# AAA-server


# Brief description

# Content

## *FEATURES*

- All data (e.g. subscribers, tariffs) is stored in the database

- Postgres is used as database backend

- Creation and support of unlimited number of tariffs with various configurations

- Creation and support of unlimited number of subscribers with various configurations

- Operation in time, traffic and time and traffic counting mode

- Counting of traffic in any directions

- Operation without accounting. Only as authentication and authorization service.

- Capability – VPN, DialIn and Hotspot services

- Operation in limited mode; depends on the account funds, time and/or traffic

- Limits for a day, a week, a month and a total usage

- Operation in fixed day rate mode

- Operation in mixed modes

- Setting of rate per each hour at any day of the week and at holiday

- Setting of traffic cost (up to 24 traffic sizes).

- Setting of throughput for the subscriber.

- Per second or per minunte charging

- Holidays

- Activation from the first connection and for the set period of time.

- Setting of subscribers login expiry date.

- Setting of subscribers login validity start time.

- Possibility to use the service in credit.

- Corporate bills (*)

- Subscriber's login blocking

- Assignment of fixed IP addresses for each subscriber

- Complete information about the connections (statistic)

- Easy and flexible system management via the web interface

- Operations with prepaid cards

- Limits for the access time and date

- "Live" statistics support (**)

- Subscriber disconnection (reset) at various conditions (**)

- Individual subscriber price list

- Different price lists for groups and subscribers for different access servers

- Concurrent prepaid and postpaid modes.

- Subscriber authorization by IP address.

- Subscriber authorization by mac address.

- Built-in portal system. Capability to integrate with external portal systems.

- Support for external authorization sources like social networks, cellular networks.

- Configurable storage for user history: sessions with ip-addresses, access points, etc.

** introduced for some hardware access servers

## *Brief explanation*

Billing is based on the scope of rendered services which can be determined by the total duration of the subscriber sessions (time logging), used traffic (traffic logging), number of sessions and any combination thereof.

Payment is charged in accordance with the tariff settings or individual subscriber price at session start, during the session and at end of session.

Traffic logging is counting of the traffic size passed from/to the subscriber through the access server. It is determined by the price list of the service.

The following types of traffic can be logged: incoming traffic to the access server, outgoing traffic from the access server, total traffic (incoming + outgoing), maximum traffic (from the incoming and outgoing traffic), minimum traffic.

It should be noted that the maximum and minimum traffic is determined for the period of time between arrivals of alive packets from the access server and therefore it is inaccurate to speak of the maximum incoming or minimum outgoing traffic.

Service cost calculation by the traffic size can be performed by two methods as follows:

- Depending on the time of the day/day of the week (irrespective of the traffic size).

- Depending on the traffic size (irrespective of the time of the day/day of the week).

In both cases service cost calculation is based on the tariff price list, individual subscriber price list or access server price list.

Example:

0 — 300 : 1.5 : 1.5

300 — 1000 : 1.4 : 1.4

1000 — 0 : 1.2 : 1.2

In this example, the price list with three traffic sizes is shown: from 0 Mb to 300 Mb with the cost of incoming and outgoing traffic of 1 ruble 50 kopecks, from 300 Mb to 1,000 Mb with the traffic cost within this range of 1 ruble 40 kopecks and from 1,000 Mb upwards with the traffic cost of 1 ruble 20 kopeks.

Time logging is performed even if the service cost calculation is not time dependent. Session start time, session end time and session duration are logged as minimum.

Service cost calculation is based on the price list (tariff price list, individual subscriber price list or access server price list). The price list contains information about the cost of 1 hour of service for each hour of the day, day of the week and for a "special" day.

Session duration is counted per second or rounded up to minutes.

## System concept

AAA-server inherit main system concept which can be generally described as hierarchical relationships:

- System owner

- One or more service providers or served networks

- Several resellers for each provider.

Providers and resellers have authorized operators. Rights of individual operators in the system are adjustable.

Providers render one or more services (e. g. Internet access, equipment rental/support).

The rules and parameters of the provider's services are determined by the tariffs. The tariffs describe the payment procedure for the rendered services, payment dates and other service related parameters.

As a rule, resellers re-sell the services of the providers. Not all of the provider's tariffs can be accessible to them (and subsequently to the subscribers) and their operations in the system can be restricted.

The system has functions related to charging for the use of services and execution of settlements between the system owners and providers, providers and resellers, providers and subscribers.

There are several web interface levels in the system (see the diagram below):

- Access for system owners (root).

- Access for providers

- Access for reseller

- Restricted access for operator

- Access for subscriber (end user).



## Web-interface

AAA-server has powerfull web-interface to manage the system. Below are screenshots for

some functions of AAA-server.

## Tariff creation

Файл  Правка  Вид  Журнал  Закладки  Инструменты  Справка

[ Control Center-4.0 ]

https://hc.stasoft.net/app/suite/provider/index.php?q=rad.ProvTariff2.add&page=

Поиск

DialIn    Reports    Provider    Data    NMS    Settings

**Create new tariff**

General    Assigment    Limitations

| | |
|---|---|
| **Name:** | Hotspot tariff for one day |
| Billing type: | do not draw |
| traffic: | do not count |
| money from account: | do not draw, store statistics only |
| Charge fixed sum: | do not draw |
| Fixed sum: | |
| Funds on account: | 3 |
| Credit available: | 0 |
| Time to live for account (days): | 1 |

Enable advertising on this tariff?:  ☐   How offten show ad banner (in seconds. Should be greater than 30 seconds):  0

Save

**\* Filling of highligted fields is mandatory!**

## List of tariffs

[ Control Center-4.0 ] Tariffs - Mozilla Firefox    11:01

[ Control Center-4.0 ... ]

https://hc.stasoft.net/app/suite/root/index.php?q=rad.Tariff2.table_view&page

Поиск

Data    DialIn    Reports    NMS    Settings

| # | Name | Billing type | Charge fixed sum | Funds on account | Credit available | Time to live for account (days) | Subscribers | Options |
|---|---|---|---|---|---|---|---|---|
| 1 | Unlimited | do not draw | do not draw | 0.00 | 0.00 | unlimited | 1 | ✏ ✖ 🖱 |
| 2 | Unlimited | do not draw | do not draw | 0.00 | 0.00 | unlimited | 1 | ✏ ✖ 🖱 |
| 3 | Hotspot tariff for one day | do not draw | do not draw | 3.00 | 0.00 | 1 | 100 | ✏ ✖ 🖱 |

**Total: 3**

## Subsribers list

| # | Login | Tariff | Funds on account | Available credit | Expired | Last connection | Used time (hh:mm:ss) | Used traffic (MB) | Used money | Options |
|---|-------|--------|------------------|------------------|---------|-----------------|----------------------|-------------------|-----------|---------|
| 1 | PROMO_1 | Unlimited | 0.00 | 0.00 | | / | | 0 | 0.00 | |
| 2 | PROMO_2 | Unlimited | 0.00 | 0.00 | | / | | 0 | 0.00 | |
| 3 | 8fe3z2 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 4 | 8fe3z3 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 5 | 8fe3z4 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 6 | 8fe3z5 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 7 | 8fe3z6 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 8 | 8fe3z7 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 9 | 8fe3z8 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 10 | 8fe3z9 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 11 | 8fe3z10 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 12 | 8fe3z11 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 13 | 8fe3z12 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 14 | 8fe3z13 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 15 | 8fe3z14 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 16 | 8fe3z15 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 17 | 8fe3z16 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |
| 18 | 8fe3z17 | Hotspot tariff for one day | 3.00 | 0.00 | | / | | 0 | 0.00 | |

Prepaid cards are ready to use



Click on card to send Login/Password to customer via SMS

| # | Image | Cost of card | Creation date | Subscribers | Tariff | Description | Options |
|---|-------|--------------|---------------|-------------|--------|-------------|---------|
| 1 | Stay connected! Use credentials from this voucher to access internet. Please, ask our staff to get help. Login Password | 3.00 | 2016-05-11 11:57:47 | 100 | Hotspot tariff for one day | Cards for one day access of ho | |

Total: 1

Cards with access credentials and default design are ready to print
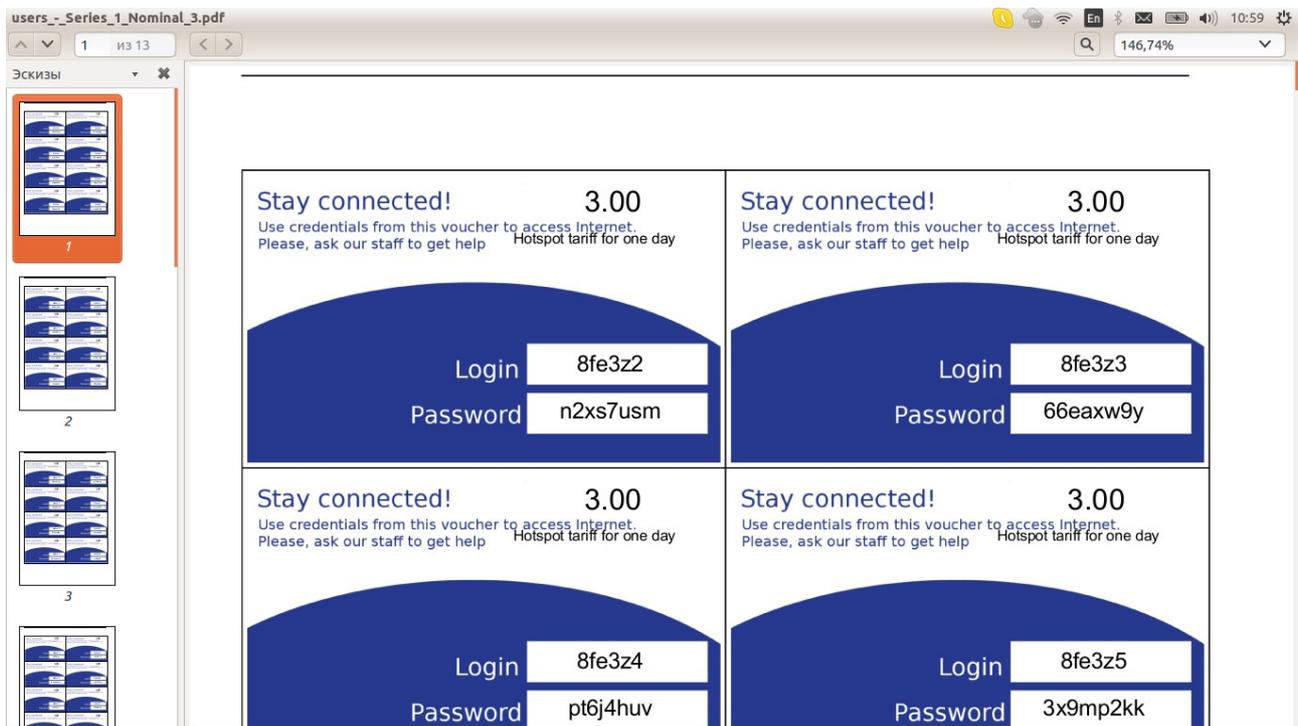
## AAA-server integration

AAA-server is integrated with our hotspot and wireless access controllers. It can be integrated with other systems by the request.