

RADIUS MANAGER 4

USER MANUAL

Version 4.0

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FOREWORD

Radius Manager is an easy to use RADIUS and DOCSIS accounting and billing solution designed for Linux system. It is based on a free, stable RADIUS server *FreeRadius 2* and MySQL database backend.

Basic features:

1. RADIUS account support (PPPoE, PPTP, L2tP, Hotspot)
2. DOCSIS account support (cable modems)
3. Traffic accounting (download, upload, online time)
4. Prepaid and postpaid billing, invoicing
5. UNIX mailbox user synchronization
6. Payment tracking
7. Financial reports
8. Prepaid card system and IAS
9. Online payments

Special features:

1. Connection Tracking System (CTS)
2. Signal level monitoring (wireless, DOCSIS)
3. Self registration
4. Instant Access Services (IAS)
5. Support for online payment gateways
 - PayPal Express Checkout
 - PayPal Website Payments Standard
 - PayPal Website Payments Pro
 - Netcash
 - Authorize.Net
 - DPS Payment Express
 - 2Checkout

PayPal Express Checkout and Website Payments Standard works with premier and business accounts, but PayPal Website Payments Pro requires US / UK Pro or better account.

NAS compatibility:

1. **Mikrotik 2.8+** Use final releases only, the usage of RC (release candidate) versions are not recommended. The supported main features are: PPPoE, PPTP, L2tP, Hotspot and Wireless Access List authentication.
2. **Chillispot** running on Linux or on various DD-WRT devices. You can download a tested version from our download portal.
3. **StarOS v2 or v3** server. Supported features are: complete PPPoE and limited RADIUS Wireless Access List support.
4. **Cisco NAS** with correct IOS version. VPDN and Virtual template support is necessary to accept RADIUS authenticated PPPoE, PPTP and L2tP connections.
5. **pfSense** Hotspot server.

CMTS compatibility:

Both route and bridge mode CMTSs are supported. A partial list of supported CMTSs are:

- **Route mode:** Motorola BSR series, Cisco UBR series etc.
- **Bridge mode:** Arris series etc.

Please note this is not a CMTS configuration manual. You can find the CMTS configuration details in the manual which was shipped with your CMTS.

The manual consists of two global parts:

1. **General description**
2. **Reference manual**

To achieve the best results with Radius Manager billing system we strongly recommend to read this user manual entirely.

GENERAL DESCRIPTION

Radius Manager consists of two main WEB interfaces:

1. **ACP** – Administration Control Panel
2. **UCP** – User Control Panel

There are more interfaces available in the system:

1. **New user registration** (self register)
2. **Purchase Instant Access Service (IAS)**
3. **Password recovery**

ACP is used by system administrators to manage users, services, billing etc., while **UCP** is used by regular RADIUS users. In UCP users can track their traffic data, payments, purchase credits etc.

In the following chapters You will find detailed information about both Control Panels (CP) and extra functions.

ADMINISTRATION CONTROL PANEL (ACP)

Getting started

When You first time use Radius Manager, try to log on to ACP. You can access the ACP with your favorite Javascript enabled browser.

The URL of ACP is (assuming default installation):

<http://yourhost/radiusmanager/admin.php>

You will be asked for the username and password. The default login data are:

User name: **admin**

Password: **1111**

If the login was successful You will find yourself on the main screen of ACP:



You can access various system functions via the drop down menus.

RADIUS authentication and accounting functions

You have to complete the following tasks to set up the basic RADIUS authentication and accounting functions:

1. Define a **NAS**
2. Define a **service**
3. Register a **new account**
4. **Assign service** to user

Defining the **NAS** is the first step You have to do to be able to accept RADIUS requests from the NAS. Use the function **NAS / New NAS** to begin this operation.

1. Define the **NAS name, IP address, NAS type, shared secret** and NAS password (for StarOS only). Radius Manager 3.8+ automatically manages the *raddb/clients.conf* file. After updating any NAS in the system restarting of FreeRadius server is required. It can be done from Unix shell or directly in the ACP (Tools menu).

Click **Add NAS** button to store the newly defined NAS in the system. Be sure You have selected the correct NAS type.

2. The next step is to **define the service** (billing plan). To do it select option **Services / New service**. Enter the name of the service. For the most simple service use the following parameters:

- **Enable service:** checked
- **Type of the service:** Prepaid regular
- **Set data rate:** 512 / 128

It defines a simple prepaid service with data rate limitation enabled (download bandwidth 512 kbps, upload bandwidth 128 kbps) without any traffic limits (consumed MegaBytes).

Click the **Store service** button to save the service data.

3. To register a **new user** select option **Users / New user**. The required data are:

- **User name:** define the name of the user
- **Enable user:** checked
- **User type:** regular user
- **Password:** enter the desired password
- **Service:** select the previously added service

Finally press the **Add user** button to store the account data.

Now if You select **Users / List users**, You will see the newly registered user marked with green color. The green color code represents an active account. You will also see the name of the service assigned to the user and the actual limits. In our example there are no cappings set for the user (download, upload, combined, expiry, online time), so You should see *n/a* for each capping type.

Now configure the PPP or Hotspot service in your Mikrotik NAS and try to log on (PPPoE / PPTP / Hotspot) the newly registered user. If the login operation fails, You can also try the default username and password combination (user / 1111). By default user "user" is available in every Radius Manager installations.

If You still cannot log on, try to debug the RADIUS communication enabling the FreeRadius debug mode. First stop the running daemon (Fedora):

```
[root@localhost]# service radiusd stop
```

On Debian:

```
[root@localhost]# /etc/init.d/radiusd stop
```

Or use the universal method:

```
[root@localhost]# ps ax | grep radiusd
32442 ?      Ssl  0:00 /usr/local/sbin/radiusd
16715 pts/0  R+   0:00 grep radiusd
[root@localhost]# kill 32442
```

Be sure to kill the proper process. In our example the PID is 32442.

Now start *radiusd* in debug mode:

```
[root@localhost]# radiusd -X
```

You have to see the following output if FreeRadius and MySql are working properly:

```
Listening on authentication address * port 1812
Listening on accounting address * port 1813
Listening on command file /usr/local/var/run/radiusd/radiusd.sock
Listening on proxy address * port 1814
Ready to process requests.
```

If there are errors displayed FreeRadius is not configured properly. Consult the Installation Manual to locate and fix the FreeRadius related problems.

After a successful PPP or Hotspot authentication You have to see the active user and a newly created simple queue of the user (Queues / Simple queues) in Winbox. If the simple queue is not there the bandwidth limitation is not working or You have set unlimited bandwidth in the service definition.

When a test user has been connected successfully, You have to see him in the online user list in ACP (**Reports / Online users**) with the used online time, start time, consumed traffic, time etc. The used NAS is also displayed in this page.

The last thing You have to do is to test the remote disconnection feature. Select the user in the ACP online list and select the action **Logout users** from the dropdown box. This command has

to disconnect the user immediately. Check the Winbox log for the incoming disconnection packet. The remote disconnection must work with all supported NAS types (pfSense is exception, it uses reauthentication instead of POD). If it is not working, You cannot use the auto disconnection feature and many extra features of Radius Manager.

Managers

The system supports multiple resellers, called “managers”. There is only one **super user** in the system (admin) while unlimited number of regular managers can be registered. The super user cannot be deleted, while You can freely add, edit and delete other managers.

When You add managers with function **Managers / New managers** You can define the following data: manager name, password, personal data and permissions. With defining correct permissions You can specify what manager can do.

Multiple resellers are useful in certain situations. A such example is:

You have NASs on multiple locations (different regions etc.) with one reseller in each region. The local manager can register new users and add credits for them, but he cannot delete the users and cannot modify the user data. With this method You ensure the sensitive user data will always be correct and cannot be altered by anyone (limits, expiration etc.) without logging the changes. When a local manager refills a user (the user pays for the service and gives the money to the manager), the action will be logged and the super user can track the purchased credits and can see the amount of money collected by the manager.

Resellers have precise accounting in Radius Manager system; every credit and debit is trackable (in ACP / List invoices). You can credit or debit a certain manager in ACP / Manager / Edit manager form.

Services (billing plans)

One of the most complicated thing in Radius Manager is setting up the services properly. Using the service system You can define various properties of users. It is like a user group – You can assign one service to multiple accounts.

You need to completely understand the structure of services (billing plans) in Radius Manager. Please read the following part carefully.

Select option **Services / New service** to add a new service.

Define the **name** of the service.

Define the **type of the service**:

- **Prepaid regular** – Used by prepaid regular users
- **Prepaid card or IAS** – Used by Classic Prepaid Cards and Instant Access Services (IAS). Refill cards don't need services.
- **Postpaid** – Used by postpaid users. They are billed monthly, for the freely definable past period.

- **Email only** – When this is assigned to user he cannot log on to NAS (PPP / Hotspot) , only Unix account is created (if enabled – see the UNIX host synchronization) for storing emails, personal WEB presentations etc.
- **Access list entry** – Special account types supporting Mikrotik and StarOS wireless access list.

Select the correct **capping type** if the account requires capping:

- **Limit download Bytes** – Enable it if You want to limit the available download Bytes of the user. When the limit is reached the account disconnects automatically.
- **Limit upload Bytes** – Enable it if You want to limit the available upload Bytes of the user. When the limit is reached the account disconnects automatically.
- **Limit total traffic** – Enable it if You want to limit the available total traffic of the user. When the limit is reached the account disconnects automatically.

Define the time limits of the account:

- **Limit expiration** – This is classic date based limitation (You can define the expiration date of the account).
- **Limit online time** – Select this cap if You want to create classic dial-up like service. It limits the available online time of the user (for example 10 hours Internet etc.).

Define the **data rate** of service. Set the download and upload data rates in **kbps**. Enter 0 if You don't want to limit the bandwidth at all. For Cisco You can define the policy maps here if your Cisco doesn't support rate-limit directive.

Daily quotas are also supported. It is the daily available traffic or time of the user. They work even if download / upload is not capped. To enable daily quotas enter a number larger than 0.

- **Download quota per day** – Define the daily available download traffic in Bytes.
- **Upload quota per day** – Define the daily available upload traffic in Bytes.
- **Total quota per day** – Define the daily available total traffic in Bytes.
- **Time quota per day** – Define the daily available time in format HH:MM:SS.

You can also configure the **burst mode** (Mikrotik) in the service definition. To enable the burst mode check "Enable burst mode". It will enable the numeric fields to enter the parameters:

- **Burst limit (DL / UL)** – Define the burst limit of download and upload. This is the peak of the traffic the user can achieve. Burst limit is always greater or equal than the nominal data rate.
- **Burst threshold (DL / UL)** – Define the threshold of download and upload. If the user uses higher data rate than this value, after a predefined time the data rate will be reduced to the nominal level (see Set data rates).
- **Burst time (DL / UL)** – Define the timeout in seconds after the data rate will drop if the client uses higher data rate than the nominal. Experiment with this value. Some Mikrotik versions don't interpret the value properly. Measure the time more times and add correction factor to it.
- **Priority** – Define the priority of simple dynamic queue.

In the service You can also enter the **IP pool name** from which the user gets the IP address. Enter the pool name which already exists in Mikrotik. If the pool doesn't exist in Mikrotik, the user will not be able to authenticate (no IP address will be assigned).

The "**Next master service**" dropdown list is used to select the service which is activated when current service limits have been reached.

“**Next daily service**” is activated when the daily quota is exceeded.

The next service is useful in certain situations. Example:

The user has a **combined monthly service** (1 GB / month) and You don't want to disable the user in a middle of the month if he reaches the traffic limits. If You select the “Next master service” the user can log on to the system even if he has no more available MegaBytes. In this case the next service will be used. The “Next master service” can define lower (shared) bandwidth or anything else You need.

After entering the basic parameters the price definition follows. You have to define the price parameters precisely if You want to use Radius Manager for creating invoices and use it for precise financial accounting.

The first thing to define is the **price calculation method** of postpaid users. If the current service is not postpaid, do not check the following checkboxes. You can also **combine** the various calculation methods:

- **Downloaded traffic** – The price of the downloaded traffic will be added to the total price when creating postpaid invoice.
- **Uploaded traffic** – The price of the uploaded traffic will be added to the total price when creating postpaid invoice.
- **Online time** – The price of the used online time will be added to the total price when creating postpaid invoice.

If the account is **monthly** set the monthly checkbox. Monthly accounts has the most complicated service type. They are based on one month and can combine upload, download or total traffic limits. If the user reaches one of these limits, the account will expire.

Enable **auto renew** option to renew the accounts automatically. Postpaid accounts will be renewed on a fixed day in each month (see ACP / system settings), while prepaid accounts on the day when they expire (if they have enough deposit available which covers the renewal cost). In a same time an email will be sent for all renewed users.

There is one more special option used by the monthly service: **enable additional credits**. It is used in **combined monthly services**. For example You sell 1 GB / month. When a user reaches the traffic limit in the middle of the month (consumes 1 GB) the accounts gets expired. The user can purchase additional MegaBytes, while the original expiration date will remain unchanged.

Reset counters if date expired is a special option. It is useful if You have date capped service with traffic capping enabled (combined monthly service). Using this option when You add credits and the account expiry date has been reached the system will **reset the remaining credits** of the user. It is useful in situations when You sell for example 10 GB for 3 months. If all 3 months have been passed and the user hasn't used all his 10 GB, next time when he will buy credits he will get again 10 GB and the new expiration date will be calculated from the date of the new purchase.

Define the **net unit** price for the service. For example, You sell 1 MB of traffic for \$0.1 Define the net price of \$0.1. The system will automatically calculate the gross price and the tax for the unit.

In a same manner define the price of the **additional units**. It is used by monthly services only with additional credits enabled.

The **time and date addition modes** describe how the system adds time or calculates the new

expiration when adding credits for the user:

- **Reset online time or expiration date** – If You select this option the time will be added to the current time. It is useful for monthly accounts when You add 1 month to the current date.
- **Prolong time or expiration date** – It is mainly used by dial-up like accounts and services when a user purchases hours. The hours will be added to the **remaining** hours. For example he has bought 10 hours in the past and left him 2 hours. When he buys again 10 hours he will have totally 12 hours available.
- **Prolong expiration date with correction** – Additional mode, with exception: if the date is in the past the new expiry will be added to the **current date** instead of the original date.

Define the **traffic addition** mode:

- **Reset traffic counters** – When You add credits the system will **reset the currently available Bytes**. It is useful for monthly, traffic limited accounts. For example the user has 1 GB / month combined plan and the account expired (date, but he has 100 MB remaining traffic. When he next time buys Internet, his 100 MB **will be lost** and gets again 1GB / month service subscription.
- **Additive** – New traffic will be added to the remaining traffic.

Now define the **credit addition units**:

- **Expiration date unit** – Define the date unit when adding credits (days or months).
- **Online time unit** – Define the time unit when adding credits (minutes or hours).
- **Download traffic unit** – How many traffic to add at once. For MegaByte based services enter value 1, while for monthly traffic limited services enter the available monthly traffic amount. For example, if You offer 1 GB / month enter 1024 in this field.
- **Upload traffic unit** – This is the same as the download traffic unit but it defines the amount for the upload.
- **Total traffic unit** – This is the same as the download traffic unit but it defines the total amount.
- **Minimal base amount** – Define the minimal amount of base traffic the user can purchase at once in UCP.
- **Minimal additional amount** – Define the minimal amount of additional traffic the user can purchase at once in UCP.

The **initial fields** are used to set the **initial amount** of data / time of the self registered users and for the **auto renew** feature.

You can also define on which **NAS** is the current **service available**. **Managers** who are allowed to use the current service are also selectable.

Special accounting periods are also available. You can access the Special accounting period editor from the ACP / List services / Edit service screen. In the special accounting period editor You can define the used accounting rate for any period of a day. Connections can also be allowed or denied for a certain time. Days of week are also supported.

After You have defined the new service use the **Store service** button to save it in the database.

Example services

In this chapter You can find details about the most widely used services included in default installation. They are:

- **Prepaid MB** – It is a standard prepaid service. The user pays for the Internet service in advance and he can use the Internet while he has enough MegaBytes available. When the user consumes all the available traffic, he will get disconnected from the system and can't reconnect while he hasn't prolonged the subscription (purchased MegaBytes). You can define the traffic limitations in any combination (download only, upload only, both or total traffic).

In this service definition the **Traffic add mode** is **Additive** and the **Combined traffic unit** is **1 MB**. You can define the **Minimal amount** of MegaBytes the users can purchase at once. In our example it is **1 MB**. You can increase the Minimal amount to be 10 MB or 50 MB or any value You like.

- **Prepaid online time** – This service limits the available online time of the user. It is a classic prepaid dial-up tariff plan: the user pays in advance for the available time. The **Limit online time** checkbox is set in the service definition. When the user has no more time available he will get disconnected automatically and can't reconnect while he hasn't purchased additional time. The **Time addition mode** is set to **Prolong online time**. The **Time unit** is **1 hour**. The **Minimal amount** is **1 hour**.

- **Prepaid monthly** – This plan defines a monthly prepaid flat service. Only date capping is enabled.

- **Prepaid monthly 1 GB dl** – It is capped service (1 GB / month). The user purchases a monthly Internet service and gets one month time and 1 GB available traffic (calculated from the date of purchase).

The **Limit download Bytes** checkbox is enabled. The checkbox **Monthly account** defines monthly account type. In this example the **additional credits** are also set. When a user has no more available traffic (initially he has got 1 GB) but the account is not yet expired (date) the user can purchase **additional MegaBytes** for special price while the **expiration date remains unchanged**.

The system handles the additional credits in UCP automatically. If additional credits are enabled and the user selects the option **Purchase service** in UCP, the system will inform him about the additional credits mode.

Managers have to manually select the credit addition mode: **normal** or **additional**. New **combined month** can added after the **current month has expired**.

Prepaid monthly accounts can begin on **any day of month**. Example: The client purchases a monthly service on september 13. He has to purchase a new monthly subscription again on october 13. The old subscription will expire at 00:00 hours on october 13.

Only **one combined month** can be added at once. Why? If You offer 1 GB / month combined Internet service and if You set amount = 2 when You refill an account, the account will get expired after 2 months and has 2 GB of traffic. This isn't limited anymore by the end of the month. If You need to add multiple months at once turn off the **Monthly account** checkbox and set **Limit expiration** checkbox. Set the **Time addition mode** to **Additive**. Now You can add (prolong) the subscription with any number of months. The **Time unit** has to be **1 month**. With this setup You can add multiple months at once. If You combine this service with traffic limits – depending on the setup – the traffic will be added to the remaining value or added to zero.

Usual problem is when a user forgets to purchase a new monthly subscription and his service is expired. In our example, administrators cannot add new monthly service before the october 13, only after the service has been expired. But what to do in a period from 00:00 hours to normal working hours when the office is open and users can purchase again a new monthly service?

The solution is the **Money deposit** system. Managers can enter **deposit** for any account. Users can purchase additional credits for their deposited money using the UCP any time. They can renew their monthly service when the current monthly service has been **expired**. In our example the new monthly service can be bought after 00:00 hours on october 13.

Automatic renewal is also available for prepaid accounts. The account going to renew has to hold enough deposit which covers the monthly service fee. The system handles these subscription renewals automatically and notifies the user in email about the renewal.

In our example service separate prices are defined for the base unit (the price of the monthly service) and for the additional MegaBytes. The **Time unit** is **1 month**, while the **Download traffic unit** is **1000 MB**. **Time addition mode** is **Reset time**, while **Traffic add mode** is **Reset traffic counters**. The **Minimal amount** is **1 month**.

- **Prepaid monthly flat service with daily quota only** (1 month) – This is a monthly service with no traffic limitation. It has a validity of 1 month with limited daily usage. In **Prepaid monthly flat + quotas** the daily download limit is **100 MB**, while the available daily online time is **2 hours**. **Time unit** is **1 month**, **minimal amount** is **1**.
- **Postpaid traffic** – A standard postpaid services. The user will never gets disconnected. He can use the Internet service in the whole month. The administrator will create bill for the previous monthly usage in the first period of the new current month. For example on december 1 – 5 You will create invoices for all postpaid users for the period november 1–30. Print these invoices (from your browser) and mail them to users.

Postpaid users have a **grace period** (defined is ACP / System settings) to pay their invoices. You will check your banking account each day for the realised payments and define the payment date in Radius Manager when a money has arrived. To accomplish this use option **List invoices / Edit invoice**. The system checks the issued postpaid invoices each day. If the grace period is expired and the user hasn't paid the service fee the account will get disabled.

To create a postpaid service select **Postpaid** mode and **disable traffic and time limitations**. Set the **bandwidth** freely.

Select the **Price calculation method** to fit your requirements. In our example it is **Download traffic**. When creating invoices the system will add the price of the downloaded MegaBytes to the total price. You can also add the price of the uploaded traffic, the used hours or combine all the available methods (for example 100 MB download \$10,00 + 10 MB upload \$1,00 = \$11,00 total).

Every fractional MegaByte (0.1 MB etc.) is calculated as one **whole MegaByte**.

It is important to define postpaid service prices precisely otherwise You will generate incorrect invoices.

- **Postpaid online time** – Postpaid hours are like postpaid MegaBytes, but the consumed online time is used for calculating the total price. If the user has spent 30 hours online in the previous billing period (month), he will get invoice for the price of the 30 hours. The gross price of one hour is \$1,18,

so the price of the 30 hours will be: $30 \times \$1,18 = \$35,40$. Every **started hour** counts as one whole hour.

- **Postpaid monthly flat** – This is a standard flat service. The user can use the Internet without limitations in a whole month and he will get the invoice with a fixed fee. Be sure to enable the **Monthly service** checkbox.
- **Postpaid monthly flat + quotas** – It is the same flat service as the previous, but it has daily download limits of 100 MB. Be sure to enable the checkbox **Monthly service**.

You can create invoices for postpaid accounts based on used traffic and online time for any period, not only for the previous month (but it is the most common way of postpaid billing).

Prepaid card system

Radius Manager Pro and higher license levels have a integrated prepaid card module. The following card types are available:

1. **Classic prepaid cards** – With these cards users can log on and use the Internet service entering the card's PIN code and password. The cards support caps like regular prepaid accounts: online time, traffic, expiration date (fixed date or calculated from the activation of the card) etc.
2. **Refill cards** – This card type is a value only card and cannot be used to log on to the system. The PIN code can be entered in the UCP to increase the available credits of a prepaid regular user.

Before You begin

The first thing You have to do is to clarify what card type You need? **Classic prepaid** or **refill** cards?

- For hotels, airports and other places with public Internet access generate **classic prepaid cards**.
- For Internet service providers the **refill cards** are ideal. You can sell refill cards for registered users what they can use to increase the amount of the deposited money and purchase services in the UCP.

Setting up the card services

To generate classic prepaid cards You have to define the card service. For refill cards the service definition isn't required.

Select option **Service / New service**. You can also use the predefined card services.

Set checkbox **Prepaid card or IAS** and set **Time limit mode** to **Limit expiration**. With these options You create a card service which has predefined expiration date. The method of using the expiration date will be defined on the card generating screen.

Classic prepaid cards always have caps: online time, expiration, available traffic or combination of them. When a card expires it cannot be used anymore. Users have to purchase new card to use the Internet service again.

Define additional options if required: **bandwidth**, daily **quota**, **burst** mode etc. Leave the **price definitions** unchanged (use zero values).

Store data and continue the card generation procedure.

Generating cards

Select option **Card system / Generate cards** in ACP to generate various card series. On this screen define the following parameters to create the card series successfully:

Card type – Classic prepaid or Refill card.

Quantity – Enter the amount of cards You want to generate.

Gross card value – It is the printed value on the card. You sell the card for this value. It includes taxes if they are defined.

Valid till – Define the expiration date of the card series.

- **Classic prepaid cards:** if the service has expiration date capping, the card cannot be used after the specified date.
- **Refill cards:** the expired card cannot be used for refilling credits after the predefined date.

PIN length – The length of generated PIN codes.

Password length – The length of generated passwords. Only Classic prepaid cards have password. Blank passwords are also allowed but not recommended.

Requires verification – Enable this if You want to force users to verify their identity via SMS code.

Associated service – Define the service name to be associated with the new card series. For classic prepaid cards only.

Download limit – Define the available download traffic in MegaBytes. For classic prepaid cards only.

Upload limit – Define the available upload traffic in MegaBytes.

Total limit – Define the available total traffic in MegaBytes. For classic prepaid cards only.

Online time limit – Define the available online time in hours. For classic prepaid cards only.

Expiration – Select the expiration date / time mode:

- **Defined by valid till** – cards will be usable up to date which is defined in **Valid till** field.
- **Calculated from card activation** – Define the available time in **Available time from card activation** field. Select this if You want to sell cards with 24 hour Internet access calculated from the card activation.

Available time from card activation – Define the time available after the activation of the card (if option **Calculated from card activation** has been selected).

Simultaneous use – Allow more than one connection in a same time. Useful for MB and online time limited cards. PfSense always requires Sim-use = 2 to allow the reauthentication to check the validity of the account (required by automatic disconnection).

Let's create an example classic prepaid card series. We will generate cards which can be used up to 24 hours after the activation of the card and hold 300 MB of downloadable traffic. The card expiration will be set to 2015-12-31.

Set the following values:

- **Card type:** Classic prepaid
- **Quantity:** 5
- **Gross card value:** \$10
- **Valid till:** 2015-12-31
- **PIN length:** 8
- **Password length:** 4
- **Requires verification:** no
- **Associated service:** Card download limit 128k
- **Download limit:** 500 MB
- **Expiration mode:** Calculated from card activation
- **Available time from card activation:** 24 hours
- **Simultaneous use:** 1

When You have entered all parameters, press the button **Generate cards**. On the next screen You will see the overview of the parameters.

RADIUS MANAGER

System Users Services Managers IAS AP CMTS IP pools Financials Card system IAS Reports Tools

Prepaid card generator

Card type: Classic prepaid
 Refill

* Quantity: cards

* Gross card value: USD

* Valid till: (YYYY-MM-DD)

Prefix:

PIN length:

Password length:

Requires verification:

Associated service:

Download limit: MB

Upload limit: MB

Total limit: MB

Online time limit: minute(s)

Expiration: Defined by valid till
 Calculated from card activation

Available time from card activation: hour(s)

Simultaneous use:

* Fields are mandatory

Manager: admin | Date: 2012-02-10 | Version: 4.0.0 | RADIUS server: OK | DHCP server: NOT RUNNING!

If everything is correct, press **Generate cards** button again. Now You can list the new card series using the option **Card system / List card series**.

Use hyperlink **CSV** to view and print the card codes for the newly generated series. The output will

be similar to this:

id;pin;password

```
0000000000006; 22839965; 5264
0000000000007; 49422662; 8575
0000000000008; 39749969; 0997
0000000000009; 86978864; 2962
0000000000010; 29341225; 0362
```

The **first column** is the **card serial** number. The **second column** is the **secret card code (PIN)** what users will use as login name and as refill card number (depending on the type of the card). The **third column** stores the **passwords** of cards (available for Classic prepaid cards only).

In our example, the first card's secret code is 39759183, password is 2403, the second card is 89750108 etc. You can try to log in to NAS with username 39759183 with password 2403.

There are various options to control the generated cards. Normally, You can't delete the series which were already sold to customers. But in some cases maybe You'll need to disable some cards or a complete series (the user returns the card etc.). In this case use option **Card system / Revoke card** or the action **Revoke series**.

Revoked cards aren't deleted from the system. You can reactivate the revoked series using the **Activate series** function.

There is also a **Delete series** available. Use it with attention.

We recommend to delete the card series only if You are testing the card system. In production environment use revoke operation to disable particular cards or the entire series and never delete cards or card series.

USER CONTROL PANEL (UCP)

Getting started

The default URL of the **User Control Panel** is:

<http://yourhost/radiusmanager/user.php>

RADIUS MANAGER
cable and wireless control


Home
Traffic report
List invoices
Change password
Redeem voucher
Purchase credits
Change service

User's details




General information

User name:	user
Account type:	regular
Account status:	active
Static IP address:	n/a
Allowed MAC address:	n/a
Deposit:	4 860.00 USD




Service data

Active service:	Prepaid MB
Service type:	prepaid
Download datarate:	3500 kbps
Upload datarate:	768 kbps
Next service change date:	n/a
Scheduled service name:	n/a




Personal data

First name:	John
Last name:	Smith
Address:	West road 1343.
City:	Tampa
ZIP:	32434
Country:	United States
State:	California
Phone:	4912546865
Mobile number:	123456
Email:	viktor@localhost
Company:	R&C company
VAT id:	n/a



Limits and quotas

Available download:	2.6 GB
Available upload:	no limit
Available total traffic:	no limit
Available online time:	no limit
Account expiry:	never
Today's download quota:	n/a
Today's upload quota:	n/a
Today's total quota:	n/a
Today's time quota:	n/a



WiFi details

Used AP:	RT 01 - NOC
Signal level:	-55 dBm
SNR:	n/a
CCQ:	n/a

Edit personal data
Logout

User: **user** | Date: **2012. 02. 10.** | Version: **4.0.0**

The user will be asked for the user name and password. For new installation the default user name / password combination is: **user** / **1111**. If the login was successful, the UCP home screen will appear.

The users can access various system functions clicking the appropriate hyperlink. The main screen contains an account data overview of logged user.

These data are grouped in the following categories:

1. General information
2. Personal data
3. Service data
4. Limits and quotas
5. WiFi details

Using the menu options the user can list the invoices, overview the traffic data, enter refill card numbers, purchase services and define the type of the service to use.

Editing personal data

Use option **Edit personal data** to edit the logged on user's personal data (if the function is enabled in ACP / System settings).

Examining the traffic report

To track the used traffic and time use the option **Traffic report** in UCP. With the help of this function the user has overview to his yearly, monthly and daily traffic consumption. He can see all his logins, logouts, used time per session, uploaded, downloaded and total traffic usage. In detailed traffic report he can also examine the MAC address of the CPE and the assigned IP addresses.

Listing the invoices

To track the payments use option **List invoices**. It will list all payments of the current user, the invoice numbers, the date of payments, the added traffic and time. The users will also has an overview to his financial standing (internal credits): he can track the credit refills and the actual balance.

Using refill cards

Refill cards are used to increase the user's internal money deposit. The available deposit is displayed in the **General information** group. If the users wants to increase his available deposit, he has to select **Redeem voucher** option and enter the correct refill card PIN code. By default the user has 3 tries until the account gets locked and only managers can unlock it.

When the correct PIN code was entered the main UCP screen will reflect the new deposit immediately.

The user can also track the credit refills using the option **List invoices** as it was described before.

Selecting services

In Radius Manager UCP the user can select a prepaid service he would like to use (if service selection is enabled in ACP / System settings). To select a new service, use option **Change service** from the menu. It will list the available prepaid services. Select the desired service You want to use and click button **Change service**.

On the next screen You have to confirm the service selection. If the actual service was not a monthly, the service change will be completed immediately. If the actual service was a monthly service, the service change will be scheduled to the date when the current monthly service expires.

Purchasing prepaid credits

Radius Manager has a special feature: if enabled, users can select and purchase prepaid services, using the internal deposit or other supported payment methods. To use this feature do the following:

1. Select option **Purchase credits**.
2. On the next page You will see the current service description.
3. Enter the **amount** You want to purchase. For example, if it is a MegaByte based service, enter the amount of MegaBytes.
4. Select the **payment method** on the next page.
5. Follow the on screen instructions and the system will add the purchased MegaBytes and / or time to your account.

You can track all transactions in **List invoices** menu.

The term “amount” is universal and it means the amount of the service. So, if the service is a monthly service, You have to enter 1 to purchase a one month prepaid Internet service.

The user can purchase additional MegaBytes if the current month is not expired yet but all available prepaid traffic is consumed. The system will handle these transactions automatically and displays a message about the actual mode upon purchasing credits.

Account verification

Self registered and card accounts can be forced to verify their identity entering a secret code in UCP (sent in SMS). The function is configurable in ACP / System settings and in prepaid card generator module.

If a unverified account logs to the UCP, a verification link appears beside the account status. Click on this link to initiate the account verification procedure.

Hints for setting up the UCP

It is recommended to grant access to UCP for unauthenticated users. It is useful if the users have no more credits available and cannot connect to the system via Hotspot or PPP. We will describe a method which is easy to realize:

1. Register a account in ACP which never expires (for example username **info**, password **info**).
2. Create service **info** with predefined IP pool (pool name *pool-info*), without capping.
3. Assign this service to **info** account.
4. Define the firewall in your router to allow the *pool-info* to access only the Radius Manager server and block the Internet access for those addresses.

With this setup You permit users to check their status using UCP even if they have no more available credits left.

You can also select the **info** service as next master service in all services. With this step all expired accounts will be shifted automatically to *pool-info* and the expired users will be able to access the UCP, without Internet.

ADDITIONAL FUNCTIONS

Instant Access Services (IAS)

Instant Access Services (IAS) are ideal for customers who don't want to register a regular account to use the Internet service (for one time access). IAS accounts are like prepaid cards: they use PIN code as username. The main advantage of IAS over the prepaid cards is the simplicity: **they can be purchased online**, directly on the Hotspot login page, using CC or other supported payment methods.

The system currently supports the following payment gateways:

1. PayPal Express Checkout
2. PayPal Website Payments Pro
3. PayPal Website Payments Standard
4. Netcash
5. Authorize.Net
6. DPS Payment Express
7. 2Checkout

Latviski
Please log on to use the mikrotik hotspot service

login
password

*MikroTik*TM

Powered by mikrotik routers © 2005 mikrotik

[Register an account](#) | [Control panel](#)

Need instant access without registration?

10 hours uptime	5.00 USD
500 MB	10.00 USD
2 days	10.00 USD

A typical Hotspot login screen looks like this:

The Hotspot login page contains the following elements:

1. **User name** and **password** entry field
2. Link for **new account registration** (self registration)
3. Link to purchase **Instant Access Services**

When a user decides to purchase an IAS, he has to click the appropriate IAS link and select the payment method. Completing the checkout the system returns a PIN code and a password which can be used to log on to the Hotspot / PPP system.

The **IAS templates** are defined in ACP. These are like regular prepaid card accounts, except they are generated by users and not by managers. Superuser defines the characteristics of these accounts (template).

IAS accounts have associated service (like regular and card accounts) and various caps can be enabled: available online time, download, upload, total traffic etc.

When a user successfully purchases an IAS code, the system generates a new IAS account using the template and stores it in the database.

You have to put the IAS HTTP server URL into **walled garden** on the Hotspot server to be able to access these pages directly from the Hotspot login page **without unauthentication**. Also, the PayPal site has to be put in the walled garden to be able to accept PayPal payments. Grant Internet connection for Radius Manager server for successful communication with the payment gateway.

The following PayPal URLs have to be added into walled garden on Mikrotik NAS:

- www.sandbox.paypal.com (for testing)
- developer.paypal.com (for testing)
- www.paypal.com (for live system)
- and the address of the Radius Manager host

On Mikrotik v2.9 You have to define the following walled garden entries for direct PayPal access (and for the Radius Manager host):

```
/ip hotspot walled-garden add dst-host=:\www\\.paypal\\.com\$ dst-port=443 action=allow  
  
/ip hotspot walled-garden add dst-host=:\content\\.paypalobjects\\.com\$ dst-port=443  
action=allow  
  
/ip hotspot walled-garden add dst-host=*.akamaiedge.net action=allow
```

On Mikrotik v3 define the following walled garden entries (and for the Radius Manager host):

```
/ip hotspot walled-garden add dst-host=":^\www\\.paypal\\.com\$" dst-port=443 action=allow  
  
/ip hotspot walled-garden add dst-host=":^\content\\.paypalobjects\\.com\$" dst-port=443  
action=allow  
  
/ip hotspot walled-garden add dst-host=*.akamaiedge.net action=allow
```

The described setup is country dependent. In some countries it is required to customize this setup (PayPal uses different servers in almost every country).

The URL of IAS purchase page is:

<http://yourhost/radiusmanager/buyias.php>

See the appropriate part of the reference manual for setting up the IAS templates.

WARNING!

Be sure to use HTTPS layer for the Credit Card processing system. Install Radius Manager system on a SSL enabled web server if You want to accept payments online.

Self registration

The self registration feature allows to create a fully automated Internet Service Provider management system. Using this feature users can register themselves in the system. After a successful registration they can purchase credits, select services like regular users.

If enabled, the new user registration is accessible from the Hotspot login page and has all the regular fields required by the new user registration:

RADIUS MANAGER *cable and wireless control*

Register account Language: English

* User name: (4-32 characters)

* Password: (4-32 characters)

* Confirm password: (4-32 characters)

First name:

Last (family) name:

Address:

City:

ZIP:

Country:

State or province:

Phone number: (Numbers only. Example: 496548156875)

Mobile number: (Numbers only. Example: 495427436785)

Email address:

VAT id:

Initial prepaid service:

* Fields are mandatory!

ATTENTION: PLEASE READ THESE TERMS CAREFULLY BEFORE USING THIS WEBSITE. BY USING THIS SITE YOU AGREE TO BE BOUND BY THESE TERMS AND CONDITIONS. IF YOU DO NOT ACCEPT THESE TERMS ("TERMS"), DO NOT USE THIS WEBSITE.

I accept the Terms & Conditions

Register account

Date: 2012. 02. 10. | Version: 4.0.0

When a user enters all the required information and they are accepted by the system, he will be redirected to the User Control Panel login page.

In UCP he can overview the account information, change services, purchase credits and can do other common tasks.

The main advantages of this method are:

1. **Register users** without administrators
2. The users can **purchase credits online** using the available payment gateways

The new user registration URL (or Radius Manager host IP) has to be put in the **walled garden** on the Hotspot server to allow access to the self registration form for unauthenticated users.

The URL of new user registration page is:

<http://yourhost/radiusmanager/reg.php>

Account verification

Radius Manager self registration system has an advanced security measurement: account verification by SMS or by other user definable method (definable in *api.php*).

The default Radius Manager setup calls the **Clickatell.com** HTTP to SMS gateway to send the verification code to the user's mobile phone. While user doesn't enter the correct verification code in UCP he / she can't use the Internet (PPP / Hotspot login is disabled).

The feature is configurable from ACP / system settings.

See the Radius Manager installation manual for more information about *api.php*.

Password recovery

Radius Manager offers automatized password recovery function for users. It can send the verification code to email address or in SMS.

The URL of the password recovery function is:

<http://yourhost/radiusmanager/passwd.php>

Any registered user can use the URL above. The parameters in the form are:

Send new password to (email address / mobile number (SMS)) – Select which method to use for recovering a lost password.

Email address – Enter the registered email address if the user selected email verification mode.

Mobile number – Enter the registered mobile number if the user selected SMS verification mode. There is a limit of the maximal number of sent SMS messages.

Once the verification code has been sent to the registered email address, the user has to click the URL got in email to approve the new password. In the next step a new password is generated and emailed to the same email address.

If SMS mode is used and the verification code has been sent in SMS, the user has to enter the code on the following screen. If the entered code is valid, the system will generate and send the new password to the same mobile number.

REFERENCE

ADMINISTRATION CONTROL PANEL (ACP)

Overview

The **Administration Control Panel (ACP)** is used by system administrators to set various system parameters, manage NASs, users, IAS templates, services, generate prepaid cards etc.

You can access the ACP using the following URL:

<http://yourhost/radiusmanager/admin.php>

Description of menu functions

System / Home

Navigate to home page.

System / System settings

On this screen You can define the global options used by both the administration interface (ACP) and user interface (UCP).

- **General settings:**

Default system language – Select the default interface language. New languages can be added by installing language definition files.

Disconnection method (NAS / remote) – Select a disconnection method to use:

1. **NAS** – This disconnection mode is supported by **Chillispot** (DD-WRT), **Mikrotik** and **pfSense**. It has some drawbacks: it cannot control combined traffic accounting, daily quotas and special accounting periods. If You want to use some of the listed features, switch the disconnection mode to Remote.

2. **Remote** – Remote disconnection method is supported by **Mikrotik**, **StarOS**, **Cisco** and **Chillispot**. It supports combined traffic accounting, daily quotas and special accounting periods.

Remote disconnection method has some limitations (StarOS and Chillispot only). You have to set **Simultaneous-use = 1** for every user in Radius Manager ACP / Edit user. StarOS and Chillispot disconnect users based on the username and not on IP address. If the same user name has multiple online sessions, only one instance will be disconnected while others remain online. Pay attention to this.

Remote disconnection method is also required if You want to disconnect prepaid users in proper time who use services with **special pricing periods** enabled.

The **NAS** disconnection method consumes less resource and more stable than **Remote** method, while Remote method supports all features of Radius Manager. When using Remote disconnection method, ensure **rmpoller** daemon is running all the time.

Reset counters upon service changes – If checked, the counters will reset when a scheduled service change occurs (download limit, upload limit, total limit, online time limit).

Hide limits in user list view (performance) – Show or hide the limits in the user list view to speed up the listing of users.

Day to renew postpaid accounts – Select a day of month to renew the postpaid accounts.

- **Billing and payments:**

Currency – Define the default system currency.

VAT percent – Define the VAT percent used in the system.

Payment option – Define the grace period of postpaid invoices. The deadline is calculated using the following formula: **invoice payment option = current date + payment option** in days. If the invoice has not yet been paid within the grace period, the account will get disabled by the system.

Beginning day of the billing period – Select the beginning day of the monthly postpaid invoice.

Disable users due to unpaid invoices – When the money transfer payment is not realized till the deadline, the system will disable the corresponding RADIUS and UNIX accounts automatically.

Available payment gateways (internal / PayPal Website Payments Standard / PayPal Website Payments Pro / PayPal Express Checkout / NetCash / Authorize.Net / DPS Payment Express / 2Checkout) – Enable or disable the selected payment gateways.

- **Account settings:**

Enable self registration – Enable or disable the self registration feature.

Self registered & IAS accounts require verification – Set this checkbox to force the verification of self registered and card accounts before they can be used for accessing the Internet service.

Self registration mandatory fields (first name / last name / address / city / ZIP / country / state or province / phone / mobile / email / VAT ID) – Select the required fields to complete the self registration process.

IAS mandatory fields (email / mobile) – Set the required fields in IAS purchase process.

Lock first seen MAC address – When enabled the first detected MAC address is locked to account.

Enable user data edit (UCP) – Enable or disable editing the personal data of users in UCP.

Enable service change (UCP) (never / only when expired / any time) – Controls selecting the services in User Control Panel (UCP).

Enable password change (UCP) – Enable or disable changing the password in UCP.

Enable voucher redemption (UCP) – Enable or disable the Redeem voucher option in UCP.

Enable credit purchase (UCP) – Enable or disable the Purchase credits option in UCP.

- **Account synchronization**

Synchronize UNIX accounts – If checked, the system will create / edit / delete regular UNIX accounts in sync with RADIUS users. This feature is useful if You want to control your UNIX account based email server by Radius Manager (sendmail, postfix etc).

UNIX account disk quota management – If checked, the disk quota will be set automatically for newly registered UNIX users (prerequisites are to allow disk quotas on the file system and create a disk quota template UNIX user). This option is very useful for mail accounts with limited disk usage.

Disk quota UNIX template user – Define the name of the UNIX disk quota template user.

Synchronize UNIX account on (Localhost / Remote host using RSH) – Define the method of reaching the host You want to synchronize.

Remote UNIX host – The IP address of the host to synchronize.

- **Notifications:**

Notify manager upon self registration (email) – When enabled, notification emails are sent to the system administrator indicating new user registration.

Welcome message (email) – Controls sending welcome emails to newly registered users.

Welcome message (SMS) – Controls sending welcome SMS to newly registered users.

New service activated (email) – Controls sending emails to when a new service is activated.

Account renewal (email) – Controls sending emails when an account is renewed.

Account expiry (email) – Controls sending emails to users indicating their account is going to expire.

Warning level (fixed value / percentage) – Select which warning level to use.

Download warning – Define the remaining download MegaBytes or a percentage value when the system sends a warning email for the user.

Upload warning – Define the remaining upload MegaBytes or a percentage value when the system sends a warning email for the user.

Total traffic warning – Define the remaining total MegaBytes (download + upload) or a percentage value when the system sends a warning email for the user.

Online time warning – Define the remaining online time (HH:MM:SS) or a percentage value when the system sends a warning email for the user.

Expiry warning – Define the remaining days when the system sends a warning email for the user.

System / Logout

Log out the current user.

Users / List users

Display the list of the users available in the system with limits. You can select certain users, select all users and clear the selection. You can do the following actions with the selected users:

- **Enable** – To enable accounts.
- **Disable** – To disable accounts. Disabled users cannot access the RADIUS controlled network and their UNIX mailboxes. They can log on to the User Control Panel.
- **Delete** – Delete both RADIUS and UNIX users.
- **Disconnect** – Disconnect selected users or CMs.

You can sort the list clicking the small arrows in the header.

Users / List users / Edit user

Edit a user.

Enable – Define the status of the user.

Verified – Select this checkbox to manually switch the account into verified state.

Warning sent – Account expiry warning was emailed to the user.

Password – Enter the new password. The allowed characters are defined in *system_cfg.php*.

Confirm password – Reenter the same password.

Change password – Select the checkbox to allow entering new password.

MAC address of CM – Define the MAC address of cable modem. Required by DOCSIS accounts.

IP address mode CM (IP pool / static IP) – Select the used IP address mode of cable modem. **IP pool** mode assigns a free IP to CM automatically, while in **Static IP** mode You can enter a (unused) IP address manually which will be assigned to the CM.

MAC address of CPE – Define the MAC address of the user's LAN or WLAN card (CPE). This option gives You an extra authenticity verification. When enabled, the system will check the user name, the password and the MAC address of the CPE upon login. Be sure to enter the correct MAC address of CPE if You enable this option.

It is necessary to fill this field if You want to assign a static IP to a DOCSIS CPE.

Some WLAN devices (depending on the configuration – see MAC cloning) will not emit the real MAC address of the WLAN card. You have to configure the CPE properly in order to use this feature.

Allow this MAC only – Enable or disable the MAC address checking.

IP address mode CPE (NAS pool or DHCP / IP pool / static IP) – Define the IP address mode of CPE. When **NAS pool or DHCP** is selected, the NAS will assign the IP address to CPE automatically. In **IP pool** mode the RADIUS server will assign the IP address to the CPE using the RADIUS IP pools. When **Static IP** is selected the user defined static IP address will be assigned to the CPE.

For **DOCSIS CPE** the **MAC** address must be defined in order to use the static IP mode.

Simultaneous use – Define how many concurrent sessions are allowed for the current user (simultaneous logins with a same user name). Leave this field empty or enter 0 for unlimited number of concurrent sessions.

First name – Define the first name of the user.

Last (family) name – Define the last (family) name of the user.

Company name – Define the name of the company (if applicable).

Address – Define the address for the user.

City – Define the city for the user.

ZIP – Define the ZIP code for the user.

Country – Define the country for the user.

State – Define the state for the user.

Phone number – Define the phone number for the user.

Mobile number – Define the mobile number for the user.

Email address – Associate the email address with the user. This address will be used for receiving email messages from the system. If You don't specify email address and still want to use the email notification system, the destination email address will be constructed automatically: **[username]@[domain]**, where *domain* is defined in *system_cfg.php* and in *radiusmanager.cfg*.

VAT ID – Tax identifier.

Service – Select the associated service of user.

Download limit – The available download Bytes of the user.

Upload limit – The available upload Bytes of the user.

Total limit – The available total Bytes (DL + UL) of the user.

Account expiry – The expiration date of the user in a form YYYY-MM-DD.

Available online time – The available online time of the user in a form HH:MM:SS.

Deposit – The available money deposit of the user.

Contract ID – You can use this field for storing the contract identification code.

Geolocation (lat., long.) – Enter the GPS coordinates of the user. It is required by law in certain countries to store a such data.

Comment – An optional comment.

User group – Select a group of the user.

Account owner – Select the owner of the account.

Password activation SMS sent – How many times the user tried to retrieve his forgotten password.

Account verification SMS sent – How many times was the verification code sent to user.

Wrong verification code entered – This counter increases every time when a user enters a wrong verification code.

Wrong refill card PIN entered – This counter increases every time when a user enters a wrong PIN code to refill his account.

Custom RADIUS attributes – Define extra RADIUS attributes which are sent in successful authentication responses.

Users / List users / Edit user / Traffic report

Here You can check the traffic report of the currently selected user.

Users / List users / Edit user / Connection report

List connection of the current user (if the CTS system is available and enabled).

Users / List users / Edit user / Add credits

Add prepaid credits for the user and create invoice. Select the **credit addition mode** for monthly accounts (normal or additional). Define the **payment mode** (cash payment or bank transfer) and the **amount**. The total price is calculated automatically upon entering the amount. You can also change the total price manually (if You want to offer discount). You can define a **remark text** which will be printed on the invoice and the **internal comment**. A negative amount can be used to write off incorrect invoices.

Various reverse calculations are also available if You check the checkboxes **Lock unit price** and **Lock amount**.

Clicking the **Next** button the confirmation screen will appear. Here You can review and modify the credit data if required. The modification of data is controllable by the permission **Allow discount prices** in ACP / Edit manager.

Clicking the **Finish** button You will get informed about a successful payment. You can view and print the invoice using the WEB browser's print function.

Users / List users / Edit user / Add deposit

This function increases the user's internal deposit and creates invoice. Define the **payment mode** (cash or bank transfer), the **gross price**, the **remark text** which will be displayed on the invoice form and the comment (it will not printed on the invoice form). A negative amount can be used to write off incorrect invoices. When the payment is confirmed, You can print the invoice from your WEB browser.

Users / List users / Edit user / Postpaid billing

Postpaid billing is semi automated function for generating postpaid monthly invoices (the period is definable freely, usage of one month at once is strongly recommended).

The following postpaid billing methods are supported:

- 1. Traffic based billing** (simple MegaBytes): The price is calculated using the download, upload or total traffic. The parameters of price calculation are defined in the service definition.
- 2. Online time based billing** (classic dial-up): The price is calculated based on used online time. The parameters of price calculation are defined in the service definition.
- 3. Monthly billing:** The price calculation formula is: **price = monthly fixed fee + added traffic**. The parameters of price calculation are defined in the service definition.

First You have to define the billing period (**from** and **to** date – defaults are the last month).

Clicking **Next** will open a confirmation screen where You can define the **payment method**, the **item description** (which will be printed on the invoice), edit the calculated **net** and **gross price** if it is not correct (the price depends on many parameters) and optionally You can enter a **internal comment** and **remark** text of invoice.

Users / List users / Edit user / List invoices

You can list the invoices of the current user. The available invoice types are:

- C** – Cash payment
- T** – Bank transfer
- O** – Online payment
- I** – Internal transfer
- P** - Prepaid card

You can also view the balance of deposited money, the remaining traffic and time of the user. The total transactions are calculated on the following way:

TOTAL TRANSACTIONS = COMPLETED TRANSACTIONS + PENDING TRANSACTIONS

Internal transactions are not calculated in the sum. Credit refills with cards are not calculated in the sum and they are informative.

Users / List users / Edit user / Change service

Using this function, administrators can change the service of the selected user. There are 2 parameters required: the new service name and the date when the service change should occur.

You can change the prepaid service unlimited times on a same day, but only one postpaid service can be assigned daily to a certain user.

Users / List users / Edit user / Service history

This list is used to check the service type changes of the current user. You can see the request date, the user name, the schedule date and the requested service name. If the **Status** flag shows **completed**, the service has been changed successfully. You can click the **cancel** link to cancel a scheduled service change.

Users / List users / Edit user / Disconnect

Logs out the current user from the NAS (if POD is configured properly) or restart the DOCSIS compatible cable modem.

Users / List users / Edit user / Delete user

With this option You can delete the current user from the database.

Users / Find users

On this screen You can define the filtering criteria of list user's view and initiate a direct user edit.

- **Filter parameters:**

User name or MAC – Enter the name of the user. You can search for all supported account types.

Account type Regular (Hotspot MAC / DOCSIS / classic prepaid card / instant access service / Mikrotik access list / StarOS access list) – Select the type of the account You want to include in the user list.

Service type (any / prepaid / postpaid / email / access list entry) – Select the type of the service You want to include in the user list.

Account status (any / active / expired / enabled / disabled) – Select the status of the accounts You are seeking for

Usage information (any / used / unused) – Display all or only those users who have or don't have accounting info available in the system.

Group – List only those users who belong to the selected group.

Owner – Search by account owner.

Service name – List only those users who use the selected service.

MAC address CM – Search for the MAC address of cable modem. The correct format of the MAC address is xx:xx:xx:xx:xx:xx.

MAC address CPE – Search for the MAC address of the user (not MAC Hotspot users; if You want to find a MAC Hotspot user, use the **User name or MAC** field instead.) The correct format of the MAC address is xx:xx:xx:xx:xx:xx.

Static CPE IP – Search for static CPE IP address.

First name – Search for first name of user.

Last (family) name – Search for last name of user.

Company name – Search for company name.

Address – Search for postal address.

City – Search for city.

ZIP – Search for ZIP code.

Country – Select a country.

State – Select a state.

Phone number – Search for phone number.

Mobile number – Search for mobile number.

Email – Enter the email address You are looking for.

Contract ID – Search for contract identification code.

Comment – Search for comments.

- **Edit user:**

User name, MAC, PIN – You can access the user edit screen directly of the entered regular, Hotspot MAC or prepaid card (PIN) user.

Users / New user

Register a new account. The parameters are:

User name or MAC address – Define the user name of regular user or a MAC address of Hotspot MAC authenticated user. Mikrotik accepts MAC addresses in the form xx:xx:xx:xx:xx:xx, while StarOS requires form xxxxxxxxxxxx. The allowed characters are defined in *system_cfg.php*.

Enabled – Define a status of the newly registered user.

Account type (Regular / Hotspot MAC / DOCSIS / Mikrotik ACL / StarOS ACL) – Define the type of the new user. There are several types of users in Radius Manager:

- **Regular users** have both username and password
- **Hotspot MAC users** have only user name (in fact, it is the MAC address of the LAN / WLAN card). The Mikrotik Hotspot system will automatically log on these Hotspot MAC users without requesting the user name / password.
- **DOCSIS** is used by DOCSIS compliant cable modems.
- **Mikrotik ACL** is used to allow the connection of specific WLAN CPE using a Mikrotik AP.
- **StarOS ACL** is used to allow the connection of specific WLAN CPE using StarOS AP.

Password – Enter the new password. The allowed characters are defined in *system_cfg.php*.

Confirm password – Reenter the same password.

Change password – Select the checkbox to allow entering new password.

MAC address of CM – Define the MAC address of cable modem. Required by DOCSIS accounts.

IP address mode CM (IP pool / static IP) – Select the used IP address mode of cable modem. **IP pool** mode assigns a free IP to CM automatically, while in **Static IP** mode You can enter a (unused) IP address manually which will be assigned to the CM.

MAC address of CPE – Define the MAC address of the user's LAN or WLAN card (CPE). This option gives You an extra authenticity verification. When enabled, the system will check the user name, the password and the MAC address of the CPE upon login. Be sure to enter the correct MAC address of CPE if You enable this option.

It is necessary to fill this field if You want to assign a static IP to a DOCSIS CPE.

Some WLAN devices (depending on the configuration – see MAC cloning) will not emit the real MAC address of the WLAN card. You have to configure the CPE properly in order to use this feature.

Allow this MAC only – Enable or disable the MAC address checking.

IP address mode CPE (NAS pool or DHCP / IP pool / static IP) – Define the IP address mode of CPE. When **NAS pool or DHCP** is selected, the NAS will assign the IP address to CPE automatically. In **IP pool** mode the RADIUS server will assign the IP address to the CPE using the RADIUS IP pools.

When **Static IP** is selected the user defined static IP address will be assigned to the CPE.

For **DOCSIS CPE** the **MAC** address must be defined in order to use the static IP mode.

Simultaneous use – Define how many concurrent sessions are allowed for the current user (simultaneous logins with a same user name). Leave this field empty or enter 0 for unlimited number of concurrent sessions.

First name – Define the first name of the user.

Last (family) name – Define the last (family) name of the user.

Company name – Define the name of the company (if applicable).

Address – Define the address for the user.

City – Define the city for the user.

ZIP – Define the ZIP code for the user.

Country – Define the country for the user.

State – Define the state for the user.

Phone number – Define the phone number for the user.

Mobile number – Define the mobile number for the user.

Email address – Associate the email address with the user. This address will be used for receiving email messages from the system. If You don't specify email address and still want to use the email notification system, the destination email address will be constructed automatically: **[username]@[domain]**, where *domain* is defined in *system_cfg.php* and in *radiusmanager.cfg*.

VAT ID – Tax identifier.

Service – Select the associated service of user.

Download limit – The available download Bytes of the user.

Upload limit – The available upload Bytes of the user.

Total limit – The available total Bytes (DL + UL) of the user.

Account expiry – The expiration date of the user in a form YYYY-MM-DD.

Available online time – The available online time of the user in a form HH:MM:SS.

Deposit – The available money deposit of the user.

Contract ID – You can use this field for storing the contract identification code.

Geolocation (lat., long.) – Enter the GPS coordinates of the user. It is required by law in certain countries to store a such data.

Comment – An optional comment.

User group – Select a group of the user.

Custom RADIUS attributes – Define extra RADIUS attributes which are sent in successful authentication responses.

Users / List user groups

List the available user groups in the system. You can multi-select the groups and delete more than one group at once. The default group cannot be deleted.

Click on the group name to edit the group parameters:

User group name – Define the group name.

Description – Enter the description of this group or leave it blank.

Delete – Click on this link to delete the selected user groups.

Users / New user group

Users / Edit user group

Edit the selected user group.

Group name – Define the group name.

Description – Enter the description of this group or leave it blank.

Services / List services

List the registered services in the system. You can select certain services, select or deselect all services. You can do the following actions with the selected services:

Enable – To enable the selected services.

Disable – To disable the selected services. Disabled services are not listed in service selector list boxes.

Delete – Select this option to delete the selected services. The default service cannot be deleted. If an already assigned service has been deleted, the default service will get assigned automatically instead of the current.

Services / List services / Edit service

Use this option to edit a service.

- **Basic parameters:**

Service name – Define the service name.

Enable – Select this checkbox to enable or disable the current service. Disabled services cannot be assigned to users.

Available in UCP – Enable listing of service in UCP.

Type of service (prepaid regular / prepaid card or IAS / postpaid / email / access list entry) – Define the service type. **Prepaid regular** services can be assigned to prepaid regular users only. **Prepaid card services or IAS** services can be assigned to classic prepaid cards and IAS templates only. **Postpaid** services can be assigned to postpaid users only. **Email** accounts cannot log on to NAS, they can use their UNIX mailbox only. **Access list** entries are used with Mikrotik and StarOS to allow specific CPE to connect.

Limit download Bytes – Enable the capping of download traffic.

Limit upload Bytes – Enable the capping of upload traffic.

Limit total traffic – Enable the capping of total (download + upload) traffic.

Limit expiration – Enable the expiration date capping.

Limit online time – Enable the online time capping. You can create classic dial up services with predefined available online time.

Set data rates (DL / UL) – Define the download and upload data rates in kbps (0 means no data rate limitation is enabled).

Cisco policy map (DL) – Set the name of the download policy map defined in Cisco. Compatible with Cisco policy map feature.

Cisco policy map (UL) – Set the name of the upload policy map defined in Cisco. Compatible with Cisco policy map feature.

Download quota per day – Define the daily available download traffic in MegaBytes. Enter 0 if You want to disable this feature.

Upload quota per day – Define the daily available upload traffic in MegaBytes. Enter 0 if You want to disable this feature.

Total quota per day – Define the daily available total traffic in MegaBytes. Enter 0 if You want to disable this feature.

Time quota per day – Define the daily available online time in HH:MM:SS format. Enter 0 if You want to disable this feature.

Enable burst mode – Check this option if You want to use the burst mode.

Burst limit (DL / UL) – Define the burst limit of download and / or upload. This is the peak of the traffic the user can achieve. Burst limit is always greater or equal than the nominal data rate.

Burst threshold (DL / UL) – Define the threshold of download and /or upload. If the user overloads this limit after a predefined time, the limitation will begin and the actual higher data rate will be set to the nominal value (defined in Set data rates). Normally, use higher burst limit than nominal data rates.

Burst time (DL / UL) – Define the timeout after the limitation will begin if the client overloads the defined threshold limits. Experiment with this value; some Mikrotik versions don't interpret it properly. Test the timeout and if needed add a correctional value to it.

Priority – Define the priority of packets in dynamic queue.

IP pool name – Select a specified IP pool via the **Framed-Pool** RADIUS attribute. It is a Mikrotik and Cisco specific feature.

Next master service – Define the next master service. It is activated when the original master service gets expired.

It is very useful in such situations when a user account is expired, but You want to allow the user to use the Internet with limited bandwidth. Define a new flat service with limited bandwidth and select it from the dropdown list.

Next daily service – Define the next daily service. It gets activated if the user has no more available daily quota.

Ignore static IP – Do not use the CPE static IP defined in edit user dialog.

Custom RADIUS attributes – Allows entering user definable RADIUS attributes. The system will send these attributes to NAS in *Access-accept* messages.

Generate TFTP boot file – Generate the DOCSIS compliant TFTP boot file automatically. The TFTP file template is located in the *config* directory.

Advanced CM configuration – Define a source code of custom TFTP boot file.

Allowed NASs – Select the NAS devices where this service is available.

Available for managers – Select the managers who can use this service.

- **Price definitions:**

Postpaid price calculation (downloaded traffic / uploaded traffic / online time) – Define which traffic or time is used in the price calculation.

Monthly account – Defines the account monthly. It is required for auto renew.

Auto renew – Select this checkbox to enable renewing the accounts automatically by the system.

Postpaid monthly accounts are renewed on the specific day in the month. The day is selectable in ACP / System settings.

Prepaid monthly accounts are checked daily once and they get renewed if required. They have to hold enough deposit to cover the renew fee.

Reset counters if date expired – If the account's date is expired and credits were added reset the traffic counters to zero before adding the new credits.

Enable additional credits – Enable additional credit mode (monthly accounts only).

Net unit price – Define the price of one unit without VAT.

Gross unit price – Define the price of one unit with VAT.

Net additional unit price – This field is used by monthly accounts. If defined, users can purchase additional credits if the date is not expired yet, but the account has no more available traffic left. VAT is not included.

Gross additional unit price – This field is used by monthly accounts. If defined, users can purchase additional credits if the date is not expired yet, but the account has no more available traffic left. VAT is included.

Date addition mode (reset expiration date / prolong expiration date / prolong expiration date with correction) – Select how to add days to service. **Reset** always adds new days or months to the current date. It is used mainly by combined packages (1 month + x MB). **Prolong** adds time to the expiration date found in the user data. **Prolong with correction** adds time to the expiration date found in the user profile, but it will use the current date if expiration is in the past.

Time addition mode (reset online time / prolong online time) – Define how to add online time to accounts: always add to zero or add to the remaining value.

Traffic addition mode (reset traffic counters / additive) – Define how to add traffic to accounts: always add to zero or add to the remaining value.

Expiration date unit (days / months) – Define the amount of one date unit (days or months).

Online time unit (minutes / hours) – Define the amount of one time unit.

Download traffic unit – Define the amount of one download traffic unit.

Upload traffic unit – Define the amount of one upload traffic unit.

Total traffic unit – Define the amount of one total (download + upload) traffic unit.

Initial expiration date – Define the initial expiration. Applicable for self registered users only.

Initial online time amount – Define the initial online time of self registered users. Applicable for self registered users and for auto renewal.

Initial download traffic amount – Define the initial download traffic of self registered users. Applicable for self registered users and for auto renewal.

Initial upload traffic amount – Define the initial upload traffic of self registered users. Applicable for self registered users and for auto renewal.

Initial total traffic amount – Define the initial total traffic of self registered user. Applicable for self registered users and for auto renewal.

Minimal base amount – Define the minimal base amount which users can purchase.

Additional traffic unit – Define the additional traffic unit in MB.

Minimal additional amount – Define the minimal additional amount which users can purchase.

The **special accounting** periods and **special bandwidth** periods are also available on this screen. You can click the Edit link to invoke the appropriate special period editor.

Use the **Delete service** link to delete the current service.

Services / Edit service / Special accounting periods editor

The accounting periods are special feature of Radius Manager. You can define the time of a day when a special accounting will occur, so You can easily create a nightly service where only half of traffic or time is accounted etc.

Clicking the **edit** link under the special accounting periods on Edit service screen, the special accounting period editor will open in a new browser window.

Here You can create, modify and delete the special accounting periods. Click the pencil icon to open the editor for the selected item.

In the edit form You can define the start and end time of the interval, the ratio (time, download, upload). There is a flag which allows or disallows the connection in the predefined time interval. You can select on which days the current period will get activated.

Click the update button to store the changes of the item.

Services / Edit service / Special bandwidth periods editor

Special bandwidth periods are a great feature of Radius Manager. You can define the time of a day when a special bandwidth will get activated for a online session, **without** a need to reconnect the user. The bandwidth change is made on the fly, using the Mikrotik API.

Clicking the **edit** link under the special bandwidth periods on Edit service screen, the special bandwidth period editor will open in a new browser window.

Here You can create, modify and delete the special bandwidth periods. Click the pencil icon to open the editor for the selected item.

In the edit form You can define the start and end time of the interval, the data rate (download, upload),

enable the burts mode and set it's parameters. You can select on which days the current period will get activated.

Click the update button to store the changes of the item.

In the next paragraph You will find a detailed description how to configure the API access in order to use the special bandwidth feature.

Configuring the API

- **Enable** the **API** service in Mikrotik in IP / Services menu (port 8728).
- **Create** the **API user** in Mikrotik (user name "*api*" is recommended) with any password. Radius Manager will use this user to log on to Mikrotik to change the bandwidth on the fly.
- Enter the **same user** name and **password** in ACP / Edit NAS and enable the API in the same form.

If the API is configured properly and enabled in ACP / Edit NAS form, You will see the API user in Mikrotik log as he logs in and out in every 1-5 minutes (depending on *radiusmanager.cfg*).

The API is available in **Mikrotik v 3** or newer versions only. Older versions are not capable of controlling the bandwidth on the fly.

Restrictions of using the special bandwidth feature

Do not use "-1" suffix in user names when You register users in ACP, otherwise the system will unable to identify the simple dynamic queues and the special bandwidth feature will not function for a such named accounts.

Services / New service

Use this option to create new service.

- **Basic parameters:**

Service name – Define the service name.

Enable service – Select this checkbox to enable or disable the current service. Disabled services cannot be assigned to users.

Available in UCP – Enable listing of service in UCP.

Type of service (prepaid regular / prepaid card or IAS / postpaid / email / access list entry) – Define the service type. **Prepaid regular** services can be assigned to prepaid regular users only. **Prepaid card services** or **IAS** services can be assigned to classic prepaid cards and IAS templates only. **Postpaid** services can be assigned to postpaid users only. **Email only** accounts will not be able to log on; they can use their UNIX mailbox only. **Access list** entries are used with Mikrotik and StarOS to allow specific CPE to connect.

Limit download Bytes – Enable the capping of download traffic.

Limit upload Bytes – Enable the capping of upload traffic.

Limit total traffic – Enable the capping of total (download + upload) traffic.

Limit expiration – Enable the expiration date capping.

Limit online time – Enable the online time capping. You can create classic dial up services with predefined available online time.

Set data rates (DL / UL) – Define the download and upload data rate in kbps (0 – no limit).

Cisco policy map (DL) – Set the name of the download policy map defined in Cisco. Compatible with Cisco policy map feature.

Cisco policy map (UL) – Set the name of the upload policy map defined in Cisco. Compatible with Cisco policy map feature.

Download quota per day – Define the daily available download traffic in MegaBytes. Enter 0 if You want to disable this feature.

Upload quota per day – Define the daily available upload traffic in MegaBytes. Enter 0 if You want to disable this feature.

Total quota per day – Define the daily available total traffic in MegaBytes. Enter 0 if You want to disable this feature.

Time quota per day – Define the daily available online time in HH:MM:SS format. Enter 0 if You want to disable this feature.

Enable burst mode – Check this option if You want to use the burst mode.

Burst limit (DL / UL) – Define the burst limit of download and / or upload. This is the peak of the traffic the user can achieve. Burst limit is always greater or equal than the nominal data rate.

Burst threshold (DL / UL) – Define the threshold of download and /or upload. If the user overloads this limit after a predefined time, the limitation will begin and the actual higher data rate will be set to the nominal value (defined in Set data rates). Normally, use higher burst limit than nominal data rates.

Burst time (DL / UL) – Define the timeout after the limitation will begin if the client overloads the defined threshold limits. Experiment with this value; some Mikrotik versions don't interpret it properly. Test the timeout and if needed add a correctional value to it.

Priority – Define the priority of packets in dynamic queue.

IP pool name – Select a specified IP pool via the **Framed-Pool** RADIUS attribute. It is a Mikrotik and Cisco specific feature.

Next master service – Define the next master service. It is activated when the original master service gets expired.

It is very useful in such situations when a user account is expired, but You want to allow the user to use the Internet with limited bandwidth. Define a new flat service with limited bandwidth and select it from the dropdown list.

Next daily service – Define the next daily service. It gets activated if the user has no more available daily quota.

Ignore static IP – Do not use the CPE static IP defined in edit user dialog.

Custom RADIUS attributes – Allows entering user definable RADIUS attributes. The system will send these attributes to NAS in *Access-accept* messages.

Generate TFTP boot file – Generate the DOCSIS compliant TFTP boot file automatically. The TFTP file template is located in the *config* directory.

Advanced CM configuration – Define a source code of custom TFTP boot file.

Allowed NASs – Select the NAS devices where this service is available.

Available for managers – Select the managers who can use this service.

- **Price definitions:**

Postpaid price calculation (downloaded traffic / uploaded traffic / online time) – Define which traffic or time is used in the price calculation.

Monthly account – Defines the account monthly. It is required for auto renew.

Auto renew – Select this checkbox to enable renewing the accounts automatically by the system.

Postpaid monthly accounts are renewed on the specific day in the month. The day is selectable in ACP / System settings.

Prepaid monthly accounts are checked daily once and they get renewed if required. They have to hold enough deposit to cover the renew fee.

Reset counters if date expired – If the account's date is expired and credits were added reset the traffic counters to zero before adding the new credits.

Enable additional credits – Enable additional credit mode (monthly accounts only).

Net unit price – Define the price of one unit without VAT.

Gross unit price – Define the price of one unit with VAT.

Net additional unit price – This filed is used by monthly accounts. If defined, users can purchase additional credits if the date is not expired yet, but the account has no more available traffic left. VAT is not included.

Gross additional unit price – This filed is used by monthly accounts. If defined, users can purchase additional credits if the date is not expired yet, but the account has no more available traffic left. VAT is included.

Date addition mode (reset expiration date / prolong expiration date / prolong expiration date with correction) – Select how to add days to service. **Reset** always adds new days or months to the current date. It is used mainly by combined packages (1 month + x MB). **Prolong** adds time to the expiration date found in the user data. **Prolong with correction** adds time to the expiration date found in the user profile, but it will use the current date if expiration is in the past.

Time addition mode (reset online time / prolong online time) – Define how to add online time to accounts: always add to zero or add to the remaining value.

Traffic addition mode (reset traffic counters / additive) – Define how to add traffic to accounts: always add to zero or add to the remaining value.

Expiration date unit (days / months) – Define the amount of one date unit (days or months).

Online time unit (minutes / hours) – Define the amount of one time unit.

Download traffic unit – Define the amount of one download traffic unit.

Upload traffic unit – Define the amount of one upload traffic unit.

Total traffic unit – Define the amount of one total (download + upload) traffic unit.

Initial expiration date – Define the initial expiration. Applicable for self registered users only.

Initial online time amount – Define the initial online time of self registered users. Applicable for self registered users and for auto renewal.

Initial download traffic amount – Define the initial download traffic of self registered users. Applicable for self registered users and for auto renewal.

Initial upload traffic amount – Define the initial upload traffic of self registered users. Applicable for self registered users and for auto renewal.

Initial total traffic amount – Define the initial total traffic of self registered user. Applicable for self registered users and for auto renewal.

Minimal base amount – Define the minimal base amount which users can purchase.

Additional traffic unit – Define the additional traffic unit in MB.

Minimal additional amount – Define the minimal additional amount which users can purchase.

Services / Scheduled changes

Use this function to list the scheduled service changes. You can see the request date, the user name, the schedule date, the requested service name and who have requested the service change.

Services / Service change history

This list is used to check the activated services. You can see the request date, the user name, the schedule date, the requested service name and who have requested the service change.

The status field can be **scheduled**, **completed** or **cancelled**.

Managers / List managers

Using this option You can list the managers available in the system. You can select certain managers, select and deselect all managers. You can do the following actions with the selected items:

Enable – To enable the selected manager(s).

Disable – To disable the selected manager(s). Disabled managers cannot log on to the ACP.

Delete – Select this option to delete the selected manager(s). The default manager (admin) cannot be deleted.

Managers / List managers / Edit manager

Using this function You can edit manager's data.

Enable – Enable or disable the current manager.

Password – Enter a new password. The allowed characters are defined in *system_cfg.php*.

Confirm password – Enter the same password again.

Change password – Click to enable changing the password.

First name – Enter the first name.

Last (family) name – Enter the family name.

Company name – Enter the name of the company if applicable.

Address – Enter the postal address.

City – Enter the city.

ZIP – Enter the ZIP code.

Country – Select a country.

State – Select a state.

Phone number – Enter the phone number.

Mobile number – Enter the mobile number.

Email – Enter the email address.

VAT ID – Enter the tax identifier.

Comment – An optional comment.

Permissions:

- **List users** – Manager can list users.
- **Register users** – Manager can register new users.
- **Edit users** – Manager can edit basic user data (name, address etc.).
- **Edit privileged user data** – Allow editing the privileged fields (credits, static IP).
- **Delete users** – Manager can delete users.

- **List managers** – Manager can list managers.
- **Register managers** – Manager can register new managers.
- **Edit managers** – Manager can edit managers.
- **Delete managers** – Manager can delete managers.

- **List services** – Manager can list services.
- **Register services** – Manager can register new services.
- **Edit services** – Manager can edit services.
- **Delete services** – Manager can delete services.

- **Billing functions** – Manager can generate invoices.
- **Allow negative balance** – Manager can add prepaid credits if his account is in negative.
- **Allow discount prices** – Manager can freely form the price of service (offer discount).
- **Enable write off** – Enable the write off function (enter negative amounts in Add credits form)

- **Access invoices** – Manager can access the invoicing functions.
- **Access all invoices** – Access all invoices not only own.
- **Shown invoice totals** – Display the sums in List invoices.
- **Edit invoices** – Manager can edit postpaid invoices (payment date).

- **Access all users** – Manager can access all users in the system, not his own users only.
- **List online users** – Manager can list online users.
- **Logout users** – Manager can log out the users using the web interface.

- **Card system and IAS** – Manager can access the card and IAS template systems.
- **Connection report** – Grant access to CTS functions.
- **Traffic report** – Grant access to traffic report.
- **Maintain APs** – Grant access to AP functions.

Managers / List managers / Edit manager / Financial informations

Here You can see the account balance of the current manager.

Available balance – The balance of current manager. This field is read only.

Amount – Enter the amount to credit or debit the manager.

Payment type (cash / bank transfer) – Select the payment type.

Managers / New manager

Register new manager in the system.

Enable manager – Enable or disable the current manager.

Password – Enter a new password. The allowed characters are defined in *system_cfg.php*.

Confirm password – Enter the same password again.

Change password – Click to enable changing the password.

First name – Enter the first name.

Last (family) name – Enter the family name.

Company name – Enter the name of the company if applicable.

Address – Enter the postal address.

City – Enter the city.

ZIP – Enter the ZIP code.

Country – Select a country.

State – Select a state.

Phone number – Enter the phone number.

Mobile number – Enter the mobile number.

Email – Enter the email address.

VAT ID – Enter the tax identifier.

Comment – An optional comment.

Permissions:

- **List users** – Manager can list users.
- **Register users** – Manager can register new users.
- **Edit users** – Manager can edit basic user data (name, address etc.).
- **Edit privileged user data** – Allow editing the privileged fields (credits, static IP).
- **Delete users** – Manager can delete users.

- **List managers** – Manager can list managers.

- **Register managers** – Manager can register new managers.
- **Edit managers** – Manager can edit managers.
- **Delete managers** – Manager can delete managers.

- **List services** – Manager can list services.
- **Register services** – Manager can register new services.
- **Edit services** – Manager can edit services.
- **Delete services** – Manager can delete services.

- **Billing functions** – Manager can generate invoices.
- **Allow negative balance** – Manager can add prepaid credits if his account is in negative.
- **Allow discount prices** – Manager can freely form the price of service (offer discount).
- **Enable write off** – Enable the write off function (enter negative amounts in Add credits form)

- **Access invoices** – Manager can access the invoicing functions.
- **Access all invoices** – Access all invoices not only own.
- **Shown invoice totals** – Display the sums in List invoices.
- **Edit invoices** – Manager can edit postpaid invoices (payment date).

- **Access all users** – Manager can access all users in the system, not his own users only.
- **List online users** – Manager can list online users.
- **Logout users** – Manager can log out the users using the web interface.

- **Card system and IAS** – Manager can access the card and IAS template systems.
- **Connection report** – Grant access to CTS functions.
- **Traffic report** – Grant access to traffic report.
- **Maintain APs** – Grant access to AP functions.

NAS / List NAS

Display the available NAS (Network Access Server) devices in the system.

NAS / Edit NAS

Clicking the NAS name in the list You can edit it's parameters:

NAS name – Define the name of the NAS.

IP address – Define the IP address of the NAS.

Type (Mikrotik / StarOS / Chillispot / Cisco / pfSense / other) – Define the type of the NAS.

Secret – The RADIUS secret defined in NAS. Required by all NASs.

Password – The password of the NAS. Used by StarOS only.

Enable Mikrotik API – Enable the Mikrotik API access. It is used by the dynamic bandwidth system.

API user name – Enter the API user name.

API password – Enter the API password.

Cisco bandwidth support (None / Rate limit / Policy map) – Select a bandwidth controlling method You would like to use with Cisco.

Description – Add a comment.

NAS / New NAS

Register a new NAS in the system. The available fields are:

NAS name – Define the name of the NAS.

IP address – Define the IP address of the NAS.

Type (Mikrotik / StarOS / Chillispot / Cisco / pfSense / other) – Define the type of the NAS.

Secret – The RADIUS secret defined in NAS. Required by all NASs.

Password – The password of the NAS. Used by StarOS only.

Enable Mikrotik API – Enable the Mikrotik API access. It is used by the dynamic bandwidth system.

API user name – Enter the API user name.

API password – Enter the API password.

Cisco bandwidth support (None / Rate limit / Policy map) – Select a bandwidth controlling method You would like to use with Cisco.

Description – Add a comment.

AP / List AP

List the registered APs (Access points) in the system.

AP / Edit AP

Clicking the AP name in the list You can the following parameters:

Enable – Enable the current AP. The system access enabled APs only.

Name – Enter the name of the AP.

IP address – Enter the IP address of the AP.

Access mode (SNMP / Mikrotik API) – Select the desired access mode. **SNMP** supports wireless signal level only but it is more stable and faster than Mikrotik API mode. **Mikrotik API** mode supports wireless signal level, CCQ and SNR. The recommended selection is SNMP.

SNMP community – Enter the SNMP community defined in the AP. Required by SNMP mode only.

API username – Enter the Mikrotik API user name. Required by API mode only.

API password – Enter the Mikrotik API password. Required by API mode only.

Description – Enter a free description.

AP / New AP

Define a new access point.

Enable – Enable the current AP. The system access enabled APs only.

Name – Enter the name of the AP.

IP address – Enter the IP address of the AP.

Access mode (SNMP / Mikrotik API) – Select the desired access mode. **SNMP** supports wireless signal level only but it is more stable and faster than Mikrotik API mode. **Mikrotik API** mode supports wireless signal level, CCQ and SNR. The recommended selection is SNMP.

SNMP community – Enter the SNMP community defined in the AP. Required by SNMP mode only.

API username – Enter the Mikrotik API user name. Required by API mode only.

API password – Enter the Mikrotik API password. Required by API mode only.

Description – Enter a free description.

CMTS / List CMTS

List all registered CMTSs in the system.

CMTS / Edit CMTS

Edit the following parameters of the CMTS:

Name – Enter the name of the CMTS.

IP address – Enter the IP address of the CMTS.

SNMP community – Enter the SNMP community defined in your CMTS.

Description – Enter a free description here.

CMTS / New CMTS

Define a new CMTS.

Name – Enter the name of the CMTS.

IP address – Enter the IP address of the CMTS.

SNMP community – Enter the SNMP community defined in your CMTS.

Description – Enter a free description here.

IP pools / List pools

List the available IP pools.

IP pools / Edit pool

Edit the following parameters of the IP pool:

Pool name – Enter the IP pool name.

First IP – Set the first address in this IP pool.

Last IP – Set the last address in this IP pool.

Next pool – Select the next cascaded pool.

Description – Enter a free description here.

IP pools / New pool

Define a new IP pool.

Type (DOCSIS / RADIUS) – Select the type of the IP pool. DOCSIS is used by CMTS only, while RADIUS is required by RADIUS IP pool support.

Pool name – Enter the IP pool name.

First IP – Set the first address in this IP pool.

Last IP – Set the last address in this IP pool.

Next pool – Select the next cascaded pool.

Description – Enter a free description here.

Financials / List invoices

List and filter the invoices available in the system.

From date – Define a date from which You want to list the invoices.

To date – Define the date to which You want to list the invoices.

From invoice number – Specify the starting number of invoice You are looking for.

To invoice number – Specify the ending number of invoice You are looking for.

Payment gateway transaction ID – Online payment transaction ID.

Issued by – Enter the name of the account who has created the invoice.

Issued to – Enter the name of the account for whom the invoice was issued.

Account owner – Filter by account owner.

Comment – Search for comment.

Type (all transactions / only invoices) – Select which records to display.

Transaction of (users / managers) – List transactions of users and managers (resellers).

Payment type (cash / bank transfer / internal transfer / credit refill with card / PayPal Website Payments Standard / PayPal Website Payments Pro / PayPal Express Checkout / Netcash / Authorize.Net / DPS Payment Express / 2Checkout) – Set the filter of the payment method.

When listing the transactions You can display and print a certain invoice clicking the icon in the Action column.

Click on the invoice number to **edit the invoice**. The available fields are:

Payment completed on – Enter the date when the money transfer has been realized. It is used to disconnect the users automatically due to unpaid invoices (if the option is enabled in System settings menu. See also the grace period.).

Comment – An internal comment of invoice.

Financials / Generate postpaid invoices

This is a classic batch billing function for postpaid accounts. With the help of this You can generate and print thousands of invoices in two easy steps, directly from your WEB browser.

In the first step You have to define the billing parameters:

From date – Beginning of the billing period.

To date – End of the billing period.

User group – Process the selected group only.

Payment type (Cash / Bank transfer) – Define the type of the payment for all invoices.

After a confirmation the system will begin to generate the invoices for all postpaid users matching the predefined criteria. When the operation is finished, You can browse and print the generated invoices using the **ACP / Financials / List invoices** menu.

Card system / List card series

List the available card series (both refill and Classic Prepaid Card) in the system. CSV and PDF export is also available.

The **CSV file** looks like this:

id;pin;password

0000000000006; 22839965; 5264

0000000000007; 49422662; 8575

0000000000008; 39749969; 0997

0000000000009; 86978864; 2962

0000000000010; 29341225; 0362

The first column is the internal serial number of the card. The second is the PIN code, while the third column is the password of the card (if available).

The **PDF export** feature creates A4 pages with freely definable number of cards per page. This feature is very useful for smaller series. You can customize the amount of PIN codes per page, the position, the typeface, the font size, the background picture etc. in *system_cfg.php*.

You can select certain series, select and deselect all card series. The permitted operations with selected series are:

Revoke series – Use this function to disable the selected series.

Activate series – Use this function to enable the selected series.

Delete series – Use this function to delete the selected series.

WARNING!

Deleting of cards is not recommended. If You delete a card from the system, Radius Manager will know nothing about it when You generate later a new series and it can generate the **same PIN code** again. Pay attention to this. Use the **Revoke series** instead of deleting the cards.

Card system / List classic prepaid cards

List the classic prepaid cards registered in the system.

Card system / List refill cards

List the available refill cards.

Card system / Find refill cards

Find refill cards using the following parameters:

PIN – Enter the PIN code of refill card You are looking form.

Series – Enter the series of refill card You are looking form.

Activated by – Enter the name of the user to list all cards he activated.

Activated on – Enter the date of activation.

Status (any / active / expired / revoked) – Select the status of the cards to list.

Card system / Generate cards

Use this function to generate scratch cards. The parameters are:

Card type (classic prepaid / refill) – There are two card types available:

- 1. Classic prepaid cards** – They define traffic and / or online time limits. Users can log on to the system using the card's PIN code and password.
- 2. Refill cards** – They hold a value only. With these cards users cannot log on to the system. They are used to refill registered accounts in UCP.

Quantity – The number of cards to generate. Be sure to enter an amount what your system can handle easily. On fast server You can generate millions of cards in one step without getting a PHP script execution timeout error.

Gross card value – Enter the value of card with tax included (You sell the card for this value).

Valid till – Enter the date of expiration of the card in form YYYY-MM-DD. After the predefined date nobody can use these cards.

PIN length – The length of generated PIN codes are definable for each series.

Password length – The length of generated passwords are definable for each series. Only Classic prepaid cards can have password. Blank passwords are also allowed but not recommended.

Requires verification – Enable this if the generated cards have to get activated by an SMS code.

Associated service – Select the service used by classic prepaid cards. Not required by refill cards.

Download limit – Define the download limit of classic prepaid cards. Not required by refill cards.

Upload limit – Define the upload limit of classic prepaid cards. Not required by refill cards.

Total limit – Define the total traffic limit of classic prepaid cards. Not required by refill cards.

Online time limit – Define the available online time of classic prepaid cards. Not required by refill cards.

Expiration (Defined by valid till / Calculated from card activation) – Define the account expiration mode. When “**Defined by valid till**” is selected, the account will expire on the date which is defined by the “Valid till” field. If You use option “**Calculated from card activation**”, You will generate cards which will expire after the predefined time which is calculated from the activation of the card (first use).

Available time from card activation – Define the time amount if You are using option “**Calculated from card activation**”.

Simultaneous use – This field defines how many concurrent connections are allowed for a certain card. For regular use enter 1. If You are using pfSense, enter 2, otherwise the reauthentication feature will not function properly.

Card system / Card statistics

Display various statistical data of available cards in the system.

IAS / List IAS users

List all IAS users like regular users.

IAS / List IAS templates

Use this option to list the Instant Access Service templates available in the system. Click on the IAS template name to edit it's parameters:

Instant access service name – Define the name of the Instant Access Service template.

Enable IAS – Enable or disable the IAS in purchase IAS list.

Price – The gross price of the service.

Service name – The associated service.

Download limit – The download limit of the IAS in MegaBytes.

Upload limit – The upload limit of the IAS in MegaBytes.

Total limit – The total limit of the IAS in MegaBytes.

Expiration – The predefined expiration date (fixed date) of the IAS.

Online time limit – The available online time of the IAS in hours.

Expiration (Defined by expiration date / Calculated from account activation) – Select the IAS expiration method.

Available time from account activation – Defines the available time calculated from the IAS activation (from first use).

Simultaneous use – Define how many concurrent connections are allowed for a certain IAS account. For regular use enter 1. If You are using pfSense, enter 2, otherwise the reauthentication feature will not function properly.

IAS / New IAS template

Define new IAS template. The fields are:

Instant access service name – Define the name of the Instant Access Service template.

Enable IAS – Enable or disable the IAS in purchase IAS list.

Price – The gross price of the service.

Service name – The associated service.

Download limit – The download limit of the IAS in MegaBytes.

Upload limit – The upload limit of the IAS in MegaBytes.

Total limit – The total limit of the IAS in MegaBytes.

Expiration – The predefined expiration date (fixed date) of the IAS.

Online time limit – The available online time of the IAS in hours.

Expiration (Defined by expiration date / Calculated from account activation) – Select the IAS expiration method.

Available time from account activation – Defines the available time calculated from the IAS activation (from first use).

Simultaneous use – Define how many concurrent connections are allowed for a certain IAS account. For regular use enter 1. If You are using pfSense, enter 2, otherwise the reauthentication feature will not function properly.

Reports / Online users

Use this function to display the online users list. Possible actions are:

Disconnect users – Use this function to remotely disconnect the selected users from a NAS.

Close sessions – Closes the selected session(s), without disconnecting the user(s).

Reports / Registered cable modems

List the registered cable modems in all CMTSs. This list is updated in every 5 minutes (see the cron job).

Reports / Traffic report

You can check the all time traffic report for all users.

Reports / Find traffic data

Filter the traffic data by parameters:

User name – Define the user name whose traffic data is important for You.

Framed IP address – You can also search for the IP address which was assigned to a certain user.

Calling station ID – Search for user's MAC address.

Use selected interval – Turn this option on to use the specified interval in traffic listing.

From date – Beginning of interval.

End date – End of interval.

You can also leave all fields empty or combine them. Joker characters are not allowed.

Reports / Traffic summary

Use this function to overview the used traffic of all users in the given period. The generated report is exportable to CSV.

From – The beginning date of report.

To – The ending date of report.

Reports / Connection report

Filter the connection data. Parameters are:

User name – Define the name of the user.

Source IP and port – Define the source IP address and port of the connection.

Destination IP and port – Define the destination IP address and port of the connection.

Protocol (any / TCP / UDP) – Select the used protocol.

From date – Define the beginning date of the listing.

To date – Define the ending date of the listing.

From time – Define the beginning time of the listing.

To time – Define the ending time of the listing.

Reports / Last syslog events

Display the last 50 system log events.

Reports / Browse syslog

Browse all time system log events.

Reports / System informations

Display license and module details.

Reports / System statistics

Display the account statistics.

Tools / Send email to all users

You can send email to all users. If the email address isn't defined for a certain user, the system will construct the email address from the username and the domain name defined in *system_cfg.php*.

The available fields are:

Send to (Preview user only / All users) – select to whom You would like to send the email. It is always recommended to send a preview of message to your email address first, before You begin the mass mailing operation.

Subject – Enter the subject of message.

Message – Type the text of email.

Tools / Start RADIUS server

Select this option to start the RADIUS server.

Tools / Stop RADIUS server

Select this option to stop the RADIUS server.

Tools / Restart RADIUS server

Select this option to restart the RADIUS server.

Tools / Rebuild clients.conf

Synchronize *raddb/clients.conf* with the registered NASs in one step.

Tools / Start DHCP server

Select this option to start the DHCP server.

Tools / Stop DHCP server

Select this option to stop the DHCP server.

Tools / Restart DHCP server

Select this option to restart the DHCP server.

Tools / Rebuild dhcpd.conf

Synchronize *etc/dhcpd.conf* with CM accounts registered in the system.

USER CONTROL PANEL (UCP)

Overview

The **User Control Panel** (UCP) is used by regular users to check their traffic, personal data, invoice details etc.

You can access the UCP using the following URL:

<http://yourhost/radiusmanager/user.php>

Description of menu functions

Home

Navigate to the home page. Users can get overview of account data.

Traffic report

Users can check their traffic report in a well organized form.

List invoices

Users can access their invoices stored in the system.

Change password

With the help of this function users can change their passwords themselves. They have to enter the old password (for verification) and the new password two times to complete the operation.

Redeem voucher

With this function users can enter the refill card's PIN code to increase the internal deposit. After three unsuccessful tries the system will disable the function.

Purchase service

The user can purchase service using his internal deposit or any other payment system available. Clicking the **Purchase service** link the system shows the current service data. The user has to enter the amount of units he wants to purchase. The system checks for the available credits and notifies the user about a successful or unsuccessful transaction.

Monthly combined accounts are special: only one month can be added at once. If a monthly combined account is not yet expired (date), user can purchase additional MegaBytes on a special price. Negative amount cannot be entered.

Change service

Users can choose which prepaid service to use. They can select the appropriate service form the list. After confirmation the system will change the service immediately.

Edit personal data

Users can edit their personal data if the feature is enabled in ACP / System settings. The available fields are:

First name – Define the first name of the user.

Last (family) name – Define the last (family) name of the user.

Address – Define the address of the user.

City – Define the city of the user.

ZIP – Define the ZIP of the user.

Country – Define the country of the user.

State – Define the state of the user.

Phone – Define the phone number.

Mobile – Define the mobile number.

Email – Define the email address of the user.

Company – Define the company name (if applicable).

VAT id – Define the tax identifier.

Logout

Log out the current user from the UCP.

APPENDICES

Customizing the invoice form

The invoice form customization is a very easy procedure. You need only a UTF-8 compatible HTML editor or a text editor with UTF-8 support. The file name of the invoice is *invoice_tpl.htm*, the logo image name is *invoice-logo.gif*.

The following tags can be used on the invoice form:

- **{MANAGERNAME}** – Name of the manager who created this invoice.
- **{FULLNAME}** – The customer's full name.
- **{USERNAME}** – Name of the user.
- **{ADDRESS}** – The customer's address.
- **{CITY}** – The customer's city.
- **{ZIP}** – The customer's ZIP code.
- **{COUNTRY}** – The customer's country.
- **{STATE}** – The customer's state.
- **{PHONE}** – Phone number.
- **{MOBILE}** – Mobile number.
- **{VATID}** – The customer's tax identification number.
- **{INVID}** – Invoice number.
- **{YEAR1}** – Invoice creation year.
- **{MONTH1}** – Invoice creation month.
- **{DAY1}** – Invoice creation day.
- **{YEAR2}** – Payment option year.
- **{MONTH2}** – Payment option month.
- **{DAY2}** – Payment option day.
- **{SERVICE}** – The name of the service.
- **{AMOUNT}** – The amount of the service sold.
- **{NETPRICE}** – Unit price without tax.
- **{VATPERCENT}** – VAT in percents.
- **{PRICE}** – The price of the service without tax.
- **{VAT}** – VAT amount.
- **{TOTALPRICE}** – Total price with or without tax.
- **{CURRENCY}** – System wide currency.
- **{PAYMODE}** – Payment mode can be cash payment or money transfer.
- **{REMARK}** – Remark field.

Customizing the email forms

Radius Manager can send email notifications for users before they reach their limits (account expiration date, traffic limits) or upon completion of various operations like changing services etc.

The system sends emails in plain text format. These email templates are located in *lang* directory. The files are:

- **mailaccrenewed_tpl.txt** – The user gets this email after his account has been renewed successfully (auto renew).
- **mailaccrenewfail_tpl.txt** – The user gets this email after a unsuccessful auto renewal.
- **mailforgotpsw_tpl.txt** – Verification link email for password recovery function.
- **mailiasreg_tpl.txt** – Sent for managers when new IAS account is registered.
- **mailnewpsw_tpl.txt** – Sent for users when new password is activated.
- **mailselfreg_tpl.txt** – Self registered user notification sent for managers.
- **mailsrvchg_tpl.txt** – This email is sent upon changing the current service.
- **mailwarnexp_tpl.txt** – This email template is used to send warning messages before the account expiration date.
- **mailwarntraff_tpl.txt** – This template is used to send email warnings about reaching the traffic limits.
- **mailwelcomeuser_tpl.txt** – The email which will be sent when administrator registers a new user.

You can edit these files easily using your favorite UTF-8 compatible HTML editor.

Database maintenance

Cumulating the old accounting data

You can use the supplied *cumulate.sql* script to cumulate the accounting data in RADIUS database. The accounting data is stored in the **radacct** table.

The steps of cumulating particular year's accounting data are:

1. Define the correct year in *cumulate.sql* script.
2. Execute the *cumulate.sql* script using mysql command line client:

```
[root@localhost]# mysql -u radius -pradius123 radius < cumulate.sql
```

In the example above the MySQL user name is **radius** and the password is **radius123**. Be sure to use no space between the `-p` flag and password.

The script will cumulate the data to December 31. in the specified year. Be sure to cumulate only past years and not the current.

Cumulating the accounting data will delete the detailed accounting information from the *radacct* table and creates one accounting entry for every user in the predefined period. The decreased number of accounting information will speed up the system and reduce the database size.

WARNING!

Always create a **full database backup** before You begin any database maintenance!

Deleting the old accounting data

You can use the supplied *deloldyears.sql* script to delete the old accounting data from the RADIUS database. The accounting data is stored in the **radacct** table.

The steps of deleting particular year's accounting data are:

1. Define the correct year in *deloldyears.sql* script.
2. Execute the *deloldyears.sql* script using mysql command line client:

```
[root@localhost]# mysql -u radius -pradius123 radius < deloldyears.sql
```

In the example above the MySQL user name is **radius** and the password is **radius123**. Be sure to use no space between the `-p` flag and password.

Deletion the old accounting data will speed up the system and reduce the database size dramatically.

WARNING!

Always back up the **COMPLETE DATABASE** before You begin a database maintenance!

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