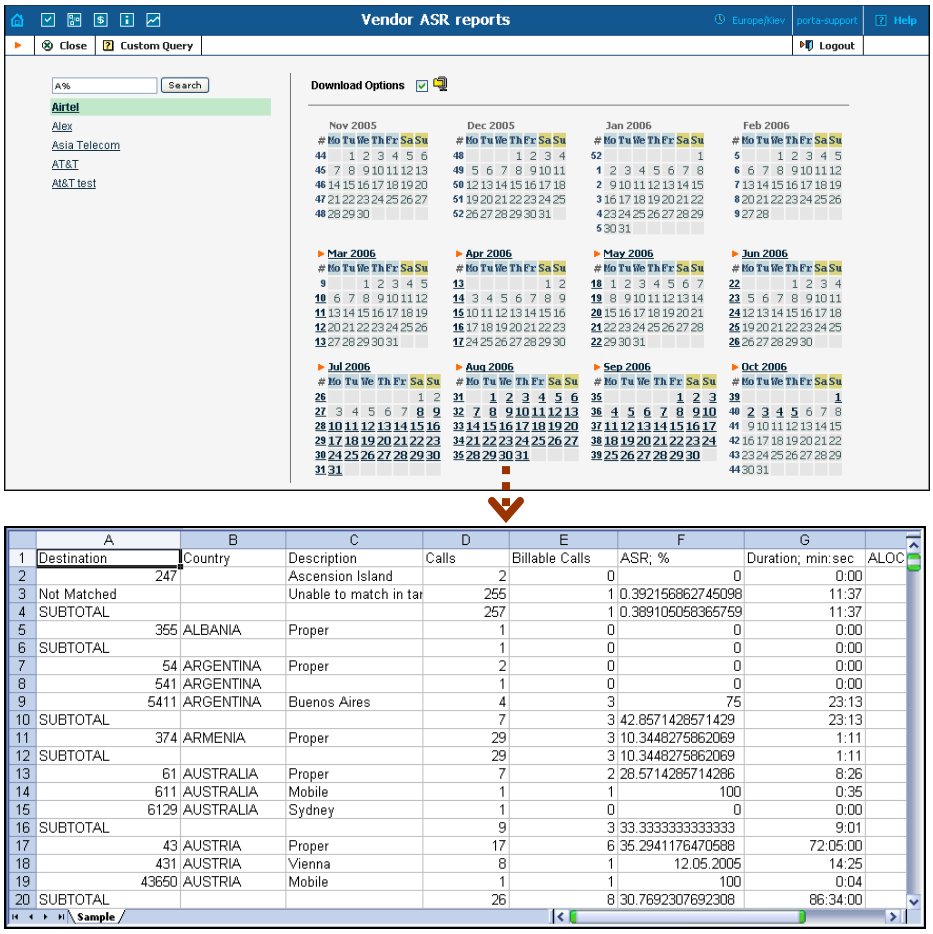

	A	B	C	D	E	F	G	
1	Destination	Country	Description	Calls	Billable Calls	ASR; %	Duration; min:sec	ALOC
2	247		Ascension Island	2	0	0	0:00	
3	Not Matched		Unable to match in tar	255	1	0.392156862745098	11:37	
4	SUBTOTAL			257	1	0.389105058365759	11:37	
5	355	ALBANIA	Proper	1	0	0	0:00	
6	SUBTOTAL			1	0	0	0:00	
7	54	ARGENTINA	Proper	2	0	0	0:00	
8	541	ARGENTINA		1	0	0	0:00	
9	5411	ARGENTINA	Buenos Aires	4	3	75	23:13	
10	SUBTOTAL			7	3	42.8571428571429	23:13	
11	374	ARMENIA	Proper	29	3	10.3448275862069	1:11	
12	SUBTOTAL			29	3	10.3448275862069	1:11	
13	61	AUSTRALIA	Proper	7	2	28.5714285714286	8:26	
14	611	AUSTRALIA	Mobile	1	1	100	0:35	
15	6129	AUSTRALIA	Sydney	1	0	0	0:00	
16	SUBTOTAL			9	3	33.3333333333333	9:01	
17	43	AUSTRIA	Proper	17	6	35.2941176470588	72:05:00	
18	431	AUSTRIA	Vienna	8	1	12.05.2005	14:25	
19	43650	AUSTRIA	Mobile	1	1	100	0:04	
20	SUBTOTAL			26	8	30.7692307692308	86:34:00	

Sample

Custom Query

The Custom Query utility, which can be accessed by clicking the **Custom Query** button, enables you to view ASR and cost/revenue information for all calls going from selected customer(s) to selected vendor(s). This query can also be filtered by destination and a precise time interval. The Split selector allows the report to be divided into hourly and daily intervals.

Select a customer or vendor, or a destination (which may be specified exactly), or use a wildcard. (For example, all calls to England may be specified as "44%" in the destination field.) A date and time range for the search must be specified. To initiate the query, click the **Show results** button.

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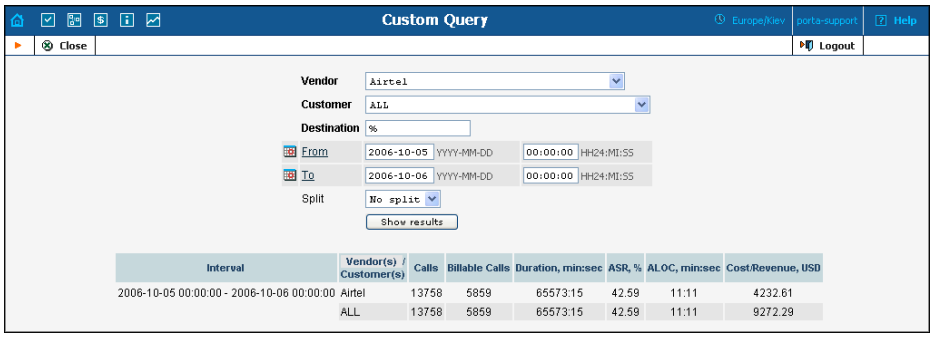

The results table contains two rows, one each for the customer and the vendor.

- Calls
- Billable Calls
- Duration, min:sec
- ASR (Average Success Rate)
- ALOC (Average Length of Call), min:sec
- Cost/Revenue, in the PortaBilling owner's currency

The Custom Query utility is a tool for monitoring various parameters of your current call flow. It should **not** be used to obtain billing statistics for a particular vendor (use the xDR statistics for the corresponding vendor), and should **never** be used to obtain information such as "total minutes for a particular customer". Since this report operates with the vendor's xDR, it will provide figures according to the vendor's time rounding, not the customer's. This can make a significant difference (e.g. your vendor uses 1 second rounding, while customers are billed on a per-minute basis).

Cost/Revenue

The Cost/Revenue reports screen allows users to easily download all Cost/Revenue reports that have been generated in the system. Reports are grouped by the following call types:

- By customer and destination, subtotal per country (default)
- By customer and destination, subtotal per customer
- By customer and destination, subtotal per country
- By vendor and destination, subtotal per vendor
- By destination

The active selection is highlighted in green.

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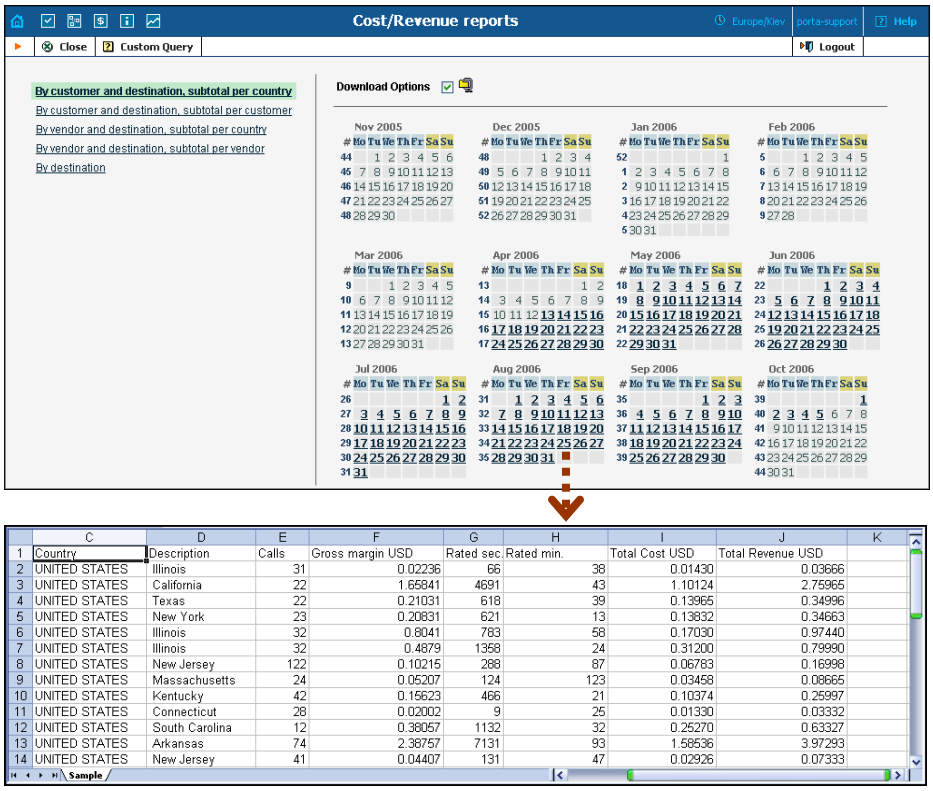
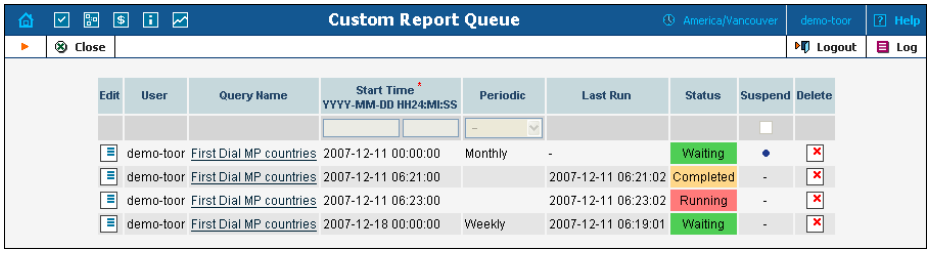


	C	D	E	F	G	H	I	J	K
1	Country	Description	Calls	Gross margin USD	Rated sec.	Rated min.	Total Cost USD	Total Revenue USD	
2	UNITED STATES	Illinois	31	0.02236	66	38	0.01430	0.03666	
3	UNITED STATES	California	22	1.65841	4691	43	1.10124	2.75965	
4	UNITED STATES	Texas	22	0.21031	618	39	0.13965	0.34996	
5	UNITED STATES	New York	23	0.20831	621	13	0.13832	0.34663	
6	UNITED STATES	Illinois	32	0.8041	783	58	0.17030	0.97440	
7	UNITED STATES	Illinois	32	0.4879	1358	24	0.31200	0.79990	
8	UNITED STATES	New Jersey	122	0.10215	288	87	0.06783	0.16998	
9	UNITED STATES	Massachusetts	24	0.05207	124	123	0.03458	0.08665	
10	UNITED STATES	Kentucky	42	0.15623	466	21	0.10374	0.25997	
11	UNITED STATES	Connecticut	28	0.02002	9	25	0.01330	0.03332	
12	UNITED STATES	South Carolina	12	0.38057	1132	32	0.25270	0.63327	
13	UNITED STATES	Arkansas	74	2.38757	7131	93	1.58536	3.97293	
14	UNITED STATES	New Jersey	41	0.04407	131	47	0.02926	0.07333	

Custom Reports

The Custom Reports section allows you to manage and execute custom report queries.

On the initial Custom Reports screen, you can view already existing reports. To execute one of them and see the result immediately, click the **Run** icon for a particular report. Click the **Run Queue** button in the toolbar to see information about scheduled report execution.



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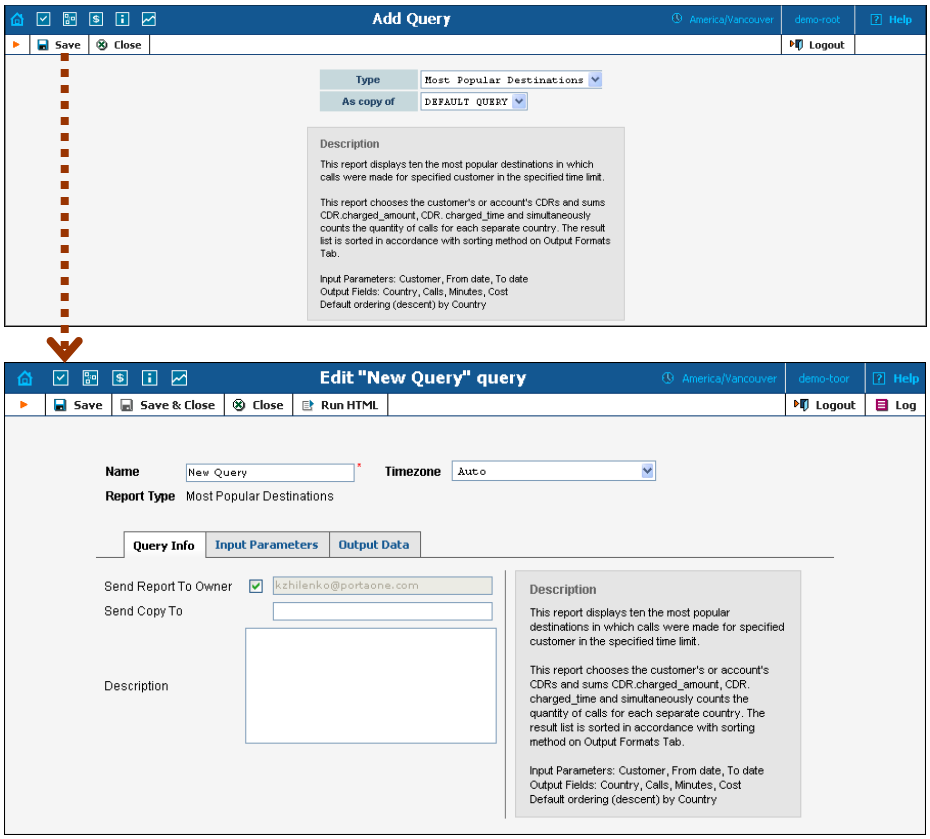
Click **Add** to create a new report by choosing the type of report (one of the pre-defined types) and whether this report should be created as a clone of some existing report (inheriting all parameters defined in that report), or just as a blank copy. Press **Save** to proceed in defining the report.



On the Edit query page, you can alter various parameters of this query. Click the **Run HTML** button in the toolbar to run the query and immediately see the result in your web browser.

Query Info Tab

Field	Description
Send Report To Owner	If this check box is ticked, after every query execution the user who executes the report will receive a copy of the report result by email. (Make sure you have defined your email address in the user settings.)
Send Copy To	Send a copy of the report result to another email address.
Description	General description of this report.

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Input Parameters Tab

The contents of this tab are based on a particular report, and allow you to manage report parameters, e.g. for "Most popular destinations" you are able to specify the date range and customers.
For input parameters which contain date/time values, there are two methods of entering values:

- You can type in a specific value, e.g. "01-Jan-2007"; this value will always stay the same for any report execution.
- You can specify a moment in time as an offset from the scheduled report execution date. For instance, you can set up the "Customer's most popular destinations" report to run every night at 5 am, and specify that it should cover an interval from 21 hours to 10 hours **prior** to the report time. As a result, you will always receive a report that includes calls made by the customer during business hours on the previous day. Parameters may also be populated automatically with a date **after** the actual report time: for instance, every Monday you can run a report to obtain a list of invoices that will become overdue during the next seven days.

Output Formats Tab

This tab includes two separate areas: Output Format, where you can define how the values of columns should be presented in the report, and Data Sorting, where you define how the report data should be sorted.

Column	Description
Column	Name of the report column.
Visible	Whether this column should be included in the report. If you uncheck this option, the given column will simply be skipped in the report result.
Format	Formatting of the column data (e.g. whether the total number of minutes should be displayed as 380 or 380:00).
Post Processing Rule	This field functions like the post-processing rules in templates (for more details, see the **PortaBilling Templates Guide**). It allows you to modify the actual value extracted from the database before it is shown in the report. For instance, if the value in the database gives the total number of seconds, you can divide it by 60 to display the value in minutes to the user.
Suppress Dup	If activated, duplicate column values in adjacent rows will not be displayed – see the example below.

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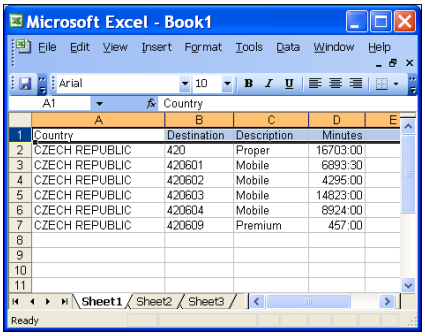
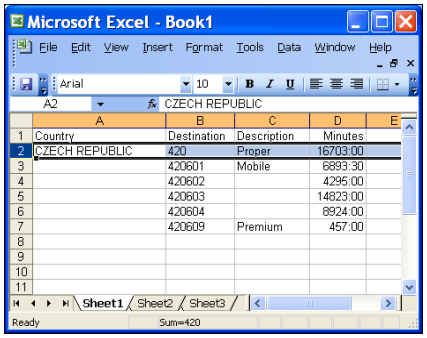
The Suppress Duplicates option allows you to make your reports more readable by removing excess information. Compare the two datasheets below, in which the same data is shown, but where the right one has Suppress Duplicates enabled for certain columns.





Column	Description
Column	Name of the report column.
Sort	Specifies the sorting mode for this column: • - Data is sorted in ascending order (i.e. **Andrew** will be at the top of the list, and **Zack** at the bottom). • - Data is sorted in descending order (i.e. **Zack** will be at the top of the list, and **Andrew** at the bottom). • — - This column is not used for data sorting at all.
Up/Dn	If there are multiple columns used in sorting, their order is very important. Here you can arrange the sequence of the sort columns. For instance, if you want to sort data first by country name and then by the number of minutes, use the and arrows to move the **Country** column above the **Minutes** column.

Run Queue Tab

This tab allows you to schedule automatic report execution (single time or periodic) in the future, and to see when a report was last generated. Click the **Add** button in the toolbar to add a new entry.

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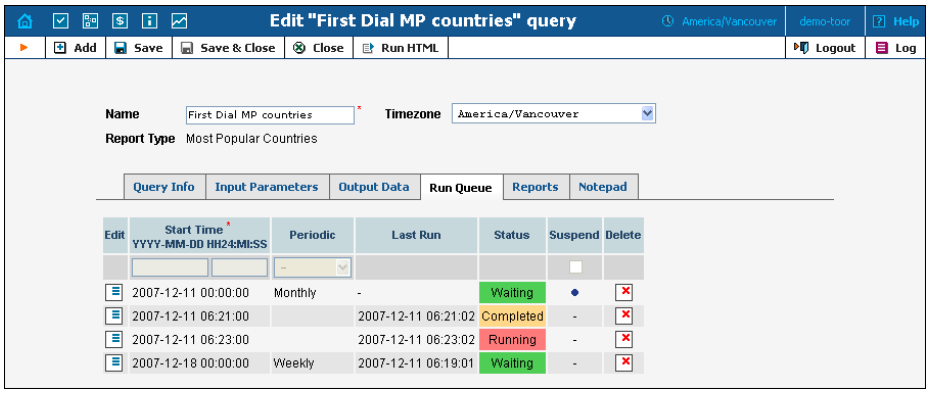

Column	Description
Start Time	Date and time when the report should be produced.
Periodic	Specifies whether the report should only be produced once, or generated every day, week or month.
Last Run	The date when the report was last executed (if applicable).
Status	Current status of the report: • Waiting – Report execution has not started yet, and is scheduled for the future. • Completed – The report was to be executed only once, and this has already been done. • Running – The report is being currently produced.
Suspend	Allows you to temporarily disable report execution (but not delete the entry from the report schedule). This may be convenient if you are leaving for vacation and would like to avoid having reports piling up in your inbox during your absence.

NOTE: Start Time specifies only the "preferred" start time for the report. Report execution will not start earlier than the specified time, but it may start later if there are some other conflicting tasks at the specified time. For instance, if two reports are scheduled to be executed at 06:00, only one of them will start at that time, while the other will start only after the first one has finished.

Reports Tab

This tab allows you to browse results for the ten previous report executions. Thus, if you did not save the original result, you do not have to run the reports over again. Click the icon to see the corresponding file.

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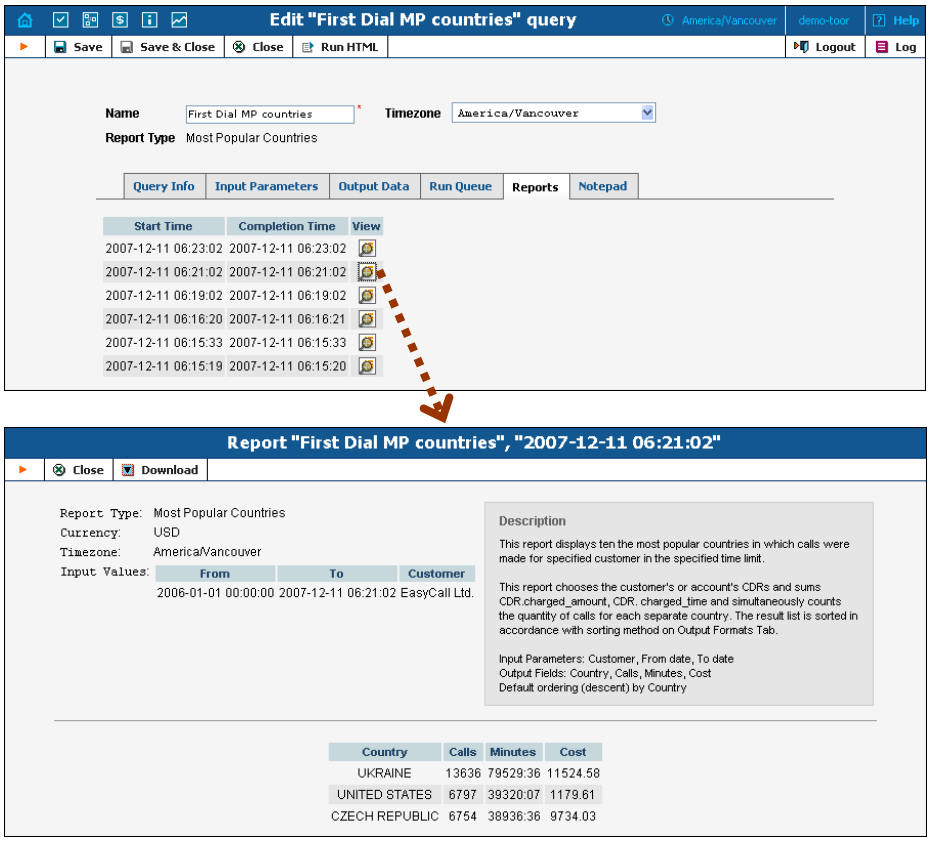

Vendor xDR Reports

The Vendor reports screen allows users to easily download all reports that have been defined for a vendor. Reports for the desired vendor may be found by selecting the vendor from the list on the left side of the screen, or by entering the vendor's name in the search field and clicking the **Search** button. The wildcard symbol '%' may also be used.

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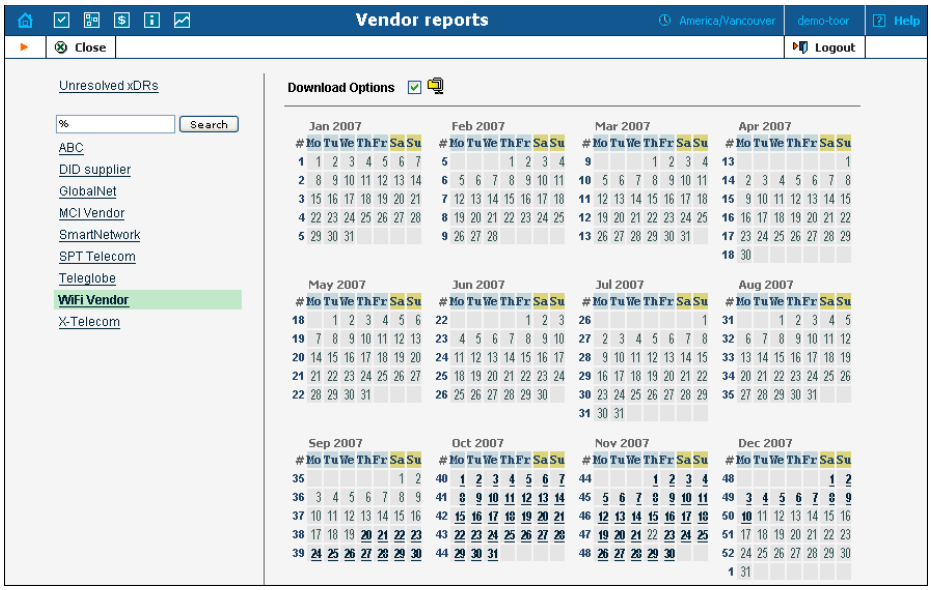
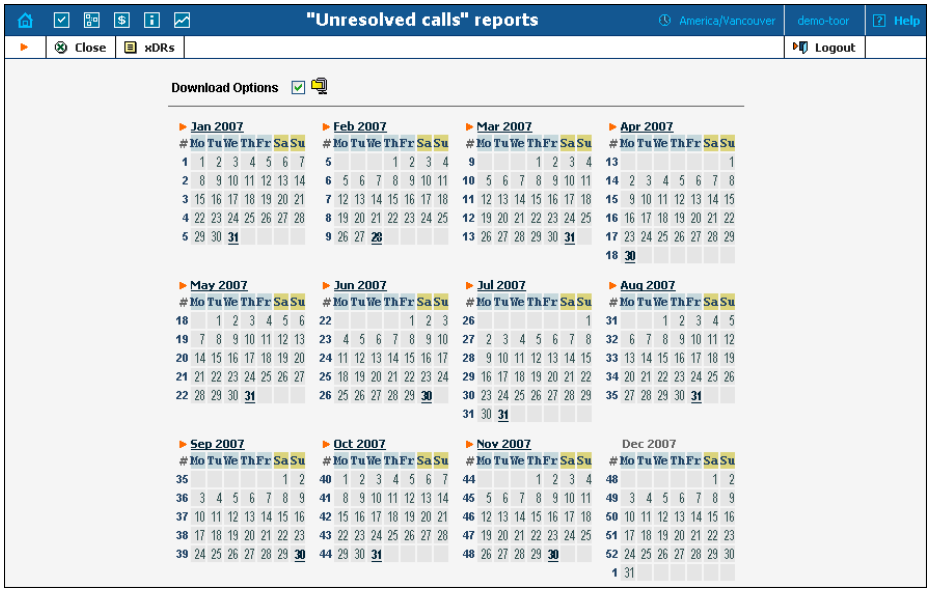


Unresolved xDR Reports

The "Unresolved calls" reports screen is accessible from the Vendor xDR. It allows users to easily download all available reports for calls which were not identified as crossing any connection to a vendor. The report periodicity can be set up on the **Company Info** screen -> Report Info Tab -> Reconciliation Period.



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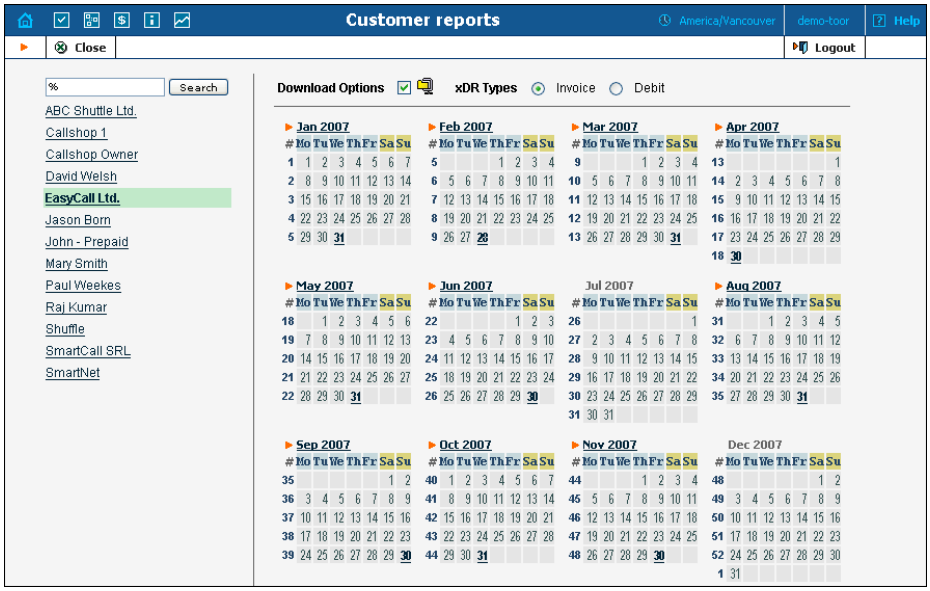
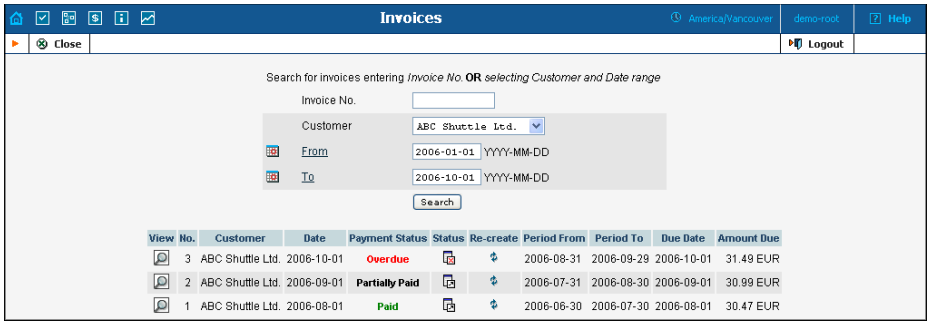
Customer xDR Reports

The Customer reports screen allows users to easily download all reports that have been defined for a customer. Reports for the desired customer may be found by selecting from the list of existing customers on the left side of the screen, or by entering the customer's name in the search field and clicking the **Search** button. The wildcard symbol '%' may also be used.



Invoices

The Invoices screen allows the administrator to view all invoices generated by the system in the current environment. The desired invoice can be found by its number. Groups of invoices can be searched by selecting a customer and a date range.



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Select the **Preview** icon in the result list to view or print the selected invoice. The **Closed** icon appears when an invoice has been delivered to the customer and cannot be changed. An invoice is considered delivered when the customer receives an e-mail with the invoice attached, or clicks the View icon in the Invoice section of the Customer Self-Provisioning interface. If the invoice is not locked, it will be automatically updated if the balance changes (re-costing of calls, for example); otherwise, a new invoice with a re-costing adjustment will be generated. You can change the status of an invoice manually by clicking the status icon.

The Re-create icon allows you to recreate an invoice. By clicking this icon you can schedule invoice recreation. This will not affect any changes except the invoice date, due date, layout attributes, customer and/or company info, and PDF file renewal. Invoice recreation is useful when you want to renew an invoice date, or have made some changes to a particular invoice template, or if certain customer or company attributes have been changed.

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