PORTA ONE

Porta **Switch**™

PortaSwitch Handbook: Converged Services

Maintenance Release 18

www.portaone.com

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Preface

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

Where to Get the Latest Version of This Guide

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

Conventions

This publication uses the following conventions:
- Commands and keywords are given in **boldface**
- Terminal sessions, console screens, or system file names are displayed in `fixed width font`

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

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

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

Tips provide information that might help you solve a problem.

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Prepaid WiFi access is a single "purchase" transaction – so at the moment of the authorization all available funds are withdrawn from the account and converted into the WiFi access time.

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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**
- **PortaBilling**

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 his 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.
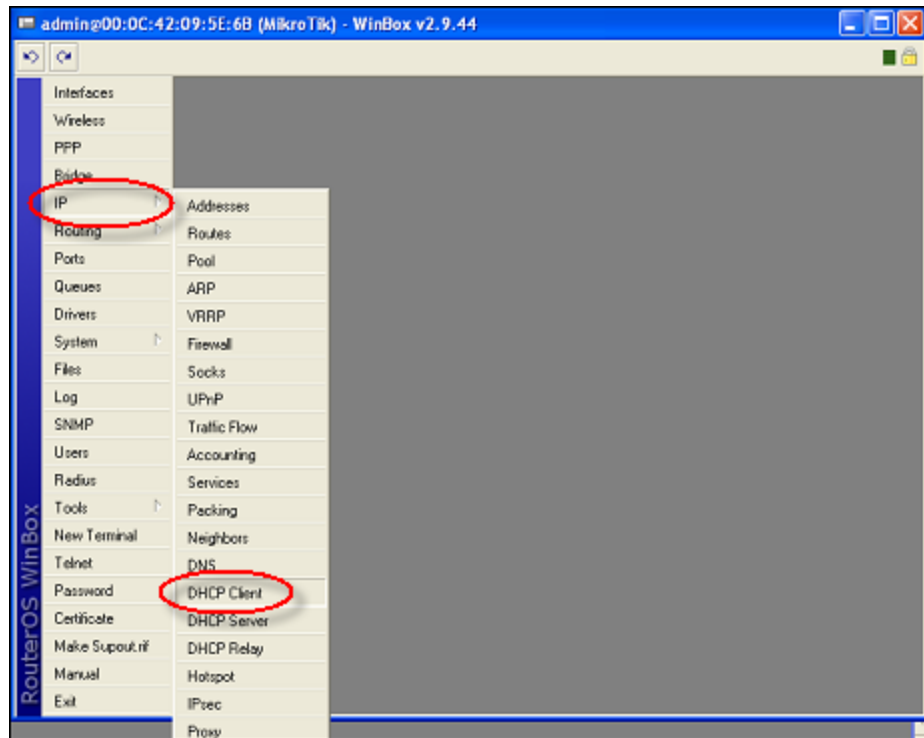Click the "**…**" button, and select your router; only one should appear.
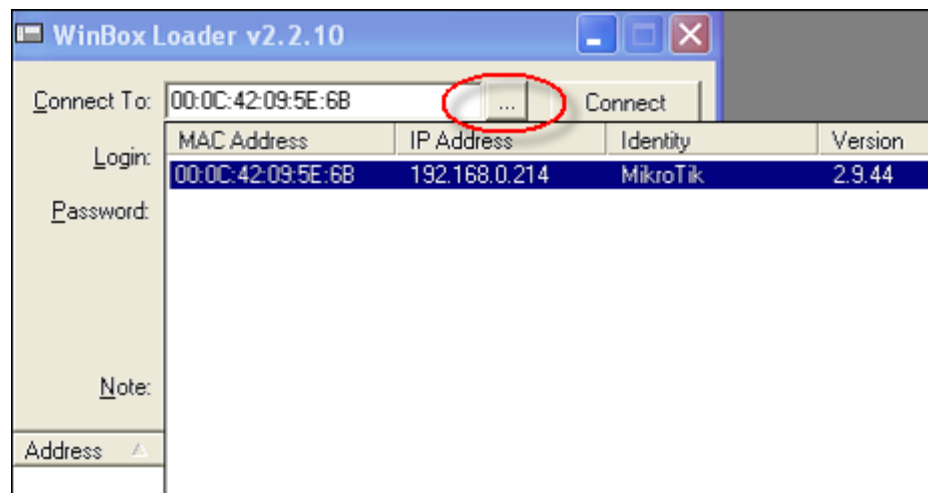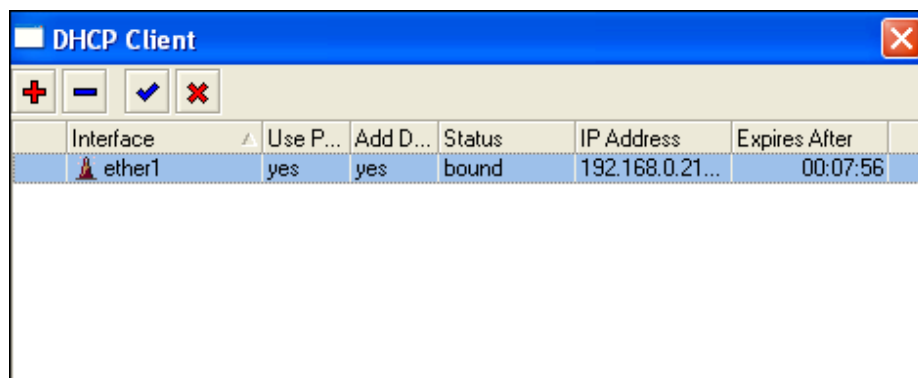

Make sure the login is **admin** and there is no password. Click **Connect**.
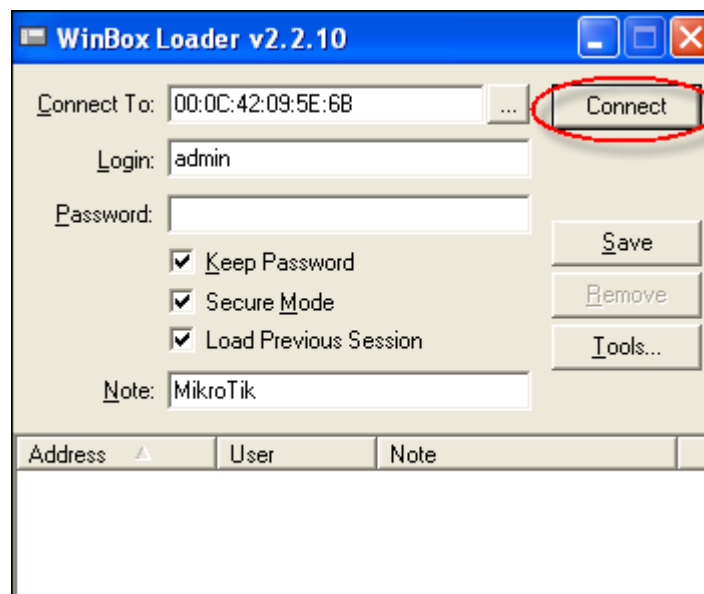
Open the **IP** tab, choose **DHCP Client** and then at the window click the
"**+**" button. Assign a new DHCP Client port using the **Interface**
dropdown box and click **OK**.
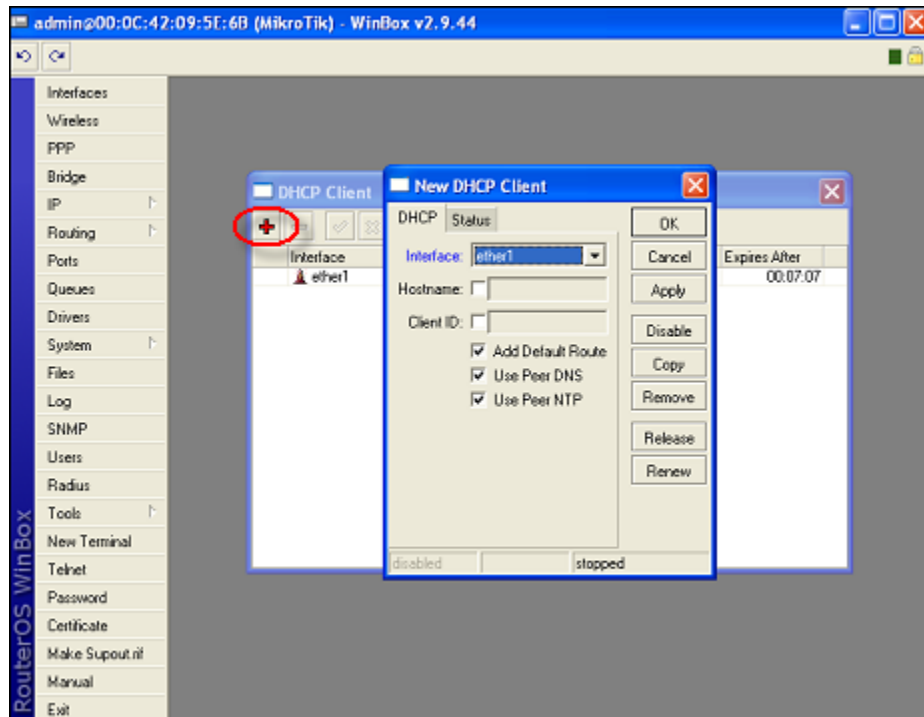
2. Connect to Mikrotik.

```
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
```

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```
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 for HOTSPOT server should be WiFi (the same as special destination for WiFi service in PortaBilling).

8. Connect to WiFi router.

Select the WiFi network and click **Connect**.
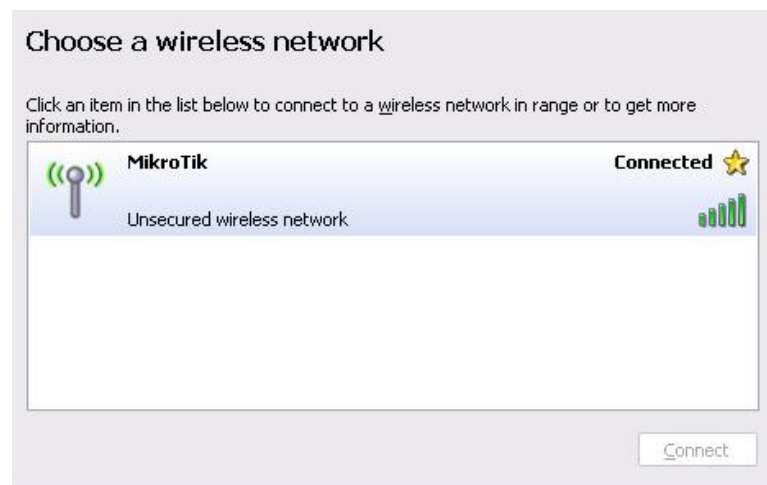
9. Get online.

- 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**.
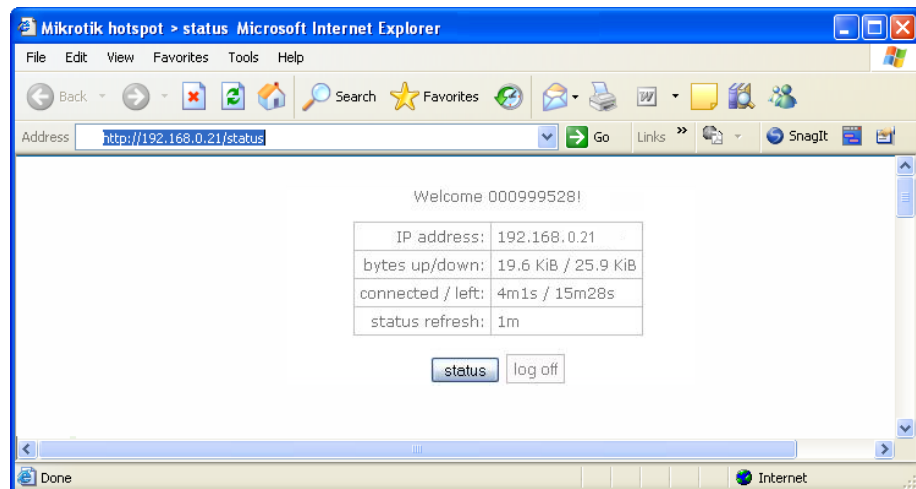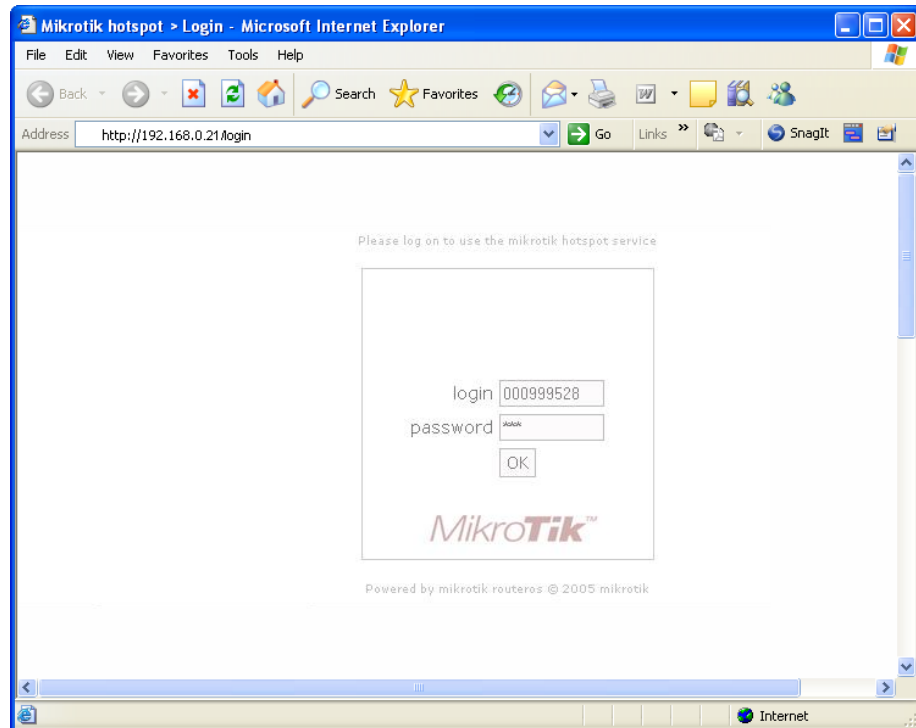
Basic prepaid WiFi service

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

Checklist

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

Operation	Done
General configuration	
Enter company data under Company Info.	[ ]
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 with VoIP to vendor connection where remote_ip="WI-FI".	[ ]
Create a connection for this vendor using tariff B.	[ ]
Account provisioning	
Create a customer class to be applied to your WiFi card distributors.	[ ]
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 **Company Info** 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. You need to create a destination, the same as in the paragraph 7.2; in this case it will be WiFi.

1. In the Management 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, h323-id, Radius shared secret, etc.

1. In the Management section of the Admin-Index page, choose **Nodes.**
2. In the Node management window, click the 🞦 **Add** icon.
3. Fill in the New Node form:
   o **Node name** – A short descriptive name for this node (will be used in the select menus).
   o **H323-ID** – h323-id (recommended `hostname.domainname`).

- o **VoIP Password** – If you plan for this node to send wireless access to other nodes where the default Cisco remote IP authentication script is used, enter `cisco` here.
- o **NAS-IP-Address** – IP address of the gateway.
- o **Auth. Translation rule** – Leave this empty for now; see the *Translation Rules* section of the **PortaBilling Administrator Guide**.
- o **Manufacturer** - Select **Mikrotik**.
- o **Type** – VoIP node type; select **ROUTER**.
- o **RTP proxying** – Leave the default selection (Optimal); for more details regarding NAT traversal, see the **PortaSIP Administrator Guide**.
- o **Radius Client** – Select if this node will be communicating with the billing system.
- o **Radius Key** – If this node is a radius client, enter the shared secret here; must be the same as that configured in NAS as a **key** in the radius server configuration.
- 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.

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

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

Create Tariff

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:
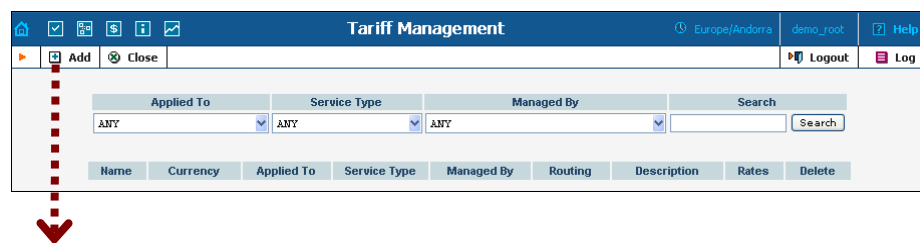
1. In the Management section of Admin-Index, choose **Tariffs**.
2. On the Tariff Management page, choose ⊞ **Add**.
3. Fill in the **New Tariff** form:
    o **Name** – A short name for the tariff object; this is the name you will then see in the select menus.

o **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.

- o **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**).
- o **Managed By** – Choose "**Administrator Only**" here (this option is only visible after you select **Applied to: Customer** above).
- o **Service Type** – Choose **Wi-Fi** here.
- o **Off-peak Period** – Defines the off-peak period. Click on the Off-peak period wizard icon (🪄) to summon the wizard, which will help you construct the correct period definition. Click **Help** to get more information on period format definition. If you do not differentiate between peak and off-peak rates, just leave this field empty.
- o **Off-peak Description** – A description of the off-peak period, automatically filled in by the off-peak period wizard; thus you do not have to fill in this field.
- o **Login Fee** – Amount to be charged immediately after the first user authentication (i.e. after the user enters his PIN).
- o **Connect Fee** – Amount to be charged for each connected session (with a non-zero duration).
- 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 next to the name of the tariff. When you are in Tariff Management for a particular tariff, click on **Rates** in the toolbar.
2. In the **Edit Rates** screen, click ⊞ **Add.**
3. Fill in the required information:
    o **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).

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

NOTE: Off-peak fields appear only if an **off-peak period** has been defined for the tariff.
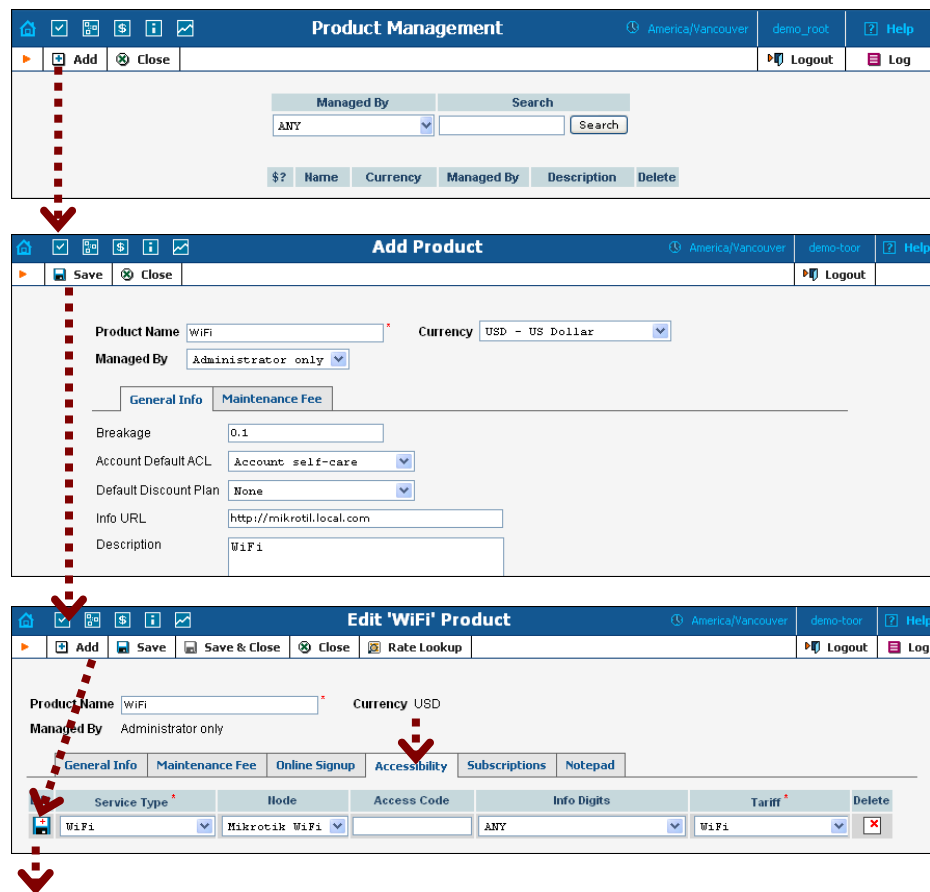
o **Effective From** – If you want this rate to take effect sometime in the future, you can either type in a date manually, or use the calendar (click the DD-MM-YYYY link).

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.

o **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 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 Management 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

     o   **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.
     o   **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.
     o   **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.
     o   **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.
     o   **Description** – your comments about the intended use of this product.

Maintenance Fee tab

     o   **Period** – Surcharge application interval; will be shown in event history as a separate line each time it is charged. **None** disables the maintenance fees.

o **Fee** – Surcharge amount.
o **Effective from** – Apply the specified maintenance fee only after a certain date (no fees assessed until then); choose **Immediately** to start applying charges as soon as possible.

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

Enter Node and Tariff into the product's accessibility list

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

1. When the Accessibility tab is selected, click on the ➕ **Add** icon.
2. Choose **Wi-Fi** in the **Service Type** select menu.
3. In the Accessibility dialog box, select the node where your IVR will be running and choose the appropriate tariff.
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 Management 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 two tabs available on the screen. The most important fields are:

Main form (top)

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

Additional info

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

User-Interface

- o **Time zone** – the time zone that the vendor uses for his billing period. 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 Management section of the admin interface, choose **Vendors**.
2. Click on the **Connections** icon next to the vendor name.
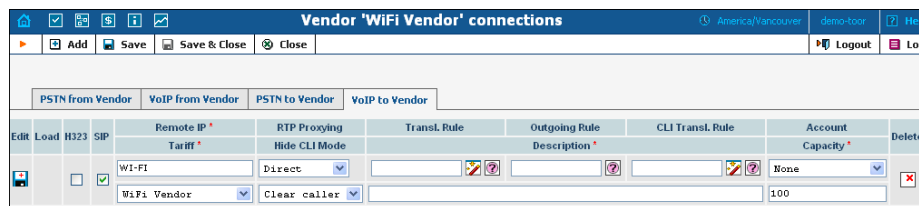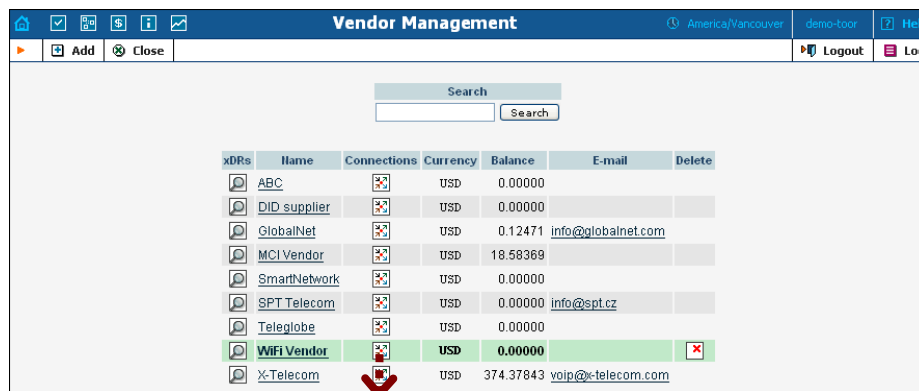
3. Choose the connection type **VoIP to Vendor** by clicking on the corresponding tab.
4. Press ⊞ **Add** to add a new connection.
5. Fill in the connection information. In the **Remote IP** box, enter "Wi-Fi". Choose the tariff which defines your termination costs for this connection/vendor. **Description** and **Capacity** are mandatory for all connection types.
6. Click 🖫 **Save**.
7. Repeat steps 3-6 to add more connections to the same vendor, then click ✪ **Close** in order to exit to the **Vendor Management** screen.
8. Repeat steps 2-7 to add connections for other vendors.

Create Customer Class

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

1. In the Management section of the Admin interface, choose **Customer Classes**.

2. On the Customer Class Management page, click ⊞ **Add**.

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

Create Customer

A customer is an owner of accounts. The customer's contact information is used to distribute account usage information, 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 Management section of Admin-Index page, choose **Customers**.

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

Main form (top)

- o **Name** – short name for the customer object; this will be used on the web interface.
- o **Currency** – the currency in which this customer will be billed.
- o **Opening balance** – a starting balance for the customer; the default is zero.
- o **Type** – Choose if this is a reseller or retail (direct) customer. (Normally, most of your customers would be retail customers. Only if a customer is reselling your services, while you are providing services and billing to his subscribers, would he be created as a reseller.)
- o **Customer Class** – Choose the customer class you created in the previous step.

Address info tab

- o **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.
- o **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.
- o **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).

Additional info tab

- o **Billing period** – Frequency of distribution of accounting information. For more details about different available billing periods, see the **PortaBilling Administrator Guide**.

Payment info tab

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

User Interface tab

- o **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.

o **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:
   o **Number of accounts** – number of accounts to be generated.
   o **Product** – choose the product which you would like your accounts to have.
   o **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 activate the whole batch of cards or an individual card later.
   o **Opening balance** – the initial balance on the card.

Account Info tab

   o **Type** – Account type; select **Debit** for prepaid service.
   o **Generation method** – Choose **Random** here; this will assign every account a unique, randomly-generated PIN.
   o **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.
   o **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.
   o **Starting ID** – Only available in Sequential generation and is always numeric.
   o **VoIP Password** – To improve security, you can use an account password during authentication, in addition to a PIN. Not all IVRs support this feature. If you choose **Empty**, no password will be assigned to the account, and the password check will be switched off during authentication. Choosing **Empty** is recommended by default. If you decide to use passwords, then please use the **Auto-generated digits only** option, since then the password can be entered in the IVR via phone keys.
   o **Batch** – A batch is a management unit for accounts. The batch name is alphanumeric. You can type a new name here, or use the existing name in order to generate more accounts for the same batch.

Additional Info tab

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

Life Cycle tab

- o **Activation date** – Account activation date.
- o **Expiration date** – Account expiration date.
- o **Lifetime** – 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.

User Interface tab

- o **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.
- o **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).
- o **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.
- o **Web Interface Language** – The language to be used on the account self-care web interface.

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

⚠️ *Generated cards will be distributed via email to the user who created them.*

A CSV file with information about the new accounts will be attached.

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 the Account Info link from the Main Menu.

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 **Statisitcs** menu, click **xDR Browser**.

Choose the date range for which you want to see a list of wireless internet accesses, and click **Show xDR.** 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 .csv** icon.

Common Symptoms/Problems

Common Symptom/Problem	Description/Solution
Radius debug on GW shows requests, but PortaBilling Radius debug does not.	There are several reasons why communication may be unsuccessful: 1. Wrong radius server IP configuration in GW. Verify and correct. 2. Wrong radius port(s) configuration in GW. Verify and correct. 3. IP network problems. Verify that your network is configured correctly, including cables and firewalls.
PortaBilling Radius debug shows requests arriving but says "request from unknown client".	Verify and correct Node IP address in PortaBilling. Consider any propagation delay, which may require 15 minutes.
Arriving PortaBilling Radius debug showing requests displays a "failed to decrypt" message.	Verify if PortaBilling Node Radius key configuration is the same as GW radius key (shared secret).
PortaBilling replies with authentication reject.	Verify product accessibility list and account status.
Debug session looks normal but GW hangs up (or says nothing) after receiving authentication confirmation.	The most common reason for this is the lack of a particular prompt on IVR prompt servers. This situation may occur only for specific monetary or time values.
Account balance not decreased after successful session, and session does not appear in wireless internet access history.	Verify that the GW is transmitting stop accounting records. Set `accountingtype 2` for Quintum or `gw-accounting h323 vsa` for Cisco.

Provisioning Prepaid Accounts

PortaBilling account management is based on batches and control numbers. A batch is a named set of accounts. By giving descriptive names to batches you can keep your accounts well organized. Accounts in each batch are automatically numbered by control numbers, starting with one. If you are generating more accounts for an existing batch, PortaBilling will continue control number assignment from the next available number in the sequence.

Available account management options:
- Single account
- Whole batch
- batch + list of control numbers
- batch + range of control numbers

It's a good idea to print the batch and control number on the prepaid WiFi, so that later you can block some specific WiFi in case of fraud, or give extra promotional credit to some customers. You can also distribute all of your cards as blocked, so that the dealer will call your support and request WiFi activation only once the WiFi is sold to a customer. Of course, the dealer should not be able to see the PIN at any time – this is why we need an alternate way of identifying a card, i.e. by batch and control number.

In the Management section of Admin-Index, choose **Customers**, click the accounts link next to the customer, and then select the batch name from the select menu. Or, alternatively, you can go to **Account info** in the main menu and choose the customer and batch you want to work with. You should then see a batch operation screen similar to the one below:
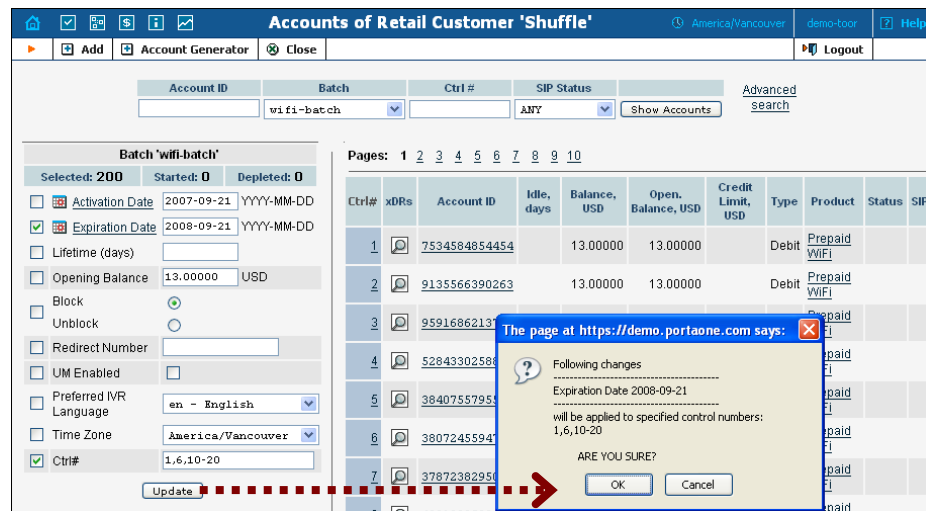
1. On the left side of the screen, click the checkbox next to the fields which you would like to update, and enter the new values.
2. You can update a whole batch, or only update individual accounts, by entering their control number (or control number range) in the **Ctrl#** field.

TIP: If you click on the control number (leftmost column), it will be automatically inserted into the **Ctrl#** field.

3. Let us assume you would like to unblock accounts and add $5 to their balance. You should then click the checkboxes next to **Modify**

balance and **Block/Unblock**, enter the balance adjustment value, and pick the new account status.
4. Click the **Update batch** button.
5. Confirm **OK** in the popup window.

NOTE: Balance adjustment will be reflected in wireless internet access history as a separate line.

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
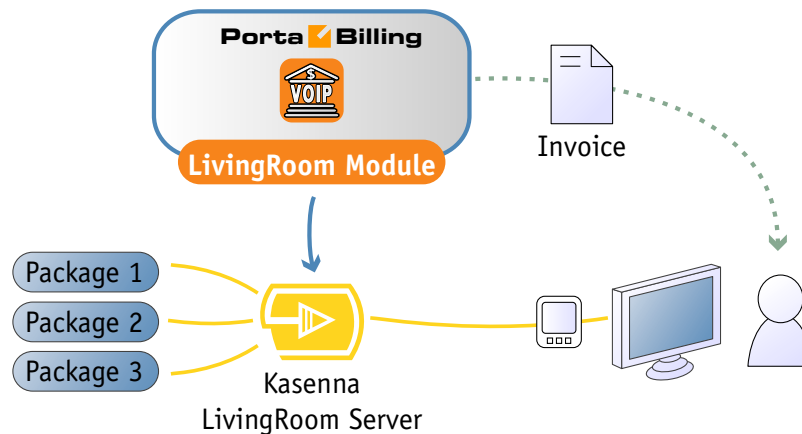
In conjunction with LivingRoom, PortaBilling offers you the ability to:
- set up periodic and per-event charges for IPTV services in PortaBilling;
- view charge records and subtotals for IPTV services on the web interface and the customer's invoice.

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.

Setting Up Your Network Components

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	[ ]
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	[ ]

Setting up the Kasenna LivingRoom™ Server

To set up the LivingRoom server, please refer to the documentation available here:
http://www.kasenna.com/solutions/products/livingroom.php.
You should complete the steps for all the components, except for the Subscribers section.

PortaBilling Setup

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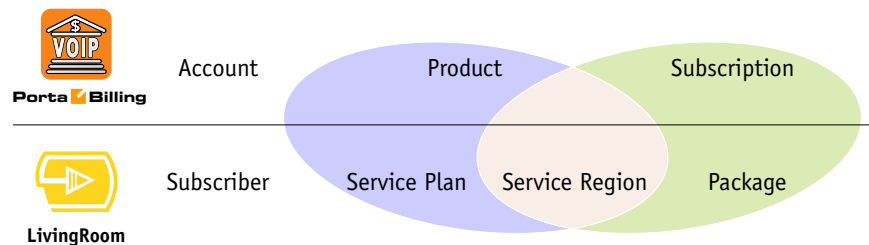
- Thus the combination of service plan plus service region corresponds to a PortaBilling product, while the combination of service region plus package corresponds to a PortaBilling subscription.

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:
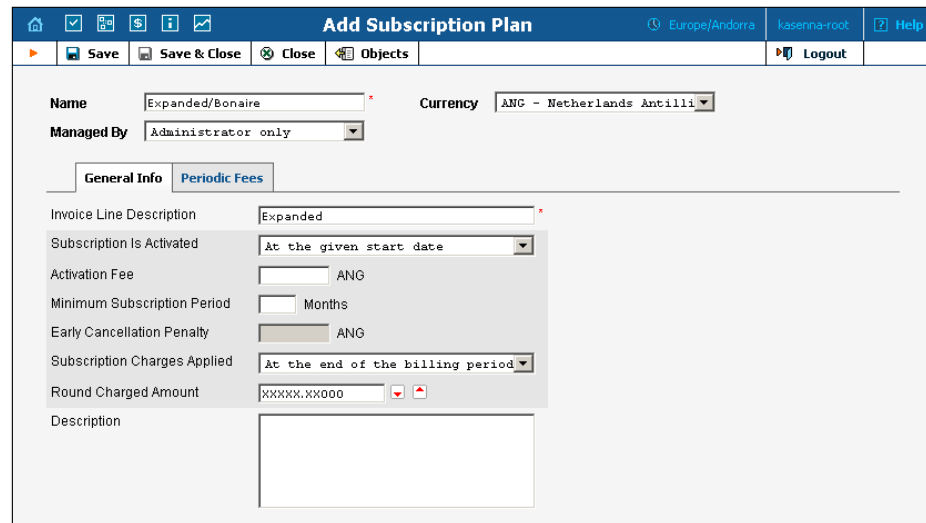
          o   Expanded/Bonaire
          o   Expanded/Rincon
          o   Premium/Bonaire
          o   Premium/Rincon

- Please note 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 can also use your own naming method as long as it does not use the slash character.
- In our example, we need four subscriptions:
  o   Basic Choice (Bonaire)
  o   Basic Choice (Rincon)
  o   Full (Bonaire)
  o   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 of the LivingRoom server conforms to the convention. The LivingRoom module will ignore all other subscriptions.

Create Subscriptions

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

General Info tab

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

Periodic Fees tab

   o 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.
   o Click 💾 **Save**.

4. Repeat the above procedure for all eight subscriptions:

Create Products

In the Management 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

   o **Breakage** – Leftover balance which is considered "useless" (for statistical purposes); leave as 0.
   o **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.
   o **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**.

o **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.

o **Description** – Your description of the intended use of this product.

Subscription tab
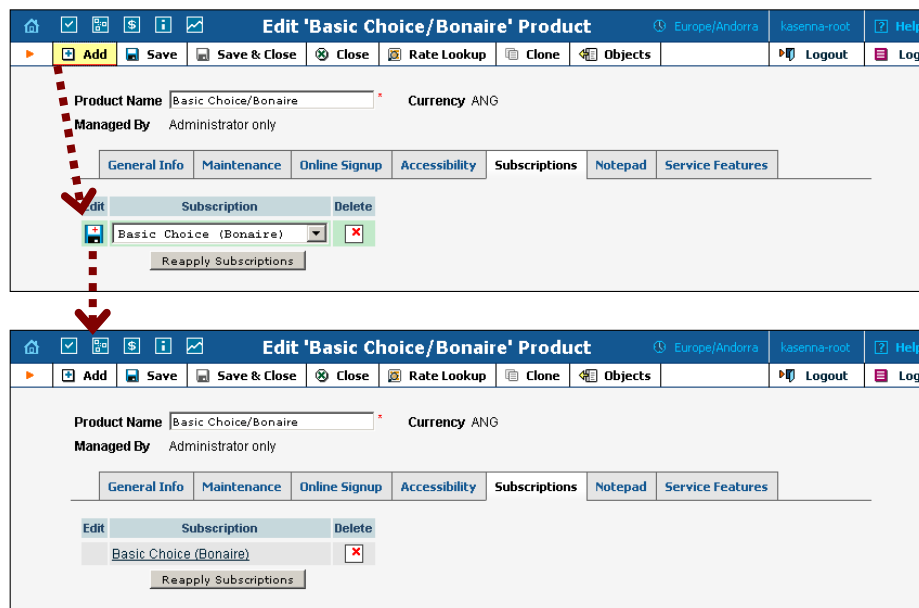
o Click the **Add** icon to add a subscription to the selected product

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

3. Repeat the procedure for all four products
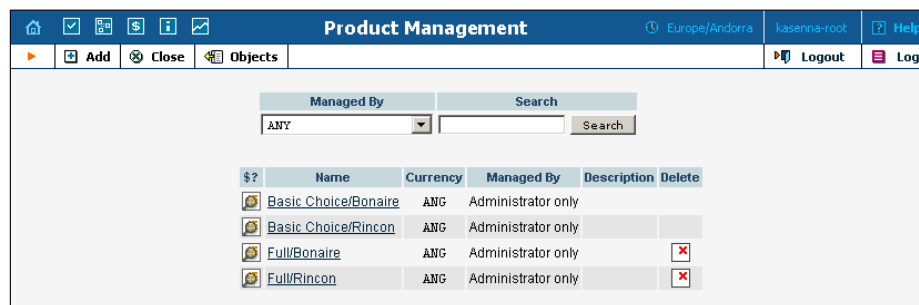
Create Customer and Account

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 Management section of the Admin-Index page, choose **Customers**.
2. On the **Customer Management** page, click ➕ Add.
3. Fill in the "Add Customer" form:
   o **Customer name** – The customer object name.
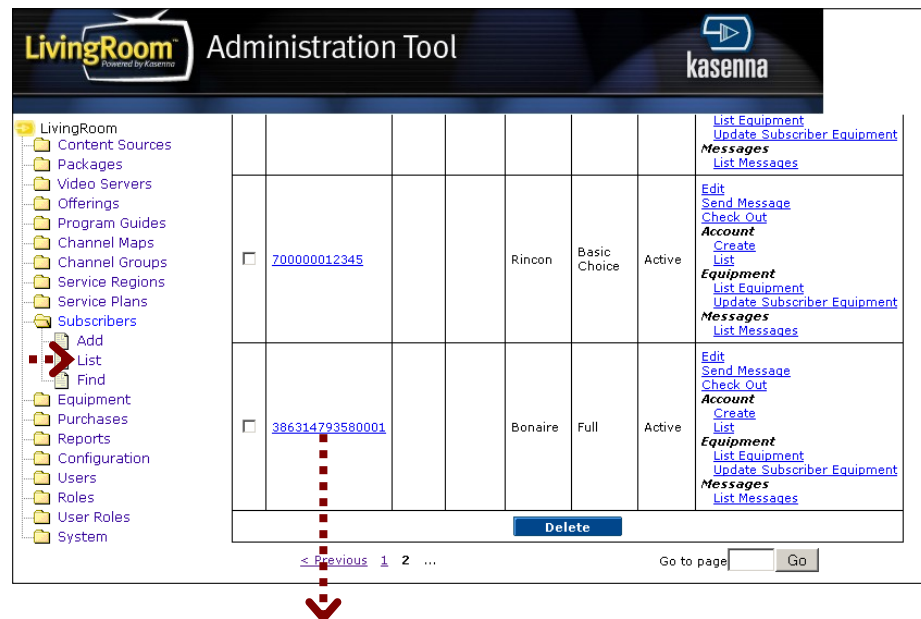
Address Info tab

   o 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 account management for this customer.
6. Click the ➕ **Add** icon.
   o Fill in the "Add Account" form.
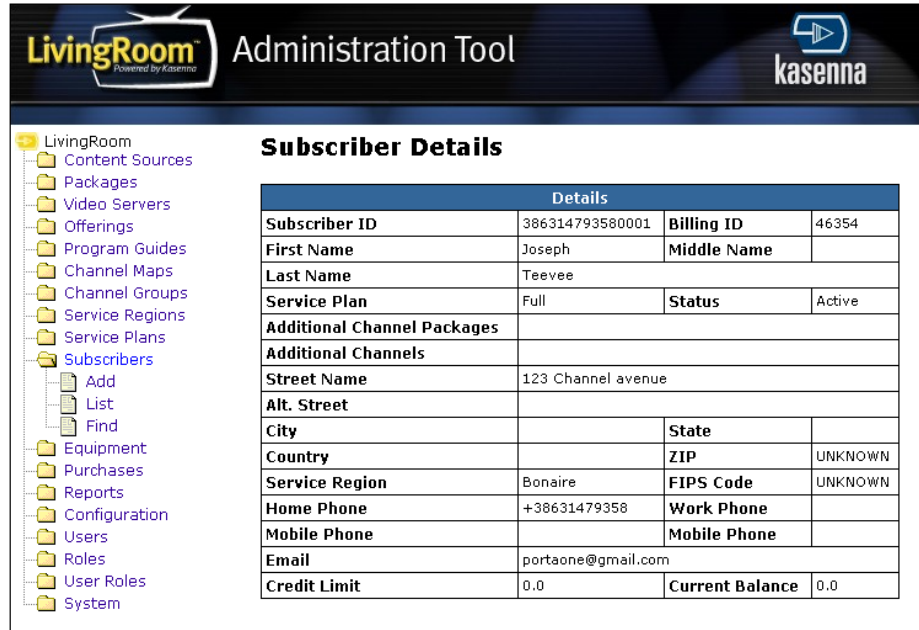
Account Info tab

   o **Type:** Set the account type to Credit.
   o **Batch:** Select from an existing batch, or create a new one.

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

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 checking for changes in the database. All module activities are logged.