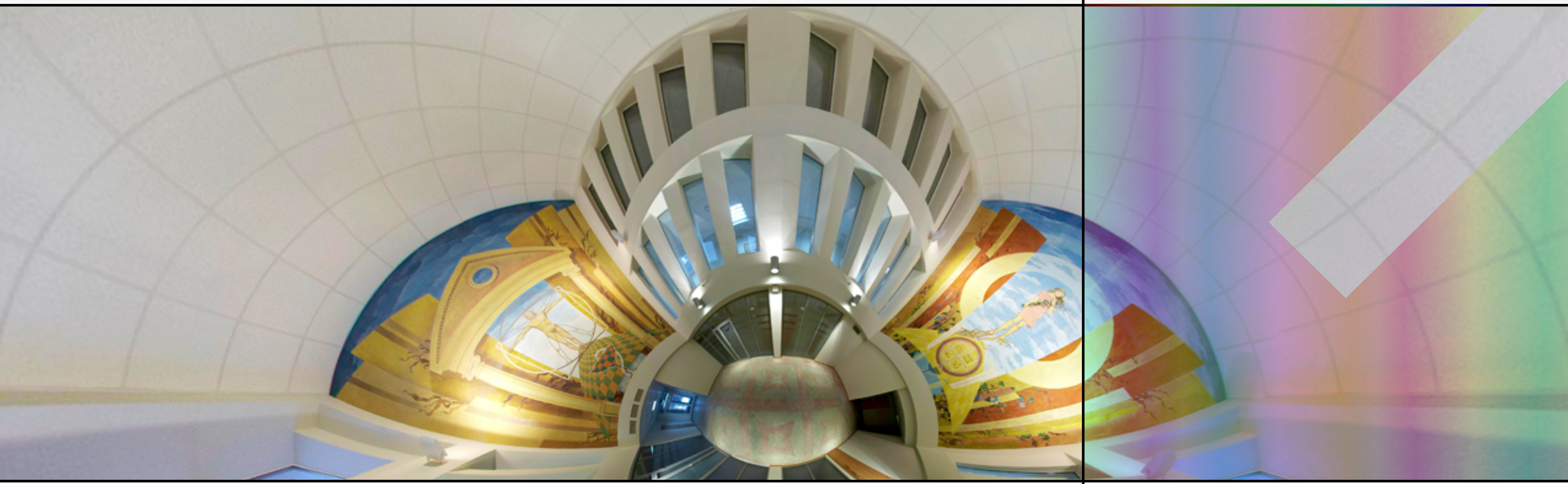
PORTA ONE

PortaSwitch™



Handbook:

Broadband Internet, Wifi and IPTV Services
Maintenance Release 21

www.portaone.com

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PortaSwitch Handbook:
Broadband Internet, WiFi and IPTV Services, September 2010
Maintenance Release 21
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Table of Contents

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`

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

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

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

Tips provide information that might help you solve a problem.

1. Prepaid WiFi Services

Prepaid WiFi services enable Internet telephony service providers (ITSP) to offer wireless access services that customers can pay for in advance.

The market for prepaid services includes tourists, immigrant communities, mobile populations such as military personnel, and people with limited credit histories. These users can all gain immediate access to WiFi services at key locations such as hotels, cafes by using prepaid WiFi cards ("access codes") purchased at supermarkets and other types of retail outlets. Prepaid WiFi access is a single "purchase" transaction – so at the moment of the authorization all available funds are withdrawn from the account and converted into the WiFi access time.

Typical Prepaid WiFi Service Scenario

In an ITSP internal network infrastructure, prepaid services are implemented through a debit card application and work in conjunction with the following:

- **Mikrotik RouterBoard 532 with RouterOS 2.9 installed**
- **PortaBilling100**

This combination of services enables a carrier to authorize prepaid WiFi access and debit individual user accounts in real time.

Customer interaction:

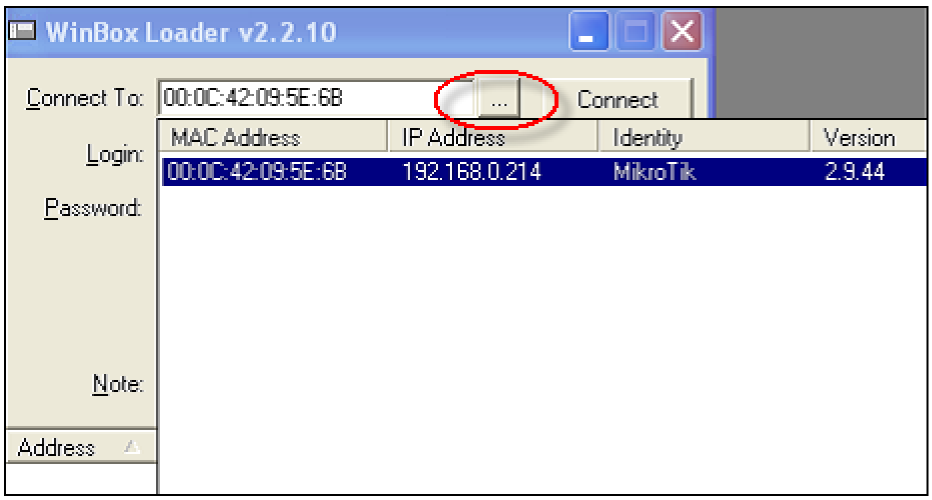
- Customer selects the WiFi network
- Customer clicks "Connect"
- Customer opens her web browser
- Customer opens WiFi gateway authorization page
- Customer enters the login and password
- Customer starts her work

Setting Up Your Network Components

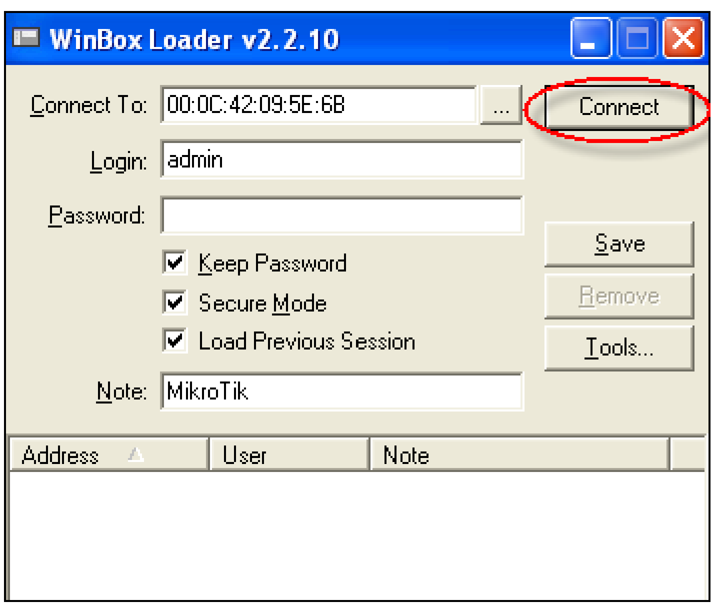
Mikrotik Configuration Guidelines

1. Assign a proper IP address to Mikrotik.

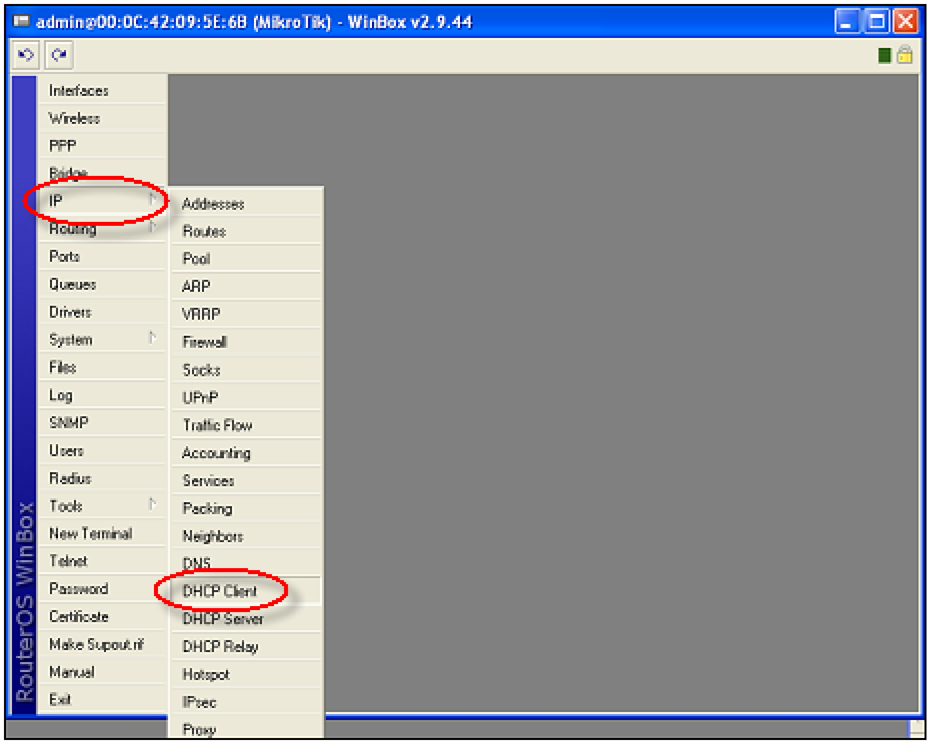
If it is already assigned go to step 2. If not, set IP address manually or enable DHCP client and assign it to Ethernet interface with the help of **winbox.exe** utility.
Click the "…" button, and select your router; only one should appear.

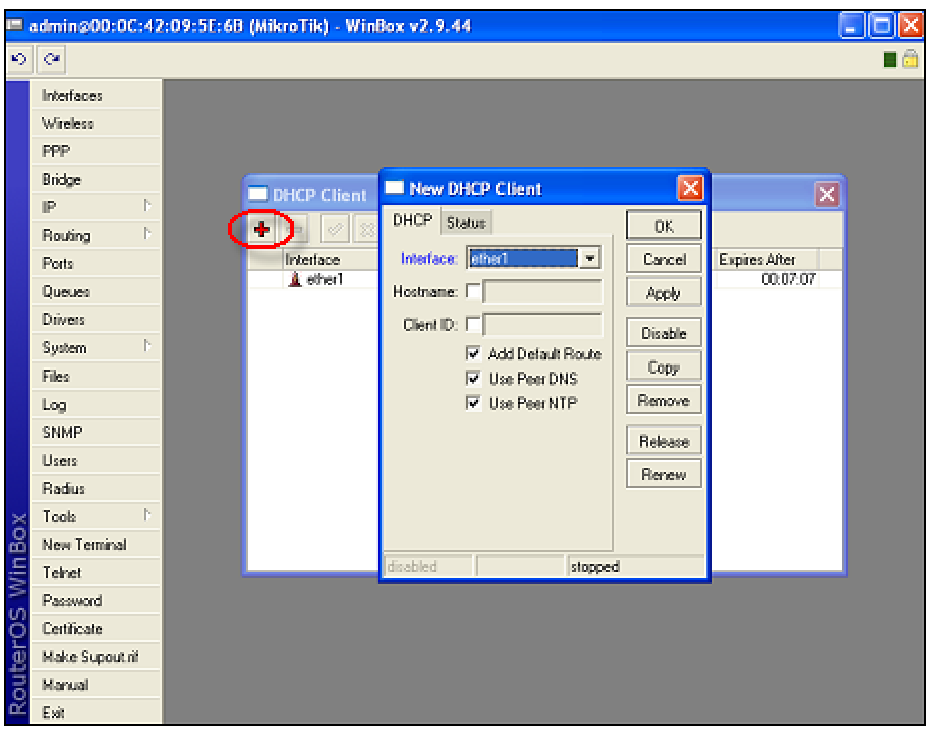


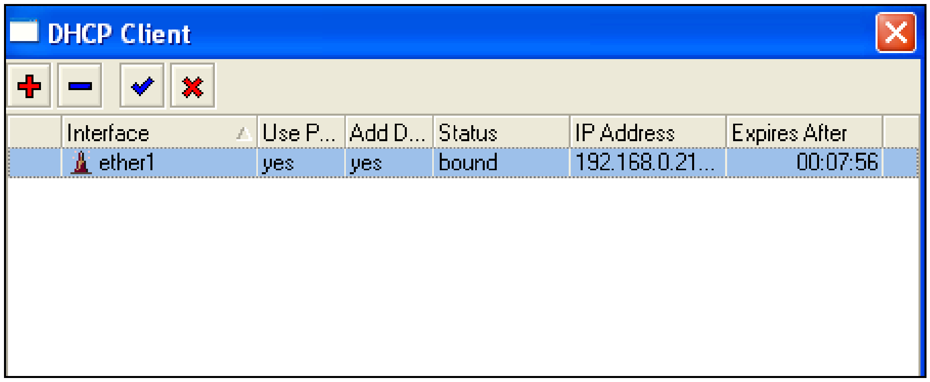
Make sure the login is **admin** and there is no password. Click **Connect**.



Open the **IP** tab, choose **DHCP Client** and then at the window click the "**+**" button. Assign a new DHCP Client port using the **Interface** dropdown box and click **OK**.







2. Connect to Mikrotik.

```
ssh admin@192.186.0.21
```

NOTE: Replace 192.168.0.21 with Mikrotik IP address:

3. Assign IP address to wlan1 interface.

```
[admin@Mikrotik] > /ip address add interface=wlan1 address=192.168.12.1
netmask=255.255.255.0 disabled=no
[adimn@Mikrotik] > / address print
Flags: X – disabled, I – invalid, D – dynamic
#    ADDRESS            NETWORK         BROADCAST       INTERFACE
 0 D 192.168.0.214/24   192.168.0.0     192.168.0.255   ether1
 1   192.168.12.1/24    192.168.12.0    192.168.12.255  wlan1
[admin@MikroTik] >
```

NOTE: Network “192.168.12.0/24” is used as a sample.

4. Enable wlan1 interface and set wireless to “access point-bridge” mode.

```
[admin@Mikrotik] > /interface enable wlan1

[admin@Mikrotik] > /interface print
Flags: X – disabled, D – dynamic, R - running
#    NAME            TYPE         RX-RATE       TX_RATE         MTU
0  R ether1         ether         0              0               1500
1  R ether2         ether         0              0               1500
2  R ether3         ether         0              0               1500
3  R wlan1          wlan          0              0               1500
[admin@Mikrotik] >

[admin@Mikrotik] > /interface wireless print
Flags: X – disabled, R – running
0   name="wlan1" mtu=1500 mac-address=00:0C:42:05:7A:B6 arp=enabled
    disable-running-check=no interface-type=Atheros AR5413
    radio-name="000C42057AB6" mode=station ssid="MikroTik" area=""
    frequency-mode=manual-txpower country=no_country_set antenna-gain=0
    frequency=5180 band=5ghz scan-list=default rate-set=default
    supported-rates-b=1Mbps,2Mbps,5.5Mbps,11Mbps supported-rates-
    a/g=6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps basic-
    rates--b=1Mbps basic-rates-a/g=6Mbps max-station-count=2007 ack-
    timeout=dynamic tx-power-mode=default noise-floor-threshold=default
    periodic-calibration=default periodic-calibration-interval=60 burst-
    time=disabled dfs-mode=none antenna-mode=ant-a wds-mode=disabled
    wds-default-bridge=none wds-default-cost=100 wds-cost-range=50-150
    wds-ignore-ssid=no update-stats-interval=disabled default-
    authentication=ye default-forwarding=yes default-ap-tx-limit=0
```

```
    default-client-tx-limit=0 proprietary-extensions=post-2.9.25 hide-
    ssid=no security-profile=default disconnect-timeout=3s on-fail-
    retry-time=100ms preamble-mode=both compression=no allow-
    sharedkey=no
[admin@Mikrotik] > /interface wireless set 0 mode="ap-bridge"
[admin@Mikrotik] > /interface wireless print
Flags: X – disabled, R – running
0    name="wlan1"...
     mode=ap-bridge …
     …
[admin@Mikrotik] >
```

5. Configure DHCP-SERVER for WiFi.

5.1. Add IP pool which will be used for WiFi;

```
[admin@Mikrotik] >/ip pool add name=wifi-pool ranges=192.168.12.2-
192.168.12.255
[admin@Mikrotik] >/ip pool print
#    NAME           RANGE
0    wifi-pool      192.168.12.2-192.168.12.255
[admin@Mikrotik] >
```

5.2. Add dhcp network;

```
[admin@Mikrotik] > /ip dhcp-server network add address=192.168.12.0/24
dns-server=192.168.0.1,213.186.192.2 gateway=192.168.12.1 comment="wifi
network"
[admin@Mikrotik] > /ip dhcp-server network print

#    ADDRESS        GATEWAY         DNS-SERVER    WINS-SERVER    DOMAIN
0    ;;; wifi network
192.168.12.0/24     192.168.12.1   192.168.0.1
                                   213.186.192.2
[admin@Mikrotik] >
```

NOTE: Network «192.168.12.0/24» used for sample, replace it with real network address and set correct dns-server address(es).

5.3. Add dhcp server;

```
[admin@Mikrotik] > /ip dhcp-server add interface=wlan1 address-
pool=wifi-pool lease-time=3d00:00:00 disabled=no
[admin@Mikrotik] >/ip dhcp-server print

Flags: X – disabled, I – invalid
#  NAME  INTERFACE RELAY  ADDRESS-POOL    LEASE-TIM      ADD-ARP
0 dhcp1     wlan1          wifi-pool      3d
[admin@Mikrotik] >
```

6. Configure RADIUS client.

```
[admin@Mikrotik] > /radius add address=111.11.11.11 secret="mikrotik"
service="hotspot"
[admin@Mikrotik] > /radius print
Flags: X – disabled
#  SERVICE          CALLED-ID  DOMAIN      ADDRESS        SECRET
0   hotspot                                111.11.11.11   mikrotik
[admin@Mikrotik] >
```

NOTE: 111.11.11.11 – IP of Master (Radius) Server, secret – RADIUS Key

7. Configure HOTSPOT server.

7.1. Add profile for RADIUS AAA;

```
[admin@Mikrotik] > /ip hotspot profile add name="wi-fi AAA" use-
radius=yes
[admin@Mikrotik] > /ip hotspot profile print
Flags: * - default
0 * name="default" hotspot-address=0.0.0.0 dns-name="" html-
directory=hotspot rate-limit="" http-proxy=0.0.0.0:0 smtp-
server=0.0.0.0
     login-by=cookie,http-chap http-cookie-lifetime=3d split-user-
-domain=no use-radius=no
1    * name="wi-fi AAA" hotspot-address=0.0.0.0 dns-name="" html-
     directory=hotspot rate-limit="" http-proxy=0.0.0.0:0 smtp-
     server=0.0.0.0
login-by=cookie,http-chap http-cookie-lifetime=3d split-user-domain=no
use-radius=yes radius-accounting=yes radius-interim-update=received
nas-port-type=wireless-802.11 radius-default-domain="" radius-location-
id="" radius-location-name=""
[admin@Mikrotik] >
```

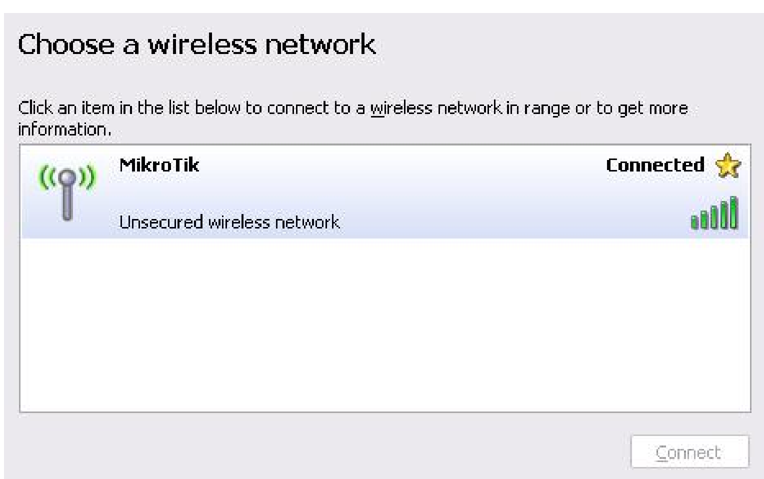
7.2. Add HOTSPOT server;

```
[admin@Mikrotik] > /ip hotspot add name="WiFi" interface=wlan1 address-
pool="wifi-pool" profile="wi-fi AAA"
[admin@Mikrotik] > /ip hotspot print
Flags: X – disabled, I – invalid, S – HTTPS
#   NAME    INTERFACE      ADDRESS-POOL   PROFILE        IDLE-TIMEOUT
0 X WiFi    wlan1          wifi-pool      wi-fi   AAA   5m
[admin@Mikrotik] > /ip hotspot enable 0
[admin@Mikrotik] > /ip hotspot print
Flags: X – disabled, I – invalid, S – HTTPS
#   NAME    INTERFACE      ADDRESS-POOL   PROFILE        IDLE-TIMEOUT
0   WiFi    wlan1          wifi-pool      wi-fi   AAA   5m
[admin@Mikrotik] >
```

NOTE: The name of the HOTSPOT server should be WiFi (the same as the special destination for WiFi service in PortaBilling).

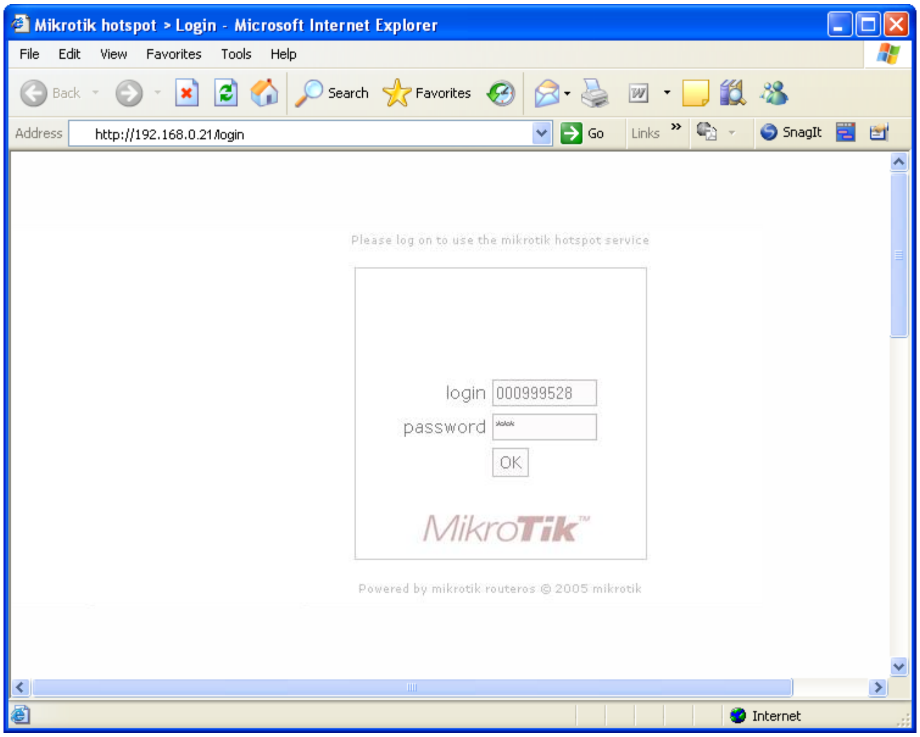
8. Connect to WiFi router.

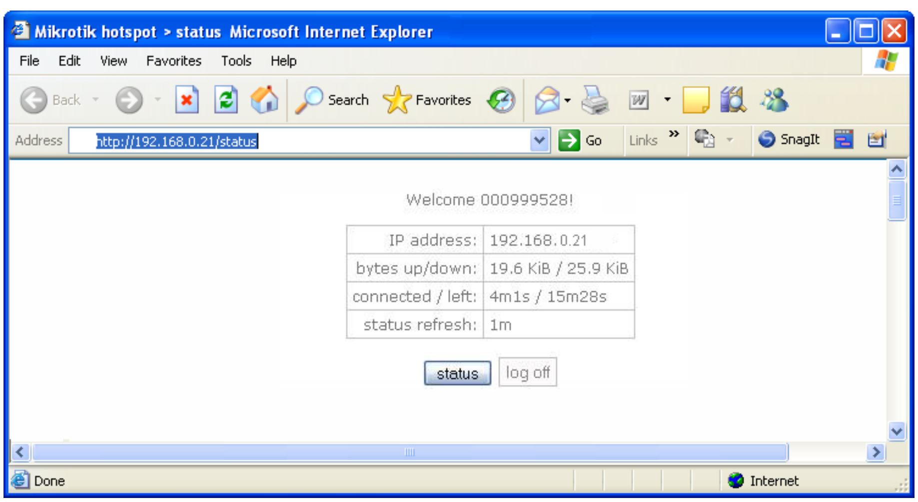
Select the WiFi network and click **Connect**.



9. Get online.

- Launch your web browser;
- Enter your MikroTik's IP address (configured on the step 1) in the browser's **Address** field;
- Enter your **Account Id** and **VoIP password**.





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 My Company.	[ ]
Specify a base currency.	[ ]
For any other currency you plan to use, specify the exchange rate source and define exchange rates.	[ ]
Create a symbolic destination WiFi.	[ ]
Network configuration	
Add node on the web.	
Configure your gateway.	[ ]
Rating configuration	
Create a tariff A, which will be applied to prepaid WiFi users.	[ ]
Insert rates in tariff A for a symbolic WiFi destination.	[ ]
Create a tariff B, which describes your termination costs.	[ ]
Insert rates in tariff B for a symbolic WiFi destination.	[ ]
Create your prepaid product.	
Create one accessibility entry in account's product, using the node you created and tariff A.	[ ]
Create a vendor.	[ ]
Create a connection for this vendor with the Wi-Fi service type, using tariff B.	[ ]
Account provisioning	
Create a retail customer who owns the WiFi cards.	[ ]
Generate accounts for this customer.	[ ]
Testing	
Mikrotik Configuration.	[ ]

Initial Configuration of PortaSwitch

TIP: When the system has just been installed, use username **pb-root** and password **pb-root** to login.

The following steps are normally performed only once, after the system is installed:

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

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

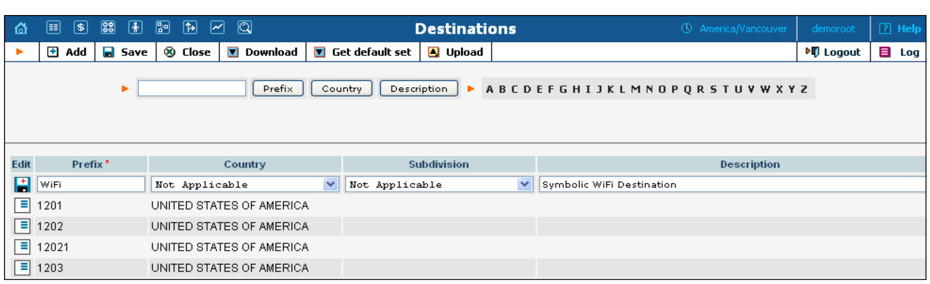
From the main menu, choose **Users** and create login entries for users who will be working with the system. It is not recommended that the default PortaBilling root user (`pb-root`) be used for any operations other than initial set-up. Make sure you are able to login as the newly-created user and change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

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

Create Destination

You need to create the same destination as the name of HOTSPOT server you specified in step 7 above (Configure HOTSPOT server.) when you set up your network components; in this case it will be WiFi.

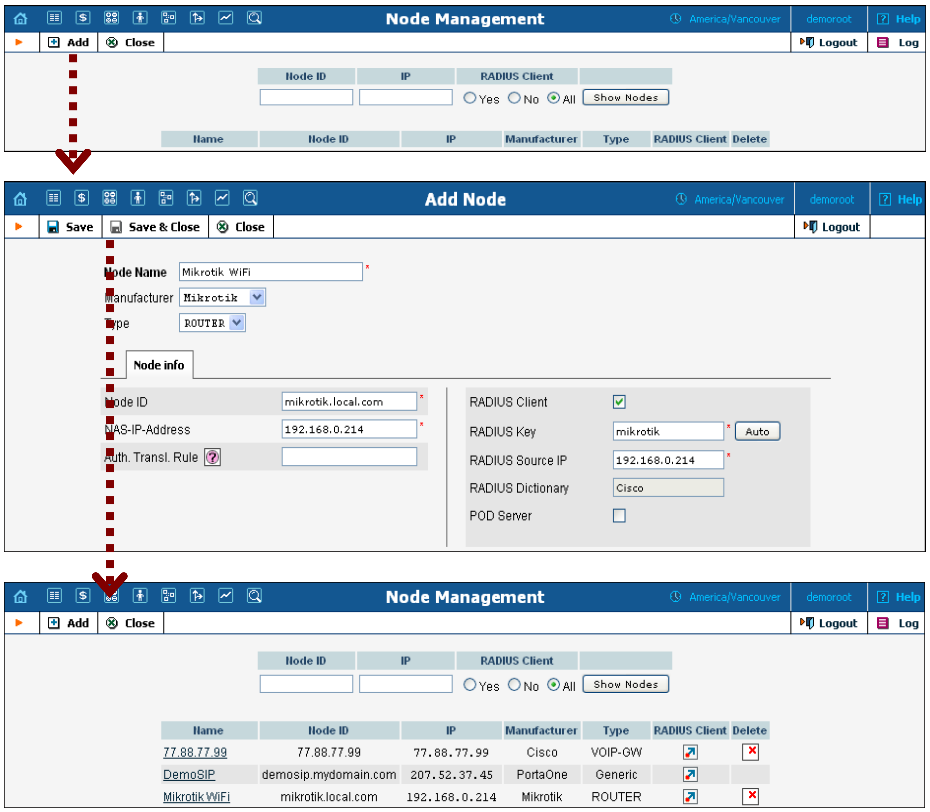
1. In the **Rating** section of Admin-Index, choose **Destination**.
2. Click on the Add button.
3. Fill in the required information. The country subdivision is optional. You can use the Description column to store some extra information about the destination.



4. Click **Save**.

Create Nodes

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



1. In the **Networking** section of the Admin-Index page, choose **Nodes.**
2. In the Node management window, click the **Add** icon.
3. Fill in the New Node form:
   - **Node Name** – A short descriptive name for this node (will be used in the select menus).
   - **Manufacturer** - Select **Mikrotik**.
   - **Type** – VoIP node type; select **ROUTER**.
   - **Node ID** – Mikrotik server host name (recommended `hostname.domainname`).
   - **NAS-IP-Address** – IP address of the gateway.
   - **Auth. Translation rule** – Leave this empty for now; see the *Translation Rules* section of the **PortaBilling Administrator Guide**.

- o **RTP Proxying** – Leave the default selection (Optimal); this parameter is not used for the WiFi Internet access service.
- o **Radius Client** – Check this box, since this node will be communicating with the billing system.
- o **Radius Key** – Enter the shared secret here; it must be the same as that configured in NAS as a **key** in the radius server configuration.
- o **Radius Source IP** – See the *Node ID, NAS IP address, and Radius source IP* section of the **PortaBilling Administrator Guide**. Unless your gateway has multiple network interfaces, the value here should be the same as the NAS-IP-Address.
- o **POD Server** – this checkbox relates to ISP billing. Leave it unchecked for now.

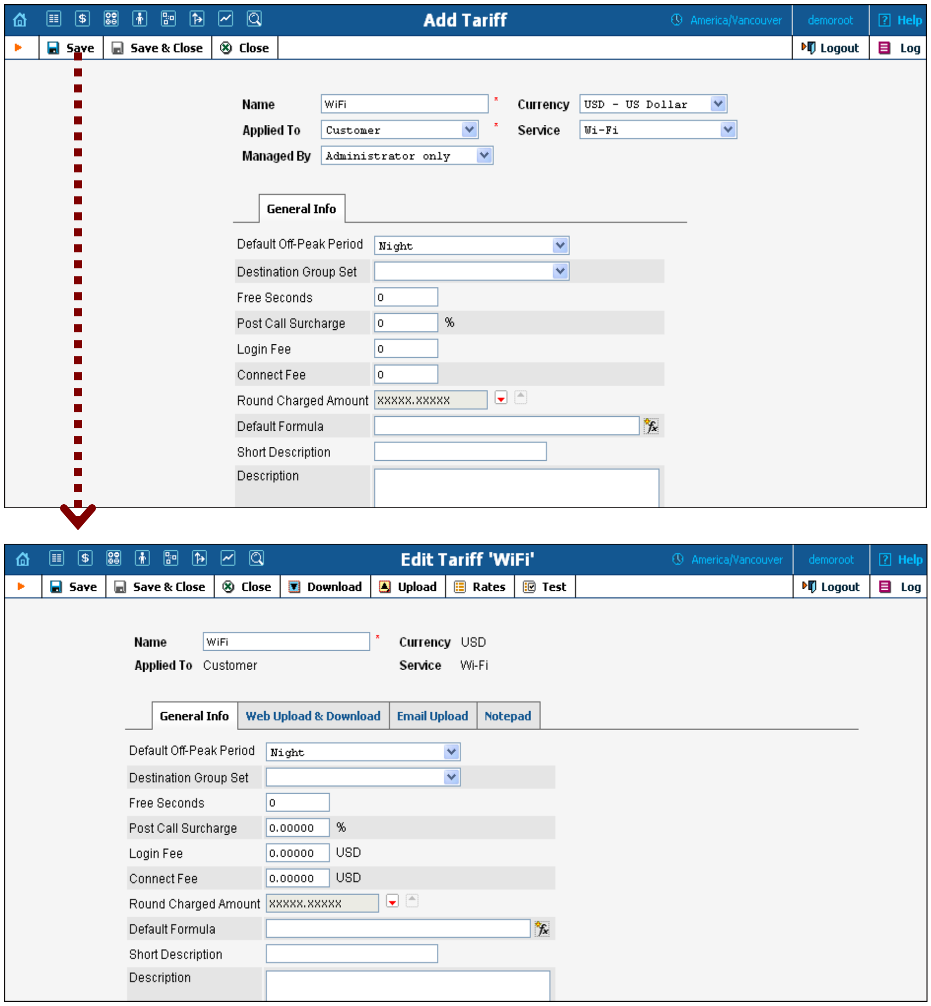
4. Click **Save&Close.**
5. Repeat steps 2-4 until all of your nodes have been entered.

Create a Tariff

The tariff is a single price list for the use of WiFi services. At least two tariffs should be created to provide WiFi services successfully:

- o A tariff for each account's billing scheme, these tariffs are created as "Applied to: Customer";
- o A tariff with the termination costs for each termination partner you have; these tariffs are created as "Applied to: Vendor".

To create the required tariffs, follow the next steps:



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

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

   - **Applied To** – Designates whether this tariff will be used to charge your prepaid 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 (this option is only visible after you select **Applied to: Customer** above).
   - **Service** – Choose **Wi-Fi** here.

- o **Default Off-peak Period** – If you do not differentiate between peak and off-peak rates, just choose **Not defined**; otherwise, select one of the previously defined off-peak periods.
- o **Short Description** – A short tariff description. This will be shown in the rate lookup on the admin interface and the self-care pages for your accounts and customers.
- o **Description** – An extended tariff description.

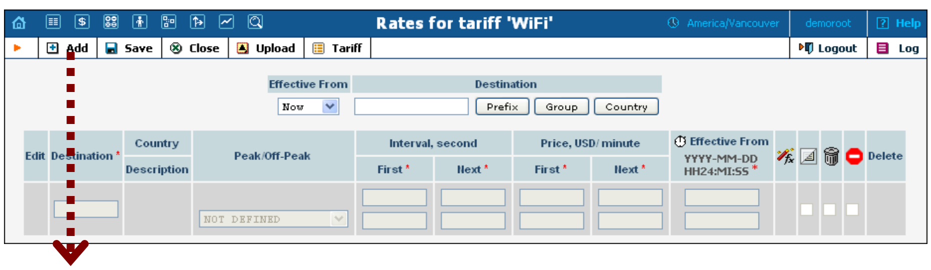
4. Click **Save.**
5. Repeat steps 1-4 until you have entered all of the tariffs.

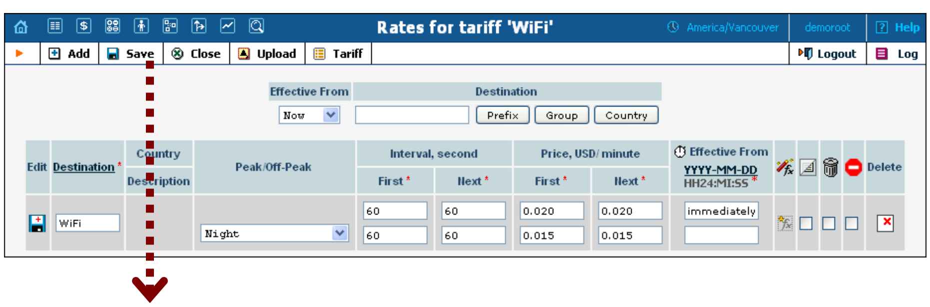
Enter Rates

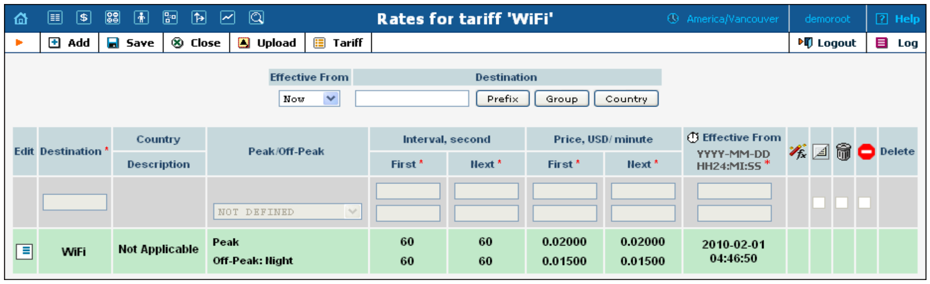
Rates are per-destination prices. Please refer to the *Call Billing Parameters* chapter in the **PortaBilling Administrator Guide** for more information on billing parameters.

Managing Rates Online

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







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

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 for off-peak time.
   - **Off-peak Price Next** – per-minute price for next interval for off-peak time.

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

   - **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).

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

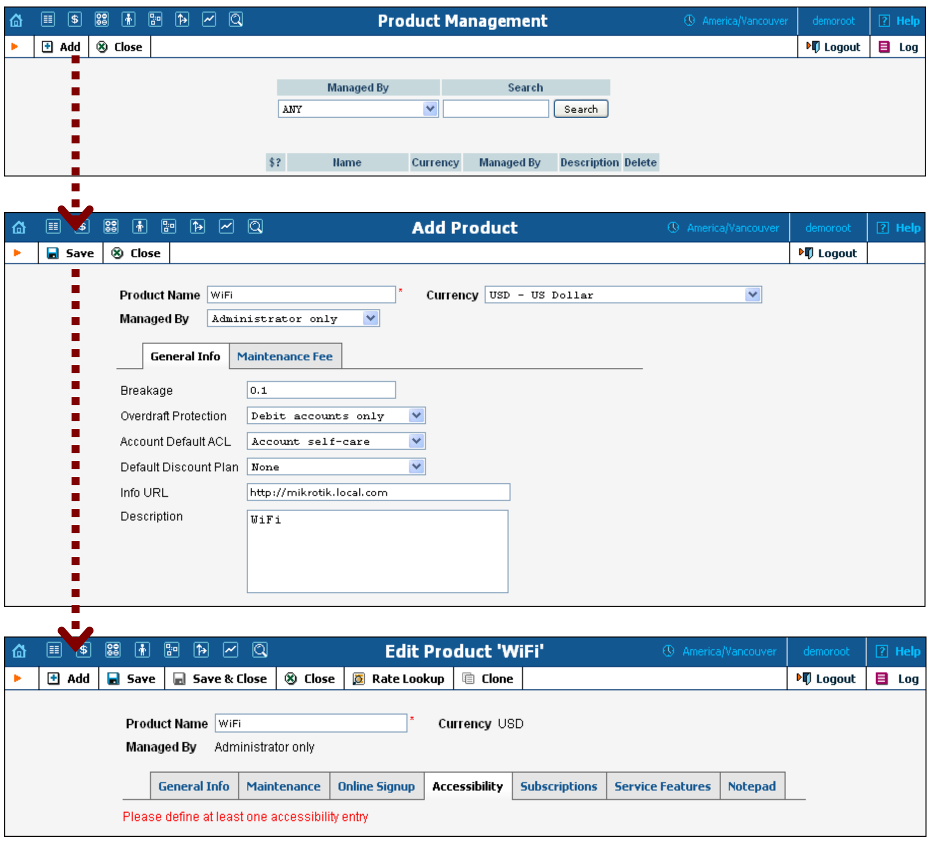
   - **Rate Formula Wizard** – launches the wizard for creating a custom rating formula

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

4. Click the **Save** button in the toolbar, or the icon on the left side of the row.

Create a Product

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



In the **Rating** section of the Admin-Index page, choose **Products**.

1. On the Product management page, click the **Add** icon.
2. Fill in the "Add product" form:
   - o **Product name** – product object name.
   - o **Currency** – product currency; only tariffs which have the same currency will be permitted in the accessibility list.
   - o **Managed by** – If you want this product to be used for your reseller's accounts, so the reseller himself can change the parameters of this tariff and create new accounts using this product, choose a customer name from the menu. Otherwise, choose **Administrator only** here.

General Info tab

- **Breakage** – Leftover balance which is considered "useless" (for statistical purposes). Accounts with a balance below breakage will be counted as *depleted*. This does not affect account authentication or authorization, so the account can still access wireless services if there is enough money left to cover at least the first interval.
- **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, since discount plans are typically used for postpaid services. 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 comments about the intended use of this product.

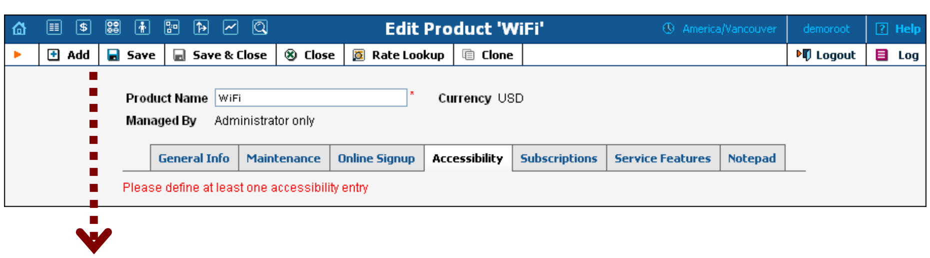
Maintenance tab

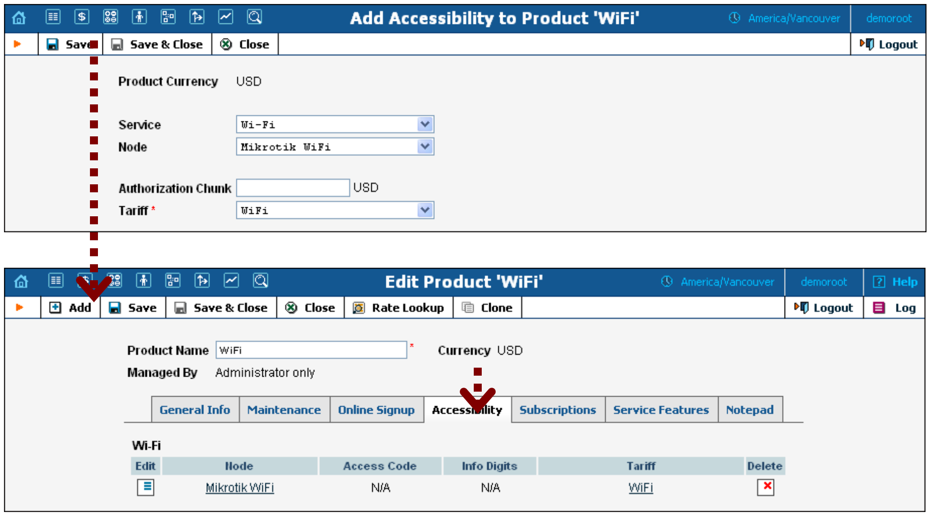
The Maintenance Fees functionality has been replaced by the Subscriptions module. Please use subscription plans to apply periodic charges for the WiFi service to your customers.

3. Click **Save.**
4. Click on the **Accessibility** tab to edit this product's accessibility.

Enter Node and Tariff into Product's Accessibility List

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



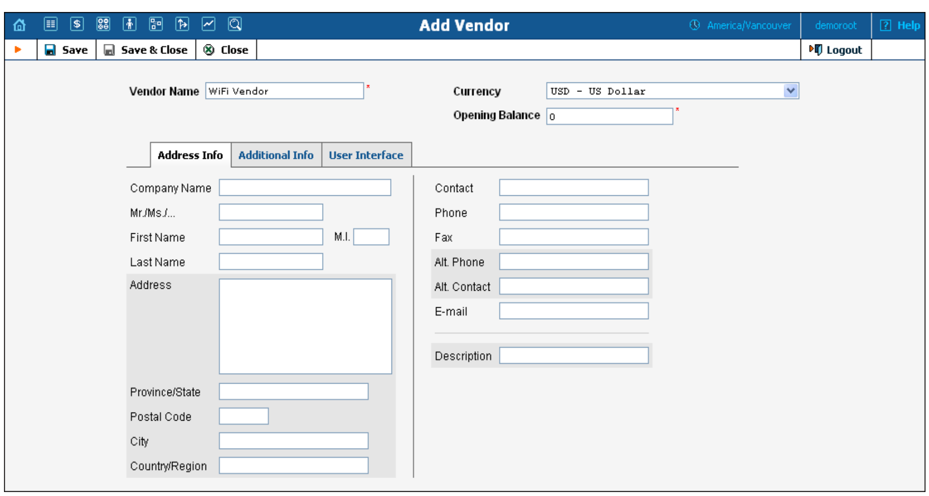


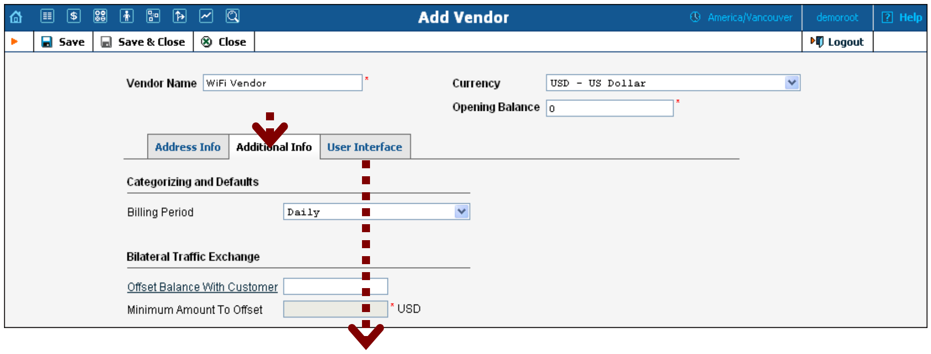
1. When the Accessibility tab is selected, click on the **Add** icon.
2. Choose **Wi-Fi** in the **Service** select menu.
3. In the Accessibility dialog box, select the Mikrotik node and choose the appropriate tariff which applies to customers using the WiFi service.
4. Click **Save** to save this accessibility entry.

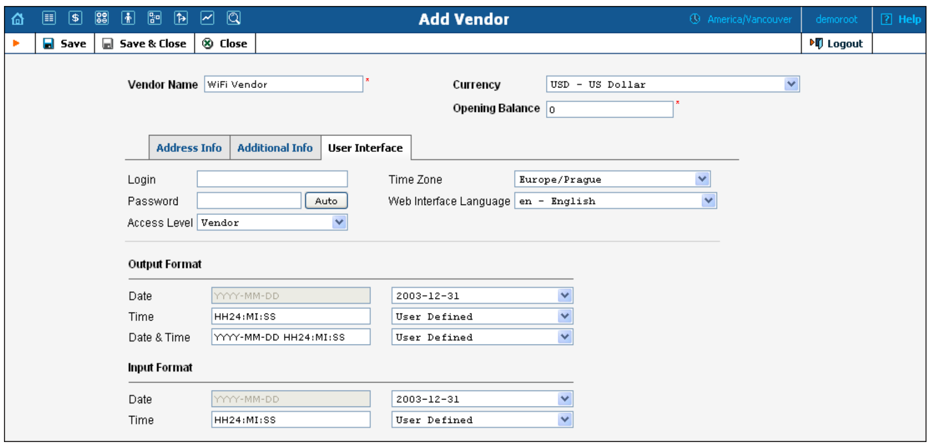
Create Vendors

This step is only required if you have not entered information about your vendors into the system before. Vendors are your termination partners who will charge you for providing WiFi services.

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







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

Main form (top)

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

Additional info

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

User-Interface

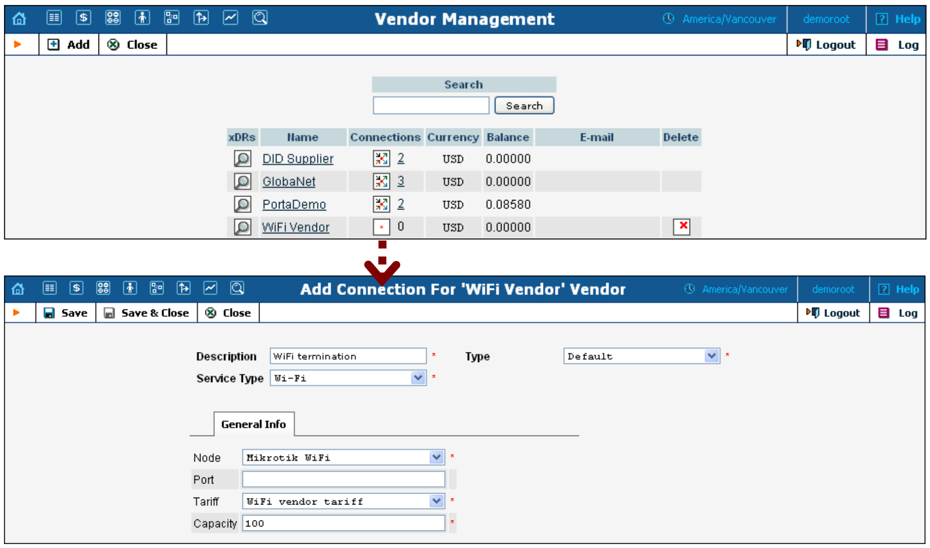
- **Time zone** – the time zone that the vendor uses for his billing period. Statistics will be split into periods in this time zone, so your statistics will match the vendor's.

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

Define Connections

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

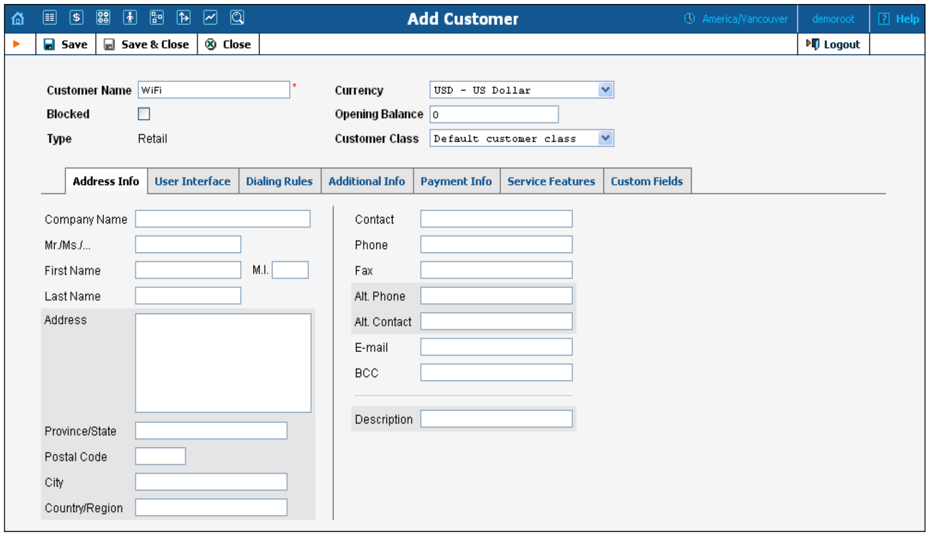
1. In the **Participants** section of the admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.



3. Press **Add** to add a new connection.
4. Fill in the connection information. In the **Service Type** drop-down box, select **Wi-Fi**. In the **Node** drop-down box, choose the Mikrotik WiFi router which you previously added as a node. Choose the tariff which defines your termination costs for this connection/vendor. **Description** and **Capacity** are mandatory for all connection types.
5. Click **Save**.
6. Repeat steps 3-6 to add more connections to the same vendor, then click **Close** in order to exit to the **Vendor Management** screen.
7. Repeat steps 2-7 to add connections for other vendors.

Create a Customer

A customer is an owner of accounts. The customer's contact information is used to distribute account usage information, wireless internet access statistics, invoices, and so on. Even if your company owns and distributes all of its prepaid WiFi, you will need at least one customer object for your company.



1. In the **Participants** section of Admin-Index page, choose **Customers**.
2. On the Customer Management page, choose **Add Customer** (In this example, we assume that you are creating the customer manually, so choose **Manually** from the drop-down menu (do not use any of the Quick Form options)).
3. Fill in the **New Customer** form. Please note that there are several tabs with extra information available on the screen. The most important fields are:

Main form (top)

- **Name** – short name for the customer object; this will be used on the web interface.
- **Currency** – the currency in which this customer will be billed.
- **Opening balance** – a starting balance for the customer; the default is zero.
- **Type** – Normally, most of your customers would be retail customers.
- **Customer Class** – Choose the customer class you created in the previous step.

Address info tab

- **Email** – An email address for the distribution of accounting information. After the billing period is over, a list of xDRs and other statistics will be sent to this address.
- **Bcc** – 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 tab

- **Billing period** – Frequency of distribution of accounting information. For more details about different available billing periods, see the **PortaBilling Administrator Guide**.
- **Send Statistics – Summary only** – Distribute an event summary only, and do not attach a details file. Other options are **full statistics** (attach a complete list of xDRs) or **do not send** (no not deliver event statistics to this customer via email at all).

Payment info tab

- **Credit limit** – if left empty, then there is no credit limit for this customer.

User Interface tab

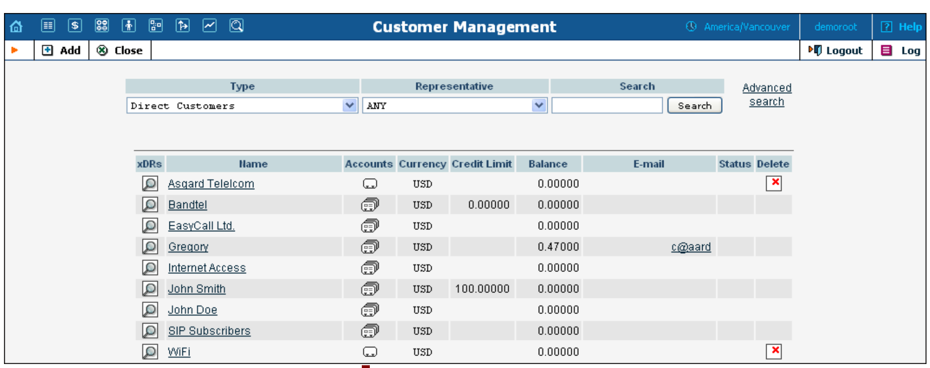
- **Time zone** – the time zone in which the customer will see his xDRs and also that defines his billing period. For example, if you choose **America/New_York** here and the billing period is **Monthly**, this means the billing period will start on the first day of the month at 00:00 New York time.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

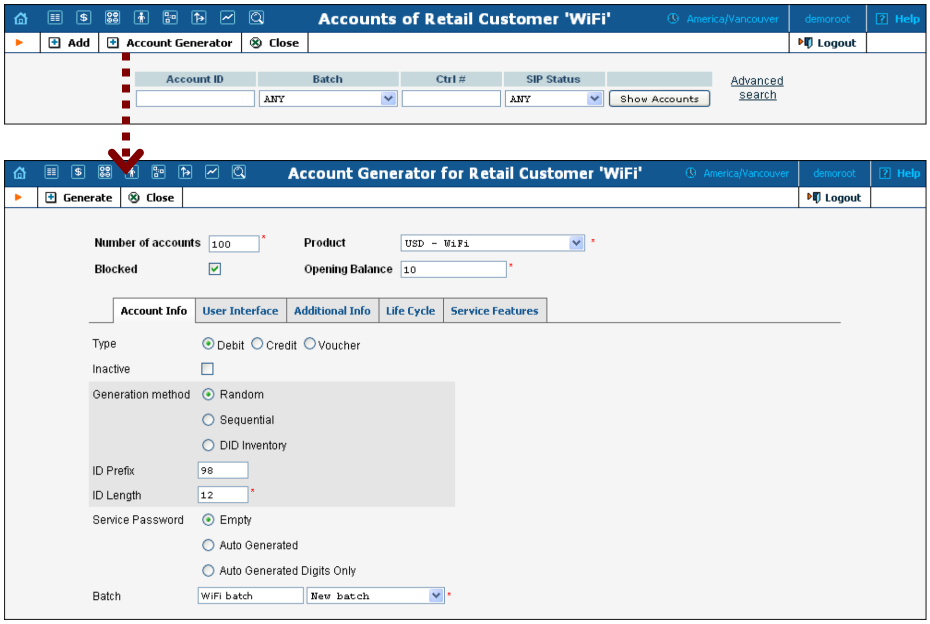
4. Click **Save&Close.**

Generate Accounts

NOTE: Before generating accounts for a production system, read the section on "Provisioning prepaid 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 Account or icon (the one in the **Accounts** column), which will take you to the account management for that customer.
3. Click on the **Account generator**.
4. Fill in the "Account generator" form:
   - **Number of accounts** – number of accounts to be generated.
   - **Product** – choose the product which you would like your accounts to have.
   - **Blocked** – It is normal practice to generate all your prepaid WiFi cards as blocked, so they cannot be misused before being sold to the dealer or end customer. You can always unblock the whole batch of cards or an individual card later.
   - **Opening balance** – the initial balance on the card.

Account Info tab

- **Type** – Account type; select **Debit** for prepaid service.
- **Inactive** - Check this if you want to generate the accounts as initially inactive.
- **Generation method** – Choose **Random** here; this will assign every account a unique, randomly-generated PIN.
- **ID prefix** – If you would like all of the generated accounts to start with the same digit string (e.g. **98**), enter it here. Thus, if you enter 98 and an ID length of 10, account IDs (PINs) will look like this: 98NNNNNNNN, where N = random digits.
- **ID length** – All account IDs (PINs) will be numerical and of the specified length. In order to avoid problems with the prepaid card print-shop, PortaBilling will not generate account numbers with a leading zero. Also, PortaBilling will only allow generation of a batch with feasible parameters, e.g. it is impossible to

generate a batch of 1,000 accounts with ID length 4 and ID starting at 55.

- **Starting ID** – Only available in Sequential generation and is always numeric.
- **Service Password** – To improve security, you can use an account password during authentication, in addition to a PIN; this is highly recommended for the WiFi service. If you choose **Empty**, no password will be assigned to the account, and the password check will be switched off during authentication (so the customer can supply any password).
- **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.

User Interface tab

- **Login** – If you choose **Account ID** (default), your customer will use his account ID (PIN) to login to the self-care pages. If you choose **Empty**, the account owner will not be able to use the self-care pages at all until a login has been assigned for his account.
- **Password** – **Auto-generated** means that a random password for web access will be assigned for each account (these passwords will be included in the .CSV file with the account information). **Empty** means that no password will be assigned, so account owners will be able to login to the web interface simply by providing their account ID (PIN).
- **Time Zone** – When an account owner accesses the web self-care pages to see a list of his active sessions, the time will be shown in the time zone most appropriate for him.
- **Web Interface Language** – The language to be used on the account self-care web interface.

Additional Info tab

- **E-Commerce Enabled** – If checked, this will allow your debit card owners to make online payments via the PortaBilling web interface. (Leave unchecked.)
- **Discount Plan** – Applies a specific discount plan to this group of accounts. (Leave as **Product Default**).
- **Distributor** – You can assign a specific distributor to this group of accounts.

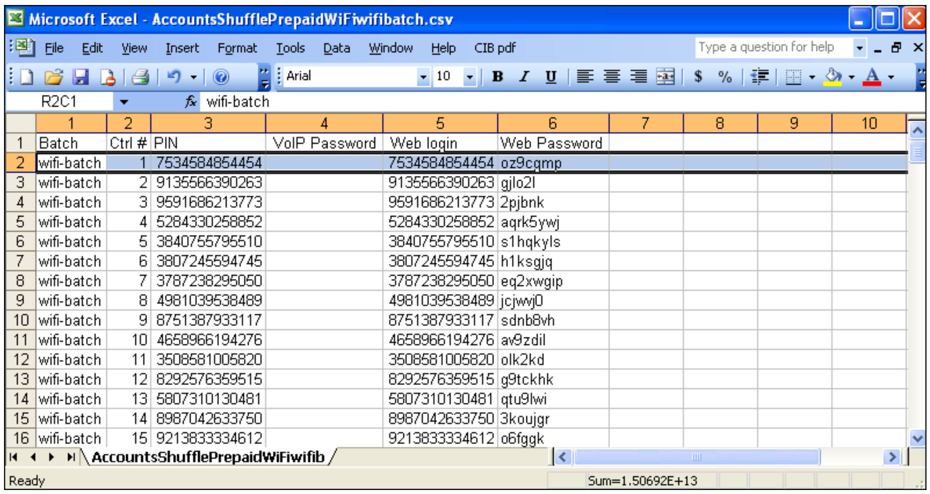
Life Cycle tab

- **Activation Date** – Account activation date.
- **Expiration Date** – Account expiration date.

- o **Life Time** – Relative expiration date; account will expire on "first usage date" + "life time" days. If you do not want to use this feature, leave the field blank.

NOTE: Account generation tasks are executed every few minutes, and it may take a while to generate large numbers of accounts.

Notification about the generated cards will be sent by email to the user who created them. A CSV file with information about the new accounts will be attached.

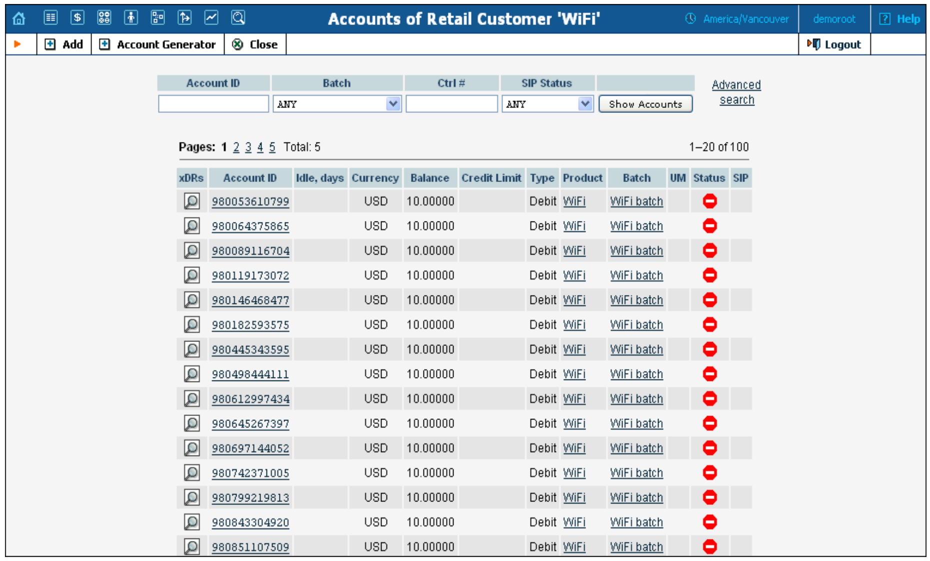


	1	2	3	4	5	6
1	Batch	Ctrl #	PIN	VoIP Password	Web login	Web Password
2	wifi-batch	1	7534584854454		7534584854454	oz9cqmp
3	wifi-batch	2	9135566390263		9135566390263	gjlo2l
4	wifi-batch	3	9591686213773		9591686213773	2pjbnk
5	wifi-batch	4	5284330258852		5284330258852	aqrk5ywj
6	wifi-batch	5	3840755795510		3840755795510	s1hqkyls
7	wifi-batch	6	3807245594745		3807245594745	h1ksgjq
8	wifi-batch	7	3787238295050		3787238295050	eq2xwgip
9	wifi-batch	8	4981039538489		4981039538489	jcjwyj0
10	wifi-batch	9	8751387933117		8751387933117	sdnb8vh
11	wifi-batch	10	4658966194276		4658966194276	av9zdil
12	wifi-batch	11	3508581005820		3508581005820	olk2kd
13	wifi-batch	12	8292576359515		8292576359515	g9tckhk
14	wifi-batch	13	5807310130481		5807310130481	qtu9lwi
15	wifi-batch	14	8987042633750		8987042633750	3koujgr
16	wifi-batch	15	9213833334612		9213833334612	o6fggk

Tip: In case the original email message was lost or accidentally deleted, the file containing generated accounts is stored on the slave PortaBilling server in the user **porta-admin** home directory, sub-directory ***cards***.

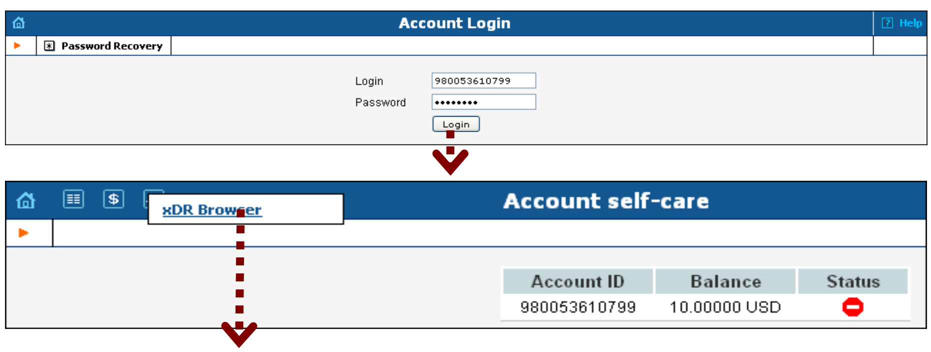
Verify Wireless Internet Event History for Account

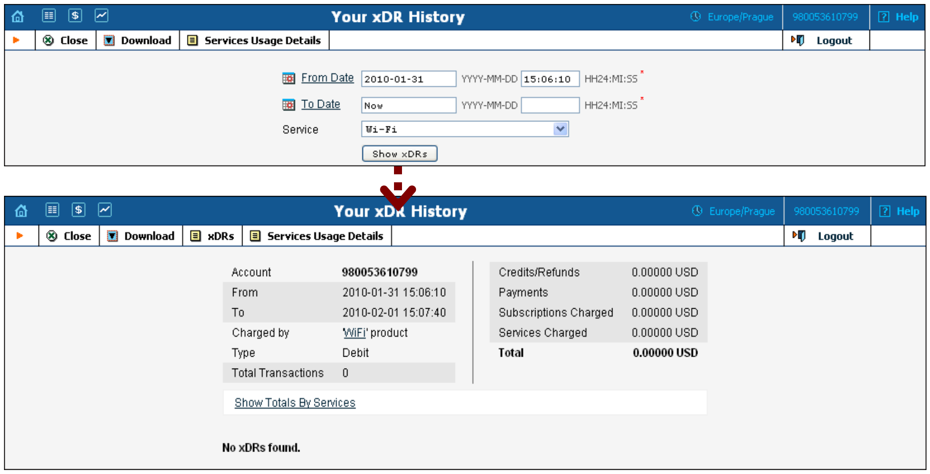
To view the xDR of an account, go to Customers, select the Customer owning the accounts, and click on the Accounts icon; or, alternatively, select **Account Info** in the Help Desk section of the Admin-Index page.



You can also go to the account self-care page (accessible via the **Accounts** menu item in the **Home** popup menu).

Login with the account's web access login and password. After that you will be able to see the account's dashboard interface with functional drop-down menus upper left. On the **Statistics** menu, click **xDR Browser**.





Choose the date range for which you want to see a list of wireless internet accesses, and click **Show xDRs.** In the results table you will see the charges and other fees, such as maintenance fees or refunds (if any). The report can be also downloaded by clicking the **Download** icon.

2. IPTV Services

This highly customizable IPTV solution enables PortaOne customers to generate additional revenue, raise profits, and increase customer satisfaction by delivering advanced television services.

IPTV Service Scenario

In a PortaSwitch-based network infrastructure, IPTV services are implemented by means of a LivingRoom module. They work in conjunction with the following:

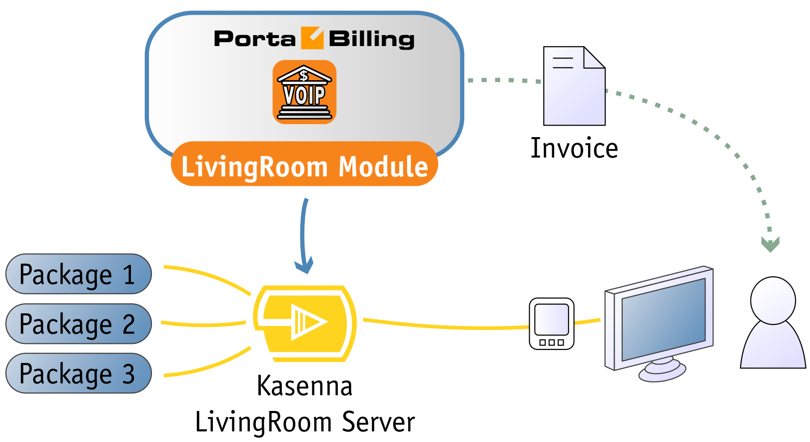
- Kasenna LivingRoom™ Server (below: **LivingRoom server**)
- PortaBilling
- PortaOne LivingRoom Module (below: **LivingRoom module**)

This combination of services enables carriers to offer customers a wide portfolio of billable IPTV services, such as:

- TV user interface
- Broadcast TV
- Personal video recorder (PVR) services

In subsequent PortaBilling releases we plan to implement the following features:

- Video on demand (VOD)
- Pay per view (PPV)
- Music on demand



In conjunction with LivingRoom, PortaBilling offers you the ability to:

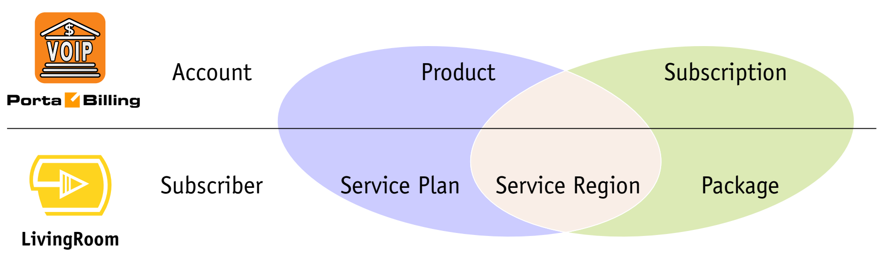
- set up periodic and per-event charges for IPTV services in PortaBilling;
- view charge records and subtotals for IPTV services on the web interface and the customer's invoice.

Kasenna LivingRoom — PortaBilling Interaction

1. An IPTV service in LivingRoom is activated for the subscriber when a credit account is created in PortaBilling.
2. PortaBilling terminates services in LivingRoom when the account, or the customer who owns it, is suspended or terminated.
3. PortaBilling adds information on services provided and charges incurred to the customer's bill.

The following diagram explains the relationship between basic concepts in PortaBilling and LivingRoom:

- An account in PortaBilling corresponds to a subscriber in LivingRoom.
- A PortaBilling product is similar to a LivingRoom service plan.
- A package or set of channels in LivingRoom corresponds to a subscription in PortaBilling.
- A service region in LivingRoom describes a geographical region, and the same package may represent a different set of channels for each region.



- Thus the combination of service plan plus service region corresponds to a PortaBilling product, while the combination of service region plus package corresponds to a PortaBilling subscription.

Consider the following example:

An IPTV provider uses LivingRoom with the following assets:

- 2 service regions called "Bonaire" and "Rincon";
- 3 packages: Basic, Expanded, Premium;
- 2 service plans: "Basic Choice", containing the Basic package, and "Full", containing all available packages.

Thus four products should be created in PortaBilling using the naming convention <Service Plan>/<Service Region>, as follows:

- Basic Choice/Bonaire
- Full/Bonaire

- Basic Choice/Rincon
- Full/Rincon

We will also use two different subscription types to charge subscribers for IPTV services:

1. **Subscriptions for configuring LivingRoom services.**
   - The LivingRoom module will recognize such subscriptions by the slash in their name. The naming convention for these subscriptions is <Package>/<Service Region>.
   - In our example, we need four subscriptions. If necessary, we can add them later to existing accounts:
     - Expanded/Bonaire
     - Expanded/Rincon
     - Premium/Bonaire
     - Premium/Rincon
   - Please note that there is no need to create a subscription for the Basic package, since both service plans already include it.

2. **Subscriptions for charging accounts in PortaBilling.**
   - We will use the naming convention <Service Plan> (Service Region) so that the LivingRoom module will ignore such subscriptions. You may also use your own method of naming, as long as it does not use the slash character.
   - In our example, we need four subscriptions:
     - Basic Choice (Bonaire)
     - Basic Choice (Rincon)
     - Full (Bonaire)
     - Full (Rincon)
   - Please note that obligatory subscriptions (assigned to an account through a product) are always ignored by the LivingRoom module. Subscriptions assigned directly to an account will only affect the configuration if the LivingRoom server conforms to the convention. The LivingRoom module will ignore all other subscriptions.

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
Set up Kasenna LivingRoom server.	[ ]
Configure PortaBilling.	[ ]
Network configuration	
Create corresponding subscriptions.	[ ]
Create corresponding products.	[ ]
Account provisioning	
Create a retail customer.	[ ]
Generate accounts for this customer.	[ ]
Testing	
Login to Kasenna LivingRoom server and check for subscribers.	[ ]

Set up the Kasenna LivingRoom™ Server

Please refer to **Espial** for guidelines on how to set up the LivingRoom server. You should complete the steps for all the components, except for the Subscribers section.

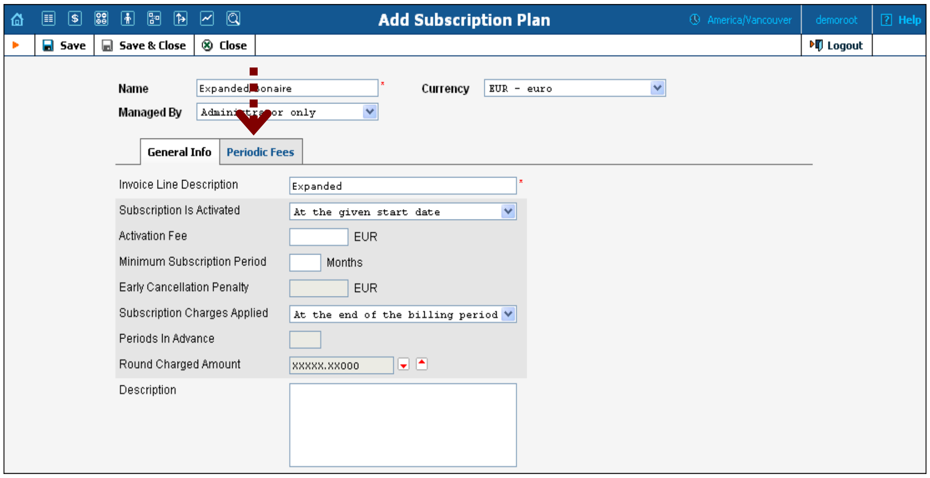
Configure PortaBilling

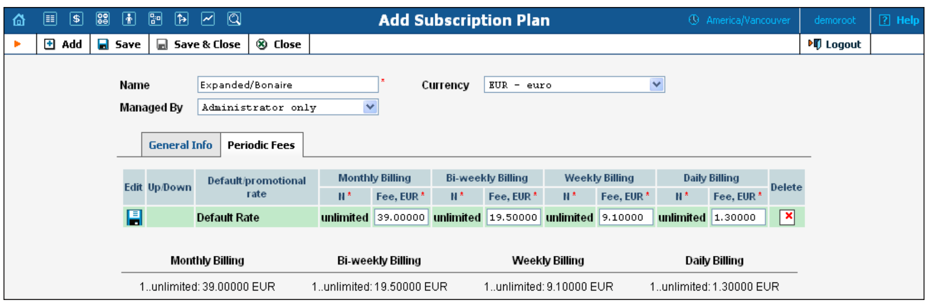
The following code must be added to the configuration file located in /home/porta-admin/etc/porta-admin.conf on the **Slave** server.

```
[LivingRoom]
Env=<LivingRoomEnv>
EMail=<EMailToReportErrors>
# Bcc=<BccToReportErrors>
# Delay between sessions, sec
Delay=30
#LogFile=/var/log/porta/living_room.log
#LockFile=/home/porta-admin/run/living_room.lock
```

The PortaBilling LivingRoom module works in a single environment, whose name should be set for the Env variable. Error and alert messages will be distributed to email and BCC addresses. The delay corresponds to the frequency (in seconds) of checks for changes in the database. All module activities are logged.

Create Subscriptions





1. In the **Rating** section of the Admin-Index page, choose **Subscription Plans**.
2. On the Subscription Plan Management page, click the **Add** icon.
3. Fill in the "Add Subscription Plan" form:
   - **Product name** – The product object name.
   - **Currency** – The product currency.
   - **Managed by** – Choose **Administrator only**.

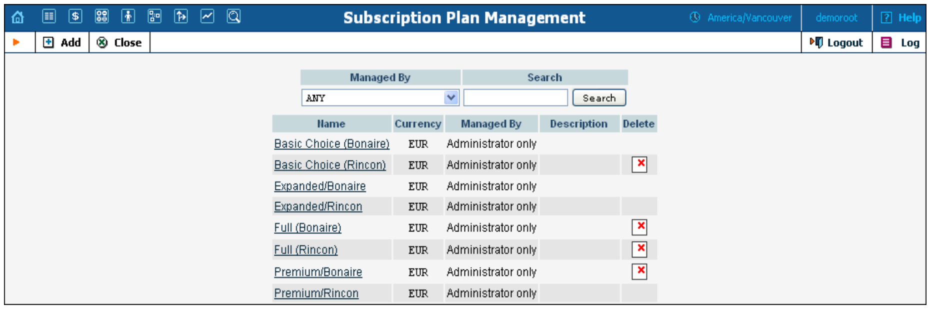
General Info tab

- **Invoice Line Description** – The description to appear on the invoice sent to the customer (IPTV subscriber).

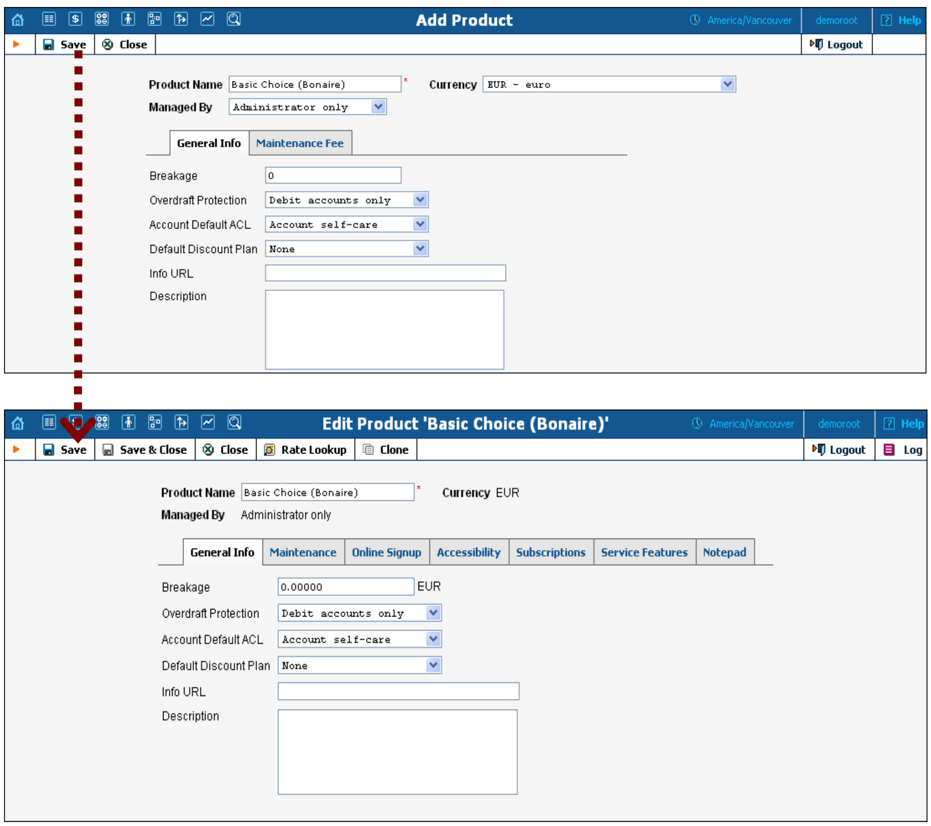
Periodic Fees tab

- Click the **Edit icon** and enter the rates for periodic billing. PortaBilling will auto-fill the form after the rate for monthly billing has been entered. You can edit rates or add new rates for the same subscription.
- Click **Save**.

4. Repeat the above procedure for all eight subscriptions:



Create Products



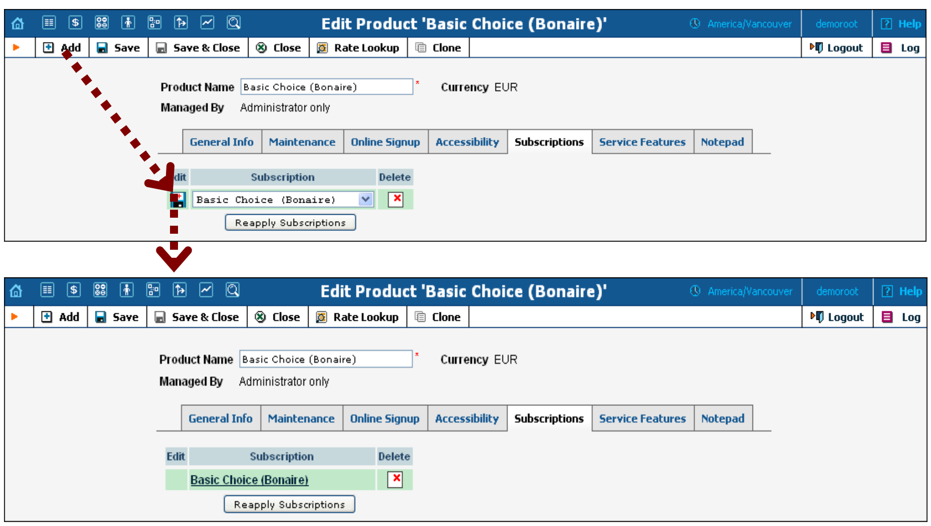
In the **Rating** section of the Admin-Index page, choose **Products**.

1. On the Product Management page, click the **Add** icon.
2. Fill in the "Add product" form:
   - o **Product name** – The product object name.
   - o **Currency** – The product currency.
   - o **Managed by** – Choose **Administrator only**.

General Info tab

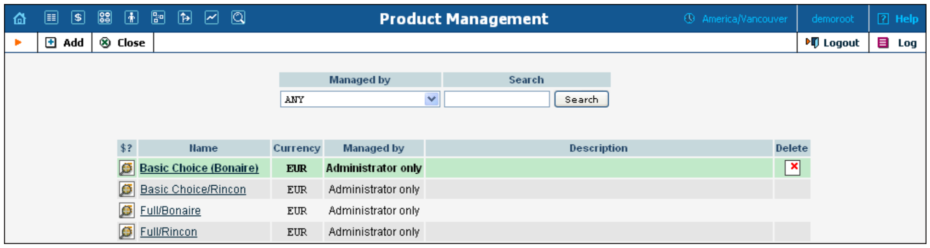
- **Breakage** – Leftover balance which is considered "useless" (for statistical purposes); leave as 0.
- **Account Default ACL** – The access level assigned by default to new accounts created with this product. The default value is "Account self-care" (pre-defined ACL), which allows all possible operations.
- **Default Discount Plan** – Leave **None** as the selected entry, since discount plans are typically used for postpaid services. For more details, please refer to the description of volume-based discounts in the **PortaBilling Administrator Guide**.
- **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.

Subscriptions tab



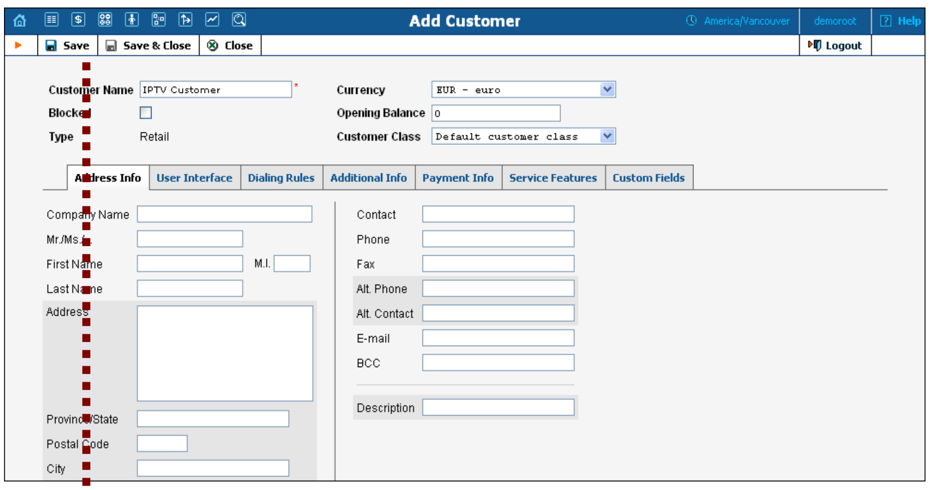
- Click the **Add** icon to add a subscription to the selected product.
- Click the **Reapply Subscription** button when adding/changing a subscription to apply the new settings to all accounts using this product.

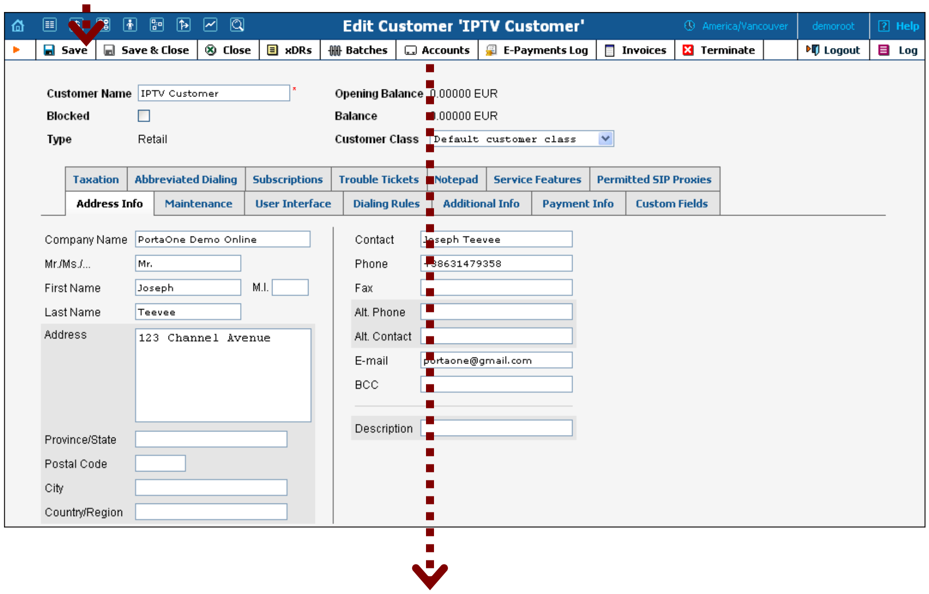
3. Repeat the procedure for all four products.

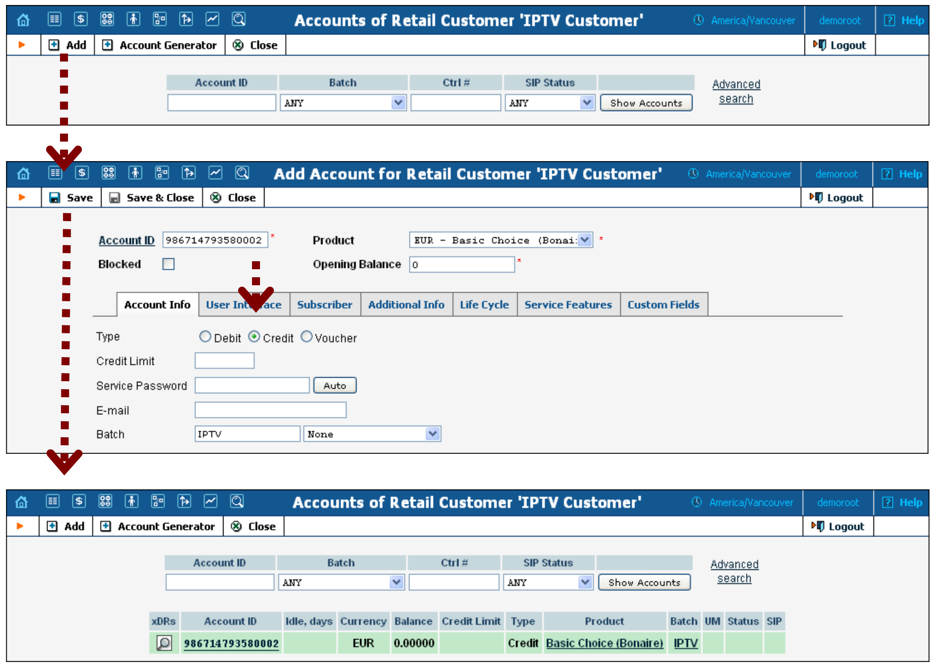


Create Customer and Account

Creating a credit account in PortaBilling using a related product will automatically create a corresponding subscriber in LivingRoom, where Subscriber ID = Account ID, and the LivingRoom service plan corresponds to the PortaBilling product.







1. In the **Participants** section of the Admin-Index page, choose **Customers**.
2. On the **Customer Management** page, click Add (In this example, we assume that you are creating the customer manually, so choose **Manually** from the drop-down menu (do not use any of the Quick Form options)).
3. Fill in the “Add Customer” form:
    - **Customer name** – The customer object name.

Address Info tab

- Fill in the customer data as you want it to appear in the subscriber data on the LivingRoom server.

4. Save your work by clicking **Save**.
5. Click the or **Accounts** icon, which will take you to the account management for this customer.
6. Click the **Add** icon.
    - Fill in the “Add Account” form.

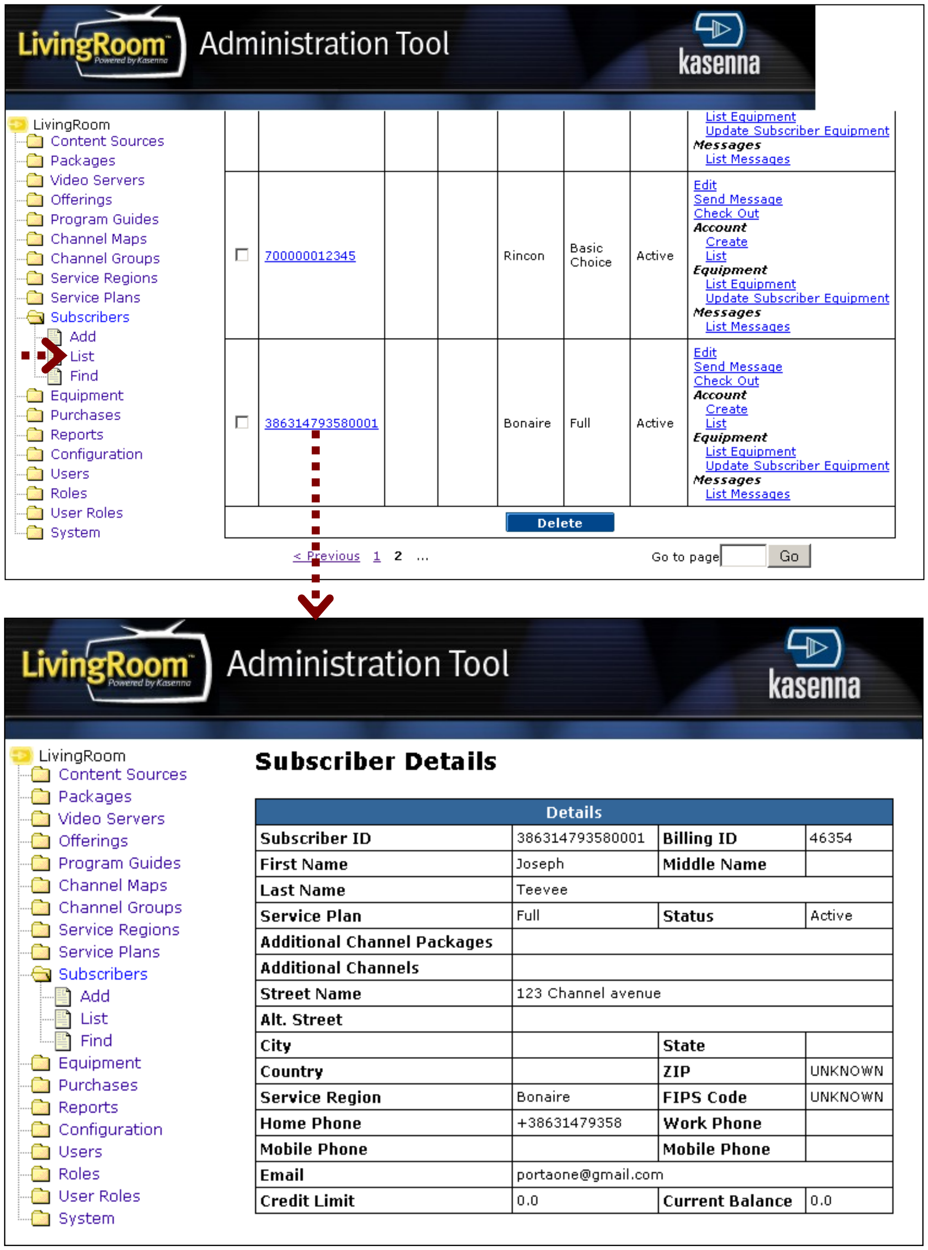
Account Info tab

- **Type:** Set the account type to Credit.
- **Batch:** Select from an existing batch, or create a new one. If you leave this field empty, the created account will not be tied to any specific batch.

Changing PortaBilling account subscriptions will automatically add or remove the corresponding LivingRoom packages for the subscriber.

Subscriber info data is obtained from the PortaBilling customer info.

Check Results on LivingRoom Server



3. Broadband Internet Access Services

This chapter describes how you can use PortaBilling to provision and define rates for broadband Internet access services (such as DSL, ADSL, cable, etc.)

The most typical broadband package types you can offer your clients include:

- Fixed bandwidth (download and/or upload) and unlimited data transfer, for a fixed monthly fee.
- Fixed bandwidth (download and/or upload) and a limited total data transfer amount, for a fixed monthly fee.
- A pay-as-you-go plan, where the customer is charged based on the amount of data transferred (per kilobyte, megabyte or gigabyte).

In this chapter we will show you how to:

- charge data transfers using tariffs;
- implement packages with a fixed monthly fee using subscriptions assigned to products;
- limit bandwidth for a product and/or an account;
- limit data transfers using discount plans.

You will also learn how to assign a static IP to an account and restrict the number of simultaneous Internet sessions with the same Account ID.

Examples of Broadband Packages

As an example, we will create three packages with the following specifications:

1. **Start**: 128 kbps upload and 512 kbps download bandwidth, unlimited data transfer, $15.00 monthly.
2. **Pro**: 512 kbps upload and 2 Mbps download bandwidth, 5 GB of data transferred during peak hours and 20 GB of data transferred during night hours, $30.00 monthly. Data transfer above these thresholds is charged at $20 per gigabyte.
3. **Premium**: 256 kbps upload and 1 Mbps download bandwidth, data transfer up to 10 GB, $40.00 monthly. When the data transfer exceeds this threshold, the amount of available bandwidth will be severely reduced.

Please refer to the **PortaBilling100 Web Reference Guide** PDF for detailed instructions on how to navigate and operate the web interface, as along with 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 My Company.	[ ]
Specify a base currency.	[ ]
For any other currency you plan to use, specify the exchange rate source and define exchange rates.	[ ]
Create the symbolic destination NETACCESS.	[ ]
Create services.	[ ]
Network configuration	
Add a Cisco gateway as a node on the web.	[ ]
Rating configuration	
Create a tariff A which will be applied to Internet users.	[ ]
Insert rates in tariff A for the symbolic NETACCESS destination.	[ ]
Create a tariff B, which describes your termination costs.	[ ]
Insert rates in tariff B for the symbolic NETACCESS destination.	[ ]
Create subscriptions.	[ ]
Create a destination group set.	[ ]
Create a destination group.	[ ]
Assign the NETACCESS prefix to this destination group.	[ ]
Create a volume discount plan.	[ ]
Define discounts within this discount plan.	[ ]
Create a product.	[ ]
Assign this discount plan as the default one for the product.	[ ]
Create one accessibility entry in the account's product, using the node you created and tariff A.	[ ]
Apply a subscription to the product.	[ ]
Set a bandwidth limit for the product.	[ ]
Create a vendor.	[ ]
Create a connection for this vendor with the Internet Access service type, using tariff B.	[ ]
Account provisioning	
Create a customer.	[ ]
Create accounts for this customer.	[ ]
Assign a static IP and restrict the number of simultaneous sessions for accounts.	[ ]
Set a bandwidth limit for accounts.	[ ]

Initial Configuration of PortaSwitch

TIP: When the system has just been installed, use username **pb-root** and password **pb-root** to login.

The following steps are normally performed only once, after the system is installed:

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

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

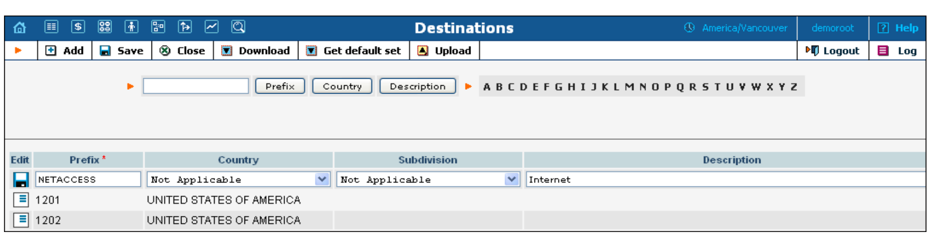
From the main menu, choose **Users** and create login entries for users who will be working with the system. It is not recommended that the default PortaBilling root user (`pb-root`) be used for any operations other than initial set-up. Make sure you are able to login as the newly-created user and change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

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

Create Destination

This step is only required if you have not defined the necessary destination before. If not, you will need to create a symbolic NETACCESS destination.

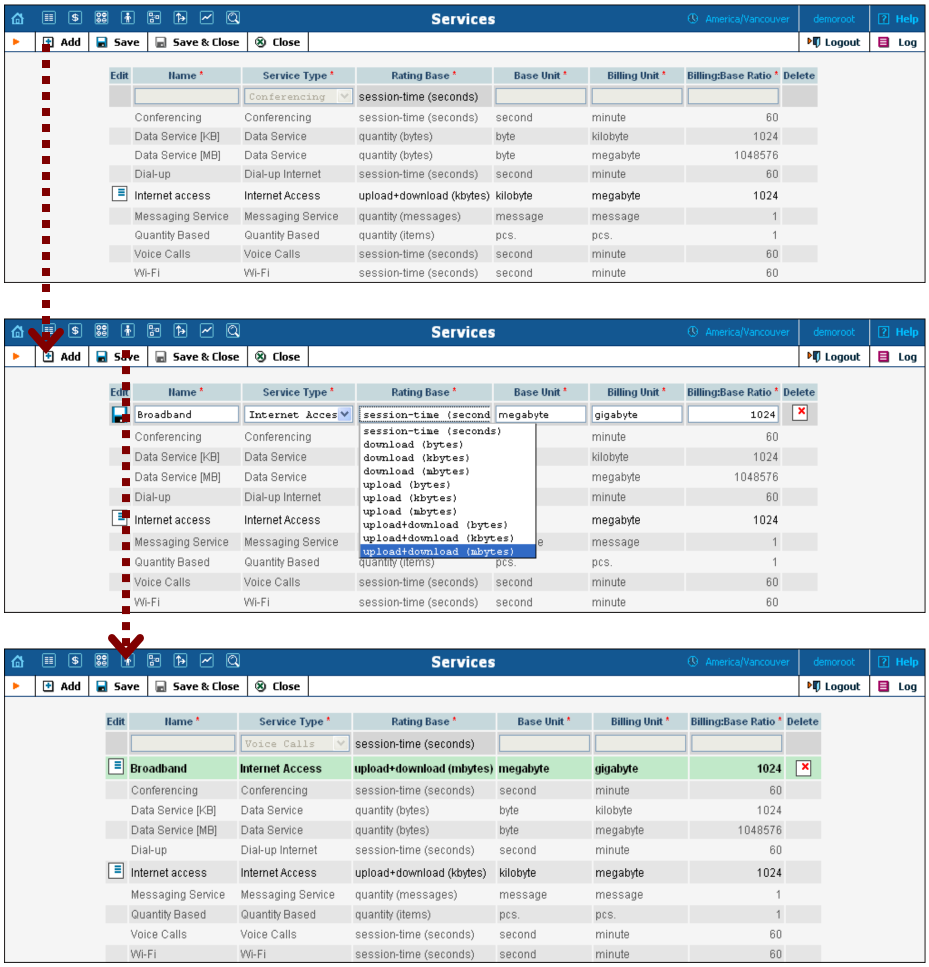
1. In the **Rating** section of Admin-Index, choose **Destination**.
2. Click on the Add button.
3. Fill in the required information. In the **Description** column, enter some useful information about the service being provided (e.g. **Internet**), since this is what your clients will see on their xDR History pages.



4. Click Save.

Create Services

Services provide a way to define how charges are calculated (e.g. whether customers are charged based on the time they stay online, or the amount of data transferred) and how these are then presented on their invoices.



1. In the **Billing** section of Admin-Index, choose **Services**.
2. Click on the Add button.
3. Fill in the required information:
   - **Name** – A short descriptive name for this service (it will be used in the select menus and shown on customer self-care pages).
   - **Service Type** – Select **Internet Access**.
   - **Rating Base** – If you want to bill customers based on the time they spend on the Internet, select session-time (seconds); if based on the amount of data transferred, select one of the nine options, depending on whether you want to count only uploaded data, only downloaded data, or both. There are also three choices of

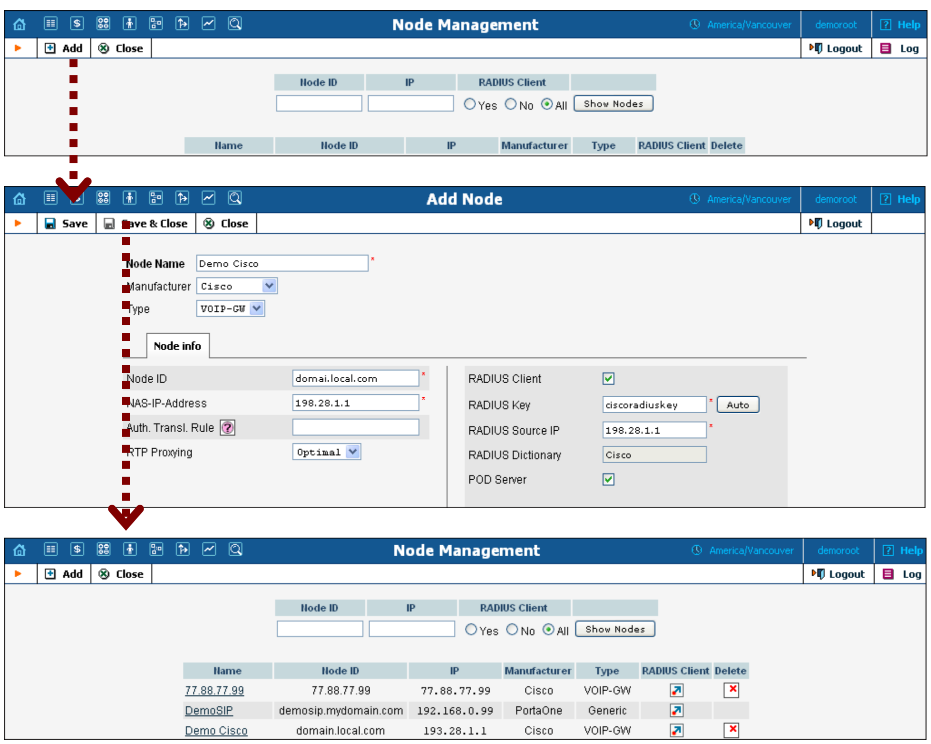
measurement units (B, kB and MB). A measurement unit defines the smallest possible unit charged. However, it should not be too small, as it may then be inconvenient to give price information (e.g. if you charge $0.20 per megabyte, the price of one byte will be $0.00000019).

- **Base Unit** – Change the field value if necessary.
- **Billing Unit** - Change the field reading if necessary. This will be shown on statistics screens and on invoices.
- **Billing:Base Ratio** – If you changed the previous two fields, also insert a new ratio here.

4. Click **Save**.
5. Repeat steps 2-4 if you need to create more services.

Create Nodes

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



1. In the **Networking** section of the Admin-Index page, choose **Nodes.**
2. In the Node management window, click the **Add** icon.
3. Fill in the New Node form:
   - **Node Name** – A short descriptive name for this node (will be used in the select menus).

- **Manufacturer** - Select **Cisco**.
- **Type** – VoIP node type; select **VOIP-GW**.
- **Node ID** – Cisco server host name (recommended `hostname.domainname`).
- **NAS-IP-Address** – IP address of the gateway.
- **Auth. Translation rule** – Leave this empty for now; see the *Translation Rules* section of the **PortaBilling Administrator Guide**.
- **RTP Proxying** – Leave the default selection (**Optimal**); this parameter is applicable only if you use this node for VoIP services.
- **Radius Client** – Check this box since this node will be communicating with the billing system.
- **Radius Key** – 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** – See the *Node ID, NAS IP address, and Radius source IP* section of the **PortaBilling Administrator Guide**. Unless your gateway has multiple network interfaces, the value here should be the same as the NAS-IP-Address.
- **POD Server** – Make sure to check this box to enable interaction with this server on NAS. The system will send a special command to this server if an account runs out of balance, exceeds its data transfer limit, or expires. The POD server will then terminate the Internet session(s) opened by this account.

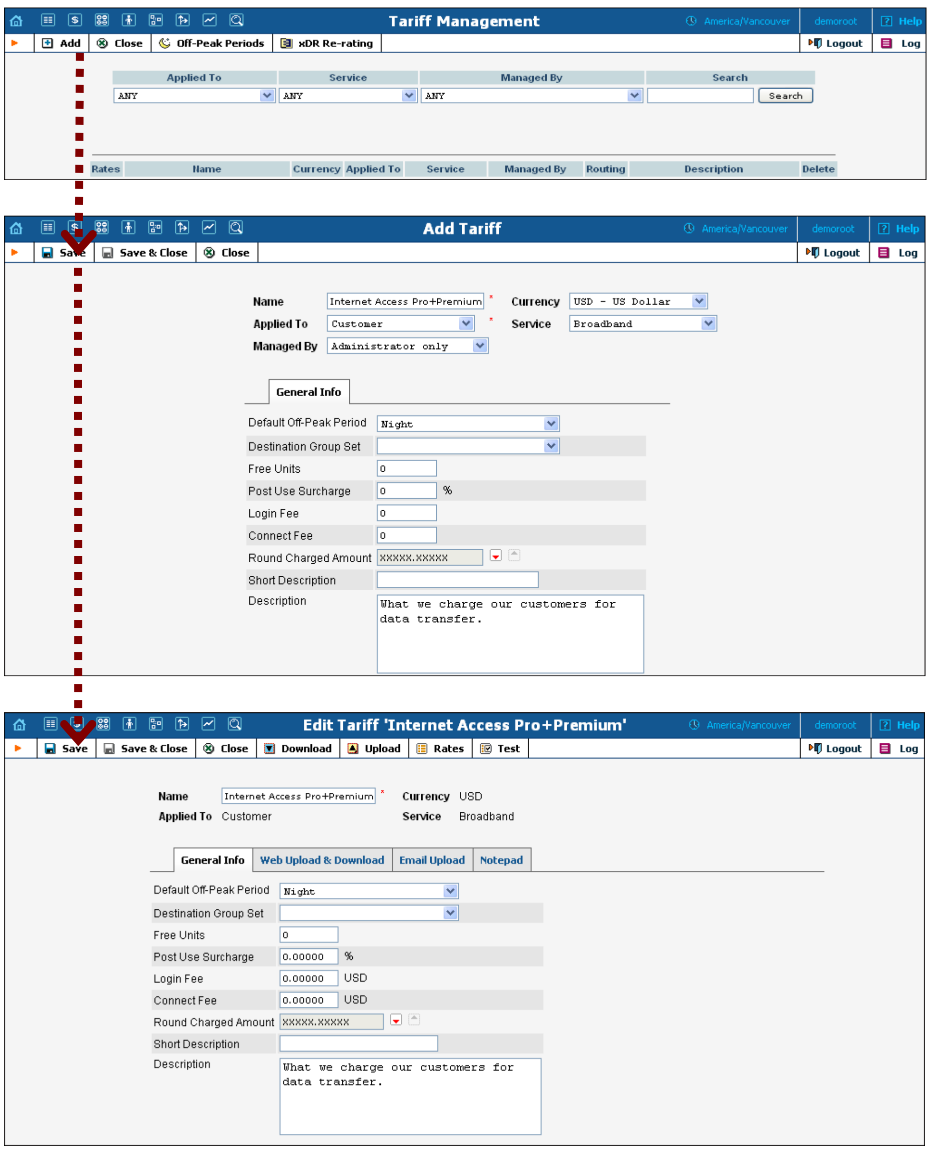
4. Click **Save&Close.**
5. Repeat steps 2-4 until all of your nodes have been entered.

Create a Tariff

The tariff is a single price list for the use of internet access services. At least two tariffs should be created to provide internet access services successfully:

- A tariff for each account's billing scheme, these tariffs are created as "Applied to: Customer";
- A tariff with the termination costs for each termination partner you have; these tariffs are created as "Applied to: Vendor".

To create the required tariffs, follow the next steps:

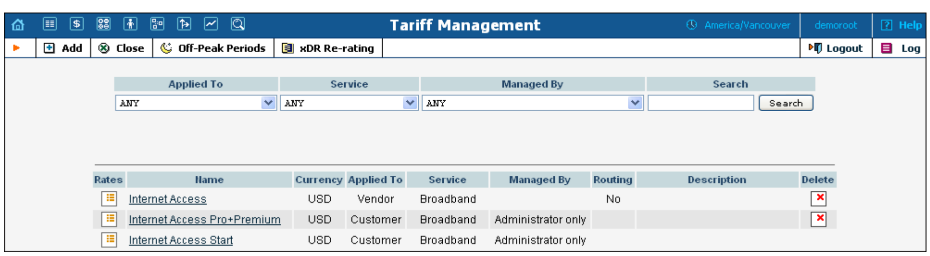


1. In the **Rating** section of Admin-Index, choose **Tariffs**.

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

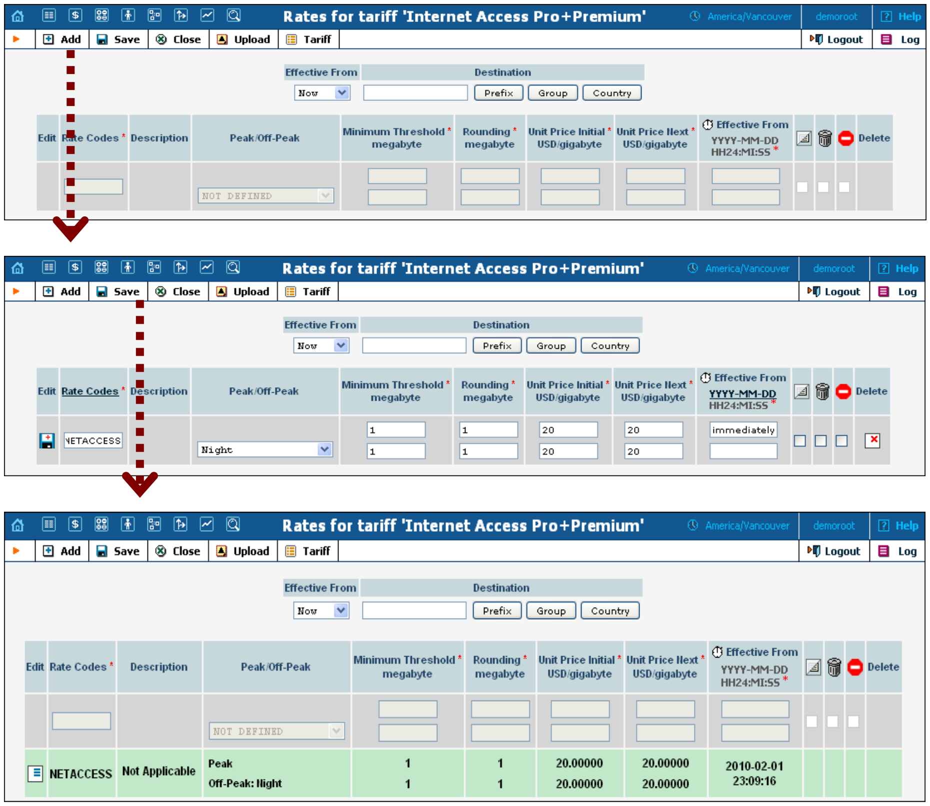
NOTE: The currency for the tariff may be chosen only once, and cannot be changed later.

   - **Applied To** – Designates whether this tariff will be used to charge your prepaid 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 (this option is only visible after you select **Applied to: Customer** above).
   - **Service** – Choose one of the services you created.
   - **Default Off-peak Period** – If you do not differentiate between peak and off-peak rates, just choose **Not defined**; otherwise, select one of the previously defined off-peak periods. For our **Pro** example package, we need to set night hours (from 9pm until 8am) as an off-peak period.
   - **Short Description** – A short tariff description. This will be shown in the rate lookup on the admin interface and the self-care pages for your accounts and customers.
   - **Description** – An extended tariff description.
4. Click **Save.**
5. Repeat steps 1-4 until you have entered all of the tariffs. In our example, we need to create two customer tariffs: one for the **Start** package and another joint one for the **Pro** and **Premium** packages. Also, we need one vendor tariff:



Enter Rates

Rates are per-destination prices. Please refer to the *Call Billing Parameters* chapter in the **PortaBilling Administrator Guide** for more information on billing parameters.



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

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

   - **Minimum Threshold** – First billing unit in base units (in our example, megabytes).
   - **Rounding** – Next billing unit in base units (in our example, megabytes).
   - **Unit Price Initial** – Price for first interval per billing unit (in our example, per gigabyte).
   - **Unit Price Next** – Price for next interval per billing unit (in our example, per gigabyte).
   - **Off-peak Minimum Threshold** – First billing unit in base units for off-peak time.
   - **Off-peak Rounding** – Next billing unit in base units for off-peak time.

- **Off-peak Unit Price Initial** – Price for first interval per billing unit for off-peak time.
- **Off-peak Unit Price Next** – Price for next interval per billing unit.

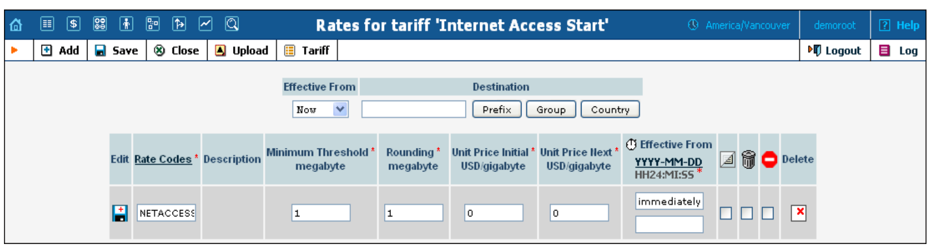
NOTE: Off-peak fields appear only if an **off-peak period** has been defined for the tariff.

- **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).

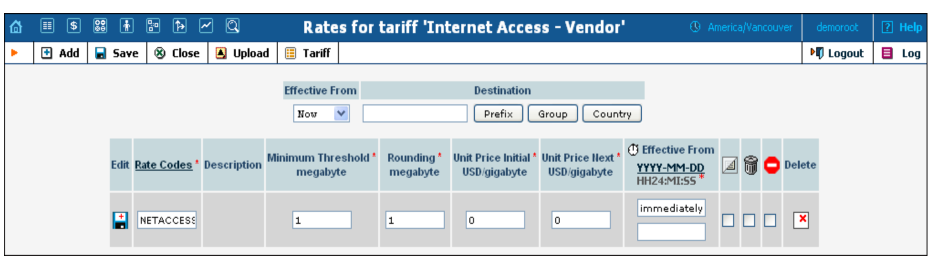
NOTE: When using the calendar, you can specify that the date you are entering is in a different time zone than your present one. PortaBilling will then automatically adjust the time.

- **Rate Formula Wizard** – launches the wizard for creating a custom rating formula
- **Hidden**, **Forbidden** or **Discontinued** flags are optional.

4. Click the **Save** button in the toolbar, or the icon on the left side of the row.
5. Repeat steps 1-4 for all your tariffs. In our example, we need to create a 0 price rate for the **Start** package:

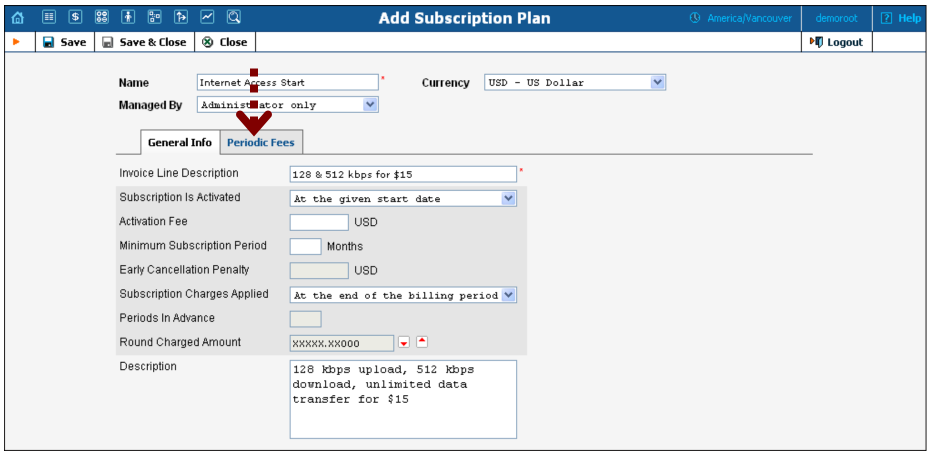


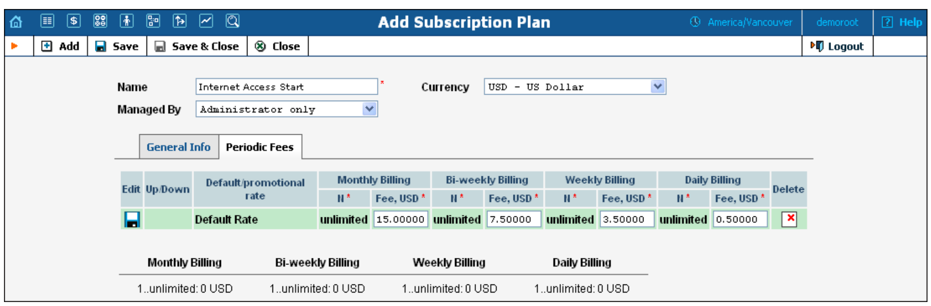
The vendor tariff also needs to contain a 0 price rate:



Create Subscriptions

Subscriptions allow you to charge a certain periodic fee to accounts which belong to a certain product. Below we will show you how to create a monthly $15.00 subscription and apply it to a product with unlimited data transfers. You will also need to create monthly $30.00 and $40.00 subscriptions and apply these to the corresponding products.





1. In the **Rating** section of the Admin-Index page, choose **Subscription Plans**.
2. On the Subscription Plan Management page, click the **Add** icon.
3. Fill in the "Add Subscription Plan" form:
   - **Product name** – The product object name.
   - **Currency** – The product currency.
   - **Managed by** – Choose **Administrator only**.

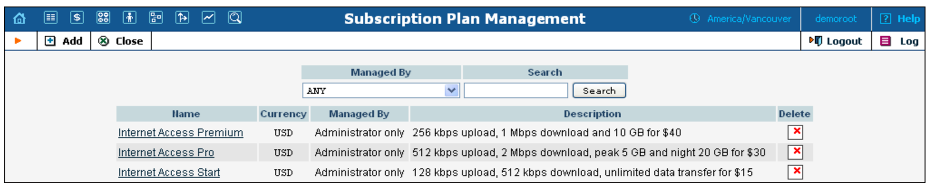
General Info tab

- **Invoice Line Description** – The description to appear on the invoice sent to the customer.

Periodic Fees tab

- Click the **Edit icon** and enter the rates for periodic billing. PortaBilling will auto-fill the form after the rate for monthly billing has been entered. You can edit rates or add new rates for the same subscription.
- Click **Save**.

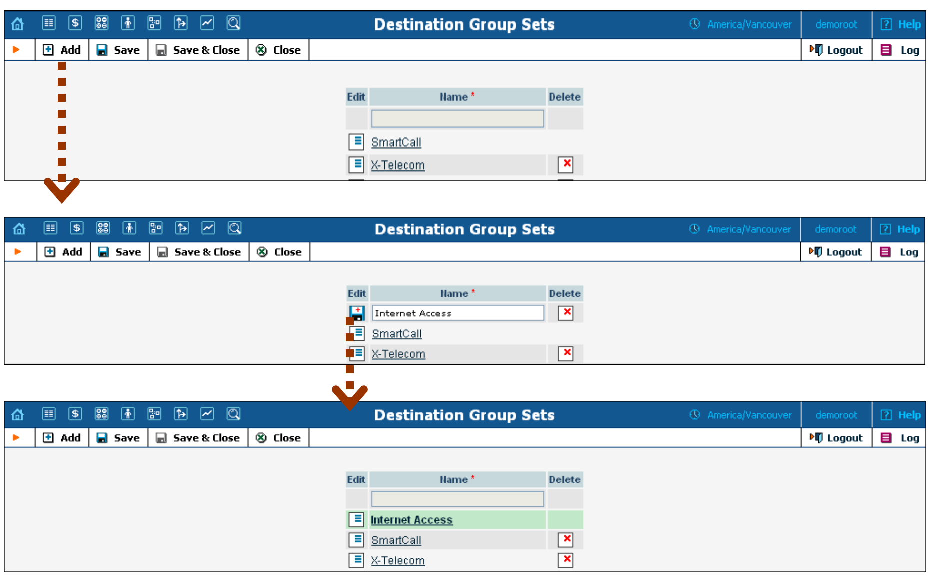
4. Repeat the above procedure for all your subscriptions:



Create a Destination Group Set

In order to define discounts for your Internet service, you need to create a destination group set.

1. In the **Rating** section of the admin interface, choose **Destination Group Sets**.
2. On the Destination Group Sets Management page, choose **Add**.

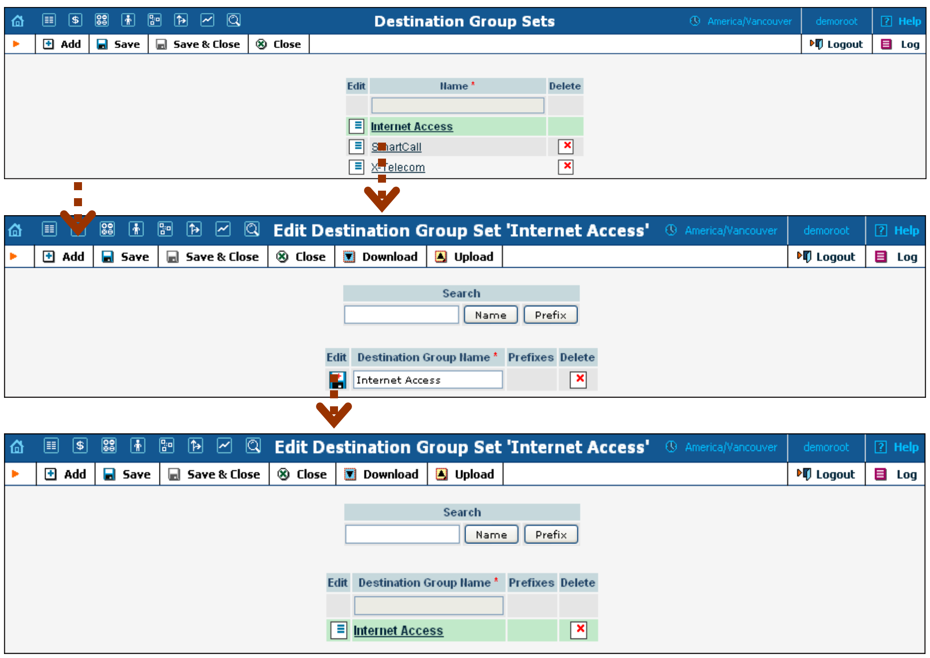


3. Type in the name of the new destination group set.
4. Click the **Save** button in the toolbar or the icon on the left end of the row.

Define a Destination Group

Now you need to create one destination group.

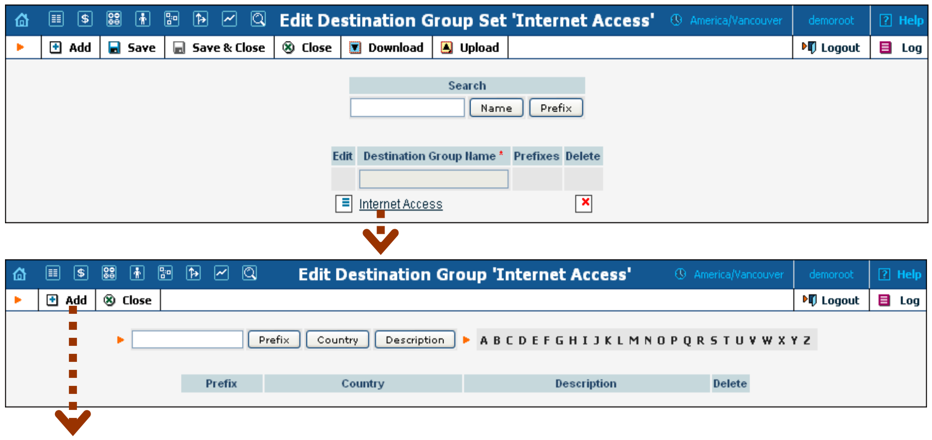
1. In the **Rating** section of the admin interface, choose **Destination Group Sets**.
2. On the Destination Group Sets page, click on the destination group set name to enter the Edit screen.
3. Click **Add** to add a new destination group.



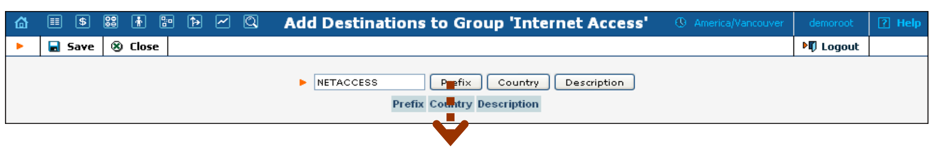
4. Type in the destination group name, then click the **Save** button in the toolbar or the icon on the left end of the row.

Assign Prefix to Destination Group

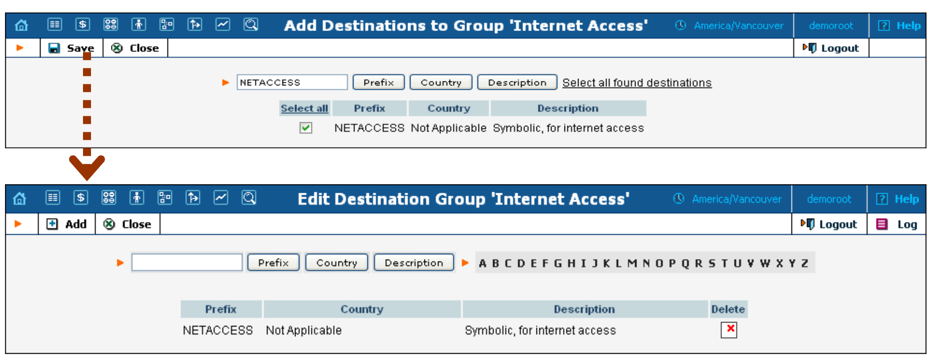
1. When in edit mode for a destination group set, click on the name of the destination group to see its details.



2. Click **Add** to enter "add prefixes" mode.



3. To display the NETACCESS prefix, type it in and press the **Prefix** search button.

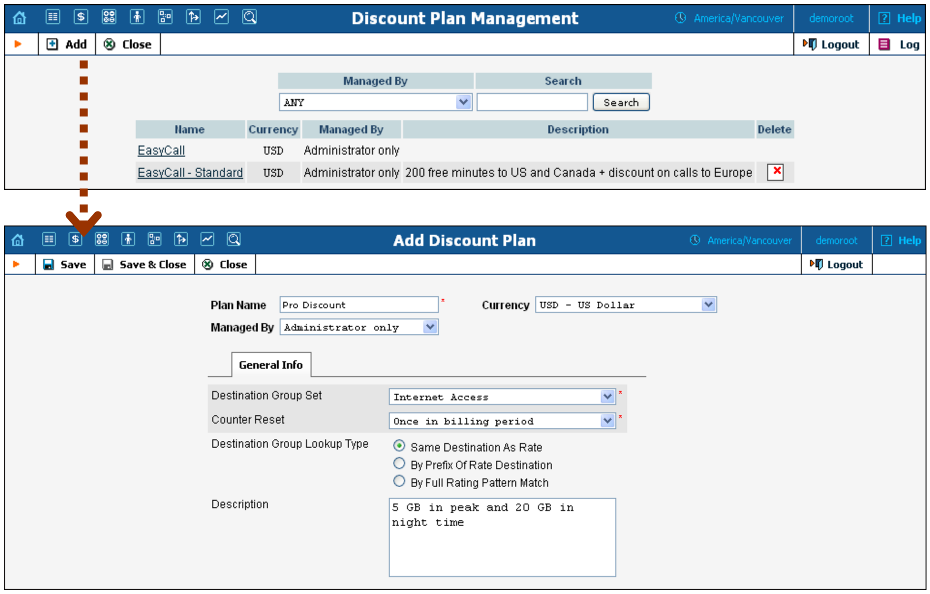


4. Select the prefix and then press the **Save** button.

Create a Volume Discount Plan

A volume discount plan contains definitions of all the applicable special discounts offered to users of a certain product.

1. In the **Rating** section of the admin interface, choose **Volume Discount Plans**.
2. On the Discount Plan Management page, choose **Add**.



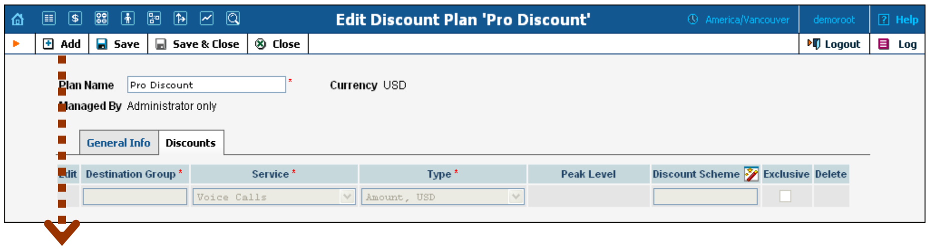
3. Fill in the **Add Discount Plan** form:
   - **Plan Name** – A short descriptive name for this discount plan.
   - **Currency** – Indicates in which currency pricing information is defined; a volume discount plan can only apply to accounts and customers with the same currency.

NOTE: The currency for the discount plan may be chosen only once (at creation) and cannot be changed later.

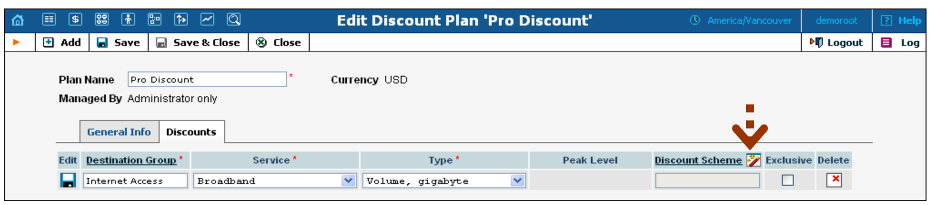
   - **Managed by** – If you want this discount plan to be used for your reseller's accounts, so that the reseller himself can change the parameters of this tariff and create new accounts using this product, choose a customer name from the menu. Otherwise, choose **Administrator only** here.
   - **Destination Group Set** – The destination group set which will be used to select the definitions of individual destination groups. Choose the destination group set you created in the previous steps.
   - **Counter Reset** – Select the default option **Once in billing period**, meaning that in every billing period the counters are set to zero and the process starts all over again, e.g. every month the customer is entitled to 500 free MB.
   - **Description** – An extended discount description.
4. Click **Save.**

Define Discounts within Volume Discount Plan

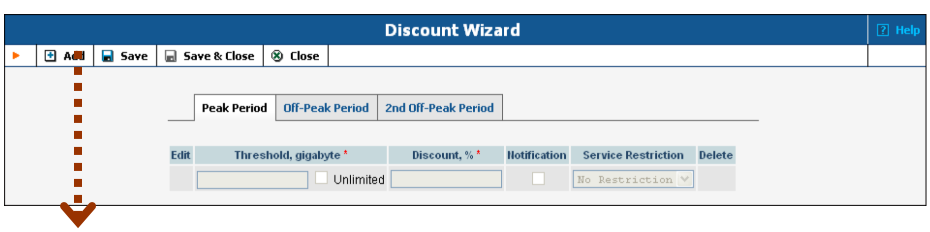
1. While in the **Edit Discount Plan** form, click on the **Discounts** tab.
2. Press **Add** to add a new discount.



3. Enter the initial information about this discount:
   - **Destination Group** – Type in the name of the destination group you have created (**Internet Access** in our example).

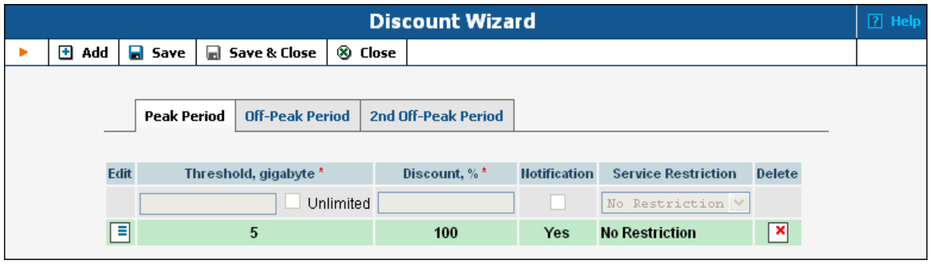


   - **Service** – Select the service you previously defined.
   - **Type** – If the discount levels are to be based on the total amount of transferred data, choose **Volume, gigabytes** (your billing unit will be displayed in this field). Otherwise, choose **Amount, USD** to use cost-based discount levels. For more details about different discount level options, see the **PortaBilling Administrator Guide**.
   - **Discount Scheme** – Click the icon in the toolbar to invoke the discount definition wizard. There are three tabs where you can define three different discounts for the peak, off-peak, and second off-peak periods:



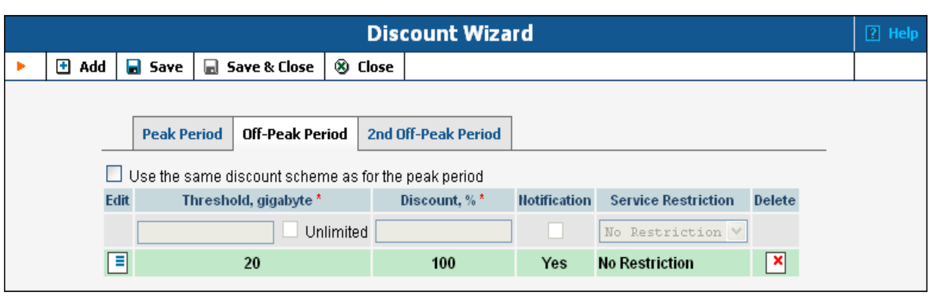
1. Define the applicable discount levels for the peak period:
   - Click **Add** to add a new discount level threshold.

- In the **Threshold** column, enter the threshold value. For our **Pro** package, we need to add a 5 GB threshold.

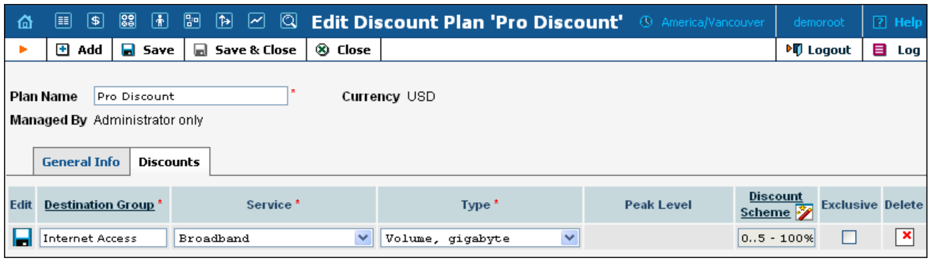


- In the Discount column, enter the actual value of the discount (use 100 to specify free data transfer). Do not put a % sign after the number, as this will be appended automatically.
- Check the **Notification** box if you want an e-mail to be sent to the customer or account subscriber when a threshold is crossed. If no e-mail is specified for the subscriber, notification will be sent to the customer to whom the subscriber belongs.
- Using the **Service Restriction** drop-down box, you can restrict bandwidth for the data transfer before this threshold is reached. For the **Pro** package, we select **No Restriction**. The **Limit Usage** option changes the bandwidth to an extremely low value (exactly defined in porta-admin.conf), but the customer can still access the Internet to check his bill, make a payment, etc. The **Block Usage** option blocks service when this threshold is crossed. Click on the icon at the left end of the row to complete definition of this discount level. Repeat the steps above to define more discount levels.

2. Click on the **Off-Peak Period** tab and define the applicable discount levels for weekends. First, you need to uncheck the box reading **Use the same discount scheme as for the peak period**. The rest of the procedure is the same as for the peak period discount:

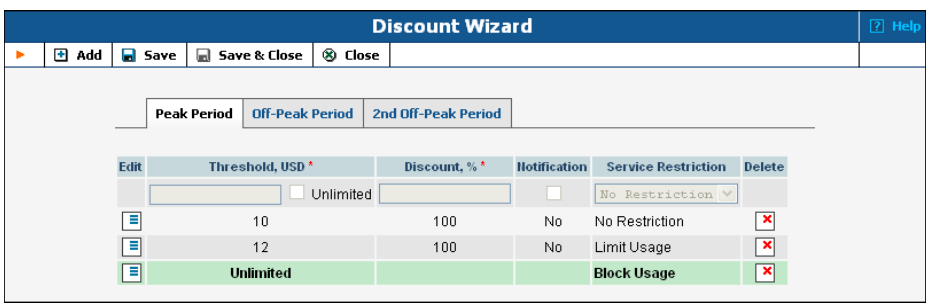


3. Click **Save&Close** in the toolbar in order to return to the Discount Plan screen. You will see that the **Discount Scheme** column is now populated with the discount definition:

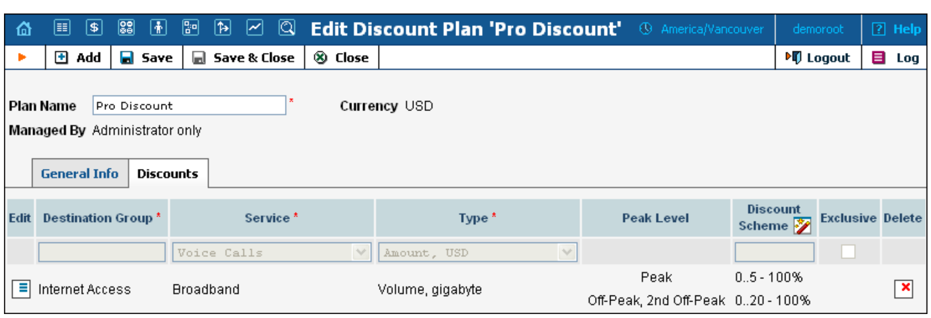


- **Exclusive** – Defines whether an account should be granted exclusive free data transfer, i.e. data transfer to which a 100% discount is applied (and which does not affect the customer's counters). See the **PortaBilling Administrator Guide** for more details.

For the **Premium** package, define 10 and 12 GB peak thresholds. Limit usage for customers after their data transfer reaches 10 GB. Block usage after 12 GB (to prevent service abuse):

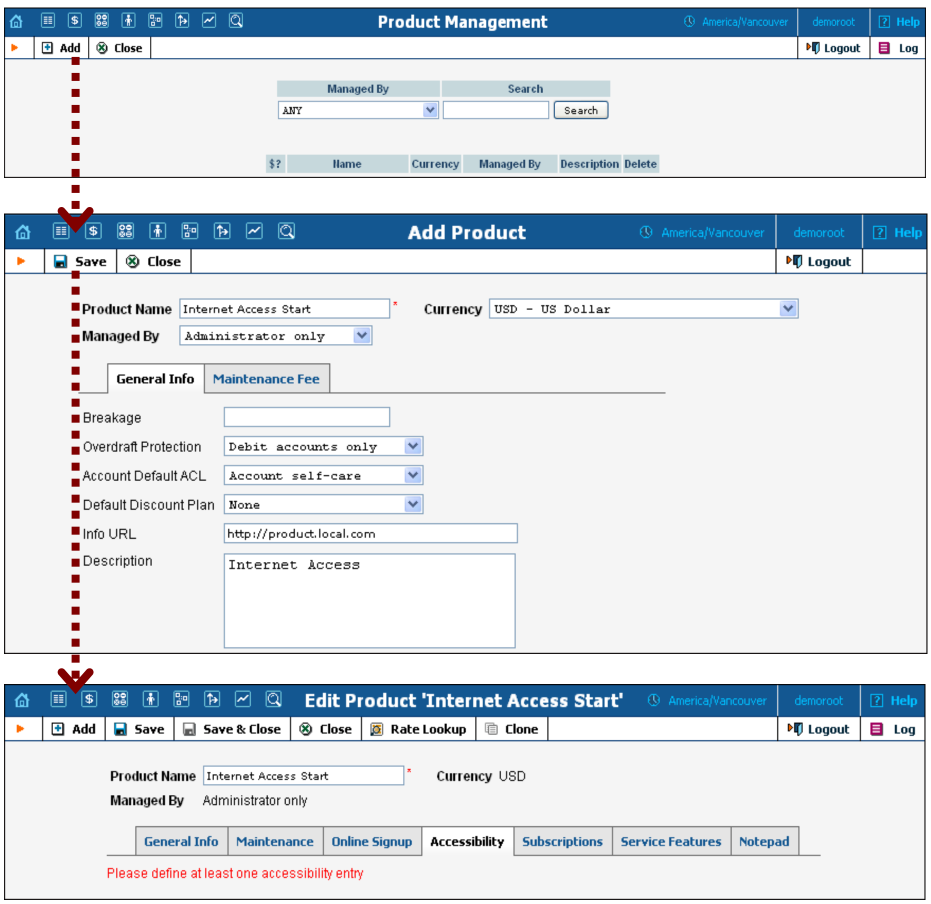


4. Click the **Save** button in the toolbar or the icon on the left end of the row to save this discount scheme. It will be displayed on the Edit Discount Plan page:



Create a Product

An account for accessing your Internet services will be issued for a specific product. Products are a powerful feature that defines different ways to bill an account. Product definition is always done in two steps: product definition and creation of an accessibility list. In our case, we need to create three products: **Start** with 128 upload and 512 kbps download bandwidth (unlimited data transfer), **Pro** with 512 kbps upload and 2 Mbps download (above-limit data transfer is charged), and **Premium** with 256 kbps upload and 1Mbps download (capped data transfer).

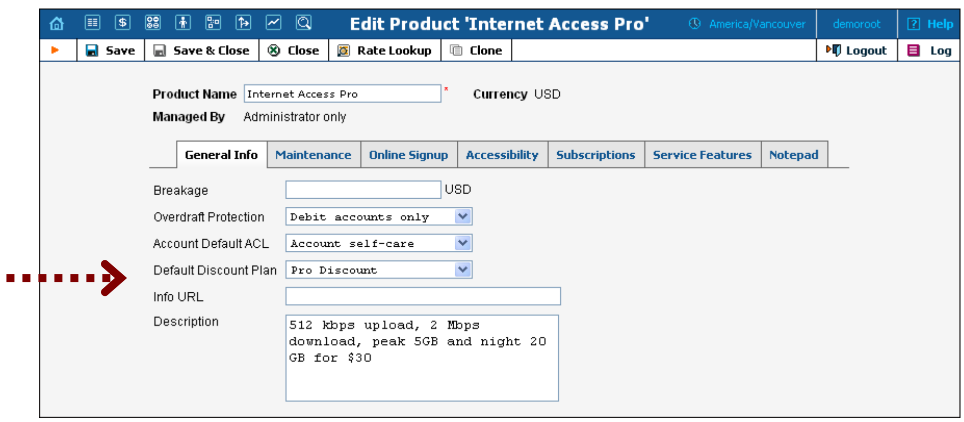


1. In the **Rating** section of the Admin-Index page, choose **Products**.
2. On the Product management page, click the **Add** icon.
3. Fill in the "Add product" form:
   - **Product name** – product object name.
   - **Currency** – product currency; only tariffs which have the same currency will be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

product, choose a customer name from the menu. Otherwise, choose **Administrator only** here.

General Info tab

- **Breakage** – Leftover balance which is considered "useless" (for statistical purposes). Accounts with a balance below breakage will be counted as *depleted*. This does not affect account authentication or authorization, so the account can still access wireless services if there is enough money left to cover at least the first interval.
- **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** – If no discount applies to your product, select **None**. In our example, select this option for the **Start** package. For the other two packages, we need to select the corresponding discount plans:



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

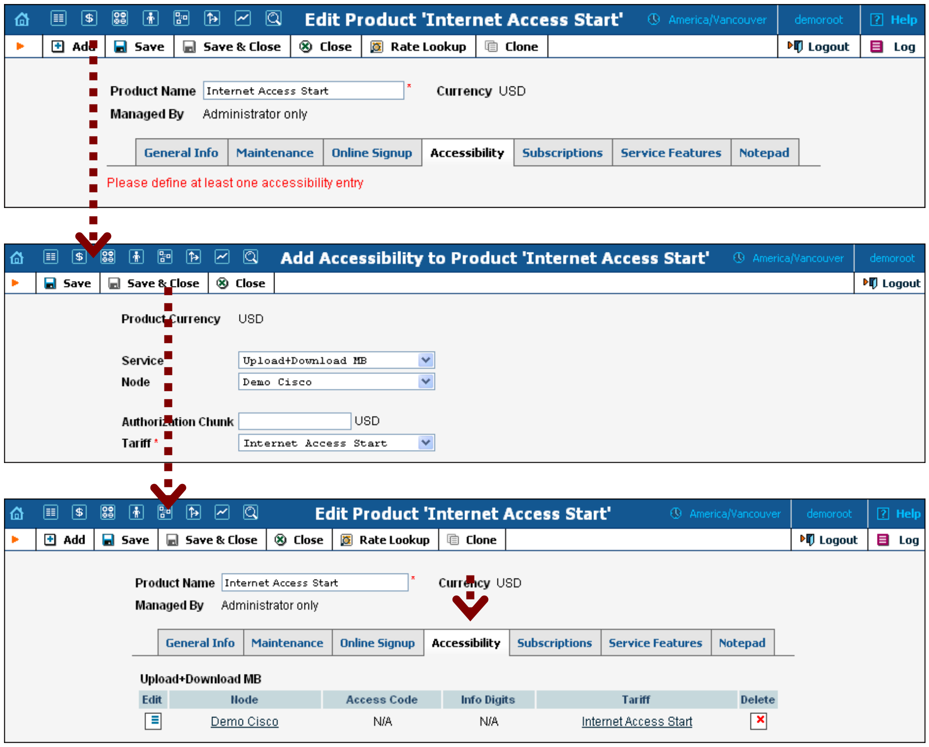
Maintenance tab

The **Maintenance Fees** functionality has been replaced by the Subscriptions module. Please use subscription plans to apply periodic charges for the broadband service to your customers.

4. Click **Save.**
5. Click on the **Accessibility** tab to edit this product's accessibility.

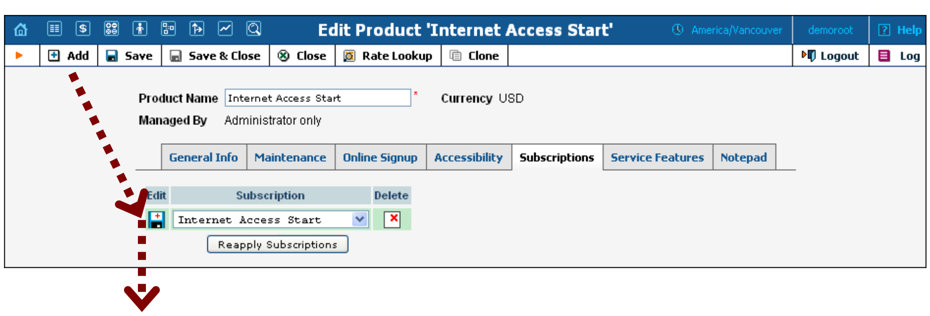
Enter Node and Tariff into Product's Accessibility List

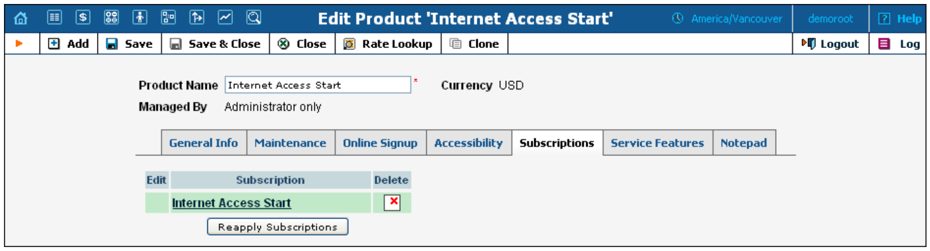
The accessibility list has two functions: it defines permitted access points (nodes and access numbers) and specifies which tariff should be used for billing in each of these points.



1. When the Accessibility tab is selected, click on the **Add** icon.
2. Choose the service you created in the **Service** select menu.
3. In the Accessibility dialog box, select the Cisco node and choose the appropriate tariff which applies to your customers when they use Internet service.
4. Click **Save** to save this accessibility entry.

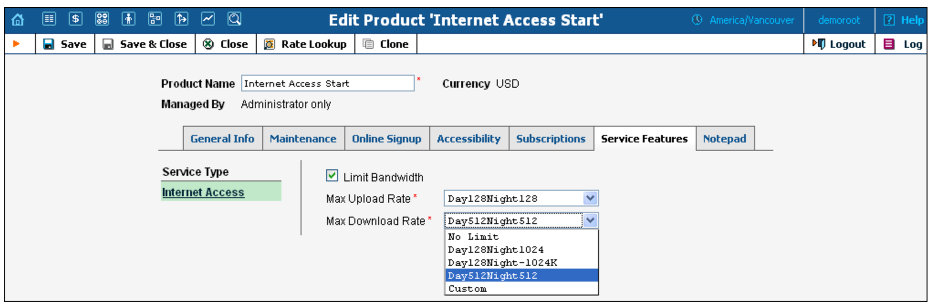
Subscriptions tab





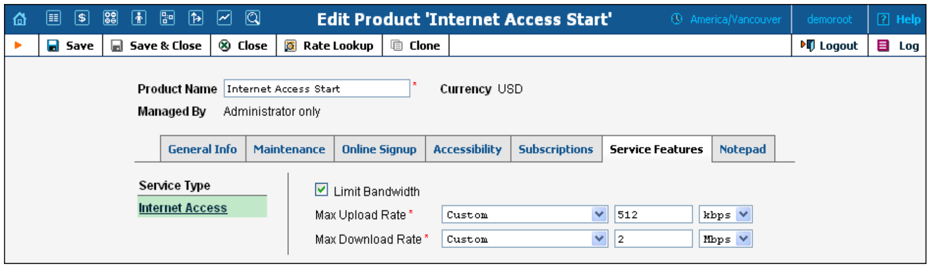
- o Click the **Add** icon to add a subscription to the selected product.
- o Click the **Reapply Subscription** button when adding/changing a subscription to apply the new settings to all accounts using this product.

Service Features tab



- o **Limit Bandwidth** – Check this box if your Internet access package offers limited bandwidth. If this box is selected, the two fields below become active.
- o **Max Upload Rate** – There are several options in this drop-down box:
  - **No Limit** – Select this option if you want to limit only the download rate.
  - **Custom** – Define the required value and a measurement unit in the two smaller boxes.
  - This drop-down box can also contain other predefined bandwidth limits that are set in `porta-admin.conf` (see note below). These allow you to set different bandwidths for different times of day.
- o **Max Download Rate** – There are several options in this dropdown box:
  - **No Limit** – Select this option if you want to limit only the upload rate.
  - **Custom** – Define the required value and a measurement unit in the two smaller boxes.
  - This drop-down box can also contain other predefined bandwidth limits that are set in `porta-admin.conf` (see note below). These allow you to set different bandwidths for different times of day.

For the **Start** package, we selected predefined bandwidths. Below is an example of the **Service Features** tab with the custom bandwidth values used for our **Pro** package:

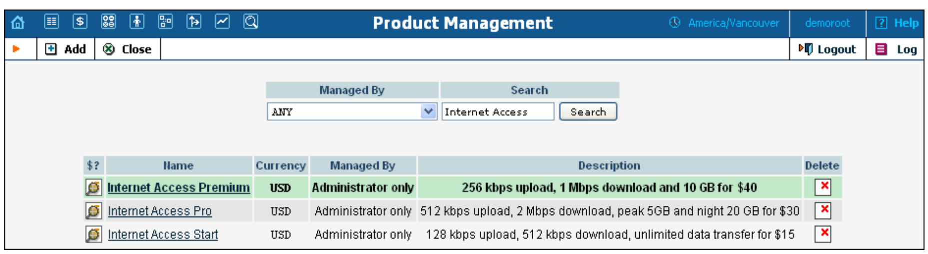


For the **Premium** package, we can either define custom bandwidth values or use predefined ones.

The Cisco administrator should configure policy classes to include the time-based ACL and applicable bandwidth limits. Then the names of the policies need to be defined in the `[ServiceFeatures]` section of `porta-admin.conf` as comma-separated values, for example:

```
[ServiceFeatures]
InternetUploadPolicies = Day128Night128, Day256Night1024
InternetDownloadPolicies = Day512Night512, Day256Night1024
```

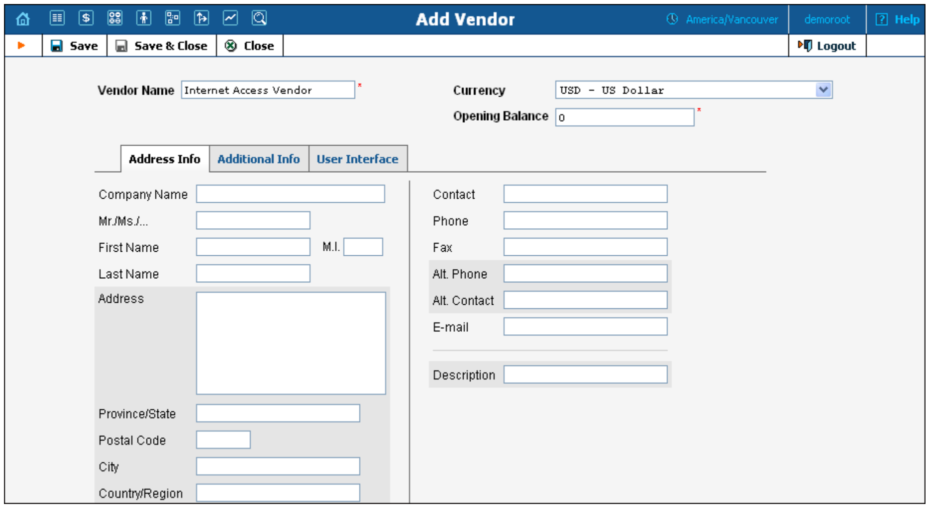
5. Repeat this procedure for all products.



Create a Vendor

This step is only required if you have not entered vendor information into the system before.

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



3. Fill in the **Add Vendor** form. Since this symbolic vendor is created only so that the system will function properly, there is no need to fill in all the fields on the three available tabs. You need only type in a vendor name and select a currency.

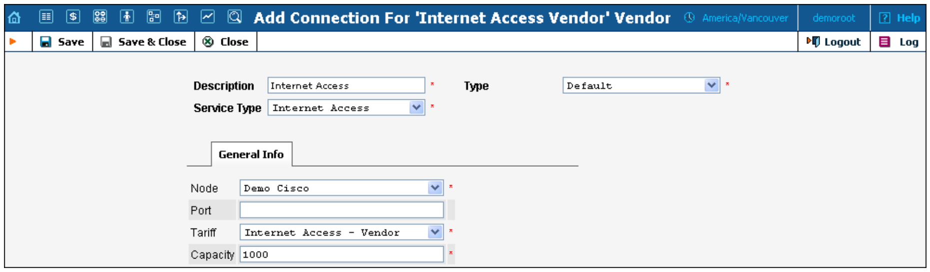
Main form (top)

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

4. Click **Save&Close**.

Define a Connection

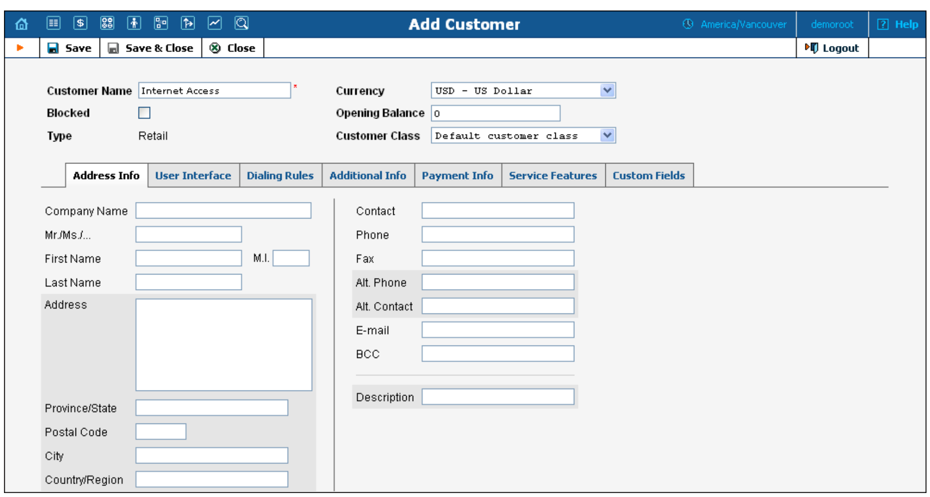
1. In the **Participants** section of the admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.



3. Press Add to add a new connection.
4. Fill in the connection information:
   - **Description** – This field is mandatory.
   - **Service Type** – Select **Internet Access**.
   - **Node** – Choose the Cisco gateway which you previously added as a node.
   - **Tariff** – Choose the vendor tariff.
5. **Capacity** – The maximum number of sessions the router can handle. Click **Save**.

Create a Customer

A customer is an owner of accounts. The customer's contact information is used to distribute account usage information, internet access statistics, invoices, and so on. Usually, you will need to create at least one customer for each broadband user.



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

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

Main form (top)

- **Name** – short name for the customer object; this will be used on the web interface.
- **Currency** – the currency in which this customer will be billed.
- **Opening balance** – a starting balance for the customer; the default is zero.
- **Type** – Normally, most of your customers would be retail customers.
- **Customer Class** – Choose **Default**.

Address info tab

- **Email** – An email address for the distribution of accounting information. After the billing period is over, a list of xDRs and other statistics will be sent to this address.
- **Bcc** – 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 tab

- **Billing period** – Frequency of distribution of accounting information. For more details about different available billing periods, see the **PortaBilling Administrator Guide**.
- **Send Statistics – Summary only** – Distribute an event summary only, and do not attach a details file. Other options are **full statistics** (attach a complete list of xDRs) or **do not send** (no not deliver event statistics to this customer via email at all).

Payment info tab

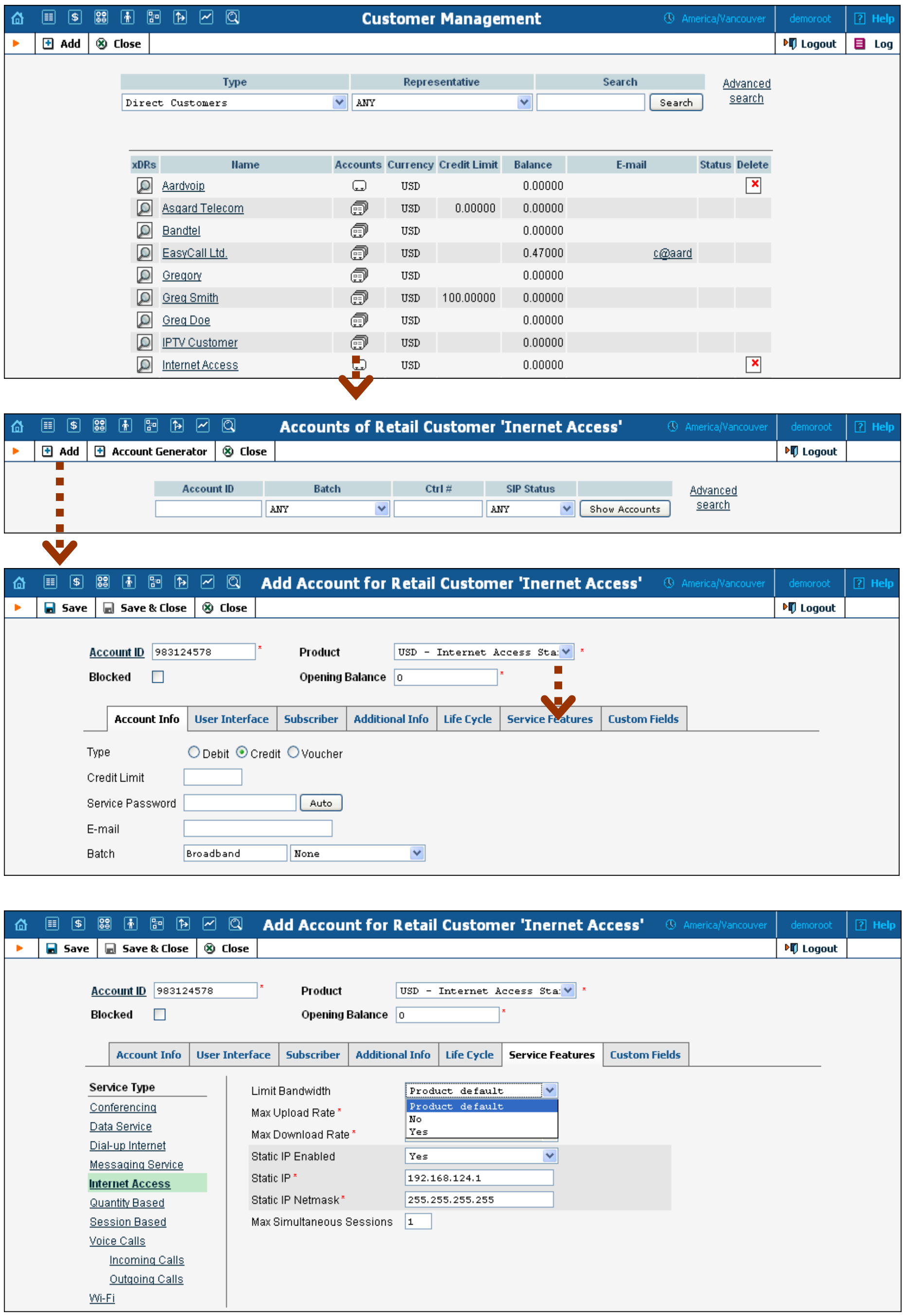
- **Credit limit** – if left empty, then there is no credit limit for this customer.

User Interface tab

- **Time zone** – the time zone in which the customer will see his xDRs and also that defines 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.
- **Web Interface Language** – language to be used on the customer self-care web interface.

Create Accounts

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



2. Next to the customer name, click on the icon (the one in the **Accounts** column) to go to the account management for that customer.
3. Click on **Add**.

4. Fill in the Add Account form:
   - **Account ID** – The ID which will be used to authorize Internet access.
   - **Product** – Choose the previously created Internet access product.
   - **Blocked** – You may create your account as blocked, although this is rarely done with Internet service accounts.
   - **Opening balance** – The initial balance on the account.

Account Info tab

- **Type** – Select **Credit,** in most cases.
- **Credit limit** – For a credit account, specify the credit limit. If you leave this field blank, it means there is no credit limit for this account (but a customer credit limit may still apply).
- **Service password** – The account ID and this password will be used to authenticate Internet users. Make sure you choose a password which is difficult to guess or crack. Use the **Auto** button next to the **Password** field to generate a secure password.
- **Email** – Enter the account owner's email address here. If he ever forgets his password for the web self-care pages, he will be able to reset it, and a new password will be sent to this email address. You can also just leave this field empty.
- **Batch** – A batch is a management unit for accounts. If a new batch name is provided in the text field, a new batch will be created when you add the account. Alternatively, an existing batch could be selected from the drop-down list. If you leave this field empty, the created account will not be tied to any specific batch.

Life Cycle tab

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

Service Features tab

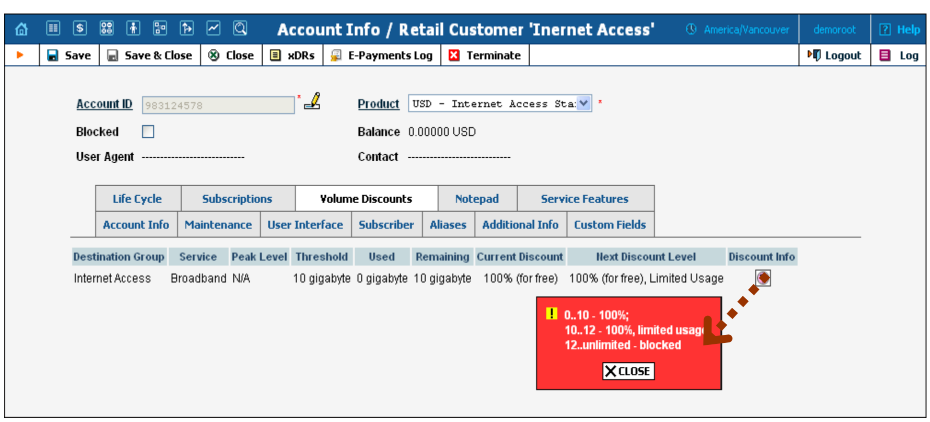
- **Service Type** – Select **Internet Access**.
- **Limit Bandwidth** – The most usual option is **Product default**. In rare cases, you may need to define special bandwidth values for an account which would override those set in the product. In such cases, select **Yes** to define these values, or select **No** if you do not want to limit bandwidth for this account.

- **Max Upload Rate** – This field becomes active only if you have chosen **Yes** in the previous field.
- **Max Download Rate** – Same as for the preceding field.
- **Static IP Enabled** – Select **Yes** if you want to assign a static IP to this account (the default setting is **No**).
- **Static IP** – If you have selected **Yes** for the previous field, type in an IP.
- **Static IP Netmask** – Type in a netmask, or leave the default value **255.255.255.255**
- **Max Simultaneous Sessions** – By default this field is blank, which is equal to 1 (only one user will be able to log in with this account ID and use the Internet). If the account credentials are somehow hacked, no sessions will be initiated from other locations. Change this value if there is a real need to do so and the customer is aware of the risks.

5. After clicking **Save&Close**, you will see a confirmation screen announcing that a new account has been created.
6. Repeat steps 3-5 to create more accounts for the customer. For instance, a company to which you supply broadband services may have several Internet users.

Check Current Volume Discount Statistics for 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 **Volume Discounts** tab.



5. View the information in the table:

- **Destination Group** – The destination group this discount applies to.
- **Peak Level** – The type of peak level this discount applies to (peak, off-peak or 2nd off-peak). In case of **N/A**, no off-peak levels are defined for the destination group in this discount plan, and the same discount applies all the time.
- **Threshold** – The threshold value of the currently applied discount level.
- **Used** – The current volume counter (total amount of data transfer or money spent).
- **Remaining** – The total amount of data transfer or money remaining at this discount level; after it is used up, the next discount level will be applied.
- **Current Discount** – The currently applied discount percentage.
- **Next Discount Level** – The discount percentage which will be applied after the threshold is crossed.
- **Discount Info** – Click on the icon to view comprehensive information about all applicable discounts levels.

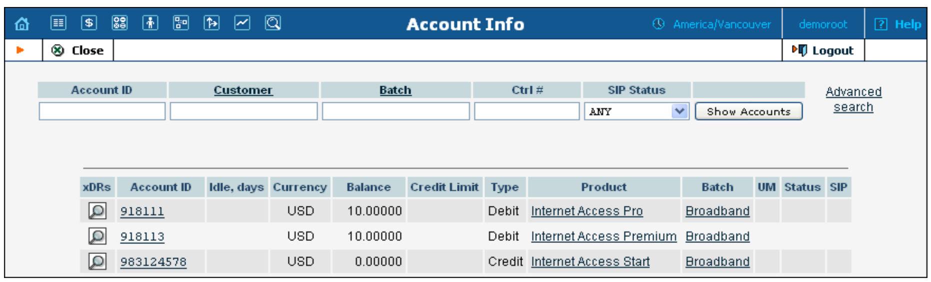
Click **Close**.

Verify Broadband Event History for Account

You can view transaction records (xDRs) for your account subscribers on their respective xDR History pages. To check how much time they have spent on the Internet or how much data they have uploaded/downloaded, go to their Service Usage Details pages. Account subscribers can do the same by visiting their self-care interfaces.

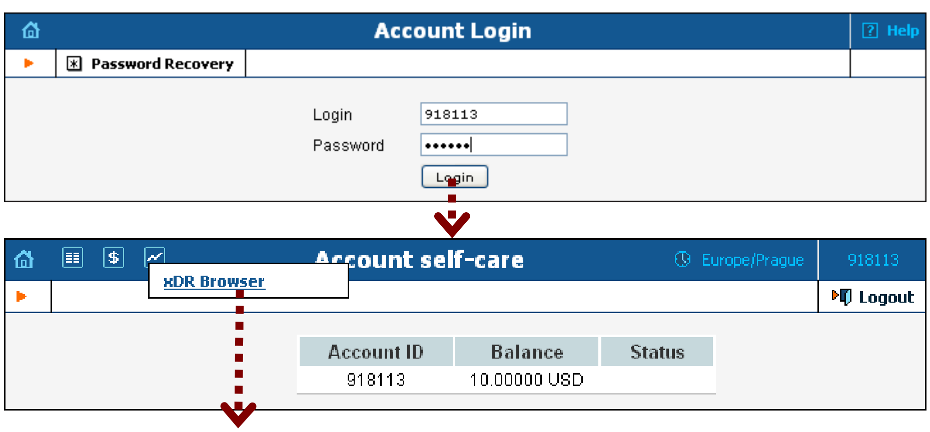
Viewing xDR History

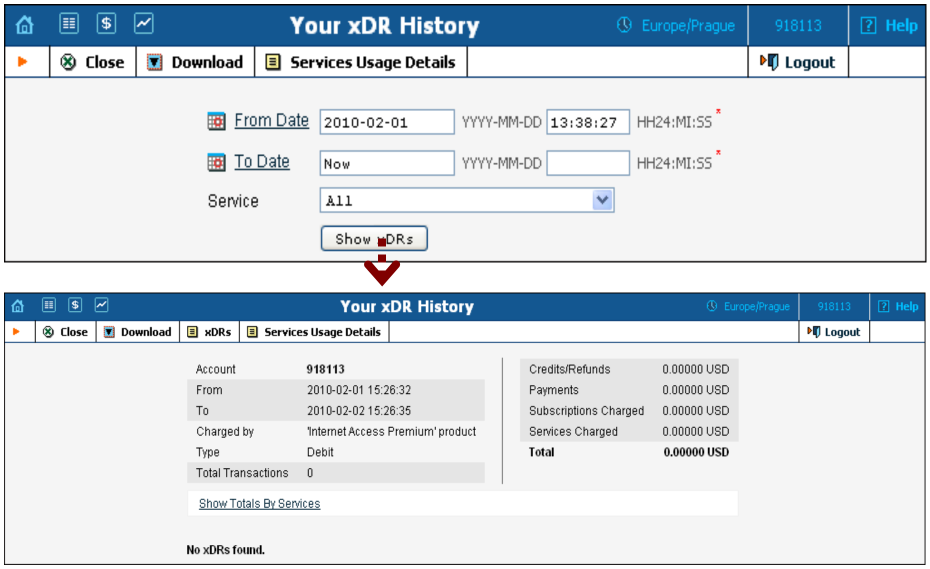
To view the xDR of an account, go to Customers, select the Customer owning the accounts, and click on the Accounts icon; or, alternatively, select **Account Info** in the Help Desk section of Admin-Index page.



You can also go to the account self-care page (accessible via the **Accounts** menu item in the **Home** popup menu).

Login with the account's web access login and password. After that you will be able to see the account's dashboard interface with functional drop-down menus upper left. On the **Statistics** menu, click **xDR Browser**.

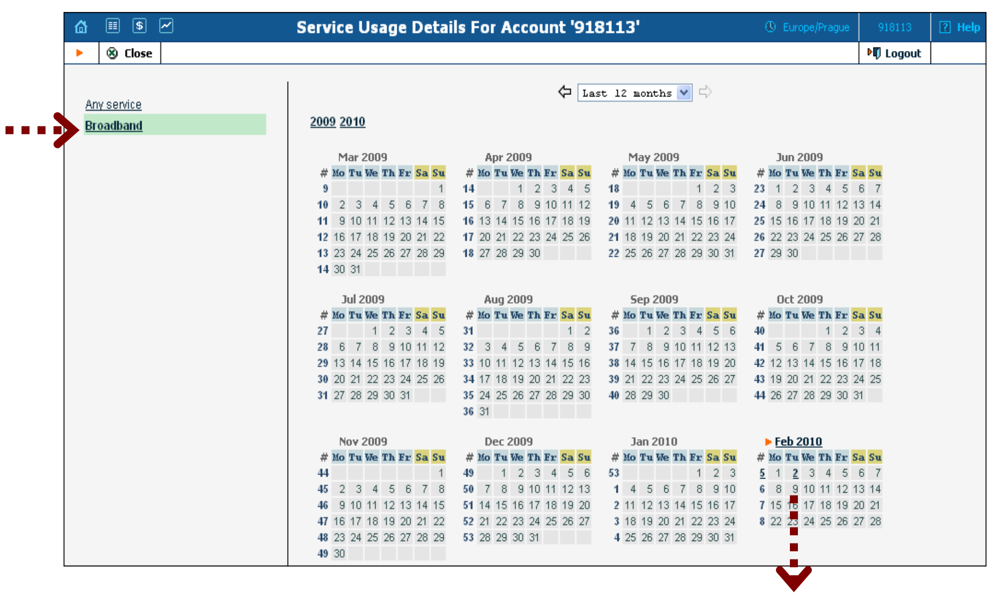




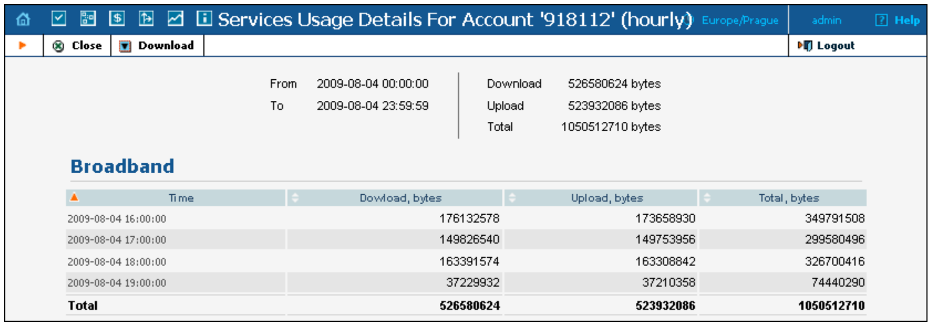
Choose the date range for which you want to see a list of internet accesses, and click **Show xDRs.** In the results table you will see the charges and other fees, such as maintenance fees or refunds (if any). The report can be also downloaded by clicking the **Download** icon.

Viewing Service Usage

While on the xDR History page, click the **Services Usage Details** button. On the next page, select the service type and then click on the date for which you want to view the service usage:



On the next screen you can view the account's hourly statistics for the chosen service type:



Time	Dowload, bytes	Upload, bytes	Total, bytes
2009-08-04 16:00:00	176132578	173658930	349791508
2009-08-04 17:00:00	149826540	149753956	299580496
2009-08-04 18:00:00	163391574	163308842	326700416
2009-08-04 19:00:00	37229932	37210358	74440290
Total	**526580624**	**523932086**	**1050512710**