

Porta  Switch™



**Handbook:
Prepaid Billing**
Maintenance Release 18

Part II

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**PortaSwitch Handbook: Postpaid Billing, November 2008
Maintenance Release 18
V1.18.2**

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Preface

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

Where to get the latest version of this guide

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

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.

1. ANI-based (PINless) Services

Post-paid ANI services enable Internet telephony service providers (ITSPs) to offer end users a more convenient way to use their services. A customer's phone number (or multiple phone numbers) is pre-registered in the system, so when he dials an access number from his phone the system automatically recognizes him and allows him to make an outgoing call without having to enter a PIN. This can also be used in conjunction with a carrier pre-select service, where the end-user simply dials a destination number with a short prefix and the call is forwarded to your network by his local telco.

PortaOne ANI services also allow customers to make calls from different (unregistered) locations. In this case, they have the option of entering their original phone number followed by a password (to prevent fraudulent service use).

Setting Up Your Network Components

Cisco NAS Configuration Guidelines

Obtain the ANI authentication script

The default Cisco ANI applications (which are bundled with Cisco IOS) do not provide call authorization or IVR, so they are not really suitable for deploying customer-oriented ANI services. The best way is to use the standard Cisco debitcard script, modified for ANI services. Cisco's default debitcard script is provided free of charge to all users with a valid Cisco support contract (CCO). Be sure to obtain the latest version of this script (2.0.2.8a).

Please contact PortaOne TCL support at tcl-support@portaone.com for assistance in implementing ANI-based features in your script.

NOTE: According to the Cisco licensing agreement, PortaOne may not distribute the Cisco debitcard application (neither the original nor a modified version). Please contact your Cisco representative to obtain the script.

Place the debitcard script and all the required prompts on your TFTP server. For your convenience, the TFTP server is already pre-configured in the /tftpbboot directory on the PortaBilling100 slave server. Do not send a copy of the script to PortaOne!

Basic router configuration

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

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

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

NTP

NOTE: It is very important to have reliable time services. Also make sure that the time zone abbreviation is one of the standard ones supported by PortaBilling.

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

AAA

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

VoIP interface

```
interface <your interface to the world>
h323-gateway voip interface
h323-gateway voip h323-id <h323_id of this gateway>
```

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

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

Outgoing SIP server

```
sip-ua
aaa username proxy-auth
sip-server dns:<hostname-of-your-PortaSIP-server>
```

Enable gateway functionality

```
gateway
```

Enable gateway accounting

For older IOS versions:

```
gw-accounting h323 vsa
```

For newer IOS versions (12.2T or 12.3):

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

NOTE: VSA does not work for all platforms.

Radius

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

Cisco notes:

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

Keep in mind:

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

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

voice-card

controller

voice-port

Depends on your hardware configuration.

call application voice & dial-peers

```
call application voice ani_service tftp://.../app_portaone_ani.tcl
call application voice ani_service pin-len 0
call application voice ani_service ani-authentication yes
call application voice ani_service card-authentication no
call application voice ani_service translate /^.+/ani&/
call application voice ani_service language 1 en
call application voice ani_service language 2 ru
call application voice ani_service set-location ru 0 tftp://.../tcl/prompts/ru/
call application voice ani_service set-location en 0 tftp://.../tcl/prompts/en/
!
dial-peer voice 201 pots
  application ani_service
  incoming called-number 201
  port 0:D
!
dial-peer voice 60 voip
  destination-pattern .T
  session protocol sipv2
  session target sip-server
!
```

Setting Up ANI-based Billing

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

Checklist

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

Operation	Done
General configuration	
Fill in company data in Company Info	[]
Specify base currency	[]
For any other currency you plan to use, specify the exchange rate source and define exchange rates	[]
Create all required destinations	[]
Network configuration	
Create a node for your gateway	[]
Configure your gateway	[]
Rating configuration	
Create a tariff A, which will apply to ANI-based customers	[]
Insert rates in tariff A for the destinations you plan to call	[]
Create a tariff B, which describes your termination costs	[]
Insert rates in tariff B for the destinations you plan to call	[]
Create your ANI product	[]
Create one accessibility entry for this product, using the node you created and tariff A	[]
Create a vendor	[]
Create a connection for this vendor using tariff B	[]
Account provisioning	
Create a customer class which will apply to your ANI-based customers	[]
Create a retail customer who will be using ANI-based services	[]
Create an account for this customer	[]
Testing	
Try to make a test call	[]

General, Network, Rating Configuration

This is identical to the procedure described in the *Prepaid VoIP services* chapter in the [PortaSwitch Handbook: Prepaid Billing](#) document; please follow the instructions provided there. See the instructions below for **Account Provisioning**.

Create Customer Class

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

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

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

Create Customer

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

In the Management section of Admin-Index, choose **Customers**.

1. On the Customer Management page, choose **Add Customer**.
2. Fill in the **New Customer** form. Please note that there are several tabs with extra information available on the screen. The most important fields are:

Main form (top)

- **Name** – Short name for the customer object; will be used on the web interface.
- **Currency** – The currency in which this customer will be billed.
- **Opening balance** – Starting balance for the customer; the default is zero.
- **Customer Class** – Choose the customer class you created in the previous step

Address Info

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

Additional Info

- **Billing Period** – Frequency of accounting information distribution. See more details about the different available billing periods in **PortaBilling Administrator Guide**.
- **Send Statistics – Summary only** - Distribute a call summary only, and do not attach a details file; this might be useful in the

case of a large amount of calls. Other options are **Full statistics** (attach a complete list of xDRs) or **Do not send** (no not deliver call statistics to this customer via email at all).

Payment Info

- o **Credit Limit** – If left empty, there is no credit limit for this customer.

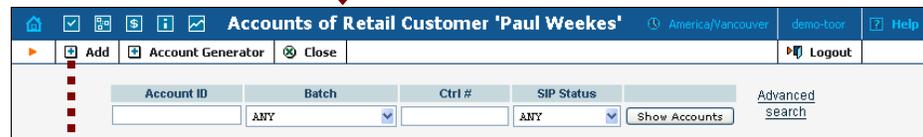
User Interface

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

3. Click Save&Close.

Create Accounts

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



The top screenshot shows the 'Add Account for Retail Customer' form for 'Paul Weekes'. The 'Account ID' is 'ani16045551234', 'Product' is 'USD - CT Product', 'Blocked' is unchecked, and 'Opening Balance' is '0'. The 'Type' is 'Credit', 'Credit Limit' is '90', 'VoIP Password' is 'aresi2le', and 'Batch' is 'ANI-based'. The bottom screenshot shows the 'Accounts of Retail Customer' table with the following data:

Account ID	Batch	Ctrl #	SIP Status	Advanced search
ani16045551234	ANY		ANY	Show Accounts

xDRs	Account ID	Idle, days	Currency	Balance	Credit Limit	Type	Product	Batch	Status	SIP
	ani16045551234		USD	0.00000	90.00000	Credit	CT Product	ANI-based		

3. Now click on **Add**.
4. Fill in the “Add account” form:
 - **Account ID** – Account identification in the form aniNNNN, where NNN is the actual ANI number, e.g. ani16041234567.

NOTE: Accounts for ANI services are created with a special prefix (ani, in this case) so PortaBilling will not confuse them with SIP accounts (where the account ID is identical to the actual phone number) and try to route calls accordingly.

- **Product** – Choose the product which you would like your accounts to use.
- **Blocked** – Check this if you want to create the account as initially blocked.
- **Opening balance** – The initial balance on the card. For credit accounts, the opening balance is normally zero.

Account Info

- **Account type** – Account type; select **Credit** for post-paid.
- **Credit limit** – Maximum allowed credit.
- **VoIP Password** – Password for authentication/authorization. For extra security use a random combination of digits as a password.
- **Batch** – A batch is a management unit for accounts. The batch name is alphanumeric. You can type a new name here, or use the existing name in order to generate more accounts for the same batch.

Life Cycle

- **Activation date** – Account activation date.

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

User Interface

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

2. Callshop Services

Callshop Services

The callshop owner is your reseller. He pays you for all outgoing calls, and wants to keep track of calls made by individual accounts (phone booths) so that he can charge his customers. The only difficulty here is that many different customers will use the same phone booth (account) during the day, and each of them must receive his own bill.

First of all, make sure that the callshop functionality is enabled for this reseller (**Callshop enabled** checkbox on the **Additional Info** tab in customer info). After that, the administrator or reseller himself can turn on/off callshop functionality for specific subcustomers who represent individual callshops.

Thus the callshop owner will create an account for each of the phone booths. When a customer enters the booth, the callshop operator will activate the timer (this also unblocks the account).

Account ID	Batch	Ctrl #	SIP Status	Advanced search								
019870001	ANY		ANY	Show Accounts								
xDRs	Timer	Receipt	Account ID	Idle, days	Currency	Balance	Credit Limit	Type	Product	Batch	Status	SIP
			019870001		USD	14.36000		Credit	Callshop booth	callshop1	⊖	
			019870002		USD	17.14594		Credit	Callshop booth	callshop1	⊖	
			019870003		USD	0.00000		Credit	Callshop booth	callshop1	⊖	
			019870004		USD	116.07684		Credit	Callshop booth	callshop1	⊖	

Account ID	Batch	Ctrl #	SIP Status	Advanced search								
019870001	ANY		ANY	Show Accounts								
xDRs	Timer	Receipt	Account ID	Idle, days	Currency	Balance	Credit Limit	Type	Product	Batch	Status	SIP
			019870001		USD	14.36000		Credit	Callshop booth	callshop1	⊖	
			019870002		USD	17.14594		Credit	Callshop booth	callshop1	⊖	
	⊗		019870003		USD	0.00000		Credit	Callshop booth	callshop1	⊖	
			019870004		USD	116.07684		Credit	Callshop booth	callshop1	⊖	

After the customer exits the booth, the callshop operator stops the timer for that booth. This blocks the account so that no one can use the booth unnoticed while the operator is dealing with the previous customer's payment.

From	To	Country	Date/Time	Charged time	Amount, USD
019870001	380947332164	UKRAINE	2007-12-10 08:10:04	7:58	1.19500

Total Charged Time, min:sec 7:58 Total Charged 1.20 USD

Finally, by simply clicking the Receipt button, the operator can obtain a receipt containing a list of all the calls made by the customer and the total amount charged. This receipt can also be easily printed. If a reseller (callshop owner) has several callshop operators, it is not advisable to give each one of them access to the reseller's self-care interface. Instead, each should be created as a CC Staff account, and should use the CC Staff interface to activate timers and so on.

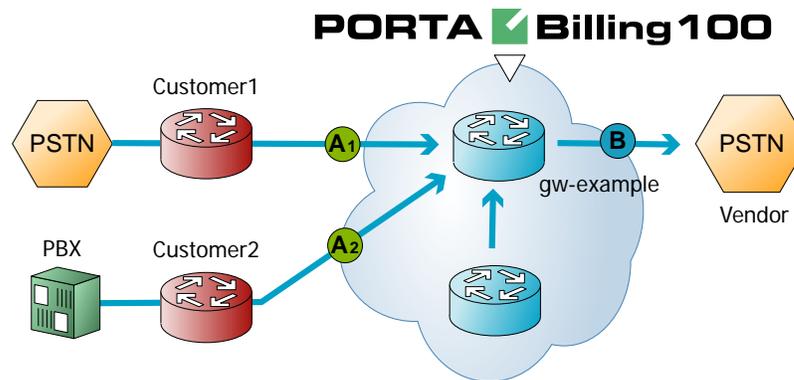


3. Setting Up Wholesale IP Telephony Company

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

Typical Business Case

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



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

- the tariff he charges his customer (A_n), and
- the tariff he is being charged by the vendor (B).

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

Setting Up Your Network Components

Configuring Gateway

Obtain the remote authentication script

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

Advanced Remote Authenticate script, such as:

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

You may obtain the **Advanced Remote Authenticate** script from [PortaOne's web store](#).

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

1. Basic router configuration

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

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

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

2. NTP

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

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

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

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

3. AAA

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

4. VoIP interface

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

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

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

5. Enable gateway functionality

```
gateway
```

6. Enable gateway accounting

For older IOS versions:

```
gw-accounting h323 vsa
```

For newer IOS versions (12.2T or 12.3):

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

NOTE: VSA does not work for all platforms.

7. Radius

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

Cisco notes:

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

Keep in mind:

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

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

8. voice-card

9. controller

10. voice-port

Depends on your hardware configuration

11. call application voice & dial-peers

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

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

Basic Wholesale Termination Service

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

Checklist

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

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

Billing Configuration

Please see the [PortaBilling100 Web Reference Guide](#) for detailed instructions on how to navigate and operate in the web interface and detailed explanations of particular fields.

Initial Configuration of PortaBilling

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

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

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

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

Create Destinations

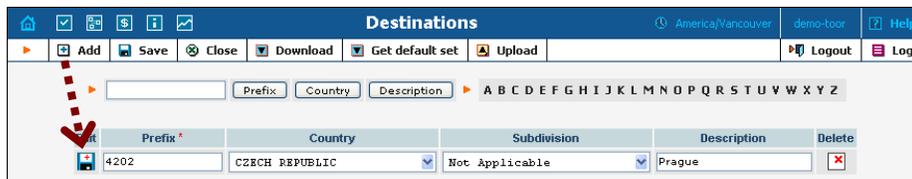
This step is only required if you have not defined the necessary destinations before. There are two ways of entering new destinations into the system:

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

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

Creating destinations “one-by-one”:

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



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

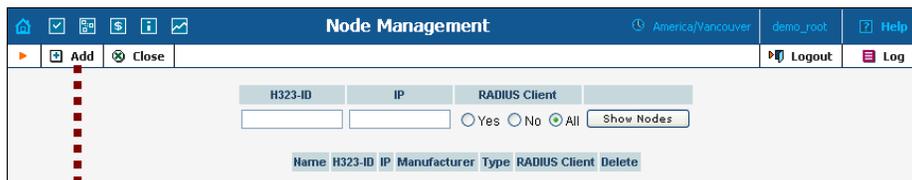
Uploading a set of destinations from a file

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

Create Nodes

This step is only required if you have not entered your gateways into the system before. In this case, you must enter your gateways as nodes. PortaBilling requires some key information about your network equipment such as IP address, h323-id, Radius shared secret, etc.

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



Microsoft Internet Explorer

Submitted information is being cached in the billing engine and will not take effect immediately. Default caching time is 10 minutes. Please contact your system administrator for more information.

OK

Name	H323-ID	IP	Manufacturer	Type	RADIUS Client	Delete
cisco-gw	cisco-gw.mydomain.com	192.168.0.99	Cisco	VOIP-GW	<input checked="" type="checkbox"/>	

1. In the Management section of the Admin-Index page, choose **Nodes**.
2. In the Node management window, click the **Add** icon.
3. Fill in the New Node form:
 - o **Node Name** – A short descriptive name for this node (will be used in the select menus).
 - o **H323-ID** – h323-id (recommended hostname.domainname)
 - o **VoIP Password** – If you plan to use the default Cisco remote IP authentication script, enter **cisco** here.
 - o **NAS-IP-Address** – IP address of the gateway.
 - o **Auth. Transl. Rule** – Leave this empty for now; see the *Translation Rules* section of the [PortaBilling Administrator Guide](#).
 - o **Manufacturer** – Select **Cisco** or **Quintum**.
 - o **Type** – VoIP node type: select **VOIP-GW**.
 - o **RTP Proxying** – Leave the default selection (Optimal); for more details regarding NAT traversal, see the [PortaSIP Administrator Guide](#).
 - o **RADIUS Client** – Select if this node will be communicating with the billing system.
 - o **RADIUS Key** – If this node is a radius client, enter the shared secret here; must be the same as that configured in NAS as a **key** in the radius server configuration.

- **RADIUS Source IP** – Unless your gateway has multiple network interfaces, the value here should be the same as the NAS-IP-Address.
4. Click  **Save&Close**.
 5. Repeat steps 2-4 until all of your nodes have been entered.

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

Create Tariff

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

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

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

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

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

- **Applied To** – Designates whether this tariff will be used to charge your pre-paid customers (in this case, choose a **Customer**) or to calculate costs associated with your vendors (in this case choose a **Vendor**).
- **Managed By** – Choose **Administrator Only** here.
- **Service** – Choose **Voice Calls** here.
- **Off-peak Period** – Defines the off-peak period. Click on the Off-peak period wizard icon () to summon the wizard, which will help you construct the correct period definition. Click **Help** to get more information on period format definition. If you do not differentiate between peak and off-peak rates, just leave this field blank.
- **Off-peak Description** – Description of the off-peak period, automatically filled in by the off-peak period wizard. You do not have to fill in this field.
- **Destination Group Set** – If you wish to enter rates in the tariff not for each individual prefix, but for a whole group of prefixes at once, you should create a destination group set and destination groups beforehand. Leave this select menu empty for now.

- **Free Seconds** – The number of free seconds granted for each call. In order to claim free seconds, the length of the call must be at least one billing unit (first interval; see the *Enter Rates* section above).
 - **Post Call Surcharge** – Percentage of the amount charged for the call.
 - **Login Fee** – Amount to be charged immediately after the first user authentication (i.e. after the user enters his PIN).
 - **Connect Fee** – Amount to be charged for each connected call (with a non-zero duration).
 - **Round Charged Amount** – Instead of calculating xDRs with a 5-decimal-place precision, round up xDR amount values (e.g. XXXXX.XX000 means rounding to cents, so that 1.16730 becomes 1.17).
 - **Default Formula** – The default rating formula which will be applied to every new rate created in the tariff. If you leave this empty, “old-style” rating will be used.
 - **Short Description** – A short tariff description. This will be shown in the rate lookup on the admin interface and the self-care pages for your accounts and customers.
 - **Description** – Extended tariff description.
4. Click  **Save**.



The screenshot shows the 'Tariff Management' interface. At the top, there are navigation icons and a search bar. Below that, there are filters for 'Applied To', 'Service', and 'Managed By', all set to 'ANY'. A table lists existing tariffs with columns for Name, Currency, Applied To, Service, Managed By, Routing, Description, Rates, and Delete. A red dashed arrow points from the 'Add' button in the top left to the 'Save' button in the instructions above.

Name	Currency	Applied To	Service	Managed By	Routing	Description	Rates	Delete
Prepaid Cards	USD	Customer	Voice Calls	Administrator only		Prepaid cards		
SIP Subscribers - Incoming	USD	Customer	Voice Calls	Administrator only		SIP Subscribers - Incoming		
Wholesale rates	USD	Reseller	Voice Calls			Wholesale rates for resellers		
WiFi	USD	Customer	Wi-Fi	Administrator only				

Add Tariff America/Vancouver demo-toor Help

Save Save & Close Close Logout Log

Name: Termination services* Currency: USD - US Dollar
 Applied To: Customer Service: Voice Calls
 Managed By: Administrator only

General Info

Off-Peak Period: TEST
 Off-Peak Description:
 Destination Group Set:
 Free Seconds:
 Post Call Surcharge: %
 Login Fee:
 Connect Fee:
 Round Charged Amount: xxxxxx.xxxxxx
 Default Formula:
 Short Description: Termination services
 Description: What we charge our customers for calls they terminate on our network

Edit 'Termination services' Tariff America/Vancouver demo-toor Help

Save Save & Close Close Download Upload Rates Test Logout Log

Name: Termination services* Currency: USD
 Applied To: Customer Service: Voice Calls
 Managed By: Administrator only

General Info Web Upload & Download Email Upload Notepad

Off-Peak Period: TEST
 Off-Peak Description:

'Termination services' tariff rates America/Vancouver demo-toor Help

Add Save Close Tariff Logout Log

Effective From: Now Destination: Prefix Group Country

Edit	Destination *	Country	Interval, second		Price, USD/minute		Effective From YYYY-MM-DD HH24:MI:SS *	Delete
			First *	Next *	First *	Next *		
	420		1	1	0.15	0.15	immediately	

'Termination services' tariff rates America/Vancouver demo-toor Help

Add Save Close Tariff Logout Log

Effective From: Now Destination: Prefix Group Country

Edit	Destination *	Country	Interval, second		Price, USD/minute		Effective From YYYY-MM-DD HH24:MI:SS *	Delete
			First *	Next *	First *	Next *		
	420	CZECH REPUBLIC Proper	1	1	0.15000	0.15000	2007-06-19 07:01:37	

Enter Rates

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

Managing rates online

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

1. On the Tariff Management page you will see a list of available tariffs. Click the  **Rates** icon next to the name of the tariff. When you are in Tariff Management for a particular tariff, click on  **Rates** in the toolbar.
2. In the **Edit Rates** screen, click  **Add**.
3. Fill in the required information:
 - **Destination** – The 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 column header). Here you can find the desired prefix by country name.

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

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

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

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

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



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

Managing rates offline

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

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

1. If you are not in Tariff Management for your tariff, go to the main menu, click on **Tariffs**, and then click on the tariff name.
2. In the Edit Tariff window, move the mouse over the **Download** button and hold it there until a popup menu appears. Choose the **Now** menu item and click on it. This will download the current set of rates (empty), and will also provide you with an overview of the file structure.
3. You will see the **File Download** dialog and be prompted to save the file or open it from its current location. We recommend that you first save the file to the folder you will be using in the future to store tariff data files, then open it in Excel.
4. You should see something similar to the screenshot below:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		
1	Name	Currency	Description													
2	(An) Termi	USD	What we charge our customers for their calls we terminate													
3																
4	Off-peak P	Free	Seco	Post Call \$	Login Fee	Connect Fee										
5		0	0	0	0											
6																
7	Destinator	Country	Description	Interval 1	Interval N	Price 1	Price N	Off-peak	In Off-peak	In Off-peak	f Off-peak	P Off-peak	P Forbidden	Hidden	Discontin	Effective From
8	420	CZECH REPUBLIC	Proper	1	1	0.05	0.05	1	1	0.05	0.05					12-12-03 03:33
9																
10																
11																
12																

5. Edit the file by adding more rows with rate data, so that it looks like the screenshot below.
6. Note that the columns **Country** and **Description** are for reference purposes only, and are ignored during import. Also, when using the default template you must fill in the data in the **Off-peak** columns even if your tariff does not have an off-peak period (use the clipboard to easily copy values for the four peak columns).
7. Also note that you may only use those phone prefixes which you have already defined as destinations (see **Create Destinations** above).

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		
1	Name	Currency	Description													
2	(An) Termi	USD	What we charge our customers for their calls we terminate													
3																
4	Off-peak P	Free	Seco	Post Call \$	Login Fee	Connect Fee										
5		0	0	0	0											
6																
7	Destinator	Country	Description	Interval 1	Interval N	Price 1	Price N	Off-peak	In Off-peak	In Off-peak	P Off-peak	P Off-peak	P Forbidden	Hidden	Discontin	Effective Fr
8	420	CZECH RE	Proper	1	1	0.05	0.05	1	1	0.05	0.05					
9	420602		Mobile	1	1	0.09	0.09	1	1	0.09	0.09					
10																
11																
12																



8. Save the file in Excel. You will probably get a warning from Excel that your file “*may contain features that are not compatible with CSV (Comma delimited)*”. Ignore this, and choose **Yes** to retain CSV format.
9. Close the file in Excel. If you performed step 6, then disregard the message “*Do you want to save the changes you made?*”, as this is only due to the fact that your format is not the native Excel XLS format.
10. Go back to the PortaBilling web interface and the **Edit Tariff** screen.
11. Click on the **Upload** button.
12. Either enter the name of your file manually, or click **Browse...** and choose the file.
13. Click **Save&Close**. You should return to the **Edit Tariff** screen, where a message will inform you of the status of the import. Also, you will receive an email confirmation about the tariff upload. If any operation failed, you will receive the portion of data which was not uploaded as an attachment, so you can try to import it later.

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

Create All Required Tariffs



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

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

Create Product

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

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

General Info

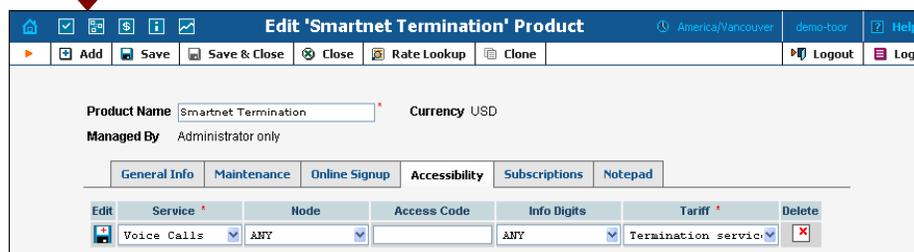
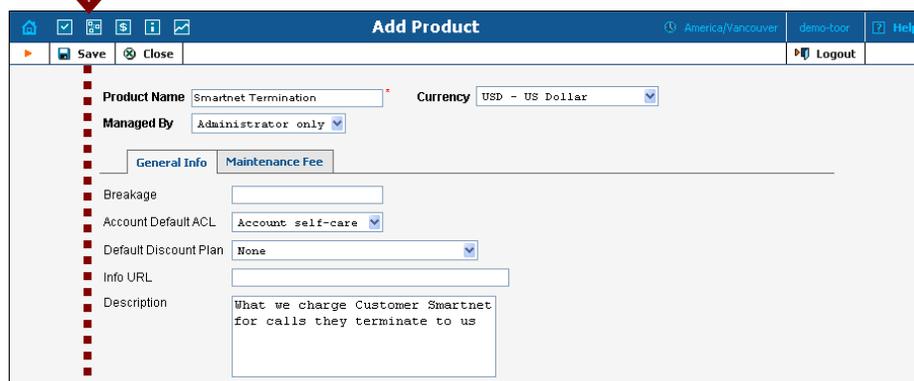
- **Breakage** – This parameter is typically used only for prepaid accounts, so leave it empty.
- **Account default ACL** – The access level assigned by default to new accounts created with this product. The ACL determines which operations may be performed by accounts on the self-care pages. The default value is "Account self-care" (pre-defined ACL), which allows all possible operations.
- **Default Discount Plan** – Leave **None** as the selected entry if you do not plan to offer discounted rates based on call volume.

Please refer to the description of volume-based discounts in the [PortaBilling Administrator Guide](#) for more details.

- **Info URL** – If you have an external server with a description of product features, enter the URL here (e.g. <http://www.myproduct.com>). Your customers will be able to go there from their self-care page.
- **Description** – Your description of the intended use of this product.

4. Click  **Save**.

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



Enter node and tariff into the product’s accessibility list

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

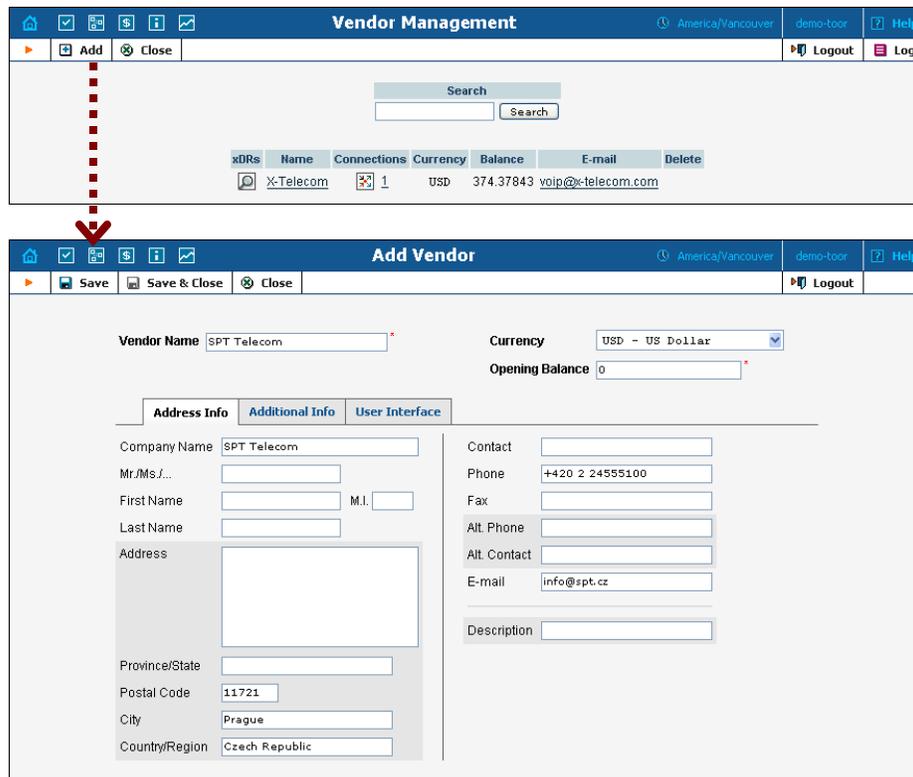
1. When the Accessibility tab is selected, click on the  **Add** icon.
2. Choose **Voice Calls** in the **Service** select menu.
3. Choose **ANY** as node, choose the tariff with which you want to bill your customer, and leave the **Access Code** field empty.

4. Click  **Save** to save this accessibility entry.

Create Vendors

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

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



The screenshot shows the 'Vendor Management' interface. At the top, there is a navigation bar with 'Vendor Management' and user information. Below it is a table with columns: xDRs, Name, Connections, Currency, Balance, E-mail, and Delete. A red dashed arrow points from the 'Add' button in the top navigation bar to the 'Add Vendor' form below.

The 'Add Vendor' form has the following fields:

- Vendor Name:** SPT Telecom
- Currency:** USD - US Dollar
- Opening Balance:** 0

The form is divided into three tabs: **Address Info**, **Additional Info**, and **User Interface**. The **Address Info** tab is active and contains the following fields:

- Company Name:** SPT Telecom
- Mr./Ms./...**
- First Name:**
- Last Name:**
- Address:**
- Province/State:**
- Postal Code:** 11721
- City:** Prague
- Country/Region:** Czech Republic

The **User Interface** tab contains the following fields:

- Contact:**
- Phone:** +420 2 24555100
- Fax:**
- Alt. Phone:**
- Alt. Contact:**
- E-mail:** info@spt.cz
- Description:**

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

Main form (top)

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

Additional Info

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

User Interface

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

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

Define Connections

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

The screenshot shows the 'Vendor Management' interface. At the top, there are navigation icons and a search bar. Below the search bar is a table with the following data:

xDRs	Name	Connections	Currency	Balance	E-mail	Delete
	SPT Telecom	0	USD	0.00000	info@spt.cz	
	X-Telecom	1	USD	374.37843	voip@x-telecom.com	

The screenshot shows the 'SPT Telecom' Connection Management interface. It features a search bar and a table with the following data:

Description	Service Type	Type	IP:Node(Port)	Transl. Rule	Outgoing Rule	CLI Transl. Rule	CLD (dnis)	Tariff	Delete
	Voice Calls	ANY							

The screenshot shows the 'Add Connection for SPT Telecom' form. The fields are filled with the following information:

- Description: Termination to SPT Telecom
- Service Type: Voice Calls
- Type: PSTN to Vendor
- Node: cisco-gw
- Port: (empty)
- Tariff: Termination to SPT
- Capacity: 24
- Hide CLI Mode: Clear caller info
- Translation Rule: (empty)
- Outgoing Rule: (empty)
- CLI Translation Rule: (empty)

The screenshot shows the 'SPT Telecom' Connection Management interface after the new connection has been added. The table now includes the new entry:

Description	Service Type	Type	IP:Node(Port)	Transl. Rule	Outgoing Rule	CLI Transl. Rule	CLD (dnis)	Tariff	Delete
Termination to SPT Telecom	Voice Calls	PSTN to Vendor	cisco-gw					Termination to SPT	

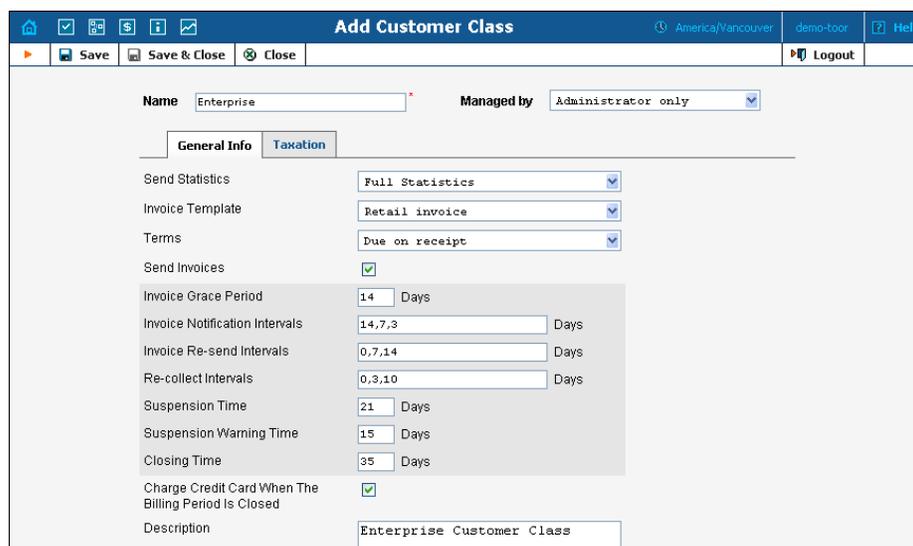
1. In the Management section of the Admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.
3. Press **Add** to add a new connection.
4. Fill in the connection information. If you send traffic to the vendor via telephony, choose the node and enter an optional port pattern. If you send traffic via VoIP, enter the remote IP address. Choose the tariff which defines your termination costs for this connection/vendor. **Description** and **Capacity** are mandatory for all connection types.

5. The **Translation Rule** is necessary if you send calls to the vendor in a format different from the one you use (e.g. the number 420296111222 is sent to the vendor as 004202111222), so that you can convert the phone number to the correct format. **Outgoing Rule** is only present if PortaSIP is installed, and is used to convert the number into the vendor-specific format.
6. Click  **Save&Close**.
7. Repeat steps 3-6 to add more connections to the same vendor, then click  **Close** in order to exit to the **Vendor Management** screen.
8. Repeat steps 2-7 to add connections for other vendors.

Create Customer Class

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

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

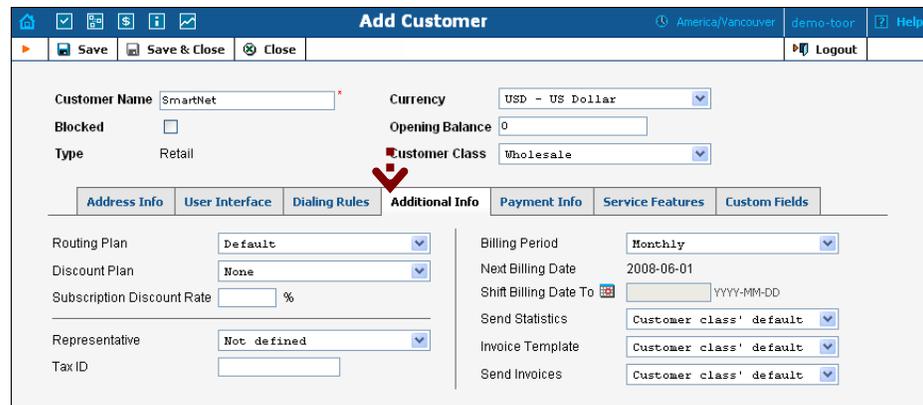
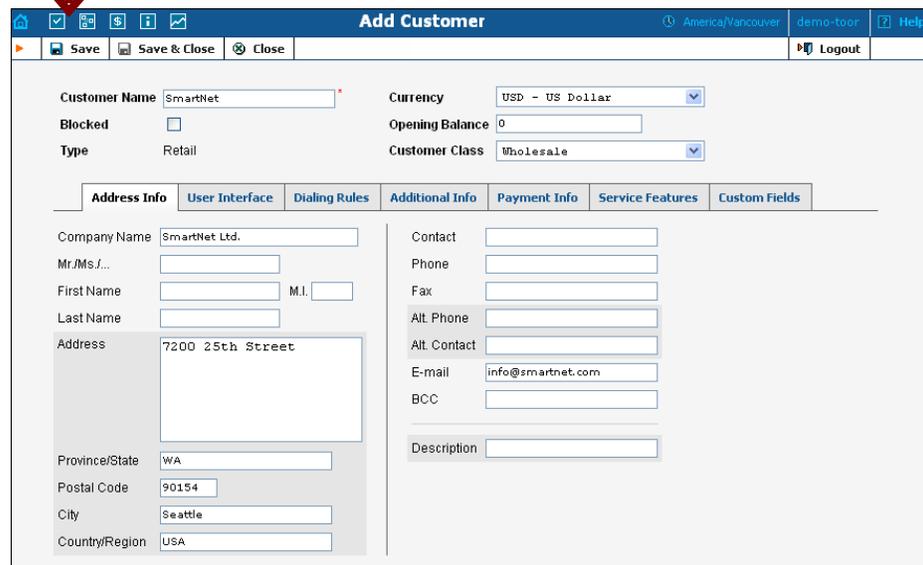


3. Fill in the **Name** parameter; the other fields can be left empty for now.
4. Click  **Save&Close**.

Create Customer

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

1. In the Management section of Admin-Index, choose **Customers**.
2. On the Customer Management page, choose **+ Add Customer**.
3. Fill in the **New Customer** form. Please note that there are several tabs with extra information available on the screen. The most important fields are:



Add Customer (America/Vancouver) demo-toor Help

Save Save & Close Close Logout

Customer Name: SmartNet * Currency: USD - US Dollar
 Blocked: Opening Balance: 0
 Type: Retail Customer Class: Wholesale

Address Info User Interface Dialing Rules Additional Info **Payment Info** Service Features Custom Fields

Credit Limit:
 Balance Warning Threshold:

Add Customer (America/Vancouver) demo-toor Help

Save Save & Close Close Logout

Customer Name: SmartNet * Currency: USD - US Dollar
 Blocked: Opening Balance: 0
 Type: Retail Customer Class: Wholesale

Address Info **User Interface** **Dialing Rules** Additional Info Payment Info Service Features Custom Fields

Login: Time Zone: America/Vancouver
 Password: Auto Web Interface Language: en - English
 Access Level: Retail

Periodic Payments Management Enabled
 Abbreviated Dialing Management Enabled

Output Format

Date: YYYY-MM-DD 2003-12-31
 Time: HH24:MI:SS User Defined
 Date & Time: YYYY-MM-DD HH24:MI:SS User Defined

Input Format

Date: YYYY-MM-DD 2003-12-31
 Time: HH24:MI:SS User Defined

Add Customer (America/Vancouver) demo-toor Help

Save Save & Close Close Logout

Customer Name: SmartNet * Currency: BRL - Brazilian Real
 Blocked: Opening Balance: 0
 Type: Retail Customer Class: Call Shops

Address Info User Interface Dialing Rules Additional Info Payment Info **Service Features**

Service Type

- Conferencing
- Data Service
- Dial-up Internet
- Messaging Service
- Internet Access
- Quantity Based
- Session Based
- Voice Calls**
 - Incoming Calls
 - Outgoing Calls
 - Wi-Fi

Voice VPN: No
 Legal Intercept: No
 Call Parking: No
 Park Prefix*:
 Release Prefix*:
 RTP Proxy: Use Default
 Music On Hold: None

Main form (top)

- o **Name** – Short name for the customer object; will be used on the web interface.
- o **Currency** – The currency in which this customer will be billed.

- **Opening balance** – Starting balance for the customer; the default is zero.
- **Type** – Since this customer will be sending you traffic and paying for it, he is a **Retail** customer.
- **Customer Class** – Choose the customer class you created in the previous step.

Address Info

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

Additional Info

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

Payment Info

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

User Interface

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

Service Features

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

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

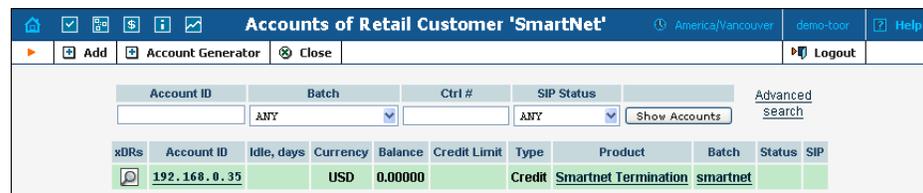
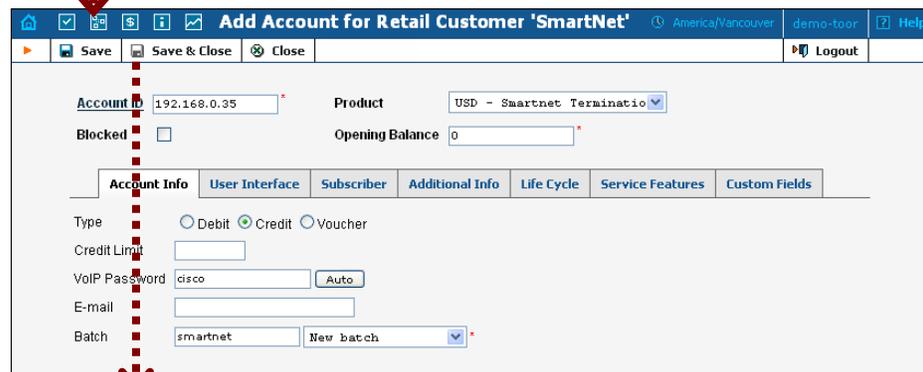
- **Max number of simultaneous calls** – Only allow a specific number of concurrent calls for accounts of this customer.
- The other settings on this tab control various IP Centrex features which are available when using PortaSIP. Leave them as is, since they are not applicable in the case of termination services provided directly on a Cisco gateway.

See the PortaBilling Web Reference Guide for more information.

Click  **Save&Close** to save your work. See the [PortaBilling Administrator Interface](#) for more information.

Create Accounts

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



3. Now click on **Add**.
4. Fill in the **Add account** form:
 - o **Account ID** – Identification of the account (value to be sent in the **User-Name** attribute). For an account which represents a remote gateway, this is normally an IP address.
 - o **Product** – Choose the product which you would like your accounts to use.

- **Blocked** – Check this if you want to create the account as initially blocked.
- **Opening Balance** – The initial balance on the card. For credit accounts, the opening balance is normally zero.

Account Info

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

Life Cycle

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

User Interface

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

4 . Charging for Value-added Services

When providing VoIP calling services, quite often you will have to charge your customers for some additional services rendered: IP phone rental, voicemail service, “bundled” free minutes, and so on. The PortaBilling subscription module allows you to efficiently manage these charges.

Setting Up Subscription Services

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

Checklist

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

Operation	Done
General configuration	
General and network configuration has already been performed according to the instructions in the previous sections.	[<input type="checkbox"/>]
Rating configuration	
Create a subscription plan A which will be bundled with your product.	[<input type="checkbox"/>]
Create any optional subscription plans you may require.	[<input type="checkbox"/>]
Associate subscription plan A with your product.	[<input type="checkbox"/>]
Account provisioning	
Create a retail customer who will be using your services.	[<input type="checkbox"/>]
Create an account for this customer.	[<input type="checkbox"/>]
If required, assign some subscriptions directly to the account.	[<input type="checkbox"/>]
Testing	
Verify that the subscriptions are visible under the account.	[<input type="checkbox"/>]

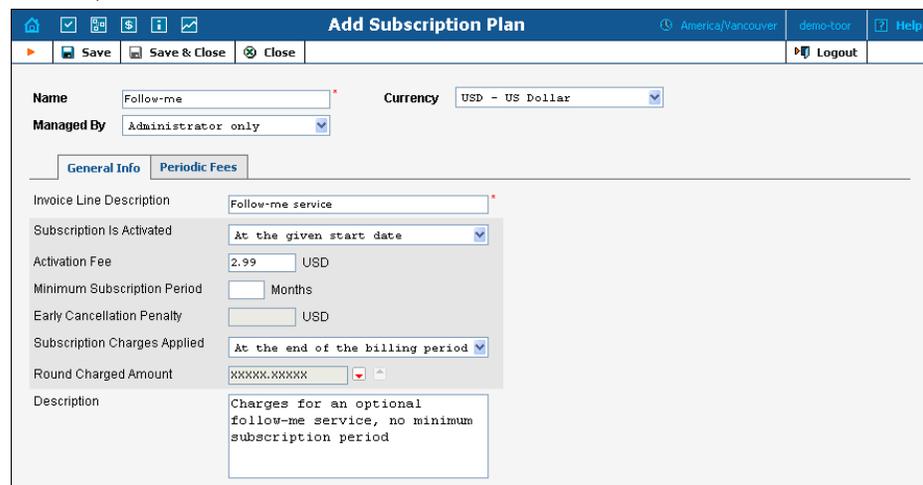
General, Network, Rating Configuration

This is identical to the procedure described in the previous chapters; please follow the instructions provided there.

Create Subscription Plans

A subscription plan defines the charges associated with a particular service.

1. In the Management section of the Admin interface, choose **Subscription Plans**.
2. On the Subscription Plan Management page, choose  **Add**.



3. Fill in the required information:

Main form (top)

- **Name** – Name of the subscription plan which is to be used on the Admin interface.
- **Currency** – Indicates in which currency pricing information is given. A subscription plan can only be applied to a product, account or customer with this same currency.

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

- **Managed By** – If you want this subscription plan to be used for your reseller’s accounts, so that the reseller himself can change the parameters of the plan and apply it to his accounts, choose a customer name from the menu. Otherwise, choose **None** here.

General Info

- **Invoice Line Description** – A subscription plan description to be included on every invoice line visible to the customer (for instance, it may be in a language different than English).
- **Subscription Is Activated** – Defines when the subscription will be considered active (and charges will begin to apply): either simply from the date it is entered into the system, or you may postpone it until the date when the customer actually uses the account for the first time.
- **Activation Fee** – Enter the value charged for every new subscription upon startup; leave this field empty to waive the activation fee.
- **Minimum Subscription Period** – Time (in months) during which the customer must keep the subscription plan active in order to avoid penalties. Leave this field empty to create a subscription plan that can be closed at any time.
- **Early Cancellation Penalty** – The fee applied if the minimum subscription period condition is not met.
- **Subscription Charges Applied** – The default method is “At the end of the billing period”, so that subscription charges are applied to the account/customer balance when the billing period is closed. The alternative is to apply charges “progressively” – every day a small portion of the total subscription fee is applied, so that the balance grows gradually.
- **Round Charged Amount** – Leave the default value unchanged if you want to calculate charges with the maximum available precision; otherwise, see the [PortaBilling100 Web Reference Guide](#) for more details about setting up rounding.
- **Description** – Your comments about the intended purpose of this subscription plan.

Periodic Fees

By default, only one type of pricing is available: this is the default fee which will be applied to the subscription. Click the  icon to edit it, then click the  icon after you have finished entering all the information. There are four column groups (monthly, bi-weekly, weekly and daily billing), each of which allows you to specify fees for every billing period separately.

The screenshot shows the 'Add Subscription Plan' interface. At the top, there are navigation buttons: Add, Save, Save & Close, Close, and Logout. The main form includes fields for Name (Follow-me), Currency (USD - US Dollar), and Managed By (Administrator only). Below this, there are tabs for 'General Info' and 'Periodic Fees'. The 'Periodic Fees' tab contains a table with columns for Edit, Up/Down, Default/promotional rate, and four billing types: Monthly Billing, Bi-weekly Billing, Weekly Billing, and Daily Billing. Each billing type has sub-columns for 'N' and 'Fee, USD'. The table has one row for 'Default Rate' with values: unlimited, 2.99000, unlimited, 1.69000, unlimited, 0.79000, unlimited, 0.14900. Below the table, there are summary rows for each billing type: Monthly Billing (1..unlimited: 0 USD), Bi-weekly Billing (1..unlimited: 0 USD), Weekly Billing (1..unlimited: 0 USD), and Daily Billing (1..unlimited: 0 USD).

- **N** – Duration of the promotional period (not available for the default fee).
- **Fee** – Full amount of subscription fee to be applied during the billing period.



The periodic fees table includes an automatic calculation feature, simplifying the entry of values into the four column groups; e.g. if you enter 2.00 as the value of the monthly fee, while the fields for fees for other periods remain empty, these will be populated with pro-rated values (1.0, 0.46667 and 0.06667, respectively). Of course, you may change the actual values afterwards, e.g. make weekly billing more expensive by setting the fee to 0.49. The same applies to defining the length of promotional periods, e.g. if you enter 2 as the duration (in months) of the promotion, the other empty fields will be populated with 4, 9 and 60, respectively.

If you want to add more promotional periods (e.g. for the first three months) click the **Add** button in the toolbar to insert a row into the pricing table, then click the **Delete** icon when you have entered all the required information.

The screenshot shows the 'Add Subscription Plan' interface with the 'Periodic Fees' table expanded to three rows. The first row is 'First N billing periods' with N=1 and Fee=0. The second row is 'Following N billing periods' with N=6 and Fee=0.99000. The third row is 'Default Rate' with unlimited duration and Fee=2.99000. The table also shows pro-rated values for other billing types. Below the table, there are summary rows for each billing type: Monthly Billing (1 month(s): 0 USD, 2.7 month(s): 0.99000 USD, 8..unlimited: 2.99000 USD), Bi-weekly Billing (1..2 bi-week(s): 0 USD, 3..14 bi-week(s): 0.49900 USD, 15..unlimited: 1.69000 USD), Weekly Billing (1..4 week(s): 0 USD, 5..30 week(s): 0.24000 USD, 31..unlimited: 0.79000 USD), and Daily Billing (1..30 day(s): 0 USD, 31..210 day(s): 0.04000 USD, 211..unlimited: 0.14900 USD).

The screenshot above defines a product which:

- will be free for the first month,

- will have a monthly fee of \$0.99/month for the next six months,
- will have a normal subscription fee of \$2.99/month afterwards.

A reference table is provided for your convenience at the bottom of the screen, so that you can clearly see when a change in the subscription fee is to occur. You may also change the order of the promotional periods by moving them up and down using the  and  icons.

4. Click  **Save&Close** to finish the subscription plan definition and save it to the database.
5. Repeat steps 2-4 to create any other additional subscription plans

Bundle Subscription Plans with Product

You can create subscription plans as bundled with a product, so that they will apply to every account using this product.

1. In the Management section of the Admin interface, choose **Products**.
2. On the Product Management page, click on the name of a specific product.
3. Select the Subscriptions tab and click the  **Add** icon.
4. Select the subscription plan from the select menu.



5. Click the  **Save** button in the toolbar, or the  icon on the left end of the row to save the data.
6. Repeat steps 3-5 to include more than one mandatory subscription with the product.

Check Subscription Plan Assignment

After a subscription plan has been bundled with a product, every new account created with this product will automatically be assigned this subscription.

The screenshot shows the 'Account Info / Retail Customer 'EasyCall Ltd.' page. The account ID is 12061234568 and the product is USD - SIP Subscribers. The balance is 19,83581 USD. The user agent is Linksys/SPA941-5.1.8 and the contact is sip:12061234568@192.168.1.2:5060. The page has several tabs: Life Cycle, Subscriptions, Volume Discounts, Notepad, Service Features, and Favorite Numbers. The Subscriptions tab is active, showing a table of subscriptions. The table has columns for Edit, Subscription, Discount Rate, %, Start Date, Activation Date, Finish Date, Billed To, Obligatory, Close, and Delete. There are three sections: Pending Subscriptions, Active Subscriptions, and Closed Subscriptions. The Active Subscriptions section shows one entry: 'Linksys phone rental' with a start date of 2007-03-02, an activation date of 2007-03-02, and a finish date of 2007-12-31. A warning icon is present in the Obligatory column for this entry.

The  icon indicates that this subscription forms part of the product definition, and is therefore mandatory (cannot be canceled).

Manually Assign Subscription

You may also assign some additional, optional subscription plans to an account.

1. Go to the **Customers** screen (the one containing a list of customers).
2. Next to the customer name, click the  icon (the one in the **Accounts** column) to enter account management for this customer.
3. Perform an account search and, when the required account is displayed, click on the account ID.
4. On the Account Info page, click on the **Subscriptions** tab.
5. Click the  **Add** icon.

6. Select the subscription plan from the select menu. You may also specify a start date for the subscription (by default, it will be activated on the day you create it).
7. Click the **Save** button in the toolbar, or the  icon on the left end of the row to save the data.
8. Repeat steps 5-7 to add more subscriptions to this account.

Manually Assign Subscription to Customer (Optional)

You may also assign some additional, optional subscription plans to an account or customer.

1. Go to the **Customers** screen (the one containing a list of customers).
2. Click on the customer name.
3. On the Customer Info page, click on the **Subscriptions** tab.
4. Click the  **Add** icon.

5. Select the subscription plan from the select menu. You may also specify a start date for the subscription (by default, it will be activated on the day you create it).

6. Click the  **Save** button in the toolbar, or the  icon on the left end of the row to save the data.
7. Repeat steps 4-6 to add more subscriptions to this customer.

5. Controlling the Call Quality

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

Setting Up Adaptive Routing

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

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

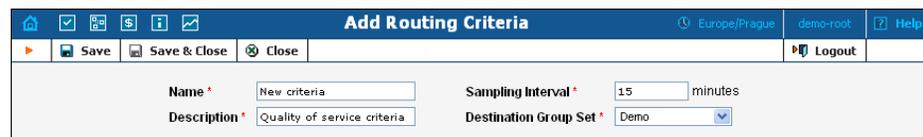
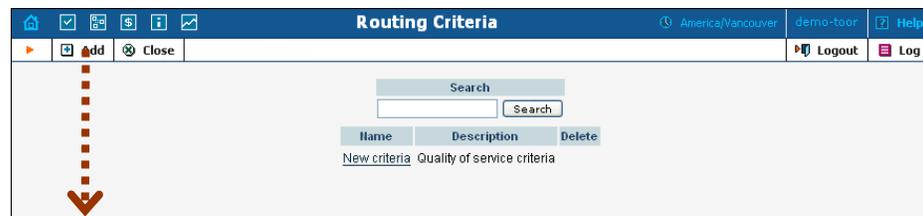
Add/Edit Routing Criteria

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

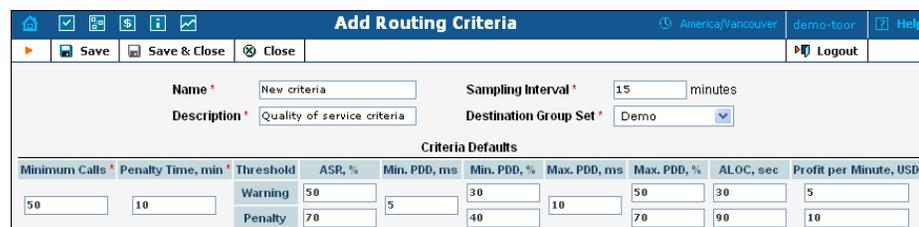


An existing routing criterion can be edited by clicking on its name in the list.

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



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



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

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

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

Define Routing Criteria for Individual Destination Groups

1. 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.

Criteria Defaults											
Minimum Calls *	Penalty Time, min *	Threshold	ASR, %	Min. PDD, ms	Min. PDD, %	Max. PDD, ms	Max. PDD, %	ALOC, sec	Profit per Minute, USD		
50	10	Warning 70 Penalty 50	70	5	30	10	50	90	10.00000		
									5.00000		

Edit	Destination Group *	Minimum Calls	Penalty Time, min	Threshold	ASR, %	Min. PDD, ms	Min. PDD, %	Max. PDD, ms	Max. PDD, %	ALOC, sec	Profit per Minute, USD	Delete
				Warning Penalty								
	Demo	50	10		70 / 50	5	30 / 40	10	50 / 70	90 / 30	10.00000 / 5.00000	

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

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

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



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

Define Routing Criteria for Specific Connection

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

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

4. Click the **Save** button.

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

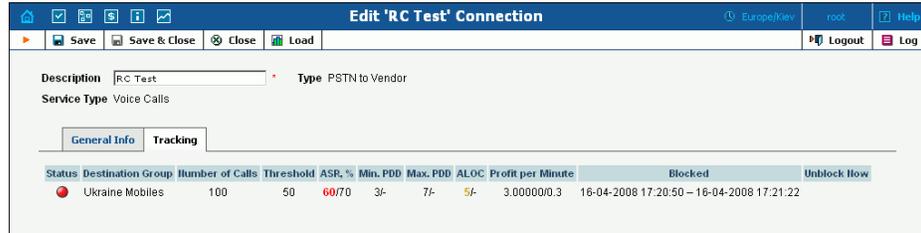
Tracking Connection Status

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

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

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

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



The screenshot shows a web interface for editing a connection. The title is "Edit 'RC Test' Connection". Below the title are several buttons: Save, Save & Close, Close, and Load. On the right, there are links for Logout and Log. The main content area has a "Description" field with "RC Test" and a "Type" dropdown set to "PSTN to Vendor". The "Service Type" is "Voice Calls". There are two tabs: "General Info" and "Tracking". The "Tracking" tab is active and displays a table with the following data:

Status	Destination Group	Number of Calls	Threshold	ASR, %	Min. PDD	Max. PDD	ALOC	Profit per Minute	Blocked	Unblock How
	Ukraine Mobiles	100	50	60.70	3s	7s	5s	3.0000000.3	16-04-2008 17:20:50 – 16-04-2008 17:21:22	Unblock Now