Hydra
billing system

User Guide

Version 4.1.3

Contents

1. Introduction

Hydra Billing is a proprietary product of the Hydra Billing Solutions LLC and is a professional convergent solution for service providers. The system can be used in public networks, bringing together up to 1.5 million customers for rating:

- local, regional, national and international phone services;
- traffic services including voice transmission;
- telematic services;
- communication channel provision.

Hydra Billing provides many ways of setting up price plans and additional services. The system supports the following rating methods:

- prepayment (in advance);
- credit (deferred payments);
- mixed schemes involving the reservation (blocking) of customer account funds which are gradually used up in the current billing period.

Electronic document management, built into the system, allows the provider's price policies to be carried out with minimal effort. Change log (archive) of plans is saved, and group and individual plans are managed with ease.

Hydra Billing makes it possible to have a single bill for all customer service rendering and to create attractive new price plans that combine different types of services, (phone and internet, internet and television, etc.).

For more information, visit our website www.hydra-billing.com, email us at info@hydra-billing.com or call +359 2 437 41 10.

2. Fundamentals
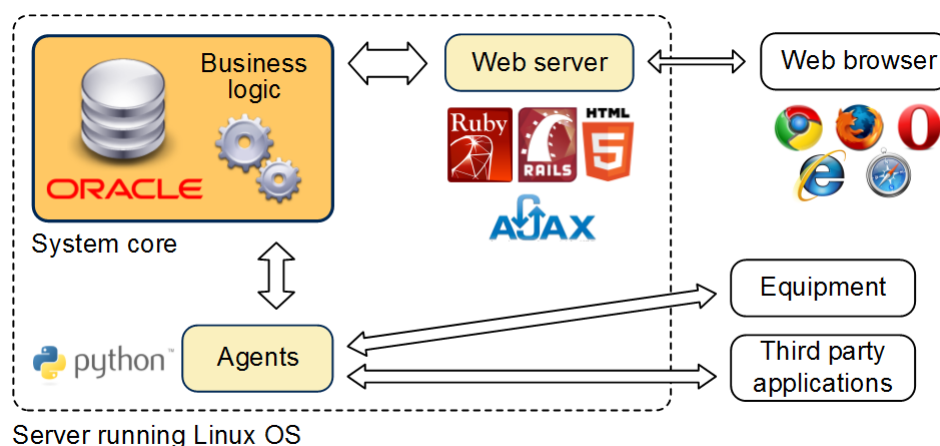
Scheme 1: "Thin client" architecture

Hydra Billing is built on an Oracle database with a "thin client" architecture. The whole system business logic lies in its core on the database side, and client applications only provide user interaction and work with the core via a standardized software interface. This configuration allows you to integrate the system quickly and as deeply as possible into the company IT infrastructure, ensuring its connection with the rest of the software and hardware. In this way, Hydra Billing can be a part of the integrated solution for the service provider, performing tasks related to customer accounts, contracts, rating services, and invoicing.
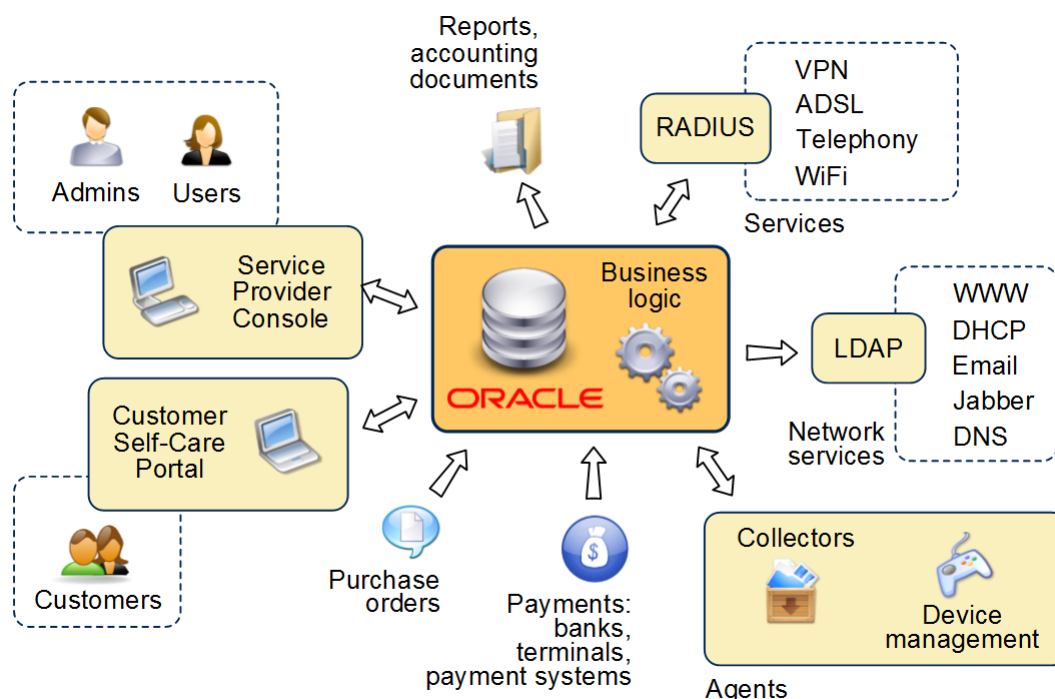
Sheme 2: General scheme of the system operation

Hydra Billing is managed through the **Service Provider**

application. Customers have a separate application — **Customer Self-Care Portal**, where they can get all the information they need about their existing services as well as independently subscribe to new services.

Important system modules are called **agents**. Details of services rendered are collected and transmitted to the core with their help. The special module — **Equipment Management Agent** — works directly with equipment, carrying out system instructions such as switching on and off customer ports. This agent supports common management protocols such as SNMP, rsh, ssh, and Telnet and works with software firewalls — in particular ipfw and iptables. The agent is also used for mass mailings of information from the system, such as invoices or notifications of a critically low customer account balance.

Another group of modules is designed to integrate Hydra Billing with various automated systems. Synchronization with the LDAP directory (or Active Directory) makes it easy to create a unified system of authorization and management of standard and non-standard network services. Integrating with the RADIUS server allows the system to gather information about the services that are being charged at that time.

Hydra Billing supports a variety of ways of entering the customer payment information. These include:

- manual input (for single payments and adjustments);
- downloading bank statements from an internet bank with automatic recognition of the contracting party, invoice or contract under which a payment is made;
- automatic receipt of payments from various payment systems (credit cards, payment terminals, electronic money, and so on).

There is also a special program interface to automate payment input from non-standard systems.

Invoices for services, issued by the Billing, can be downloaded to an external corporate system. As well as the invoices, all information you need to synchronize the contracting party's reference data and product catalog can be downloaded in CommerceML format.

Hydra Billing offers a variety of ways of working with printed forms, including flexible report generation. Any document can be downloaded in printed form (compatible formats include OpenOffice, Microsoft Word, and HTML), and because of the variety of formats, every kind of document can be produced in several ways. You can therefore create different views of the same document, including various data groups.

The system may receive external purchase orders from the provider or the clients themselves on the company website.

2.1. Concepts and Terms

In this section:

- Subjects and Their Roles
- Product Catalog and Objects
- Documents
- Services
- Subscriptions to Services
- Addresses and Regions

See also:

- Basic Entities Relationship

The functionality of Hydra Billing is based on the interaction of three basic entities — **subjects**, **objects**, and **documents**. Other important terms used are services, subscriptions to services, and addresses.

Subjects and Their Roles

Subject — one of the basic entities of Hydra Billing. **Basic subjects** are individuals and organizations.

Basic subjects can act on the system in one or more roles: service provider, customer or bank. Each role has its own properties and way of working within the system. An individual can be a customer of several providers and an organization can be a service provider, a bank serving accounts, and at the same time be a customer of other providers. This approach allows you to avoid duplicating data and enables to structure information in a convenient way by combining attributes that belong to a particular role.

Basic subjects and their roles are predefined in the system and cannot be changed.

Subject type	Features	Application
Individual	Basic subject	Used to store individual's details: first name, surname, middle name, passport details, home address, and so on.
Organization	Basic subject	Used to store organization's details (name, legal form, legal address, and so on).
Customer	Role of an organization and individual	Role of an individual or organization, used as a customer requiring services.
Service provider	Role of an organization	Role of an organization, used as a service provider as well as a contracting party.

Bank	Role of an organization	Role of an organization, used as a bank or payment system and to store current accounts of other organizations.
Subject group	Various types of groups: individuals, organizations, customers	Used to divide subjects even when it is not possible to classify them in other ways for example by basic contract, region, basic subject type, and so on.

Hydra Billing allows one database to keep records for several *divisions* of the company providing services. They can be separate divisions of the same organization (subsidiaries, representative offices), as well as different organizations.

Technically, divisions are service providers, combined with each other in a hierarchical structure, which you can see in the section **Master Data** > **Organizational Structure**. You can create several service providers (divisions) on the basis of one organization, or each service provider can be created on the basis of its own organization.

If the company has no subsidiaries, there will only be one division in the system.

Product Catalog and Objects

Product catalog is a list of services, price plans, penalties, as well as types of equipment, network services and real estate objects.

Objects, such as CPE, provider equipment, and network services, are created on the basis of the product catalog entries. In Hydra, an *object type* is the entry on which the object was created. Types of equipment and network services are stored in the *Material assets* and *Network services* sections correspondingly.

You can customize a *specification* for a product catalog entry that belongs to any of these sections. The specification defines what *components* and in what quantity an object can have. Each *specification item* (line) is a type of an equipment or network service component.

Specification items, in their turn, also have types. *Types of specification items* are stored in the product catalog.

In the example above, you can see that in the *Active equipment* group there are two types of specification items — *Port* and *Control port.*

In the *Switches* group, there are entries for various switch models. For the *D-Link DES-3028* entry, there is a specification. It contains three specification items created on the basis of the *Port* type: *10/100Base-TX port*, *10/100/1000Base-T port* and *10/100/1000Base-T/SFP combo port*. A switch of the *D-Link DES-3028* type can have up to 24 components of the *10/100Base-TX port* type, 2 components of the *10/100/1000Base-T/SFP combo port* type, and 2 components of the *10/100/1000Base-T port* type.

On the basis the *Control port* type, the *CPU* specification item is created. A switch can have one component of such a type.

Object DES3028 #1

Type: *D-Link DES-3028*

Components

- ■ Port #1
- ■ Port #2
- ⋮
- ■ Port #24

} components of the
10/100Base-TX port type

- ■ Combo port #1
- ■ Combo port #2

} components of the
*10/100/1000Base-T/SFP
combo port* type

- ■ Port #1
- ■ Port #2

} components of the
100/1000Base-T port type

- ■ Control port #1 — component of the *CPU* type

Documents

Hydra Billing is completely based on electronic documentation, largely reflecting the actual workflow of the service provider.

The **document** is the basic system entity, describing the interaction between subjects and objects. Documents come in various types.

- *Basic contract* — a contract containing information about the supplier, the recipient, and the services provided. The basic contract is the basis for the creation of individual contracts. The basic contract can be applied to one customer or to a group, which allows the terms of the contract to be easily changed, especially price plans.

- *Service contract* — a contract which is specific to the customer and defines the services provided to him. The service contract can be concluded on the basis of the basic contract: services can be specified in it additional to those contained in the basic contract.

- *Price specification* — an annex to the basic contract or service contract. The price specification, in force on customers through the basic contract, defines services from the catalog which are included in the price plan and sets prices for these services depending on various terms. The basic price specification allows you to quickly change the terms of price plans for groups of customers. In order to create individual price plans with the corresponding service contract, a separate *individual price specification* is available, which defines or overrides the prices of the services you need.

- *Cash order* — a financial document confirming the receipt or payment of cash.

- *Payment order* — a financial document containing the order of the payer (the account holder) for the servicing bank to transfer a sum of money to the account of a specified recipient.

- *Bank statement* — a document consisting of rows of information on payments received on the recipient's account for a certain time period. The statement can be uploaded into Hydra Billing manually from internet banking or automatically from any payment system. After changing the bank statement status to *In force*, the system generates payment orders based on the rows of information.

- *Charge log* — a document issued by the provider to the customer containing detailed information on service providing: quantity, units of measurement, cost, etc. The charge log is generated after the customer has started to receive or has received goods or services. The provision of services can be fixed at certain intervals.

- *Invoice* — a document issued by the seller to the buyer containing information about the composition, price, quantity, and cost of services rendered and goods sold to the customer during the billing period.

- **Exchange rates specification** — a document which sets exchange rates for the currencies used in the system.
- **Period closing memo** — a document that prohibits editing charge logs, invoices, payment orders, cash receipts, bank statements, and orders during its period.
- **Period opening memo** — a document abolishing, during its period of validity, the corresponding period closing document.
- **Subscription migration plan** — a document that defines the rules for the transfer between price plans (including change fee).
- **Discount specification** — a document defining the rules and terms for granting discounts to customers.
- **Discount certificate** — a document showing customer discounts from the discount specification.

The most important properties of a document are its status (for example it may be a draft, executed, declined or canceled) and its validity period.

Services

Services — actions that the provider carries out for the benefit of the customer. Examples of services could be internet access, phone calls, real IP address, and transfer between plans. The service can be one-off or recurrent. The list of possible services is contained in the product_catalog. For each service, you can choose the service providing scheme.

Service providing scheme — a saved configuration of service settings. The schemes are configured by the administrator and for each new service, you can choose a suitable scheme.
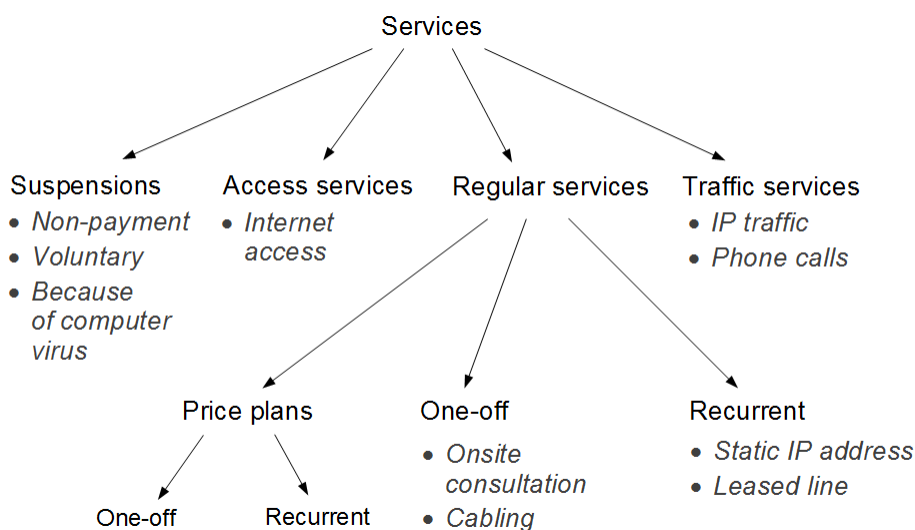
Scheme 3: Service types in Hydra Billing

There are different types of services specified in the service rendering scheme.

- **Access services** — services of the same type which manage customer access to the services via events. Access services can only be part of price plans.
- **Suspension services** — services with *Non-payment suspension* or *Temporary suspension* type, which block the action of other services in different ways.
- **Traffic services** (data and voice traffic) — services where consumption data is fed into the system automatically, so you cannot subscribe or unsubscribe directly to them. These services can only be part of price plans. You can aggregate and archive traffic data to store information about IP traffic in a compact form.
- **Regular services** — services and price plans which are not suspension, access, or traffic services. The regular price plan, however, may include access and traffic services.

Price plans — services which may contain other services. The price plan itself cannot be part of another plan. The contents of the plan and cost of services included in it are determined in the price specifications. The list of price plans is also contained in the product catalog.

In addition, services can be divided into two categories — **scheduled** and **unscheduled**. The quantity of scheduled services, if any, is known before the customer receives them; such services are already in the client's charge log when its status is changed to *Actual*. For example, a price plan is a scheduled service, its cost is determined in advance.

Unscheduled services appear in the current customer charge log, because the number and timing of such services is not known in advance. These services include traffic services (internet traffic, phone calls, and so on), as well as the various services included in the price plan, which the client uses in the current billing period, for example increasing the speed or resetting the limits for incoming internet traffic.

The concepts of both scheduled and unscheduled services apply when deferred payment is used for services provided to the customer.

Subscriptions to Services

Subscriptions to services is used when a customer wants to get certain services at a particular time on specific equipment, paying for them using a designated customer account within a given contract. The customer can have multiple subscriptions at the same time. Subscriptions are managed on the customer's page. Every subscription has an active period with start and possibly end dates.

Customer subscriptions may be:

- **closed**, if their end date is earlier than the current date and there are no valid charge logs. Subscriptions are closed by the *Preparing charge logs for recurrent services* task;
- **open**, if they are active now or will be in the future, irrespective of any charge logs for them;
- **current** — open subscriptions active now, irrespective of any charge logs for them;
- **valid** — subscriptions for which there are valid charge logs.

Addresses and Regions

In Hydra Billing the concept of **address** refers to both usual (street) addresses and any other types of addresses, for example MAC address, IP address, email address, ICQ or Skype number, or phone number.

Street addresses are typically based on regions, that are chosen from a special directory.

2.2. Basic Entities Relationship

In this section:
- Interaction of Entities Needed to Provide Customer Services
- Customer Relationship with Other System Entities

See also:
- Concepts and Terms
- Organization of Customer Premises Equipment
- Create Groups, Contracts and Price Specifications

Interaction of Entities Needed to Provide Customer Services

For a better understanding of how to provide customer services in Hydra Billing, see the overview below.

Product catalog enrties

↓ *compile*

Price plan

↓ *is in contents*

Price specification

↓ *is an annex to*

Contract

↓ *is made with*

Customer

↓ *available*

Subscription to services

↓ *basis for issuing*

Charge log

↓ *basis for providing*
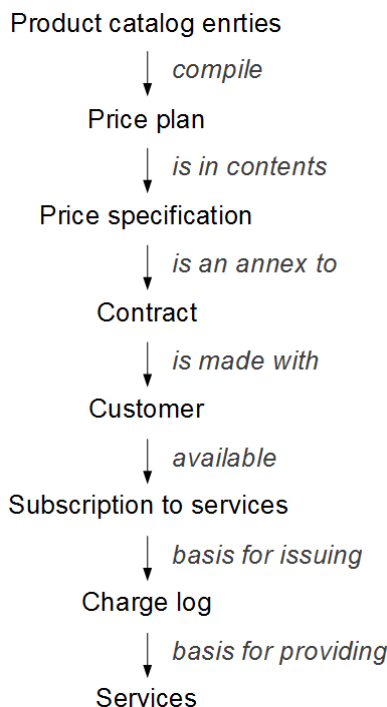
Services

Scheme 4: Entities interaction in Hydra Billing

Service entries in the catalog are used to compile the price plans in the price specifications. The price specifications themselves are annexes to the contracts. You must make a separate service contract with every customer (and also give the customer a customer account and equipment), and then the customer will be able to subscribe to services. The charge log is issued based on the subscription and the customer gets his or her access to the services.

Customer Relationship with Other System Entities
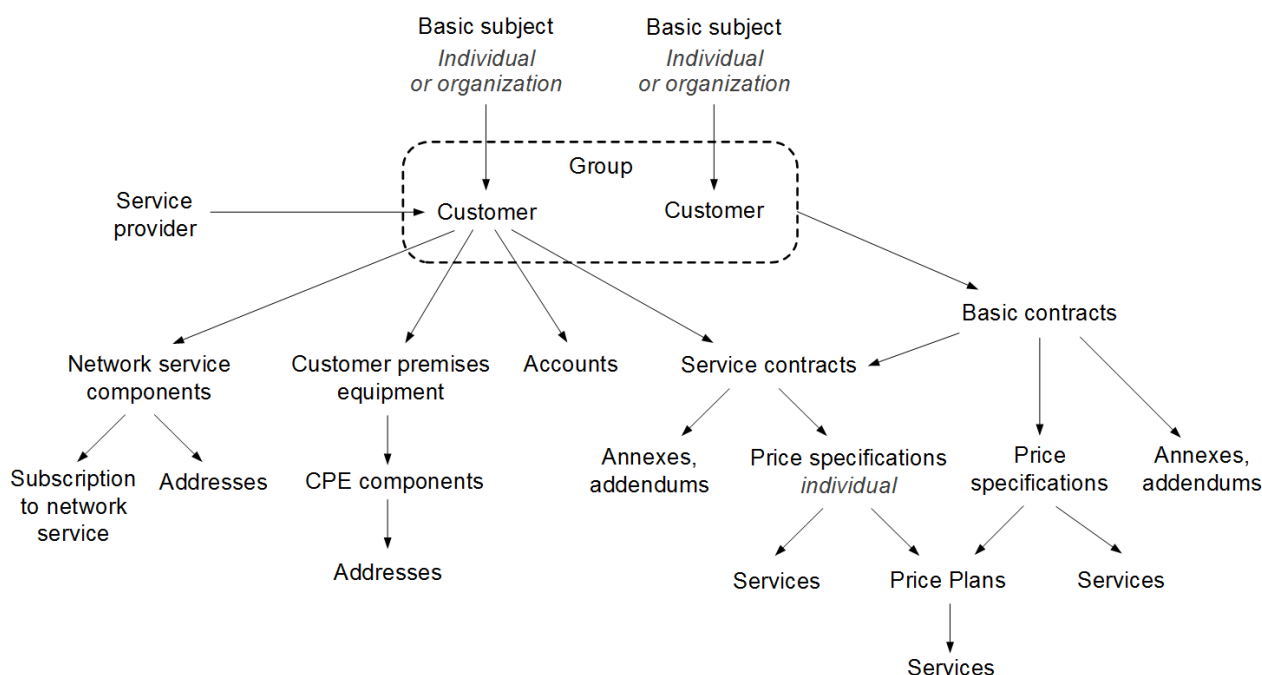
Scheme 5: Customer relationship with other entities

The customer is a role of a basic subject — individual or organization. Customers can be joined together to form groups and one customer can belong to several groups at the same time. The customer refers to one division — service provider.

The customer can have his own **customer premises equipment** (**CPE**) or network service components. If he has his own network service components, he will be given the addresses he needs (IP addresses, phone numbers, and so on), and also a record of his subscription to the related network service will be created. Customer premises equipment also has components which can have different addresses attached to them.

The customer is assigned one or several customer accounts which can be used to pay for services. Service contracts are also made with the customer. They can be either contracts based on existing basic contracts or independent ones.

The following can be created on the basis of contracts:

- annexes,
- additional agreements, and
- price specifications.

The basic contract is always valid for a group of customers. The following can be created on the basis of the basic contract:

- contracts,
- price specifications,
- annexes, and
- additional agreements.

Price specifications which are based on the basic contract are available to all customers in the group. Price specifications which are based on a service contract are only available for the customer the contract is made with. Therefore these specifications are often called individual price specifications. Any price specification may contain price plans and separate services.

2.3. Elements of the Interface
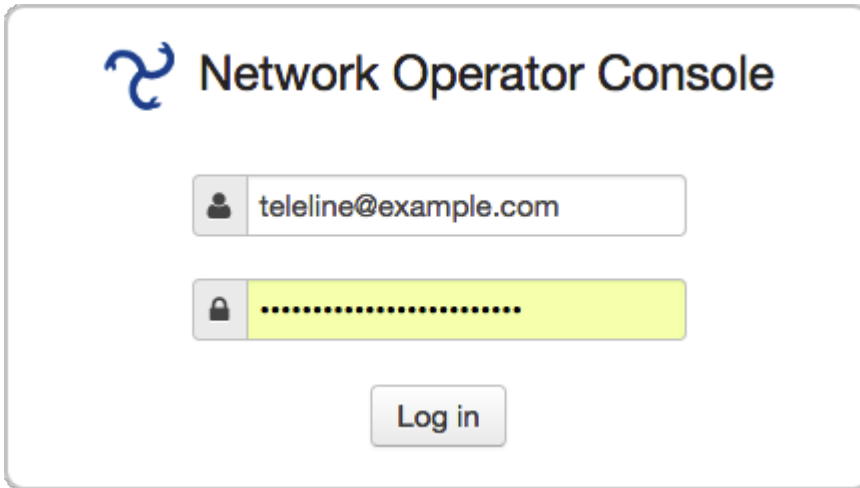
In this section:

- [Registries](#)
- [How to View and Edit Entities](#)
- [Tables](#)
- [Quick Search](#)
- [Widgets](#)

Hydra Billing web interface is similar in functionality and convenience to familiar Graphical User Interfaces (GUI) thanks to modern AJAX technologies.

To sign up to the Service Provider Console, specify database, login, and password.

Access to all system resources starts from the main menu. The display of various menu items depends on the user permissions. For example, if the user has the right to view the product catalog, on the **Master Data** menu will be the **Product Catalog** item. 🏠 is used to return to the home page.
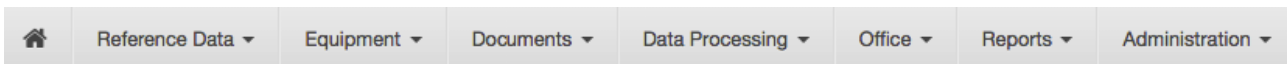
The ➕ buttons next to the sub-menus are designed to add new entities to the related registries, for example by clicking ➕ next to the **Contracts** menu, you can create a new contract.
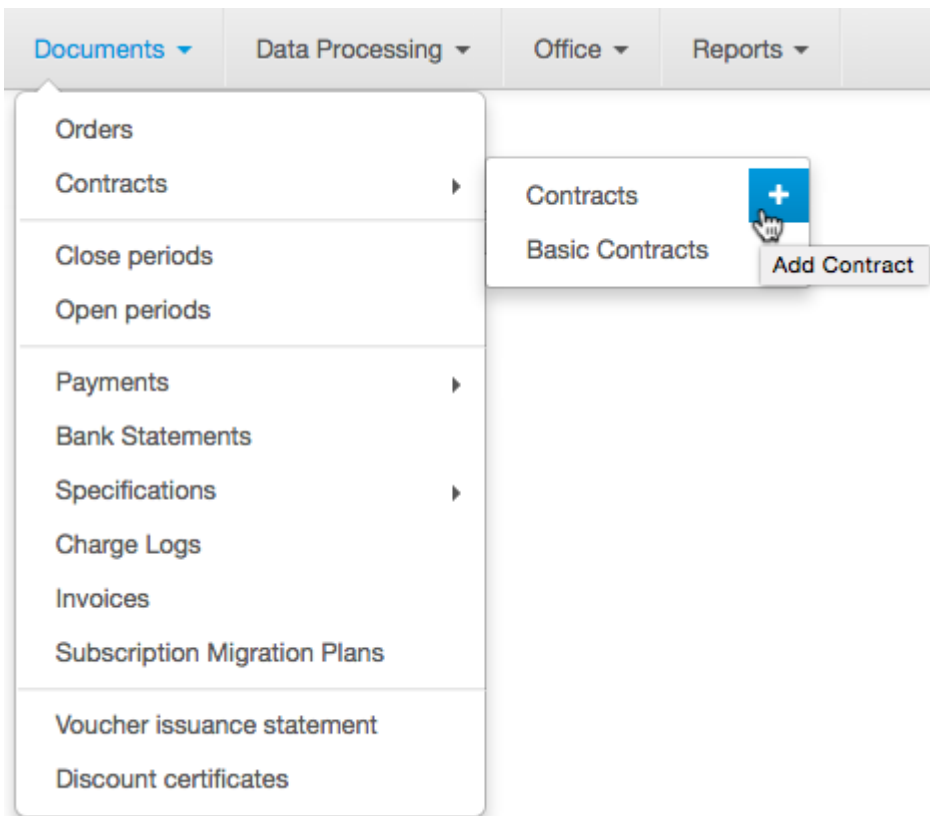
You can see information about the current user (*Migrator*), the division (*hmanual*), and the database (*hmanual* without reference) next to the main menu.
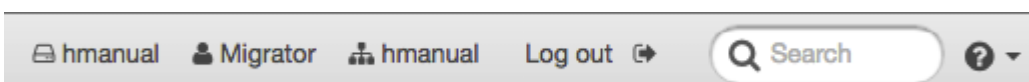
There is also a button to exit the system and a box for quick search.

The 🔵 button opens a list of links as below:

- **Help** — view system documentation;
- **Change password** — change the current user's password;
- **About the system** — view information about the system;
- **Access rights** — view a list of access rights for the current user;
- **Query** — view generated database query for searching in a registry;
- **DBMS Output** — view service and debugging information.

Use **Add widget** to add useful widgets to the home page.

When searching or downloading information, a special indicator appears at the top of the home page.

2.3.1. Registries

In this section:
- Searching Within a Registry
- Saving Filter Settings
- Viewing Filtered Results

Registries are used to store subjects (individuals registry, customers registry, and so on), objects (active equipment registry, network service registry), and documents (registry of contracts, registry of price specifications and so on).

You can access registries from the main menu. Registry pages have both common boxes and specific ones for a chosen type of subjects, objects, or documents. Each registry has a header:

Registry of Individuals

| Filter | Results | Filter not selected ▾ | 💾 | | ➕ Add |

Use **Add** ➕ to create a new entry in the registry.

Searching Within a Registry

The **Filter** tab allows you to specify search conditions which will affect the entries shown on the **Results** tab. You can specify search terms for one or several parameters common to all the subjects, for example:

- by code or name;
- by subject status (select all check boxes or none to get a list of subjects regardless of their status);
- by period in which that subject was created (the **Created box**);
- by user who added the subject in the system (the **Author box**).

General Parameters

Code [   ]

Name [   ]

Status
- ☐ Active
- ☐ Disabled
- ☐ Inactive
- ☐ Locked

☑ ☐

Date Created [   ] 📅 🗑

Author [   ] 🔍 ✏ 🗑

In addition, you can perform a search according to the characteristics of each type of subject, object or document. For example, for organizations by tax reference number, for individuals by surname, first name, and middle name, for customers by customer account number, and so on.

Another useful possibility is to use the filter to search for subjects and objects by their address:

Addresses

[Postal address ▼] [Actual address ▼] ➕

✖ **Postal address (Actual address)**

Region [USA C., Illinois, City Waukegan, Ave. S 🔍 ✏ 🗑]

Entrance [1]   Floor [2]   Apartment [12]

Choose the type and purpose of address, enter the details you want and click ➕. To remove a previously-added filter, click ✖ next to it.

In document logs there is also a filter by role, which you can use, for example, to find documents relating to a particular client or service provider:

Filter by role

[Client ▼] [🔍 ✏ 🗑] ±

✖ Client : Thompson H. S.

Saving Filter Settings

You can save your most frequently-used filter settings and choose them for further work with the registries. Filters are saved separately for each user of the system and cannot be viewed by other users.

Registry of Individuals

To create a filter, specify the search parameters you want and click ▼ in the *Choose filter* list. Type the name under which you want to save your filter settings in the **New filter box** and click 💾 next to the name. The filter you have created appears on the list of saved filters and will be available for selection when ▼ is clicked. To rename a saved filter, click 🖊 next to its name and to delete a filter, click ✖.

> If the @ symbol is used at the beginning of the filter name, for example @*Active clients*, this filter will be automatically selected when the register is opened. If there are several of such filters, the filter which is firs onet in alphabetical order will be opened. Use names with the @ symbol for the most frequently-used filters.

To change the settings of a saved filter, select it from the drop-down list, make the appropriate changes and click 💾 next to it.

Viewing Filtered Results

Click **Search** at the bottom of the registry page to start searching. Use lists nearby to customize searching results.

Entries from the registry that match the search criteria are displayed on the **Results** tab:

Registry of Individuals

ID ^	Last Name	First Name	Tax ID	Code	Date Created	Organization
51180401	Kafka	Franz		Kafka F.	18/02/2016 18:26:56	hmanual
51195401	Hemingway	Ernest		Hemingway E.	18/02/2016 18:47:17	hmanual
51198401	Dickens	Charles		Dickens C.	18/02/2016 18:49:21	hmanual
51201401	Twain	Mark		Twain M.	18/02/2016 18:51:20	hmanual

In a gray box there is a link to the search results, which can be accessed by any other user with sufficient rights. The **Filter** tab will be adjusted according to the search results.
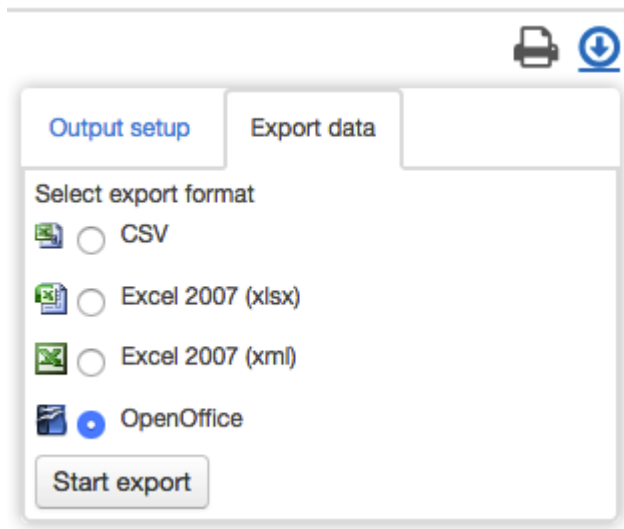
The column name, which everything is sorted in accordance with, is in bold. The ⌄ and ⌃ signs indicate the direction of sorting — in ascending or descending order respectively. To change the order of sorting, click the column header.

 Use check boxes in the first column to select one or several registry entries to change their status (the **Change status button**), delete them (the **Delete button**) or download information about them in printed form by clicking *Print* 🖨 and selecting the appropriate print template. In the latter case, the data of the selected entities, for example individuals, will be saved in separate files and the files themselves will be compressed into one zip-file. To select all the entities on the page, use the check box in the table header and to mark all the entities from the filtered results table, click **Select all next to *Print*.**

You can select which columns will be shown in the table by clicking ⬆ in the upper right corner. A window will open to customize the search results:
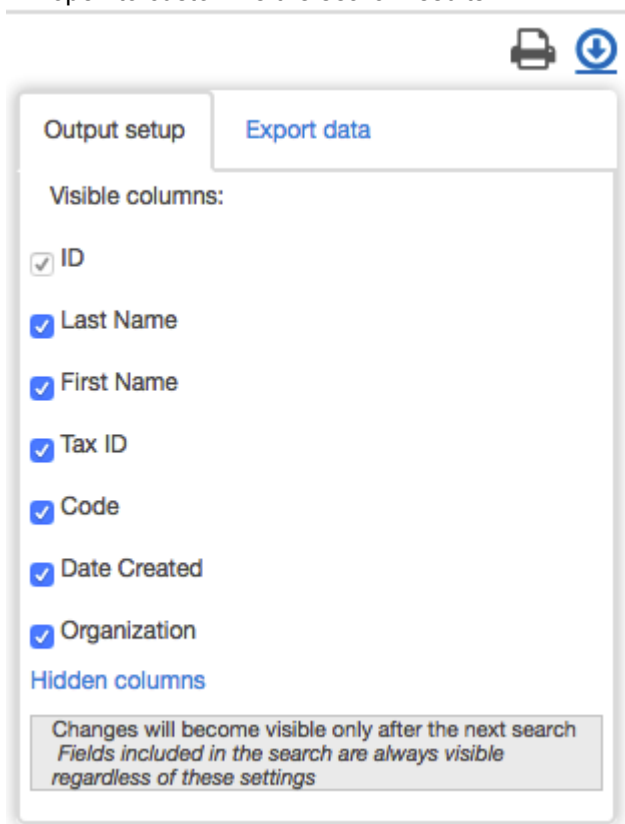
Using the **Export data** tab, you can save the search results in a convenient format for further work:

To go to the page of any entity in the results table, click the link in the corresponding row.

2.3.2. How to View and Edit Entities

In this section:
- [Comments](#)

You can work with subjects, objects and documents using *their pages*. Create page opens when you add a new entity to the registry:

Individual: create

Individual
Common data   Comments

You can open a page of a previously created entity by using registry search and the corresponding link in the results table or using quick search:

Individual Kafka F.: edit

Individual Kafka F.	Customer kafka	+ Add role	← Back to search
Common data Comments			

The page includes a header and two rows of tabs. In the top row for subjects, in addition to tabs for the relevant individual or organization, there are tabs for the subject's roles in the system. The lower row of tabs enables you to view and edit the properties of an entity selected with the top tab. Here is the tab **Comments**, for all system entities, where you can add comments and keep reminders. The names of active tabs are highlighted in black.

The ↺ **Back to search** button is shown if the page was opened by a link from the search results table and allows you to return to the results list. Using 🖶 you can save information in a format suitable for printing by selecting one of the previously created [print templates](#). If a print template hasn't been set for any given subject, object or document, the button will not be shown.

Save	Delete

There are buttons to save your changes or to delete the selected entity at the end of the page.

If the user doesn't have permission to edit the subject, object or document or the document refers to a closed period, the symbol 🔒 appears in the header of the corresponding tab stating that the data on it cannot be changed. The colour of the field around the tab becomes red and the **Save** and **Delete buttons are hidden:**

Individual Kafka F.: view

Individual Kafka F. | Customer kafka

Common data | Comments | *You do not have sufficient rights to view full information about an individual*

The pages contain dialog boxes and tables. The boxes can be of various types:

- regular boxes for typing in information (for example an individual's name), they have a blue outline when selected:

  Last Name | Doe

- boxes which may be filled manually or automatically by the system while saving the page; these boxes have a blue background:

  Period | from 23/03/2016

- boxes filled using autonumbering, next to such boxes is a button to edit the value generated (the presence of this button depends on the substitutions used in the autonumbering) and also the 🔒 button to remove the autonumbering:

  Document Number C16-10 ✏ 🔒

- blocked boxes cannot be edited; such boxes have a gray background:

  Author | Operator

- drop-down lists to select one of the existing choices:

  Sex* | Male ▾

Mandatory boxes are in bold and marked with an asterisk.

In *lookups*, you can only specify entities which have previously been registered in the system:

Provider | Teleline | 🔍 ✎ 🗑

As you type in, the system automatically suggests suitable variants, or you can simply use 🔍 to search for an entity in the appropriate registry. With ✎, you can view information about the entity, for example, you can open and edit a basic contract. To clear the box, use 🗑.

To select a date use the calendar, which opens when you click 📅:

?	July, 2016					×
«	‹	Today		›	»	
wk	Sun	Mon	Tue	Wed	Thu	Fri	Sat
25						1	2
26	3	4	5	6	**7**	8	9
27	10	11	12	13	14	15	16
28	17	18	19	20	21	22	23
29	24	25	26	27	28	29	30
30	31						
Time:		**17 : 30 : 35**			⇓ • ⇑	
		Select date				
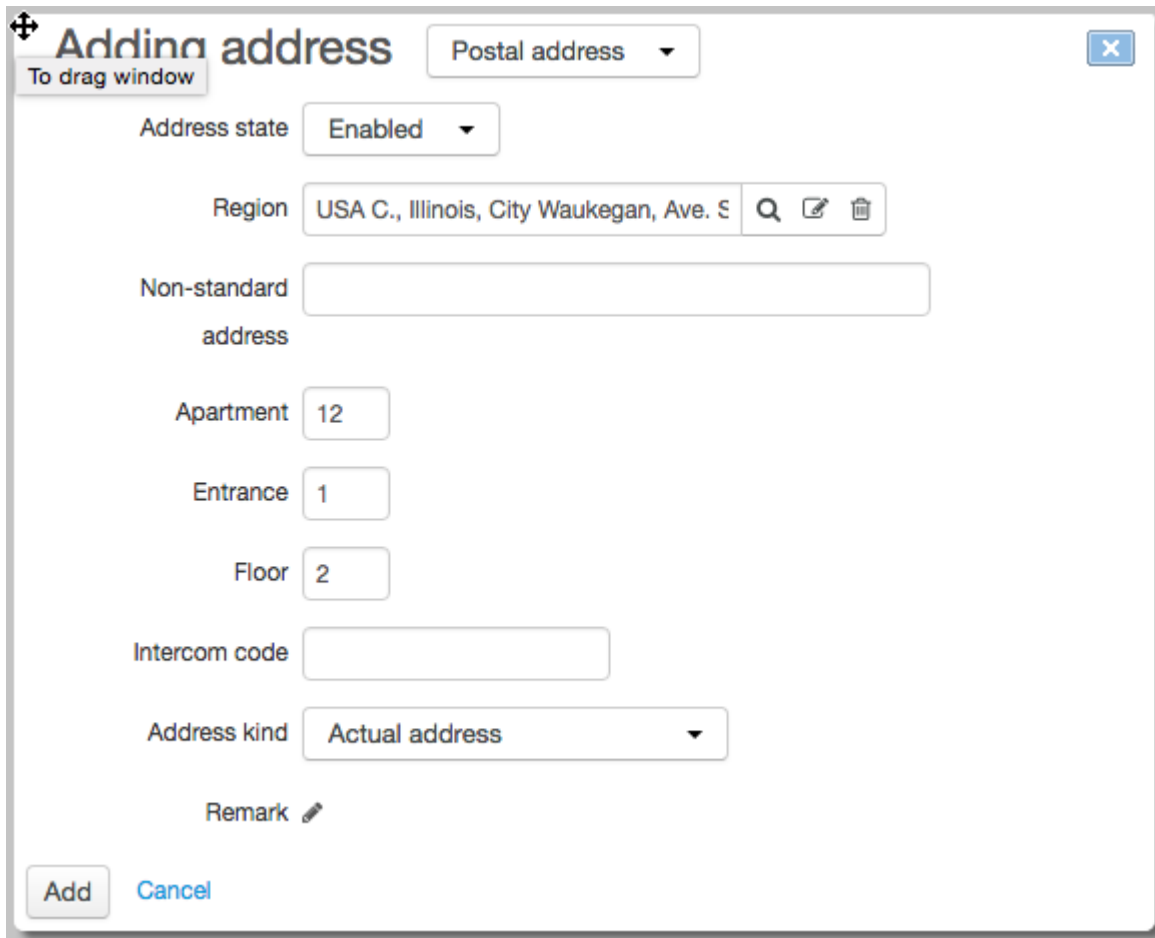
You may specify not only the date, but also the time and for this, an additional row may be shown in the calendar. Using the arrows, you can select the beginning (00:00:00) or the end(23:59:59) of the day, and with the point, you can set the current time.

If your values are incorrect, they are highlighted with a red outline:

Date of birth | 14.14.1990 | 📅

Pop-up windows can be moved by the top left corner:

Information messages, warnings, and error messages are shown in the top right corner of the page and have a green, orange or red background respectively. When an error message appears, you can pin it onto the page by clicking on the message, so you see in the top left corner. An unfixed message disappears from the page in 10 seconds.
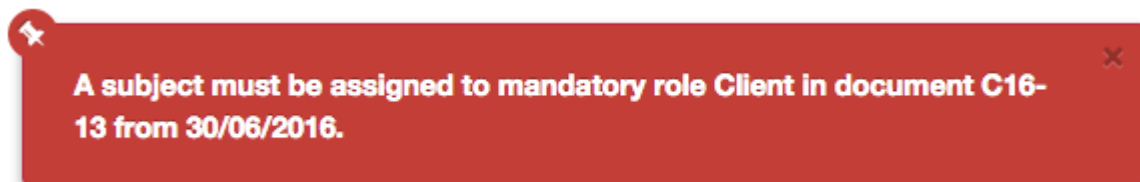
2.3.2.1. Comments

> To edit and add new comments, you need the appropriate permission.

Hydra Billing allows you to add comments to any system entities: objects, subjects, and documents. In general, comments are reminders for any changes in entity settings: planned or implemented (for example, a price plan changing, a reminder to phone a customer at a particular time, a customer receiving a bonus, and so on).

To add a comment go to the **Comments** tab and type it in the **Add comment** box. Choose the comment type from the list (the types are specified in the reference data). If necessary, set the date and time of the reminder, so the comment will appear in the Reminders widget. Click **Add**.

Add comment

Customer does not use services for two months. Call him, tell us about the new prices and promotions.

Technical support request ▾   remind 01/07/2016 17:30:00 📅

Add

All comments are shown in a list with icons and tooltips, that help track the status of each comment.

As we see, there is a four-month-old comment from the user **Operator** about connecting a customer which is marked as done ✅. The remaining comments on the list are marked with different colored icons on the right. They indicate that these comments are reminders of different statuses: the reminder date to accrue $25 has already passed 🕐, the reminder date about the feedback call on the service quality in less than one day 🕐, and the reminder date for setting the credit limit — in one day 🕐. 🕐 shows that the reminder has been executed.

✅ Operator 4 months ago ✏️ ✖️
Client connection $50. Price plan 1Mb/s $65.

✅ teleline 20 days ago 🕐 20 days ago ✏️ ✖️
Disable real IP-address.

⚪ teleline 6 days ago 🕐 6 days ago ✏️ ✖️
Accure $25 due to promotion.

> **Reminder 06/07/2016 19:30:32**

⚪ teleline 4 days ago 🕐 after 2 hours ✏️ ✖️
Call about quality of service.

⚪ Operator one hour ago 🕐 after one day ✏️ ✖️
Set temporary credit limit.

You can mark or unmark your own comments as done at any time by clicking ⚪ or ✅.

To edit a comment, click ✏️ and make the necessary changes. To delete a comment, use ❌.
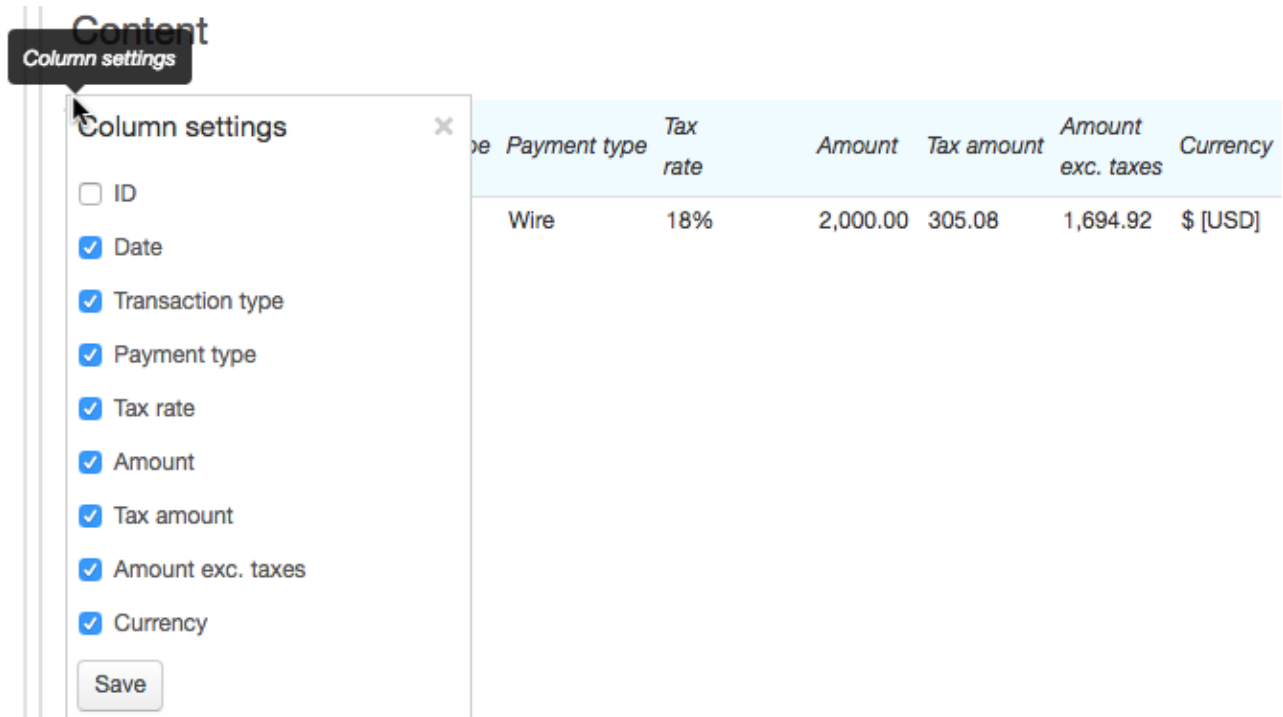
> With the appropriate permission, you can perform all those operations with comments entered by anyone.

The quick search function by comments is also available.

2.3.3. Tables

Tables are an important way of providing information in Hydra Billing. Tables may look different and their properties may vary depending on the context.

Some tables have a fixed number of columns, whereas in other tables you can select which columns should appear. These tables are marked with ◢. Click it to choose visible columns, then click **Save**. The saved settings will be valid only for the current user.

If you want to change some data in the table, click in the row and make the changes in the pop-up window. To add a new row, use ✚. To delete a row, click ✖.

In some tables, you can make changes right on the current page, without any pop-up windows. When you click in a row of such a table, it goes into edit mode:

№	Service	Time interval	Qty. before	Qty. for price	Unit	Price	Price exc. taxes	Speed value	Speed unit	$PRICE_PARAM	Comment for customer
▸ 1	Triple Classic				-	30.00	25.42				✖

To exit the edit mode, just click anywhere else on the page and the changes will be highlighted in yellow:

№	Service	Time interval	Qty. before	Qty. for price	Unit	Price	Price exc. taxes	Speed value	Speed unit	$PRICE_PARAM	Comment for customer
▸ 1	Triple Classic				-	35.00	29.66				✖

The newly added rows in these tables are highlighted in green:

№	Service	Time interval	Qty. before	Qty. for price	Unit	Price	Price exc. taxes	Speed value	Speed unit	$PRICE_PARAM	Comment for customer
▸ 1	Triple Classic				-	35.00	29.66				✖
2	Line Diagnostics and Setup				pcs	20.00	16.95				✖

The deleted ones are highlighted in red:

№	Service	Time interval	Qty. before	Qty. for price	Unit	Price	Price exc. taxes	Speed value	Speed unit	$PRICE_PARAM	Comment for customer
▸ 1	Triple Classic				-	35.00	29.66				

To cancel deleting a row click 🚫.

Changes made to these tables are only saved when you click **Save** at the bottom of the page.

2.3.4. Quick Search

In this section:

- Quick Search Features
- Quick Search Settings
- Search by IDs
- Search Subjects
- Search Documents
- Search Objects
- Search by Addresses
- Search Product Catalog

The *quick search* box is located in the right corner of the main menu.

Quick Search Features

- Not case sensitive.
- Symbols "/", "." "_", and so on are ignored.
- Allows partial search.
- Search results are updated as each character is typed, starting from the second.
- If there is a large number of search results, a partial list is shown. If what you need is not on it, refine your query to narrow search results.
- If nothing meets your criteria, the message *Nothing is found* appears.
- To open an entity's page, select it from the results list. It opens in a new window if **Open in a new window** is selected in the quick search settings.
- If all check boxes in the quick search settings are cleared, the search is carried out as if all of them are selected.

Quick Search Settings

In **Quick search settings**, that open when you click ⚙, you can choose search scopes:

- subjects (individuals, organizations, customers, service providers, and banks);
- customer accounts;
- documents (contracts, payment orders, specifications, charge logs, invoices, and so on);
- objects (equipment, components, network services, real estate);
- subject and object addresses (postal, IP, and MAC addresses, phone numbers, area codes);
- product catalog;

- subject, object and document custom fields;
- comments and notes.

You can also select or clear **Open in a new window** check box.

Quick search settings

Search sections (select all / deselect all)

- ☑ Subjects
- ☑ Objects
- ☑ Customer accounts
- ☑ Subject addresses
- ☑ Object addresses
- ☐ Documents
- ☐ Product catalog
- ☐ Subject comments
- ☐ Object comments
- ☑ Document comments
- ☑ Subject additional parameters
- ☑ Object additional parameters

Cancel   Save

You can switch search scopes both via a settings window, or by using search modifiers (a list of modifiers is given below). If you use a modifier, the system conducts the search regardless of the selected scopes.

> The search scopes given in the table for every modifier (except IDs) correspond to the check boxes in the quick search settings.

Search scope	Modifier
Object, subject and document IDs	id
Subjects, customer accounts, subject addresses, comments on subjects, subject custom fields, subjects by document roles, subjects by equipment address, subjects by network service login	s

Documents, comments on documents, subject custom fields, document custom fields, documents by subject role	d
Objects, object addresses, comments on objects, object custom fields	o
Object addresses, subject addresses	a
Product catalog	g

Search results are always shown grouped by entities. For example, two scopes were selected in the quick search settings: **Subject addresses** and **Object addresses**. Let us suppose that the query **15** is entered in the quick search bar. The search results in this case will be any subjects or objects registered in the system whose addresses contain the number 15 anywhere.

When you hover over a result, a window with a match (or matches) opens to the left of it showing where it was found. In the example (see screenshot) it is the MAC address of a component of the CPE.

In each group, no more than three matches are shown.

To expand a group containing more than three results, click the link highlighted in blue: group name or total number of matches. Gray indicates a group in which the number of matches found does not exceed three (they all appear in the list). You can return to the general list using the same link.

In the expanded list, only the first fifteen matches are shown. Therefore if there is a large number of results, you should refine your query. This will be a new query which will reset the previous results.
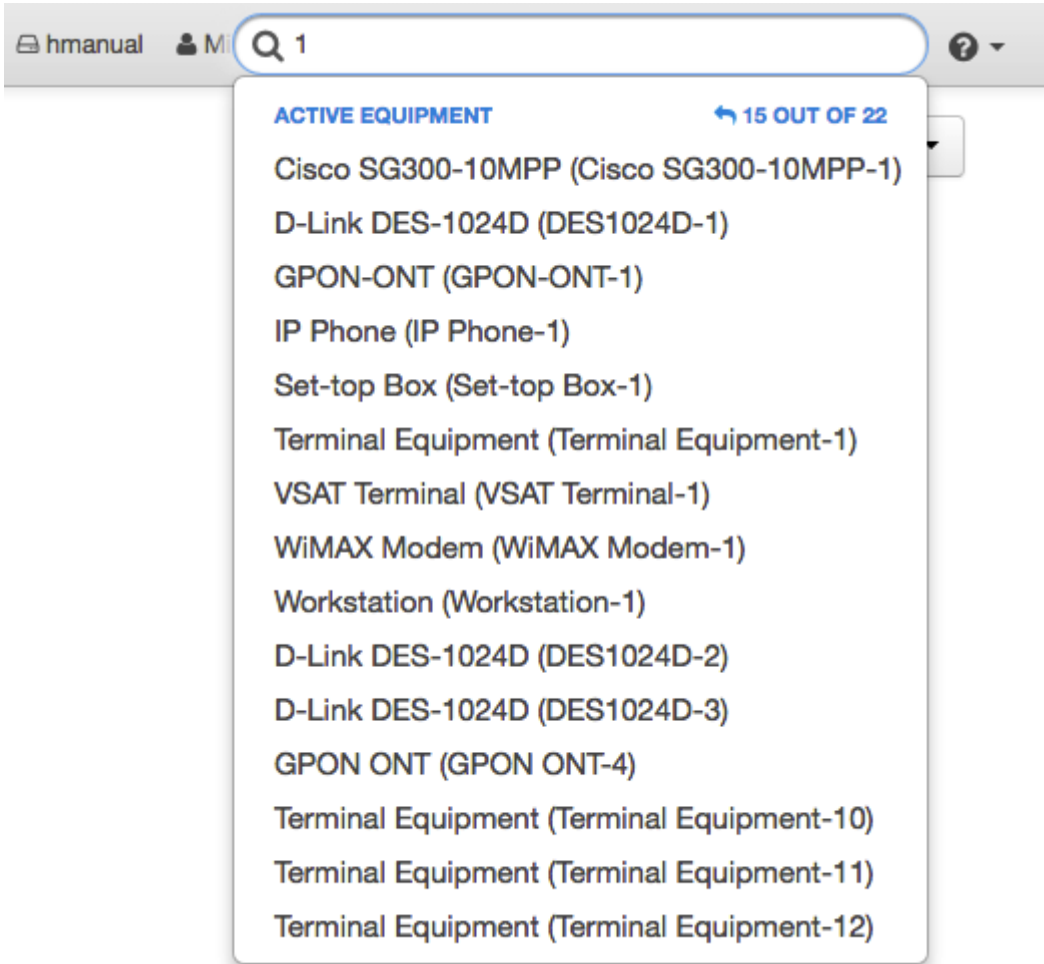
In the following example, the modifier "s" was entered with the same quick search settings and query. Therefore the search results only contain subjects. As shown in the example, a customer **byron** was found by the address.
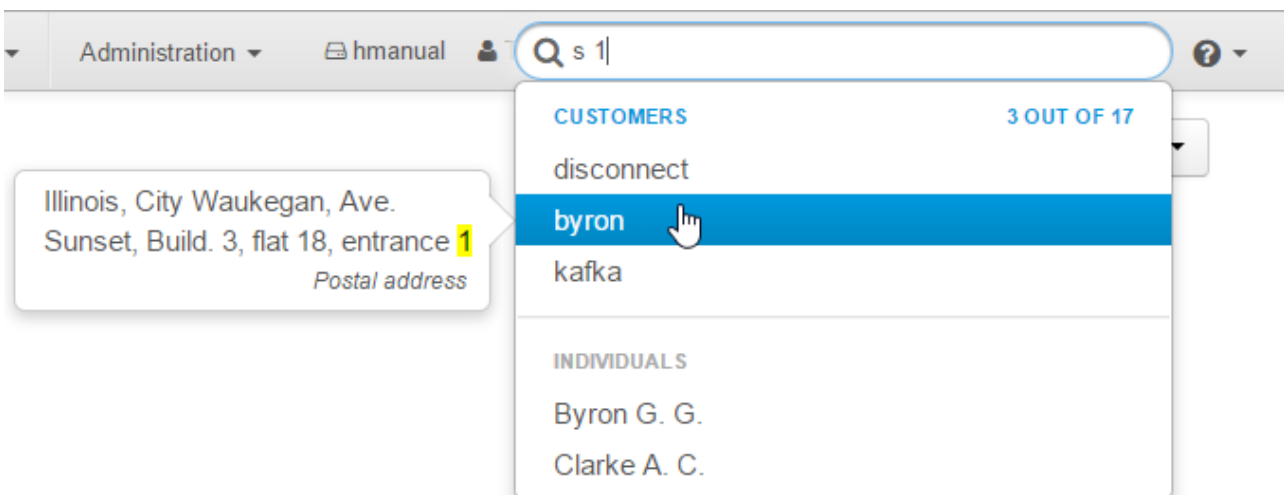
> Search results are always shown as a list of entities regardless of the chosen search sections. If the matches were found in addresses, comments, custom fields, and so on, the results would be shown in the form of entities (it could be customers, individuals, active equipment, charge logs, and so on), containing the matches.

Search by IDs

You can find any subject, object or document in the system via quick search by using an entity's ID. To do this, type the modifier "id" and the ID. Please note that the search doesn't work if only part of the ID is entered. The search scope you choose is not important.

Search Subjects

In the example below, the search scope was *Subjects*, therefore the search is carried out for matches of short or full subject names (individuals, organizations, customers, service providers, and banks). The search can also be carried out by names or the initials of the subject.
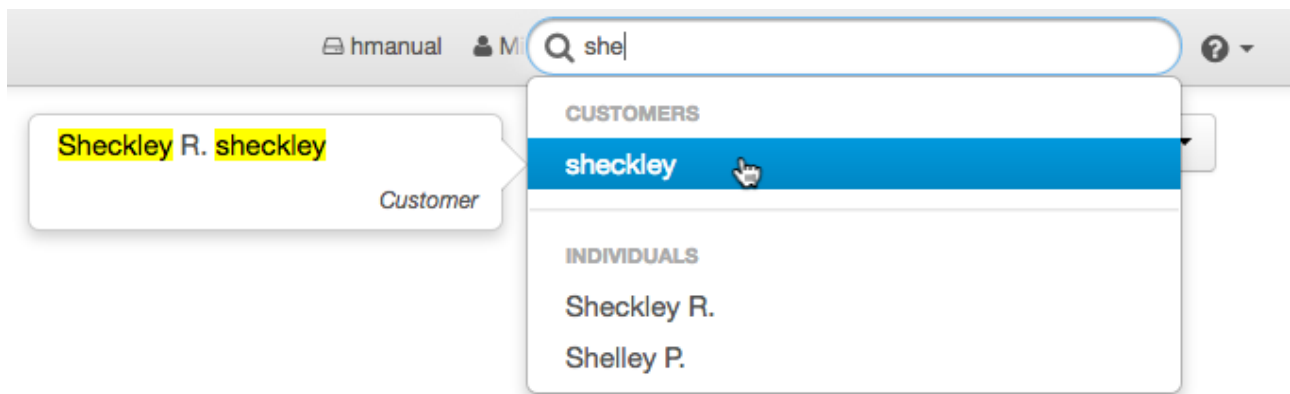
In the screenshot below, the search was also carried out for subjects.
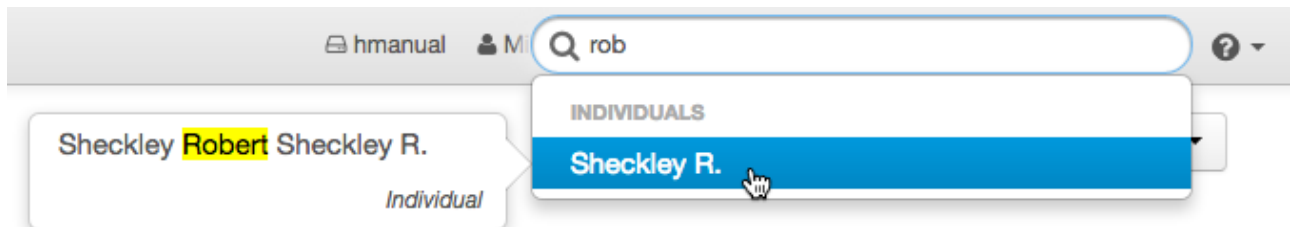
In this example, a search is carried out for the query using a modifier. Matches were found in customer codes and customer logins to network services, since the use of this modifier includes subjects with logins to network services.
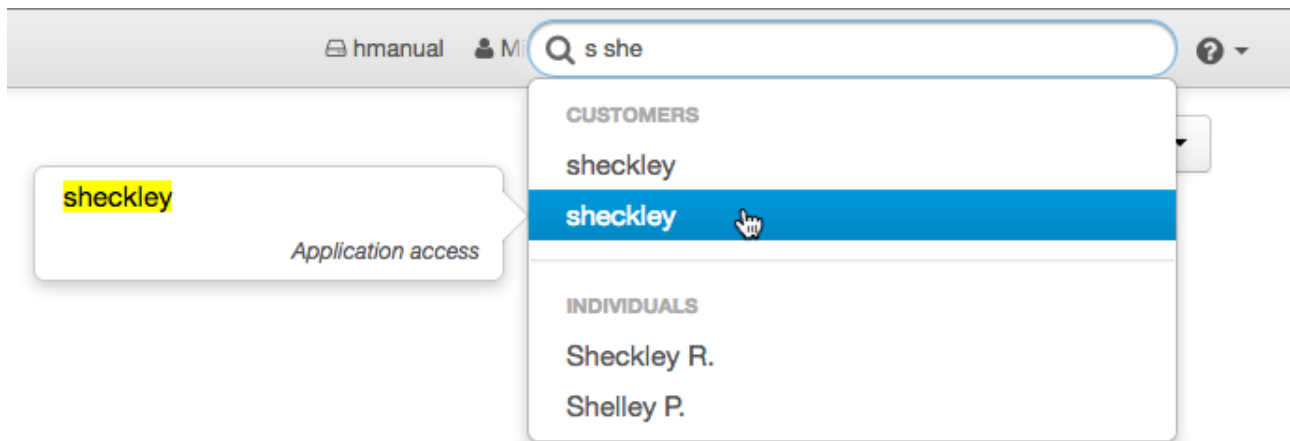
You should use the scope **Customer accounts** to search for customer accounts to limit the number of results.
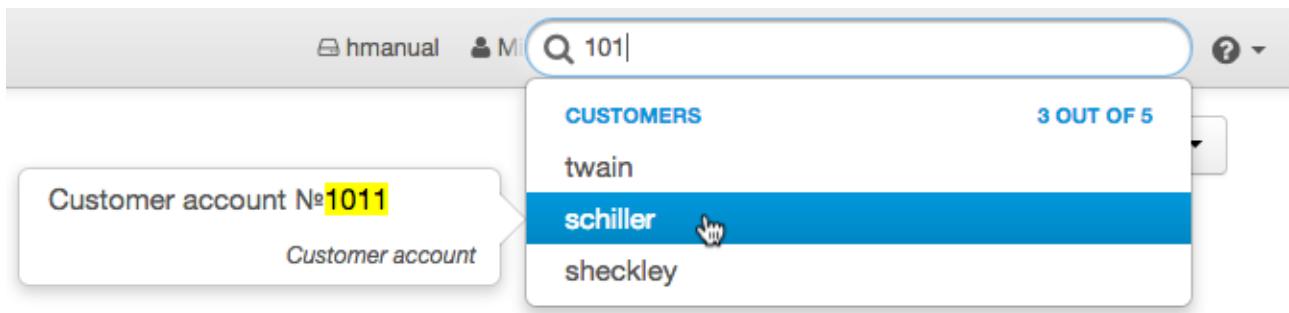
Search Documents

In this case, only one search scope is selected, **Documents**, and a list of charge logs whose names or codes contain *16* is shown.
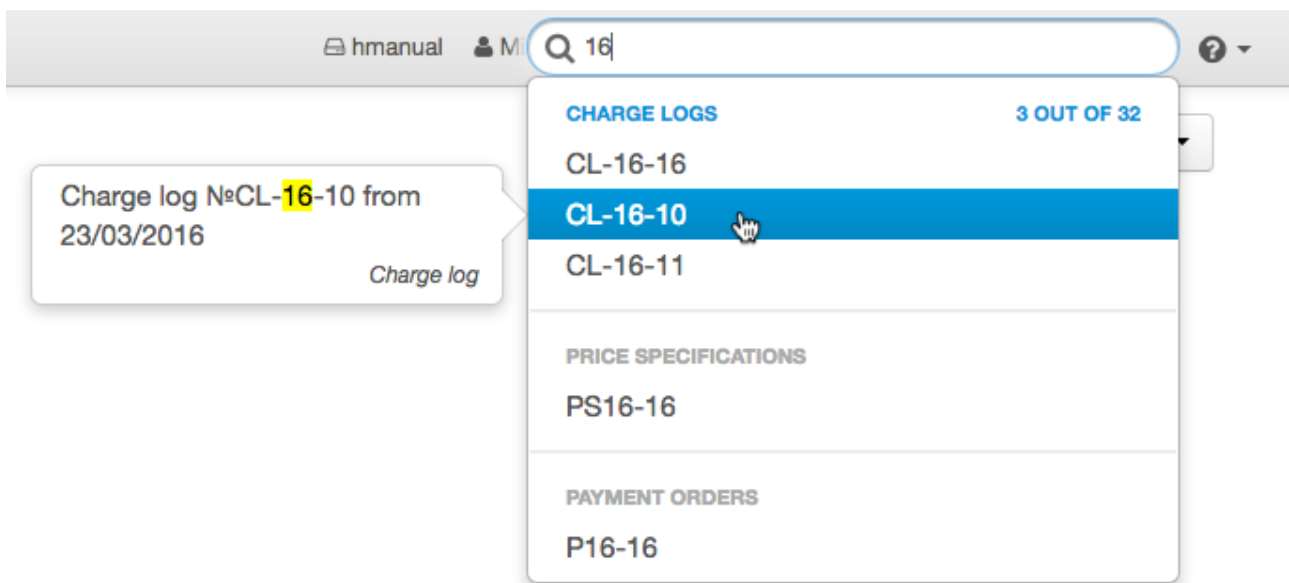
Now the modifier "d" was used. Customers are also included in the search results, since the search is carried out through subject custom fields.
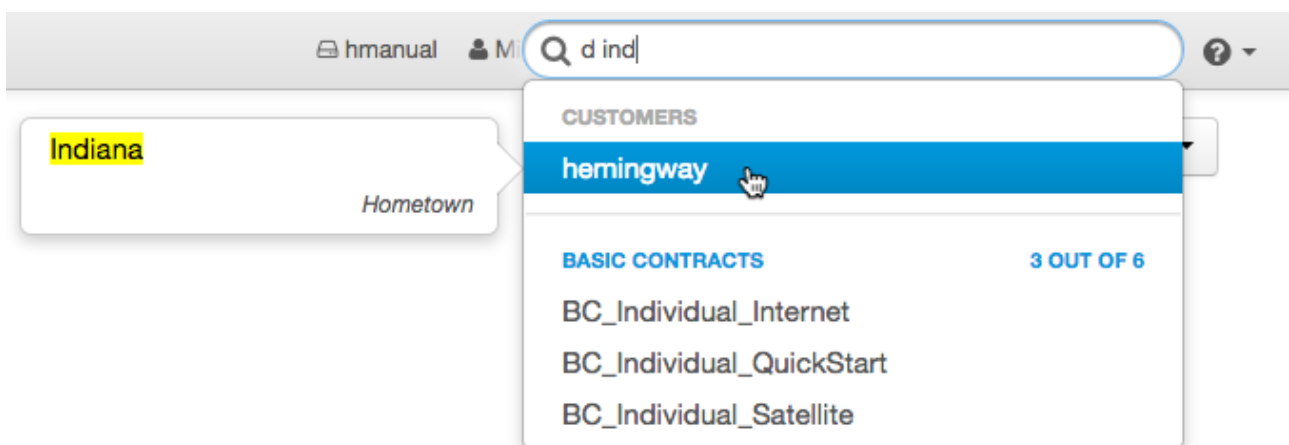
Search Objects

In this example, the query is about objects. The results are active equipment.
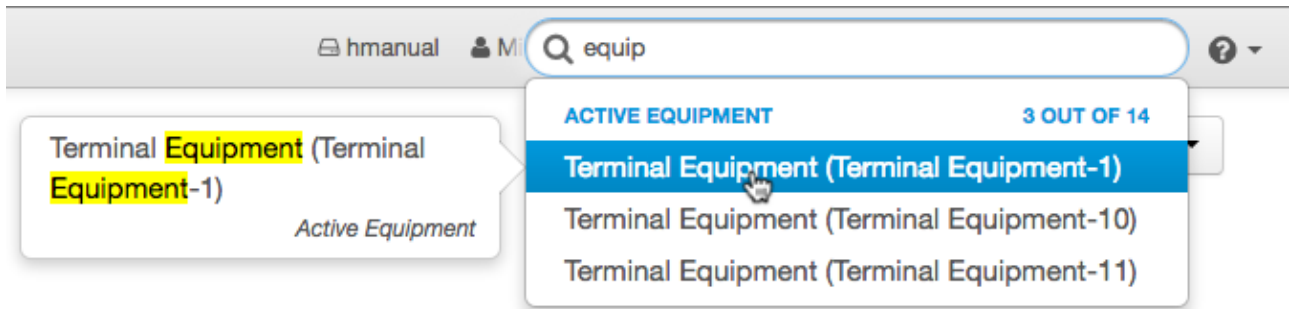
The example below uses the modifier "o". The search results are grouped by entities and include matches in object names and addresses.
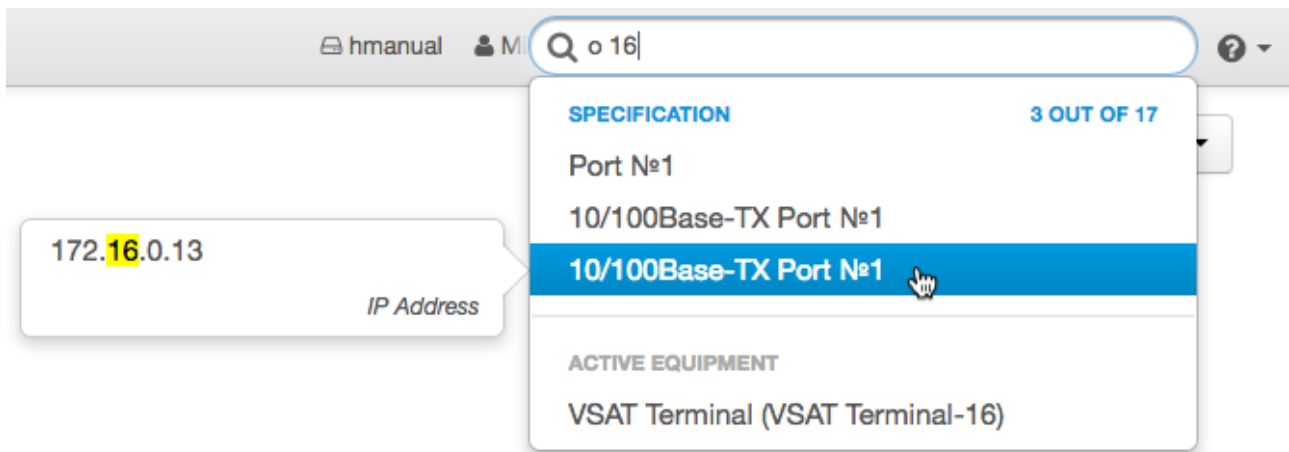
Search by Addresses

You can search for addresses (street and network) by fragments, using a space to separate them. Below is an example of address search results in all scopes.
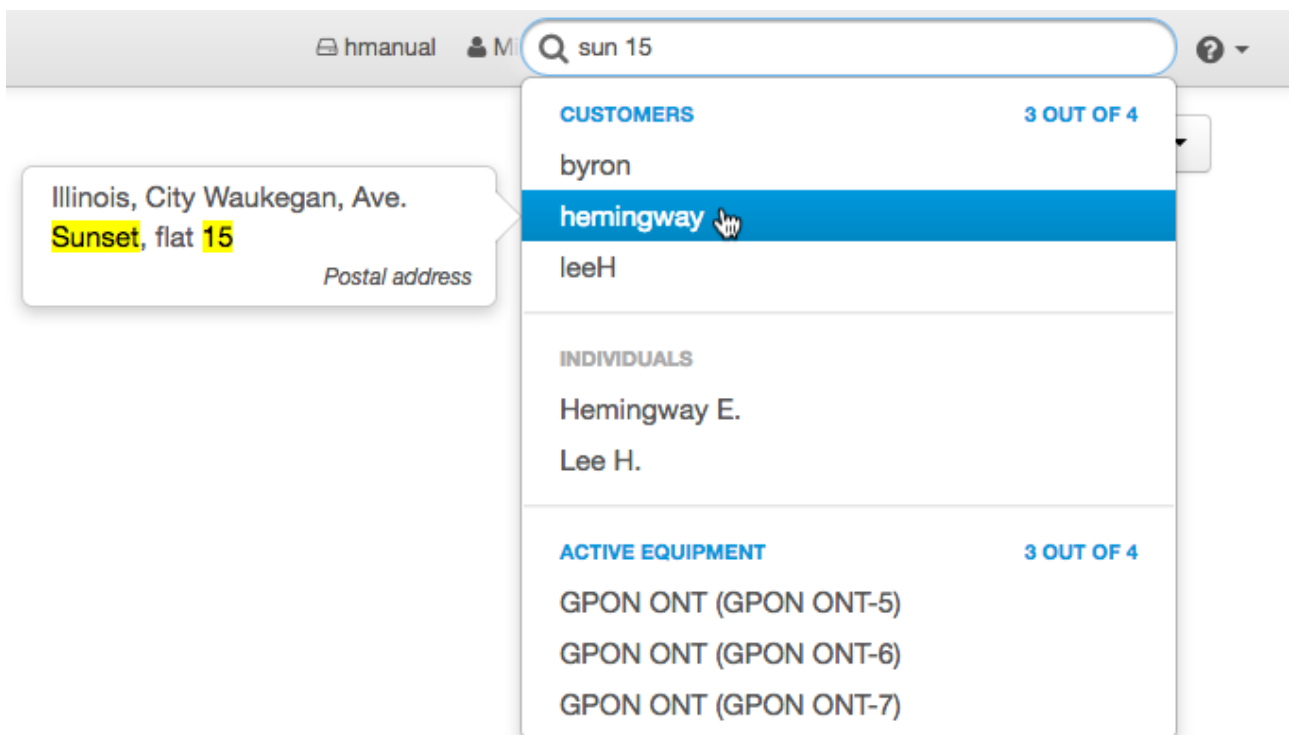
When searching for an IP address, you must be careful to enter the query accurately. For example, to search for an IP address 193.178.118.3, you should not use queries such as: 193 3 or 178 11.
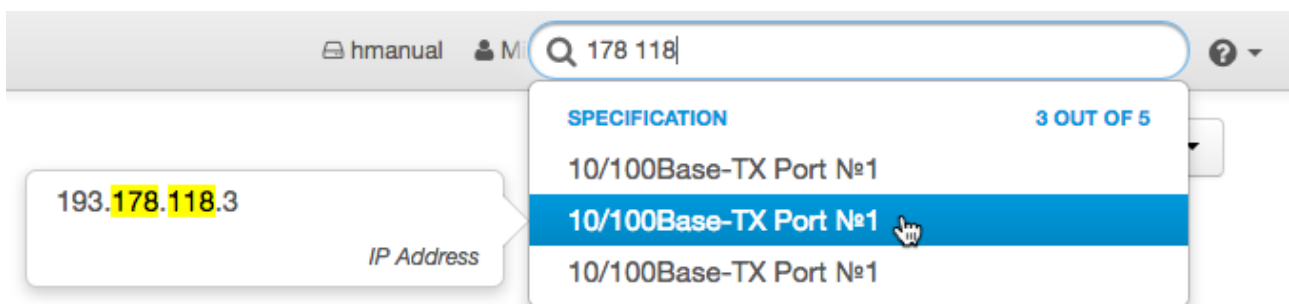
For a phone number, it is sufficient to enter the first or last five digits. In the example below, the modifier "a" was used to refine the search.
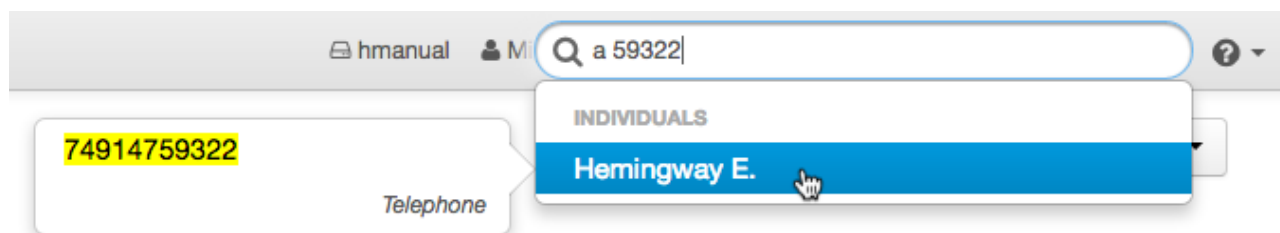
Search Product Catalog

When the **Product catalog** check box is selected in quick search settings, or the modifier "g" is used, the search results are a list of names of the relevant catalog entries or groups, also grouped by categories.
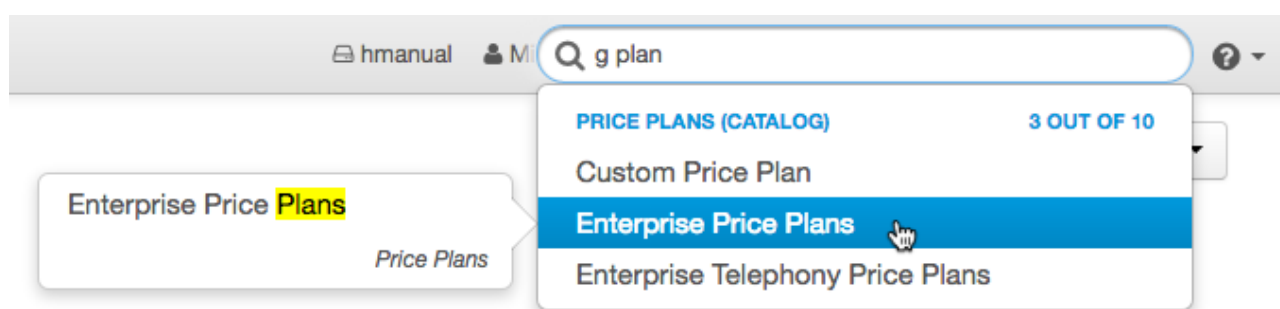
2.3.5. Widgets

In this section:
- [Revenues](#)
- [Active Customers](#)
- [ARPU](#)
- [Penetration](#)
- [Reminders](#)

> To add, edit and view widgets you need the appropriate permission.

On the Service Provider Console main page, you can add and configure widgets that allow you to monitor the company's monthly performance: **Active** customers, **Penetration**, **Revenues** and **ARPU**. Their values are calculated by the *Calculating business indicators* task.

Another type of widget — **Reminders** — shows reminders from the **Comments** tabs of entities.

To add a widget, click **Add widget** and select the one you want from the list.
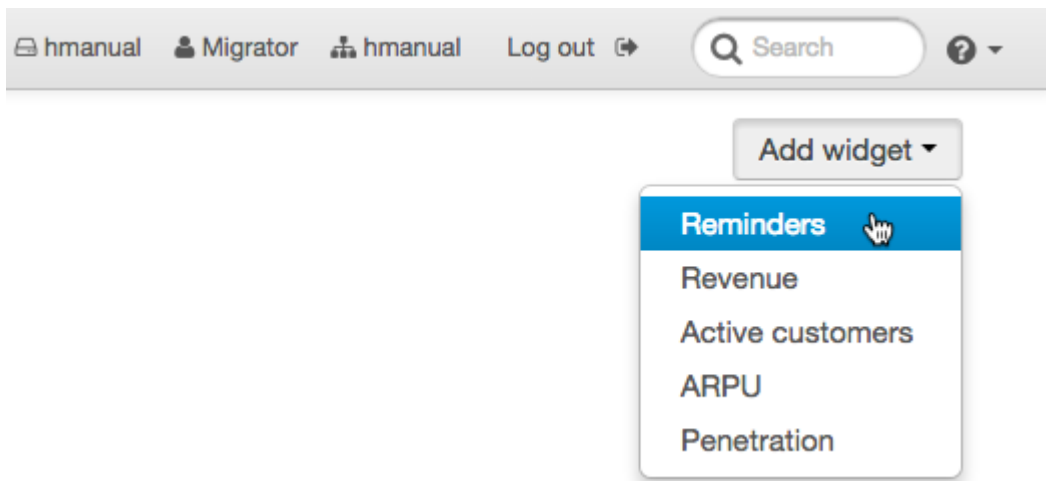
With ⚙, you can open the widget's settings, where the name of the widget, the number of months the widget information is given for, the company, and the amount that one unit represents for penetration and ARPU are specified (**Divisor**).
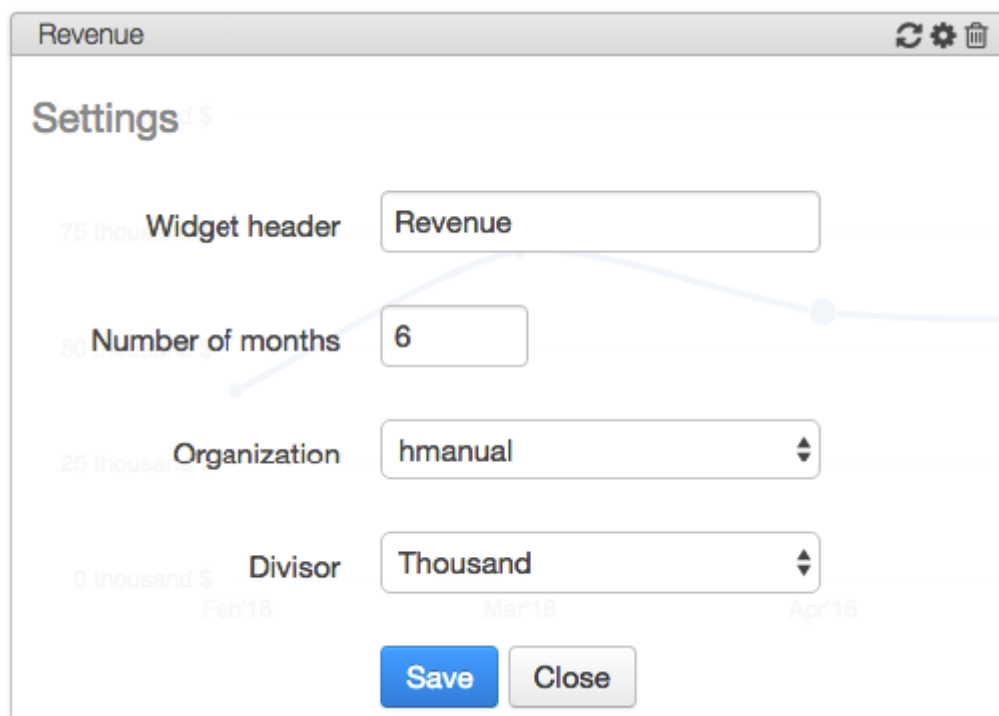
> ⚠ Make sure that the value specified in the **Number of months** is not greater than **Period for indicators calculation** in the task settings. Otherwise, widgets may show incorrect values.

To delete a widget, click 🗑. ⟳ is used to update the widget indicators to the current calculated values.

Widget data, except for penetration, is given graphically, with values per month. To view the value at any point, simply move the cursor to it.
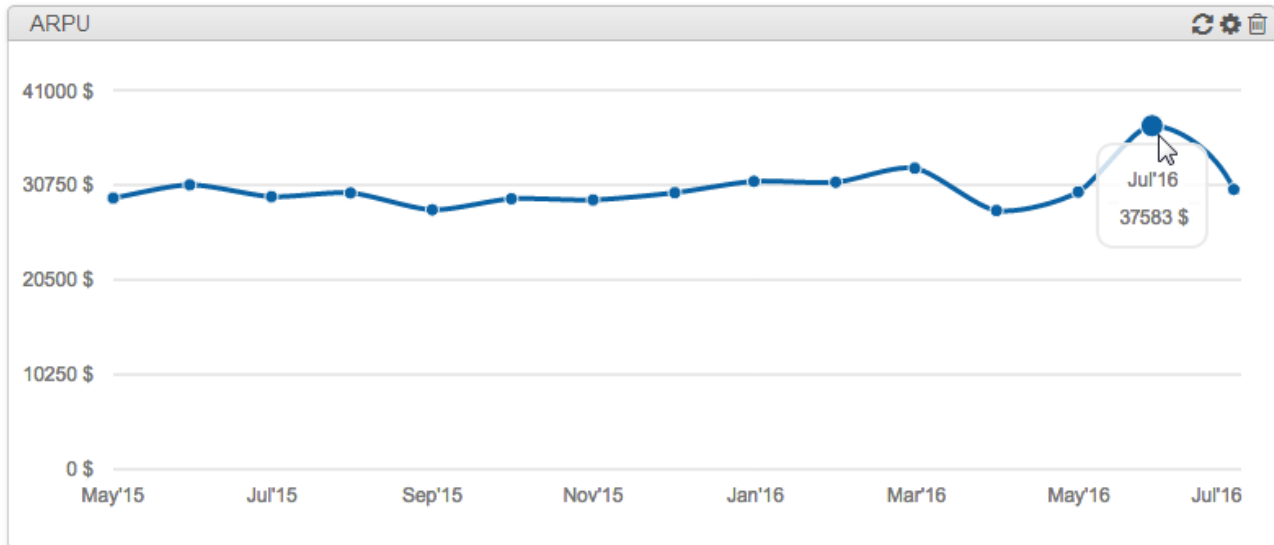
2.3.5.1. Revenues

For the revenue indicator, all payments are added up by months. All these amounts are converted into the default currency using the exchange rates valid at the time of payment. Revenue for the current month are not calculated.
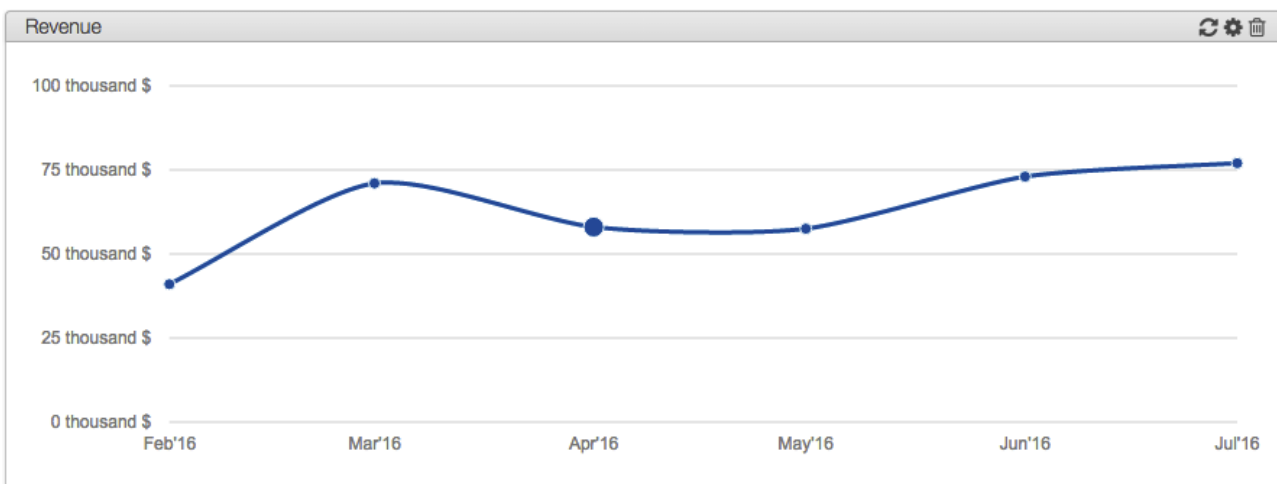
2.3.5.2. Active Customers

The number of active customers per month is the number of customers who had valid charge logs for paid services in the preceding period. For the current month, the start and end dates of this period are defined as follows: the start date is the previous day minus *(n+1)* months, where *n* is **Period without using any services to consider customer inactive** from the task settings; the end date is the previous day. For the remaining months, the start date is the 1st of the month minus *n* months and the end date is the last day of the month.

For example, if the current date is August 14, 2016, and a period of three months is specified in the task settings, the value 28960 on August 13, 2016, corresponds to the number of customers to whom paid services were provided during the period from May 13 to August 13. The activity for July is calculated using the period from May 1 to July 30.
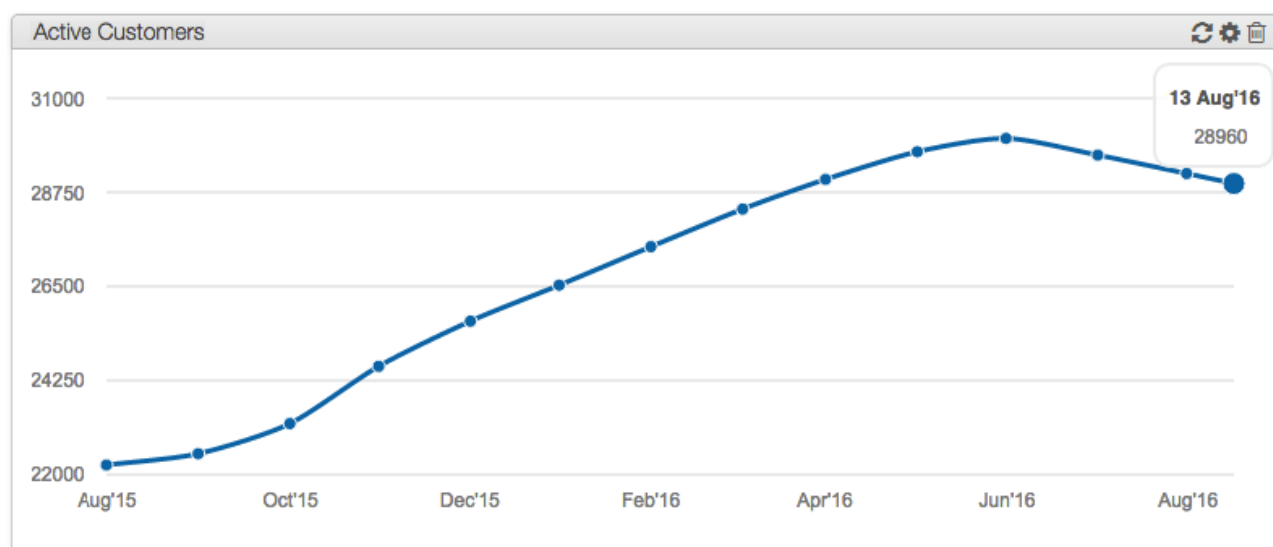
2.3.5.3. ARPU

To calculate ARPU for each month, revenues are divided by the number of active customers in that month, calculated in the same way as for the widget **Active customers**.
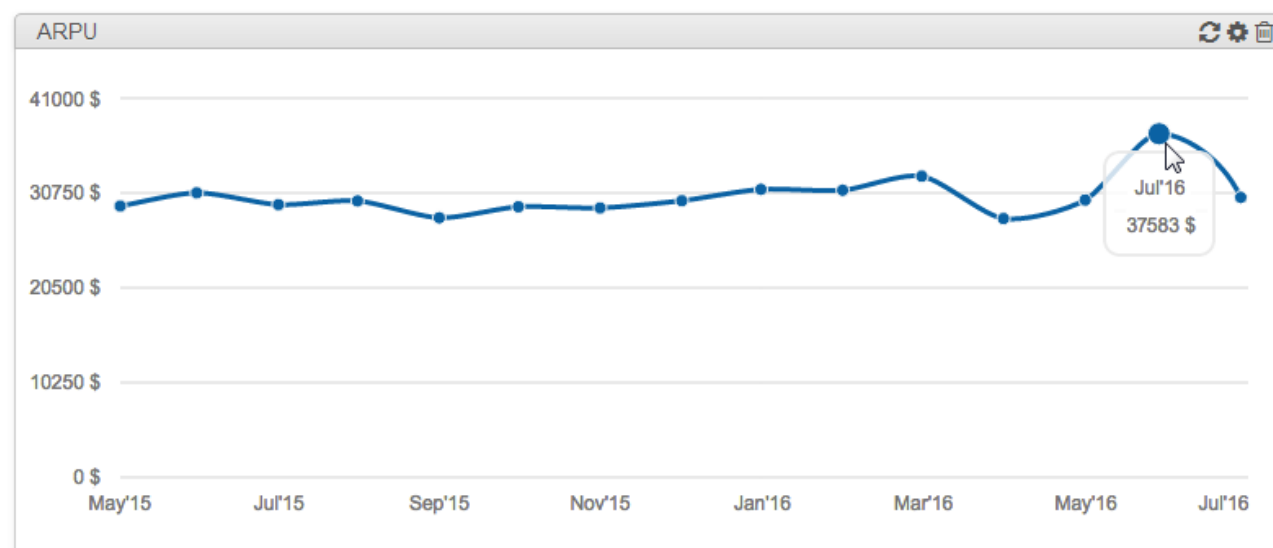
2.3.5.4. Penetration

> ⚠️ To calculate penetration, fill in the registries of regions and real estate and specify **Number of residential premises**.

The penetration rate for the widget is calculated as follows: the number of active customers in each region divided by the total number of residential premises in this region. Customers are selected by matching the region in the street address of their basic subjects with the region of the real estate. The number of active customers is calculated by the same algorithm as for the widget **Active customers**. The number of residential premises for each month is determined at the date of the last calculation of penetration rates.

> ⚠️ The penetration rate is calculated for regions from the next level of the hierarchy in relation to the company's region. For example, the screenshot below shows the figures by cities, since in the registry of regions cities are stated as subregions in relation to the state **Illinois**, which is specified as the company home region.

In the penetration graph there are two indicators: one for the beginning of the period and the other for the end of the period. In this example, bars for July 2012 and June 2013 are shown, at the date of July 18, 2013 and the period of interest of twelve months. Figures for the first five regions with the highest penetration percentages are shown separately. Figures in **Other regions** are calculated by taking the total number of customers in the remaining regions and dividing it by the total number of residential dwellings in these regions.
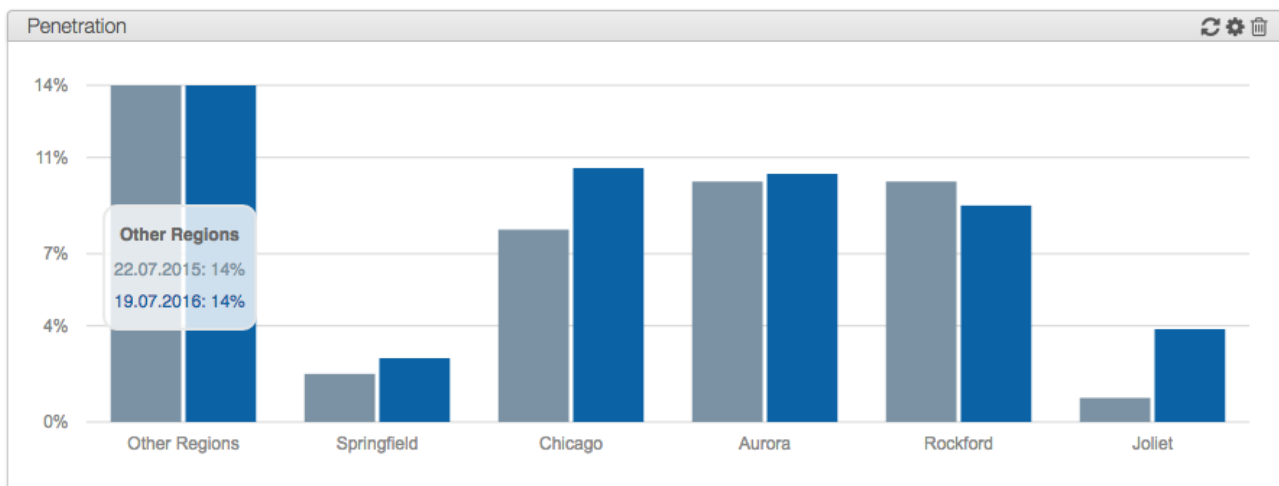
2.3.5.5. Reminders

The Reminders widget shows reminders added on entities pages. Colors are used in the widget to show the various statuses of reminders: green — *current* (within one day of the reminder date), gray — *done*, red — *overdue*. Click the reminder to open an entity's page.
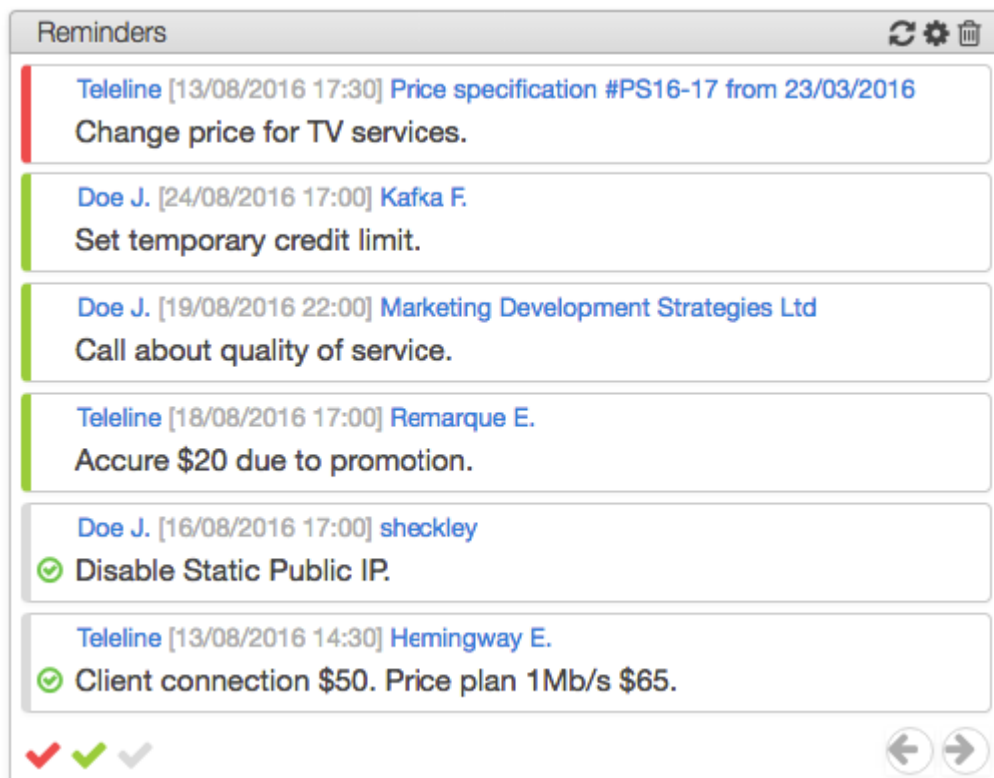
Using the colored buttons in the lower left corner of the widget, you can filter the reminders according to their status. Use the arrows to change the pages. You can mark or unmark any reminder as done by clicking ◯ or ✅ respectively.

The widget settings window allows you to set various parameters to show reminders. For this example, the following parameters were set: the reminder type *Comments* (seven comments per page), created by all users for any entities and the due date of reminders falling within the date range (see an example below).

If *no* is selected for **Show reminders for all users**, only the reminders added by the current user will be shown.

> In order to see messages of different types, you can add several widgets: one for each message type.

Click **Save**, and the widget updates the information shown according to new settings.

3. Using the System

> The user of Hydra Billing can view or edit the data of various entities (subjects, objects, or documents), work with addresses, build reports and carry out any actions only if he or she has the appropriate permissions.

This chapter is about working with the main menu of Hydra Billing and the main entities of the system — subjects,objects and documents. It contains the following sections:

- Product Catalog — working with the product catalog (services and price plans, entries and specifications for creating objects, and so on)

- **Individuals** — creating, viewing and editing individuals.
- **Organizations** — creating, viewing and editing organizations.
- **Customers** — creating, viewing and editing customers, including subscription to services and network services, working with customer accounts, services access, and suspensions.
- **Groups** — working with subject groups.
- **Tags** — working with tags for labelling entities.
- **Documents** — working with various documents (price specifications, contracts, invoices, and so on).
- **Reference Data** — system and user reference data.
- **Regions** — registry of regions including municipal regions management.
- **Addresses** — creating and editing different addresses (street, phone, network, and so on).
- Telephony — registries of area codes and CDRs.
- **Network Addresses** — registries of network addresses.
- **Active Equipment** — creating and editing active equipment and its components.
- Passive Equipment — creating and editing passive equipment and its components.
- Network Services — creating and editing network services.
- Real Estate Objects — viewing and editing real estate objects.
- Agents — creating and editing traffic collectors and active equipment managers.
- Events — creating and configuring events to manage subjects and objects.
- Bulk Actions — bulk operations.
- **Office** — payment operations.
- **Reports** — building reports on payments, goods and services realization, unaccounted traffic, and accounts status.
- **Administration** — defining system parameters, setting up tasks, managing templates and workflows, and so on.

3.1. Product Catalog

In this section:
- **Adding and Deleting Entries**
- **Editing Entries**

See also:
- **Product Catalog and Objects**
- **Practical Tips for Working With the Catalog**
- **Changing Service Providing Parameters**

The product catalog is one of the basic registries in Hydra Billing. Use **Master Data** > **Product Catalog** to open it. The catalog contains all services and price plans provided to customers, as well as types of equipment and other entries required for the system operation.

Product catalog ⓘ

The catalog tree includes seven sections:

- *Material assets* — catalog entries related to the inventory, including entries for active and passive network equipment.

- *Network services* — a set of entries describing various network services which Hydra Billing is integrated with (DHCP, DNS, email, IPTV Middleware, VPN, and so on).

- *Price plans* — contains price plans.

  > ⚠ The *Price plans* section contains only a list of all price plans without specifiying which services they contain. Contents of price plans are determined in price specifications. The same price plan can contain different services while in different price specifications.

- *Services* — a catalog of services which can be provided both independently or as a part of a price plan.

  > ⚠ Do not place entries for price plans in the **Services** section. If you do so, you will not be able to add child services to such plans in price specifications.

- *Realty* — entries on the basis of which real estate objects are created to store parameters of regions of the *Building* type.

- *Penalties* — entries used for charging late payment fees and early termination fees when using contract plans.

- *Adjustments* — entries used when adjusting account balances.

Inside sections, catalog entries can be combined into groups. To expand or collapse a group or a section, click ⊞ or ⊟ next to it.

Choose an entry or group to view its parameters.If

The *Network services* and *Material assets* sections additionally contain **types of specification items**. They are marked with ▤ These types are used to describe object components, i.e. to configure [specifications](). A type can be used in a specification of any entry located in the same group of the product catalog as the type itself.

Entries from the *Traffic services* group (in the *Services* section) have two sub-entries — **detailed services**. They are used for rating traffic or calls depending on the direction (inbound or outbound). Detailed services are created automatically when adding an entry to the *Traffic services* group.

3.1.1. Adding and Deleting Entries

To add a new entry (group, usual entry or type of specification items), click ✚ next to the entry which will be the new parent, and select the entry type.

```
☐ 📁 Network Services
    ⊞ 📁 Agents
    ⊞ 📁 Applications              ✚
    ⊞ 📁 RADIUS Services     [Add]   [Add]
    ⊞ 📁 System Services     Group
                              Entry
                              Specification entry
```
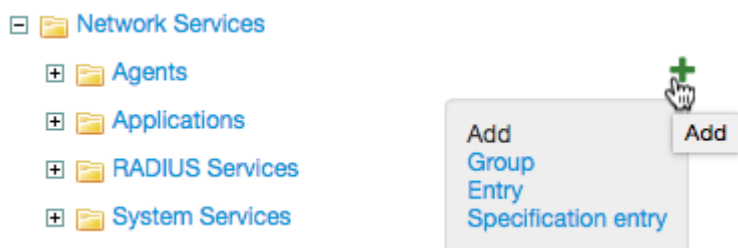
You can add sub-entries to entries in *Traffic services* by pressing ✚ on the row you need and choosing **Detailed services** from the menu.

```
☐ 📁 Services
    ⊞ 📁 Core Business
    ☐ 📁 Traffic Services
        ☐ 📁 Customer Traffic
            ⊞ ● International Telephony
            ☐ ● Internet Traffic
                ● Internet Traffic in        ✚
                ● Internet Traffic out   [Add]   [Add]
            ⊞ ● Local Telephony       Detailed service
            ⊞ ● Local Traffic
            ⊞ ● Long Distance Telephony
        ⊞ 📁 Interconnect Traffic
```
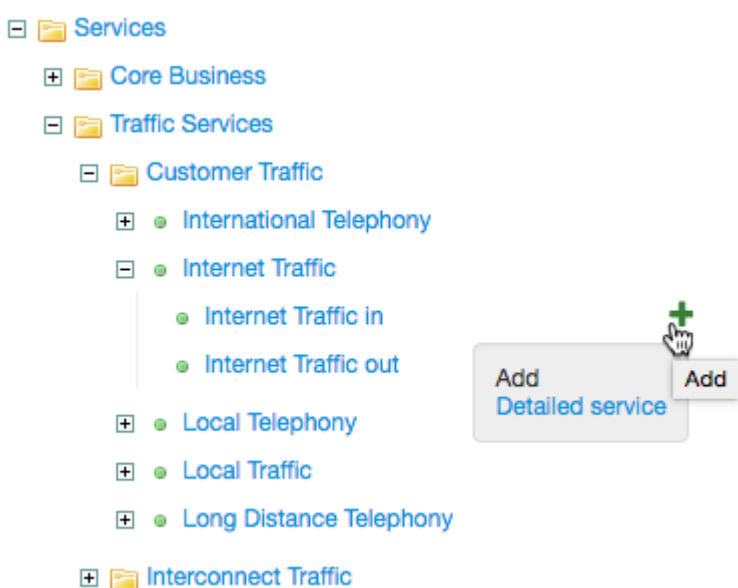
Fill in the fields and click **Add**.

By clicking 📄 next to the entry, you can create a copy of it suitable for editing.

To delete a group or entry, choose it from the catalog tree and click **Delete**.

3.1.2. Editing Entries

In this section:
- Entry and Group parameters
- Bindings to Catalog Entries
- Specifications
- Custom Fields

See also:
- Changing the Service Rendering Parameters

Chose an entry to view or edit its parameters.

Some parameters can be found in all entries, others only in entries from particular categories and groups.

To save changes, click **Save**. To delete an entry, click **Delete**.

3.1.2.1. Entry and Group Parameters

In this section:
- [Service and Price Plan Parameters](#)
- [Addresses](#)

All catalog entries have the following parameters:
- **ID** — a numerical ID automatically generated by the system.
- **Entry type** — type of product catalog entry (group, product entry, or type of specification items).
- **Unit** — a measuring unit, for example, *meter* for a cable, or *pcs* for an IP phone.
- **Type** — the section of the product catalog the entry relates to.
- **Parent** — the group that includes the entry. Unlike **Type**, **Parent** can be changed by clicking $\mathbb{Q}$ and choosing another group. The entry will be moved to the entered group.
- **Code** — a short name of the entry.
- **Name** — a name of the entry. The name can be entered manually or Hydra will copy **Code** into it when saving the entry. The entry name is shown in the catalog tree, in price specifications and subscriptions to services.

> Do not create two or more entries with the same name in order to avoid confusion in price specifications and service subscriptions.

- **Remark** — any comment about the entry.
- **Tags** — Hydra automatically adds tags to an entry you create if they are set to its parent groups and you are allowed to use them. You can also add other available tags or remove extra ones.

Entries from the *Material assets* and *Network services* sections also have the following parameters:

- **Can be an object** — if selected, you can create objects on the basis of this entry.
- **Provider equipment** — if selected, equipment created on the basis of this entry can be a provider one. For such equipment, profile templates for provider equipment are configured.
- **Customer premises equipment** — if selected, equipment created on the basis of this entry can be added to a customer. For such equipment, profile templates for customer equipment are configured.

If selected for an entry in the *Material assets* and *Network services* sections, **Provider equipment** and **Customer premises equipment** are applied for equipment created on the basis of the entry and components of this equipment. For example, if a switch is a provider equipment, its ports are provider ones too, whereas customer equipment components are used by customers only.

If you are configuring a type of a network service that is to be used with components, you should select both the **Provider equipment** and **Customer premises equipment** check boxes. Network service components are always considered to be customer equipment whereas a network service itself — a provider one.

If a network service will have no components, you should select only the **Provider equipment** check box.

The list of objects created on the basis of the entry (if there are any) is displayed below. Use **show/hide** to expand or collapse the list. The link in the **Name** column opens the corresponding object.

2 objects created (hide)

Name	Status
DES3028-2	Active
DES3028-1	Active

Service and Price Plan Parameters

Entries from *Price plans* and *Services* have an additional setting which determines how the service is provided to the customer — **Service providing scheme**

> If you choose another service providing scheme, it becomes effective only in a new billing period.

Parent	Internet Price Plans
Code*	Triple Classic
Name	Triple Classic
Remark	
Service rendering scheme	Prepaid, daily charges w/funds h ▾
Tags	

> For services specified in *Traffic services*, you need to choose the scheme in which the **Service type** is set to *Traffic*.

For detailed services from the *Traffic services* group (inbound internet traffic, outgoing local call, and so on), **Basic service** is specified. It is its parent entry (*Internet traffic*, *Local call*, and so on) and it cannot be changed. Detailed services have the same parameters as a basic service which is parent to them.

In the **Name for documents** section, you can give alternative names to services or price plans, which will be used in certain documents, for example, invoices. Click ✚ **Add**, choose the document type and enter a new full name (like **Name** in service settings) and a short name (like **Code**).

This service is used in 1 price specification (hide)

Document	Remark
Price specification №PS16-17 from 23/03/2016	Triple Classic. Triple-play price plan with unlim internet access, prepaid local telephone calls and basic TV package.

At the end of the entry's page, for entries from *Price plans* and *Services*, there is information about price specification for the corresponding service. **Show/hide** allows you to expand/collapse the list of price specifications with comments.

This service is used in 2 price specifications (hide)

Document	Remark
Price specification #PS16-19 from 22/08/2016	
Price specification №PS16-5 from 01/03/2016	Tariff "Unlim Turbo". Unlimited 50Mbps. Speed drops down to 20 Mpbs after 50GB limit is reached and down to 1Mbps after another 50GB are used up. Outgoing internet traffic speed is constant at 20Mbps.

Click the price specification to open its page.

Addresses

If you have the permission to edit the catalog, an additional section **Addresses** is shown on the page of entry groups, entries and types of specification items from *Material assets*, *Network services*, and *Realty*. You can specify types and purposes of addresses for objects created on the basis of this entry or an entry included in this group, and also set connections between object addresses. Click **Edit** and make the necessary changes to the address table: for example, you can add IP addresses, subnets, subnet groups, and so on. The types of addresses are given in the Reference data.

Edit addresses

Address type	Address kind	Address type of parent entry	Inherited from	
Subnet	Actual address	—	Port	✕
IP Address	Actual address	—	Port	✕
IP Address	Actual address	VLAN	Port	✕
MAC Address	Actual address	—	Port	✕
VLAN	Actual address	—	Port	✕
VLAN	Actual address	MAC Address	Port	✕
Telephone	Actual address	—	Port	✕
DNS A record	Actual address	IP Address	Port	✕
DNS CNAME record	Actual address	DNS A record	Port	✕
IPv6 subnet	Actual address	—	Port	✕
IPv6 address	Actual address	—	Port	✕

+ Add

Save   Close

When you add an address for a product catalog entry group, it applies for all sub-entries. In the **Inherited from** column, entry groups for which you have set up addresses are shown. Go to their pages to edit these addresses. In the example, most of the addresses are inherited from the *Network services* section, which includes the current *IP telephony server* entry.

Parent address type is used to specify the relationship between object network addresses. For example, here you see two rows with IP addresses: one is for adding IP addresses and the other for binding them to already existing VLANs.

> In order to prevent system failure, avoid making changes to catalog entry addresses without contacting technical support.

Catalog entries can also have [custom fields](#).

3.1.2.2. Bindings to Catalog Entries

You can specify technological compatibility between equipment and services in the catalog. The type of equipment used to provide certain services (**Binding type** — *Allowed service*) can be set both for a particular service and for a group of services. In the latter case, the binding is inherited by entries in the group. Bindings are possible for entries from *Material assets* and *Network services*, and entries and entry groups from *Price plans* and *Services*.

> ⚙️ Bindings with *Allowed service* type affect the availability of services to the customer.

In the **Bindings to catalog entries** section, click ✚ **Add**.

If you're adding a binding on the page of a *Material assets* entry or a type of specification items from *Material assets* and *Network services*, enter a service or a service group in **Bound entry**.

If you're adding a binding to an entry or an entry group from *Price plan* or *Services*, enter the type of equipment in **Primary entry**.

If you want to edit a binding, click the corresponding row in the **Binding to catalog entries** section. To save changes, click **Save**.

To delete a binding, click ✖ at the end of the row. If there is no such button, it means that the binding was inherited and can be changed or deleted only on the page of the parent entry from the **Bound entry** column.

3.1.2.3. Specifications

Specification defines possible components of an object (an equipment or a network service). It contain types of components that the object can have and components' quantity. You can configure a specification for entries from the *Material assets* and *Network services* sections.

When working with a specification, use ***types of specification items*** that either belong to the catalog group of an entry you are customizing a specification for, or one of its parent groups.

In the example below, see a specification for the *D-Link DES-3028* entry which is created on the basis of the *Port* and *Control port* specification item types from the *Active equipment* group.

Click the product catalog entry. Then click **Edit** in the **Specification** section.

To add a new item, click ✚ **Add**. Enter item parameters in a new line:

- **Type** — select one of the available specification item types.
- **Name** — type the name of the specification item (i.e. a name of a component type).
- **Qty.** — enter a number of components of this type that an object can have (if not specified, the number is unlimited).
- **Default qty.** — enter a number of components of this type that will be created automatically when creating customer equipment.
- **Border color**, **Fill color** — enter colors that define component's appearance on the **Components** tab of an equipment or network service.
- **Tags** — set any available tags. If the item has tags that are entered in a provider profile template, then profiles are generated for all components of this type.

To edit an existing item, select it.

To save all changes, click **Save**.

3.1.2.4. Custom Fields

For groups and catalog entries, including types of specification items, you can add custom fields.

Click **Edit** in the **Custom fields** section on the entry or group page. In the **Custom fields** window you can add, edit and delete custom fields.

To add a new field, click ✚ Add.

In the **Add custom field** window that appears, enter:

- **Name** — the name shown on the page of the entry or on the page of an object created on the basis of this entry;
- **Code** — the string identifier of the field (short name);
- **Type** — the type of the parameter;

- **Source** — the reference data with items for a drop-down list;
- **Remark** — any comment about the field;
- **Catalog entry** — name of the entry you are adding the field to.

Select the necessary check boxes:

- **Object field** — if the check box is selected, the field added to the entry is available only on the page of an object, created on the basis of this entry, and not the entry page;
- **Multiple** — allows the field to have multiple values.

For entry groups, two other check boxes may be selected:

- **Inherited by groups** — the field is inherited only by subgroups of the current entry group;
- **Inherited by entries** — the parameter is inherited only by entries in the current group.

Selecting the **Inherited by entries** check box means that the field itself is shown only in the **Custom fields** section on pages of entries included in the current entry group.

Click **Add**. The added parameter is shown in **Custom fields**.

Custom fields

Name	Code	Remark	Catalog entry
802.1q VLAN	GOOD_C_FL_Param_802_1q		Active Equipment
Units	GOOD_N_Param_Units		Active Equipment

+ Add   Close

For example, in the **Custom fields** section of the entries of the *Active equipment* group, the added parameter looks as follows:

Custom fields

☑ 802.1q VLAN

Edit

If you want to edit the parameter, click on the corresponding row and make the necessary changes. To delete a parameter, click ✖ at the end of the row. To save all changes made to the table, click **Save**.

If a field was inherited, a parent entry will be shown in the **Catalog entry** column and a 🔒 sign at the end of the row, meaning that the field can be changed or deleted only on the page of the parent entry.

> ⚠️ There are custom fields, marked by 🔒 at the end of a row, that are not inherited from any entries. They are necessary for the operation of the system and therefore cannot be changed or deleted.

An example of custom fields necessary for the system operation is *Traffic direction* and the *Don't group by price in invoices* check box, that appear when detailed services are created, defining the direction of traffic or call:

Custom fields

Traffic Direction [outg. ▼]

☐ Do not group by price in invoices

☑ Group Charges by Price

Edit

The value in **Traffic direction** is given by default. For inbound traffic/call *in* is shown and *out* for outbound. The symbol "—" is shown for other detailed services which are created manually and do not represent the direction of traffic. For example the *Excess* service, which is used in a particular [service providing scheme](#).

> ⚠️ You should not change the default setting of **Traffic direction** without consulting Hydra Billing technical support.

If the **Don't group by price in invoices** check box is selected and the price of the service varies, for example, depending on the use, in the invoice there will be only one row with the final cost of the service. If it is cleared, there will be separate rows for each service price.

3.2. Individuals

In this section:
  * Registering an Individual
  * Editing and Deleting an Individual

Individuals are basic subjects of Hydra Billing. All information about individuals is stored in the **Registry of individuals**. On the **Master Data** menu click **Individuals**.

To search for one or more individuals in the registry, use the appropriate filters on the **Filter** tab. A list of individuals who meet the search criteria are shown on the **Results** tab. To view an individual's information, click the last name.

3.2.1. Registering an Individual

To add a new individual:

  * on the **Master Data** menu click ![plus icon] next to **Individuals**:
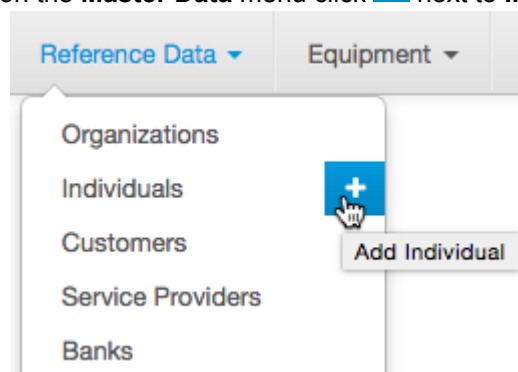
  * or on the **Master Data** menu click **Individuals** to open the **Registry of individuals**, then click ✚ **Add**.

Enter the details for a new individual.

Individual: create

In the **Personal details** section enter the individual's surname, name, middle name, sex, place and date of birth and also choose the status and the group the individual belongs to.

Common data

Legal Form [— ▾]

Tax ID [ ]

Personal data

Citizenship [ ] 🔍 ✎ 🗑

Document [— ▾]

Serial Number [ ]

Number [ ]

Date of Issue [ ] 📅

Issued by [ ]

Department Code [ ]

Social Security Number [ ]

Medical Insurance Policy Number [ ]

You can also enter the following information about an individual:

- **Legal form** — in most cases it is not specified, which means you select "—", (the default value). The box is used to refer to individual entrepreneurs, who are ranked with individuals according to Russian law;
- **Tax ID**.

You can also add the individual's legal personal details.

To add comments about an individual, click **Write**, in the **Other** section. If you want to hide notes, click **Hide**.

Click **Add** at the end of the page.

3.2.2. Editing and Deleting an Individual

You can edit an individual's details, view and add information about his or her addresses and accounts, and also roles in the system.

Find the individual you want using quick search or the **Filter** tab in the **Registry of individuals**.

Make the necessary changes, for example add an address or account. You can also attach any file, for example a photo.

In the **Other** section, you can see who the individual was added by and when.

You can open the **Comments** tab to write comments about the individual or to set a reminder.

To save your changes, click **Save**. If you want to delete an individual, click **Delete**.

Personal data

Citizenship	USA
Document	—
Serial Number	111222333
Number	123456789
Date of Issue	01/09/2020
Issued by	
Department Code	
Social Security Number	
Medical Insurance Policy Number	

Additional

Full Name in Genitive	

Addresses

Address type	Address	View	
Postal address (Main)	Ave. Sunset, flat 139	Actual address	✖

➕ Add address

Accounts

➕ Add account

Attached files

✎ Attach file

Drag and drop file here in
order to attach it

Other

Remark ✎	
Author	Migrator
Organization	Teleline
Date Created	18/02/2016 18:49:21

Save   **Delete**

3.3. Organizations

In this section:

- [Registering an Organization](#)
- [Editing and Deleting an Organization](#)
- [Employee List](#)

Organizations, like [individuals](#), are basic [subjects](#) of Hydra Billing. Information about organizations can be found in the **Registry of organizations** from the **Master Data** > **Organizations** menu.

Registry of Organizations

To find the organization in the registry, use the **Filter** tab. The list of organizations that meet the criteria are displayed on the **Results** tab. To view information about an organization, click its name.

3.3.1. Registering an Organization

To add a new organization:

- on the **Master Data** menu click ➕ next to **Organizations**
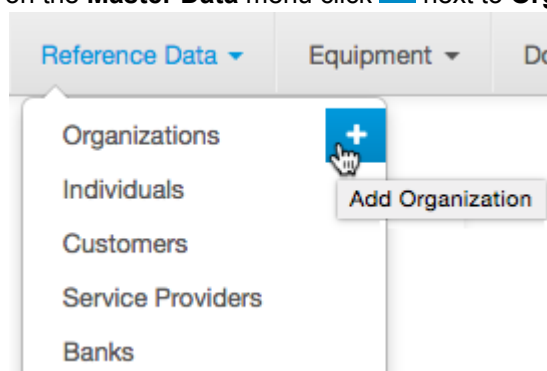
- or on the **Master Data** menu click **Organizations** to open the **Registry of organizations**, then click ✚ **Add** on the right.

Enter the details for the new organization.

Organization: create

Organization

Common data | Employees | Comments

Common data

Legal Form*	Limited Liability Company (LLC) ▼
Name	
International Name	
Short name*	Teleline
International Short Name	
Group ✏ Configure	
Subsidiary of	🔍 ✎ 🗑
Region	🔍 ✎ 🗑
Status	Active ▼
Tags	

In the **General** section, type the organization's legal form and its full and short names (including international variations). Specify the group of the organization and choose the region where the organization is located.

If the organization is a subsidiary of the other organization, enter this organization in **Subsidiary of**.

Details

Tax ID	
Special client code	

In **Details**, you can add the following:

- **Tax ID**;
- **Special client code**.

To add comments about an organization, click **Write** in the **Other** section. If you want to hide comments, click **Hide**.
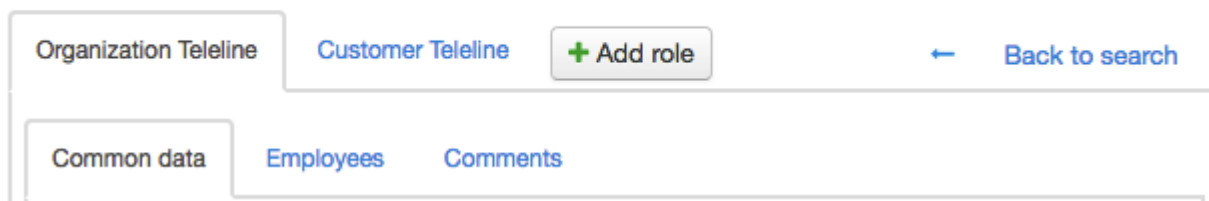
To complete the process of creating an organization, click **Add**. Now you can specify the organization's addresses and accounts.

3.3.2. Editing and Deleting an Organization
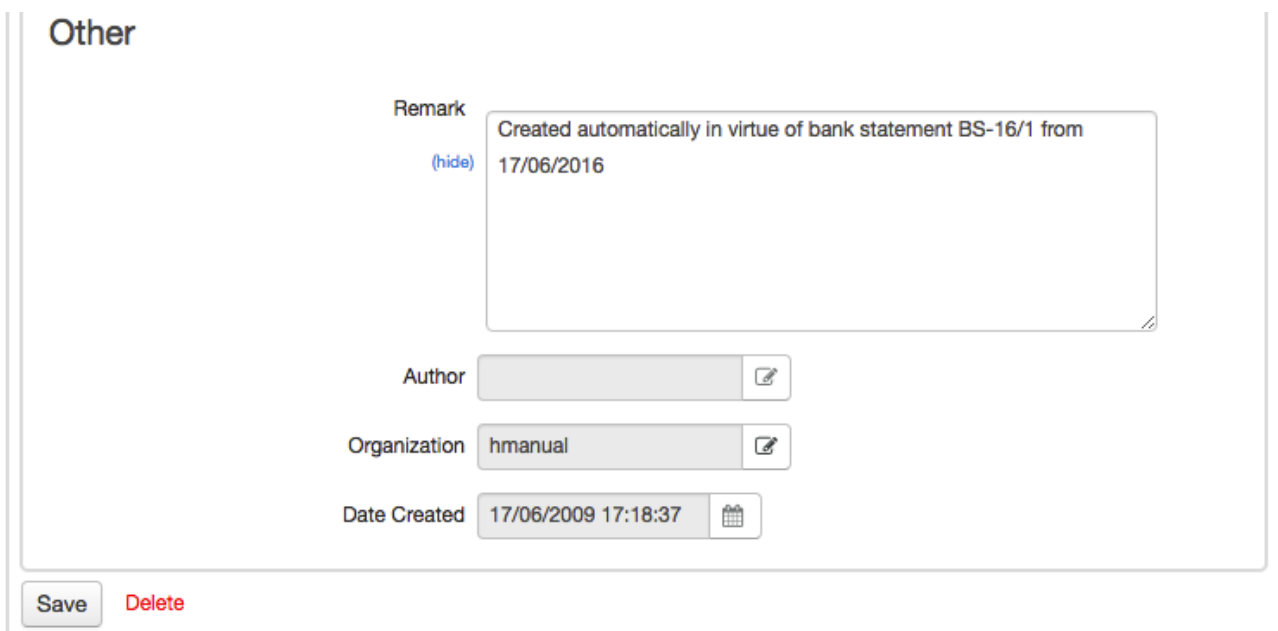
To edit the organization details, manage its addresses, accounts, and employees open its page using the **Registry of organizations** or quick search.

Make your changes, add an address or an account on the **General** tab.

Organization Teleline: edit

| Organization Teleline | Customer Teleline | + Add role | ← Back to search |

| Common data | Employees | Comments |

In the **Others** section, you can see who created the organization and when.

Other

Remark
(hide)

Created automatically in virtue of bank statement BS-16/1 from 17/06/2016

Author

Organization   hmanual

Date Created   17/06/2009 17:18:37

Save   Delete

You can write comments about the organization and also set reminders on the **Comments** tab.

To save your changes, click **Save**. If you want to delete the organization, click **Delete**.

3.3.3. Employees

In this section:

- Using Departments
- Working with Employees

See also:

- Step by Step Instructions on How to Add an Employee

Information about an organization, stored in the **Registry of organizations** also includes a list of employees. In Hydra Billing every employee is an individual, added to the registry of individuals.

You can manage employees on the **Employees** tab on the organization's page.

Organization Teleline: edit

Organization Teleline	Customer Teleline	➕ Add role		← Back to search

Common data	Employees	Comments

Employees not assigned to a Department

ID	Position	Full Name	Type	Work Period	Phone (work)	Remark
52217001	General Manager	Hemingway Ernest	General Manager	from 11/08/2016	74914759322	✖
52216601	Head of Accounting	Kafka Franz	Head of Accounting	from 11/08/2016		✖

➕ Add employee

Sales Department ✏

ID	Position	Full Name	Type	Work Period	Phone (work)	Remark
52217301	Sales Manager	Shakespeare William	Employee	from 11/08/2016		✖
52217101	Marketer	Twain Mark	Employee	from 11/08/2016		✖

➕ Add employee

➕ Add department

Save	Delete

If the *Hide dismissed employees* check box is selected, only the current employees are shown.

Using Departments

You can attach employees to departments. To do so, you should create departments first.

To create a department, click ➕ **Add department** and type the department name.

Department: create ✖

Common data

Department Name [Technical Support Department]

Roles

Role	Position
Technical Support Specialist	Employee ✖

➕ Add
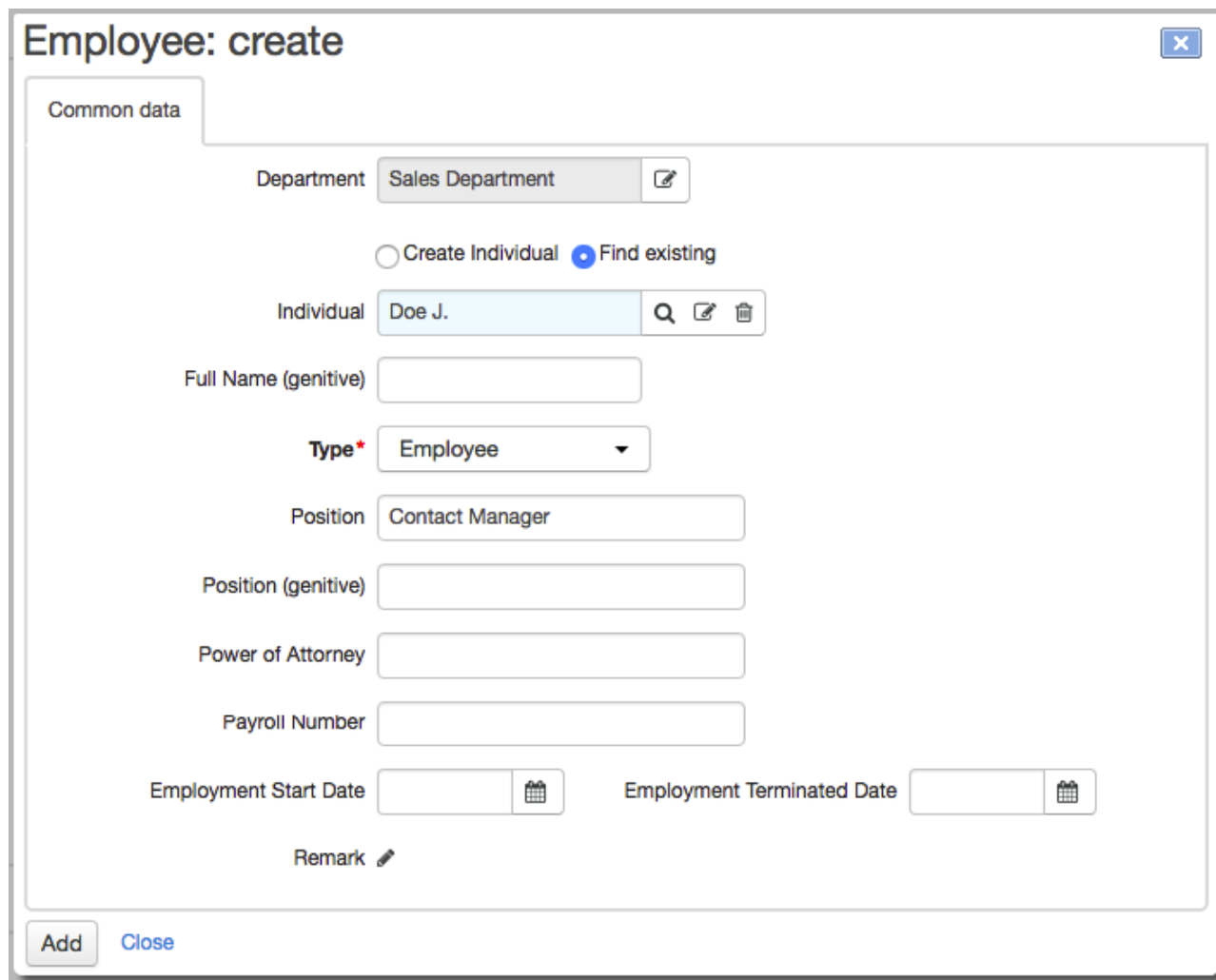
Add	Close

In the **Roles** section you can attach [roles](#) to a certain employee position type. As soon as an employee takes the position of the type, he or she is granted all the permission specified for the role. This is useful when you have a large number of employees. For example, when an employee is taking the position of the *Technical specialist* type in the *Technical support* department he or she gets all the rights associated with the *Technical specialist* role. After the employee's dismissal or removal, these rights will be canceled.

Click **Add**. You can edit a department's name or attached roles later by clicking 🖊 next to its name.

Working with Employees

To add a new employee, click ➕ **Add employee** in the section of the corresponding department or the **Employees not attached to any department** section.

Employee: create ❌

| Common data |

| Department | Sales Department | 🖊 |

⚪ Create Individual 🔵 Find existing

| Individual | Doe J. | 🔍 🖊 🗑 |

| Full Name (genitive) | |

| **Type*** | Employee ▾ |

| Position | Contact Manager |

| Position (genitive) | |

| Power of Attorney | |

| Payroll Number | |

| Employment Start Date | 📅 | Employment Terminated Date | 📅 |

| Remark 🖊 |

Add   Close

If a person you want to add to the organization's employees is already in the **[Registry of individuals](#)**, choose **Use existing** and enter him or her in **Individual**.

If the individual is not added yet, choose **Create individual** and enter the following: last name, first name, and middle name. You can find and edit the created individual in the **Registry of individuals**.

Choose the type of the employee position — you can use it in [print templates](#). For example, when creating contracts, you can use the details of an employee who is a *General manager*, i.e. an employee who can represent the company's interests, even though the employee's official title is something else, for example *Executive director*. Types of positions are stored in the [reference data](#).

> If the position type has any roles attached to it, all users, created for the individual holding the corresponding position, will have all the rights given to those roles. Rights will be automatically revoked when an employee is dismissed.

Specify the name of the employee's position. If necessary, enter a power of attorney and a payroll number.

To complete the process of creating a new employee, click **Add**.

> The same individual may be employed by several departments at the same time and hold several positions.

You can change the details of an existing employee by clicking his or her row on the **Employees** tab.

> If you click **Full name**, the individual's page will open. To edit the employee, click anywhere else in the row.

To dismiss an employee, enter **Leaving date**. You can delete the employee in the following ways:

- click ✖ at the end of the row ;
- click **Delete** on the employee's page.

3.4. Customers

In this section:

- Creating a Customer
- Editing a Customer
- Customer Account Settings
- Service Subscriptions
- Managing Service Access

See also:

- Step by Step Instructions to Adding a Customer

Managing customers lies at the heart of Hydra Billing. Customers, as well as individuals and organizations, are system subjects. Any individual or organization in the registries can be a customer, even a customer of several providers at the same time.

All customers are divided into groups of customers. A customer can belong to several groups and must belong to at least one group.

All customers registered in the system can be found in the **Registry of customers**, which can be opened from the **Master Data** > **Customers** menu.

Customer Registry

Filter	Results	Filter not selected ▾	💾

| Change Status | Delete | Permanent link | https://hydra.example.com/subjects/users/list? |

☐	ID ^	Customer Code	Basic subject name	Name	Customer Accounts	Contracts	Date Created	Organization
☐	51219501	kafka	Kafka Franz	Kafka F.	1003	A-16/1	18/02/2016 19:08:27	hmanual
☐	51744601	blake	Blake William	Blake W.	1006	C16-4	23/03/2016 17:39:23	hmanual
☐	51747501	byron	Byron George Gordon	Byron G. G.	1007	C16-5	23/03/2016 17:40:00	hmanual
☐	51777601	remarque	Remarque Erich Maria	Remarque E. M.	1008	C16-6	23/03/2016 17:47:49	hmanual

To search for customers matching your specified criteria, use the **Filter** tab. The customers will be shown on the **Results** tab. To open a customer's page, click his or her code.

3.4.1. Creating a Customer

To add a new customer add the role of customer to a particular individual or organization.

> Before creating a customer, make sure that the individual or organization is already in the registry. If not, create a new individual or organization.

You can also create customers using orders.

Adding the Role of Customer

Open an individual's or organization's page, click ✚ **Add role** and click *Customer*.
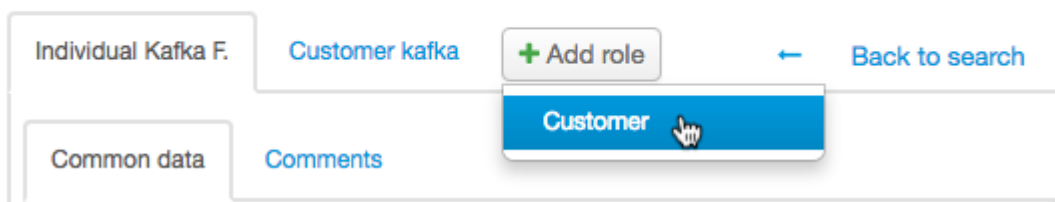
A customer page opens on the new tab.

Customer Page

Customer: create

Individual Kafka F. | Customer kafka | **Customer: create** | **+ Add role** | ← Back to search

| Common data | Permissions | Network Services | Services | Discounts |

| Debit and Credit | Sessions | **This field can be automatically generated** | Comments | Audit |

Customer Code ⌶

Status [Active ▾]

Tags [ ]

Group ✎ Configure

Customer Accounts ⓘ

Add subject to manage accounts

Contracts

Please add Subject to access documents

Equipment ⓘ

Please first create a customer in order to configure equipment

Other

Remark ✎

Organization [hmanual] ✎

[Add]

In **Code** enter the customer's short name (login). If you leave it empty, the customer will be assigned a code by the [autonumberer](#).

Choose the customer's status, label the customer with the [tags](#) and specify the [groups](#) the customer belongs to.

Click **Add**.

3.4.2. Editing a Customer

To open a customer's page use the quick search or the **Registry of customers**.

Customer kafka: edit

| Individual Kafka F. | Customer kafka | + Add role |

| Common data | Permissions | Network Services | Services | Discounts | Debit and Credit | Sessions | Profiles | Documents | Comments | Audit | More ▾ |

Log in to Customer Portal
Change basic subject

ID 51219501

Customer Code kafka

Status Active

Tags new_customer x

Group **Individuals Promo**, Individual Customers ✎

The following tabs are available, depending on the rights of the current user:

● **General** — to view and edit customer details, manage accounts, contracts, subscriptions to services, and equipment;

● **Permissions** — to manage customer access;

● **Network services** — to subscribe a customer to network services and allow access to applications;

● **Services** — to view information about current, ordered, and already provided services;

● **Discounts** — to view current and previously granted discounts;

● **Payments and charges** — to view a history of payment and charges;

● **Sessions**;

● **Profiles**;

● **Documents** — to view all documents connected with the customer;

● **Comments** — to write comments or set reminders;

● **Audit** — to view the change history of customer subscriptions to network services.

You can log in to the customer's Self-Care Portal: click **More**, click **Log in to Self-Care Portal**, and type your password for the Service Provider Console.

To change the customer's basic subject (individual or organization), click **More**, then click **Change basic subject** and enter a new basic subject.

To delete a customer, click **Delete** at the bottom of the customer's page.

3.4.2.1. General

In this section:
● Customer Statuses
● Accounts
● Contracts
● Subscription to Recurrent Services
● Status Indicator for Recurrent Services
● One-Off Services
● Customer Equipment
● Attached Files and Custom Fields

The **General** tab is most often used when working with customers. This tab allows you to change the customer code, move to another group, change the status, sign a contract, subscribe to services, and so on.

> Both one-off and recurrent services can only be added if the customer has at least one contract and has at least one customer account.

Customer Statuses

- *Active* — the basic working status of a customer and the default status when a customer is created. Only with this status, can charge logs be created for a customer. With it, the customer can log in to all applications he or she has access to. When a customer becomes *Active*, the status of the CPE changes to *Active* as well.

- *Suspended* — customer becomes automatically suspended when [non-payment suspension](#) is activated for all customer accounts. The CPE becomes *Inactive*, but the customer retains access to the Self-Care Portal.

  The customer's status is restored to *Active* if the customer tops up the account with a sum sufficient for issuing a charge log according to the existing subscription, or changes the price plan to a cheaper one.

- *Suspended manually* — you can manually set the *Suspended manually* status. When a customer becomes *Suspended manually*, the CPE status changes to *Inactive*, charge logs are not issued, but the access to the Self-Care Portal is still retained. You can suspend a customer only if there are no charge logs in force.

- *Disabled* — a *Suspended* customer automatically becomes *Disabled* at the end of the billing period of the [non-payment suspension](#) service. Customer contracts are terminated, the CPE becomes *Inactive*, [addresses attached](#) to this equipment are released and the customer's access to all applications is stopped. *Disabled* customers cannot make payments, however you can [make a payment](#) to the account of such a customer.

  To return to *Active* status, the customer must contact the support.

- *Inactive* — a status that you can use during initial customer connection to edit the customer's accounts, contracts, equipment, subscriptions, and so on. No charge logs are issued for inactive customers and they don't have access to any applications yet. When a customer becomes *Inactive*, the CPE also becomes *Inactive*.

Accounts

Customer Accounts ⑦

	Currency	Balance	Current Reserved	Available	Credit Limit		Auto top-up	
Customer account #1017	$ [USD]	7.00	25.85	7.00		0.00	Not present	🔍 ➕ ✖
Customer account №1014	$ [USD]	−50.00	0.00	100.00	150.00 to 31/08/2016 17:30:49		Not present	🔍 ➕ ✖

✚ Add account

In the **Accounts** section there is a list of customer accounts, used for providing services, and their indicators. Here you can also see if there is an auto top-up enabled for an account.

Click ➕ in the row to make a payment to this account. To view recommended payment, click 🔍.

See also Customer Accounts.

Contracts

Contracts

☐ Only effective

Name	Status	Services subscription		
Contract #A-15/1 from 12/08/2015 (not effect)	Terminated			
Contract #C16-17 from 12/07/2016 (not effect)	Draft			
Contract #C16-16 from 22/08/2016	Actual	✔ Unlim Turbo	🖥 Workstation-2	*from 22/08/2016*
		✔ Static Public IP	🖥 Workstation-2	*from 22/08/2016*
↳ Addendum #1 from 22/08/2016	Actual	22/08/2016 ➕		

✚ Add document

◯ One-off Services

In the **Contracts** section, all the customer's contracts are listed. Annexes and addendums are shown with ↳ under the contracts.

If a customer has contracts with any status other than *In force*, they are hidden by default with the **Only in force** check box selected. Otherwise, contracts which are not in force, will be shown in gray.

To view information about a contract or to edit it, click its name.

To add a new contract, click ✚ **Add document** . Then enter the necessary data. See also Contracts.

Subscription to Recurrent Services

In the **Subscriptions to services** column of the contracts table, you can see the list of recurrent services which have either already been provided or will be provided to the customer on the basis of the corresponding contract or annex to the contract.

If you want to subscribe a customer to a new service or change an existing subscription, click ✚ in the **Subscriptions to services** column.

See also Subscription to services.

Status Indicator for Recurrent Services

Next to each service, there is an *indicator* (marker) of its status. You can see the indicator in the following places:

- in the **Subscriptions to services** column in the **Contracts** section on the **General** tab,

- in the **Ordered services** section on the **Services** tab.

Indicator	Service status
✔	Service being provided
⏱	Service scheduled
⚠	- Access service automatically disabled - Access service manually disabled

⛔	• Charge log not issued
	• Service not being provided (insufficient funds)
	• Service not being provided (temporary suspension)
	• Service not being provided (non-payment suspension)

One-Off Services

Click ⚙ *One-off services* to choose the one-off service you want to provide to a customer. Specify the customer contract, the account for payment, the CPE (if necessary), and the price plan, if the service is included in it. Click ➕ Add and set the parameters.

One-off Services   ✕

Contract	Contract #C16-16 from 22/08/2016	🔍 ✏ 🗑
Account	1016	🔍 🗑
Equipment	Workstation-2	🔍 ✏ 🗑
Price Plan		🔍 🗑

Service	Qty.	Unit	Price	Amount	Currency	Date	
Technician Visit	1	pcs	40.00	40.00	$ [USD]	23/08/2016 14:33:08	✕

➕ Add

Total: 40.00 $ [USD] (including 6.10 $ [USD] taxes).

[Create Charge Logs]   Close

After completing, click **Issue charge logs**. If the customer is *Active* and with sufficient funds, charge logs will be issued. If the selected one-off service is included in the valid customer price plan, a record of it will be added to the existing charge log, otherwise a separate charge log will be created for the one-off service.

Customer Equipment

In the **Equipment** section on the **General** tab there is a list of the CPE. For example, it could be the customer's personal computer, a network service port or an IP phone.

Equipment ❓

Name	Component	Status	Service address	IP Address	Subnet Mask	Subnet
GPON ONT-6	1	Active	Illinois, City Waukegan, Ave. Sunset, flat 15	172.16.0.18	255.240.0.0	172.16.0.0/12
Workstation-2	1	Active	Illinois, City Waukegan, Ave. Sunset, flat 15	193.178.118.6	255.255.255.0	193.178.118.0/24

➕ Add equipment

To edit equipment, click its code. In the **Component** column, all the equipment components owned (or used) by the customer are shown, for example, network adapters or VPN ports. To edit the component, click its code and make the necessary changes.

You can restrict network addresses which can be assigned to the CPE. For example, you can specify, that the CPE IP addresses must be from a specific subnet.

To add new equipment, click ✚ **Add equipment**.

See also Equipment.

Attached Files and Custom Fields

On the **General** tab, you can attach any file to the customer, enter the data into the custom fields, write a comment, view the customer's division (service provider) and also see who created the customer and when.

Attached files

🏷 Attach file

Drag and drop file here in order to attach it

Additional

Hometown

Number of workstations

Other

Remark ✏

Organization   hmanual   ☑

Date Created   08/07/2016 15:57:09   📅

Author   Operator   ☑

Save   Delete

3.4.2.1.1. Equipment

In this section:
- Adding Active Equipment
- Adding Network Service Components

See also:

- [Active Equipment](#)
- [Organizing Customer Premises Equipment](#)
- [Restricting Customer Equipment Addresses](#)

In the **Equipment** section on the **General** tab you can view the equipment used to provide services to the customer. This equipment can be, for example, a customer's personal computer, an IP phone or a network service port.

To add a new equipment, click ✚ **Add equipment**.

Choose the equipment to add: independent equipment or a component of the network service.

Adding Equipment

Click ✚ Add equipment.

Use **Existing object**, if you want to make the customer the owner of the already created equipment.

Or specify the equipment type, i.e. the catalog entry. **Code** and **Name** can be either entered manually or using autonumbering.

Enter an IP address or choose a subnet from the **Registry of IP subnets**.In the latter case, the IP address will be selected automatically from the specified subnet. You can also select the **Don't create** check box and leave **IP address** and **Subnet** blank. If necessary, enter the MAC address.

> If you enter a subnet and select the **Don't create** check box next to **IP address**, the whole subnet will be assigned to the equipment to be created. You can do so for an organization's equipment to avoid creating several consecutive IP addresses.

You can create a subnet, by clicking ✚ next to **Subnet**. See two examples of creating the same subnet:P

The IP address or the subnet will be added to the traffic classes specifications which are valid now and will be valid in the future.

> If you enter an IP address from a subnet (or a subnet to select a free IP address from) that belongs to a VLAN, this VLAN will be automatically added to the created equipment and the IP address will bound to the VLAN. If you also enter a MAC address, Hydra will bind VLAN to it. For more details on binding addresses to equipment please see the Editing Active Equipment section.

If necessary, select **Service address** from the list of customer addresses.

Since equipment without any components cannot work in the system, when you create CPE, a component is automatically created for it. If you need to bind this component to any managing equipment or network service, enter **Component binding type** and **Main bound object**. You can also add and edit bindings on the equipment page.

To edit the equipment, click its code in the **Equipment** section. Make the necessary changes and click **Save**.

Adding Network Service Components

To add a component, click **Add component**. Enter **Network service** and **Component type** (network service component types are entered in the specification). **Code** and **Name** for the component can be entered manually or automatically via autonumbering.

If necessary, enter the type of address you want to assign to the component. If you select *IP address*, enter **IP address**. Or enter **Subnet** and leave **IP address** blank, so the IP address will be selected automatically from the entered subnet.

Set a binding you want. In this example, the *VPN* network service port, which the customer owns, is bound to the *IPFW (Firewall software)* network service with the *Connection management* binding type. You can also add and edit bindings on the component's page.

To edit the component, click its code in the **Component** column. Make the necessary changes and click **Save**.

3.4.2.2. Customer Permissions and Bindings to Divisions

In this section:

- [Bindings to Divisions](#)
- [Managing Permissions](#)

See also:

- [Roles](#)

The **Permissions** tab is designed to manage customer perrissions and attach them to divisions.

Bindings to Divisions

In the **Division** section, specify which division the customer is related to. If your company has no divisions, bind the customer to the company itself.

> In order to have access to the applications, the customer must be bound to at least one division.

Click **Add** and enter the division you need in the new row. If you want to edit the existing binding, click the corresponding row, make the necessary changes and click **Save**.

Managing Permissions

> The **Permissions** tab is used for giving permissions either to employees who require access to the Service Provider Console or to ancillary customers that are used to provide access to DB to third party applications. This tab, as a rule, is not used for regular customers.

Permissions can be given in three ways:

- through preconfigured [roles](#);
- through the position of an [employee](#) — an individual who is the basic subject of a customer;
- directly on the **Permission** tab of the customer page.

Hydra Billing combines permissions given in any of these three ways.

> The most convenient way to manage customers' permissions is by appointing one or more preconfigured roles. In this case, changes to the permissions associated with a role extend to all customers who are given this role.
>
> The second way—giving permissions through a position—is useful when there is a large number of employees, because in this case, you don't have to separately assign roles to each of them.
>
> Giving permissions to a customer directly is not recommended.

Roles are assigned to the customer on the **Permissions** tab:
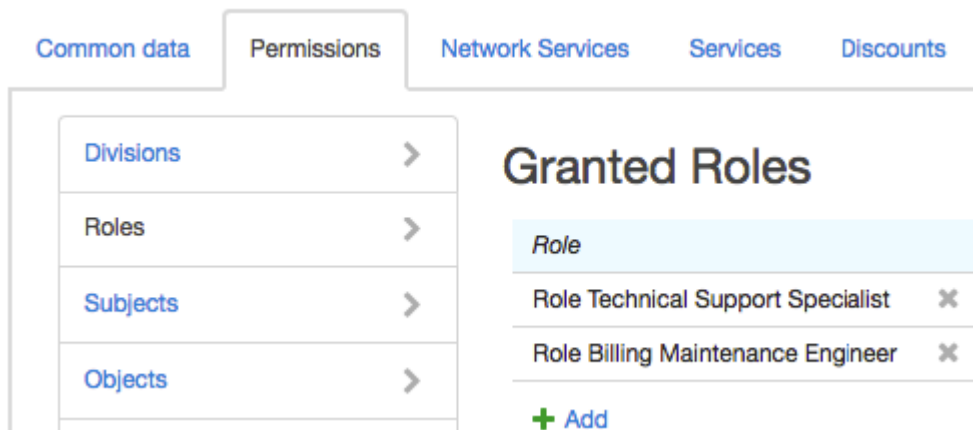
If necessary, permissions can be given to a customer directly in the same way as it is done for roles.

3.4.2.3. Subscription to Network Services and Access to Applications

In this section:

- Subscription to Network Services
- Access to Applications
- Changing Passwords

The **Network services** tab is used to manage customer subscriptions to network services and access to applications.

> One customer can have several different logins and passwords to access the same service or application. For example, it is not necessary to create separate customers for all employees who need access to the Service Provider Console. You can have one customer and give each employee his or her own login and password, so all employees will have the same permissions.
>
> Note that on the **Audit** tab you will see only the customer code, not the login under which the employee logged in to the application.

Subscription to Network Services

Network Services Subscription

ID	Network service	Equipment	String	Number	Login	Password	Hash type
52262001	NETSERV_HPD					not defined	—

➕ Add

To add a new subscription to a network service, click ➕ Add and in a new row enter the network service from the **Registry of network services**.

If necessary, you can enter the customer equipment to be used. You can create new equipment using ➕ in the **Equipment** column.

If your administrator demands, type **String** and **Number**.

Enter the **Login** and **Password** that the customer will use. Select the **Hash type** for the password, if needed. If the login is not specified, the customer or equipment code will be used instead, depending on the **Default login source** of this service.

To change a subscription, click in the row and to delete one, click ✖.

> If you have the *View passwords for network service subscriptions* permission, you see the passwords in the table.

Access to Applications

This section lists the applications that the customer has access to.

Access to applications

Application	Login	Password	Hash type	Locale
Network Operator Console		defined	MD5	—
Customer Self-Care Portal		setup (view)	—	—

➕ Add

> For regular customers, it is only necessary to configure access to the Customer Self-Care Portal. The Service Provider Console is only for customers who are employees and other applications are for ancillary purposes.

To ensure access to a new application, add a row, enter the application, type the customer's login (if not specified, the customer code can be used) and a password, and enter the hash type.

You can also choose the locale which will be used for that customer in the application interface. If not given, the default locale will apply.

Click the row to edit it. Click ✖ to delete and forbid access to the application.

> To change passwords for applications, you should have the *Change password without entering current password* [permission](#).

> You can view passwords for the Customer Self-Care Portal if you have the appropriate permission.

Changing Passwords

You can change passwords for a network service or an application in the following ways:

- in the Customer Self-Care Portal click **Passwords** in the **Settings** section. The customer can do this if the **Don't allow customer to change password** check box is cleared in the service settings;
- on the **Network services** tab on the customer page;
- by printing a customer record—in this case, a random password will be generated.

To print a customer record, click **Print** in the top right corner of the customer's page. If there is no such a button, you should add a [print template](#) first.

In the **Preview changes** window in the **Changing passwords** section, select whether you want to generate a password for network services or applications. You can also select the check box to generate identical passwords for selected applications and network services.

Click **Download** or **Print** to see a file containing the generated passwords.

3.4.2.4. Information About Services

In this section:
- [Current Services](#)
- [Ordered Services](#)
- [Provided Services](#)

On the **Services** tab, you can view detailed information on services currently being provided to the customer, as well as services which will be provided shortly or have already been provided.

The classification of all types of services and their features is given in [Concepts and Terms](#).

Current Services

Current services

	Unlim Turbo details (Add. Services)	Static Public IP
Customer account	1016	1016
Equipment	Workstation-2	Workstation-2
Contract	C16-16 from 22/08/2016	C16-16 from 22/08/2016
Charge Log	CL-16-62 from 22.08.2016	CL-16-63 from 22.08.2016
Period	from 22/08/2016 18:03:24 to 22/09/2016 18:03:23	from 22/08/2016 18:03:24 to 22/09/2016 18:03:23
Internet Traffic in	0.00	
Charged	50.00 $ [USD]	4.00 $ [USD]
Total	50.00 $ [USD]	4.00 $ [USD]
Amount for Add. Services	0.00 $ [USD]	
Price specification	PS16-18 from 22/08/2016	PS16-4 from 01/03/2016
Access Services	Service active. Click to suspend Internet Access 0.00 $ [USD]	

In the **Current services** section, you can see information about all services currently being provided to the customer.

> **!** Within a price plan, all services other than traffic ones are called ***additional services***.

To view detailed information on the use of additional services within the price plan, click **Details on additional services**.

Service	Duration, min.	Unit	Price	Price (exc taxes)	Amount	Tax amount	Amount excluding taxes	Currency	Start Date	End Date
Detalization for Additional Services										
Internet Access	-				0.00	0.00	0.00	$ [USD]	22/08/2016 18:03:24	23/08/2016 13:06:52
Internet Access	-		0.00	0.00	0.00	0.00	0.00	$ [USD]	23/08/2016 14:24:19	22/09/2016 18:03:23
					0.00	**0.00**	**0.00**			

Close

Charge logs are used to enroll the usage of services. To view a charge log, click its name.

In **Period**, you can terminate the charge log early. This may be necessary if you need to change a price plan, without waiting for the end date of the current charge log.

The next row after **Period** contains the total consumption of a particular service, for example, inbound internet traffic, from the begin date of the current billing period to the present moment. The amount includes the traffic that is already in the charge log, as well as the traffic from the operational register that will be added to the charge log when the aggregation period is over.

Enter the service, which consumption is shown, in the Service Provider Console parameters: on the **Administration** menu, click **Parameters**, open the **Application parameters** tab and in **Application** choose *Service Provider Console*. Enter the necessary service in **Service to show consumption**.

In the **Charged** row, you can see the sum which has been already charged to the customer account.

The **Total** row shows the cost of the service or price plan for the whole billing period.

In the **Amount for services** row there is an amount for all additional and traffic services that are not included in the subscription fee, for example, for any traffic above quotas.

```
Amount for services = Amount for additional services + Amount for traffic
services above the quotas.
```

Charged	50.00 $ [USD]	4.00 $ [USD]
Total	50.00 $ [USD]	4.00 $ [USD]
	Cost of additional and traffic services not included in basic plan	
Amount for Add. Services	0.00 $ [USD]	
Price specification	PS16-19 from 22/08/2016	PS16-4 from 01/03/2016
Access Services	✓ Internet Access 0.00 $ [USD]	

If a price plan has no quotas, the amount for traffic services equals zero.

You can enable or disable access services using ◯ and ✓ respectively. Thus, you can disable customer access because of a virus or for other reasons. When it happens, charges are made as usual and the customer status does not change, however the service status indicator changes, and events with the *Service disabled* type (if configured) are triggered for the CPE. The cost of enabling the access service is shown next to it.

Ordered Services

In the **Ordered services** section you can see services which will soon be provided to the customer, i.e. services which he or she has subscribed to with no charge logs issued yet.

☑ Service	Equipment	Contract	Price specification	Period	Amount, $
✓ ☑ Unlim Turbo	Workstation (Workstation-2)	C16-16	PS16-19	from 22/09/2016 18:03:24 to 22/10/2016 18:03:23	50.00
⸜ ✓ ☑ Internet Access					0.00
✓ ☑ Static Public IP	Workstation (Workstation-2)	C16-16	PS16-4	from 22/09/2016 18:03:24 to 22/10/2016 18:03:23	4.00
Total					**54.00**

Create Charge Logs

As a rule, charge logs are created automatically by the *Preparing charge logs for recurrent services* task. To issue charge logs for ordered services instantly, select them and click **Issue charge logs**.

After that, services are shown the **Current services** section.

> In this section you can also issue a charge log manually: with an earlier or later date.

Provided Services

In this section, you can view the services that have previously been provided to the customer. Enter the time period and click **Search**.

Rendered Services | from 01/07/2016 to 31/07/2016 | 📅 🗑 | Display |

	Service	Customer account	Equipment	Charge Log	Status	Begin date	End date	Charged, $ [USD]	Amount for Add. Services, $ [USD]	Details
▶	Internet Basic	1015	Terminal Equipment-10	CL-16-48 from 25.07.2016	Executed	25/07/2016 16:48:20	31/07/2016 23:59:59	118.00	0.00	(Add. Services)
▶	Internet Basic	1015	Terminal Equipment-14	CL-16-69 from 01/07/2016	Executed	01/07/2016 00:00:00	31/07/2016 23:59:59	59.00	0.00	(Traffic), (Add. Services)

Click on **traffic** to view details on the traffic usage by date.

Detailed traffic from 01/07/2016 to 31/07/2016 ✖

ⓘ Click on a date to get a more detailed breakdown

| Per Day | Per hour (01.07.2016) |

Period	Internet Traffic out, MB	Internet Traffic in, MB	Sum, $ [USD]	Amount excluding taxes, $ [USD]
01/07	16,143.179	1,186.832	0.00	0.00
02/07	11,1... [Details]	1,788.290	0.00	0.00
03/07	16,688.690	2,637.425	0.00	0.00
04/07	8,731.292	1,550.482	0.00	0.00
05/07	13,580.199	1,186.909	0.00	0.00
06/07	10,206.950	0,695.744	0.00	0.00
07/07	14,161.812	0,869.648	0.00	0.00

Click the row to view traffic usage by hours. Hourly statistics are not available once the aging period, specified in the service providing scheme, has elapsed.

3.4.2.5. Discounts

On the **Discounts** tab, you can view detailed information about current customer discounts.

Current discounts

	Welcome Discount
Service	Triple Classic
Account number	1007
Contract	C16-18 from 25/08/2016
Equipment	Workstation-7
Discount specification	DS16-1 from 01/01/2016
Discount certificate	DC-16/2 from 08/09/2016
Period	from 08/09/2016 14:40:17 to 08/12/2016 14:40:16
Discount	50 %

Discounts are granted automatically, so you cannot change any parameters.

You can view the discount history: enter the period and click **Search**.

Previously granted discounts

from 01/01/2016 to 31/12/2016 📅 🗑 Search

Name	Customer account	Contract	Equipment	Discount certificate	Service	Begin date	End date	Discount
Welcome Discount	1003	C16-135 of 18/02/2016	GPON ONT-3	DS16-1 of 01/03/2016	Open	01/03/2016 16:07:44	01/06/2016 16:07:43	50 %

3.4.2.6. Payments and Charges

On the **Payments and charges** tab, you can see operations on customer accounts.

Customer leeH: edit

| Individual Lee H. | Customer leeH | **+ Add role** |

| Common data | Permissions | Network Services | Services | Discounts | **Debit and Credit** |

Period   from 01/08/2016 to 26/08/2016

Account   1016

Show   ☑ Payments   ☑
        ☑ Credit   ☐
        ☐ Credit Limits

Apply filter

Enter the time period for operations to be shown in the report, the customer account (if more than one) and the types of operations: payments, charges, or granting credit limits.

To find a certain transaction, select the **Payments** check box and enter the unique transaction number in **Transaction ID**. You can find this number in the money transfer confirmation (for example, a check or a bank statement). Depending on the payment system or the bank, it can be called a transaction code, an operation code, and so on.

Click **Search** to see the account history.

Date	Service	Period	Credit, $ [USD]	Debit, $ [USD]	Credit Limit amount, $ [USD]	Balance, $ [USD]	Remarks
28/08/2016 17:33:07	End balance					−50.00	
	Total		20.00	70.00		−50.00	
28/08/2016 17:30:52	Temporary credit granted.	from 28/08/2016 17:30:52 to 31/08/2016 17:30:49			50.00		Manual
28/08/2016 17:30:00	Recurrent charges (TV Basic)	from 28/08/2016 17:30:00 to 28/09/2016 17:29:59		20.00		−50.00	
28/08/2016 17:28:17	Payment	28/08/2016 17:28:17	20.00			−30.00	(Cash)
28/08/2016 17:26:55	Recurrent charges (Quick Start)	from 28/08/2016 17:26:55 to 28/09/2016 17:26:54		50.00		−50.00	
28/08/2016 17:23:18	Permanent credit granted.	28/08/2016 17:23:18			100.00		Manual
01/08/2016 00:00:00	Start balance		0.00			0.00	

Download Reconciliation Report

In the **Qty.** and **Unit** columns, there is information about charges for quantitative services. In the **Period** column, you can see the service charging period or the credit limit period.

If you click the row with payment, the payment document will open, and by clicking the row with service charge, you can view the corresponding charge log.

Click **Download reconciliation report** to download a statement that lists the movements of funds on the customer account. To do so, you should add a template first. If there is more than one template, you should choose one of them.

3.4.2.7. Sessions

Using the filter on the **Sessions** tab, you can view information about customer sessions (including PPP sessions).

Using the tab, you can terminate the session by clicking the icon in the **Terminate** row.

| General | Permissions | Network services | Services | Discounts | Payments and charges | Sessions | Profiles | Documents | Comments | Audit | Business processes | More ▾ |

| | | | | | | |

Begin date from 01/02/2017 to 27/04/2017

End date

Status
☐ Forced to finish ✅
☐ Initial ☐
☑ Started
☑ Updated

Termination cause

Session ID

Initiator equipment

Search

Sessions

ID	External identifier	Session type	Started	Status	CPE	Customer profile	Service customer profile	Last update	Last load	Source	Terminate
187594005901	15/0/2/1298_01A7C5D0	ISG session - Basic access	01.04.2017 10:51:18	Updated	1 (Workstation-10985)	ISG - Basic access	ISG - Basic access	27.04.2017 16:07:02	27.04.2017 16:07:02	HARD (4.2.9.1) base/isg-vlan	■
187594005801	15/0/2/1298_01A7C5D2	ISG session - Local access	01.04.2017 10:51:18	Updated	1 (Workstation-10985)	ISG - Basic access	ISG - Local access	27.04.2017 16:06:49	01.04.2017 11:03:03	HARD (4.2.9.1) base/isg-vlan	■
187594005701	15/0/2/1298_01A7C5D1	ISG session - Internet access	01.04.2017 10:51:18	Updated	1 (Workstation-10985)	ISG - Basic access	ISG - Internet access	27.04.2017 15:52:46	01.04.2017 11:13:03	HARD (4.2.9.1) base/isg-vlan	■

3.4.2.8. Audits

> ⚠ The **Audits** tab is available only upon the *View audits* permission from the **Administration** section.

The **Audits** tab allows viewing the history of changes of a customer's parameters (code, status, basic subject, and so on) and subscriptions to network services.

Open the necessary section, click 🔻, specify a period, and click **Search**.

General parameters 🔻

Period	from 28/11/2018 to 26/02/2019 📅 🗑
ID	
	Search

ID	Customer code	Parameter	Changed by	Date	Previous value		New value
172482601	marvin	Name	John Doe (Latera)	26/02/2019 11:53:57	Adams D.	→	Adams D. N.

In **Subscriptions to network services**, you can filter by subscription ID. See the ID on the **Network services** tab.

Subscriptions to network services 🔻

Period	from 28/11/2018 to 26/02/2019 📅 🗑
ID	
	Search

New

ID	Service	Created by	Date
583909401	Customer Self-Care Portal	John Doe	26/02/2019 21:38:59

Changes

ID	Network service	Parameter	Changed by	Date	Previous value		New value
583909401	Customer Self-Care Portal	Password	marvin (Adams D. N.)	26/02/2019 21:40:55		→	******
583909401	Customer Self-Care Portal	Login	John Doe (Latera)	26/02/2019 21:39:42		→	marv
583909401	Customer Self-Care Portal	Current login	John Doe (Latera)	26/02/2019 21:39:42	marvin	→	marv
394196801	VPN (VPN Hub)	Active	John Doe (Latera)	16/01/2019 14:13:41	Y	→	N

From the history above it is clear that on January 16 the employee (*John Doe*) deleted the customer's subscription to the *VPN* network service. On February 26, the employee gave the customer access to the Customer Self-Care Portal in **Access to applications** on the **Services** tab. Then the employee set a login (*marv*) different from the default one — the customer's code *marvin*. After that, the customer changed a password via the Customer Self-Care Portal by himself.

3.4.3. Customer Accounts

In this section:
- [Customer Account Indicators](#)
- [Creating and Editing a Customer Account](#)
- [Credit Limits](#)
- [Calculating Reserved Amounts](#)
- [Receivables and Payment Allocation](#)
- [Calculating a Recommended Payment](#)

A *customer account* is an account in the billing system for a particular customer and with a unique number. Each customer account has a payment and charging history.

One customer account can be charged for several price plans. Or you can create several accounts for one customer. Both cases have their pros and cons.

	Pros	*Cons*
One account for several price plans	• The customer has to memorize only one account number to make payments. • Automatic distribution of funds: the customer doesn't need to pay for the services separately (for example, phone and internet).	If there are insufficient funds, all services are suspended.
Separate account for each price plan	If there are no funds on one account, only the services charged to that account will be suspended.	• The customer has to memorize several account numbers and make several different payments. • If one of the accounts runs out of funds, all services charged to it are suspended, even with sufficient funds on other customer accounts.p?

Customer Account Indicators

Customer Accounts ⍰

	Currency	Balance	Current Reserved	Available	Credit Limit		Auto top-up	
Customer account #1017	$ [USD]	7.00	25.85	7.00		0.00	Not present	🔍 ⊕ ✖
Customer account №1014	$ [USD]	−50.00	0.00	100.00	150.00 to 31/08/2016 17:30:49		Not present	🔍 ⊕ ✖

✚ Add account

The customer account **balance** equals the difference between the payments and charges collected since its creation. [Payments](#) are made on the basis of cash orders and payment orders, and charges are made on the basis of [charge logs](#). The system also supports payments and charges for negative amounts. The balance can be positive, zero or negative.

[Current reserved amount](#) equals the amount of money needed to pay for services within their reservation periods. The reservation period is set in the [service providing scheme](#). The current reserved amount is blocked on the customer account and cannot be used to pay for other services.

Total reserved amount — the amount of money, sufficient to pay for services provided during the current billing period, which has not yet been charged to the customer account. Total reserved amount includes the current reserved amount. The column is displayed if the current reserved amount does not match the total reserved amount.

Available — money on the customer account which can be used to pay for any service. The amount in the **Available** column is calculated according to the following formula: `Available = Balance − Current reserve amount + Credit limit`. The available funds cannot be negative: if this formula gives a negative answer, there will be a zero in **Available**.
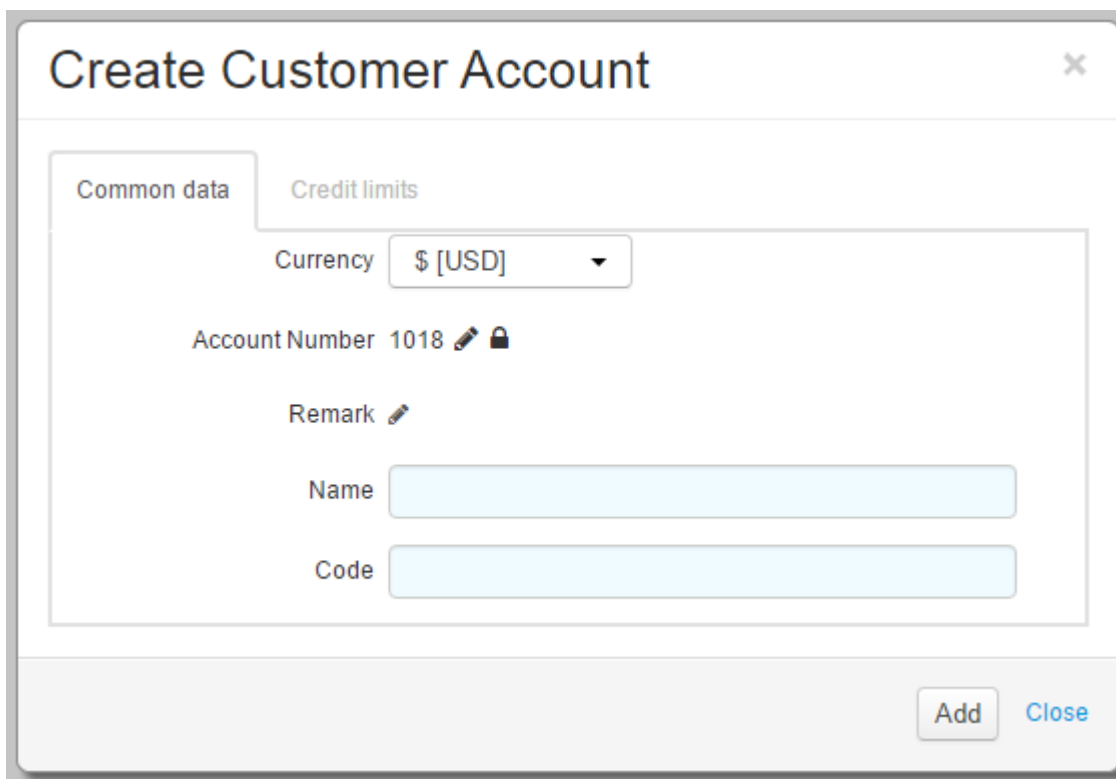
[Credit limit](#) is the amount of money given to the customer, on a permanent or temporary basis, to pay for services. If the customer is granted a credit limit, the negative account balance will only affect the status of the services provided in one of two cases: the credit limit is less than the customer's debt or the credit limit has expired.

Promised payment — the most commonly used name for the service which enables customers to set themselves a temporary credit limit in the Customer Self-Care Portal.

[Recommended payment](#) — the cost of services which the customer is recommended to pay.

3.4.3.1. Creating and Editing a Customer Account

To add a new customer account, click ✚ **Add account** and enter the necessary details. **Account number**, **Opening date**, **Name**, and **Code** are populated automatically, but can be entered manually if required.

To view detailed information about the customer account or to edit it, click the appropriate row of the accounts table. You can change the account number, its full and short names.

On the **Credit limits** tab you can see information about customer credit limits, grant a customer temporary or permanent credit limit or specify the credit limits maximum amount. Previous credit limits are not shown. You can view the customer's credit limit history on the **Payments and charges** tab.

3.4.3.2. Credit Limits

Each customer account can have up to four different types of credit limits at the same time.

- *Permanent credit limit* doesn't have any end date; it can only be granted by the provider or through API.
- *Temporary credit limit* has an end date. It can be granted by the provider or set by the customer via the Customer Self-Care Portal using the *Promised payment* service. In the latter case, the credit limit period is determined by the **Promised payment period** parameter in the Customer Self-Care Portal settings.

- *Credit limit for scheduled services* is set when [charge logs] are issued for [scheduled services], if the price specification allows [deferred payment]. The credit limit period is determined by the **Type of credit limit for scheduled services** and **Credit limit period for scheduled services, days** parameters of the price specification. In **Credit limit for scheduled services**, you can see the total amount of credit limits based on charge logs with deferred payment. The end date for this total credit limit is considered to be the nearest end date of all such credit limits.

- *Credit limit for unscheduled services* is set when the first unscheduled service is added to the charge log. When you add new services, the amount of credit limit increases. The credit limit period is determined by the parameter **Credit limit period for unscheduled services, days** in the price specification. Just as for scheduled services, in **Credit limit for unscheduled services** you can see the total amount of credit limits based on charge logs with deferred payment. The end date for this total credit limit is considered to be the nearest end date of all such limits.

The value shown in the [accounts table] in the **Credit limit** column and on the account page in **Current credit limit** is the total credit limit, which is the sum of all types of credit limits. The amount of this credit limit is restricted by the **Maximum amount of credit limits** value on the **Credit limits** tab (if specified). The end date of the current credit limit is defined as the earliest end date of any of the customer's credit limits. The credit limit periods themselves are determined independently of each other: for **Temporary credit limit**, the period lasts to the date shown on the **Credit limits** tab, and for credits for scheduled and unscheduled services, the period duration depends on the price specification settings.

3.4.3.3. Calculating Reserved Amounts

To calculate the current and total reserved amounts and also the recommended payment, the following parameters of the [service providing scheme] are used:

- billing period,
- charging period,
- charging type: at the beginning (prepayment) or at the end (postpayment) of the charging period, and
- reservation period — period for calculating the current reserved amount.

Reserved amounts and the recommended payment are calculated on the basis of the [reserved rows] of the charge logs in force.

So:

- **Total reserved amount** is calculated as the sum of all the reserved rows in the charge logs in force, and
- **Current reserved amount** is the sum of the reserved rows in the charge logs in force which have a charge date between the current date and the current date plus the reservation period.

Examples Showing How the Current Reserve Amount is Calculated

> ⚠ The reservation period cannot be greater than the charging period.

Billing period — 30 days, charges are made every 10 days (one line of the charge log corresponds to the cost of services for 10 days). Cost of monthly recurrent services — $30.

Table showing current reserved amount:

Billing period, days	Current reserve amount (sum of the reserved rows in the charge log), $			
	Reservation period = 10 days		Reservation period = 30 days	
	Prepayment	Postpayment	Prepayment	Postpayment
1–10	10 (one row)	10 (one row)	20 (two rows)	30 (three rows)
11–20	10 (one row)	10 (one row)	10 (one row)	20 (two rows)

Billing period, days	Current reserve amount (sum of the reserved rows in the charge log), $			
	Reservation period = 10 days		Reservation period = 30 days	
	Prepayment	Postpayment	Prepayment	Postpayment
21–30	0	10 (one row)	0	10 (one row)

If several services with different reservation periods and/or charging periods are charged to the one customer account, their total current reserved amount is calculated as the sum of current reserved amounts for each service.

3.4.3.4. Receivables and Payment Allocation

In this section :

- Emergence of Receivables
- Matching Payments to Receivables
- Paying Off Receivables

See also:

- Setting Up Service Priorities

Each customer payment is not only a topping up of a balance, but also a payment for some services. To allocate customer's funds to services, Hydra Billing uses *payment matching*.

> Payment allocation is automatic. You cannot specify manually, which services have been paid for, or for which services the prepayment is to be used.

Receivables are created on the ground of executed charge logs and have certain due dates. Receivables can arise for provided services, fees for late payments or for early termination of contract commitments.

Incoming payments are matched to customer's receivables. Some of receivables may become fully paid off, and others — only partially. Remaining receivables (if present) are paid off with further payments.

3.4.3.4.1. Emergence of Receivables

When a charge log becomes *Executed*, a receivable is created for each service it contains. Receivables are to be paid off with a customer's funds. Either one receivable can be paid off with several payments, or one payment can be used to pay off several receivables. To allocate customer's funds to receivables, an automatic matching is used.

> Receivables arise not only on the basis of charge logs, but also on the basis of payments, if their amount is negative. Receivables are also created when making payments from the customer's account.
>
> To pay off receivables, only payments in positive amounts, received on customer's account, are used.

The period for paying off a receivable is calculated from the end date of a charge log and depends on the deferral parameters as per the price specification. The due date for a receivable is the end date of the deferral. If a payment deferment is not used, the due date for a receivable is the same as the end date of a charge log.

A receivable arises with the *Outstanding* status. If a receivable has not been paid off in time, it becomes *Overdue*. A paid off receivable is transferred into the *Paid* status.

Let us study a situation when the cost of a price plan for Internet access is $24 per month, and there is a 10-day payment deferment for scheduled and unscheduled services, from the end date of a charge log. For example, a charge log was in force from 2 p.m., February 1, to 1.59 p.m., March 1. At the moment of its closing, a receivable arises in the amount of $24 as a payment for the price plan. Its payment period is from 1.59 p.m., March 1, to 1.59 p.m., March 11. Also, receivables arise for unscheduled (for example, traffic) services that are within the price plan, and they have to be paid off until 1.59 p.m., March 11 too. Before the due date, the arisen receivables are *Outstanding*. At 2 p.m. on March 11 the receivables become *Overdue*.

You can view customer's current receivables if you open a customer account.

Edit account ✕

| General | Credits |

ID 51871001

Owner Clarke A. C.

Currency $ [USD] ▾

Account number 1013 ✏ 🔒

Remark ✏

Account status

Current balance -120.87

Current reserved amount 0.00

Total reserved amount 0.00

Current credit 50.00 to 22/04/2017 11:53:22

Available 0.00

Receivables

Overdue 70.87

Outstanding 50.00

Save   Close

Here you can view the total amounts of receivables that are overdue and outstanding. Click the amount to see the receivable details with certain statuses, for example, for overdue ones.

Overdue receivables

Document	Contract	Service	Amount, C$ [NIO]	Pay until
INV-17/80740	C-26564	Early Termination Fee	10.00	22/02/2017 15:42:00
INV-17/105111	C-26564	Late Payment Fee	7.31	12/04/2017 11:42:02
INV-17/97579	C-26564	IPTV Basic	103.56	12/04/2017 11:42:02

Close

3.4.3.4.2. Matching Payments to Receivables

In this section:
- The Order of Matching Payments to Receivables
- Receivables and Credit Limits

See also:
- Setting Up Service Priorities
- Credit Limits

Matching customer's funds is carried out:

- when a payment arrives,
- when a charge log becomes *Executed,*
- before charging a fee for an early termination of a contract commitment, and
- when canceling a charge log.

The Order of Matching Payments to Receivables

Each payment arrived at a customer account is matched to customer's receivables. If there are several receivables, they are sorted and paid off in the following order:

1) by the type of a receivable — firstly, the late payment fees are paid off,
2) by the status of a receivable — firstly, the overdue ones are paid off,
3) by the begin date of a payment period — the earlier a period to pay off a receivable begins, the quicker it is going to be paid off,
4) by the due date of a receivable,
5) by the priority of a service, for which the receivable has arisen. If a customer is to pay off receivables, which are created on the basis of payments (those with a negative amount, or made from the customer account), they are sorted by the priority value set in the **Matching priority for payments** division parameter,
6) by the amount of a receivable — larger receivables are paid off first,
7) by the begin date of a contract commitment — the earlier the date, the sooner a receivable is to be paid off.

In the beginning, the amount of unmatched funds equals the payment amount. If the funds are enough for paying off the first receivable on the list, then the receivable becomes *Paid*, and the amount of unmatched funds decreases by the amount of the receivable. Further, the unmatched funds are used for paying off the next receivable, etc. If the unmatched funds are insufficient to cover the whole receivable, it is paid off partially: its amount is decreased by the unmatched funds, and the payment period remains unchanged.

Allocation stops in the following situations:

- At the time of matching a customer has no receivables, then the payment remains fully unmatched.
- All receivables become paid off. There can be an unmatched remainder left, in case the payment amount is bigger than the total amount of a customer's receivables.
- The payment amount is fully matched with receivables. In this case, if the amount is not sufficient, some fully or partially unpaid receivables may remain.

In the first two cases, the funds remaining from the payment will be used at the next matching. When a new payment arrives or a consecutive charge log is closed, the unmatched remainder will be the first to be used to pay off receivables. And only then the newly arrived funds will be used.

In the latter case, the remaining receivables will be processed at the next matching.

Receivables and Credit Limits

When a payment deferment is allowed in the price specification, at the time of charging for a service a customer is granted a temporary credit limit for a set period, for example, for 10 days from the end date of a charge log. When the charge log is closed, a receivable arises, and its amount and the due date coincide with the amount and the end date of the credit limit.

If a receivable is paid off before the due date, then the credit limit is over too. In case when funds cover the receivable only partially, the amount of the credit limit is decreased relatively. Thus, while a credit limit is in force, its amount is the same as the current amount of the receivable. Because of this, when a customer pays for services with deferment of payment, no available funds appear on the account.

A customer can also be granted a permanent or a temporary (with the help of the *Promised payment* service) credit limit. The total amount of these credit limits will be considered while processing overdue receivables of a customer. If the amount is sufficient to cover some of them, the *Monitoring overdue receivables* task does not regard them as overdue: it does not charge late payment fees or close charge logs in force because of them.

Such receivables are shown with the ❓ icon and are referred to receivables with the *Outstanding* status.

If these receivables are still unpaid after a temporary credit limit is over (or after canceling a permanent one), then late payment fees are to be applied to them, including the days when the limit has been in force.

3.4.3.4.3. An Example of Paying Off Receivables

In the following example, a customer has subscribed to a contract price plan which costs $24. Charging is carried out at the beginning a month, and there is a 10-day deferment of payment starting from the end date of a charge log. In case of a late payment, a daily fee is charged at the 0.1% rate above the overdue amount. Also, in case there is an overdue receivable, the current charge log is terminated.

Initially, the customer account balance is $0, with $0 available funds. On February 1 at 2 p.m. the first charge log for the service is issued. The subscription fee is charged, so the account balance becomes −$24, and a credit limit for scheduled services is set to $24 until 1.59 p.m., March 11. The available funds are $0.
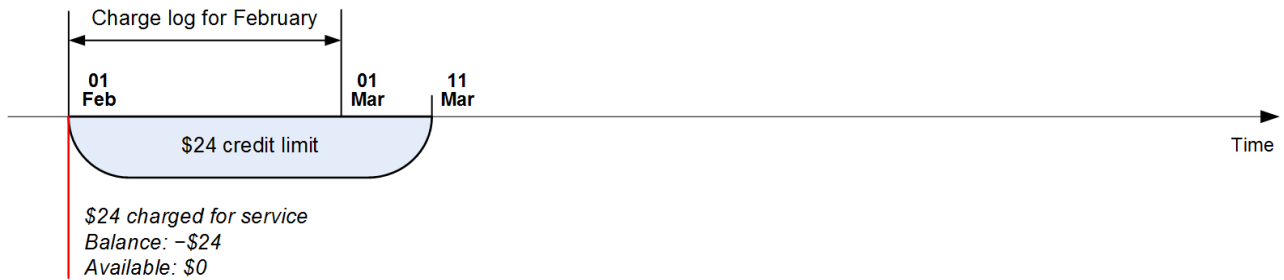
On March 1 at 1.59 p.m., the charge log is closed. Thus, a $24 receivable arises, with the payment period from 1.59 p.m., March 1 until 1.59 p.m., March 11, with the *Outstanding* status. The payment allocation is carried out: for the current moment, the customer has no unmatched funds, so the receivable remains unpaid.

At 2 p.m. a new charge log is issued. The subscription fee is charged, and the balance becomes −$48. One more credit limit is set to $24 until 1.59 p.m., April 11. There are no available funds: the negative balance is fully covered by the two credit limits in force.
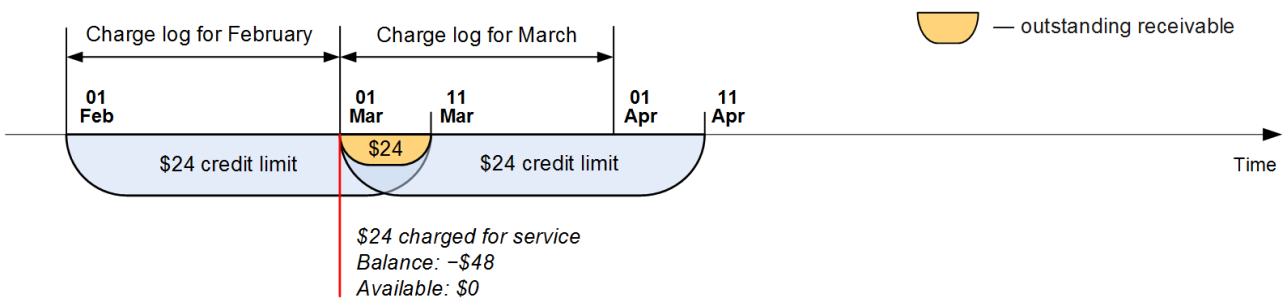
On March 9, the customer makes a payment of $28. Payment allocation is carried out: the amount is enough to pay off the only receivable the customer has. So it is transferred into the *Paid* status, and the amount of $4 remains unmatched. The first credit limit is closed. The customer's balance becomes equal to −$20, and the available funds are equal to $4 (−$20 added to $24 of the second credit limit).
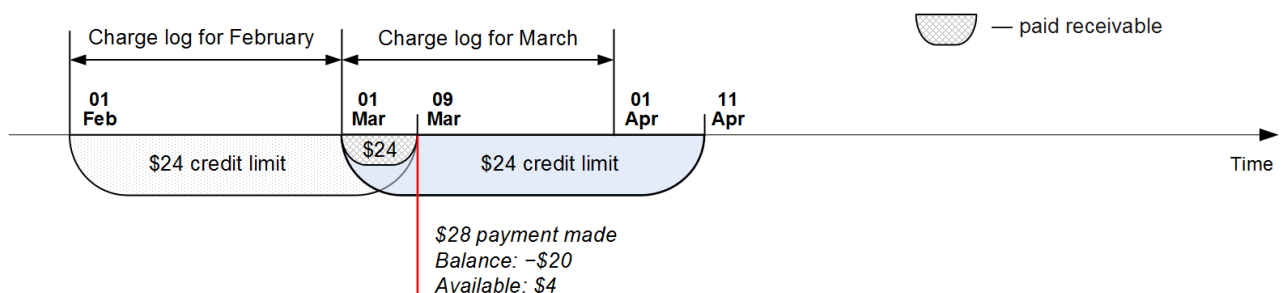
On April 1 at 1.59 p.m., the charge log for March is closed. A receivable in the amount of $24 arises and to be paid off until 1.59 p.m., April 11. Payment allocation is carried out: a customer has an unmatched remainder left from the previous payment. It is used for partial paying off the receivable: its amount equals $25−$4 = $20. Consequently, the amount of the second credit limit is decreased: now it equals $20, and is still in force until 1.59 p.m., April 11.

The next charge log is issued for the period beginning from 2 p.m., April 1, until 1.59 p.m., May 1, with a new $24 credit limit in force until 1.59, May 11. The balance equals −$44, with no available funds.
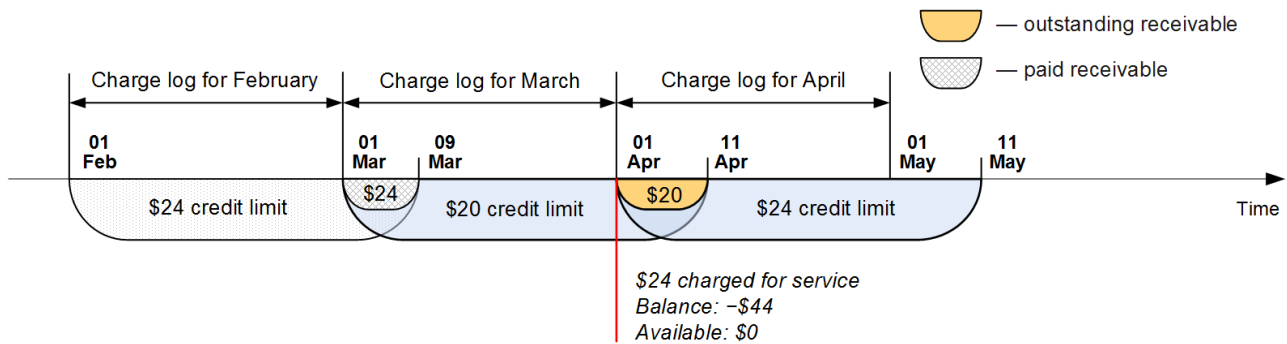
Let us suppose, that once the customer forgets to make a payment in time. So on April 11 at 2 p.m. the receivable becomes overdue. The late payment fee is charged: a charge log in the amount of $0.02 (0.1% above the overdue amount) is issued for the first day in arrears. The balance equals −$44.02. A $0.02 receivable arises. As there is no deferment for fees, this receivable instantly becomes *Overdue*.

At the same moment, the $20 credit limit gets over. The remaining $24 credit limit cannot cover the negative balance, so the charge log in force is terminated due to insufficient funds. The amount to be charged is recalculated for the number of days the customer has used the service: instead of the $24 amount, the charge log now contains the $8 amount charged for 10 days of using the service (from 2 p.m., April 1, until 1.59 p.m., April 11). The credit limit is reduced to the same amount. Now the balance equals −$28,02. Additionally, an $8 receivable arises. The receivable is to be paid off before 1.59 p.m., May 11, as in case of an early termination of a charge log, days are counted from the scheduled closing date, not from the current one. Payment allocation is carried out, but the customer has no available funds.
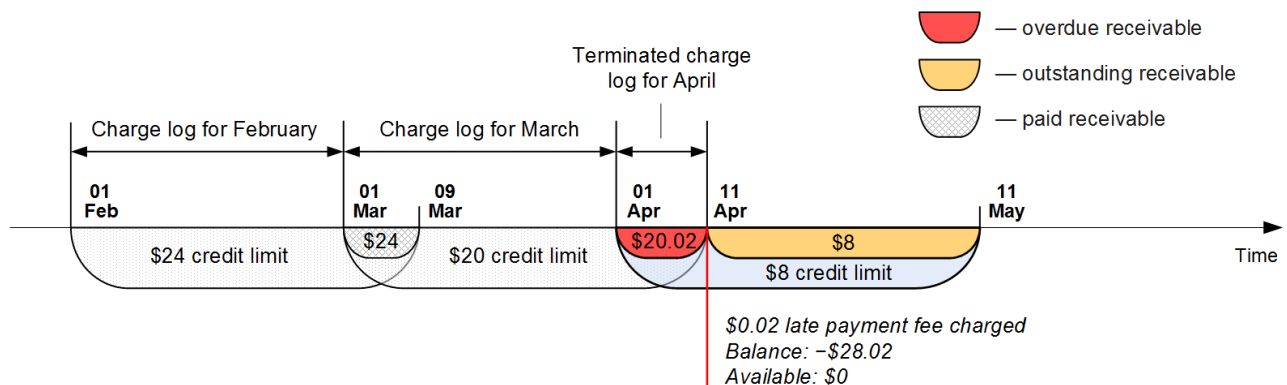
Over each consequent day, the amount of fees increases by $0.02. On April 21 at 2 p.m., the next charge is carried out. The amount of fees becomes equal to $0.2, and the balance is −$28.2.
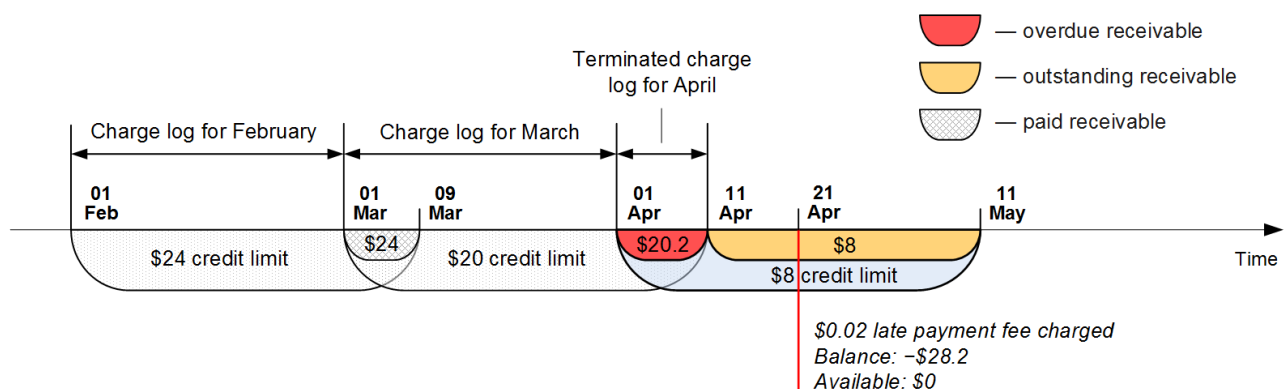
Then, on April 21 at 6 p.m. the customer makes a payment in the amount of $24. The balance becomes equal to −$4.2. Payment allocation is carried out. Currently, the customer has three receivables: an overdue amount of $20 for using the service in March, an overdue amount of $0.2 for the charged late payment fees, and a receivable in the amount of $8 for using the service in April.

First of all, the overdue fees are paid off, and $23,8 remain unmatched. Then, the same with the overdue receivable for using the service, so that and $3,8 remain unmatched. These funds are used to partially cover the third receivable, as a result it now equals $4.2. The corresponding credit limit is also reduced, and now equals $4.2 which is to be paid before 1.59 p.m., May 11. No available funds remain.
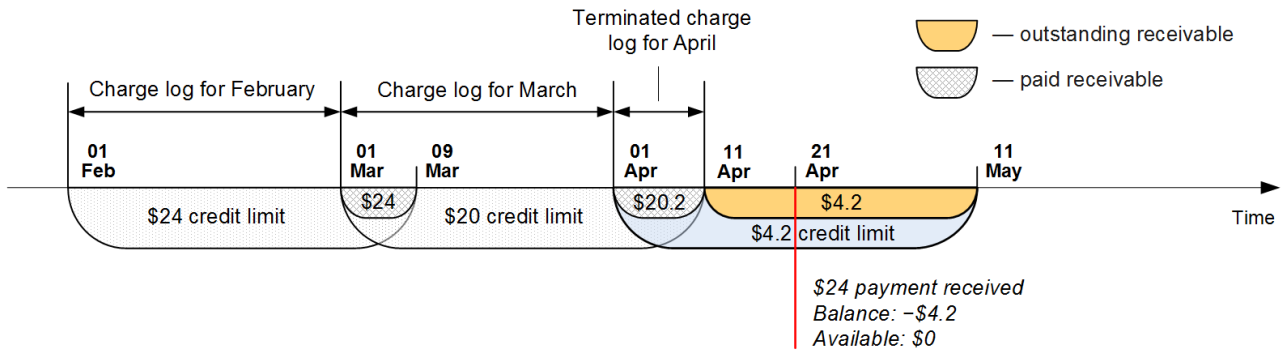
The service is resumed: a new charge log is issued for the customer, which is to be in force from 6 p.m., April 21, until 5.59 p.m., May 21. The subscription fee is charged, so the balance equals −$28,2, and a new $24 credit limit is in force until 5.59 p.m., May 31.
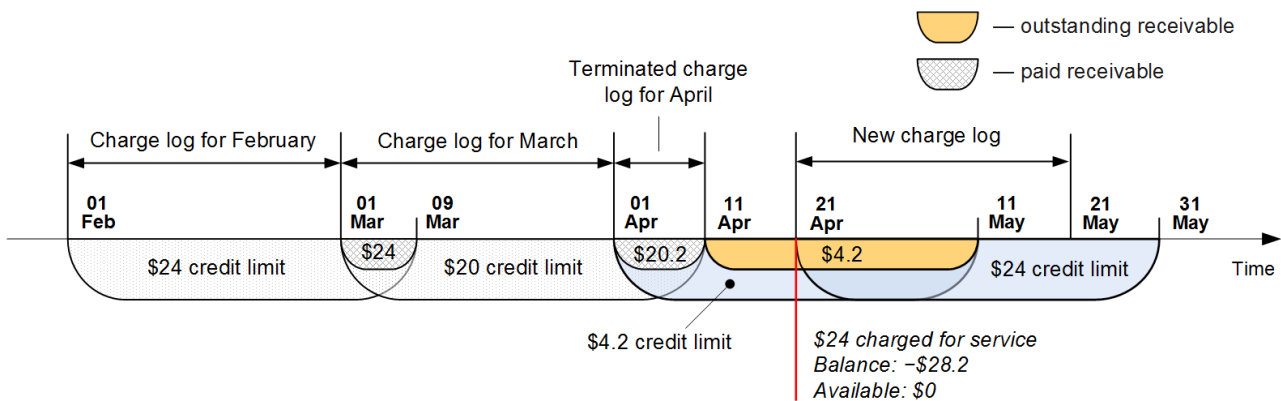
See the chart showing the changes of the customer account indicators.
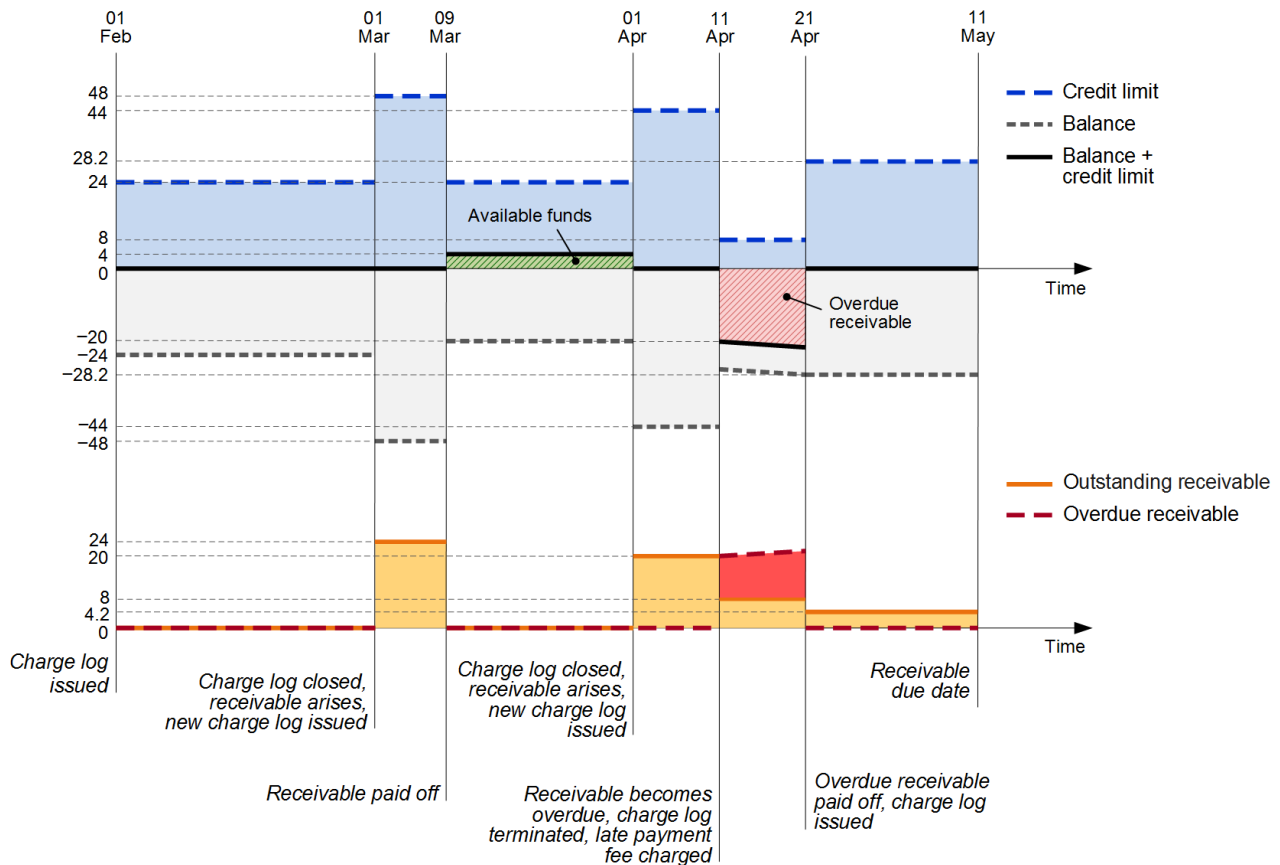
Scheme 6: The balance, credit limits, and receivables of the customer

3.4.3.5. Calculating a Recommended Payment

The amount of the recommended payment depends on the period of its calculation, given in the
Recommended payment period, days division parameter. It consists of four parts — the customer's debt,
the amount to pay for services in the current billing period, the amount of credit limits where the end days fall
in the recommended payment period and the cost of services in the next billing period (prepayment).
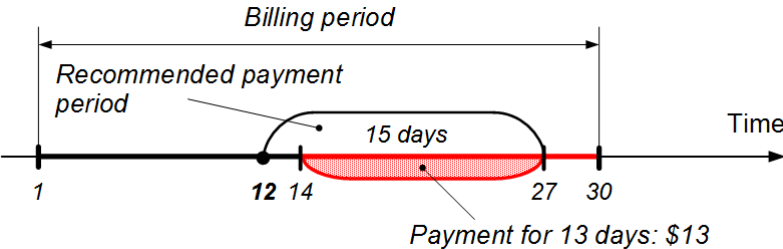
The first stage in calculating the recommended payment is to determine the funds on the customer account.
This amount does not include permanent or temporary credit limits given to the customer, and is calculated
according to the following formula:

```
funds on the account = account balance + credit limit for scheduled services +
credit limit for unscheduled services.
```

These funds are allocated to payments for the already provided, current and future services.

Components of the recommended payment	*Description*
Debt (row 1)	If the amount of funds is negative, the opposite amount is given in the **Debt** row, otherwise this line doesn't appear in the table.
Payment for the price plan and other recurrent services in the current billing period (rows 2 and 3) and credit limits repayment for scheduled and unscheduled services. Is calculated for each service separately	**Payment for Services in the Current Billing Period** The payment amount for services in the current period is calculated as the sum of the reserved rows of the charge logs in force with charge dates between the current date and the current date plus `MAX(the recommended payment period, the reservation period)`. Funds on the account, if they are positive, are counted towards this total. **Example 1** Billing period — 1 month, from June 1 to Jun 30. Charging and reservation periods — 1 day. Period of recommended payment — 15 days. Current date — June 12. Monthly cost of the recurrent service — $30. Funds on the customer account — $2. Since the charging period is 1 day, each day corresponds to one row in the charge log. System chooses the larger of the following periods: recommended payment (15 days = 15 rows) and reservation (1 day = 1 row). The chosen period is 15 days, from June 12 to June 27, but the funds on the account are only sufficient for the first 2 days of this period (2*$1). Therefore the system recommends a payment for 13 days — from June 14 to June 27. `Recommended payment = ($30/30)*13=$13`

Example 2

Billing period — from June 1 to June 30. Charging takes place every day and the reservation period is 10 days. Period of recommended payment — 5 days. Current date — June 12. Monthly cost of the recurrent service — $30. Funds on the customer account — $2.

Payment for 8 days: $8
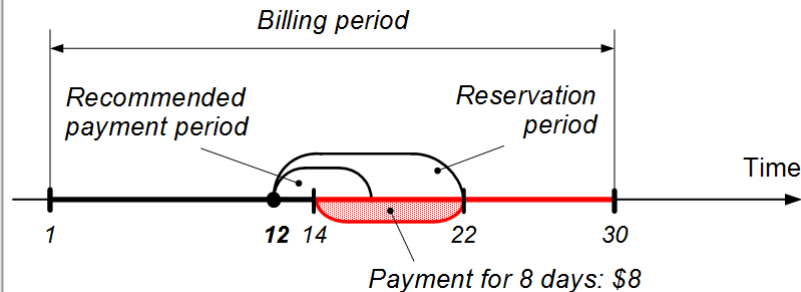
Since the charging period is 1 day, each day corresponds to one main row in the charge log.System chooses the larger of the following periods: recommended payment (5 days = 5 rows) and reservation (10 days = 10 rows). The chosen period is 10 days, from June 12 to June 22, but funds on the accounts are only sufficient for the first 2 days of this period (2*$1). Therefore the system recommends a payment for 8 days — from June 14 to June 22.

```
Recommended payment = ($30/30)*8 = $8
```

Example 3

Billing period — from July 1 to July 30. Charging and reservation periods — 1 day. Period of recommended payment — 10 days. Current date — June 25. Monthly cost of the service — $30. Funds on the customer account — minus $5.
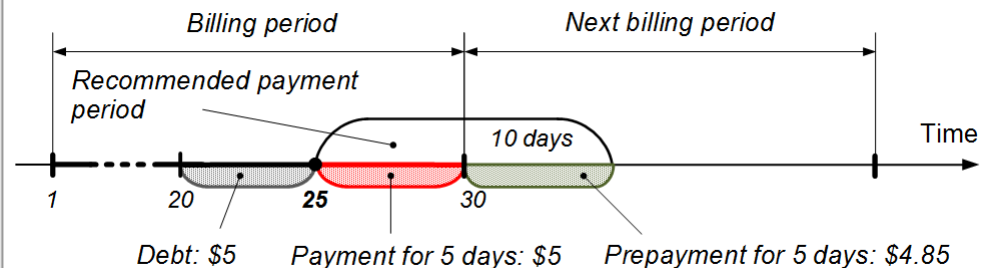
Debt: $5   *Payment for 5 days: $5*   *Prepayment for 5 days: $4.85*

Since the charging period is 1 day, each day corresponds to one row in the charge log. System chooses the larger of the following periods: recommended payment (10 days = 10 rows) and reservation (1 day = 1 row). The chosen period is 10 days, but at the end of the billing period, there are only five days left (5 reserved rows in the charge log).

The recommended payment period goes beyond the end date of the current billing period, so Hydra Billing asks to pay for the first 5 days of the following billing period which will last 31 days (from July 1 to July 31).

Moreover, the customer has a debt of $5.

```
Recommended payment = $5 + ($30/30)*5 + ($30/31)*5 = $14.85
```

	Credit Limits Repayment
	If the end of the credit limit for scheduled or unscheduled services falls into the recommended payment period, the table shows the appropriate rows with the cost of services and the periods when they were provided. If the value of the available funds minus the funds needed to pay for services in the current period remains positive, this money goes towards the credit limit repayment.
	Let us suppose, for example, that in the previous period, services to the value of $7.5 were provided with deferred payment. Now, there are $25 of available funds on the account and a payment of $23 is due for services in the current billing period. There will therefore be $2 left and this amount is put towards credit limit repayment for the previous period's services. So in the row for payment for the provided services there will be $5.5, not $7.5.
Prepayment for the price plan and other recurrent services for the next billing period (row 4)	The prepayment is calculated when the end date of the current billing period (i.e. the end date of the current charge log) falls into the recommended payment period. Its amount depends on the reservation period. If it is non-zero, then Hydra Billing asks for a payment in advance for the period starting from the begin date of the following charge log till the bigger one of the two dates: either the end date of the recommended payment period, or begin date of a new charge log postponed by the reservation period (see example 3).
	If there is no reservation used, the prepayment amount equals the full cost of the service for the following billing period. Thus, if you set the reservation period to zero in the example 3, the recommended payment would be:
	`Recommended payment = $5 + ($30/30)*5 + $30 = $40`
	If a customer is suspended for non-payment, the prepayment for the basic service (price plan) is calculated not at the end date of the current billing period, but when the recommended payment is determined, i.e. without taking into account the valid charge log for the suspension service. This allows the customer, who can stop the suspension at any time, to know the amount needed to pay to resume the price plan.
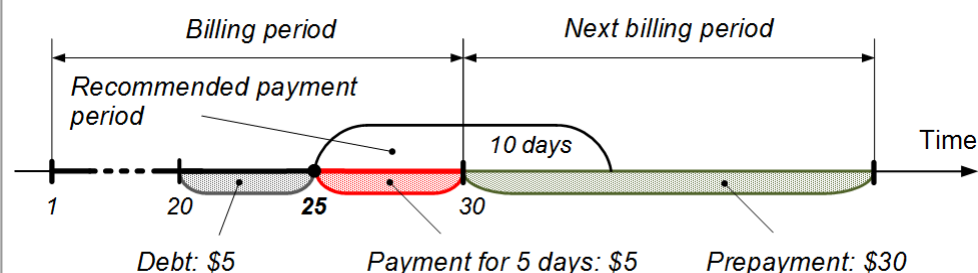
3.4.4. Subscriptions to Services

In this section:

- [Creating a Subscription](#)
- [Editing a Subscription](#)
- [Changing a Price Plan](#)
- [Managing Subscriptions via the Customer Self-Care Portal](#)
- [When is a Service Available for Subscription?](#)

See also:

- Subscription Migration Plans
- [Contract Terms and Commitments](#)
- [How-To Manage Contract Plans](#)

In the **Subscriptions to services** column of the contracts table there is a list of services which are being provided or will be provided to a customer on the basis of a corresponding contract or annex to a contract. There are no traffic services in the table, their consumption data is sent to the system automatically.

Click in the **Subscriptions to services** column. A list will open containing subscriptions which are valid or will be valid in the future (such subscriptions are marked with yellow).

The **Closed subscriptions** check box is shown if there is at least one closed subscription under the document. Select it to view the history of subscriptions. Closed subscriptions, as well as the ones with expired periods but having valid charge logs based on them, are marked with red.

Creating a Subscription

To subscribe a customer to a new service, click in the **Subscriptions to services** column in a line with an appropriate document. Then click ✚ **Add.** A new line line will appear in the **Subscriptions to services under the document** table.

Enter **Account** that will be charged for the service. Enter **Equipment**, if necessary. When a customer has only one account and one piece of equipment, they are entered automatically.

> Services provided under one document (a contract, annex or addendum) are to be paid for from one account only.

> On the same CPE and under the same document, only one price plan can be provided at a time.

Services provided (separately or within price plans) on one CPE according to subscriptions under several documents should not overlap.
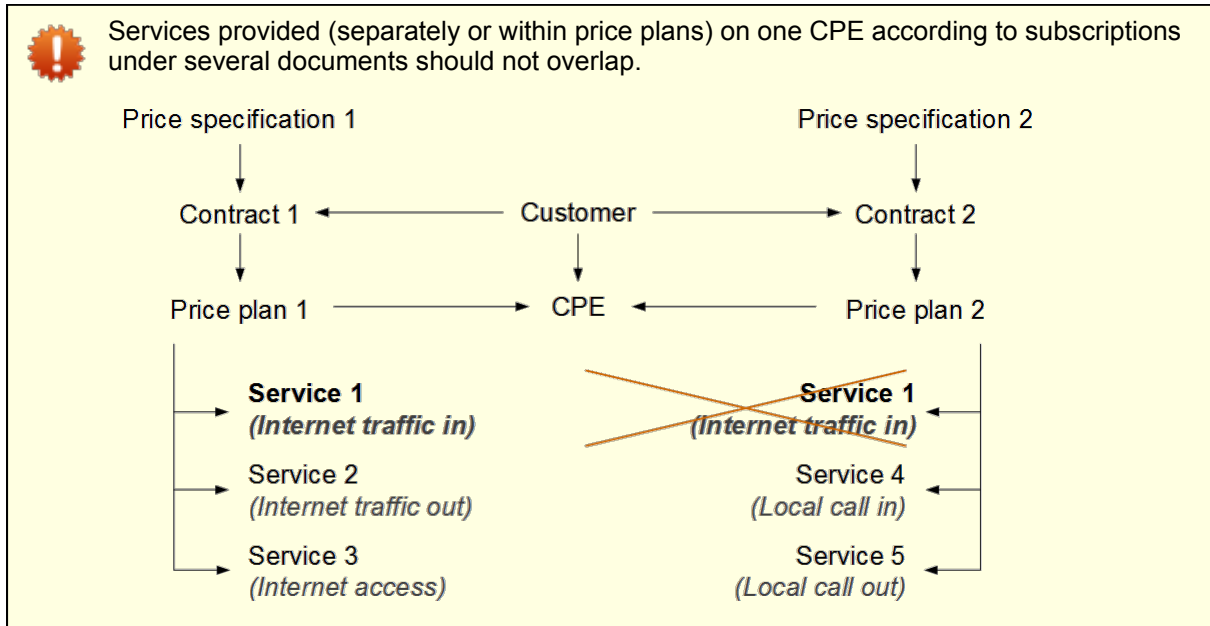
Click 🔍 next to **Service** to see the list of [services available to a customer](#).

In the **Change fee** column there is a price of a subscription migration service according to a subscription migration plan in force. The change is free of charge if:

- there is no plan in force for a customer,
- the plan does not include such migration,
- the subscription migration service is of zero value, or
- the subscription migration service is not specified in any available price specification.

If there are [contract terms](#) defined for a service, they are shown in the column with the same name. Point to the icon to see a commitment amount and duration. The commitment is made when creating a subscription to the service. You can see it in the corresponding section of the customer contract.

> Under one service contract there can be only one contract commitment. If this commitment has already been fulfilled (or canceled), and you want to subscribe the customer to a price plan with new contract terms, you should create a new contract for him or her, or add an addendum or an annex to the current contract. Then create a subscription under the new document.

Select a service. If it requires entering a quantity and a unit, the corresponding boxes are available, otherwise they are disabled.

Empty **Begin date** will be automatically populated with the current date when saving a subscription. By default, **End date** is not entered which means that the subscription is valid indefinitely. You can also enter specific dates to schedule the start of a subscription for a specific time or limit its duration.

You can enter **Monthly billing date**, e.g., for organizations or fixed telephony customers, that are served on credit with the billing period strictly tied to the calendar month. Otherwise, the billing date is determined by the date when a [charge log](#) is issued for a service, i.e. it can vary. To enter default billing dates for both individuals and organizations go to **Administration** > **Parameters** > **Division parameters**.

Enter **Charge log end date** in case of a one-off necessity to change the end date of a customer's billing period or terminate the service on a planned day (in the latter case, enter **End date** for the subscription as well).

To subscribe a customer to a service within a price plan, click ➕ in a line with the plan. It can be a service included into this price plan but requiring an additional fee, for example, an extra package of TV channels.

> When you create a subscription to a price plan, sub-rows are automatically added for the subscription to [access services](#) which are included in the price plan and free of charge.

Editing a Subscription

You can change all subscription parameters (account, equipment, service and so on) before charge logs are issued on its basis or all of these charge logs are canceled. Otherwise, you can edit only: **End date**, **Charge log end date** and **Monthly billing date**.

End date is to be greater than the issue date of the latest uncanceled charge log for the subscription.

If **Charge log end date** falls within a period of a current charge log then this date becomes the charge log closing date, i.e. the charge log is [to be closed early](#).

Changing **Monthly billing date** affects a period of next charge log that will be issued for this subscription. The period of the current charge log remains the same.

Changing a Price Plan

To change a customer's price plan, do the following:

1. Open the subscription to the current price plan and enter a necessary **End date**, for example, the current date.
2. If you want a new price plan to take effect at the same time as a new subscription, then in the current subscription enter **Charge log end date** equal to **End date** of the subscription. Otherwise, a charge log for the new price plan will be issued only as soon as the current billing period for the old price plan is over.
3. Add the new subscription to the new price plan. In **Begin date**, enter the value one second greater than **End date** o the current subscription.

The subscription to the new service will get in force on the entered date. If at that moment no charge log is in force for the previous service then a charge log for the new service will be issued and the service will be provided to the customer.

> When changing a price plan involves a migration service, Hydra will add this service to a new price plan while creating a new subscription. The service will be rated at the time the first charge log is issued for the new plan.

Managing Subscriptions via the Customer Self-Care Portal

A customer can change his or her price plan in the Self-Care Portal on the condition that the service providing scheme of the current plan has **Permission to unsubscribe** set to *Customer or operator*. To change the plan go to the **Account and Services** page.

🏠Home > Account

Account and services

Account #1001

Balance	100 $	
Monthly payment	800 $	
Billing period began at		18:43 28/08/2016
Billing period ends at		18:43 28/09/2016
Last payment		100 $
		28/08/2016 via operator

Balance top-up
Payments and charges

My data plan «Student»   80 $ ❓
                                     monthly

Unlim 30Mbps (100Mbps incoming internet traffic at night)

Data traffic
Change plan

Click **Change plan** to open a list of available price plans with overviews and change fees according to a subscription migration plan in force.

New plans

Internet Basic   30 $
Effective since 28/09/2016 18:43   monthly

Choose >>

Open   55 $
Effective since 28/09/2016 18:43   monthly

Choose >>

Triple Classic   1,000 $
Effective since 28/09/2016 18:43   monthly

Choose >>

After the customer confirms the change there will be information about the new price plan and its begin date on the customer account page.

New price plan comes in force in the new billing period. To allow customers the immediate change of price plans, use the provided API.

The migration service is charged for when issuing a charge log for the new price plan.

If a customer decides to change the price plan again before the new one gets in force, the change fee is determined according to the plan which is currently in force (in the example shown, *Student*). Thus, returning to the current plan is free.

Once the billing period for the new price plan begins, the return to the previous price plan will be rated as another subscription migration.

When is a Service Available for Subscription?

A service is available for subscription when the following conditions are met.

Permission to Subscribe

In a service providing scheme of the service **Permission to subscribe** is set to *Customer or operator* (via the Service Provider Console and the Customer Self-Care Portal) or *Operator only* (via the Service Provider Console).

The Service is in a Price Specification

The service is added to a price specification that is connected (directly or through a hierarchy of documents) to a customer's contract under which a subscription is created. A currency of a customer account is to be the same as the service price currency. The specification is in force and the subscription start date falls within its period.

The scheme shows the effect of the price specification period on the list of services available for subscription.
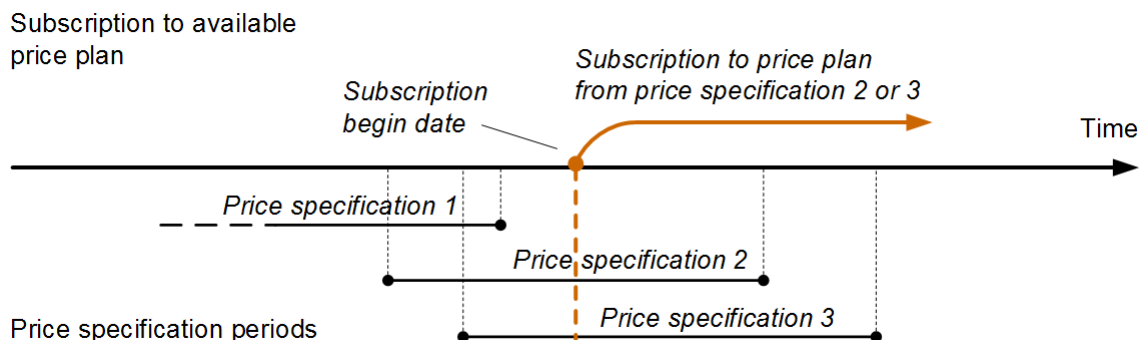
Scheme 7: Price specification period and availability of price plans

> If the price specification period is nearing its end and the included services will no longer be provided to customers (as they will not be included in a new price specification), you should set the end date for these services in customers' subscriptions. The end date of the subscriptions is to be less than or equal to the end date of the price specification.

See the difference between the subscriptions history and the provided price plan history, which is determined by issued charge logs.
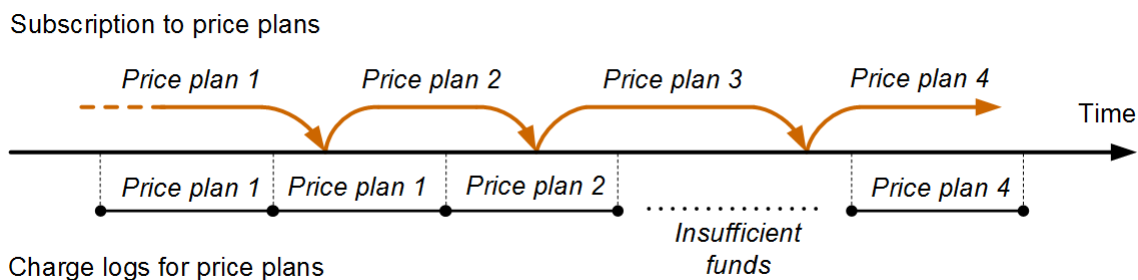
Scheme 8: Subscription periods and charge logs

In the beginning, a customer was subscribed and used *Price plan 1*. Then he or she changed for *Price plan 2*, but began to use it only after the charge log for *Price plan 1* was closed.

While using *Price plan 2*, the customer changed the subscription for *Price plan 3*. Even though the customer was subscribed to *Price plan 3* for several days, he or she wasn't using it: first, because the billing period of the previous price plan was not over, then due to insufficient funds.

After changing the subscription from *Price plan 3* to *Price plan 4*, the customer started using the service as soon as the account balance was topped up.

> At a zero or negative balance with no credit limit in force, the system does not issue any new charge logs (unless **Providing condition** is set to *Sufficient balance is not required*). All unissued charge logs are shown in the **Ordered services** section.

Providing the Service on CPE

In the product catalog, a type of equipment used in the subscription either has no bindings with the *Allowed service* type, or the service belongs to the list of allowed ones. At the same time, in the service providing scheme, **Service providing point** is set to *Equipment* or *Can be specified*.

If no CPE is used in the subscription, **Service providing point** is either *Not specified* or *Can be specified*.

3.4.5. Service Access

In this section:
- [Viewing access services on the Services tab](#)
- [Manual switching on/off access services](#)
- [Switching on/off access services automatically](#)
- [Using access services](#)

Access services are the services of the *Access services* type defined in the [service providing scheme](#), and are used for managing customer access to services. Access services cannot be provided if they are not included into the price plan.

Viewing access services on the Services tab

If an access service is included into the price plan, you can use ✅ on the **Services** tab of the customer's page to switch the access on/off.

Current services

	Cable TV (analog)	Unlim Turbo details (Add. Services)
Customer account	1007	1007
Equipment	Terminal Equipment-5	Workstation-4
Contract	C16-5 from 23/03/2016	C16-18 from 25/08/2016
Charge Log	CL-16-50 from 01.08.2016	CL-16-67 from 25.08.2016
Period	from 01/08/2016 00:00:00 to 31/08/2016 23:59:59 📅	from 25/08/2016 17:53:25 to 25/09/2016 17:53:24 📅
Charged	0.00 $ [USD]	50.00 $ [USD]
Total	10.00 $ [USD]	50.00 $ [USD]
Amount for Add. Services ❓	0.00 $ [USD]	0.00 $ [USD]
Price specification	PS16-3 from 26/02/2016	PS16-3... from 25/08/2016
Access Services		Service active. Click to suspend — Internet Access 0.00 $ [USD]

When switched off, the access services on/off button looks like this:

Discount	
Access services	Access is disabled. Click to enable — Internet Access 0.00 $ [USD]

Manual switching on/off access services

When switching on the service manually

- The access service indicator is changed to green.

- In subscription: the switched on service is shown in the price plan with the begin date same as the date of switching on.
- For CPE, the event of *At switching on services* type occurs (if set).
- In the charge log, there is a new row showing the service with the begin date same as the date of switching on.

When switching off the service manually

- The access service indicator is changed to orange with an exclamation.

- In subscription: the switched off service is deleted from subscription, so that it will not be on in the new billing period.
- For CPE, the event of *At switching off services* type occurs (if set).
- In the charge log, in the row showing the service, the end date is set the same as the date of switching off.

Switching on/off access services automatically

The access service indicator is set to yellow with an exclamation.

The access services can be switched on/off automatically due to the change of balance. When the balance is negative (or, in case of using a credit limit, the credit limit is exceeded or expired), all access services for this account are off. However, the subscription to them is not ended, so when a customer tops-up the balance and a new charge log is issued, the access service for the account will be automatically on.

Using access services

It is necessary to include the access services into the price plan, when:

- the price plan includes traffic services and the traffic limit with an excess charge;
- promised payment is used;
- the subscription fee is gradually charged over the billing period.

3.5. Groups

In this section:
- [Creating and Editing Groups](#)
- [Adding a Subject to the Group](#)

See also:
- [How to Divide Customers into Groups](#)

For more convenience, you can group basic subjects, such as customers, individuals, and organizations. When creating any basic contract, specify a group of customers for it. Further, you can create a contract for a customer, using a basic one, even corresponding to the group the customer does not belong to.

Including a customer into at least one group is obligatory. Individuals and organizations do not have to be referred to any groups.

Groups can be useful for separating basic subjects while issuing invoices, creating reports, etc, when classifying by other system tools, such as by basic contracts, areas, and basic subject types is impossible.

Manage groups via the menu **Master Data** > **Groups**.
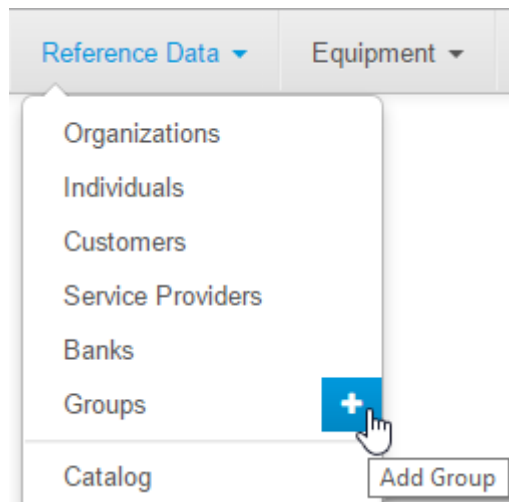
Groups Registry
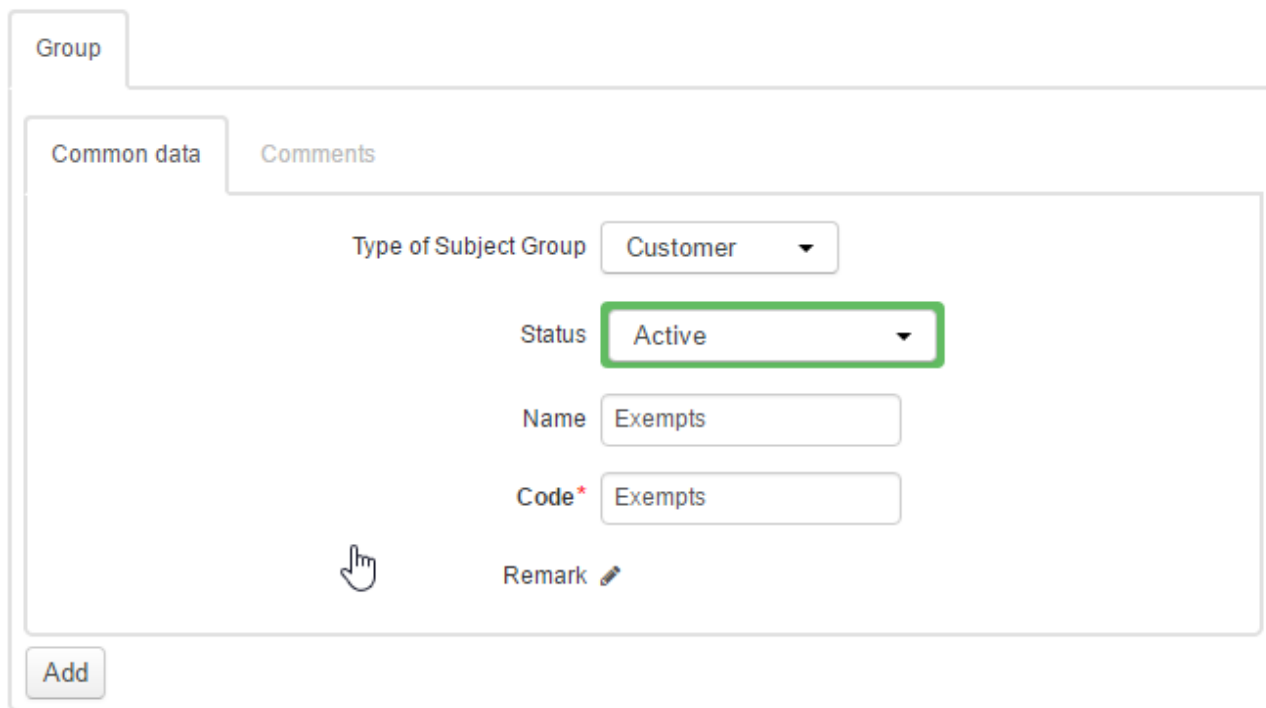
	ID ∧	Name	Type of Subject Group	Organization	Date Created
☐	40231101	Individual Customers	Customer	hmanual	19/01/2011 01:26:28
☐	40231201	Corporate Customers	Customer	hmanual	19/01/2011 01:27:03
☐	40250801	Employees	Customer	hmanual	11/07/2011 18:44:16
☐	51174401	Individuals Promo	Customer	hmanual	18/02/2016 13:34:08

Total: 4

Creating and Editing Groups

To add a new group to the registry, in the menu click ➕ next to its name, or open it and click ✚ **Add.**

When creating a group, choose a status, enter the name and the short name (code).

Click **Add** to complete creating the group. You can edit it later using search in the group registry.

To delete a group, click **Delete**.

Adding a Subject to the Group

To add any subject to a group, use the button next to the **Group** box on the subject's page.

In the pop-up window, choose one or several groups for the subject.

If a subject is included into several groups, one of the groups should be marked as the main, so the system uses it as a default group for the customer.

3.6. Tags

In this section:

- [Using Tags](#)
- [Searching with Tags](#)
- [Tags Registry](#)

Using Tags

Tags are used for a thorough marking of all entities in Hydra Billing. Tags are not typed: the same tags can be used for marking subjects, documents and catalog entries. So with tags you can bind entities of different types. Use tags, for example, for granting discounts.

There are **Tags** lookups on the pages of subjects, documents and catalog entries.

> Use tags, not groups, when marking particular customers or dividing them into categories.

Setting tags is regulated through permissions. This has to do with the fact that grouping entities via tags is used for different purposes and when uncontrolled may lead to violations. For example, when segmenting customers for granting discounts.

You can set only such tags that are permitted to be used. Permitting particular tags can be done on the **Permissions** tab. Users with the *System administrator* permission can set and remove any tags.

Searching with Tags

When searching subject registries and document registries, you can filter by tags. The search results will show entities with all selected tags.

Customer Registry

Quick search results can be filtered by tags using a # modifier.

> Modifiers can be used for the additional filtering of search results. Quick search is not used for displaying all entities with the set of tags.

Tags Registry

Tags cannot be created on the fly. The tags registry is usually filled by the administrator who has the permission to edit it. Lookups offer only the tags from the registry.

Open the tags registry from the menu **Registry** > **Tags**.

Tags

ID	Code	
4572655533801	base_discount	✖
4572660994201	new_customer	✖
4572660994301	discount_new_customer	✖
4572660994401	free_month	✖
4572660994501	multiplay	✖
4572741813901	wimax_contract	✖
4572741874401	quickstart	✖
4572742014101	encourage_large_payments	✖

+ Add

Save

Create a new tag by clicking **Add**.

A tag name consists of letters and numbers in the low register. When saving, the system transforms any entered values into this format, changing spaces into underscore.

3.7. Documents

In this section:
- Creating a New Document
- Copying a Document
- Editing Documents
- Documents Audit
- Status and Period of a Document
- Bulk Change of Documents' Statuses

Hydra Billing workflow is totally electronic. Relations between the subjects of the system (providers and customers) are regulated via contacts and their annexes. After the services, price plans, and their parameters are specified in the product catalog, the price plan contents and its services prices are determined in price specifications which are created as annexes to contracts. For a more flexible services rating, depending on the times of rating, there are time intervals specifications. Detailed information on the services consumed and provided to customers, including the prices, is in the charge logs.

Registries

All documents are stored in registries. In Hydra Billing, there are registries of the following types:
- orders;
- contracts;
- period closing memos;
- period opening memos;
- payment documents (cash orders and payment orders);
- bank statements;

- time intervals specifications;
- price specifications;
- traffic classes specifications;
- exchange rates specifications;
- charge logs;
- invoices;
- subscription migration plans;
- discount specifications;
- discount certificates;
- vouchers issuance statements.

You can access all registries via the **Documents** menu.

Creating a New Document
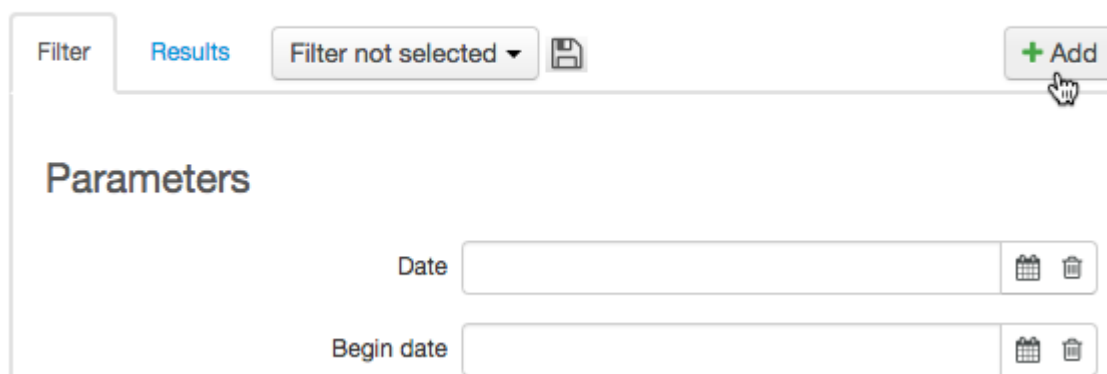
A new document can be created in the following ways:

- By clicking ➕ next to the necessary type of document in the menu:
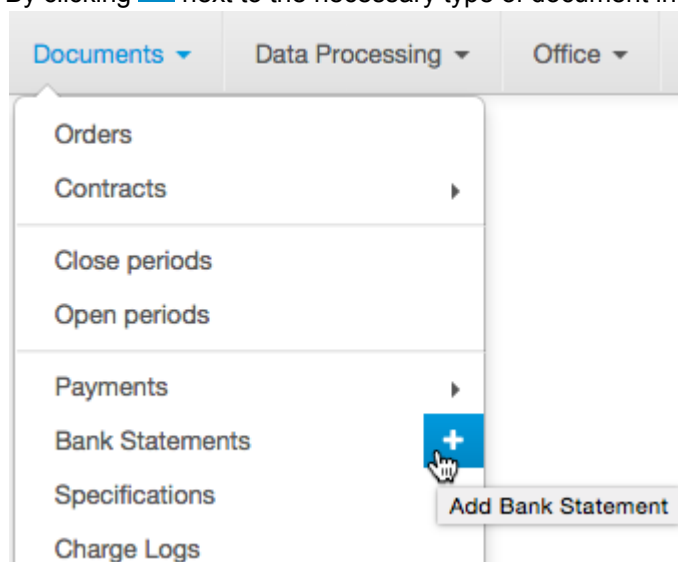
- By opening the registry of documents of the necessary type and clicking ✚ **Add** on the right of the page:

The created document is automatically numbered according to the rules of numbering. If necessary, the number can be edited by clicking ↩ next to it, or entered manually by clicking 🗑. The date is populated by the current date by default.

Fill in the necessary boxes (later you can edit them) and click **Add**, a new document is added to the system as a *Draft*.

Copying a Document

You can create a new document using the documents you already have by clicking 📄 **Copy** on the particular document page.

Price specification PS16-21: edit

| Price specification PS16-21 |

| Public | Document dependencies | Comments | Audit | 📑 Copy |

ID 52277001

Workflow   Standard for Price Specifications ▾

Document Number PS16-21 ✏ 🔒   Date 25/08/2016 📅   17:52:02

By clicking it, you open the page for editing the copied document. The copied document is created as a *Draft* and in the **Other** section you can see which original document was used. Copying is available only for certain types of documents.

Other

Remark	
Document copied from	Price specification #PS16-21 from 25/08/2016
Author	Operator
Date Created	29/08/2016 14:02:17

Save Delete

Editing Documents

Pages for editing documents contain the following parts: the heading, the main body, and additional information (when and whom was the document created by, etc.). The heading contains information which is general for all types of documents, along with the information special for a particular type. Contents are tailored for each type of documents.

See the heading for a contract.

Contract C16-18: edit

Contract C16-18   ← Back to search

Public | Document dependencies | Comments | Audit | Copy   🖶

ID 52275801

Workflow [Standard for Customer Contracts ▾]

Document Number C16-18 ✏ 🔒   Date [25/08/2016] 📅   [17:51:00]

Status [Actual ▾] [Change]

Tags [   ]

Period [from 25/08/2016] 📅 🗑

Basic Contract [Basic Contract #BC_Individual_Internet from 19/01/2011] 🔍 ✎ 🗑

Subjects

Provider [hmanual] 🔍 ✎ 🗑

Client [byron] 🔍 ✎ 🗑

Each document contains such boxes as **Workflow**, **Document number**, **Date**, **Status**, and **Period**.

- **Workflow**. The box contains the workflow, which regulates the document in the system. The workflow is selected at the time of the document creation and cannot be changed.
- **Document number.** The box has a purpose similar to the number of a real document, such as a contract number or a proforma invoice. The system has its own numbering rule for the documents. Usually the document is numbered by default at the time of creation.
- **Date**. Together with the number, they are used for identifying a document (for example, the contract # A-07/10 of 12.19.2007). At the time of the document creation this box is automatically populated with the current date.
- **Status**. Together with the period, it is one of the essential properties of a document (see next).
- **Period**. It is a timespan the document is valid for. It can be a closed one (with a start and end date), or an open one (with only a start date).

Such sections as **Subjects***,* **Object**, and **Addresses** show the roles defined in the workflow.

The **Custom actions** section shows the list of actions, which are manageable according of the document's workflow. With Hydra Billing, you can switch on/off the action for the document, selecting *On/Off* in the drop-down menu. If an action is marked as *Ask,* then, when transferring the document into the status the action is bound to, you should choose, whether to execute this action or not.

Documents Audit

On a document page (except for traffic class specifications), you can see the **Audit** tab, which, when having certain permissions, allows tracking down the changes in document's parameters. For example, in orders you can check the main parameters changes, as well as the contents, subjects, services, addresses, and some custom fields.

Price specification PS16-21: edit

Price specification PS16-21				← Back to search

Public   Document dependencies   Comments   Audit   📑 Copy

Basic parameters ▼

Period   from 31/05/2016 23:59:59 to 29/08/2016 23:59:   📅   🗑

Display

Parameter	Changes by	Modification date	Previous value		New value
Remark	operator (Teleline)	29/08/2016 17:27:00		→	Price plan for new customers.
Document state	operator (Teleline)	25/08/2016 17:52:11	3003	→	4003

Content ▼

Period   from 31/05/2016 23:59:59 to 29/08/2016 23:59:   📅   🗑

ID   [　　　　　　]

Display

ID	Equipment	Parameter	Changes by	Modification date	Previous value		New value
52334801	Hydra Phone	Sign of activity	operator (Teleline)	29/08/2016 17:27:50	Y	→	N
52334901	Local Telephony In	Sign of activity	operator (Teleline)	29/08/2016 17:27:50	Y	→	N

Subjects ▼

Custom fields ▼

To view the history, click **Show filter** next to the corresponding section, choose the period, if necessary, the identifier of the data base line, which contains the record about the changed field or its relation with the current document. Then click **View**.

Status and Period of a Document

The document's status determines the actions which you and/or the system can make with it.

A set of possible statuses is special for each document and is determined by the workflow, but the standard statuses are usual: *Draft, In force, Canceled*.

- *In force*. The status means that the document is effective. Mostly, the system is influenced by the documents with this status, so when editing documents in force, particularly price specifications or time intervals specifications, one should be especially careful.

- *Draft*. All documents are created with this status. Drafts can be edited any time without affecting the system. This is the only status when a document can be physically deleted. Having completed and checked all the document, you can transfer the document into *In force*. This process is called **putting a document in force**.

- *Canceled*. It is used for storing any documents out of force. Documents with this status cannot be edited. Canceled documents are stored in the system but are not used any longer.

> Having put a document in force, you cannot delete it from the system any more. However, you can cancel it, which is similar to deleting.

The status of a document does not depend on its period. In particular, a document can be in force, even after its period is over or has not started yet.

> You should not cancel a document only due to the reason that its period is over, as it may affect the work of the system.

For example, when rerating services provided to a customer in the previous period, the rating is done according to the price specification which was in force during that period. If the price specification is canceled by mistake, when its period is over, either the customer would not be able to have rerating, as the system cannot determine prices for the provided services, or the rerating would be done according to another price specification in force at the moment, so the rating might be incorrect.

Such a situation can be corrected, if before the rerating you create a copy of the canceled specification, make it backdated and put it in force, but in other situations, the solution may be more labor-intensive or even impossible.

Bulk Change of Documents' Statuses

Hydra Billing allows changing statuses for multiple document simultaneously. It can be done within one registry (invoices, contracts, price specifications, ets.). Typically, it is used for invoices.

Payment order register

	ID	Document Number	Date ⌄	Time	Status
☑	52314801	P16-43	28/08/2016	18:43:50	■ Actual
☐	52317501	P16-44	28/08/2016	18:50:10	■ Actual
☑	52320101	P16-45	28/08/2016	19:08:09	■ Actual
☑	52305401	P16-42	28/08/2016	17:28:17	■ Actual
☑	52280201	P16-39	25/08/2016	17:53:28	■ Actual
☐	52266201	P16-38	25/08/2016	17:42:59	■ Actual
☐	52281801	P16-40	25/08/2016	17:57:16	■ Actual

Lines selected: 4. Select all (42)

When changing statuses in bulk, you should:

1) select all necessary documents (the checkbox in the table heading allows selecting all documents on the page),

2) if necessary, click **Select all**,

3) click **Change status**, select a new status and click **Change**.
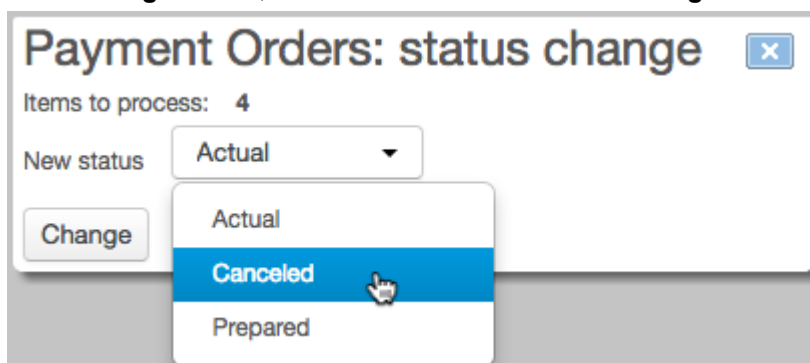
3.7.1. Contracts

In this section:

- Creating a Contract
- Editing a Contracts
- Contract Terms and Commitments

See also:

- How to Create Groups, Contracts, Price Specifications
- How to Manage Contract Plans

Hydra Billing uses two types of contracts — **basic contracts** and **service ones**.

In any basic contract, **Client** stands for a group of customers. You can create a service contract for a customer using the basic one, even if the customer does not belong to the group. The basic contract allows changing conditions for customers the contract is valid for, like updating price plans, adding services, changing prices.

A service contract is to be created for a customer directly, and is the ground for providing services to him or her. A service contract can be concluded both independently or on the ground of the basic contract. In the latter case, the conditions stated in the service contract are to annex or to redefine the conditions of the basic contract.

Basic contracts and service contracts are stored in registries and can be accessed via the menu **Documents** > **Contracts.**

Registry of Contracts

Filter | Results | Filter not selected ▾ | 🖫

Change status | Delete | Permanent link | https://hydra.example.com/documents/custom | 🖨 ⊕

	ID	Document Number	Date ⌄	Time	Status	Begin date	End date	Remark	Author	Organization
☐	52335201	C16-20	29/08/2016	17:46:44	▪ Draft	29/08/2016			Teleline	hmanual
☐	52275801	C16-18	25/08/2016	17:51:00	▪ Actual	25/08/2016			Teleline	hmanual
☐	52234801	C16-16	22/08/2016	17:45:20	▪ Actual	22/08/2016			Teleline	hmanual
☐	52166101	C16-15	29/07/2016	16:41:29	▪ Draft	29/07/2016			Teleline	hmanual
☐	52164901	C16-15	29/07/2016	16:35:14	▪ Canceled	29/07/2016			Teleline	hmanual
☐	52094201	C16-14	12/07/2016	17:57:56	▪ Actual	12/07/2016			Teleline	hmanual

3.7.1.1. Creating a Contract

[Create a contract](#) of the required type from the menu or corresponding registry. A service contract can also be created at a [customer's page](#).

Basic contract: create

| Basic contract |

| General | Related documents | Comments | Audits |

Workflow   Standard for basic contracts ▾

Document number   БД-19/1 ✏ 🔒   Date   18/03/2019 📅   11:24:09

Status   Draft ▾   Change

Tags

Period   📅 🗑

Basic contract   🔍 ✏ 🗑

Service contract workflow   Standard for service contracts ▾

Subjects

Provider   Teleline   🔍 ✏ 🗑

Client   🔍 ✏ 🗑

Choose **Workflow**, enter **Date** of the document (otherwise, the current date will be used).

Enter **Period** during which the document is to be in force (by default, **Date** is used as the start date of the period, and the end date is left empty).

For a basic contract, you can enter **Service contract workflow** — one of the workflows for service contracts. This workflow will then be used for choosing a basic contract when creating a service contract.

If necessary, enter a valid **Basic contract**.

By default, when creating a service contract, the first found basic contract that has the workflow of this service contract in **Service contract workflow** is used as **Basic contract**. If such a contract cannot be found, the system searches for a basic contract that is valid for the customer's [main group](#) (when creating a contract on the customer's page). However, you can enter a contract different from the one suggested by the system, as well as a basic contract that has a different workflow entered in **Service contract workflow** or just a dash, or a contract that is valid for a group the customer does not belong to.

In **Provider**, enter the service provider (the current division is used by default). **Client** in a basic contract is a group of customers. This group is used for selecting a basic contract when creating a service one (see above). **Client** in a service contract — a customer or a provider that receives services.

Click **Add**. Now the contract is created and you can edit it by changing its status or adding documents to its contents.

3.7.1.2. Editing a Contract

When editing a contract, you can change its number, status, period, parties, basic contract, and tags.

Basic Contract BC_Individual_Internet: edit

Basic Contract BC_Individual_Internet	← Back to search

Public   Document dependencies   Comments   Audit   Copy

ID 40232501

Workflow Standard for Basic Contracts ▾

Document Number BC_Individual_Internet   Date 19/01/2011 📅   01:41:37

Status Actual ▾ Change

Tags

Period from 19/01/2011 📅 🗑

Basic Contract 🔍 ✎ 🗑

Subdocument workflow Standard for Customer Contracts ▾

You can change the basic contract in the corresponding box. You can also leave the box empty, then a contract is not tied to any basic one. However, such a structure is unpractical and inadvisable (even when creating individual conditions for corporate clients), given that it causes a significant increase in effort for creating and editing conditions for each particular customer.

Contract C16-18: edit

Contract C16-18   ←   Back to search

| Public | Document dependencies | Comments | Audit | 🗐 Copy | 🖨 |

ID 52275801

Workflow | Standard for Customer Contracts ▾ |

Document Number C16-18 ✎ 🔒   Date | 25/08/2016 📅 | | 17:51:00 |

Status | Actual   ▾ | | Change |

Tags | |

Period | from 25/08/2016   📅 🗑 |

Basic Contract | Basic Contract №BC_Individual_Internet from 19/01/2011   🔍 🖉 🗑 |

Subjects

Provider | Teleline   🔍 🖉 🗑 |

Client | byron   🔍 🖉 🗑 |

Content

id	Name	Status	Effective period	Remark
52277001	Price specification #PS16-21 from 25/08/2016	Actual	from 25/08/2016	Price plan for new customers.
52332601	Price specification #PS16-24 from 25/08/2016	Draft	from 25/08/2016	

Add Price specification ,   Addendum or Appendix

In the **Contract terms** section, specify the conditions for providing contract price plans.

In the **Contents** section, see the documents related to the contract. You can add a price specification to a basic contract by clicking the corresponding link. When editing a service contract, you can also add other documents, such as annexes and addenda.

> ❗ Services specified in all price specifications for a certain basic contract will be available to all customers whose service contracts are created on the ground of this basic one.

The **Exclude documents with expired validity period** check box allows hiding all documents which periods are over. If there is no such a check box, the contract contains no expired documents.

If you need to move an already existing document (a price specification, an annex or an addendum) from one contract into another, open this document and in **Contract** choose the new one. After that, the document will be shown in the **Contents** section of the chosen contract, and deleted from the contents of the previous one.

If necessary, you can add a file or a comment to a document.

3.7.1.3. Contract Terms and Commitments

In this section:

- Contract Terms
- Contract Commitments

See also:

- How to Manage Contract Plans

Contract Terms

> To work with contract terms, you need the *Add and change contract terms* permission from **Subjects > Other permissions**.

For contracts (both a basic and a customer ones) you can set up contract terms for certain services. According to these terms, when subscribing to a service, a customer makes a contract commitment: he/she is to use a service for a defined period and pay for it in time. Hydra Billing uses the measures specified in the terms to secure fulfilling the commitment.

> Contract terms are inherited according to the contract hierarchy: if a term is created in the basic contract, it applies to all customers whose contracts are created on the ground of the basic one.
>
> A term added to a service contract applies only to a customer it is concluded with, i.e. it is individual. Individual terms have a higher priority. If a customer contract has a term for services containing a list of tags same as in a basic one, the commitment will be based on the customer contract terms.

Contract terms

IPTV Annual Contract

For services with tags `stb_contract`

Commitment amount: 100 $.

Contractual remedies:

    — Late Payment Fee
    — Early Termination Fee

Add Contract terms

Add new contract terms or click an existing one to change it.

Contract terms ✕

General

ID 4572881857701

Name IPTV Annual contract

Duration 12 | month ▾

Minimum duration 4 | month ▾

Effective for services with tags stb_contract_plans x

Trial period, days 5

Commitment amount 96.00 | $ [USD] ▾

Contractual remedies

Late payment fee Late Payment Fee 🔍 ✎ 🗑

Early termination fee Early Termination Fee 🔍 ✎ 🗑

Early termination fee type Commitment amount refund ▾

Days until termination 15

Resumption service 🔍 ✎ 🗑

Keep charging late payment fee after early termination ☐

Terminate charge logs when payment is overdue ☑

Delete | Save Close

⚠ Contract terms, specified in the basic contract, can be changed. Updated terms will be applied only to new subscriptions. Already existing contract commitments remain unchanged.

Individual contract terms of customer contracts cannot be changed, if contract commitments have already been created on their basis.

General

- **Name** is shown in the **Contract commitments** section of a customer contract, and when choosing available services in subscription.

- **Duration** determines the contract period. During this period a customer is to duly pay for the services and is not allowed to change the price plan. Also this parameter is used to decrease the commitment amount which is in proportion to the period of using the service.

  Set the duration using the same units as for the billing period of the service.

- **Minimum duration** is used when calculating an early termination fee of the *Payment for minimum period* type.

- With the help of the **Effective for services with tags** lookup, select services the contract terms will apply for. Contract terms will apply only for subscriptions to services which have all selected tags.

  > It is impossible to set up several contract terms for one list of tags inside one contract.
  >
  > If, according to your contract program, you offer a variety of contract terms (for example, a variety of duration periods — 12- and 24-month periods), then you should create separate product catalog entries for services with different lists of tags.

- **Trial period** is set up in days. During this period, from the start date of the contract commitment, a customer may refuse fulfilling the contract, without paying an early termination fee. If the period is not defined, the fee is charged off regardless of the date the customer stops fulfilling the commitment.

- **Commitment amount** is paid by a customer during the contract period together with the service subscription fee. Usually it equals the cost of CPE that the customer has received (a set-top box, an LTE router, a CAM module, etc.), but you also can specify a different sum, for example, the cost of organizing a communication channel to a customer. When the amount is paid back, the contract commitment is considered fulfilled.

  The commitment amount should not equal zero.

Contractual remedies

- In **Late payment fee**, select the product catalog entry from the *Penalties* section, which has *Late payment fee* in **Penalty type**. Late payment fees are charged in case of payment arrears. The fixed part of the fee is set in a price specification and is charged once. The interest rate and the charging period are defined in the product catalog.

  If not filled in, there is no fee charged for late payments.

  > Fees are charged either for active commitments or for those awaiting payment. After a customer has fulfilled the commitment, fees accruals stop, even in case a customer fails to pay in time.

- In **Early termination fee**, specify the product catalog entry from the *Penalties* section. Its parameters should be set up as **Penalty type** — *Early termination fee*. Hydra Billing will use it for charging off the early termination fee. The contract commitment can be terminated due to a customer's request. It is also terminated automatically if arrears remain unpaid over the period specified in **Days until termination**.

  If the penalty is not specified, a customer does not pay an early termination fee.

> When the contract commitment is terminated, the customer contract is not terminated, and the subscription for the price plan is still in force. The contract commitment can be resumed or fulfilled, if a customer pays the arrears including the early termination fee. In the latter case, a customer then continues using the same contract price plan (although without any contractual remedies), until he/she or you change the price plan for a different one.

- **Early termination fee type** defines how Hydra Billing calculates the compensation in case of automatic termination of the contract commitment.

  When the *Commitment amount refund* type is selected, the amount of the fee equals the commitment amount remainder at the time of the early termination. Apply this type to guarantee the repayment of either CPE or connection costs.

  The *Payment for minimum period* type of compensation consists of two parts. The first part is the cost of the penalty service from **Early termination fee** which is set in a price specification. The second part refers to the value of the **Minimum duration** parameter: if a customer uses the service for a shorter period, he/she is to pay for the missing days/months. If the minimum period is not specified, a customer pays only the cost of the penalty service as the fee.

  Let us suppose that the subscription fee for the contract price plan for Internet is $30, whereas the penalty service costs $16 according to the price specification. If the minimum duration is 4 months, but the commitment is terminated right after 2 months, the customer has to pay the fee of $76: $60 as the subscription fee for the 2 remaining months and $16 for the service. Whereas when the commitment is terminated early after using the service for half a year, the customer is to pay only $16, because the minimum period is over.

  > When terminating a commitment manually, you can choose the fee type. To do so, the contract terms should have all parameters defined for both *Commitment amount refund* and *Payment for minimum period* types.

- In **Days until termination**, specify the allowed amount of days for the arrears to remain unpaid. If a customer is not able to repay the arrears during this period, the contract commitment is terminated, and the early termination fee is charged off. If you leave **Days until te**rmination empty, the commitment cannot be automatically terminated.

- **Resumption service**. When a contract commitment is terminated, you can cancel the charging of the early termination fee upon the customer's request, and resume the contract commitment. This service may be billable. Set up the resumption service so Hydra Billing makes the one-off charging when the early termination fee is canceled.

- By selecting **Keep charging late payment fee after early termination** you allow Hydra Billing to continue charging late payment fees even when the contract commitment is over, and has the *Awaiting payment* status.

  > If an early termination fee has been charged off, the late payment fee is charged not only for the service arrears, but also for the amount of the termination fee.

- By selecting **Terminate charge logs when payment is overdue** you can influence the customer's ability to use the price plan in case the customer is late with payments. Providers usually prefer to stop providing services. If it is selected and a customer has overdue payments, then with the next start of the *Monitoring overdue receivables* task, the current charge log is to be terminated.

Contract Commitments

A contract commitment appears at the time of creating a subscription to a service for which a contract term is set up. The commitment is shown in the corresponding section of the contract (when a customer has no commitments, this section is hidden).

> ⚠ There is only one contract commitment for one customer contract. If in the course of the contract the commitment has already been fulfilled (or canceled), and you want to subscribe the customer to a price plan with new contract terms, you should create a new contract for him/her, or add an addendum or an annex to the existing contract. Then set up subscription via the new document.

Contract commitments

Check the date when the contract period is over and the remainder of the commitment amount the customer has to pay. Click the commitment to see the terms it is based on.

With commitments you can carry out certain actions.

3.7.2. Price Specifications

In this section:
- Creating a Price Specification
- Editing a Price Specification

See also:
- How to Create Price Specification Contents

Price specifications are annexes to contracts. They specify the contents and prices of the services included in price plans, as well as prices for separate services.

A basic price specification is an annex to a basic contract. Its terms apply to all customers whose contracts are created on the ground of this basic contract. Basic price specifications are convenient to use when creating typical price plans for customer groups, for example, for either individuals or organizations.

> ⚠ When you use several basic contracts for different customer groups, you should create separate price specifications for each group, even when the services you provide to them are the same.

To create an *individual price plan*, you should add a price specification to a customer contract. It can contain the same services as in the basic price specification, but they can be priced differently. It can also include prices for extra services which may be provided solely to this customer. Besides, you can create fully individual price plans: in this case, do not make a reference to the basic contract in the customer contract. Thus, the service contract is not connected to the basic one, or the basic price specifications either, so the price plans and services described in them will not be available to this customer.

> Note that one and the same service or a price plan from the product catalog can appear in several price specifications. For example, you can add to your product catalog only two individual price plans — one for individuals, and one for organizations. Later, on their ground, you can create an unlimited number of price plans, defining their contents and prices in different price specifications referring to different contracts.

All price specifications are stored in the registry which can be accessed via the menu **Documents** > **Specifications** > **Price specifications.**

Registry of price specifications

| Filter | Results | Filter not selected ▾ | 💾 |

| Change status | Delete | Permanent link | https://example.com:443/documents/price_orde | 🖨 ⊕ |

	Document number	Contract	Date ⌄	Status	Remark
☐	PS16-14	Basic Contract №Individual_WiMAX from 23/03/2016	23/03/2016	In force	Wi-MAX contracts
☐	PS16-11	Basic Contract №Individual_TV from 19/01/2011	23/03/2016	In force	TV price plans with monthly charges. All plans include one-off option.
☐	PS16-10	Basic Contract №Individual_Tel from 23/03/2016	23/03/2016	In force	Hydra Phone. Telephony price plan with prepaid local calls and 100 minutes of long-distance calls. Payment deferment for unplanned services is 20 days long.
☐	PS16-17	Basic Contract №Individual_Internet from 19/01/2011	23/03/2016	In force	Triple Classic. Triple-play price plan with unlim internet access, prepaid local telephone calls and basic TV package.
☐	PS16-8	Basic Contract №Corporate_Internet from 01/01/2016	01/03/2016	In force	Price plan «Standard Office». Prepaid 50GB of incoming internet traffic. 1$ for 1GB after 50GB limit is reached. Unplanned charges can be paid within 20 days after billing period ended.

3.7.2.1. Creating a Price Specification

Add a new document of the *Price specification* type.

Price specification: Create

Price specification

| General | Document dependencies | Comments | Audit |

Workflow: Default for price specifications

Document number: PS16-23 ✏ 🔒   Date: 05/12/2016 📅   20:01:56

Status: Draft ▾   Change

Tags:

Period: from 05/12/2016 📅 🗑

Contract: BC_Corporate_Internet   🔍 ✎ 🗑

Traffic classes specification: Traffic Classes Specification №TCS-12/1 from 24/02/2012   🔍 ✎ 🗑

Price calculation method: With taxes ▾

Tax rate: 18% ▾

Currency: $ [USD] ▾

Deferred payment status: With deferred payment ▾

Type of credit limit for scheduled services: From charge log start ▾

Credit limit period for scheduled services, days: 10

Credit limit period for unscheduled services, days: 20

Rounding rule for quantity: Rounding up to 2 digits ▾

Rounding rule for amount: Rounding to nearest 2 digits ▾

Subjects

Provider: Teleline ✎

Enter the period for which the specification should be in force, and the contract that is to have it as an addendum.

If you create a price specification for phone services, in **Traffic classes specification** you should enter the traffic classes specification with the *Standard for voice traffic* workflow, otherwise leave it empty.

Specify, if the services are subject to tax, and if yes, enter the rate. Choose the currency for accounting. Or you may enter «—» if you do not want to specify the rate and the currency. In the latter case, you have to specify these parameters for each service when adding it to the current specification.

For a price specification, an important parameter is the method of defining the service price. In **Price calculation method**, you can choose one of the two: *Based on price excl. taxes* or *Based on price incl. taxes*.

- *Based on price excl. taxes* is typically used for services which are provided to organizations as customers. In this case, prices are stated in the specification excluding taxes, so that the price including taxes is calculated according to the specified tax rate. As reports and invoices used by organizations typical show the prices excluding VAT, this method will provide the total amounts in Hydra Billing equal to those calculated by the accounting department via ERP software.

- When you choose *Based on price incl. taxes*, the specification shows the service price including VAT, so the price excluding taxes and the amount of tax are calculated accordingly. This method is applied to such customers as individuals, because they always pay VAT. Whereas if you apply this method to services provided to organizations, due to rounding, the total amounts in Hydra Billing will be slightly different from those in ERP software.

Chose **Rounding rule for quantity** and **Rounding rule for amount**, which will be used to rate services specified in this document.

> You can use *Rounding* or *Rounding down* as **Rounding rule for quantity** only on the condition that within a price specification for one and the same service, lines of the *Session specification* and *Billing period specification* type contain the same measuring unit.

Provider in the **Subjects** section is populated automatically according to the contract.

Click **Add**.

> You should create a separate price specification for each of your price plan lines. It allows introducing changes in one line without affecting the terms in others. In **Remark** in each specification you should type a short description of the price plans it contains, for example, *Broadband prepaid price plans for individuals*, as the description is then shown in the specification registry and helps you to find the necessary specification quicker.

Deferred Payment for Services

With the help of **Deferred payment status** in a price specification you can allow or prohibit providing services included in this specification on credit (i.e. a deferred payment for these services). If you select *Without deferred payment*, the customer account balance is decreased by the price of the provided services. When selecting *With deferred payment*, the balance is also decreased, but at the same time the credit limit is increased by the same amount, so the customer is to pay for services within the defined period. Thus the charge for services does not influence the amount of the available funds on the customer's account until the credit limit expires.

Deferred payments for scheduled and unscheduled services are set up independently of each other. The effective period for scheduled services begins from the charge log start or end date (**Type of credit limit for scheduled services**), whereas with unscheduled services, the deferral is always from the charge log end date. The credit limit period is specified in days. In the example above, see the scheduled service (phone price plan) to be paid within the first 10 days of the billing period, and the unscheduled (completed calls) — within 20 days after the end of the billing period.

A credit limit for a deferred payment can be decreased due to payment matching after a customer has made a payment.

3.7.2.2. Editing a Price Specification
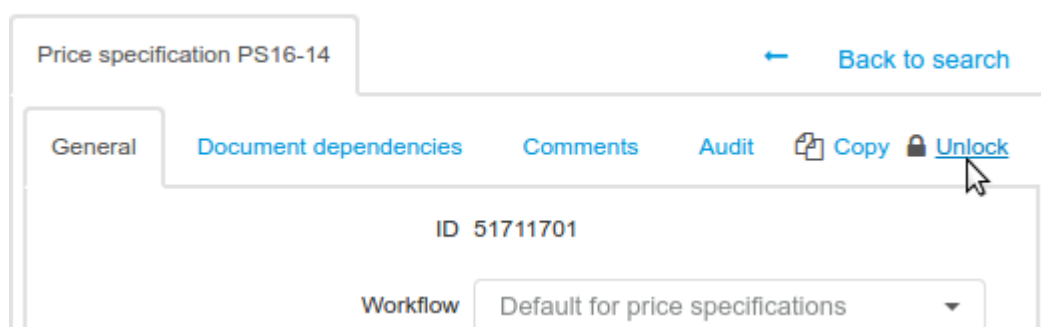
Open a price specification from the **Registry of price specifications** via the menu **Documents** > **Specifications** > **Price specifications**, or by using quick search. You can also open a price specification by clicking the corresponding row in the **Contents** section of the contract, which has this specification as an annex.

You can change specification status, parameters, contents, as well as the prices of services it includes, on the condition that no charge logs have been issued on the basis of this specification.

Locking and Unlocking a Price Specification

If, on the basis of a price specification, a charge log has already been issued, the specification becomes locked. It means that most of its parameters, and its contents cannot be changed. Only a few changes are always available (even in a locked specification): **Status**, **Period**, and **Remark**.

Price specification PS16-14: Edit

Price specification PS16-14	← Back to search

General	Document dependencies	Comments	Audit	📋 Copy	🔒 Unlock

ID 51711701

Workflow [Default for price specifications ▼]

When you need to make changes in a locked price specification, for example, to add a price plan, or to correct a price of a service, follow these steps:

1. Copy the locked price specification by clicking 📋 **Copy**. A new copied specification is created with the *Draft* status.
2. Edit the period of the locked specification: in the end date, enter a new date for the changes to come in force.
3. Make all necessary changes in the specification copy (add services, edit prices, etc.).
4. Set the day after the end date of the locked specification as the begin date of the specification copy.
5. Change the status of the price specification copy from *Draft* to *Active*.

When the period of the locked price specification is over, and the charge logs made on its basis become executed, new charge logs will be issued on the basis of the new specification.

> You can follow these steps to schedule any changes in existing price plans (for example, a price increase in the following month). Create a price specification containing new terms by copying the current one. Then set necessary begin and end dates for the current and following specifications. When the current specification expires, charge logs will be issued based on new terms.

> In case of emergency, you can unlock a specification by entering **an unlocking code**. In order to get it, please contact Hydra Billing Solutions LLC tech support and make sure to provide the reason why you need it.
>
> The price specification unlocking often leads to failures in the service rating process.

Price Specification Contents

The **Contents** section shows the prices for services and price plans included into the price specification, along with parameters of their providing to customers.

> All price plans or separate services belonging to one contract are to be unique. If a service is already included in one of the price specifications attached to the contract, you should not add it to another specification attached to the same contract.

Contents

Filter by row type [— ▼]

№	Service	Type	Time interval	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▶ 1	Mercury	Basic				-	15.00	12.71	✖
▼ 2	Mars	Basic				-	18.00	15.25	✖
2.1	Internet traffic in.	Billing period specification	Day	20480	1	MB	0.00	0.00	✖
2.2	Internet traffic in.	Billing period specification	Day		1	MB	0.02	0.02	✖
2.3	Internet traffic in.	Billing period specification	Night		1	MB	0.00	0.00	✖
2.4	Internet traffic out.	Billing period specification			1	MB	0.00	0.00	✖
2.5	Local traffic in.	Billing period specification			1	MB	0.00	0.00	✖
2.6	Local traffic out.	Billing period specification			1	MB	0.00	0.00	✖
2.7	Internet access	Billing period specification				-	0.00	0.00	✖
2.8	Static IP address	Billing period specification			1	pcs	3.50	2.97	✖
▶ 3	Venus	Basic				-	12.00	10.17	✖

Information on services included into the specification is presented in the table. The rows which are corresponding to price plans can have child rows that specify the price plan contents. You can view the child rows by clicking ▶ next to the parent row number. To hide child rows, click ▼. If a row has no child rows, it is marked with ▸.

To add a separate service or a price plan to the specification, click ✚ **Add**. A new row is added to the table where you can choose a service and specify its parameters. To add a child row to the price plan, click ✚ in the parent row.

A table can contain the following columns.

- **Service**. Here you are to specify a service (or a price plan) the price for which you need to determine. You can type its name, or click 🔍 and choose the required product catalog entry from the *Material assets, Price plans*, or *Services* section.

  To create a price plan, choose a product catalog entry from the *Price plan* section. To determine the contents of the price plan, add child rows to the corresponding row. For child rows in **Service** specify the product catalog entries from the *Material assets* or *Services* categories that are to be included in the price plan.

  Entries from the *Traffic services* group can only be used in child rows, i.e. in the price plan contents.

- **Type**. For the main rows it is always *Basic* and cannot be changed.

  Type in child rows, in contrast with main rows, can have one of the two values. Each price plan is to contain at least one child row of the *Billing period specification* type. Such rows determine the rule for services rating as well as service providing parameters during the billing period.

  Child rows of the *Session specification* type are applied only for traffic services with time-based rating, in addition to the rows of the *Billing period specification* type. With their help you can set up prices for services in terms of one session (a dial-up session or a phone call) depending on its duration, as well as a special rating unit. For example, such rows are used to create free calls with duration not longer that the specified one, or to rate phone calls per second starting from the second minute.
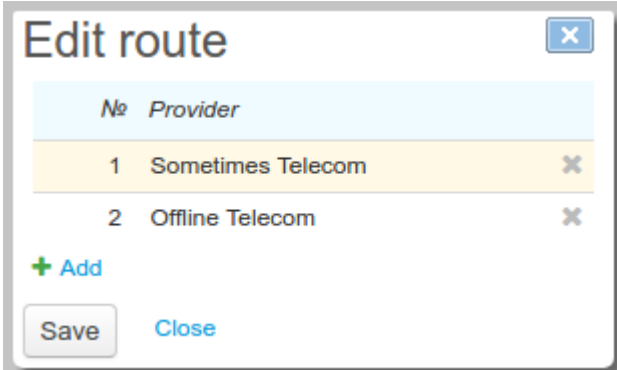
  As follows, with the rows of such type you can make the starting 5-second period of the phone call free of charge or apply a per-second rating starting from the first minute.

- **Area**. Is used only for phone services to set the price for phone calls to the specific area. **Area** can be filled in with an area code or a group of area codes. With 🔍, choose an area or a group of area codes from the registry. The registry can be found in the traffic classes specification, which is specified in **Traffic classes specification** on the **General** tab of the price specification.

  It is obligatory to fill in **Area** for phone services: type the required area code (a group of area codes), or use *All*, if the price applies to all possible areas. Exceptions are the rows with child rows — they require **Area** to be empty.

- **Route**. Is used for phone services in case there are several providers. Here you specify the priority for choosing the provider for an outbound phone call. This information is sent to equipment (a PBX, for example) and defines the order of attempts to establish a connection.

  To edit the route, click 📝. Add providers in the proper order. To process a phone call, the first provider on the list is used. If the session cannot be supported by this provider, the call is forwarded to the next one. Note that applying routes actually depends on the provider's equipment model.

The route can be specified both in a main row and in child ones with the *Billing period specification* type. The route in the child row has a higher priority compared to the route in the main row. It allows defining special routes to process outbound call to specific areas.

- **Time interval**. Is used for child rows of the *Billing period specification* type. With it, you can change the service parameters depending on the time the service is provided. For example, you can increase the bandwidth for the inbound Internet connection at night, or lower the prices for phone calls on holidays. Choose the time interval from the list. You should add intervals to the reference data (on the **Master Data** menu click **Reference Data**) and define them in the corresponding time intervals specification.

> If at least one of the rows of the price specification has a time interval, you need to make sure that for the whole price specification period there is a time interval specification in force. This specification is to contain all intervals which are used in the price specification.

There can also be a row with an empty *Time interval*. Such rows are in force regardless of the time the services are provided.

The sequence of rows with time intervals is important and acts similar to the rows with quotas for traffic rating. If a row without time interval comes before the rows with intervals, the last ones will never be used.

If for the price specification you need to define time intervals covering only certain hours but not the whole time, then the last row added should contain no time interval, or a time interval value by default (this value is specified in the time intervals specification).

- **Tax rate**. If the tax rate is not specified for the whole document, you need to type it in each row of the specification, provided that in child rows belonging to one price plan there is the same rate as in the main one. Typically, there is only one tax rate per document.

- **Qty. up to** (included). Is filled in when defining the service price depending on its amount that is to be provided in the billing period. Apply it when creating price plans with quotas (for example, those for prices or bandwidth). When you create price plans with multiple quotas, note that the quotas are independent of each other. Each row describing a quota has **Qty. up to** showing the amount that a customer can consume on the conditions specified in this row (price, bandwidth, etc.). For example, to see the amount that a customer is to consume in order to reach the third quota, you need to sum up values in **Qty. up to** of the first and second quotas.

- **Qty. for price** and **Unit**. These define the amount of product or service the price is specified for. For example, 5 s, 1 GB, or 10 pcs. Rating is done proportionally with the actually provided amount. For price plans, the amount and the unit are to be entered in child rows.

- **Qty. for rating** and **Unit for rating**. It defines the accuracy of rating. For example, for a per-minute phone service rating you need to specify not only the price per minute of session, but also state *1 min* as the unit for rating. For price plans, the quantity for rating and the unit for rating are to be entered only in child rows.

> Typically, special units for rating are used only for voice traffic rating. It happens so because each phone call is rated separately, whereas while rating traffic services, the total amount of the provided service over the period is rated (for example, per month). Thus, for traffic services, we recommend applying *1 byte* as a unit for rating, in order to avoid unacceptable rounding with each traffic loading into billing.

- **Rounding rule for quantity** and **Rounding rule for amount**. When rating the provided services, you may need to round the quantity or the total amount. Rounding rules are determined in the reference data. Each rule specifies the number of digits after the point and the type of rounding (up, down, or mathematical).

- **Price formula**. Is used only in child rows. If the row has *Session specification* type, it is to show the value equal to 0, or the substitute `$PRICE.` With `$PRICE`, the session is rated using the price from the corresponding row of the *Billing period specification* type, with pricing and rating units as per this row.

In child rows of the *Billing period specification* type, **Price formula** is used when reselling a service, such as, for example, voice traffic. The `$BUY_PRICE` substitute refers to the purchase price, as per the purchase price specification, and the price formula depends on it. In fact, any SQL numeric function can be used as the price formula. For example, to resell a service at the price 20 % higher than the purchase one, enter `$BUY_PRICE * 1,2`.

- **Price**. It determines the price for the service. The price specified in the main row of the price plan is the price plan cost over its billing period (i.e. subscription fee). Child rows specify the price per service unit, for example, per one Mb or 1 minute.

The price has a lower priority compared to the price formula, i.e. when both are filled in (**Price** and **Price formula**), a service is rated according to the formula.

- **Price excl. taxes**. It shows the price excluding taxes.
- **Currency**. Just like **Tax rate**, this is active in case the currency is not specified for the whole document. In this case, enter the currency in each row of the specification.
- **Speed value** and **Speed unit**. Are used for defining the bandwidth limitation when providing a service.
- **$PRICE_PARAM.** Here an optional additional parameter can be added for describing a service provision, for example, the Internet traffic priority. With the help of substitutions, this parameter is sent to events managing the service parameters.
- **Comment for customer**. Here you can enter the information on the price plan (for example, its short description), which a customer can see when changing the price plan in the Self-Care Portal.

Rows Order in a Specification

> Child rows corresponding to one main row are to be listed in the priority order, because when a service is rated, the price is defined by the first matching child row in the table.

The order of child rows can be changed even after they are added to the table: click ↕ in the row which position you need change and drag it to the desired position.

№	Service	Type	Qty. for price	Unit	Price	Price excl. taxes	
▶ 1	Mercury	Basic		-	15.00	12.71	✖
▼ 2	Mars	Basic		-	18.00	15.25	✖
2.1	Internet traffic in.	Billing period specification	1	MB	0.00	0.00	✖
2.2	Internet traffic out.	Billing period specification	1	MB	0.00	0.00	✖
2.3	Local traffic in.	Billing period specification	1	MB	0.00	0.00	✖
2.4	Local traffic out.	Billing period specification	1	MB	0.00	0.00	✖
2.5	Internet access	Billing period specification		-	0.00	0.00	✖

3.7.2.3. Loading Prices for Phone Services from a File

For your convenience, you can load prices for phone services from a UTF-8 CSV file, the row in which is to be of the following format:
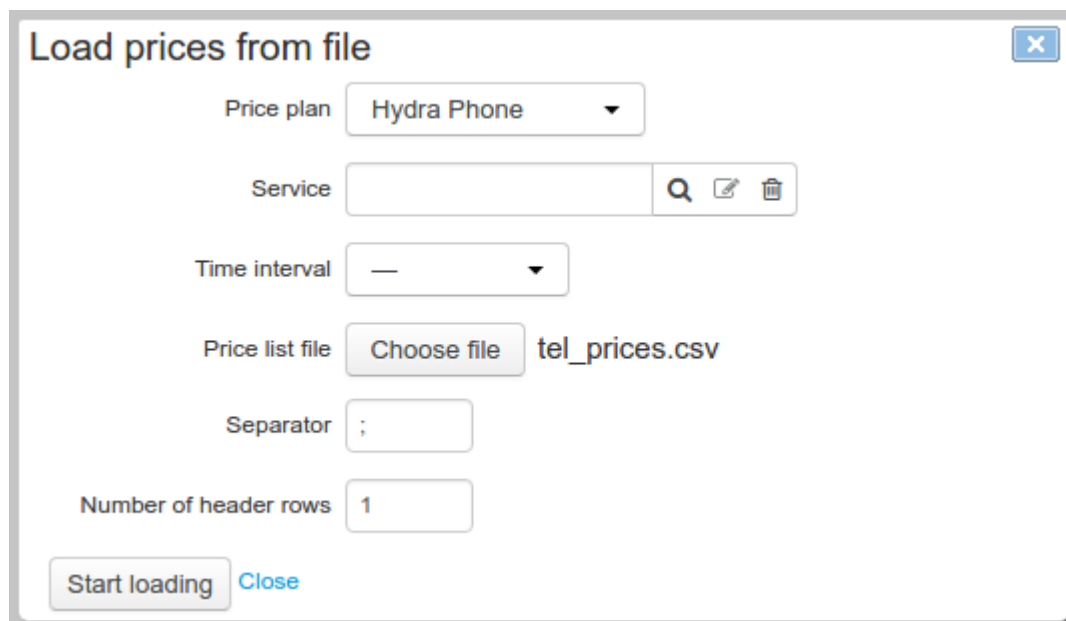
```
[service];range_start[-range_end];[name_of_area_code];[price_for_code];
[name_of_area_code_group];[comment];[price_for_group]
```

Loading is possible only if there is a traffic classes specification entered on the **General** tab of the price specification.

For the decimal separator, a point or a comma can be used. For example, a typical file looks as follows:

```
-- Prices for phone services
National Call Out;1205;Alabama;0,02;National;
National Call Out;1315;New York;0,12;National;
National Call Out;1803;South Carolina;0,05;National;
National Call Out;1276;Virginia;0,90;National;
```

To load prices for the CSV file, click **Load prices from file** in the **Contents** section, so the **Load prices from file** window opens.

Choose the price plan where you need to add child rows. This price plan should be already added and saved in the price specification that is being edited. Specify the corresponding service from the *Traffic services* group of the product catalog (you can also leave it empty on the condition that the service is specified in the rows of the file) and choose the file. Choose the time interval for the loaded prices to be in force. If the interval is not specified (marked as «—»), the prices will be in force at any time. Specify the decimal separator as in the CSV file, and the number of rows in the heading. Click **Start loading**.

Loading is done in three steps. At the first two steps, the system processes the traffic classes specification and updates the registries of area codes and groups of area codes. At the third step, the prices are updated.

Data from the file is added to the specification as child rows of the *Billing period specification* type. When necessary, you can also add the rows of the *Session specification* type to them.

3.7.3. Discount Specifications

In this section:
- Creating a Discount Specification
- Editing a Discount Specification

See also:
- Tags
- Reference Data
- Discount Certificates
- Creating Discount Programs

A discount specification is a document which specifies discount parameters and terms for granting them. With the help of discount specifications you can create marketing actions: bundle offers, special offers for connection, rewards for large payments. Different discount programs can be created as separate documents.

You can open the registry of discount specifications via the menu **Documents** > **Discount specifications**.

Discount specification register

Filter | Results | Filter not selected ▼ | 💾

Change status | Delete | Permanent link | https://hydra.example.com/documents/discoun | 🖨 ⊕

	ID	Document Number	Date ⌄	Time	Status	Begin date	End date	Remark	Author	Organization
☐	51273601	DS-16/2	01/01/2016	00:00:00	🟩 Actual	01/01/2016		Campaign: "Month for free". Pay for 6 months and get a month for free. Pay for a year and get three months for free.	Operator	Teleline
☐	51153601	DS-16/1	01/01/2016	15:22:19	🟩 Actual	01/01/2016			Operator	Teleline

Total: 2

3.7.3.1. Creating a Discount Specification

[Add a document](#) of the *Discount specification* type.

Discount specification: create

| Discount specification |

Public | Document dependencies | Comments | Audit

Workflow [Standard for Discount Specifications ▼]

Document Number DS-16/3 ✏️ 🔒 Date [09/09/2016] 📅 [17:27:34]

Status [Draft ▼] [Change]

For customers with tags [ ]

Period [from 01/01/2016 to 31/12/2016] 📅 🗑

Subjects

Provider [Teleline] 🔍 ✏️ 🗑 ➕

If necessary, type the number and the date for the new document. Specify its document period (which can be open), a service provider, customer tags.

Click **Add**.

3.7.3.2. Editing a Discount Specification

Open a discount specification to change its status, parameters and contents.

Check the heading to see the category of customers the discounts are available to. Segment the customer base with tags: in the discount specification heading enter a set of tags a customer is to have in order to be granted discounts. Discounts can be granted only to customers who have all the tags from the set.

> If a discount specification does not contain any tags, then discounts can be granted to all customers whose providing company is entered in **Provider**.

Discount specification DS-16/3: edit

Discount specification DS-16/3

| Public | Document dependencies | Comments | Audit |

ID 52453501

Workflow Standard for Discount Specifications ▾

Document Number DS-16/3   Date 09/09/2016 📅   17:32:01

Status Actual ▾ Change

For customers with tags [   ]

Period from 01/01/2016 to 31/12/2016 📅 🗑

Subjects

Provider Teleline 🔍 ✎ 🗑 ✚

Content
  ✚ Add discount

Customers can be granted discounts only during the period the discount specification is in force.

> Granting a discount means there is a document of the discount certificate type issued for a customer. It is automatically issued by the system when all conditions for granting a discount are met.

When the period of the discount specification is over, new discount certificates cannot be issued, but the already issued ones are still in force.

A Discount Specification Contents

Each record in the specification contents describes the conditions for granting the particular discount, and its operation parameters.

Click **Add discount**.

You can define the conditions the customer has to meet in order to be granted the discount, as well as the operation parameters of this discount.

Choose a discount, the conditions for which you want to describe. The list of discounts is stored in the **Discounts** reference data.

A discounts determined in a specification which is in force for the customers with certain tags cannot be used in another specification for the same customers.

Choose the discount type. Discounts can be *simple* and *bundle* ones*.*

- To get a simple discount, a customer should be subscribed to the chosen service, or a service with the specified set of tags. If granting a discount depends on a payment, it is also necessary to make a payment in the required amount.
- Bundle discounts (bundles) are granted when a customer is subscribed to several services at the same time. Each of the services has certain discount parameters. For bundle discounts, it is impossible to specify the condition for the payment amount.

Choose services that are to be subject to a discount. It may be a certain service from the product catalog, or all services with a certain set of tags.

Specify the number of subscriptions for appropriate services a customer is to have in order to get a discount. If the discount is applicable to all suitable subscriptions, type *from 1*. It is applied by default.

If a discount is granted regardless of any payments, choose *Regardless of payments*. When creating or editing subscriptions,Hydra Billing checks whether the discount conditions are met. If subscriptions comply with a discount description, a customer gets a discount certificate.

If a discount can be granted because of the payment amount, a customer is not only to comply with the service subscriptions requirements, but also is to make a payment in the required amount. The amount of every payment is checked separately. You can specify the condition for the payment amount in two ways:

- enter the minimum or the maximum amount (the maximum one is not necessary), or
- enter a period the payment amount should cover. When a payment is received, Hydra defines the cost of services under suitable subscriptions over the specified period. The discount is granted in case both the payment amount and the amount of available funds after the account balance is topped up are equal or greater than the cost of the services.

Specify the way the discount is applied.

- The *price is replaced* — in this case you can enter the new price instead of the one as per the price specification.
- The *percentage discount is applied* — the cost of services is decreased by the specified percentage.
- The *price does not change* — the price and the cost of a service remain the same. This option is used for bundle discounts when it is necessary to check if a customer has a subscription to a certain service, but the cost of services under this subscription is to remain unchanged. For example, free television comes together with the Internet connection: in this case, the price for TV service is $0 and the price for Internet service *does not change*.

Additional Parameters of Discounts

- **Discount period** determines the period of the discount certificate. It may be unspecified, so it is in force as long as the subscription to service is. If you need to restrict the discount period, you can do it in two ways: specify the duration of discount period (*2 months, 1 year*), or the start and the end dates (from December 01, 2016, to December 31, 2016).

> The discount period of 1 month does not imply that a customer is to receive services at the discounted price for a period of one month. It means that the discount certificate is valid during this period The discount is applied to all charge logs for the specified subscription, if they start within the period the certificate is in force. For example, if the charge log with a one month duration is terminated earlier, and the next charge log is to be issued during the same month, the discount is applied to both charge logs.

- **Activation period** — here you specify the period the discount can be granted when necessary conditions are met.
- **Maximum number of actuations** shows the number of times the discount certificate can be issued for the discount in terms of one customer account.
- **Comment** — here a comment can be typed. The comment is shown in the list of discounts in the discount specification.

3.7.4. Discount Certificates

See also:
- Discount Specifications
- Subscriptions to Services
- Charge Logs

A *discount certificate* is a document that proves there is an effective discount for a certain customer account. When a charge log is issued based on a customer subscription to service, Hydra Billing checks if there is a discount certificate in force for this particular subscription. If such certificates are found, the customer is granted a discount, so that at rating, the cost of the service is changed according to the settings in the discount specification.

The registry of discount certificates can be accesses via the menu **Documents** > **Discount Certificates.**

> Discount certificates cannot be created manually as they are automatically created by the system when a customer meets all conditions specified in the discount specification.

Open a discount certificate to see a customer's discount and its terms.

ID 52389401

Workflow Standard for Discount Certificates ▾

Document number DC-16/2   Date 08/09/2016 🛗   14:40:17

Status Actual ▾ Change

Period from 08/09/2016 to 08/12/2016 🛗 🗑

Discount specification Discount specification #DS16-1 from 01/01/2016 ✎

Subjects

Provider Teleline ✎

Client byron ✎   Account 1007 ✎

Content

Begin date	End date	Creation reason	Customer	Customer Account	Equipment	Service	Discount
08/09/2016 14:40:17	08/12/2016 14:40:16	Subscription to certain services	byron	1007	Workstation-7	Triple Classic	Welcome Discount

A discount certificate is created for a certain subscription. During the certificate period, the discount is applied to the service from this subscription. Depending on the discount type, the price of the service will be decrease by the specified percentage, or a special price as per the discount specification will be applied.

If the discount certificate has no end date, the discount is to be applied during the whole subscription period.

In the discount certificate, you can also see the reason it was created. For simple discounts granted regardless of payment amounts, as well as for bundles, the reason is specified as *Subscription to service*.For discounts granted for large payments, the reason is specified as *Payment*.

3.7.5. Charge Logs

In this section:

- Editing a Charge Log
- Additional Actions

See also:

- Issuing Charge Logs Manually

> In order to avoid failures and violations, do not grant the permission to edit charge logs to users unless necessary.

A charge log is a document that contains detailed information on services provided to customer, and goods sold to them. On the ground of charge log rows, a customer account is charged for services.

Charge logs are created automatically by the *Preparing charge logs for recurrent services* task, as well as when rating one-off services and issuing charge logs manually. As for further charge logs processing, including charging for recurrent services, the *Closing and putting in force charge logs* standard task is used.

Charge logs are stored in the registry that can access via **Documents** > **Charge logs.**

Charge log registry

	ID	Document Number	Date ⌄	Time	Status	Begin date	End date	Amount	Charged	Amount for add. services	Currency	Organization
☐	52459301	CL-16-85	12/09/2016	14:45:45	Prepared	12/09/2016	12/10/2016	50.00	0.00	0.00	$ [USD]	Teleline
☐	52394201	CL-16-83	08/09/2016	14:49:52	▇ Actual	08/09/2016	30/09/2016	59.00	59.00	0.00	$ [USD]	Teleline
☐	52390101	CL-16-82	08/09/2016	14:41:21	▇ Actual	08/09/2016	08/10/2016	15.00	2.00	0.00	$ [USD]	Teleline
☐	52375901	CL-16-81	01/09/2016	00:00:00	▇ Actual	01/09/2016	30/09/2016	59.00	59.00	0.00	$ [USD]	Teleline

In the registry, you can not only change status of charge logs in bulk, but also enter a new end date for necessary documents by selecting them and clicking **Change closing date**.

You can open a charge log by clicking the link in the **Document number** column.

3.7.5.1. Editing a Charge Log

In this section:

- Charge Log Summary
- Charge Log Contents

> When charge logs have such statuses as *In force*, *Executed*, *Canceled*, they are locked. It means, that the contents and most of the boxes cannot be changed. Changes can be made (even in locked charge logs) only to **Status** and **Remark**.
>
> When necessary, a charge log can be unlocked: to do it, ask Hydra Billing Solutions LLC technical support for the unblocking code.

> ⚠ Editing a charge log may lead to changes of a customer's account balance, which then may cause severe consequences. For example, in case of canceling an executed charge log, all previously charged funds are transferred back to the customer account. And if the customer already had an exceeded credit limit, and canceling brings available funds back to the account, then a new charge log is issued automatically. So, according to a subscription, the customer starts to be provided new services, and funds are again charged to his or her account.

Charge log CL-16-85: edit

Charge log CL-16-85	← Back to search

| Common data | Document dependencies | Events | Comments | Audit | 🔒 Unlock | More ▾ |

ID 52459301

Workflow Standard for Charge Logs ▾

Document Number CL-16-85 Date 12/09/2016 📅 14:45:45

Status Actual ▾ Change

Tags

Period from 12/09/2016 to 12/10/2016 📅 🗑

Reason Document Contract #C16-18 from 25/08/2016 ✎

Subjects

Provider Teleline ✎

Client byron ✎ Account 1007 ✎

Similarly as in other documents, charge logs contain **Workflow**, **Document number**, **Date**, and **Period**.

A charge log can have one of the following statuses:

- *Prepared*. Charge logs with this status are created by the *Preparing charge logs for recurrent services* task on the ground of subscriptions to recurrent services. They are made as prepared documents (typically, a few hours before a start of a new billing period) that contain information on charges in the next billing period. Prepared charge logs are then put in force by the *Closing and putting in force charge logs* task, when a charge log for a previous period is closed, and the period of the prepared charge log starts.

- *In force.* This status is the main one for a charge log in the current billing period.

- *Executed*. If a charge log has this status, it means that all services specified in it have already been fully provided to a customer, and all reserved funds are charged. Usually, charge logs are transferred into *Executed* ones by the *Closing and putting in force charge logs* task, when their periods are over. Changing a charge log status to *Executed* is called **closing a charge log**.

  A charge log also becomes *Executed* in case of early closing, i.e. when changing its period to a shorter one (you can do in on the customer's **Services** tab).

- *Canceled*. Canceling a charge log is equal to deleting it, so if there have been charges based on this charge log, at the moment of canceling all charged funds return back to a customer account.

> If by any reason a faulty charge log has been issued for a customer (for example, based on a wrong price specification), then it can be canceled, and a new one can be issued manually. However when canceling a charge log you should note that information on consumed services (except for those a customer has a subscription to) will not be transferred into a new charge log, and charged funds will be returned to the customer account.

- *Being processed*. It is used when rerating previously provided services. All rows of a charge log, that is transferred into *Being processed*, are deleted if they refer to traffic services. After that, it is possible to have the second loading and rating services which have been provided over the charge log period. When the processing is finished, you need to transfer the charge log into the *Executed* status.

In **Reason document** you can see a service contract on which ground the charge log has been created.

Closing reason is shown only in executed charge logs, with possible values:

- *Insufficient account balance* — a charge log is closed early due to the lack of funds for the further charge.
- *Closed manually by operator* — a charge log is closed early via the Service Provider Console (for example, when changing a price plan, or terminating a contract).
- *Closed manually by customer* — a charge log is closed early by a customer via the Customer Self-Care Portal (for example, when changing a price plan immediately).
- *Sufficient balance for billing period* — a charge log is closed early as there are enough funds on a customer account to pay for the whole billing period of a service.
- *Automatically (expired)* — a charge log is closed by the scheduled task in normal mode at the end of its period.

For charge logs with the *Canceled* status, **Cancellation reason** is shown. It may be empty, or shown as *Insufficient balance for first charge* in case a prepared charge log was canceled while attempting to put it in force due to insufficient balance of a customer account for the first charge.

As **Provider**, the service provider is specified, and the customer is specified as **Client**.

Charge Log Summary

Open a charge log to view the summary on provided services.

Total

Service	Qty.	Unit	Equipment	Amount	Currency	Charge status	Start date	End date
Internet Basic		-	Terminal Equipment-14	59.00	$ [USD]	Charged	01/07/2016 00:00:00	31/07/2016 23:59:59
Internet Access		-	Terminal Equipment-14	0.00	$ [USD]	Charged	01/07/2016 00:00:00	31/07/2016 23:59:59
Internet Traffic in	360506.628	MB	Terminal Equipment-14	0.00	$ [USD]	Charged	01/07/2016 00:00:00	31/07/2016 23:59:59
Internet Traffic out	371628.42	MB	Terminal Equipment-14	0.00	$ [USD]	Charged	01/07/2016 00:00:00	31/07/2016 23:59:59
Total	**732135.048**			**59.00**	**$ [USD]**		01/07/2016 00:00:00	31/07/2016 23:59:59

Information in the table is grouped by services, prices (for example, there are two separate rows in case there is free Internet traffic and paid traffic over the specified quota), and charging statuses.

Charge Log Contents

> Editing the contents of a charge log is allowed only upon a consultation with Hydra Billing Solutions LLC technical support specialists.

The contents of a charge log have a two-level structure similar to one of a price specification. Each row refers to a specification it is based on. If a row with a price for a product, a service or a price plan, is the main row in the specification, then a row in a charge log corresponding to it is the main too. Similarly, services included into a price plan in a specification are described in child rows in a charge log.

The number of rows in a charge log contents for a basic service (a price plan) depend on the charge log duration and the settings of a service providing scheme: each row corresponds to one charging period.

Rows that contain information on provided traffic services are created in a charge log over the billing period at the times of rating corresponding services, for example, with the next period of Internet traffic aggregation (for each aggregation period, there is a separate row created in a charge log), or when the system receives data on a phone call (each phone call is also logged as a separate row into a charge log).

Content (hide)

Filter by content [— ▼]

Service	Qty.	Unit	Equipment	Price	Amount	Currency	Charge status	Charge date	Begin date	End date	Price specification	Service rendering scheme
▼ Internet Basic		-	Terminal Equipment-14		59.00	$ [USD]	Charged	01/07/2016 00:00:00	01/07/2016 00:00:00	31/07/2016 23:59:59	PS16-22 from 31/08/2015	Unlim 10 Mbit
Internet Access		-	Terminal Equipment-14		0.00	$ [USD]	Charged	01/07/2016 00:00:00	01/07/2016 00:00:00	31/07/2016 23:59:59	PS16-22 from 31/08/2015	Internet Access
Internet Traffic out	16143.179	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	01/07/2016 23:59:59	01/07/2016 00:00:00	01/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service
Internet Traffic in	15186.832	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	01/07/2016 23:59:59	01/07/2016 00:00:00	01/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service
Internet Traffic out	11114.455	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	02/07/2016 23:59:59	02/07/2016 00:00:00	02/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service
Internet Traffic in	12788.29	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	02/07/2016 23:59:59	02/07/2016 00:00:00	02/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service
Internet Traffic out	16688.69	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	03/07/2016 23:59:59	03/07/2016 00:00:00	03/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service
Internet Traffic in	12637.425	MB	Terminal Equipment-14	0.00	0.00	$ [USD]	Charged	03/07/2016 23:59:59	03/07/2016 00:00:00	03/07/2016 23:59:59	PS16-22 from 31/08/2015	Traffic Service

Using **Show rows for** you can see only rows containing certain services.

The table with charge log contents shows the following:

- **Product/Service** — a product supplied to a customer, or a service provided to a customer.
- **Quantity** — the quantity of the product or the service, calculated in the units specified next to it.
- **Unit** — it should correspond to the units as per the price specification.
- **Basic quantity** — the quantity of the product or the service calculated in units as entered into the system, for example, typically, bytes for measuring Internet traffic while rating it in Mb, and seconds for measuring phone services while rating them in minutes.
- **Basic unit** — the unit used for measuring the basic quantity of products or services.
- **Equipment** — equipment that belongs to the customer and used for providing the service.
- **Address —** the address of the equipment the service is provided at. For example, an IP address is specified here for Internet traffic service, or a telephone number — for phone services. It may be unfilled as well.
- **Tax rate** — the tax rate at which the following is calculated: an amount of taxes, and amounts inclusive and exclusive of taxes.
- **Price** — the price of the product or the service according to the price specification.
- **Price excl. taxes** — a price exclusive of taxes.
- **Amount** — the total cost of the service provided to the customer or the product sold to the customer.
- **Taxes** — all taxes included into the total cost of a service.
- **Amount excl. taxes** — the total amount exclusive of taxes.
- **Amount excl. discount** — the total amount without a discount.
- **Amount excl. discount and taxes** — the total amount without a discount and exclusive of taxes.
- **Currency** — the used currency.
- **Discount** — the link to the discount certificate in case the discount has been applied.
- **Charging status** — the *Reserved* status means that the customer account is to be charged a corresponding amount on the charging date. Charge log rows with this status are used to calculate the current reserved amount, which is shown in [customer account parameters](). The *Charged* status means that the amount have already been charged to the customer account. The *Canceled* status means that the service has not been provided to the customer. In case the amount has already been charged, at the time of canceling all charged funds are returned to the customer.
- **Charging date** — the date and time when the amount stated in the row is to be or was charged to the customer account.
- **Start date** — the start date of the charging period.
- **End date** — the end date of the charging period.
- **Remark** — a comment to the row.
- **Price specification** — a link to a price specification the row is based on.
- **Service providing scheme** — the link to the corresponding scheme.

Charge Log Archiving

If <u>archiving is enabled</u> in a service providing scheme of a basic service (price plan), and the elapsed time since the end of a charge log is greater than a period entered in **Aging period**, the charge log is archived by the *Charge log archiving* task and marked with 🗎 **Archived**.

ID 389930901

Workflow [Standard for charge logs ▼]

Document number CL-17-246401   Date [31/12/2017] [📅]   [06:43:04]

Status [Executed ▼] [Change]

Tags [   ]

🗎 Archived

> ⚠️ Archived charge logs are left out when <u>creating invoices</u>. A too short **Aging period** may result in archiving a charge log even before invoices are generated. Thus services from this charge log will not be included into an invoice.

When archiving, lines of a charge log are grouped by calendar month. For example, if a charge log period is from September 15 to October 15, and it contains daily charges for a price plan, then after archiving there will be only two lines in the charge log: the first one with the charged amount for the period from September 15 to September 30, and the second one — from October 1 to October 15.

Charges for services within the price plan are grouped if archiving is enabled in their service proving schemes. Grouping is also done by month and, if the **Group by address** check box is selected, by equipment addresses. **Aging period** entered in a service providing scheme of a child service is ignored.

3.7.5.2. Additional Actions

In this section:
- <u>Changing a Closing Date</u>
- <u>Adjusting Amounts</u>
- <u>Re-Raising Events</u>

Charge log CL-16-86: edit

Charge log CL-16-86

| Common data | Document dependencies | Events | Comments | Audit | 🔒 Unlock | More ▼ |

ID 52460601

Workflow [Standard for Charge Logs ▼]

| |
| Change closing date |
| Amount adjustment |
| Re-raise events |

Changing a Closing Date

Use **Change closing date** in the **More** menu to shorten the charge log period (to close it on the current date as well), or, contrarily, to extend it. It is available only for such charge logs that are *Prepared* or *In force.*

> You can shorten a charge log period if you have the *Charge logs early termination* permission from the **Subjects** section.
>
> To extend a charge log period you need the permission to edit charge logs and the *Charge logs extension* permission from the **Documents** section.

Enter the necessary closing date and click **Change**.

If the entered date is earlier that the initial closing date (i.e. it is an ***early charge log termination***), then the system does the following:

- matches a charge log row containing the main service (the price plan), which has a period the closing date falls into, and updates the end date in it;
- depending on the value of the **Early termination charging rule** parameter for the main service, corrects the sum in this row;
- updates the end dates and amounts in the rows for child services (excluding traffic services), regarding the values of the **Early termination charging rule** parameter for these services;
- for traffic services, relocates child rows which refer to the main rows with the start dates later than the entered closing date, to the main row determined at the first step;
- deletes all main rows with begin dates later than the charge log closing date;
- changes the charge log period;
- if the the charge log closing date is earlier or equal to the current date, transfers the charge log into the *Executed* status.

When *extending the charge log period*, i.e. in case the new closing date is later than the initial one, all rows in the contents (excluding those with traffic services), with end dates the same as the initial closing date have the date replaced with a new one. Consequently, the charge log period changes too.

> When extending the charge log period, the charging amounts in it remain the same. For example, if there are daily charges for the main service, and you would like to extend the charge log period for 3 more days, then the customer would use the service without charges for these days.

Adjusting Amounts

Charge log contents for one and the same service, for example, for inbound Internet traffic, or for an international phone service, may contain a great number of rows, with a price, a quantity and a total amount specified for each one. And amounts in each row are rounded to two decimal digits. It is possible that a price for a certain traffic service multiplied by the total quantity then does not match the total cost of a service as per the charge log (summing is carried out by all rows of the charge log containing this service and the same price per a service unit). This discrepancy is caused by rounding. It leads to the situation when in a customer invoice the sum of the tax amount and the cost of services exclusive of taxes does not match the total amount of the invoice.

Use **Adjust amounts** to distribute "extra" funds among charge log rows for service so that in terms of the charge log, the amount for this service would match the taxes amount added to the service amount exclusive of taxes. The discrepancy correcting mode depends on the price calculation method as per the corresponding price specification. According to the *Based on price excl. taxes* method, the total amount exclusive of taxes remains unchanged. Otherwise, the correcting is carried out without changing the service amount inclusive of taxes.

> In case of discrepancy, adjusting amounts in the charge log may lead to changes in the customer account balance.

Adjusting amounts is also used when creating invoices.

Re-Raising Events

This function is used for re-raising events for activating and disabling services included in the charge log.

> Typically, generating events is carried out automatically when changing a charge log status, adding a new service, etc., so function calling for manual events re-raising is not required. However, it can be used, for example, in case an event for a service activation is created in the system after a charge log for this service has been issued.

3.7.6. Invoices

In this section:
- Creating Invoices
- Editing an Invoice

See also:
- Working with Invoices

An invoice is a document created by the provider to a customer and having information on the contents, price, quantity and costs of services provided to the customer, and products sold over the billing period.

In Hydra Billing, there are:

- ***invoices for provided services***, which are created as a result of the rating process and are formed according to executed charge logs and/or charge logs in force. Such charge logs may contain both charged and reserved rows;
- ***proforma invoices***, which are pre-issued for services that have no charge logs yet, but subscriptions to them already exist.

Invoices are stored in a separate registry. You can view it via the menu **Documents** > **Invoices**.

Invoice registry

	ID	Document Number	Date	Time	Status	Begin date	End date	Reason Document	Amount	Currency	Provider	Organization
☐	52475701	17	30/09/2016	00:00:00	■ Actual	01/09/2016	30/09/2016	Contract #C16-19 from 27/08/2015	118.00	$ [USD]	Offline Networks	Teleline
☐	52474901	16	30/09/2016	00:00:00	■ Actual	01/09/2016	30/09/2016	Contract #A-11/3 from 13/07/2011	118.00	$ [USD]	Offline Networks	Teleline
☐	52474001	15	30/09/2016	00:00:00	■ Actual	01/09/2016	30/09/2016	Contract #C16-14 from 12/07/2016	30.00	$ [USD]	Offline Networks	Teleline
☐	52473001	14	28/09/2016	00:00:00	■ Draft	01/09/2016	30/09/2016	Contract №C16-12 from 23/03/2016	70.00	$ [USD]	Offline Networks	Teleline

With the help of print templates, invoices can be available for downloading in the Customer Self-Care Portal, so a customer can timely make payments for services, even if the originally mailed invoice is lost.

3.7.6.1. Creating Invoices

In this section:
- Invoices for Provided Services
- Adjusting Amounts
- Proforma Invoices
- Re-creating Invoices

To create invoices use the menu **Bulk Actions** > **Create Invoices**. Typically, invoices are created for both individuals and organizations that have the billing period tied to the beginning of a month. Further, they are checked (depending on the quantity, all or selectively), and put in force.

If during checking you detect mistakes in invoices, depending on the situation you should take necessary measures: correct price specifications, re-rate CRDs, issue backdated charge logs, or perform some other actions so that charge logs would contain correct data on provided services. Then re-create such invoices.

Invoices can be downloaded as printable forms from the invoices registry, or exported to ERP software.

> ⚙ Note that free services are not included into invoices.

Invoices for Provided Services

> ⚙ Archived charge logs are left out when creating invoices.

To create invoices for services that have already been provided to customers, choose *Invoices for provided services* in **Creation mode**.

Invoice creation

Creation mode	Invoices for rendered services ▾
Period*	Current month
Organization	Teleline
Division Account	
Contract	
Invoices Date	☑ Charge logs end date
Customer type	— ▾
Customer Group	☑ Corporate Customers ☑ ☑ Employees ☐
Customer	
Exclude additional services for the billing period	
Charge logs status	— ▾
Unit	pcs ▾
	☑ Group by Contract
	☐ Group rows by equipment
	☐ Take into account pro forma invoices when creating invoices for services rendered
	☐ Separate accounts by equipment
	☐ Only for accounts with a negative balance
Service/Price plan	

Create

When creating invoices, use the following parameters:

- **Period** — a period for which the invoices are to be issued (invoices are to include services from charge logs with periods that overlap the given period). Usually, the previous month is entered here.
- **Division** and **Division account** — the company that provides services, and its account; the basic subject of the organization, and the specified account would be shown in **Provider** in the issued invoices. You can leave **Division account** unfilled.
- **Contract** — a service contract or a basic contract on the ground of which services were provided to a customer.
- **Invoices date** — the date used for identifying invoices when making payments or other actions (for example, *Invoice #6287 of 25.06.2016*). If you select **Charge logs end date**, then the date for invoices is the end date of the latest charge log, for each customer in the chosen period. If you specify some date, then it is used for all created invoices. Usually, the last day of the previous month is specified.

- **Basic subject type** — a filter by individuals and organizations. A dash means that invoices are created for both individuals and organizations. It is used in case you need to create invoices for sole traders that are regarded as individuals too.
- **Customer group** — customer groups the invoices are to be created for.
- **Customer** — a certain customer you want to create an invoice for.
- **Exclude additional services for the period** — here you specify the period, for which you need no additional services (those in the contents of price plans) included in the invoice. It is necessary in case the customer fee is paid in the beginning of the period, while additional action fees (for exceeded traffic, etc.) are postponed till the end of the billing period.
- **Charge logs status** — statuses of charge logs invoices are based on. If an invoice is created at the end of the billing period, then only executed charge logs should be considered. If invoices are created in the beginning of the billing period, then charge logs in force are to be considered. With «—» here, both in force and executed charge logs are used.
- **Unit** — a unit used in invoices for measuring services which [settings](#) contain no specific unit. Usually, it refers to price plans that a non-dimensional unit in the product catalog, whereas in invoices they are measured in pieces or months.
- **Separate invoices by contracts** — if selected, there is a separate invoice to be created for each service contract. Otherwise, even in case services are provided to a customer according to several contracts, information on all services is collected in one invoice.
- **Only for accounts with negative balance** — you can select whether to create invoices only for customers with a negative balance, or not. If a customer has several accounts, the total balance in considered.
- **Separate invoice contents by equipment** — if selected, there are separate rows in the created invoice for each piece of customer's equipment.
- **Take into account proforma invoices when creating invoices for provided services** — if selected, created invoices contain no rows for services already included in proforma invoices for the same period.
- **Separate invoices by equipment** — if selected, separate invoices are created for each used piece of equipment (for example, separate invoices for different phones).
- **Tags** — specified tags will be added to all created invoices, so later you can use these tags to search for necessary invoices in the registry.

Fill in parameters, click **Create** and see the result in the **Created invoices** section.

Creation result

Document	Recipient	Amount	Currency
6 from 30/09/2016	Byron George Gordon	10.00	$ [USD]
7 from 12/10/2016	Byron George Gordon	169.00	$ [USD]
8 from 23/09/2016	Remarque Erich Maria	20.00	$ [USD]
9 from 30/09/2016	Marketing Development Strategies Ltd	65.00	$ [USD]

Adjusting Charge Log Amounts

When charge logs an invoice is based on have been issued according to price specifications with the *Based on prices incl. taxes* price calculation method, the total cost of a service calculated according to charge logs may differ from the service cost in the invoice. Then Hydra Billing automatically [corrects amounts](#) in one of the charge logs.

For example, over the last month a customer was provided with the *Office Broadband* internet service at four different pieces of equipment. Thus, there are four charge logs issued for the customer, with the same service cost in each of them. And the price specification contains the 13 % tax rate, the *Based on prices excl. taxes* price calculation method and the *Rounding to 2 decimals* rule.

Total

Service	Equipment	Amount	Taxes	Amount excl. taxes	Currency	Charge status	Start date	End date
Office Broadband	Workstation-2	112.89	12.99	99.90	$ [USD]	Charged	07/08/2017 10:53:42	08/08/2017 10:53:41
Total		**112.89**	**12.99**	**99.90**	**$ [USD]**		**07/08/2017 10:53:42**	**07/09/2017 10:53:41**

The total amount of the charge log is calculated as the amount excluding taxes, added the amount of taxes. The amount of taxes equals $99.90*0.13 = $12.99, therefore the amount including taxes equals $99,90 + $12,99 = $112.89.

When creating an invoice, the total amount excluding taxes is calculated as: $99.90*4 = $399.6. Then the tax amount is calculated at the specified rate, as $399.6*0,13 = $51.95. Thus, the amount including taxes equals $399.6+$51.95 = $451.55.

As a result, the invoice looks like this:

Contents

Service	Qty.	Unit	Tax rate	Price excl. taxes	Amount	Taxes	Amount excl. taxes	Currency	
Office Broadband	4	pcs	13%	99.90	451.55	51.95	399.6	$ [USD]	✕

+ Add

However, if you add up the amounts including taxes as per charge logs, the result equals $112.89*4 = $451.56. Thus, the total service cost according to charge logs differs from the total amount as per invoice by 1 . I.e. the customer is to pay 1 less than the amount charged off his or her account. The customer account balance may become negative, and the customer would have no access to services. In order to avoid such situations, one of the charge logs is corrected by 1 so that the charged amount equals the amount as per the invoice.

Proforma Invoices

To create proforma invoices, choose *Proforma invoices* in **Creation mode**.

Invoice creation

Creation mode	Proforma invoices ▼
Period*	Current month 🗓 🗑
Organization	Teleline
Division Account	🔍 ✎ 🗑
Contract	🔍 ✎ 🗑
Invoices Date	12/09/2016 00:00:00 🗓 ☐ Charge logs end date
Customer type	— ▼
Customer Group	☑ Corporate Customers ☑ ☐ Employees ☐
Customer	🔍 ✎ 🗑
Unit	pcs ▼
	☑ Group by Contract
	☐ Group rows by equipment
	☐ Separate accounts by equipment
	☐ Only for accounts with a negative balance
Service/Price plan	🔍 ✎ 🗑

Create

Parameters used for creating proforma invoices are similar to those used for creating invoices for provided services. The main difference is that the period of creation is not the past billing period, but the next one, with services specified as per customer subscriptions, not per charge logs.

Re-creating Invoices

In the process of invoice creation, Hydra Billing checks if there have already been any issued invoices for services or goods over the specified period. If so, then new invoices for the same services and goods are not created.

If after creating invoices you find out that due to incorrect data some products or services are missing or added by mistake, you firstly should correct the charge logs, and then use any of the two methods of correcting invoices:

- If the created invoice is incomplete, i.e. some products and services are missing, then you should first change the charge logs. After that, re-create invoices with the same parameters as used before. Now a new invoice is created containing the previously missing services.
- Find the previously created invoice in the invoice registry and delete (if it is a draft), or cancel it. Then create a new invoice to replace the previous one.

3.7.6.2. Editing an Invoice

In the invoice registry, you can view and edit previously issued invoices.

> As invoices are created on the ground of charge logs and subscriptions to services, it is highly inadvisable to edit them manually. If you detect any inaccuracies, you should recreate invoices.

Invoice 14: edit

| Invoice 14 | ← Back to search |

| Public | Document dependencies | Comments | Audit | Copy |

ID 52473001

Workflow Standard for Bills

Document Number 14 Date 28/09/2016 00:00:00

Status Actual Change

Tags

Period from 01/09/2016 to 30/09/2016

Reason Document Contract №C16-12 from 23/03/2016

Subjects

Provider Teleline   Account 1234567

Client Sheckley R.   Account

Manager Teleline

Party sheckley   Account 1014

Content

Service	Qty.	Unit	Address	Tax rate	Amount exc. taxes	Amount	Tax amount	Amount exc. taxes	Currency	Remark
TV Basic	1	pcs		18%	16.95	20.00	3.05	16.95	$ [USD]	✕
Quick Start	1	pcs		18%	42.37	50.00	7.63	42.37	$ [USD]	✕

+ Add

Total

Amount exc. taxes **59.32 $ [USD]**

Tax amount **10.68 $ [USD]**

Amount due **70.00 $ [USD]**

An invoice has the following parameters:

- **Workflow** — invoices for provided services are created with the *Standard for invoices* workflow, and proforma invoices — with the *Standard for proforma invoices* one.
- **Document number** and **Date** — the number of the document (typically, it is created via autonumbering), and the date which has been used in **Invoices date** when creating invoices.
- **Status** — the invoice status; it is typically used for putting the invoice in force.

> If you need to put several invoices in force at the same time, use bulk change of statuses.

- **Period** — the period for which the invoice has been created (it is filled with the same value as the one used in **Period** when creating invoices).
- **Reason document** — the contract, on the ground of which services have been provided to the customer. It is filled in if the **Separate by contracts** check box is selected when creating invoices, or if services are provided in terms of only one contract.

The subjects in the invoice are:

- **Provider** — the division that provides services, and its account (they are filled in as per **Division** and **Division account** when creating invoices).
- **Client** — an individual or an organization the services have been provided to, with the account (typically, it is unfilled).
- **Manager** — the operator of the Service Provider Console that has issued the invoice.
- **Participant** — the customer services are provided to; the customer account is filled in in case all services are charged to one and the same customer account.

The **Contents** table shows a list of services included in the invoice.

You can create a printable form for the invoice by clicking 🖨 **Print**, choosing a suitable template and selecting the **Attach printable form** check box. Thus, the created file is shown in the **Generated printable forms** section. If in the template settings, in **Viewing permission,** the value *By customer and operator* is chosen, then the created form is available for downloading in the Customer Self-Care Portal.

3.8. Reference Data

On the **Master Data** menu, click **Reference Data** to view system and user reference data which values are used in drop-down lists.

User and Basic Reference Data

System reference data, required for the proper system functioning, are divided into read-only and partially editable, marked with 🔒 or 🔓 correspondingly. Read-only reference data contain only non-editable system values marked with 🔒. Partially editable reference data, apart from system values, may also contain user values. Such values are marked with ▣, and can be changed. Also, partially editable reference data may contain only user values (for example, the *Time intervals* reference data).

To add a value, click ✚ next to the corresponding reference data. Type **Name** and **Code**, and click **Add**. Below, see the *Real payments* reference data with three user values: *Office*, *Payment system* and *Webmoney*. You can use them as real payment types in payment documents.

⊞ 🔒 Discounts

⊟ 🔒 Payments

    ● Office

    ● Payment system

    ● Webmoney

⊞ 🔒 Subject roles in documents

⊞ 🔒 Virtual payments

⊞ 🔒 Account types

⊞ 🔒 Activity types

Fully editable *user reference data* are marked with 📁. To add new reference data, click ➕ on the left of the reference data list. Type **Name** and **Code**, and click **Add**. Then add necessary values. Below, see the *Marital status* reference data. Such reference data can be used when creating a custom field for orders.

⊟ 📁 Marital status

    ● Married

    ● Separated

    ● Single

    ● Widowed

⊞ 🔒 Address type

⊞ 🔒 Address type

⊞ 🔒 CDR types

3.9. Regions

In this section:

- [Adding, Deleting, and Editing Regions](#)
- [Loading Regions](#)

See also:

- [How to Manage Regions](#)
- Real Estate Objects

Region is a part of a street address accurate to a building. Regions are used to enter and store [addresses](#) of subjects and objects, and furthermore, to [search registries](#) and to [create reports](#).

On the **Master Data** menu, click **Regions** to see the registry of regions. Regions are stored in a tree hierarchy. Quick search by a region code or name is available within the registry.

Regions can be of two types: *federal* (applied by default) and *municipal*. A federal hierarchy consists of elements which represent parts of a commonly used mailing address format (country, city/town, street, building, etc.). Addresses are created on the basis of federal regions.

A municipal hierarchy takes into consideration intra-urban divisions (blocks, city districts, quarters, etc.). You can use it to group subjects and objects while searching or creating reports. For this you should bind federal regions to municipal ones first.

See below an example of the two hierarchies.
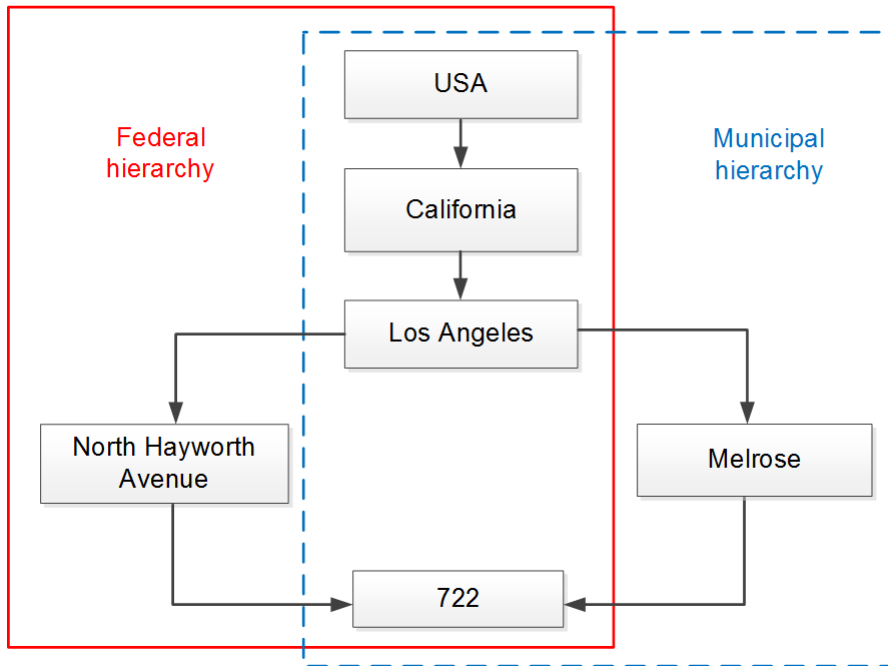
Scheme 9: Federal and municipal hierarchies

According to the federal hierarchy, the city of *Los Angeles* falls within the state of *California*, which, in its turn, is situated in the *USA*. According to the intra-urban division, the building number *722* in *North Hayworth Avenue* (from the federal hierarchy) is situated in the *Melrose* district (from the municipal hierarchy).

In Hydra Billing these hierarchies look as follows.

> When specifying a region in **Region** on your service provider page, this region is duplicated from *(all)* into both hierarchies and is shown as a separate branch.

Service provider Teleline: Edit

Organization Teleline LLC   Customer Teleline   Service provider Teleline   ➕ Add role

General   Comments

General

ID	100
Code*	Teleline
Name	Teleline
Region	USA 🔍 ✏ 🗑
Status	Active ▾
Remark ✏	
Organization	Teleline ✏
Author	✏
Created	17/06/2009 17:18:38 📅

For example, when entering the *USA* region, a whole branch appears in both hierarchies with *USA* on the top. You can add and edit regions right within this branch.

Adding, Deleting, and Editing Regions

Click ➕ next to the corresponding parent region to add a new region to the registry.

Type	Building ▼
Hierarchy type	Federal ▼
Parent region	California, Los Angeles, North Hayworl 🔍 ✎ 🗑
Code	
External code	
ZIP	
House	722
Structure	
Pavilion	
Property	
Catalog entry for real estate object	House 🔍 ✎ 🗑
Municipal region	California, Los Angeles, Melrose 🔍 ✎ 🗑
	Add

The following parameters are available when adding a region:

- **Type** — a type of a region corresponding a commonly used name of a region (country, city/town, province, district, road, avenue, building, etc.).
- **Hierarchy type** — *municipal* or *federal*. Within the municipal one, you can add only municipal regions.
- **Parent region** — a region, within which a new region is located. You can enter a different region by clicking 🔍, so that the new region will be moved to the specified region.
- **Municipal region** — a municipal region, within which a federal region is located. Municipal regions can be specified only for federal regions of the *Building* type.
- **External code** — a region identifier in an external system. It is used when integrating with external reference data.
- **Zip code** — a zip code of a region.
- **House**, **Structure**, **Pavilion**, and **Property** — are used only for regions of the *Building* type.

Specify necessary parameters and click **Add**. The added region will be automatically named. This name is shown in the regions registry and both object and subject addresses. The name is made of **Type** and **Code**, whereas regions of the *Building* type are named according to **House**, **Structure**, **Pavilion**, or **Property**.

Added regions are editable, except for **Type** and **Hierarchy type**.

In the municipal hierarchy, federal regions of the *Building* type bound to municipal ones cannot be edited.

You can delete the binding by clicking **Delete** or ✖ next to the necessary region in the municipal hierarchy. Or you can go to the federal hierarchy, choose the building and click 🗑 next to **Municipal region** in its settings.

To delete a region, choose it in the registry and click **Delete**. A region of the *Building* type can be also deleted by clicking ✖ next to it in the regions tree. If you delete a region all its child regions are deleted too.

> When creating a region of the *Building* type a real estate object is created on the basis of the *House* entry from the *Realty* section of the product catalog. This object stores various building parameters (a number of floors, rooms, etc.). These parameters are shown in the **Real estate parameters** section of the region's page.

You can open this real estate object by clicking 🖉 and edit its parameters.

Real estate parameters 📝

Edit

Number of residential premises: `4`

Number of non-residential premises: ` `

Number of floors: `2`

Number of sections: ` `

Besides, on a page of a region of the *Building* type there is a list of objects with addresses that contain this region.

Objects hide

Code	Status	Type	Customer code	Owner name	Entrance	Floor	Apartment
STB-1370	Active	STB	C1370	Jon Davis		1	1

⊕ Export

Select export format

🔘 CSV (cp-1251)

⚪ CSV (utf-8)

⚪ Excel 2007 (xlsx)

⚪ Excel 2007 (xml)

⚪ OpenOffice

Download file

Click **Show** to open a list of objects. You can also export it in a file. To do so, click **Export**, choose a file format and click **Download file**.

Loading Regions

To add regions in bulk use loading from UTF-8 CSV file. To do so, click **Load Regions** on the **Bulk Actions** menu.

Load region data

Parent region	USA 🔍 ✎ 🗑
Catalog entry of real estate object	House 🔍 ✎ 🗑
File	Choose File no file selected
Separator	;
	Import

Enter **Parent region** for regions being loaded. Choose a file with data and a field separator. Click **Import**. Learn more about loading regions at <u>wiki.hydra-billing.com</u>.

Bindings of federal regions to municipal ones can be also loaded from a file along with regions.

3.10. Addresses

In this section:

- <u>Viewing Addresses</u>
- <u>Adding a New Address</u>
- <u>Editing an Address</u>
- <u>Просмотр доступных адресов</u>
- <u>Добавление нового адреса</u>
- <u>Редактирование адреса</u>

> ⚠ Make sure that in the **Addresses** section of the <u>product catalog</u> entries, on the basis of which corresponding objects (CPE, other equipment, components, etc.) are created, there are all necessary types and kinds of addresses.

Viewing Addresses

A list of all addresses for a certain subject or object is shown in the **Addresses** section.

Contact information of a subject is shown as follows.

Addresses

	Address type	Address	View	
	Postal address (Main)	Ave. Sunset	Actual address	✖
⛔	Email address	teleline@example.com	Notification	✖
	Telephone	12345678	Mobile	✖

+ Add address

Object addresses have more details, such as: **Parent address**, **Bound to**, and **Begin/End dates**.

Addresses

Address type	Address	Parent address	Bound to	Address kind	Begin date	End date	Remark		
IP Address (main)	193.178.118.15	193.178.118.0/24		Actual address	12/09/2016 19:25:41			🗓	✖
VLAN (main)	1002 (CORE)			Actual address	08/09/2016 17:49:10			🗓	✖

✚ Add Address

An address can have one of the two statuses: *Enabled* or *Disabled*. Disabled addresses are marked with ⛔.

Adding a New Address

> ⚠ To bind an address to an object or a subject you need to have the [permission](#) to view a registry of addresses of the corresponding type.

To add a new address click ✚ **Add address** in the **Addresses** section. Choose **Address type**: *Street address* (a residence address), *URL*, *Phone number*, *Email*, etc.
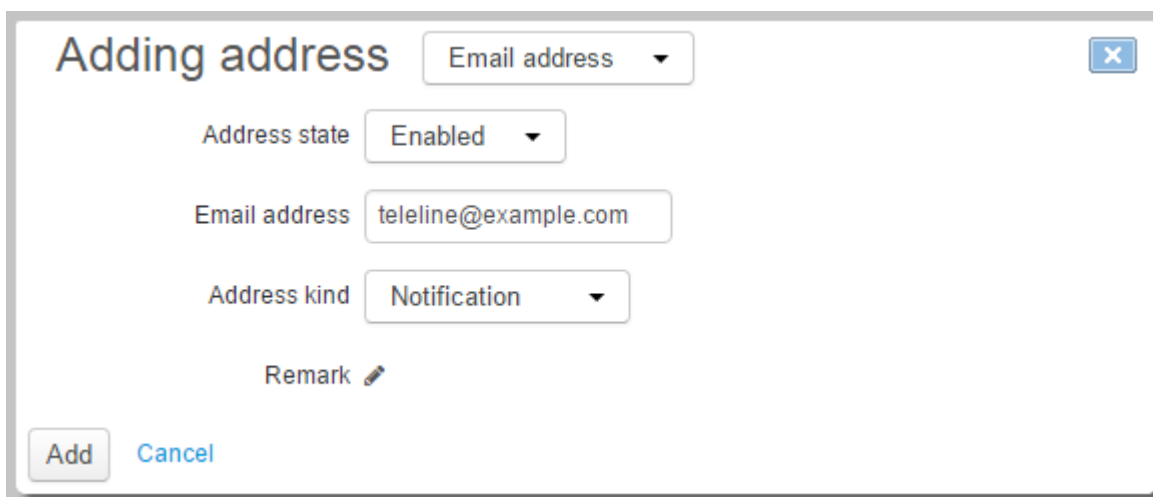
When adding a street address, enter one of the federal [regions](#) registered in the system in **Region**: click 🔍 and choose a region using search or the regions registry. If the necessary region is not there you need to add it to the regions registry first.
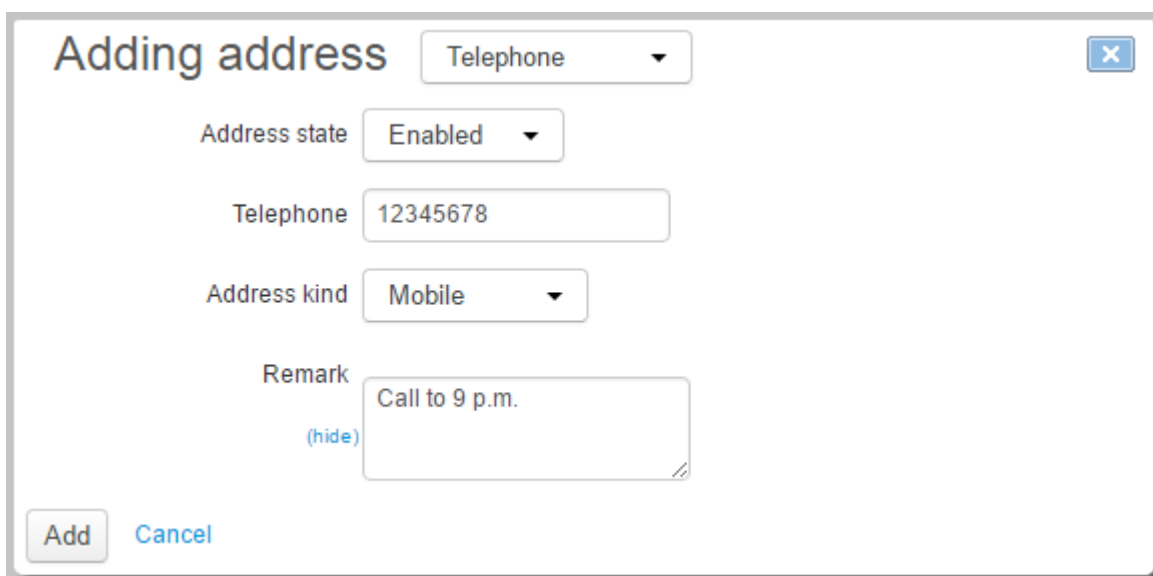
Non-standard address is used for additional information about address which cannot be entered in other boxes. Besides, here you can enter a country, a city, or a building, etc., when making additions to the registry is impossible. In other boxes, enter a flat number, a floor, an entrance, specify an address kind (for example, a service address or a registered office).

When adding an address of another type, for example, an *Email* or a *Skype name*, specify the necessary data in the corresponding boxes.
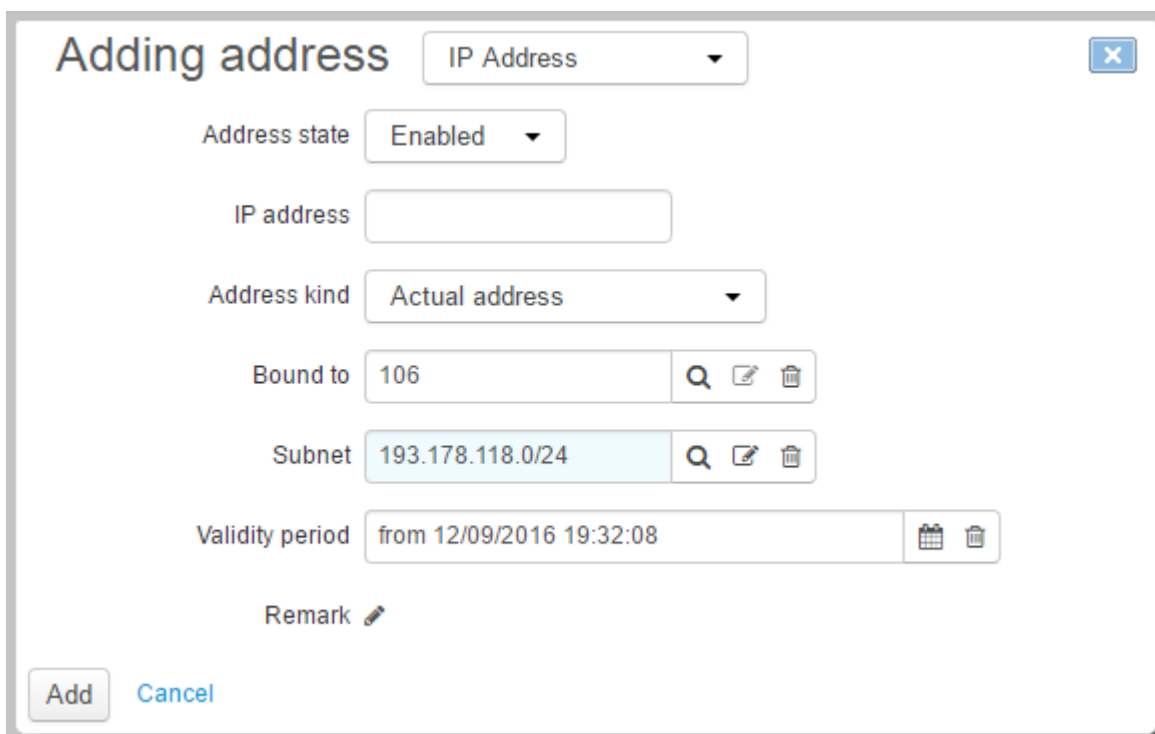
When adding a phone number, enter it starting from a country code (7 for Russia) without any separators. When adding a phone number to an object, you can specify an area code (it will be shown in **Parent address**), otherwise it is matched automatically.

When adding an IP address enter VLAN in **Bound to** if it is required. A subnet for an IP address is matched automatically when saving an address. If you leave IP address empty and specify a subnet, then a first free IP address will be selected from the chosen subnet.

Newly created IP addresses, subnets and phone numbers are automatically added to traffic classes specifications in force, which are currently active and are set for a future period.

Click **Add**. If you do not want to save this address, click **Cancel**.

Editing an Address

If you need to edit an existing address, click the corresponding row in the address list. Add necessary changes and click **Save**.

To make one of addresses of a similar type the main, select the **Primary address** check box. With it you can define a priority phone number among available ones, or mark one of the email addresses your customer mostly uses.

To delete an address click ✖ in the corresponding row.

3.11. Network Addresses

On the **Master Data** menu, point to **Network Addresses** to view registries of IP addresses and subnets (with IP and IPv6 numbering), VLANs, and also subnet groups. The menu is available when you have certain rights to view and edit registries of network addresses.

> As the contents of network registries are defined in terms of traffic classes specifications, the menu allows to access only registries defined in specification that are currently in force. Use **Document** to choose the necessary specification.

Network Addresses Reference Data

Document TSC-16/1 ▾

🔍Search 🗑

- 0.0.0.0/0
  - ⊞ 10.0.0.0/8
    - ● 89.56.48.34 *Teleline (1)*
    - ● 127.0.0.1 *Collector, hamd, VPN*
  - ⊞ 172.16.0.0/12 *customer statistics*
  - ⊞ 192.168.0.0/16 *service subnet, servers*
  - ⊟ 193.178.118.0/24
    - ● 193.178.118.1 *byron (1)*
    - ● 193.178.118.2 *kafka (1)*
    - ● 193.178.118.3 *kafka (1)*
    - ● 193.178.118.4 *blake (1)*
    - ● 193.178.118.6 *leeH (1)*
    - ● 193.178.118.9
    - ● 193.178.118.10
    - ● 193.178.118.11
    - ● 193.178.118.12
    - ● 193.178.118.13

ID 40219201

Parent subnet 0.0.0.0/0

IP address 127.0.0.1

Used by objects (🖥 Collector, 🖥 hamd, 🖥 VPN)

Remark ✎

[Save] Delete

Address history (hide)

Equipment	Owner code	Owner name	Ownership period	Address kind
🟩 VPN			from 19/01/2011	Actual address
🟥 hamd			from 19/01/2011	Actual address
🟩 Collector			from 19/01/2011	Actual address

If a network address is already used by one or several objects, then all of them are listed for viewing. You can also view a history of address usage.

In these registries, you can fulfill the same operations, as within a traffic classes specification, and all these changes are automatically accounted in the specification.

To rebuild registers, click 🖼.

3.12. Active Equipment

In this section:
- Creating Active Equipment
- Editing Active Equipment

See also:
- How to Structure CPE: Two Approaches
- User Equipment

In Hydra Billing, any network equipment used for providing services is an object, and it is referred to as **active equipment**. The object is created on the basis of an entry from the *Material assets* section of the product catalog, when the **Can be an object** check box is selected. There is a special group called *Active equipment* for such objects in the product catalog, and both new entries defining equipment types and types of specification items for creating equipment components are added there. Active equipment is divided into provider (switches, servers, etc.) and customer (workstations, STBs, etc.) ones.

On the **Equipment** menu, click **Active Equipment** to view the registry of active equipment.

Active Equipment Registry

| Filter | Results | Filter not selected ▾ | 💾 | | | | | + Add |

| Permanent link | https:/hydra.example.com/objects/devices/list? | | | | | ⊕ |

ID ∧	Name	Code	Type	Owner	Status	Organization
51249401	GPON-ONT (GPON-ONT-1)	GPON-ONT-1	GPON ONT	kafka	■ Active	Teleline
51752001	Terminal Equipment (Terminal Equipment-4)	Terminal Equipment-4	Terminal Equipment	blake	■ Active	Teleline
51768401	Terminal Equipment (Terminal Equipment-5)	Terminal Equipment-5	Terminal Equipment	byron	■ Active	Teleline
51822601	Set-top Box (Set-top Box-1)	Set-top Box-1	Set-top Box	thompson	■ Active	Teleline
51843701	IP Phone (IP Phone-1)	IP Phone-1	IP Phone	schiller	■ Active	Teleline

Click a link in the **Name** column to open the corresponding equipment's page.

3.12.1. Creating Active Equipment

> To create user equipment use a [customer's page](#).

To add active equipment, click ✚ next to **Active Equipment** on the **Equipment** menu, or ➕ **Add** in the registry of active equipment.

Active equipment: Create

Active equipment

General	Components	Bindings	Events queue	Profiles	Configurations	Commands

Type * `Cisco SG200-26P` 🔍 ✎ 🗑

Name `[                    ]`

Code `[              ]`

Additional code `[              ]`

Serial number `[              ]`

Inventory number `[              ]`

Owner `[              ]` 🔍 ✎ 🗑

Warranty expires `[          ]` 📅

Status `Active  ▼`

Remark ✎

`Add`

Choose **Type** of equipment to be created — an entry from the *Active equipment* group of the product catalog. You can create and set up entries at your own discretion. Typically, those are types of switches, routers, IP phones, and other provider equipment used for providing services to customers. In the example, see how to create a switch of the *Cisco SG200-26P* type.

Name and **Code** can be typed manually or filled in using [autonumbering](#). By default, the code of the object type with added consecutive number is used as an object code. An object name consists of the name of the object type and the object code. Thus, in the example, *Cisco SG200-26P-1* will be entered in **Code** and *Cisco SG200-26P (Cisco SG200-26P-1)* — in **Name**.

When necessary, type **Additional code**, **Serial number**, and **Inventory number**. Also, you can enter a warranty deadline in **Warranty expires**.

In **Owner** enter the current equipment owner (a subject code). When equipment is created to be rented in the future, there is no need to specify any owner right off. When creating provider equipment leave **Owner** empty as it belongs to the division.

> Note that only when **Owner** is specified the details on the equipment are shown on the corresponding subject's page.

Equipment can have the following statuses:

- *Active* — any equipment used in the system.
- *Inactive* — equipment is assigned this status when a customer is stopped being provided services and becomes *Suspended*.
- *Deregistered* — a status similar to *Inactive*. It is applied when equipment will not be further used in the system.

Click **Add** to create equipment.

3.12.2. Editing Active Equipment

You can edit parameters of previously added equipment on the corresponding active equipment's page. The page has the following tabs:

- **General** — a summary on active equipment.
- **Components** — allows viewing and editing equipment components.
- **Bindings** — here you can view and edit existing bindings of equipment and its components, and add new ones.
- **Events queue** — here you can view the events queue by applying an adjustable filter.

To delete equipment, click **Delete** at the bottom of the page.

General

The **General** tab shows the same parameters you entered while creating the corresponding equipment. Additionally, in the **Active equipment management settings** section you can enter details for managing equipment by filling in the necessary boxes:

- **Network service** — specify the active equipment manager responsible for processing events.
- **Type** — define the protocol for event-related commands to be executed.
- **Interface** — an IP address to access equipment management from the list of IP addresses previously assigned to either this equipment or its components.
- **TCP/UDP port** — a port to access equipment management.
- **Division** — a service provider that have access to equipment management.

When necessary, specify a login and set a password.

You can also use this section to store active equipment parameters while leaving **Network service** unfilled.

Active Equipment Management Settings

Network Service	Type	Interface	TCP/UDP Port	Login	Password	Organization	
FWNAT1	Local	10.0.50.54			not defined	Teleline	✖

+ Add

The tab also shows custom fields previously set up on the page of the corresponding entry in the product catalog.

Custom fields

Units [   ]

You can bind addresses of different types (street addresses, subnets, IP addresses, etc.) to equipment. Available types and kids of addresses are defined in the **Addresses** section of the product catalog entry on the basis of which this equipment is created.

Addresses

Address type	Address	Parent address	Bound to	Address kind	Begin date	End date	Remark	
Postal address (main)	Build. 3, flat 123, floor 12			Service address	13/09/2016 16:02:00			📅 ✖

+ Add Address

> Street service address specified for CPE allows to choose provider equipment situated at the same address when creating bindings. Also, a service address is used while defining addresses available for binding, if there are some addresses of the *Resource pool* kind bound to the corresponding real estate object.

Any address binding to equipment has a period of validity defined by **Begin date** and **End date**. By default **Begin date** is populated with the date an address is added to the equipment, and **End date** remains empty.

When an address stop being used by equipment you just need to enter its **End date** by clicking 📅 in the corresponding row. Unlike deleting bindings, specifying **End dates** allows storing the addresses usage history.

> By default, Hydra allows binding one and the same address to several equipments at once. The only exceptions are IP and IPv6 addresses. They have to be unique at each time for equipment components that are created on the basis of specification items of the *Port* type within the *Active equipment* group of the product catalog. This rule is also valid for components created on the basis of specification items of the *Port* type within the *Network services* group. However, you can assign one address to both an active equipment component and a network service component at the same time.
>
> To change the uniqueness settings you should contact the tech support.

When adding a VLAN you can enter a MAC address previously bound to the equipment in **Parent address**. Also, when adding an IP address you can choose one of the previously added VLANs in **Bound to**. The IP address is to belong to a subnet of the VLAN. Thus you can define the connection: MAC address > VLAN > IP address. In this case, if you specify **End date** for the VLAN binding the same date is automatically assigned to the IP address. If you specify **End date** for the MAC address, it will be assigned to both the VLAN and the IP address. Similarly, deleting the VLAN binding leads to deleting the IP address binding, and deleting the MAC address binding — to deleting both the VLAN and the IP address bindings.

With the help of an address of the *Resource pool* type you can specify address ranges to restrict assigning them to CPE.

> If an address binding to equipment is in force and you change the address in it (i.e. you enter a different IP or MAC address) and click **Save**, then the system will set **End date** in the previous address binding (one second earlier than the current date) and a new binding with a new address will be created with the current date as **Begin date**.
>
> In case the previous address was connected to other addresses belonging to the equipment, all dependent addresses are re-bound to the new address. Thus, if you change a VLAN that has an IP address bound to it, there will be a new binding created for this IP address, with a new VLAN in **Bound to**. The current date is also used as **Begin date** for this binding. And the previous binding has **End date** that is one second earlier than the current one.

Components

This tab shows a list of components with their bindings. Here you can use quick search, filter components by statuses, and add new ones. In the example below, the *DES1024D-2* switch of the *D-Link DES-1024D* type can have twenty-four components of the *Port 10/100Base-TX* type. The **Components** tab shows nine ports initialized (i.e added).

A component heading highlighted in blue means there already is a binding with it, i.e. the component is occupied. Free components have green headings.

You can set the colors of the frame and background in the specification of the corresponding product catalog entry.

To add new components click ✚, specify their number and click **Add**. When added, components are numbered using autonumbering.

Click a component to open its page.

> ⚠ When you delete any active equipment all its components are deleted too.

Bindings

On this tab, see direct and reverse bindings of equipment and its components to network services, other equipment, and other components. Typically, bindings are used for processing events at customer equipment.

Active Equipment DES1024D-2: edit

Active Equipment DES1024D-2   ←   Back to search

Common data   Structure   Bindings   Events Queue   Profiles   Configurations   Commands

Sessions   Comments

Forward

ID	Object 1	Component 1	Type	Object 2	Component 2	
62519001	D-Link DES-1024D (DES1024D-2)	10/100Base-TX Port №3	Physical link	Terminal Equipment (Terminal Equipment-4)		✖
62519101	D-Link DES-1024D (DES1024D-2)	10/100Base-TX Port №4	Connection management	GPON ONT (GPON ONT-5)		✖

✚ Add

Reverse

ID	Object 1	Component 1	Type	Object 2	Component 2	
62513601	Workstation (Workstation-11)		Network connection	D-Link DES-1024D (DES1024D-2)	10/100Base-TX Port №1	✖

To add a new binding, click **Add**. Choose its type. Most frequently, types are used in the following ways:

- *Connection management* for a binding to a network service (for example, to a program firewall or a shaper).
- *Physical link* or *Network connection* for a binding to a switch (for example, to identify a customer by a switch port).
- *Installed in* — for example, to bind a switch to a rack.

Binding: create

Enter **Object** 2 — an object for the component to be bound to, for example, a network service or a switch port.

Object 1 is automatically filled with a code of an object which page a direct binding is added from. When it is necessary to bind via a component of an **Object 1** you should enter it in **Component 1**.

Enter **Object** 2 — an object for the component to be bound to, for example, a network service or a switch port.

Filter ▼ next to **Object 2** allows choosing only equipment which service address is the same as the one of the equipment to be bound. Besides, for ease of choosing a binding object, the system also shows the quantity of its available components and object street address, if specified.

> Note that an available component in the list of found object is a component added on the **Components** tab of the corresponding object, it is *Active* and has no bindings.

Use 🔍 to search for any equipment regardless of its service address. Select the registry you want to use (active equipment, passive equipment, or network services).

Set up a filter, click **Start search**, and choose the necessary object among found ones.

If necessary, choose **Component 2** (for example, when adding a binding to the port of the equipment specified in **Object 2**). Click 🔍 to view a list of components of the object together with the number of bindings and statuses of each component. Choose the needed component and click **Add**.

Reverse bindings are different from direct ones in the fact that current equipment or an equipment component is shown as the object of the binding (**Object 2**). For example, if for a customer equipment component there is a direct binding created to a switch port, then on the pages of the switch and the switch port this binding is shown as a reverse one.

> It is easier to create bindings for customer equipment components particularly on the CPE page.

To delete a binding, click ✖ in the corresponding row.

Events Queue

On this tab, you can view an active equipment events history.

Active equipment Workstation-71: Edit

Active equipment Workstation-71

General | Components | Bindings | **Events queue** | Profiles | Configurations | Commands | Sessions | Comments

Filter

Period	07/03/2017
Event type	Any
Archived	No
	☑ Show events for components
Code	
Owner	

Apply filter

Queue

Queue ID	Time	Event	Manager	Queue type	Status	Occured with	Recipient	Customer	Processed	Message	Archived	
735101	07/03/2017 15:20:12	Internet Access ON	FWNAT1	Initial	Executed	Workstation-71 Port 1	IPTABLES1	f0071			No	✖

The **Show events for components** check box allows viewing events history for equipment components. When it is selected, you can narrow down the search results by a component code or by its owner.

3.12.2.1. Editing Equipment Components

Equipment components are created on the basis of a specification. You can add and view components on the **Components** tab. CPE components can be also viewed on the corresponding customer's page.

> When adding equipment on the customer's page there is a new component created for it and numbered with the help of autonumbering.

You can also open the component's page from the **Bindings** tab on the corresponding object's page.

On the component's page you can view the same tabs as on the equipment's page, except for the **Components** tab.

In **Parent**, you can view the code of equipment the component belongs to. **Parent**, just as **Type**, cannot be changed.

Additional code, **Serial number**, **Inventory number**, and **Warranty expires** are usually not entered for components.

The **Custom fields** section contains parameters set up for the type of the specification item the component is based on.

In the **Addresses** section, in contrast to the equipment itself, you can add different network addresses for components. To add an address, you need to choose its type.

See below an example of entered addresses, such as a MAC address, a VLAN, and an IP address. The IP address is bound to the VLAN, the VLAN, in its turn, is bound to the MAC address (the **Bound to** column). In **Parent address** you can see the subnet that contains the IP address.

To delete a component, click **Delete** on its page.

> Deleting an active component with its bindings may lead to failures in providing services to a customer.

3.13. Office

In this section:

- Making a Payment
- Building a Report on Recent Payments

See also:

- Payment Documents

On the **Office** menu, there are tools to make payments (i.e. to create payment documents) and to view reports on recent payments.
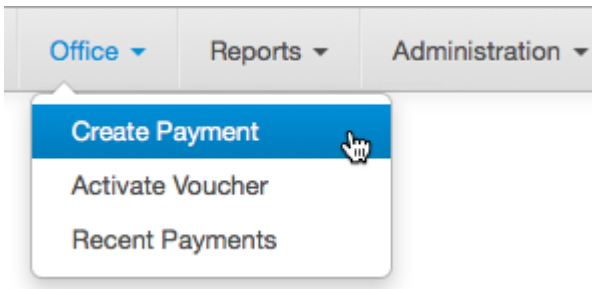
Making a Payment

To create a new payment document, on the **Office** menu click **Create Payment**.

Fill in the following:

- **Document type**. *Cash order* is used when putting real money into a cash register. *Payment order* is used for transferring funds to a current account (for a real payment) or a customer account (for a virtual payment).

- **Payment type**. *Real payments* show movements of real funds between individuals and/or organizations, *virtual payments* — movements of funds within the system, for example, between customers and providers. Choose a real or virtual payment type (in the given example — *Cash*). All payment types are stored in corresponding reference data

> When making a real payment, along with a cash order or a payment order (depending on **Document type**), an additional payment order is automatically created showing the movement of funds within the system.
>
> For example, when an individual makes a payment for a customer, a cash order is created for a deposited amount, with an organization (that acts as a service provider) as the recipient and the individual as the payer. Then a payment order is created for a virtual payment, with the customer as the recipient and the provider as the payer. The amount specified in the cash order is the initial amount for the payment order.
>
> All payment documents (cash orders and payment orders) are stored in the corresponding registry.

- **Paid for**. A customer a real payment is made for. Enter a customer account in **Account**. **Paid for** is used only for real payments, not virtual ones.
- **Recipient**. For a real payment — an organization or an individual, for a virtual payment — a customer or a service provider. In **Account** enter a current account (for the real payment) or a customer account (for the virtual one).
- **Payer**. For a real payment — an organization or an individual making the payment, for a virtual payment — a customer or an operator. In **Account** enter a current account (for the real payment) or a customer account (for the virtual one).
- **Document number**. Here a payment document number is specified. If you leave it empty the number is assigned automatically.
- **Date**. A date of a payment. The current date is used by default.
- **Amount**. A payment amount. If the amount is negative funds are charged off an account, if positive — transferred to the account.
- **Currency**. A currency of a payment.

> A real payment currency can be different from a currency of a customer account (specified in **Account** next to **Paid for**), however, it is to be the same one as a recipient account currency. If the payment currency does not match the customer account currency then the amount is recalculated in accordance with an exchange rates specification valid on the payment date. In this case, the real payment will be created with both the initial amount and the initial currency and the virtual one based on it — with the recalculated amount and the customer account currency.
>
> For example, if the customer account is in USD, the customer wants to pay 10 EUR, and the EUR to USD exchange rate is 1.25, then the real payment is created for 10 EUR and the virtual one — for 12.5 USD.

- **Tax rate**. A rate at which a tax is levied.
- **Remark**. Any comment.

When making a payment you can enter a customer code in **Paid for**, or his/her account in **Account** next to it. The system automatically matches missing parameters, however, in case of ambiguity, some of the fields may remain empty. For example, if you enter some customer code in **Paid for** and the customer has multiple accounts, **Account** cannot be populated automatically so you need to specify it manually. Automatically populated parameters can also be changed manually.

When a customer account is specified, its status is shown next to **Amount**.

- **Current balance** — a customer account balance which can be negative.
- **Available funds** are funds that a customer can use to order new services, available funds cannot be negative.
- [Recommended payment](#) — a payment amount recommended to a customer. It is calculated automatically and includes both the amount required to cover the current debt and the prepayment for the next billing period if it is to start soon. Click it to view details.

Click **Add** to create a payment.

Payments made over the last 5 days are shown in the **Recent payments** table.

Recent payments

Created	Document	Payer	Recipient	Customer	Customer account	Transaction type	Payment type	Amount	Currency	Remark
28/04/2018 12:28:10	Payment order #P18-5 of 28/04/2018	Adams D.	Teleline Networks	marvin	1088	Credit	Cash	30.00	$ [USD]	✖
28/04/2018 11:27:25	Payment order #P18-3 of 28/04/2018	Simons S.	Teleline Networks	simons	1101	Credit	Cash	25.00	$ [USD]	✖

Any of these payments can be canceled by clicking ✖ in the corresponding row.

Payments canceled over the last 5 days are shown in a separate table (if there are any).

Canceled payments   Hide

Created	Document	Payer	Recipient	Customer	Customer account	Transaction type	Payment type	Amount	Currency	Remark
28/04/2018 10:59:45	Payment order #P18-1 of 28/04/2018	Adams D.	Teleline Networks	marvin	1088	Credit	Cash	10.00	$ [USD]	

Building a Report on Recent Payments

To build a report on recent payments, on the **Office** menu click **Recent payments**.

Recent payments report

Filter	Results	Filter not selected ▼	💾

Period	28/04/2018 📅 🗑
Author	Migrator 🔍 ✎ 🗑
Division	Teleline ▼
Status	— ▼

Criteria	+
Operation date	
Document	
Paid for	
Payer	
Amount	**sum**
Currency	
Remark	

Applied filters

Not specified

Search   Show   20 ▼   results per page   Sort   Ascending ▼

Fill in the following.

- **Period** — a timespan, a report is to be build for, with the current date as a default value. If your have no [permissions](#) to view or edit payment documents then the report period is limited to the interval set in [division parameters](#), for example, viewing payments may be possible only for the last few days.
- **Author** — a user that created a payment, with the current user as a default value. If you have the permission to view or edit payment documents you can leave it empty. In this case, all payments are shown for the specified period regardless of whom they were created by.
- **Status** — one of the three values: a dash («—»), *In force*, or *Canceled*. A dash is set as the default value which means that payments in all two statuses will be shown.

Report contents depends on chosen [criteria](#) and filters applied to them.s

Click **Search** to build a report, i.e. a table with columns corresponding to set criteria. For example, if you add the **Operation date**, **Document**, **Customer**, **Payer**, **Amount** (the *Sum* function applied to it), and **Currency** criteria, the report is built as follows.

Recent payments report

Filter	Results	Filter not selected ▾	💾

Permanent link to search results   `https://teleline.hydra-billing.com/reports/office`

№	Operation date ∧	Document	Customer	Payer	∑ Amount	Currency
1	28/04/2018 10:59:45	Payment order #P18-1 of 28/04/2018	marvin	Adams Douglas	10.00	$ [USD]
2	28/04/2018 11:27:25	Payment order #P18-3 of 28/04/2018	simons	Simons Sam	25.00	$ [USD]
3	28/04/2018 12:28:10	Payment order #P18-5 of 28/04/2018	marvin	Adams Douglas	30.00	$ [USD]

Canceled payments are highlighted in red.

3.14. Reports

In this section:

- [Adding and Setting Up Criteria](#)
- [Applying Functions and Filters](#)
- [Available Criteria](#)

See also:

- [How to Create Reports](#)

Hydra Billing allows creating reports containing both aggregated or detailed data on provided services and the movement of funds over any period structured by any category. Created reports can be exported to spreadsheets (MS Excel, OpenOffice Calc), or an CSV file for further processing.

Use the **Reports** menu to build reports.
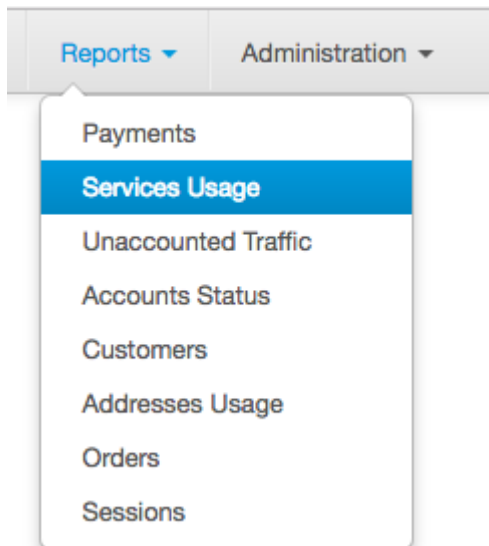
You can view reports on:

- payments,
- services usage,
- unaccounted traffic,
- accounts status,
- customers,
- addresses usage,
- orders, or
- sessions.

Click the necessary command on the **Reports** menu.

Services usage report

Enter the necessary period on the **Filter** tab.

> ⚠ The report building time depends on the period duration. If possible, try creating reports for shorter periods.

You can choose groups of customers, or specify tags applied to them. Depending on the report type, certain parameters can be available on the **Filter** tab, for example, tags for services or basic subjects, types of periods or payments, etc. Within certain report types, the **Include archived data** check box can be selected when it is necessary to consider the data which is archived with the help of the *Archiving database tables* task. You can save the frequently used filter settings similarly to the way you do it for registries.

Click **Search**. The created report is shown on the **Results** tab. You can sort data by the necessary column by clicking its header.

№	∑ *Amount incl. taxes*	∑ **Quantity** ⌄	*Unit*	*Service*	*Price plan*
1	6,844.71	55,291,648.00	MB	Internet traffic in	Speed (202 Mbps)
2	4,178.83	29,461,420.00	MB	Internet traffic out	Speed (202 Mbps)
3	2,092.93	24,778,421.00	MB	Internet traffic in	Optimal (102 Mbps)
4	941.94	11,075,288.00	MB	Internet traffic in	Basic 1 (52 Mbps)

To export results click ⬇ on the **Results** tab right upper corner.

3.14.1. Adding and Setting Up Criteria

The contents of a report is defined by the set of *criteria* — parameters, according to which the data is reported and which values are shown in the columns of the report.

> Basically, the report is a result of a `SELECT` statement from the special logical table (view), whereas criteria are columns to be retrieved. Similarly to a regular `SELECT` statement, various conditions can be applied to criteria (the `WHERE` clause), they can be grouped (the `GROUP BY` clause), aggregate functions can be applied (`AVG`, `MIN`, `MAX`, `SUM`), and additional conditions can restrict the results (the `HAVING` clause).

Criteria can be chosen in the **Criteria** table.

Criteria	+	Address parameters	Customer parameters
Address		✔ Address	✔ Customer
Address type		✔ Address type	Customer status
Customer		Address status	Basic subject
Equipment		Range start	
		Range end	Equipment parameters
		Address usage start date	✔ Equipment
		Address usage end date	Equipment status
		Address remark	Parent equipment
		Service address	Parent equipment service address
		Region	Parent equipment region
		Entrance	Parent equipment entrance
		Floor	Parent equipment floor
		Flat/Apartment number	Parent equipment flat
		Intercom code	Parent equipment intercom code
		Non-standard address	Parent equipment non-standard address

To add a new criterion to a report, click the table header. Depending on the report type, various criteria are available, combined in several groups. Added criteria are marked with ✅.

The rows order in the **Criteria** table defines the order of columns in a report; you can change it by dragging the table rows. To delete a criterion, click ✖ in the corresponding row.

One and the same criterion can be added multiple times, for example, in case you need to view simultaneously both maximum and minimum payments in the report.

Criteria Settings

Each criterion has a number of settings, which influence the built report. Settings can be opened by clicking a criterion.

Criteria	+		Applied filters	
Operation date	✖		Display	☑
Customer			Function	— ⇕
Payer				
Recipient			Unit	Month ⇕
Amount incl. taxes	**sum**		= ▼	🗓 +
Currency				
Transaction type				
Document				

The **Display** check box is used to include a criterion in the results table. When it is selected, the values of the criterion or the values of the aggregate function applied to the criterion are shown in a separated column of the report. You can clear this check box in criteria that have filters applied to them (see below): in this case, the criteria values are not shown in the report, but the applied filters influence the result of the search. If the filter is not selected, clearing the check box means removing the criterion from the report.

In the settings of the two criteria — **Customer group** and **Basic subject group** — the **Group** check box is used. If it is selected, the data in the report is shown separately for each of the groups. And if a subject belongs to several groups at once, this subject is included in the report multiple times. For example, when defining payments by customer groups, the payments of a customer that belongs to two groups at once are included in the amounts in each of the groups, and in the total amount they are calculated doubly. Whereas, when the **Group** check box is cleared, for subjects belonging to multiple groups at once, the groups are listed separated by commas in the corresponding column.

Certain criteria (**Customer**, **Document**, etc.) have an additional **Show** list in the settings, with the help of which you can specify which value is to be shown for the criteria — a code or a full name.

The **Function** list is used to choose the aggregate function. For criteria that have quantitative values (**Quantity**, **Amount**, **Price**, etc.) you can define the *average*, *maximum*, *minimum*, or *summed value*. For criteria with qualitative values — **Customer**, **Document**, **Account**, etc. — you can define the quantity of the corresponding entities that are included into the report, and the quantity of unique entities in the report (for example, the number of customers that have used services, or made payments).

The **Operation date** and **Quantity** criteria have an additional setting — **Unit**. With the help of it you can change the level of detail of the report. For example, an operation date can be shown accurate to a second (if there is «—» in **Unit**), or accurate to a day, or a month. Similarly, the amount of the consumed traffic can be shown in bytes, kB, MB, or GB.

You can restrict the rows to be included in the report by applying a filter consisting of one or several conditions to a certain criterion. To enable conditions use equality or inequality signs, as well as *defined* and *not defined*, for such cases when you need to determine not the criterion value but whether the value exists or not. Conditions can be combined with the help of logical *and* or *or* operators. Thus, in the example below only the payment documents with the amounts of more than $100 and less than $2000 are included in the report.

Criteria	+
Operation date	
Document	
Amount incl. taxes	✖

Applied filters

Amount incl. taxes > 100 AND < 2,000

Display ☑

Function — ↕

\> ▼ 100

AND ▼

< ▼ 2000 ✖ +

To delete an additional condition click ✖ next to it.

Criteria that have filters applied to them are highlighted with yellow in the table. You can see the filter details next to the **Criteria** table. If there is any function applied to a criterion, you can see a corresponding sign at the end of the row.

Criteria	+
Operation date	
Document	
Amount incl. taxes	

Applied filters

Amount incl. taxes > 100 AND < 2,000

3.14.2. Applying Functions and Filters

Aggregate functions and filters can be applied separately or together. Let us see examples when various combinations of criteria settings are applied to a simple payments report containing the **Customer**, **Amount incl. taxes**, and **Operation date** criteria. By default, all the criteria have the **Display** check box selected.

Using a Criterion Without Functions or Filters

If there is no aggregate function or no filter used for a criterion, and the **Display** check box is selected, then the criterion values are shown in a separate column of the report. On the other hand, clearing the **Display** check box means removing a criterion from the report, i.e. its values are not used in the report and have no influence on the results table.

Criteria	✚
Customer	
Amount incl. taxes	
Operation date	

Applied filters

Not specified

In our case, when all criteria have the **Display** check box selected, then the report is built with the list of customers and their dates and amounts of transfers, made over the report period.

№	Customer ⌄	Amount incl. taxes	Operation date
1	630005381	570.00	20/08/2017 15:09:28
2	630005346	130.00	20/08/2017 13:30:21
3	630005346	130.00	20/08/2017 13:41:35
4	630005044	440.00	20/08/2017 00:20:31
5	630004029	500.00	20/08/2017 20:41:47
6	630003992	520.00	20/08/2017 12:45:42
7	630003987	490.00	20/08/2017 10:58:45
8	630001708	600.00	20/08/2017 16:44:37
9	630001544	1,000.00	20/08/2017 16:12:13
10	630001226	810.00	20/08/2017 11:54:14

After clearing the **Display** check box in the **Amount incl. taxes** criterion settings, the report contains only the columns with customers and operation dates.

№	Customer ⌄	Operation date
1	630005381	20/08/2017 15:09:28
2	630005346	20/08/2017 13:30:21
3	630005346	20/08/2017 13:41:35
4	630005044	20/08/2017 00:20:31
5	630004029	20/08/2017 20:41:47
6	630003992	20/08/2017 12:45:42
7	630003987	20/08/2017 10:58:45
8	630001708	20/08/2017 16:44:37
9	630001544	20/08/2017 16:12:13
10	630001226	20/08/2017 11:54:14

If, instead of clearing the **Display** check box in the **Amount incl. taxes** criterion settings, you decide to clear the **Display** check box in the **Operation date** criterion, the report is built only with such criteria as **Customer** and **Amount incl. taxes**, without considering the values of the **Operation date** criterion.

№	Customer ⌄	Amount incl. taxes
1	630005381	570.00
2	630005346	130.00
3	630005044	440.00
4	630004029	500.00
5	630003992	520.00
6	630003987	490.00
7	630001708	600.00
8	630001544	1,000.00
9	630001226	810.00

Note that the customer *630005346* had made, according to the previous reports, two payments in the amount of $130, however the new report contains only one record for him — as his payments are grouped in one row. They are grouped because the values of the **Customer** and **Amount incl. taxes** criteria coincide. (To define the amount of such payments, you need to apply the aggregate function, see below).

Applying a Filter

If there is a filter applied to a criterion, without using an aggregate function, and the **Display** check box is selected, then the report is built containing only the rows with criterion values complying with the filter conditions. When the check box is cleared, the column with the criterion values is not shown in the report, but the filter conditions are still applied to build the results table.

Let us create a filter for the **Amount incl. taxes** criterion: with it, we are going to search for customers that have made payments for more than $600.

Criteria	+
Customer	
Amount incl. taxes	
Operation date	

Applied filters

Amount incl. taxes > 600

Let us clear the **Display** check box in the **Amount incl. taxes** criterion. Now there is no column with amounts in the report, and only customers whose amounts comply with the applied filter are shown together with their operation dates.

№	Customer ^	Amount incl. taxes	Operation date
1	630000267	760.00	01/08/2017 16:36:42
2	630000718	760.00	13/08/2017 09:07:29
3	630000923	810.00	01/08/2017 16:26:23
4	630000923	810.00	14/08/2017 09:50:44
5	630001055	800.00	01/08/2017 10:45:36

Let us clear the **Display** check box in the **Amount incl. taxes** criterion. Now there is no column with amounts in the report, and only customers whose amounts comply with the applied filter are shown together with their operation dates.

№	Customer ^	Operation date
1	630000267	01/08/2017 16:36:42
2	630000718	13/08/2017 09:07:29
3	630000923	01/08/2017 16:26:23
4	630000923	14/08/2017 09:50:44
5	630001055	01/08/2017 10:45:36

Applying an Aggregate Function

When you apply the aggregate function and select the **Display** check box, the corresponding values of the function are shown in the report. When you clear it, the corresponding column disappears.

In the example below, we use the abovementioned criteria and apply the *Sum* function to the **Amount incl. taxes** criterion.

Criteria	+
Customer	
Amount incl. taxes	**sum**
Operation date	

Applied filters

Not specified

The created report does not differ from the one which was built without using the aggregate function. It happens because the payments are summed by both customers and operation dates, which are different for all payments.

If we clear the **Display** check box in the **Operation date** criterion (in this case, the **Operation date** criterion has no effect on the report results), the report is built as follows.

№	Customer ∧	∑ *Amount incl. taxes*
1	630000107	490.00
2	630000111	280.00
3	630000121	550.00
4	630000123	500.00
5	630000136	440.00

Each row shows the amount of payments made by a customer over the report period. If you clear the **Display** check box in the **Amount incl. taxes** criterion, the report is built with only one column showing the list of customers that have made payments.

№	Customer ∧
1	630000107
2	630000111
3	630000121
4	630000123
5	630000136

Applying Both Functions and Filters

In case a criterion have both an aggregate function and a filter applied to it, the aggregate function value is to comply with the filter conditions.

Let us search for customers whose total amounts of payments exceeded $1200. To do so, clear the **Display** check box in the **Operation date** criterion, so that payments are summed only by customers (or you can delete this criterion from the report). Now we apply the *Sum* function and an additional condition to the **Amount incl. taxes** criterion.

Criteria	+
Customer	
Amount incl. taxes	**sum**
Operation date	

Applied filters

SUM(Amount incl. taxes) > 1,200

The result table looks as follows:

№	Customer ∧	∑ Amount incl. taxes
1	630000588	2,000.00
2	630000923	1,620.00
3	630001191	6,000.00
4	630001232	1,300.00
5	630001313	1,500.00

If you clear the **Display** check box in the **Amount incl. taxes** criterion, the report shows the same customers (i.e. the applied filter still has the effect), but the amount of their payments is not shown.

№	Customer ∧
1	630000107
2	630000111
3	630000121
4	630000123
5	630000136

3.14.3. Available Criteria

There are certain sets of criteria to be used for each type of reports. See the criteria descriptions for building reports on:

- payments,
- services usage,
- unaccounted traffic,
- accounts status,
- customers,
- addresses usage,
- orders, and
- sessions.

3.14.3.1. Criteria for Building Reports on Payments

See also:
- Payment Documents
- Bank Statements

Criteria	＋	Group 1	Group 2
Operation date		✔ Amount incl. taxes	Document type
Customer		Taxes	✔ Document
Payer		Amount excl. taxes	Reason document
Recipient		✔ Currency	✔ Customer
Amount incl. taxes	**sum**	✔ Operation date	Customer account
Currency		✔ Transaction type	Customer group
Transaction type		Tax rate	✔ Payer
Document		Real payment type	Payer account
Customer custom field		Virtual payment type	Basic payer
Created			Basic payer type
			✔ Recipient
			Recipient account
			Basic recipient
			Basic recipient type
			Organization
			Transaction ID
			Transaction number
			✔ Customer custom field
		Group 3	
		Initial amount	
		Initial taxes	
		Initial amount excl. taxes	
		Author	
		✔ Created	
		Remark	

Group 1

- **Amount incl. taxes** — a payment amount.
- **Taxes** — an amount of taxes.
- **Amount excl. taxes** — an amount excluding taxes.
- **Currency** — a currency of a payment.
- **Operation date** — a date and time of a transaction.
- **Transaction type** — a credit or a debit.
- **Tax rate** — a tax rate to calculate a price excluding taxes, an amount of taxes, or an amount excluding taxes (a tax rate is set by default in the division settings).
- **Real payment type** — a type of payments to record the movement of funds between individuals and/or organizations (the value as per the *Real payments* reference data).
- **Virtual payment type** — a type of payments to record the movement of funds inside the system (the value as per the *Virtual payments* reference data).

Group 2

- **Document type** — a payment document type (a cash order or a payment order).
- **Document** — a payment document.
- **Reason document** — a bank statement or a payment document the current payment document is based on.

- **Customer** — a customer a payment is made for.
- **Customer account** — a personal customer account.
- **Customer group** — if the Group check box is selected, the data is included in the report separately for each customer group, and if a customer belongs to several groups his or her data is included in the report multiple times.
- **Payer** — in terms of a real payment, an organization or an individual that makes a payment; in terms of a virtual one — a customer or a provider.
- **Payer account** — a customer account or current account, depending on the payment type.
- **Basic payer** — a basic subject created for a payer.
- **Basic payer type** — the type of a basic subject created for a payer.
- **Recipient** — in terms of a real payment, an organization or an individual that acts as a customer; in terms of a virtual one — a customer or a provider.
- **Recipient account** — a customer or current account, depending on the payment type.
- **Basic recipient** — a basic subject for a recipient.
- **Basic recipient type** — the type of a basic subject for a recipient.
- **Division** — a division that provides services.
- **Transaction ID** — a transaction ID assigned by the payment system.
- **Transaction number** — a transaction number assigned by the payment system.
- **Customer custom field** — a customer custom field that is chosen in the **Name** list in the criterion settings.

Group 3

- **Initial amount** — a payment amount specified in a reason document.
- **Initial taxes** — the amount of taxes as per a reason document.
- **Initial amount excl. taxes** — the amount excluding taxes as per the reason document.
- **Author** — a subject that created a payment document.
- **Created** — a date and time a document was created in the system.
- **Remark** — a comment to a payment document.

3.14.3.2. Criteria for Building Reports on Services Usage

See also:
- Product Catalog
- Subscription to Services
- Charge Logs
- Discount Certificates

Criteria	+
Amount incl. taxes	**sum**
Quantity	**sum**
Unit	
Service	
Service type	
Price plan	

Group 1
- ✔ Amount incl. taxes
- Taxes
- Amount excl. taxes
- Pre-discount amount incl. taxes
- Pre-discount amount excl. taxes
- Currency
- Operation date
- Start date
- End date
- Charging status
- Tax rate
- Subscription start date
- Subscription end date
- Discount

Group 2
- Document
- Reason document
- Basic contract
- Customer/recipient
- Customer status
- Account balance
- Customer account
- Customer group
- Provider
- Basic provider
- Basic provider type
- Basic recipient
- Basic recipient type
- Organization
- Customer custom field

Group 3
- Equipment
- IP address
- ✔ Quantity
- ✔ Unit
- Quantity (in basic units)
- Basic unit
- ✔ Service
- ✔ Service type
- Price
- ✔ Price plan

Group 4
- Region
- Entrance
- Floor
- Apartment number

Group 1

- **Amount incl. taxes** — a cost of a service provided to a customer.
- **Taxes** — an amount of taxes included in the cost.
- **Amount excl. taxes** — an amount excluding taxes.
- **Pre-discount amount incl. taxes** — an amount without a discount but including taxes.
- **Pre-discount amount excl. taxes** — an amount without a discount and excluding taxes.
- **Currency** — a currency used to pay for a service.
- **Operation date** — a date and time of charging.
- **Begin date** — a date and time of the start of a charging period.
- **End date** — a date and time of the end of a charging period.
- **Charging status** — a status of a charging for a service (the value as per the *Charging statuses* reference data).
- **Tax rate** — a tax rate for a service as per a price specification.
- **Subscription begin date** — a date and time of the start of a customer's subscription to a service.
- **Subscription end date** — a date and time of the end of a customer's subscription to a service.
- **Discount** — an applied discount (the value as per the *Discount* reference data).

Group 2

- **Document** — a charge log, containing information on a service provided to a customer.
- **Reason document** — a service contract on the basis of which a service is provided to a customer.
- **Basic contract** — a basic contract for the reason document.
- **Customer/recipient** — a customer a service was provided to.

- **Customer status** — a customer status.
- **Account balance** — a net amount after factoring all payments and charges in the customer account from the date of it was created.
- **Customer account** — a customer account used to pay for a service.
- **Customer group** — if the **Group** check box is selected, the data is included in the report separately for each customer group, and if a customer belongs to several groups his or her data is included in the report multiple times.
- **Provider** — an operator providing services.
- **Basic provider** — a basic subject for a provider.
- **Basic provider type** — a type of a basic subject for a provider.
- **Basic recipient** — a basic subject for a recipient.
- **Basic recipient type** — a type of a basic subject for a recipient.
- **Division** — a division that provides services.
- **Customer custom field** — a customer custom field that is chosen in the **Name** list in the criterion settings.

Group 3

- **Equipment** — CPE that belongs to a customer a service was provided to.
- **IP address** — an IP address of the equipment.
- **Quantity** — an amount of a service provided to a customer.
- **Unit** — a unit of measurement of a service provided to a customer.
- **Quantity (in basic units)** — an amount of a service calculated in the same unit it was originally accounted in the system (for example, in bites for Internet traffic).
- **Basic unit** — a unit used to account an amount of a service in the system.
- **Service** — a service as per the product catalog sold to a customer.
- **Service type** — a product catalog section a service belongs to.
- **Price** — a price for a service according to a corresponding price specification.
- **Price plan** — a price plan a service belongs to.

Group 4

The group contains criteria for a CPE service address effective at the moment of charging (i.e. at **Operation date**):

- **Region**,
- **Entrance**,
- **Floor**, and
- **Apartment number**.

3.14.3.3. Criteria for Building Reports on Unaccounted Traffic

See also:
- [CPE](CPE)
- Agents

Details/Group	+	Group 1	Group 2
Quantity	sum megabyte	✔ Quantity	Sync end
Direction		✔ Direction	Sync start
		Aggregator	Service
		Status	IP/Subnet A
		Customer	Subnet mask A
			IP/Subnet B
			Subnet mask B
			Reason
			Equipment

Group 1

- **Quantity** — an amount of unaccounted traffic calculated using a unit specified in the criterion settings.
- **Direction** — traffic direction: inbound, outbound, or any.
- **Aggregator** — a traffic collector's component, that collects statistics on customer traffic.
- **Status** — a status for a synchronization with a traffic collector as per *Statuses of traffic collector session* reference data.
- **Customer** — a customer for which unaccounted traffic is detected.

Group 2

- **Sync end** — a maximum time of all statistics rows per one synchronization session.
- **Sync start** — a minimum time of all statistics rows per one synchronization session.
- **Service** — a detailed service (e.g. *Inbound Internet traffic*) unaccounted traffic corresponds to.
- **IP/Subnet A** — an IP address or a subnet of a session initiator.
- **Subnet mask A** — a subnet mask of a session initiator.
- **IP/Subnet B** — an IP address or a subnet of a session receiver.
- **Subnet mask B** — a subnet mask of a session receiver.
- **Reason** — a reason why traffic has not been accounted.
- **Equipment** — CPE a service is provided at.

3.14.3.4. Criteria for Building Reports on Accounts Status

See also:

- Customer Accounts

Criteria	+	Money	Customer
Customer		✔ Currency	✔ Customer
Customer status		✔ Opening balance	✔ Customer status
Account		✔ Credit	Basic subject
Currency		✔ Debit	Basic subject type
Opening balance		✔ Closing balance	Customer groups
Credit		✔ Current reserved amount	Organization
Debit		✔ Total reserved amount	Account
Closing balance		✔ Available funds	✔ Account
Current reserved amount		✔ Credit limit	Account comment
Total reserved amount		✔ Credit limit end date	Bank
Available funds			
Credit limit			
Credit limit end date			

Money

- **Currency** — a currency of a customer account.
- **Opening balance** — a customer account balance at the start of the report period.
- **Credit** — an amount of funds received on a customer account.
- **Debit** — an amount of funds charged off a customer account.
- **Closing balance** — a customer account balance at the end of the report period.
- **Current reserved amount** — an amount of funds required to cover all services during the reservation period.
- **Total reserved amount** — an amount of funds required to cover all services during the charging period.
- **Available funds** — funds on a customer account available for paying for services.
- **Credit limit** — a total current credit limit.
- **Credit limit end date** — a minimum date of all customer's credit limit end dates.

Customer

- **Customer** — a customer on whose account the movement of funds is monitored.
- **Customer status** — a status of a customer.
- **Basic subject** — a basic subject of a customer.
- **Basic subject type** — a type of a customer's basic subject.
- **Customer group** — if the **Group** check box is selected, the data is included in the report separately for each customer group, and if a customer belongs to several groups his or her data is included in the report multiple times.
- **Division** — a division that provides services.

Account

- **Account** — a customer account.

- **Account comment** — a comment added to a customer account.
- **Bank** — an operating bank for a customer account.

3.14.3.5. Criteria for Building Reports on Customers

See also:

- [Product Catalog](#)
- [Customer Equipment](#)
- [Customer Accounts](#)
- [Addresses](#)
- [Contracts](#)
- [Charge Logs](#)
- Real Estate

Criteria	+	Customer parameters	Documents
Equipment		✓ Customer	Contract
Status		Customer account	Contract remark
Customer		Balance	Basic contract
		Basic subject	Contract date
		Created	Contract start date
		✓ Status	Contract end date
		✓ Equipment	Contract status
		Customer group	Start date of first charge log
		Basic subject group	End date of last charge Log
		Customer custom field	
		Real estate object custom field	Service address
		Work phone	Region
		Home phone	Entrance
		Mobile phone	Floor
		Last comment	Apartment number
			Number of residential premises
		Service subscription	Number of non-residential premises
		Service	Number of floors
		Service type	Number of sections
		Customer group	Full service address
		Service state	Address status
			Date when address became effective
			Date when address ceased to be effective

Customer Parameters

- **Customer** — a customer the report is built on.
- **Customer account** — an account of a customer.
- **Balance** — a difference between payments and charges on a customer account calculated from the moment the account was created.
- **Basic subject** — a basic subject of a customer.
- **Creation date** — a date and time a customer was created in the system.
- **Status** — a status of customer.
- **Equipment** — a CPE a service was provided at.
- **Customer group** — if the **Group** check box is selected, the data is included in the report separately for each customer group, and if a customer belongs to several groups his or her data is included in the report multiple times.

- **Basic subject group** — if the **Group** check box is selected, the data is included in the report separately for each group of a basic subject, and if a subject belongs to several groups its data is included in the report multiple times.
- **Customer custom field** — a custom field of a customer which is chosen in **Name** within the criterion settings.
- **Real estate object custom field** — a custom field of a real estate object corresponding to the service address of a CPE; this parameter is chosen in **Name** within the criterion settings.
- **Work phone** — a work phone of a customer's basic subject.
- **Home phone** — a home phone of a customer's basic subject.
- **Mobile phone** — a mobile phone of a customer's basic subject.
- **Last comment** — the latest comment left on a customer's page.

Documents

- **Contract** — a service contract.
- **Contract remark** — a remark to a service contract.
- **Basic contract** — a basic contract for a service contract.
- **Contract date** — a date and time used to identify a service contract.
- **Contract start date** — a start date of a service contract.
- **Contract end date** — an end date of a service contract.
- **Contract status** — a status of a service contract.
- **Start date of first charge log** — a minimum start date and time among all charge logs issued within a service contract.
- **End date of last charge log** — a maximum end date and time among all charge logs issued within a service contract.

Service Address

The group contains criteria specifying a service address of a CPE:

- **Region**,
- **Entrance**,
- **Floor**,
- **Apartment number**,
- **Number of residential premises**,
- **Number of non-residential premises**,
- **Number of floors**,
- **Number of sections**,
- **Full service address**,
- **Address status**,
- **Date when address became effective**, and
- **Date when address ceased to be effective**.

Service Subscription

- **Service** — a service or a price plan a customer is subscribed to.
- **Service type** — a product catalog section a service belongs to (*Price plans* or *Services*).
- **Service group** — a product catalog group a service belongs to.

3.14.3.6. Criteria for Building Reports on Address Usage

See also:

- [Customer Equipment](#)
- [Addresses](#)
- [Regions](#)
- [How To Restrict Address Assignment](#)

Criteria ＋	Address parameters	Customer parameters
Address	✔ Address	✔ Customer
Address type	✔ Address type	Customer status
Customer	Address status	Basic subject
Equipment	Range start	
	Range end	Equipment parameters
	Address usage start date	✔ Equipment
	Address usage end date	Equipment status
	Address remark	Parent equipment
	Service address	Parent equipment service address
	Region	Parent equipment region
	Entrance	Parent equipment entrance
	Floor	Parent equipment floor
	Flat/Apartment number	Parent equipment flat
	Intercom code	Parent equipment intercom code
	Non-standard address	Parent equipment non-standard address

Address Parameters

- **Address** — an address assigned to an object.
- **Address type** — a type of an address (*Area code*, *Subnet, etc.*).
- **Usage status** — *Occupied*, *Unassigned* or *Released*.
- **Range start** — a lower value of the range of addresses belonging to the analyzed address (the smallest IP address within a subnet).
- **Range end** — an upper value of the range of addresses belonging to the analyzed address (the largest IP address within a subnet).
- **Usage start date** — a start date and time of an address usage.
- **Usage end date** — an end date and time of an address usage.
- **Address remark** — a comment on an address page.

Customer Parameters

- **Customer** — a customer to whose CPE an address is assigned.
- **Customer status** — a status of a customer.
- **Basic subject** — a basic subject of a customer.

Equipment Parameters

- **Equipment** — an equipment component an address is assigned to.
- **Equipment status** — a status of a component.
- **Parent equipment** — an equipment a component belongs to.

Service Address

The group contains criteria specifying a service address of a CPE or a network service component:

- **Region**,
- **Entrance**,
- **Floor**,
- **Apartment number**,
- **Intercom code**, and
- **Non-standard address**.

Parent Equipment Service Address

The group contains criteria specifying a service address of a CPE or a network service:

- **Parent equipment region**,
- **Parent equipment entrance**,
- **Parent equipment floor**,
- **Parent equipment flat**,
- **Parent equipment intercom code**, and
- **Parent equipment non-standard address**.

3.14.3.7. Criteria for Building Reports on Orders

See also:
- Orders
- Workflows

Criteria	General	Subject roles
Order	✔ Order	Client
Status	✔ Status	Provider
Period to deadline	Current status	Participant
	Deadline for status	Contractor
	Allowed dwell time in status	Manager
	Dwell time in status	
	✔ Period to deadline	
	Period after deadline	
	Unit	
	Date of moving into status	
	Date of moving from status	
	Status sequence number	
	Created	
	Workflow	
	Reason document	
	Reason document status	
	Number of reason documents	

General

- **Order** — a documented order.
- **Status** — a status which an order had during report period. If an order has already had several statuses, all of them are shown in the result table. When the **Current status** check box is selected, a status is shown as per the time of the report building.
- **Current status** — a status of an order at the time of the report building.

- **Deadline for status** — an end date and time of an allowed dwell time in a status.
- **Allowed dwell time in status** — maximum allowed dwell time for a status as per the **Maximum time** column in the workflow **Statuses** table.
- **Time spent in status** — a time an order has spent in a status.
- **Period to deadline** — a period of time from a report creation till a deadline for a status.
- **Period after deadline** — a period an allowed dwell time is exceeded by.
- **Unit** — a unit to measure a dwell time.
- **Date of moving into status** — a date and time of an order moving into a status.
- **Date of moving from status** — a date and time of an order moving from a status.
- **Status sequence number** — a consecutive number of a status an order moved into; a number of a status an order was created in equals 1.
- **Created** — a date and time when an order was created.
- **Workflow** — a workflow according to which an order is created.
- **Reason document** — a service contract an order is based on.
- **Reason document status** — a status of a service contract.
- **Number of reason documents** — 1, if a reason document is specified in an order, 0 otherwise.

Subject roles

This group contains criteria for subject roles used in all workflows for documents of the *Order* type.

3.14.3.8. Criteria for Building Reports on Sessions

Basic

- **External ID** — a unique session identifier which is received within RADIUS accounting packages.
- **Status** — a status of a session possible values for which are stored in the basic registry **Accounting session statuses**.
- **Equipment binding type** — a type of CPE binding to the provider's equipment as per the basic registry **Equipment binding types**.
- **Provider equipment** — an equipment of a service provider whose profile the session is bound to.
- **CPE** — a CPE whose profile a session is bound to.
- **Start date** — a start date and time of a session.
- **End date** — an end date and time of a session.
- **Last update date** — a date and time of the last session update upon accounting package receiving, timeout session ending, or session archiving.
- **Last upload date** — a date and time of the last session upload from the HARD cache.
- **Session upload ID** — a unique identifier of the last session upload by the HARD agent.

- **Attribute** — a value of a session attribute which is specified in **Name** within the criterion settings.
- **Session type** — a session type as per the list of configured ones in **Equipment** > **Session Types**.
- **Termination cause** — a value of the **Acct-Terminate-Cause** attribute.
- **Unique external ID** — a session identifier assigned by the HARD agent.

3.15. Administration

Availability of items on the **Administration** menu depends on the [permissions granted to you](#) in the **Administration** section.
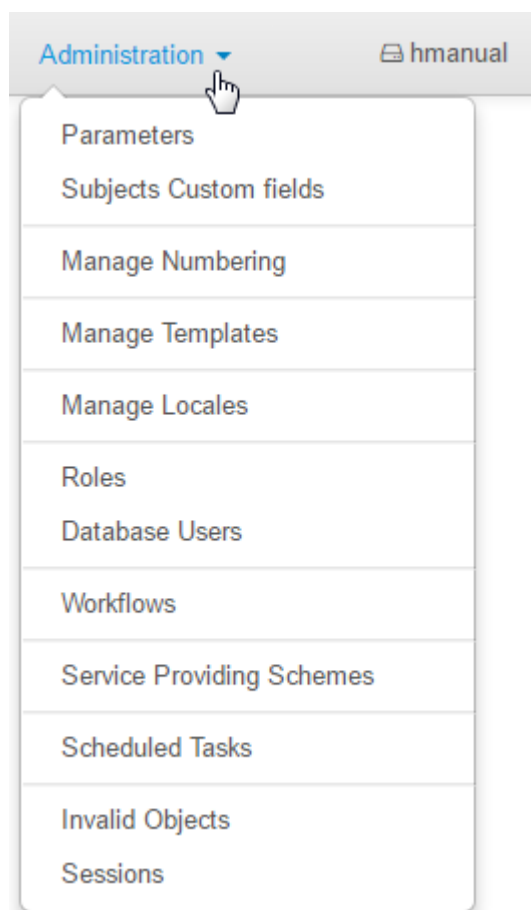
With the help of this menu you can:

- manage [parameters](#),
- create custom fields for subjects,
- configure [autonumbering](#) for entities,
- manage [print templates](#),
- customize [roles](#),
- create and set up workflows,
- work with [service providing schemes](#),
- manage [tasks](#),
- view DB and applications sessions.

3.15.1. Parameters

On the **Administration** menu, click **Parameters** to edit the following:

- system parameters,
- division parameters,
- application parameters, and
- rules for creating payment requests and autopayments.

For division and application parameters, you can set default values by clicking the corresponding button at the bottom of the page.

System Parameters

Open the **System parameters** tab to view info about Hydra Billing: a serial number, a database version, a license holder, and a maximum number of licensed customers.

Select the **Production database** check box if the system is working in the production mode, not in the test one. Specify **Number of Oracle jobs for running scheduled tasks** — a default number of Oracle jobs to be initialized on the Oracle jobs tab.

Division Parameters

Open the **Division parameters** tab to access parameters for the current division. You can use these parameter values for another division by clicking **Copy settings to another division**. This option is available only for multi-subsidiary companies.

The following parameters are available:

- **Period for showing recent payments** is used for recent payments reports.
- **Time of day when charge logs are issued** defines when charge logs are issued in case a billing date is fixed.
- **Default billing period type** (*Time-based* or *Transaction based*) for services and price plans.
- **Period with no charge log before deactivating equipment used in subscription**.
- **Grace period before non-payment suspension** that starts after a last charge log becomes *Executed*.
- **Allowable discrepancy between the system time and the collector time** — when exceeded, a notification is shown in the *Obtaining traffic collector statistics* task logs.
- **Minimum amount of IP traffic per session to considered unaccounted** — in case the amount of unaccounted traffic per session does not exceed this value, the traffic will be included into the total unaccounted traffic amount without defining the reason for rating failure.
- **Default billing dates for individuals and organizations** are used when adding a subscription to service.
- **Period of personal data accessibility since creation of individual** — if you have no *Access to personal data of individuals in current division* permission you will not be able to see personal data of a newly created individual after this period is over.
- **Password strength**, for example, for passwords used in subscriptions to network services.
- **Recommended payment period** for calculating recommended payments.
- **Period before service disconnection when recommended payment is calculated**.
- **Period for creating new charge log before current one ends** — this parameter is used by the *Preparing charge logs for recurrent services* task and also affects the list of services shown in the ordered services section.
- **Default locale** is used when no locale is specified in either an application parameter or an access to this application.
- **Matching priority for payments** is a value from the corresponding reference data. It is used when matching customer funds to receivables created on the basis of payments with negative amounts and those with the customer acting as the payer.

Application Parameters

Open the **Application parameters** tab to configure Hydra Billing applications such as the Service Provider Console and the Customer Self-Care Portal.

For the Service Provider Console you can:

- choose a service which consumption is to be shown in the [current services](#) table,
- specify if it is necessary to show PPP sessions for [customers](#) and network services,
- choose a locale to be used unless another one is specified in the [access to the Service Provider Console](#).

For the Customer Self-Care Portal you can specify the following:

- a period of [a promised payment](#),
- an amount of days when a new promised payment is unavailable since the previous one is overdue,
- a maximum promised payment amount,
- a fixed promised payment amount (if unspecified, a promised payment equals [a recommended payment](#)),
- a password strength for the Customer Self-Care Portal,
- a bank account for accepting payments to be used in receipts a customer creates in the Customer Self-Care Portal,
- locales available within the Customer Self-Care Portal, i.e. languages a customer can choose from,
- more convenient names for traffic services to be shown in payments and charges within the Customer Self-Care Portal.

3.15.1.4. Rules for Creating Payment Requests and Autopayments

In this section:

- [Rules for Creating Payment Requests](#)
- [Rules for Creating Autopayments](#)

See also:

- [How to Use Auto Top-up](#)

Open the **Payment requests** tab to set up rules for the *Creating payment requests* task to create payment requests and autopayments.

Teleline

| System parameters | Division parameters | Application parameters | Payment requests |

Payment request creation rules

ID	Division	Currency	Type	Minimum amount	Maximum amount
396388401	Teleline	US dollar	Recommended payment	1.00	4,000.00
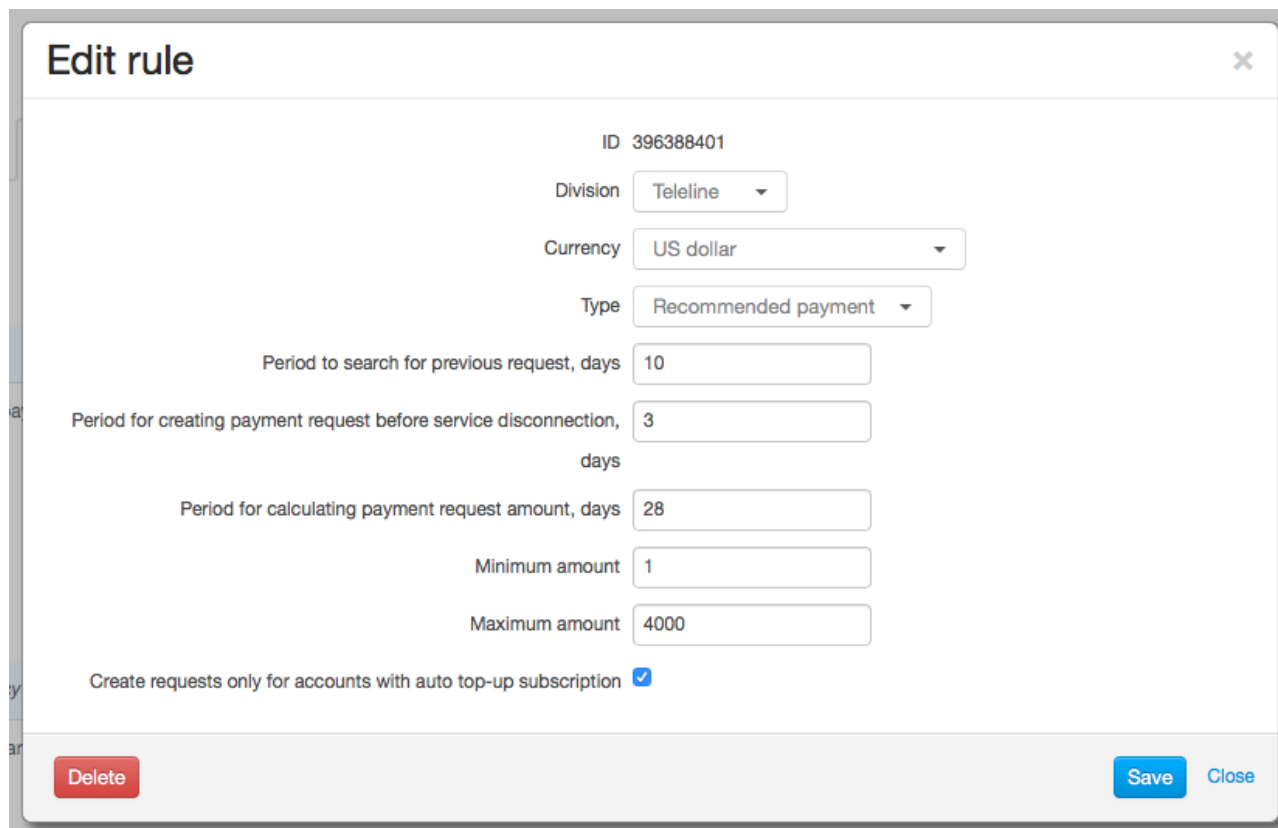
+ Add rule

Autopayment creation rules

ID	Division	Bank	Currency	Creating condition	Remark
402523601	Teleline	PayPal	US dollar	Recommended payment	

+ Add rule

Rules for Creating Payment Requests

Payment requests are created for customers of a specified division that have accounts in a specified currency.

A payment request **Type** is a reason for creating it, for example, if there is a non-zero recommended payment for an account.

Period to search for previous requests determines how often requests can be created. A new payment request is not created if there is already another request waiting to be paid that was created less than a specified number of days ago.

Period for creating payment request before service disconnection determines whether a recommended payment is calculated for an account (and a payment request is probably created) or not. If the account is used to pay for a service that can be disconnected during this period (for example, due to its billing period end, or an expiration of a credit limit for a deferred payment, or insufficient funds for further charging), the recommended payment is calculated. If the payment is non-zero a request is created.

Period for calculating payment amount is a number of days for calculating a recommended payment, i.e. a payment request amount.

Use **Minimum amount** and **Maximum amount** to limit a payment request amount. If a calculated recommended payment does not fall within this range no payment request is created.

When you select the **Create requests only for accounts with auto top-up subscription** check box payment requests are created only for accounts of customers that have entered payment details for auto top-up in the Customer Self-Care Portal.

Rules for Creating Autopayments

Use tags to specify categories of customers that can use auto top-up. The rule will be valid for customers that have all entered tags. If you leave **Customer tags** empty all customers that belong to **Division** will be able to use auto top-up.

Autopayments are created for accounts in a selected **Currency**.

In **Bank**, enter a bank that is the role of an organization representing a payment system used for processing payments.

Autopayment creating **Condition** is to correspond to a payment request type. Unpaid payment request is the basis for creating an autopayment.

Use **Minimum autopayment amount** and **Maximum autopayment amount** to limit an amount to be charged on a customer's card (or an account within a payment system). If a payment request amount does not fall within this range no autopayment is created.

Also, you can specify **Maximum total amount of autopayments per month** for topping up one account.

Over a month, a number of autopayments for each account cannot be greater than the one specified in **Maximum number of autopayments per month**. Also, autopayments cannot be created more often than specified in **Minimum interval between payments**.

> When determining the number and the total amount of autopayments per month, only autopayments with successful chargings are considered.

Period between creating an autopayment and an actual attempt of charging on a card or an account equals **Charging delay**. You can use this time to notify a customer about scheduled charging, for example.

If the number of autopayments with failed charging attempts created for one payment request reaches **Maximum number of failed charging attempts before canceling auto top-up subscription** then an auto top-up subscription is canceled and the payment request becomes *Unpaid*. To resume auto top-up, a customer will have to enter payment details once again.

> If a charging attempt fails due to a reason that makes all further attempts useless (for example, due to a card expiration or a suspected fraud notification), a subscription is canceled right after the first attempt.
>
> Also, a subscription suspends after three sequential failed charging attempts caused by an internal error.

3.15.2. Autonumbering

On the **Administration** menu, click **Automunbering** to set up *autonumberers* — templates for generating document and account numbers, customer codes, and both object codes and names. Use corresponding tabs at the top of the page to choose entities to be autonumbered.

Each autonumberer has certain parameters specific for this or that entity (for example, a workflow for numbering documents, or a customer group for generating a customer code), as well as parameters common to all autonumberers:

- **Division** — a division providing services.

- **Period** — a period during which an autonumberer is to be used (expired autonumberers are highlighted in grey).
- **Status** — initially, autonumberers are created as *Inactive*, to start using an autonumberer you should change its sstatus to *Active*.

A format of a number to be generated by the autonumberer should be first determined by a set of **substitutes** and their **settings**. Thus, in the example above, the *Default autonumberer* uses three substitutes: *String* (it has the value *A-* within its settings), *Document date* and *Sequence number based on document type and year*. Autonumberers for different entities can use various sets of substitutes.
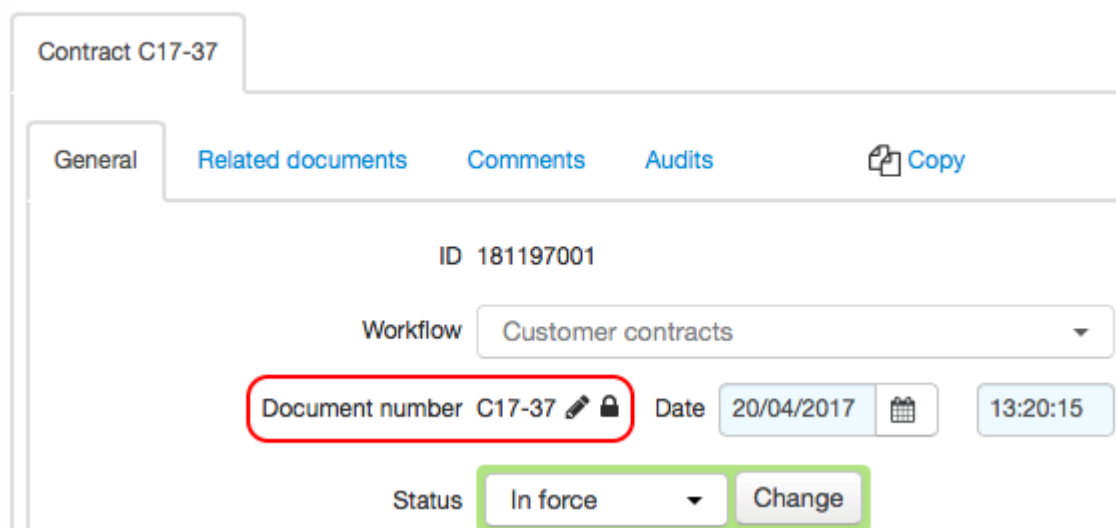
> An autonumberer which has been used to generate at least one number becomes blocked and cannot be further changed or deleted. Such an autonumberer is highlighted in red and marked with 🔒 sign, and in the **Example** column the latest number created on its basis is shown.
>
> The only parameter of a blocked autonumberer available for editing is its period. If you need to edit a blocked autonumberer (for example, a contract number format has changed), set an end date for the current autonumberer and create a new one with necessary settings.

Generating a Number and Editing It

When an entity is created, for example, a new contract or a customer, the system chooses an autonumberer that is currently active (the *Default autonumberer* has the lowest priority). After that, the system defines substitute values to be used by the autonumberer, applies the specified settings to them and uses the generated value as a required number or code.

Next to a number generated by the autonumberer you can see 🔒 that is used to delete the link between the generated value and its autonumberer in case you need to enter the value manually.

> Deleting a link to an autonumberer and entering a number manually may lead to system errors. For example, when creating an entity a number generated by the autonumberer may possibly coincide with a number that has already been entered manually for another entity. In this case a new entity will not be created.
>
> You should delete the link to the autonumberer only when it is strongly required, for example, if you need to change the number of an existing document.

If a number was generated by an autonumberer with such substitutes as *Sequence number*, *Value from file*, *Custom string*, *Random number*, or *Reference value*, there is ✏ next to it. Click ✏ to enter a substitute value.

To cancel changes click ↩. To save changes, save the document, subject or object.

3.15.2.1. Creating and Setting Up Autonumberers

In this section:

- [Adding and Editing Autonumberers](#)
- [Substitutes and Their Settings](#)
- [Adding and Editing Substitutes](#)

See also:

- [Available Substitutes](#)

Adding and Editing Autonumberers

To create a new autonumberer, open the corresponding tab (for example, **Subjects**) and click ✚ **Add autonumberer**.

When creating an autonumberer for customers you need to specify the customer [group](#) for which it will be used.

For a document autonumberer, you need to specify a [document type](#) (select it on the **Documents** tab) and a workflow.

For objects, you can use autonumberers of two types: those for objects themselves and those for their components. Open autonumberer parameters to specify what a value is generated for — a code or an object name. In **Object type**, enter a group or an entry from the [product catalog](#). Thus, the autonumberer will be used for objects created on the basis of these entries. In case autonumberers are set for both a child entry/group and a parent one, the first autonumberer will have the highest priority.

Enter **Validity period** and **Division** (if there are more than one), click **Add**. An autonumberer is created with the *Inactive* status. Next, you need to determine the autonumberer contents, i.e. a set of substitutes, and change its status to *Active*.

To edit an autonumberer, click in the corresponding row.

If the autonumberer has already been used to generate at least one number, it is marked with 🔒 and has most of the boxes blocked. Substitutes of such autonumberers cannot be further changed or deleted.

Substitutes and Their Settings

Substitutes are "building blocks" of an autonumberer. Autonumberers used for different entities have their certain sets of substitutes. Open an autonumberer to set up its substitutes.

> ⚙ The order of autonumberer's substitutes determines the order of substitute values within a generated number.

Depending on the type of a returned value, substitutes can be numerical, string, date and those returning reference values. Each type uses its own settings.

Substitute Type	Available Settings
Numerical	• *Step* — a number a substitute value is incremented by. • *Padding* — padding a generated number with a specified character to a specified length. • *Range* — generating a number that belongs to a specified range (you can use multiple ranges as well).
String	• *Substring* — extracting a part of a string of starting with a specified position. • *Case modification* — applying lower, upper or sentence cases.

Substitute Type	Available Settings
	• *Length limit* — used only for values entered manually: the length of an entered string is to fall within a specified interval. • *Transliteration* — *transforming a string into Latin letters.* • *Replacement* — replacing a part of a string with another string, even sequentially if necessary.
Date	• *Year, YYYY* — rounding a date to a year using 4 digits, e.g., *2018.* • *Year, YY* — rounding a date to a year using only 2 digits, e.g., *18.* • *Year, Y* — rounding a date to a year using only 1 digit, e.g., *8.* • *Month number* — an ordinal number of a month, e.g., *7.* • *Month number, MM* — an ordinal number of a month containing 2 digits, e.g., *07.* • *Month name* — a name of a month, e.g., *July.* • *Month code, MMM* — a short name of a month, e.g., *JUL.* • *Day number, D* — an ordinal number of a day of a month,e.g., *9.* • *Day number, DD* — an ordinal number of a day of a month containing 2 digits, e.g., *09.* • *Day.Month.Year* — a date in the format specified in the current locale, e.g., *09.07.2018.* • *Custom* — a user format of a date.
Reference value	A [reference data](#) which values a substitute takes (only user reference data can be used), and settings that are available for the *String* substitute type.

Adding and Editing Substitutes

To add a new substitute, click ✚ **Add substitute** in the **Substitutes** section, select a substitute from the list and click **Add substitute**.

Confirm adding the substitute by clicking **Add substitute**.
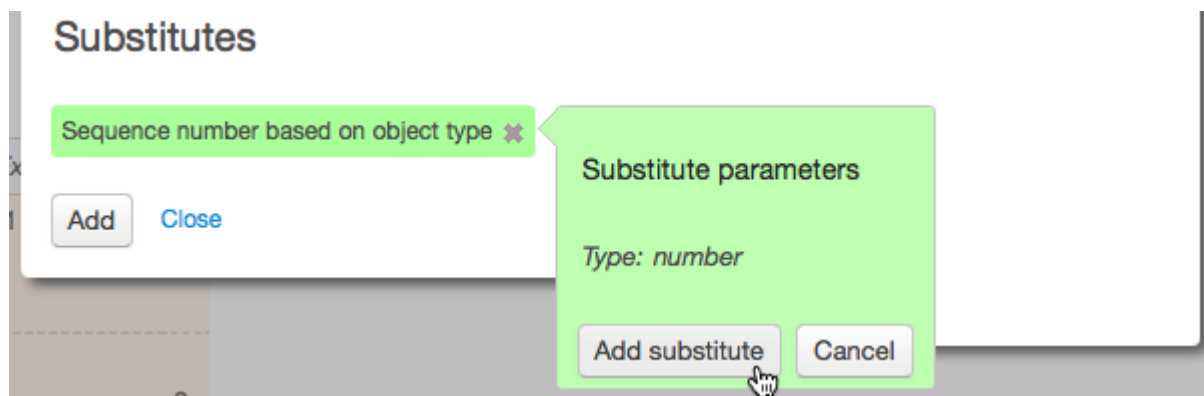
After the substitute is added, click it to open its settings.
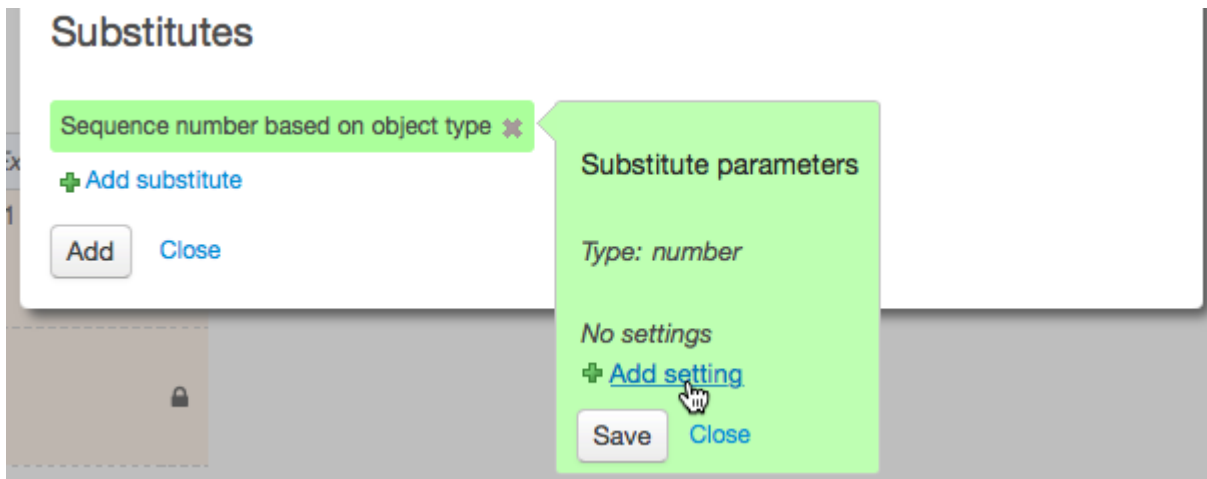
Click ✚ **Add setting** to see the list of available settings. Choose the necessary one and click **Add setting**.
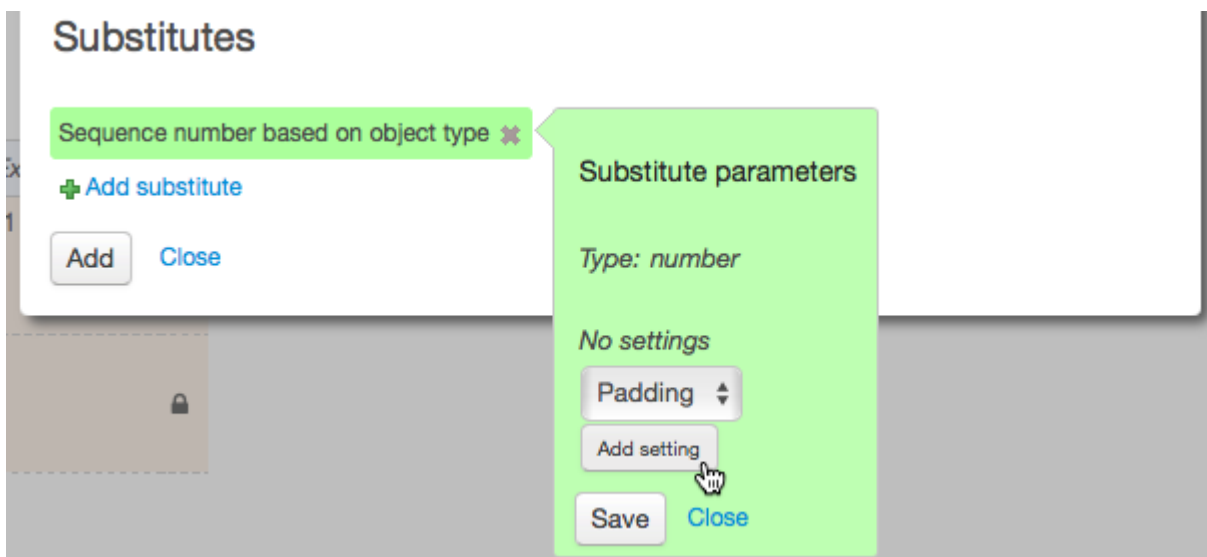
See the parameters of the chosen setting (if there are any).

Configure parameters and click **Add setting**. If necessary, repeat the above steps to add more substitute settings. Finally, click **Save**.

Add all necessary substitutes to the autonumberer (new ones are highlighted in green) and click **Save**.

Click a substitute to edit its settings: use ⚙ to change setting parameters or click ✖ to delete a setting.

Click ✖ next to a substitute to delete it.

3.15.2.2. Available Substitutes

In this section:

- [Substitutes for Documents](#)
- [Substitutes for Customers](#)
- [Substitutes for Objects](#)

- [Substitutes for Accounts](#)

Substitutes for Documents

Substitute	Description	Available settings
Sequence number based on document type	Document sequence number based on its type.	Settings for substitutes of the [number type](#).
Sequence number based on document type and year	Document sequence number based on its type, and each year numbering starts anew. Typically, it is used together with the *Document date* substitute.	Settings for substitutes of the number type.
Sequence number based on document type and month	Document sequence number based on its type, and each month numbering starts anew. Typically, it is used together with the *Document date* substitute.	Settings for substitutes of the number type.
Sequence number based on document type and day	Document sequence number based on its type, and each day numbering starts anew. Typically, it is used together with the *Document date* substitute.	Settings for substitutes of the number type.
Unique sequence number based on document type and year	Unique sequence number based on a document type and year, and each year numbering starts anew. Unlike the *Sequence number based on document type and year* substitute, deleting or canceling a document does not lead to renewing the current value of the substitute. I.e. as soon as a value has been generated by this substitute it cannot be generated again under any circumstances. Typically, it is used together with the *Document date* substitute. By default, it is used for [charge logs](#) and payment orders.	Settings for substitutes of the number type.
String	Constant string.	String value.
Document date	Document date.	Settings for substitutes of the [date type](#).
Subject code by role	Code of a subject acting in a specified role within a document.	Subject role as well as settings for substitutes of the [string type](#) except for *Length limit*.
Sequence number based on parent document	Document sequence number based on its parent document. You can use it, for example, for numbering [service contracts](#) based on a basic one.	Settings for substitutes of the [number type](#).
Parent document number	Number of a parent document.	Settings for substitutes of the [string type](#) except for *Length limit*.

Substitute	*Description*	*Available settings*
Value from file	Value taken from a specified file.	File with substitute values and settings for substitutes of the string type except for *Length limit*.
Custom string	String to be entered manually when creating a new document.	Settings for substitutes of the string type.
User payroll number	[Payroll number](#) of an employee who is a basic subject of the current user. When searching for this employee, an organization of the current provider is used.	Settings for substitutes of the string type.
Reference value	Value from a specified reference data.	Settings for substitutes of the [reference value type](#).

Substitutes for Customers

Substitute	*Description*	*Available settings*
Sequence number	Sequence number of a customer within the system.	Settings for substitutes of the [number type](#).
String	Constant string.	String value.
Subject creation date	Date when a subject was created.	Settings for substitutes of the [date type](#).
Primary group code	Code of a subject's primary [group](#).	Settings for substitutes of the [string type](#) except for *Length limit*.
Primary group name	Name of a subject's primary group.	Settings for substitutes of the string type except for *Length limit*.
Basic subject code	Code of a customer's basic subject (an individual or an organization).	Settings for substitutes of the string type except for *Length limit*.
Basic subject name	Name of a customer's basic subject (an individual or an organization).	Settings for substitutes of the string type except for *Length limit*.

Substitute	*Description*	*Available settings*
First account number	Number of the first account created for a customer.	Settings for substitutes of the string type except for *Length limit*.
Street from subject actual address	Name of a street from a region specified in a primary address of an individual or an organization (a customer's basic subject). The address should be of the *Street address* type and the *Actual address* kind.	Settings for substitutes of the string type except for *Length limit*.
House from subject actual address	House number from a region specified in a primary address of an individual or an organization (a customer's basic subject). The address should be of the *Street address* type and the *Actual address* kind.	Settings for substitutes of the string type except for *Length limit*.
Pavilion from subject actual address	Pavilion number from a region specified in a primary address of an individual or an organization (a customer's basic subject). The address should be of the *Street address* type and the *Actual address* kind.	Settings for substitutes of the string type except for *Length limit*.
Apartment from subject actual address	Apartment number from a primary address of an individual or an organization (a customer's basic subject). The address should be of the *Street address* type and the *Actual address* kind.	Settings for substitutes of the string type except for *Length limit*.
Value from file	Value taken from a specified file.	File with substitute values and settings for substitutes of the string type except for *Length limit*.
Custom string	String to be entered manually when creating a new customer.	Settings for substitutes of the string type.
Random number	Random number from a specified range.	Settings for substitutes of the number type.
Reference value	Value from a specified reference data.	Settings for substitutes of the [reference value type]().

Substitutes for Objects

Substitute	*Description*	*Available settings*
Sequence number based on object type	Object sequence number based on its type (a product catalog entry or a specification item).	Settings for substitutes of the [number type]().

Substitute	*Description*	*Available settings*
Sequence number based on specification item type and main object	Component sequence number based on a main object and a type of its specification item.	Settings for substitutes of the number type.
Sequence number based on specification item and main object	Component sequence number based on its specification item and a main object.	Settings for substitutes of the number type.
String	Constant string.	String value.
Serial number	Serial number of an object.	Settings for substitutes of the string type except for *Length limit*.
Object type code	Code of a catalog entry or a specification item on which basis an object was created, i.e. a code of an object type.	Settings for substitutes of the string type except for *Length limit*.
Object type name	Name of a catalog entry or a specification item on which basis an object was created, i.e. a code of an object type.	Settings for substitutes of the string type except for *Length limit*.
Object code	Code of an object. It is used in autonumberers to name objects.	Settings for substitutes of the string type except for *Length limit*.
Owner code	Code of an object owner.	Settings for substitutes of the string type except for *Length limit*.
Value from file	Value taken from a specified file.	File with substitute values and settings for substitutes of the string type except for *Length limit*.
Custom string	String to be entered manually when creating an object.	Settings for substitutes of the string type.
Reference value	Value from a specified reference data.	Settings for substitutes of the reference value type.

Substitutes for Accounts

Substitute	*Description*	*Available settings*
Sequence number	Account sequence number based on its type.	Settings for substitutes of the number type.
String	Constant string.	String value.
Opening date	Account opening date.	Settings for substitutes of the date type.
Account type code	Code of an account type from the corresponding reference data.	Settings for substitutes of the string type except for *Length limit*.
Account type name	Name of an account type from the corresponding reference data.	Settings for substitutes of the string type except for *Length limit*.
Account holder code	Code of customer that is an account holder.	Settings for substitutes of the string type except for *Length limit*.
Holder primary group code	Code of a primary group of a customer that is an account holder.	Settings for substitutes of the string type except for *Length limit*.
Holder primary group name	Name of a primary group of a customer that is an account holder.	Settings for substitutes of the string type except for *Length limit*.
Currency code	International three-letter code of an account currency according to the ISO 4217 standard.	Settings for substitutes of the string type except for *Length limit*.
Currency name	Name of an account currency.	Settings for substitutes of the string type except for *Length limit*.
Name of basic subject type	Name of a type of a basic subject (an individual or an organization) based on which an account holder is created.	Settings for substitutes of the string type except for *Length limit*.
Value from file	Value taken from a specified file.	File with substitute values and settings for substitutes of the string type.

Substitute	*Description*	*Available settings*
Custom string	String to be entered manually when creating a new account.	Settings for substitutes of the string type.
Random number	Random number from a specified range.	Settings for substitutes of the number type.
Reference value	Value from a specified reference data.	Settings for substitutes of the [reference value type]().
Check digit	Account check digit calculated according to the [Luhn]() algorithm.	Settings for substitutes of the number type.

3.15.3. Print Templates

On the **Administration** menu, click **Print Templates** to see print templates that are used in the system. They are divided into three sections — document templates, subject templates and object ones.

Document templates

Name	Effective period	File	Type	Basic Contract	Remark
Contract (Individuals)		Contract_ind	Contract		Standard template for contract
Payment order		payment.odt	Payment Order		
Invoice		Invoice.html	Invoice		Standard template for invoice

⊕ Upload template

Subjects Tempates

Name	Effective period	File	Type	Remark
customer info		customer info.odt	Customer	info

⊕ Upload template

Object templates

⊕ Upload template

Print templates are files of the .odt, .ods, .html, .txt, .docx, and .xml formats containing simple text and special substitutes written in Liquid⬚. If you need help with creating templates or editing existing ones, please contact our tech support.

Adding and Editing Templates

To add a new template, click **Upload template** in the corresponding section.

Choose a file with the template, enter a template name and choose a document/subject/object type this template will apply to. When necessary, specify a validity period for the template (if empty, the template will be available at any time).

For a document template you can specify **Basic contract**, then the template will apply only to documents created on the basis of this specified contract.

For print templates for documents of the *Invoice* type, you can specify **Permission to view**. When *Customer or operator* is entered, and an invoice has a printable form generated on the basis of this template, a customer can save or print the invoice via the Customer Self-Care Portal. If *Operator only* is chosen a file with an invoice is not available for downloading by a customer.

You can edit a previously added template by clicking the corresponding table row. Add necessary changes and click **Save**. To delete a template, click **Delete**. If you choose not to save changes simply close the window.

3.15.4. Roles

In this section:
- Permissions
- Preset Roles

See also:
- Customer's Permissions

> To work with roles you need the permission to edit roles (the **Subject** section, the *Role* subject type) and the *Manage permissions* permission from the **Administration** section.

A **Role** is a particular subject for managing Hydra users' permissions in a more convenient way. Every role stands for a certain set of permissions in accordance with functions a user performs while being assigned this role. For example, the *Accountant* role stands for permissions to work with financial documents, to make payments, to export documents into an ERP system, to view reports on payments and accounts status, etc. As for the *Customer care specialist* role, it stands for permissions to edit details of individuals, customers and their equipment, customer contracts and annexes to them, etc. All permissions attached to a role are granted to a customer in case the role is assigned to him or her.

A role can be assigned to a customer in two ways: right on the **Permissions** tab of a customer's page or via the position of an employee represented by a corresponding individual (the customer's basic subject). In the second case, a role is attached to a certain position type within a department so that all customers created for employees with a position of the specified type in the department are granted permissions as per this role.

To view roles, click **Roles** on the **Administration** menu.

> In Hydra, there is a number of preset roles: you can use them (and edit the list of permissions attached to them, if necessary) or create your own ones.

Registry of roles

Filter | Results | Filter not selected ▾ | 💾

Change status | Delete | Permanent link | https://hydra.example.com/subjects/roles/list?

☐	ID ^	Code	Name	Created	Remark
☐	50376901	Cashier	Cashier	16/08/2013 19:20:20	
☐	50377301	Customer care specialist	Customer care specialist	16/08/2013 19:20:20	
☐	50379801	Sales manager	Sales manager	16/08/2013 19:20:21	
☐	50382501	Support engineer	Support engineer	16/08/2013 19:20:21	
☐	50384901	Marketing specialist	Marketing specialist	16/08/2013 19:20:21	
☐	50386001	Accountant	Accountant	16/08/2013 19:20:21	
☐	50388101	Billing engineer	Billing engineer	16/08/2013 19:20:21	
☐	50392101	Chief executive officer	Chief executive officer	16/08/2013 19:20:21	

Add new roles just like any other subjects: click **Add** within the registry or ➕ next to the corresponding menu. Type **Name** and **Code** for it. Click **Add**.

Role: create

Now that the role is created you can attach certain permissions to it.

3.15.4.1. Permissions

In this section:

- Subjects
- Objects
- Documents
- Registries
- Office
- Reports
- Organization
- Administration
- Bulk Operations
- Auxiliary Permissions
- Tags
- Provisioning

See also:

- Customer Permissions

Open the **Permissions** tab to view or edit permissions attached to a role. Permissions are grouped into sections depending on the entities they grant access to: subjects, objects, documents, etc.

Two types of access are used for permissions: *View* (i.e., you can view all parameters of an entity) and *Write* (i.e., you can edit it). A permission to write includes viewing too.

With a certain provider specified in the **Division** column, a permission is applied to only this provider's entities. *All* in the **Division** column means that a permission is applied to entities of divisions a user has access to. Accessibility of divisions depends on whether the user has the *Access to subsidiaries* permission (the **Organization** section) or not: if he or she has the permission, the user can access entities of the current division and its subsidiaries, if not — only entities of the current division.

When configuring permissions, you need to specify an application to work with, for example, the Service Provider Console, or the Remote Procedure Call. When a certain permission is granted to a customer (directly or via a role), a database user related to the application is automatically granted the Oracle role containing certain privileges. Thus, database users permissions are configured automatically on the basis of permissions granted to customers. Typically, roles contain permissions related to the Service Provider Console application.

Subjects

General | **Permissions**

Subjects ›
Objects ›
Documents ›
Registries ›
Office ›
Reports ›
Organization ›
Administration ›
Bulk actions ›
Auxiliary permissions ›
Tags ›
Provisioning ›

Access permissions

Subject type	Access type	Division	Application	Tags	
Customer	Write	All	Service Provider Console	stb_contract, middletown	✕
Individual	Write	All	Service Provider Console		✕

+ Add

Access to network service subscriptions

Subscription type	Network service	Access type	Division	Application	
Network service subscription	All	Write	All	Service Provider Console	✕
Access to application	All	Write	All	Service Provider Console	✕

+ Add

Other permissions

Permission	Access type	Division	Application	
Add comments to subjects	Write	All	Service Provider Console	✕
Change password without entering current one	Write	All	Service Provider Console	✕
Terminate charge logs early	Write	All	Service Provider Console	✕

+ Add

Use the **Access permissions** table to grant permissions to view and edit [subjects](#) of different types. Access to subjects can be further restricted by tags. If a set of tags is specified for a certain subject type the user can view or edit only subjects of this type that have all the listed tags. In the example above, the user can access only the data of the customers marked with both tags: *stb_contract* and *middletown* (a customer may have other tags apart from these two).

To allow access to subjects with different sets of tags you should add a separate row for each set into the table. A row without any tags has a higher priority: when the user is granted access without any tags rows with tags are ignored.

In the **Access to network service subscriptions** table you can permit the user to subscribe customers to network services or give them access to applications.

The **Other permissions** table is used to grant other permissions concerning customers: a permission to terminate charge logs early, or to [add comments](#) and edit comments added by others, to view and change passwords, etc. Also, here you can manage the permissions to work with [contract price plans](#).

Objects

In this section, you can manage permissions to access objects. In the **Object type** column, a section or a group of the [product catalog](#) is specified. The permission is valid for all objects created on the basis of entries from this section or group. In order to have access to object components, use the *Specification* object type.

Documents

Use the **Access permissions** table to grant permissions to view and edit [documents](#). A permission can be granted in terms of a document type, a workflow, or a document status. Besides, you can restrict access by a role in a document in which the user or a related subject is to act. Such subject can be: a group the user belongs to, a user's basic subject (an individual or organization) or a related employee.

A separate table contains permissions to change document statuses. You can grant a permission with a certain document type, workflow, role in a document, and current and new statuses.

> ⚙ Permissions to change document statuses are taken into account regardless of access permissions. If the user has a permission to change statuses, he or she can actually do it having only the permission to view a document but not to edit it. On the contrary, without the permission to change statuses the user cannot change it even if he or she has the permission to edit the document.

Use the **Other permissions** table to grant the *Extend charge log periods* or *Adjust balances* permissions. The *Extend charge log periods* permission together with the permission to edit charge logs allows extending charge log periods.

Registries

| General | **Permissions** |

Subjects	>
Objects	>
Documents	>
Registries	>
Office	>
Reports	>
Organization	>
Administration	>
Bulk actions	>
Auxiliary permissions	>
Tags	>
Provisioning	>

Addresses

Address type	Access type	Division	Application	
Subnet	Read	All	Service Provider Console	✖
IPv6 subnet	Read	All	Service Provider Console	✖
Subnet group	Read	All	Service Provider Console	✖
VLAN	Read	All	Service Provider Console	✖
Area code	Read	All	Service Provider Console	✖
Group of area codes	Read	All	Service Provider Console	✖
Street address	Read	All	Service Provider Console	✖

➕ Add

Other registries

Registry	Access type	Application	
Product catalog	Read	Service Provider Console	✖
Events	Read	Service Provider Console	✖

➕ Add

In this section, you can set up access to addresses of different types as well as to other system registries: product catalog, reference data, CDRs registry, events and tags.

> ⚙ The regions registry is accessible only with the permission to view addresses of the *Street address* type.

> ⚙ To be able to bind an address to an object or a subject the user is to have the permission to view addresses of the corresponding type.

Office

Office Permissions panel showing Subjects, Objects, Documents, Registries, Office, Reports navigation with Office permission table:

Permission	Application	
Accept cash payments	Service Provider Console	✖
Accept virtual payments	Service Provider Console	✖
Vouchers activation	Service Provider Console	✖

+ Add

Use this section to grant permissions to perform such operations as vouchers activation and [accepting payments](#).

Reports

Reports Permissions panel showing Subjects, Objects, Documents, Registries, Office, Reports, Organization, Administration navigation with Reports table:

Report	Division	Application	
Customers report	All	Service Provider Console	✖
Unaccounted traffic report	All	Service Provider Console	✖
Payments report	All	Service Provider Console	✖
Accounts status report	All	Service Provider Console	✖
Addresses usage report	All	Service Provider Console	✖
Services usage report	All	Service Provider Console	✖
CDRs report	All	Service Provider Console	✖

+ Add

Use this section to manage permission to build [reports](#) of different types.

Organization

Use this section to grant permissions to work with [employees](#), the organizational structure, and subsidiaries. Also, here you can grant the permission to view [business indicators](#).

Administration

Use this section to grant permissions to view and edit [service providing schemes](#), workflows, [scheduled tasks](#), [various parameters](#) and permissions. Also, here you can grant the permission to view audits and the *System developer* permission that allows viewing SQL queries.

The *System administrator* permission allows managing [autonumbering](#), [print templates](#), and locales.

Bulk Operations

Bulk actions

Action	Division	Application	
Load regions	All	Service Provider Console	✖
Load customers	All	Service Provider Console	✖
Load IP addresses	All	Service Provider Console	✖
Subscribe customers to network service	All	Service Provider Console	✖

+ Add

Use this section to grant permissions to perform bulk operations: load addresses, phone numbers, customers, and equipment; create invoices, make refunds, export invoices, subscribe customers to network services.

Auxiliary Permissions

Auxiliary permissions

Permission	Access type	Application	
Basic access	Write	Remote Procedure Call Service	✖
Customer Self-Care Portal	Write	Customer Self-Care Portal	✖

+ Add

Auxiliary permissions are used to grant necessary privileges to database users connected with an applications specified in the table.

> Typically, permissions in this section are granted to certain auxiliary customers rather than roles. For example, in order to grant access to necessary database objects (packages and views) to *AIS_USER_OFFICE* database user connected with the Customer Self-Care Portal you can simply grant the *Customer Self-Care Portal* permission for the Customer Self-Care Portal application to at least one customer.

Tags

Use this section to specify a list of tags that the user can set to different entities or apply when searching. Other tags from the registry are available for viewing only.

The user with the *System administrator* permission can use any tags regardless of those specified here.

Provisioning

In this section, you can grant permissions to view and edit provisioning settings (profile templates and session types), to re-create profiles by templates and forcibly terminate certain active sessions.

3.15.4.2. Preset Roles

In Hydra, there is a number of preset roles you can assign to your employees. You can edit the roles at your own discretion too.

Role	Has Permissions to Do the Following
Accountant	• View customers. • Create, edit and change statuses of bank statements and period opening/closing memos; view and cancel charge logs and price specifications; view and cancel payment documents. • Accept all types of payments, activate vouchers. • Build reports on payments, accounts status, and services usage. • Export invoices into an ERP system.
Billing engineer	• Create and edit customers, individuals and organizations; subscribe customers to services and grant access to applications; add comments to subjects, change passwords without entering old ones, and terminate charge logs early. • Create and edit objects and their components, including both active and possible equipment, network services, traffic collectors, agents, and equipment managers.

Role	*Has Permissions to Do the Following*
	• Create, edit and change statuses of service contracts, annexes, addendums, basic contracts, price and traffic classes specifications; view charge logs, payment documents, and invoices; extend charge log periods. • Create and edit addresses, product catalog entries, events, and CDRs. • Build reports on customers, addresses, unaccounted traffic, and CDRs. • Create and edit employees. • View service providing schemes. • Access the provisioning data, except for editing profile templates and session types, re-creating profiles by templates, and terminating sessions manually.
Support engineer	• Create and edit customers; subscribe customers to services and grant access to applications; add comments to subjects, change passwords without entering old ones, and terminate charge logs early. • Create and edit both active and passive equipment including components. • View traffic classes specifications, price specification, charge logs, and payment documents. • View addresses (street, network and phone ones), view product catalog entries, and events. • Build reports on CDRs. • View audits.
Marketing specialist	• View customers, individuals and organizations. • View service contracts. • View street addresses. • Build reports on payments, customers, accounts status, and services usage. • View business indicators.
Sales manager	• Create and edit customers and organizations, view banks; subscribe customers to services; add comments to subjects, and terminate charge logs early. • Create and edit both active and passive equipment including components. • Create, edit and change statuses of service contracts, annexes, and addendums; view basic contracts, charge logs, payment documents, and invoices. • View street addresses and product catalog entries. • Build reports on customers. • Create invoices.
Cashier	• Accept all kinds of payments and activate vouchers.
Chief executive officer	• View bank statements and payment documents. • Build all types of reports. • View business indicators; create and edit employees.

Role	*Has Permissions to Do the Following*
Customer care specialist	• Create and edit customers and organizations; subscribe customers to services and grant access to applications; add comments to subjects, change passwords without entering old ones, and terminate charge logs early. • Create and edit both active and passive equipment including components. • Create, edit and change statuses of service contracts, annexes, and addendums; view basic contracts, price specifications, charge logs, payment documents, and invoices. • View product catalog entries. • Build reports on customers.

3.15.5. Service Providing Schemes

In this section:
- Service Providing Parameters
- Using Archiving
- The Effect of Service Parameters Within Price Plans
- Service Activation Rules
- Rating Methods
- Suspension Services
- Preset Schemes

See also:
- Product Catalog
- How to Use Services Providing Schemes
- Changing Service Providing Parameters
- Setting Up Service Priorities

A ***service providing scheme*** is a set of parameters and rules that describe conditions and methods for the services to be provided to customers.

> ⚙ Changing parameters in a service providing scheme that has already been used to issue charge logs which are currently in force may cause irrecoverable errors in rating and even lead to customer disconnection. If you need to edit such a scheme you should copy it first and add necessary changes to the copy. Then you should apply the newly created scheme to the service. Learn more in the how-to for changing providing parameters.

On the **Administration** menu click **Service Providing Schemes** to open the service providing schemes registry.

Service Providing Schemes ➕

Burstable, 1 month

| Burstable, 1 month |
| Cable TV |
| Custom Price Plan |
| Daily charge at the beginning of period 1 day |
| Default Non-payment Suspension, 3 months |

Name Burstable, 1 month

Code Burstable, 1 month

☐ Archive

To create a service providing scheme, click ➕. Enter its code and name, fill in the parameters for providing services (they can be edited after the scheme is created), and click **Add**.

You can also create a scheme on the basis of an existing one by choosing it and clicking **Copy**.

The **Archived** check box is selected for schemes that are obsolete and no services are provided according to them any longer. A scheme can be archived only if services using it are not included in any price specifications that are currently in force or will be in future. Archived schemes are unavailable for choosing in service settings.

> Saving obsolete schemes and selecting the **Archived** check box allows decreasing the list of available schemes in the product catalog (thus decreasing the chances to select a wrong one), and still providing an opportunity to re-rate services retroactively.

Service Providing Parameters

Service type	Regular ▼
Service providing type	Recurrent ▼
Billing period	Time-based ▼ 1 month ▼
Reservation period	0 month ▼
Rating method	Default ▼
Permission to subscribe	Customer or operator ▼
Permission to unsubscribe	Customer or operator ▼
Early termination condition	☐ Insufficient balance for charge ☑
	☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Prorated according to charging period ▼
Service providing point	Equipment ▼
Charge log creation management	Internal ▼
Aggregation period	1 hour ▼
Service restriction condition	Never ▼
Service priority	Normal ▼

You are to set the following parameters for providing services:

- **Service type** — this parameter defines main characteristics of a service. Find out more about service types in Concepts and Terms; learn more about services of the *Temporary suspension* and *Non-payment suspension* type in this section.
- **Service providing type** — a service can be *one-off* (one-time) or *recurrent*, i.e. provided to a customer with a predetermined period (for example, every month).

- **Billing period** — a set of parameters specifying the service providing terms, i.e. the way the service is provided in the course of time: either instantly (the begin date is the same as the end one) or during some period of time, so that a charge log is issued accordingly.

  If a service billing period is one month it means a calendar month, not a 30-day period. In case the begin date falls on December 29 the next period starts on January 29, then, if it is a leap year, comes February 29, otherwise — February 28. And if the service billing period starts on the last day of the month, the begin date in the next period falls on the last day of the next month. For example, a begin date falls on February 28 of a non-leap year, so the next billing period will begin on March 31.

- **Reservation period** — a parameter defining a time span for reserving funds on a customer's account to pay for a service. Reserved funds belong to a customer, however cannot be used to pay for any other services.

  A reservation period cannot be shorter than a charging period or longer than a billing period of a service. If a customer has insufficient funds to pay for the whole reservation period, then all remaining funds will be reserved only for this service. As soon as any additional funds arrive at the account the system will reserve the deficient amount.

  The amount of reserved funds is shown on the customer's page in the **Current reserved amount** column of the **Accounts** table.

- Rating method — a method for an additional rating of a service. We recommend that on your own you choose only the *Default* value. If it is necessary to use some special rating method you should first consult with our tech support.

- **Permission to subscribe** — a parameter that defines who has the permission to subscribe a customer to a service: the operator via the Service Provider Console or the customer via the Customer Self-Care Portal.

  If you specify the *Operator only* value, the service will be available to choose only in the Service Provider Console (a recurrent service — in subscription, a one-off service — in one-off services). When choosing the *Customer or operator* value a service will be available not only in the Service Provider Console, but also in the Customer Self-Care Portal. The *No one* value is used for services of the *Non-payment suspension* type, and also can be applied to archived price plans. When choosing it the service will not be listed in available ones both for the customer and the operator.

- **Permission to unsubscribe** — a parameter that defines who has the permission to unsubscribe a customer from a service, and is used only for recurrent services. *Operator only*: an operator can set the subscription end date in the Service Provider Console. *Customer of operator*: an operator can set the subscription end date, and a customer will be able to change this service (a price plan) for another one in the Customer Self-Care Portal, thus setting an end date for a current subscription. *No one*: neither an operator in the Service Provider Console nor a customer in the Customer Self-Care Portal will be able to set the end date in the service subscription (for example, non can change the current price plan).

  > The **Permission to subscribe** and **Permission to unsubscribe** parameters never affect access services or early termination of charge logs. These parameters are used only when working with subscriptions to services.

- **Early termination condition** — a list of conditions for terminating a current charge log earlier than its planned end date. Fulfilling these conditions is checked by the *Closing and putting in force charge logs* task at the moment of the next charging.

- **Charging when terminating charge log** — a parameter that defines the way funds are charged from a customer account at the moment of an early charge log termination (for example, due to insufficient funds or an immediate changing for a different price plan). The *Full* value means that if providing a service is terminated early funds are charged off a customer account in the amount equal to the cost of a full billing period of the service.

  When choosing the *Prorated according to charging period* value funds are charged not for the whole billing period but only for the time span calculated from the billing period begin date with precision to a charging period and rounded up. For example, if a billing period is one year, a charging period is one month, and after two months and one week a customer decides to terminate the service, he or she is to pay for three charging periods, i.e. 3 months.

  If the value is set to *Prorated hourly/daily*, funds are charged for the days (hours) calculated from the billing period begin date and rounded up.

- **Service providing point** — this parameter can have one of the 3 values: *Equipment* — is used for services bound to certain equipment, for example, to a customer's computer or to a port of a VPV concentrator; *Not specified* — is used for services provided without any equipment, for example, laying cables or technician's visits, etc.; *Can be specified* — is used rarely only if necessary.

- **Charge log creation management** — this parameter shows if charge logs for a service are issued by the *Preparing charge logs for recurrent services* task (the *Internal* value) or by some side agent (the *External* value).

- **Aggregation period** — a parameter that defines how often details on consumed services are recorded in a charge log. Aggregation works as follows. Details on traffic that the system has received are registered in **operational register of services**, processed periodically and recorded in a charge log in short form. Aggregation allows decreasing the database load: the bigger the value for **Aggregation period**, the smaller the number of rows in the charge log. For example, for price plans with unlimited Internet traffic you can aggregate traffic only once a day, whereas for price plans with limited Internet traffic which require frequent updates it is done every hour.

  If an aggregation period is changed after a charge log for a service is issued then the change will be effective only in the next billing period, or when the next quantitative quota for the service comes in force (in case it is specified in the corresponding price specification).

- **Service restriction conditions** — a parameter that allows to set up a changing of a service status to *Service restricted* when funds are insufficient.

- **Service priority** — is considered when issuing charge logs and carrying out payments allocation. A higher priority allows issuing a charge log for a service even when funds on the account are insufficient for providing other services. Higher priorities are usually used for contract price plans. By default, all schemes have the same priority — *Normal*. Available priorities are stored in the *Service priorities reference data*.

Using Archiving

☑ Enable archiving

Aging period | 3 | month ▾

☐ Group by address

Selecting the **Enable archiving** check box in the **Archiving settings** section allows decreasing the database load similarly as the aggregation period. If it is selected all obsolete charge logs are archived and stored in the system in short form excluding details. A charge log is considered obsolete if the amount of time, elapsed after it was closed, exceeds the value set in **Aging period**. **Aging period** can be set in hours, days, months, and years.

Aging period is used only for price plans. Within a price plan, archiving is carried out only for services that also have the **Enable archiving** check box selected.

The **Group by address** check box defines if when archiving a charge log the data on a consumed service should be grouped by its providing addresses (phone numbers, IP addresses, etc.). The **Group by address** check box is used only for services, not for price plans.

The Effect of Service Parameters Within Price Plans

If values specified in a scheme for a service mismatch those set up for a price plan it belongs to, you should expect the following:

- the **Service type**, **Service providing type**, **Billing period** (should be shorter or equal to the billing period of the price plan), **Charging type** (*At period beginning* or *At period end*), **Permission to subscribe/unsubscribe**, **Charging when terminating/opening charge log** parameter values remain unchanged and are applied regardless of the price plan settings.

- the **Service providing point** value: for a one-off service the value as per the price plan is used, for a recurrent one — the value as per the service itself.

- **Charging period** takes the value of the service billing period.
- **Reservation period** and **Rating method** are not applied.

Aggregation period may be specified for a price plan or for a traffic service included into it. Price plan settings have a higher priority: a value for the service is used only in case no aggregation period is specified for the price plan.

3.15.5.1. Service Activation Rules

In this section:
- [Service Activation Conditions](#)
- [Service Activation Parameters](#)

Service activation rules

+ Add rule

Activation conditions

— *Customer account status:* sufficient balance for billing period
— *Contract history:* same service was previously provided
— *Service providing continuity:* service is provided continuously

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Default rule

Activation conditions

— *Customer account status:* sufficient balance for charging period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 month
— *Charging when opening charge log:* full

In service providing schemes, you can set up **activation rules** for services of the *Regular*, *Temporary suspension*, and *Non-payment suspension* types. Activation rules define which charging parameters are to be applied to services provided to customers when all specified conditions are fulfilled. For example, you can specify in an activation rule that if the previous charge log was closed due to lack of funds, then, in the following billing period, the charging period will equal one month, not one day, i.e. funds are charged from a customer account as a single payment for the whole month.

In a providing scheme, multiple activation rules can be set up. Rules are listed in the descending order of their priority. A *Default rule* is obligatory and has the smallest priority.

When issuing a charge log for a price plan or a service, Hydra Billing uses the first suitable rule. However, for services within price plans, a *Default rule* is always used regardless of any other rules that may be defined in providing schemes for such services.

To add a new rule, click **+ Add rule**. Specify **Activation conditions** and **Activation parameters**.

Activation Conditions

The following settings are available in the **Activation conditions** section:

- **Customer account status** — defines if a service is provided only on the condition of available funds on a customer account (for the whole billing period or for a charging period), or regardless of an account status.

  If you select *Sufficient balance is not required* for a price plan that contains access services it will lead to a situation when a charge log gets issued even with no funds available on a customer account, but all access services will be deactivated in this case.

- **Contract history** — allows using various charging settings depending on whether any services have been provided in the course of a contract. If you select *This service was previously provided* the system will check for any charge logs for the same subscription. When choosing *Another service was previously provided* the system will check for any long-terms services provided in the course of the contract.

- **Service providing continuity** — should be used if you select *This service was previously provided* in **Contract history** (otherwise, its value is considered as *Service is provided continually*). If the start date of a new charge log is one second greater than the end date of the previous one for the same subscription it means that the service is provided continually, otherwise it is considered as a break in providing.

- **Previous service type** — allows changing charging parameters depending on whether a service of this type was provided to a customer in the previous billing period.

- **Reason for closing previous charge log** — a parameter to consider a reason for closing the previous charge log for the same subscription.

Activation Parameters

When activation conditions are fulfilled, a service will be provided according to charging settings specified in the **Activation parameters** section:

- **Charging type** — defines when to charge for a service, and is used only for services with time-based billing periods. Funds are charged at the end or at the beginning of a charging period. For example, when providing a service with a 30-day billing period and selecting charging at the end of a 10-day period, you actually set to charge funds on the 10th, 20th, and 30th days.

  Charging at the period end means that a customer is allowed to have a debit (a negative account balance). If funds are charged at the beginning of a period, a debit may arise only in case a credit limit is granted to a customer.

- **Charging period** — defines the way funds are charged for a service: as a lump sum if the charging period is the same the billing one, or in installments, if the charging period is shorter than the billing one. If the billing period for a service equals one month then the charging period may equal one day or one month.

- **Charging when opening charge log** — defines the way funds are charged from a customer account in case a billing date is fixed and a charge log is issued in the middle of the billing period. If you choose *Full* the customer is to pay for the whole billing period regardless of the date when a service was activated.

  If you choose *Prorated hourly/daily* funds are charged for a number of days (hours) elapsed after the service activation rounded up.

3.15.5.2. Rating Methods

In this section:

- [Full Charging with a Fixed Billing Date](#)
- [Rating with Excess Traffic](#)
- [Burstable](#)

Typically, when rating services, the *By default* rating method is used, which means no additional conditions or processing are applied to [parameters](#) and [activation rules](#) used in service providing schemes. Other rating methods are used in case a specific way of calculation is required for a service, and it cannot be implemented within regular scheme settings.

> Before choosing a rating method different from the *By default* one, please consult with our technical support.

> For each rating method in Hydra Billing there is a [preset service providing scheme](#) with a corresponding name.

Full Charging with a Fixed Billing Date

The *Full charging with fixed billing day* rating method is used for customers that have a fixed charging date [set within a price plan subscription](#). If a customer has been previously provided a service (the same or a different one) with this rating method, and the last charge log for it was closed normally, i.e. a second earlier than the charging date, then, with issuing a new charge log later than the charging date, the customer will have to pay for a full service billing period, similarly to the case when **Charging when opening charge log** in a [service activation rule](#) is set to *Full* (even if it is not so).

If the previous charge log was closed early (for example, at changing a price plan immediately), or a customer is provided a service with this rating method for the first time, then charging at charge log opening will be done according to **Charging when opening charge log**.

Let us consider a case when a service billing period equals one month, charging is done daily, charging when opening a charge log is prorated daily, and the charging date is the first day of each month. In the previous billing period, the customer has already been provided with this service, but after closing the previous charge log normally, a new one has not been issued as the customer has insufficient funds on the account. If the customer tops up the balance on the 7th day of the month, the charge log will be issued for the period from the 7th till the 31st. However, the customer will have to pay for the whole month including the days when the service has not been used (on the 7th day the funds will be charged for the first seven days of the month).

With Excess Traffic/With Daily Excess Traffic

The *With excess traffic* rating method is designed to maintain a specific ratio between consumed inbound and outbound traffic, and is typically used by data centers. It is an additional post-rating method applied at closing a charge log (at the end of the billing period or early) when a total quantity of consumed services is known.

This rating method can be applied only to price plans. In the product catalog, you should set the following parameters for them:

● **Predominant traffic direction**, and
● **Excess ratio**.

Custom fields

Percentile	
Predominant traffic direction	in ▾
Excess ratio	4

If no values are set for the parameters, the following are used: **Predominant traffic direction** — *inbound*, **Excess ratio** — *1*.

When a charge log becomes *Executed*, the system defines traffic to be additionally rated according to the following formula: `Texcess = Tpredominant — Treverse/k`, where `Treverse` is the amount of traffic of the opposite direction, and `k` is the excess ratio. This traffic is rated as a separate service — *Excess traffic*. In the scheme below, see an example of the calculation when inbound traffic is considered as predominant one, and the excess ratio equals 4.
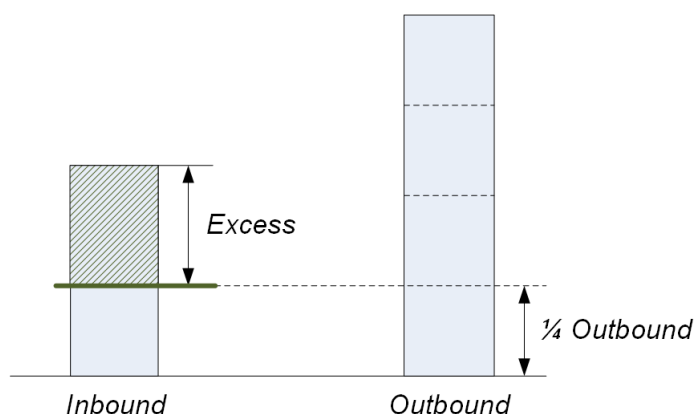
Excess traffic = Inbound traffic – ¼ Outbound traffic

Scheme 10: Rating method with excess traffic

> The *With excess traffic* rating method can be used to balance inbound and outbound traffic by setting **Excess ratio** equal to 1.

The *Excess traffic* service is added to the product catalog as a detailed data service with no direction specified, i.e. there is a dash in **Traffic direction**.

See below an example of creating a price plan with the *With excess traffic* rating method within a price specification.

№	Service	Type	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▼ 1	With excess traffic	Basic			-	200.00	169.49	✕
1.1	Internet traffic out	Billing period specification	50	1	GB	0.00	0.00	✕
1.2	Internet traffic out	Billing period specification		1	GB	0.50	0.42	✕
1.3	Internet traffic in	Billing period specification		1	GB	0.00	0.00	✕
1.4	Excess traffic	Billing period specification		1	GB	1.20	1.02	✕

> ⚠ Using this method you can rate only one service (typically, *Internet traffic*). Make sure to place it in the very beginning of the price plan contents.

The *With daily excess traffic* rating method can be used in case of uneven daily traffic distribution, for example, when more traffic is consumed during weekends than during week days. Similarly to the *With excess traffic* rating method, it is used for post-rating when closing a charge log, although the rating is done not over the whole charge log period but for every single day.

Burstable/Burstable Daily

The *Burstable* rating method, just like the *With excess traffic* method, is a post-rating method and is used only for price plans and only when rating traffic services. Typically, it is applied when large amounts of traffic are consumed, for example, when providing services to other providers.

In the product catalog for price plans that use this rating method you should specify the **Percentile** custom field value (if unspecified, the value is taken as 95).

Custom fields

Percentile 90

Such price plans contain services measured in bandwidth units, for example, Mbits/s.

⊟ 📁 Everything
  ⊞ 📁 Material Assets
  ⊞ 📁 Network Services
  ⊞ 📁 Price Plans
  ⊟ 📁 Services
    ⊟ 📁 Traffic services
      ⊞ 📁 Customer traffic
      ⊟ 📁 Interconnect traffic
        ⊟ › **Bandwidth**
          › Bandwidth in
          › Bandwidth out

Unit — Mbit/s ▾

Type — Services ✎

Parent — Interconnect traffic 🔍 ✎ 🗑

Code* — Bandwidth

Name — Bandwidth

Remark ✎

Service providing scheme — Traffic service ▾ ✎

Post-rating is done on the basis of bandwidth measurements performed during the billing period. If the system receives details on traffic, not bandwidth, the bandwidth is calculated by the difference between neighboring traffic values and a time span between them.

Samples are sorted out in ascending order, then one sample is chosen according to the specified percentile. The system rates the difference between this value and a bandwidth quota defined in a price plan within a price specification. See below an example of calculation for the 95th percentile.
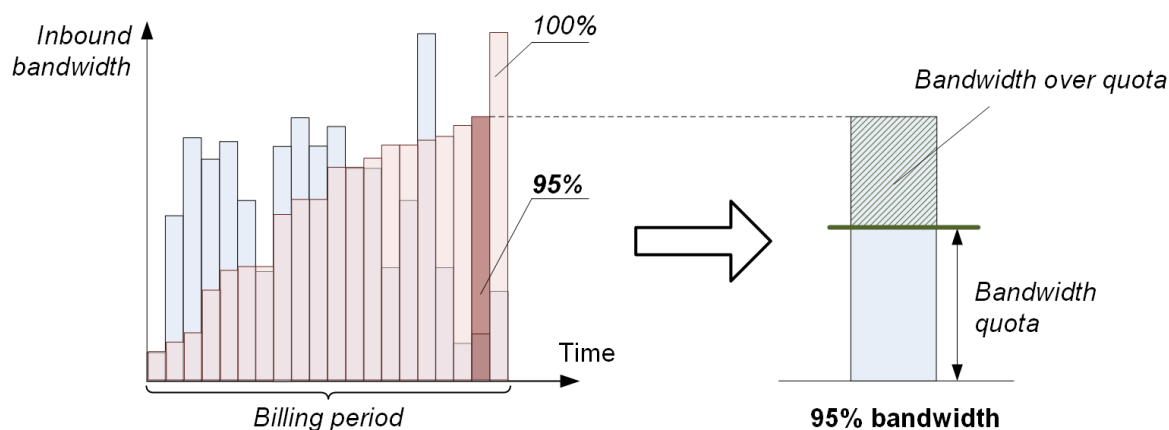
95% bandwidth — inbound bandwidth on the 95th percentile

Bandwidth over quota = 95% bandwidth – Quota

Scheme 11: Burstable rating method

Bandwidth quotas and prices are defined in a price specification.

№	Service	Type	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▾ 1	Burstable	Basic			-	4,000.00	3,389.83	✖
1.1	Bandwidth in	Billing period specification	200	1	Mbit/s	0.00	0.00	✖
1.2	Bandwidth in	Billing period specification		1	Mbit/s	20.00	16.95	✖
1.3	Bandwidth out	Billing period specification	400	1	Mbit/s	0.00	0.00	✖
1.4	Bandwidth out	Billing period specification		1	Mbit/s	10.00	8.47	✖

> ⚙ Bandwidth quota excess rating is done for all services included into a price plan that have a bandwidth unit specified as the measuring one.

Within the *Burstable daily* rating method, calculation is done not for the whole billing period but separately for each calendar day.

3.15.5.3. Suspension Services

See also:
- [How to Set Up and Use Suspensions](#)
- [Preset Providing Schemes for Suspension Services](#)

Hydra supports two types of suspensions — a [non-payment suspension](#) and a [temporary suspension](#).

Non-payment Suspension

A non-payment suspension is a one-off service with a time-based billing period (for example, 3 months). It is activated automatically if funds on a customer account are insufficient for providing services according to all subscriptions in terms of a current contract. A number of days since last charge log for these subscriptions ended should be greater that a number specified in the **Grace period before non-payment suspension** [division parameter](#). It is not possible to activate the non-payment suspension manually.

> The non-payment suspension can be activated only on the condition that within division parameters there is a grace period specified and the corresponding service is added to a price specification which is in force for a customer.

> The system uses the grace period duration set at the time when the last charge log in terms of the contract was closed. Even if later on you decrease **Grace period before non-payment suspension**, the contract will still be suspended only after the old period is over. To use a new period, select the **Process customer accounts using new suspension parameters** check box within the *Activating non-payment suspensions* task settings.

When the suspension is activated the contract becomes *Suspended*. Other services under the contract are disabled.

If at the time of suspending all other customer contracts are already *Suspended*, or within other contracts there are subscriptions but no charge logs are issued, the customer also becomes *Suspended*. However, he or she retains access to the Customer Self-Care Portal where a recommended payment amount can be seen. Customer equipment becomes *Inactive*, and addresses bound to it, which periods end after the suspension starts, become *Disabled*.

When the billing period of the suspension service is over, the contract is transferred into the *Terminated* status, and all subscriptions based on it get closed. If all contracts of the customer become *Terminated* the customer is *Disabled*.

There is a special task called *Activating non-payment suspensions* that issues charge logs for suspension services. The *Terminating service contracts and disabling customers* task processes contracts with expired suspension periods.

Reactivating Suspended Services

Services are restored after the non-payment suspension if:

- the customer account has sufficient funds to issue charge logs for all subscriptions for services with [the highest priority](#) (in terms of one contract): [a payment has arrived](#), the customer has used a [promised payment](#) in the Customer Self-Care Portal, or the customer has been granted a [credit limit](#) (permanent or temporary);
- the customer changes services in subscriptions for other ones (via the Customer Self-Care Portal or by contacting support) so that funds on the account are enough for issuing charge logs.

In these cases, a charge log with the suspension service is terminated, the customer and customer equipment become *Active*, equipment addresses which periods end later than the suspension end date become *Enabled*, and the contract gets back in force. Charge logs are issued for subscriptions.

Temporary Suspension

A temporary suspension is a recurrent subscription service. It blocks issuing charge logs for subscriptions to regular services in terms of a current contract. It can be a voluntary suspension a customer subscribes to in the Customer Self-Care Portal, or, for example, a suspension for a viral activity enabled via the Service Provider Console.

If in terms of one contract services are provided at different CPE, Hydra Billing allows suspending subscriptions to these services separately. To suspend a certain subscription, create a subscription to the temporary suspension and specify the same equipment as in the subscription to be suspended. You can also suspend all subscriptions within a contract at once. To do so, specify no equipment when subscribing to the suspension service.

If any of the regular services is provided without equipment it can be suspended only together with all other subscriptions under the contract.

> To use one and the same suspension service for one or for all subscriptions under the contract, make sure that in its providing scheme **Service providing point** has the *Can be specified* value.
>
> You can create two providing schemes for suspension services. In the first one, in **Service providing point** choose *Equipment*, and in the other one — *Not specified*. Then, apply these schemes to various suspension services: a service with the first scheme will suspend separate subscriptions, and the second one — all subscriptions within a contract.

In case there is already a temporary suspension used for one subscription in terms of a contract it is impossible to activate another suspension for all the subscriptions.

A charge log with a temporary suspension service is issued after the suspension subscription starts and the current charge log for a regular service is closed. Similarly to the case, when a price plan is changed, you can immediately activate the temporary suspension by terminating the current charge log for the regular service and issuing a charge log for the suspension service.

A customer with an activated suspension service remains *Active*, and the customer's contract is *In force*.

If an end date is specified in a suspension subscription, subscriptions to regular services get activated again when it is over (charge logs for them will be issued when the suspension service charge log becomes *Executed*). Otherwise, when the next billing period for the suspension service is over, a new charge log is issued for it.

A customer can disable a temporary suspension in the Customer Self-Care Portal if within the corresponding providing scheme **Permission to unsubscribe** is set to *Customer or operator*. Changes come in force instantly: a charge log for a suspension service is terminated on the current date, and subscriptions to regular services get in force.

> If after the end of the temporary suspension a customer has insufficient funds for issuing charge logs for regular services the **Grace period before non-payment suspension** starts according to division parameters.

3.15.5.4. Preset Service Providing Schemes

In this section:

- Providing Schemes for Regular Services
- Providing Schemes with Special Rating Methods
- Providing Schemes for Suspension Services
- Providing Schemes for One-off, Traffic and Access Services

Hydra Billing has a list of out-of-the-box service providing schemes. You can use them, edit if necessary, or add and configure new ones.

Schemes for Providing Regular Services on Equipment

Schemes below are used for providing regular recurrent services on equipment.

- **Billing period** for services with such providing schemes equals 1 month.
- Funds reservation is not used.
- If a current charge log has been terminated early a customer fee will be recalculated according to a number of days passed since the period beginning. Remaining days in the billing period will not be charged for (**Charging when terminating charge log**).
- Subscriptions to price plans with such providing schemes can be opened and closed by an operator.
- A customer can change his or her current price plan to one of those with a listed scheme, if within a providing scheme of the previous price plan **Permission to unsubscribe** is set to *Customer or operator*).
- A customer can change a price plan with a listed scheme to another one, if within a providing scheme of the next price plan **Permission to unsubscribe** is set to *Customer or operator*.
- Services with such providing schemes cannot be subscribed to without specifying equipment (**Service providing point**).

Providing schemes differ in charging parameters and conditions for early charge logs termination.

Service type	Regular ▼
Service providing type	Recurrent ▼
Billing period	Time-based ▼ 1 month ▼
Reservation period	0 month ▼
Rating method	Default ▼
Permission to subscribe	Customer or operator ▼
Permission to unsubscribe	Customer or operator ▼
Early termination condition	☐ Insufficient balance for charge ☑
	☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Prorated daily ▼
Service providing point	Equipment ▼
Charge log creation management	Internal ▼
Aggregation period	1 day ▼
Service restriction condition	Access service is disabled ▼
Service priority	Normal ▼

Full Charging at Billing Period Beginning, 1 Month

A service is provided only if there are funds on a customer account sufficient to cover a billing period. The whole amount is charged at the beginning of the period. The providing scheme has no conditions for early charge logs termination.

Default rule

Activation conditions

— *Customer account status:* sufficient balance for billing period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 month
— *Charging when opening charge log:* prorated daily

Full Charging at Billing Period End, 1 Month

The scheme has the same parameters as the previous one except for charging made at the end of a billing period.

Default rule

Activation conditions
— *Customer account status:* sufficient balance for billing period

Activation parameters
— *Charging type:* at period end
— *Charging period:* 1 month
— *Charging when opening charge log:* prorated daily

Prepaid, Daily Charges, 1 Month

A service is provided only if there are funds on a customer account sufficient to cover one charging period (1 day). Funds are charged at the beginning of each day. The providing scheme has no conditions for early charge logs termination.

Default rule

Activation conditions
— *Customer account status:* sufficient balance for charging period

Activation parameters
— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Partial Charging After Insufficient Funds, 1 Month

The scheme is similar to the previous one. However, a charge log is terminated early if a customer has insufficient funds for the next charging.

Early termination condition
☑ Insufficient balance for charge ☑
☐ Sufficient balance for billing period ☐

Full Charging After Insufficient Funds, 1 Month

If a charge log has been terminated due to insufficient funds, in the next billing period a customer will be charged for the whole month at once. On the other hand, if the charge log is closed normally (by the scheduled task, a customer or an operator) charging will remain daily. Different charging settings are configured with the help of various activation rules.

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* closed manually by customer

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* closed manually by operator

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* automatically (expired)

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Default rule

Activation conditions

— *Customer account status:* sufficient balance for billing period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 month
— *Charging when opening charge log:* prorated daily

Sufficient Balance for Billing Period After Insufficient Funds, 1 Month

Funds are charged at the beginning of every day. However, if the previous charge log has been closed due to insufficient funds, to start a new billing period a customer is to have enough funds to cover the whole month, but charging remains daily.

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* closed manually by customer

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* closed manually by operator

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Activation conditions

— *Customer account status:* sufficient balance for charging period
— *Reason for closing previous charge log:* automatically (expired)

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Default rule

Activation conditions

— *Customer account status:* sufficient balance for billing period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 day
— *Charging when opening charge log:* prorated daily

Providing Schemes with Special Rating Methods

These schemes are also used for providing recurrent services on equipment with a 1 month billing period. A charging period is the same as the billing period i.e. equals 1 month. A service is activated when funds are sufficient to pay for the whole month, and charging is carried out at the period beginning. No reserving is used. Both a customer and an operator have the permission to open and close subscriptions to services. Charging at opening or closing charge logs is prorated daily and there are no conditions for early charge log termination.

- *Full charging with fixed billing date* uses the *Full charging with fixed billing date* rating method.
- *With excess traffic, 1 month* — the scheme with the *With excess traffic* rating method.
- *Burstable, 1 month* — the scheme with the *Burstable* rating method.

Providing Schemes for Suspension Services

See below the providing schemes for suspension services.

Non-payment Suspension, 3 Months

This providing scheme is used for services of the *Non-payment suspension* type. A billing period is 3 months, a charging period is the same as the billing period. Charging is carried out at the period beginning regardless of funds on a customer account. A non-payment suspension prevents providing any services in terms of a customer contract, therefore it cannot be provided on equipment.

Service type	Non-payment suspension ▾
Service providing type	One-off ▾
Billing period	Time-based ▾ 3 month ▾
Reservation period	0 month ▾
Rating method	Default ▾
Permission to subscribe	No one ▾
Permission to unsubscribe	Operator only ▾
Early termination condition	☐ Insufficient balance for charge ☑ ☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Full ▾
Service providing point	Not specified ▾
Charge log creation management	Internal ▾
Aggregation period	day ▾
Service restriction condition	Never ▾
Service priority	Normal ▾

Temporary Suspension, 1 Month

This providing scheme is used for services of the *Temporary suspension* type. A billing period and a charging period equal 1 month, charging is carried out at the period beginning. Both a customer and an operator have the permission to open and close subscriptions to services. A service is provided only when funds are sufficient for the charging period. A temporary suspension can be used both on equipment and without it.

Service Providing Parameters

| Service type | Temporary suspension ▾ |

| Service providing type | Recurrent ▾ |

| Billing period | Time-based ▾ | 1 | month ▾ |

| Reservation period | 0 | month ▾ |

| Rating method | Default ▾ |

| Permission to subscribe | Customer or operator ▾ |

| Permission to unsubscribe | Customer or operator ▾ |

| Early termination condition | ☐ Insufficient balance for charge ☑
 ☐ Sufficient balance for billing period ☐ |

| Charging when terminating charge log | Prorated daily ▾ |

| Service providing point | Can be specified ▾ |

| Charge log creation management | Internal ▾ |

| Aggregation period | | day ▾ |

| Service restriction condition | Never ▾ |

| Service priority | Normal ▾ |

Service Activation Rules

Default rule

Activation conditions

— *Customer account status:* sufficient balance for billing period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 month
— *Charging when opening charge log:* prorated daily

Providing Schemes for One-off, Traffic and Access Services

One-off Service Provided on Equipment

This is a scheme for providing one-off services on equipment, i.e. services that are provided instantly and once only. Both a customer and an operator have the permission to activate a service. It is provided if available funds are sufficient.

Service type	Regular
Service providing type	One-off
Billing period	Transaction-based ⌄	day
Reservation period	day
Rating method	Default
Permission to subscribe	Customer or operator
Permission to unsubscribe	Customer or operator
Early termination condition	☐ Insufficient balance for charge ☑ ☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Prorated daily
Service providing point	Equipment
Charge log creation management	Internal
Aggregation period	day
Service restriction condition	Never
Service priority	Normal

Internet Traffic, Voice Traffic

These are providing schemes for traffic services from the corresponding product catalog group.

Service type	Traffic
Aggregation period	1 hour
Service restriction condition	Never
Service priority	Normal

Internet Access

This providing scheme is used for access services that are provided on equipment and only on the condition that a customer has no arrears or the amount of arrears is less than the amount of granted credit limits.

Service type	Access service
Service providing type	Recurrent
Permission to subscribe	Customer or operator
Permission to unsubscribe	Customer or operator
Charging when terminating charge log	Full
Service providing point	Equipment
Aggregation period	day
Service restriction condition	Never
Service priority	Normal

3.15.6. Scheduled Tasks

In this section:

- Scheduled Tasks
- Oracle Jobs
- Standard Tasks

Scheduled tasks are special procedures that run on schedule and fulfill various system functions such as rating traffic, issuing and processing charge logs, etc. Open the **Administration** menu to manage tasks.

> Right after launching Hydra Billing in the production mode, make sure to set up tasks monitoring.

Types of tasks are:

- *System* — a task that runs for the system in general and is created when installing Hydra Billing,
- *Division* — a task that runs within one division (a service provider) and is initialized when installing the system,
- *Object* — a task related to a certain object, for example, a traffic collector or network equipment manager, etc., and is automatically created when an object becomes *Active,*
- *External* — a task that is run by some external application, not the billing core, and
- *Custom* — a task developed for a certain provider.

Scheduled Tasks

| Scheduled tasks | Oracle jobs |

Filter

Object	[ ] 🔍 ✎ 🗑	
Logging level	All messages ▼	
Period	Current day 📅 🗑	
	Show	

On the **Scheduled tasks** tab, information on tasks is shown. You can filter tasks by object to view only the tasks that were created for it. You can also choose a type of messages from task logs to be shown and for what period.

	ID	Name	Type	Next run	Object	Interval	Status		
▶	-201	Preparing charge logs for recurrent services	Division	17/09/2018 11:17:12		3 minutes	Pending	🔓	▶
▶	-301	Closing and putting in force charge logs	Division	17/09/2018 11:11:59		2 minutes	Waiting to start	🔓	▶
▶	50151301	Closing expired application sessions	Division	17/09/2018 11:10:57		5 minutes	Waiting to start	🔓	▶
▶	50134801	Monitoring customer account balances	Division	20/09/2018 09:56:25		3 days	Pending	🔓	▶
▶	50502601	Updating equipment in provisioning module	Division	17/09/2018 11:10:10			Running	🔓	■
▶	50502401	Updating service statuses in provisioning module	Division	17/09/2018 11:08:25			Running	🔓	■
▶	50494501	Updating current profiles in provisioning module	Division	17/09/2018 11:10:56		3 minutes	Waiting to start	🔓	▶
▶	50494601	Processing system message queue	Division	17/09/2018 11:11:14		1 minute	Waiting to start	🔓	▶
▶	50565501	Monitoring overdue receivables	Division	17/09/2018 11:33:18		1 hour	Pending	🔓	▶
>	52771101	Re-executing provisioning commands	Division	16/05/2018 22:04:12		5 minutes	Locked	🔒	▶
▶	379191701	Activating non-payment suspensions	Division	17/09/2018 11:32:26		1 hour	Pending	🔓	▶
▶	393457801	Refreshing materialized views for quick search	System	17/09/2018 02:45:01			Running	🔓	■
>	50277401	Optimizing Oracle Text index	System	18/09/2018 09:57:05		14 days	Pending	🔓	▶

A color of a row depends on a task status:

- a white row stands for *Pending*,
- a green row — for the *Running* status (is in progress at the moment),
- a yellow row — for the *Waiting to start* status which means that the task will start with the next run of an Oracle job,
- a red row — for the *Locked*, *Failed to start* and *Failed* statuses. A task has the *Failed* status if any error occurred during its execution. The *Failed to start* status is applied in case a task remained in the *Waiting to start* status for more than 15 minutes and never ran (for example, Oracle jobs were not initialized, or the `JOB_QUEUE_PROCESSES` parameter in the database was set to *0*).

A task can be manually locked by clicking 🔓 in the corresponding row. If at the time of clicking the task is *Running,* it gets locked after completing its run. Also, a task is locked automatically if it runs for the 10th time in a row with an error. To unlock the task, click 🔓.

To start a task manually, click ▶ in the corresponding row. The task will become *Waiting to start* and will start with the next run of an Oracle job. A locked task can be launched only manually.

To abort a task run, click ◼.

To view task runs, click ▶ in the corresponding row. A task that has no runs in the specified period has a different button — ❯. Run statuses are also displayed in different colors: white rows stand for successfully completed runs, green — for runs currently in progress, yellow rows signal for warnings, whereas red ones stand for errors during task runs.

▼ -301	Closing and putting in force charge logs			Division	17/09/2018 11:31:20		2 minutes	Waiting to start	🔓 ▶
ID	**Status**	**Start date**	**End date**	**Run type**	**Message**				
272394801	Success	17/09/2018 00:04:11	17/09/2018 00:04:11	Automatically	112 accounts processed. Time elapsed: 00:00:21. Errors: 0.				
272395601	Success	17/09/2018 00:12:08	17/09/2018 00:12:08	Automatically	1 accounts processed. Time elapsed: 00:00:00. Errors: 0.				
272397901	Success	17/09/2018 00:17:52	17/09/2018 00:17:52	Automatically	1 accounts processed. Time elapsed: 00:00:00. Errors: 0.				

To view logs for a run with errors or warnings, click the corresponding row.

▼ 50265501	Calculating business indicators			Division	19/09/2018 09:52:36	1 day	Pending	🔓 ▶
ID	**Status**	**Start date**	**End date**	**Run type**	**Message**			
9930301	Error	18/09/2018 17:38:21	18/09/2018 17:38:21	Automatically	Execution error JB_SYS_PKG.CALCULATE_BUSINESS_INDICATORS [ORA-20100: Unable to find an exchange rate EUR to USD on the date 23/08/2018 17:41:59 (provider Teleline).].			

ID	**Subject**	**Object**	**Document**	**External code**	**Operation date**	**Status**	**Message**	**Message repeats**
9930401					18/09/2018 17:38:21	Error	ORA-20100: Unable to find an exchange rate EUR to USD on the date 23/08/2018 17:41:59 (provider Teleline). ORA-06512: at "AIS_NET.ERRORS_PKG_S", line 64 ORA-06512: at "AIS_NET.ERRORS_PKG_S", line 81 ORA-06512: at "AIS_NET.MAIN", line 362 ORA-06512: at "AIS_NET.SD_CURR_EXCH_RATES_PKG_S", line 47 ORA-06512: at "AIS_NET.SD_CURR_EXCH_RATES_PKG_S", line 214 ORA-06512: at line 1 ORA-06512: at "AIS_NET.RPT_INDICATORS_PKG_S", line 130 ORA-06512: at line 1 ORA-06512: at "AIS_NET.RPT_INDICATORS_PKG", line 62 ORA-06512: at "AIS_NET.JB_SYS_PKG", line 1359 ORA-06512: at line 2 ORA-06512: at "AIS_NET.SS_JOBS_PKG", line 794	0

To close run logs, click the row again. To hide all rows with task runs, click ▾.

By clicking a task row you open its settings.

Scheduled task Closing and putting in force charge logs: edit ☒

General   Settings

ID -301

Type Division

Status Waiting to start

Name [Closing and putting in force charge logs]

Stored procedure JB_SYS_PKG.INVOICE_PROCESSING

Logging level [Information ▼]

First run date [17/03/2010 18:17:14] 🗓

Last run date [18/09/2018 10:57:29] 🗓

Next run date [18/09/2018 10:59:29] 🗓

Start hour of execution interval [ ]

End hour of execution interval [ ]

Period days [0] , hours [0] , minutes [2]

Manual start next time No

[Save]   Close   Delete

On the **General** tab, for tasks of the *System*, *By division*, and *By object* types there are execution parameters — a period and time interval (for example, for running a task only during night hours). Open the **Settings** tab to set parameters for a task. *External* tasks are executed in accordance with settings of external applications.

Oracle jobs

Tasks runs are managed by service jobs specified on the **Oracle jobs** tab. The number of Oracle jobs depends on the value of the **Number of Oracle jobs for running scheduled tasks** system parameter.

An Oracle job runs with a small period (about 30 s) and checks which tasks are to be started. In case there are several tasks, the Oracle job activates a task with the earliest start time and runs until the task is completed.

Scheduled tasks

Scheduled tasks	Oracle jobs						
Oracle job	Previous run	Current run	Next run	Errors qty.	Status	Wait seconds	Running
504	18/09/2018 11:09:25		18/09/2018 11:24:54	0			
505	18/09/2018 11:15:26	18/09/2018 11:25:43	18/09/2018 11:15:56	0	WAITING	2 seconds	15 hours 59 minutes 32 seconds ✖
506	18/09/2018 11:26:12		18/09/2018 11:26:42	0			
507	18/09/2018 11:26:34		18/09/2018 11:27:04	0			
508	18/09/2018 04:11:07	18/09/2018 04:28:11	18/09/2018 04:26:09	0	WAITING	10 seconds	23 hours 6 minutes 51 seconds ✖

↻ Refresh

⊗ Delete jobs

Number of Oracle jobs for running scheduled task [10] [Initialize]

Besides times of the previous, current and next runs, the table also shows the following:

- **Failures qty.** — `FAILURES` from the `SYS.DBA_JOBS` system view,
- **Status** — `STATE` from the `V$SESSION` system view,
- **Seconds in wait** — `SECONDS_IN_WAIT` from the `V$SESSION` system view, and
- **Running** — `TOTAL_TIME` from the `SYS.DBA_JOBS` system view.

An Oracle job can be aborted by clicking ✖.

3.15.6.1. Standard Tasks

In this section:
- System Tasks
- Tasks Within Divisions
- Tasks Related to Objects

> ⚠ Make sure to monitor task statuses. In case of errors you are to contact tech support.

System Tasks

Task	Description	Settings
Analyzing database schema	Gathers statistics on tables in the `AIS_NET` schema. Up-to-date statistics allows the database to choose optimal plans for executing requests.	• **Percentage to estimate** — a percentage of table rows to estimate. • **Gather statistics only on frequently changing tables** — the analysis is carried out only for tables with data that has significantly changed since last statistics collection. • **Invalidate cursors immediately** — if selected, dependent cursors are invalidated immediately.

Task	*Description*	*Settings*
Archiving database tables	Archives fast-growing DB tables after a specified period by moving outdated records from the main to a separate table space.	● **Maximum execution time** — a time interval after which an executing task is aborted. ● **Traffic CDRs aging period** — a period for storing logs on completed PPP sessions in the main table space. ● **Application sessions aging period** — a period for storing logs on completed application sessions in the main table space. ● **Provisioning data aging period** — a storage period in the main table space of the provisioning data that is no longer used in the system.
Deleting inactive register records	Deletes outdated records from special tables containing details on providing services, active credit limits, etc.	● **Maximum execution time** — a time interval after which an executing task is aborted. ● **Aging period of credit limit register records** — a period for storing records on outdated credit limits.
Executing deferred tasks	Runs procedures that allow asynchronous processing by extracting them from the special queue. Such procedures are: ● issuing charge logs and discount certificates after payment, ● updating certain materialized views and indexes, and ● re-creating equipment profiles by a template. To process the queue faster, several task instances can be created in the system. If the queue is empty, the task will continue running while awaiting new procedures.	**Maximum execution time** — a time interval after which an executing task is aborted.
Monitoring materialized views refreshing	Monitors refreshing materialized views that are necessary for the [quick search](#). Performs fast refreshing of all views. If fast refreshing is not possible and the check box **Allow full refreshing of materialized views** is selected, carries out full refreshing.	**Allow full refreshing of materialized views**

Task	Description	Settings
Optimizing Oracle Text indexes	Optimizes the quick search performance.	
Purging exception queues	Deletes obsolete messages that are in error queues because they were not delivered by the system queues to a receiving application.	**Message storage period** — a storage period of messages in the error queues.
Refreshing materialized views for quick search	Carries out fast refreshing of materialized views used for the quick search if initial data has changed.	

Tasks Within Divisions

Task	Description	Settings
Archiving charge logs	Archives executed and canceled charge logs according to the parameters specified in service providing schemes. Saves table space thus increasing the DB performance. If the task does not run for a long time, the system performance may noticeably drop.	**Maximum execution time** — a time interval after which an executing task is aborted.
Activating non-payment suspensions	Detects customers with insufficient funds, i.e. those who do not have enough funds on their accounts to issue further charge logs under one contract. If the period after the last charge log ended is equal to **Grace period before non-payment suspension** from division parameters, the task issues a charge log with a service of the *Non-payment suspension* type. And the contract becomes *Suspended*. If a suspension service is not available (for example, it was not added to a price specification), a contract is not suspended and is not checked during further task runs. To repeat the attempt to suspend such a contract after adding a suspension service you need to select the **Process customer accounts using new suspension parameters** check box in the task settings.	**Process customer accounts using new suspension parameters** — select this check box after changing suspension parameters (decreasing a grace period, or adding a suspension service to a price specification). Then the task will once again check customer contracts that were previously skipped due to a longer period before suspension activation or inability to match a corresponding service. New suspension parameters will affect only the contracts that have not been suspended yet. If there is already a charge log with a suspension service under a contract, the changes will not affect it.

Task	*Description*	*Settings*
Archiving data processing requests	Archives outdated requests for processing data that were created when building reports, and deletes data corresponding to them in DB tables. Saves table space thus increasing the DB performance.	• **Aging period since planned execution date** — a request will be archived if the number of days passed since its planned execution date exceeds the specified number. • **Allowable number of report table rows** — if after archiving all old requests, the number of rows in the DB table with report data exceeds the one specified here, the task will archive the oldest requests until the allowable number of rows is achieved.
Calculating business indicators	Calculates business indicators for widgets except for including data for the current date into calculations.	• **Period for indicators calculation** — a total number of months to be taken into consideration when calculating indicators. • **Period without using any services to consider customer inactive** — is used when detecting customer activity. • **Region hierarchy type to calculate penetration** — a federal or municipal hierarchy. • **Recalculate indicators** — if selected and the previous task run was less than 1 day ago, the task will recalculate indicators, after that, the check box will be cleared.
Canceling expired prepared payment orders	Changes statuses of payment orders from *Prepared* to *Canceled* if the time elapsed from their creation exceeds the one specified in the task settings.	**Timeout** — a period of time after which a prepared payment order is transferred into the *Canceled* status.
Closing and putting in force charge logs	The task does the following: • changes statuses of reserved charge log rows into *Charged* if their charging date has come and thus charges corresponding amounts to customer accounts, • puts in force prepared charge logs which start dates have come, • closes charge logs that are in force, i.e. makes them *Executed* if their period is over,	• **Task execution time when profiling results are shown** — if the task runs longer than specified in this parameter, its log will contain durations of each of its steps. • **Relative error threshold to consider task run failed** — if the ratio of failed operations to the total number of operations within one task run exceeds the threshold value, the run will be aborted with the *Error* status.

Task	*Description*	*Settings*
	● generates events on deactivating additional services that expired before a charge log validity period, ● closes expired credit limits. If for some reason the task becomes locked, customers will not be charged for current services as well as no expired credit limits will be closed. As a result, customers will be able to continue using services even with insufficient funds on their accounts. The following successful run, when funds will be charged for the whole task downtime, will then lead to customer debts.	● **Trace when runtime threshold is reached** — if selected and the runtime threshold is exceeded, the task run will be traced. ● **Runtime threshold for tracing**. ● **Tracing duration** — a time interval during which the task run is traced.
Closing expired application sessions	Closes sessions from the Service Provider Console and the Customer Self-Care Portal applications when the period after their last activity exceeds the one specified in the task settings.	**Period since last session activity**
Creating payment requests	Creates payment requests and autopayments according to the rules specified in **Administration** > **Parameters** > **Payment requests**.	
Monitoring customer account balances	Detects discrepancies between customer account balances and payment and charges amounts. If a warning about a discrepancy appears in task logs, be sure to contact tech support.	● **Allowable number of errors** — the number of accounts with mismatching balances, at which the task will be terminated with an error. ● **Recalculate erroneous balances** — if selected, erroneous balances are to be recalculated. Be sure to consult with tech support before selecting this check box. ● **Enable logging** — if selected, the task logs will contain details on accounts with discrepancies.

Task	*Description*	*Settings*
Monitoring overdue receivables	Monitors overdue customer receivables. When detected, the task closes a current invoice for a service. Charges late payment fees and early termination fees for contract commitments due to unpaid receivables.	**Charge log end dates for subscriptions with overdue receivables** — you can use this parameter if due some reasons the task has not run for a long time. With the next run, charge logs with overdue receivables will be closed with end dates equal to the specified date. If the date is not entered, the charge logs will be closed with end dates equal to corresponding due dates. The parameter value is used only at the first task run. After it the value is deleted.
Monitoring payment allocation registers	Monitors matching customer payments to [receivables](#). If a warning about a discrepancy appears in task logs, be sure to contact tech support.	• **Allowable number of errors** — the number of accounts with incorrect allocation, at which the task run will be terminated with an error. • **Recalculate invalid values** — if selected, invalid values are to be recalculated.Be sure to consult with tech support before selecting this check box. • **Enable logging** — if selected, the task logs will contain details on accounts with discrepancies.
Obtaining provisioning commands execution results	Retrieves from the incoming queue results of equipment control commands that are executed by the HEX agent, and saves them into a system table.	

Task	*Description*	*Settings*
Preparing charge logs for recurrent services	Analyzes customer subscriptions to services. If time remaining before the current invoice ends is less than a number of hours specified in the **Period for creating new charge log before current one ends** division parameter, a new charge log is issued in accordance with the subscription that is active at the time the previous charge log ends. A start date of the new charge log is equal to the end date of the previous one plus one second. The new charge log is created with the *Prepared* status. If in the task settings **Period closing date** is specified and a corresponding day of the month comes, the task creates a period closing memo with a period equal to the previous calendar month. For example, if in the settings the 10th day is specified as the closing date then on the 10th day of the current month the task will create a period closing memo with the period from the 1st to the last day of the previous month. Task locking or a failure during its run leads to the situation when charge logs for a new period will not be issued, thus, subscription fee will not be charged and services may become unavailable.	• **Period closing date** — a day of a current month for closing a previous month. • **Warn about enabled deferred payment without fixed billing date** — if selected and there are charge logs to be issued for subscriptions without fixed billing dates and enabled deferred payment, there will be warnings in the task logs. • **Relative error threshold to consider task run failed** — if the ratio of failed operations to the total number of operations within one task run exceeds the threshold value, the status of this run will be *Error*. • **Trace when runtime threshold is reached** — if selected and the runtime threshold is exceeded, the task run will be traced. • **Runtime threshold for tracing**. • **Tracing duration** — a time interval during which the task run is traced.
Processing recommended payments	For each active customer, the task estimates the closest date of any provided service deactivation. If the number of days before deactivation is less than specified in the task settings, a recommended payment is calculated for the customer. If the recommended payment is greater than 0, the *Recommended payment exists* event is raised for the customer. If the deactivation date is not estimated, for example, when a customer uses services with **Providing condition** set to *Sufficient balance is not required*, then, with the non-zero promised payment, the event will be also raised.	**Period for creating notification before service deactivation**

Task	*Description*	*Settings*
Processing session RADIUS accounting data in provisioning module	Rates traffic services on the basis of RADIUS accounting data for customer sessions preliminarily loaded by agent HARD into Hydra Billing.	
Processing system message queue	Retrieves from the system queue messages sent by external applications, and executes commands sent via this messages.	
Re-executing provisioning commands	Re-creates and sends to the execution queue such commands that have not been successfully executed, or no result was received over the period specified in task settings. The number of attempts to re-execute a command is limited by the corresponding parameter value.	• **Execution timeout before command re-execution** — a waiting period after a command is queued for execution upon which it can be sent for re-execution. If not specified, a default timeout value is 30 minutes. • **Maximum number of command re-executions** — unless specified, the default value is 5.
Synchronizing sessions with profiles in provisioning module	Generates commands for terminating or changing parameters for active sessions that are bound to inactive at the moment equipment profiles or those which exceed a maximum number of simultaneous sessions specified in the corresponding profile.	**Timeout for hung sessions** — the task generates commands to terminate active sessions that violate the restriction for the number of simultaneous sessions with the period since last update shorter than the one specified in this parameter.
Terminating service contracts and disabling customers	Changes statuses from *In force* into *Terminated* for expired contracts unless there are open subscriptions, as well as contracts with a fully provided service of the *Non-payment suspension* type. In case after that a customer has no contracts in force he or she becomes *Disabled*.	
Updating current profiles in provisioning module	Switches active profiles when changing the current time interval, and also changes the state of profiles according to their validity periods.	

Task	*Description*	*Settings*
Updating equipment in provisioning module	Retrieves messages from the system queue that concern changes of statuses and parameters of CPEs and addresses bound to them, and accordingly refreshes data on these CPEs in provisioning module. After refreshing data, it creates missing profiles and configurations for the CPEs. If the queue is empty the task will continue running while awaiting new messages.	**Maximum batch size** — the maximum number of messages retrieved from the queue at once.
Updating service statuses in provisioning module	Retrieves from the system queue messages concerning changes of statuses and parameters of services provided on CPEs, and accordingly refreshes data on these services in provisioning module. Creates missing profiles and configurations for new subscriptions to services. If the queue is empty the task will continue running while awaiting new messages.	**Maximum batch size** — the maximum number of messages retrieved from the queue at once.

Tasks Related to Objects

Task	*Description*	*Settings*
Obtaining data collector statistics	Is automatically added (while locked) when an object is transferred into the *Active* status, if this object was created on the basis of the *Data collector* product catalog entry from the *Network services* section. Rates traffic obtained from SNMP data collectors. If traffic volume matters for customers (when traffic is not free, or a bandwidth depends on it, etc.), a lock of the task or an error may lead to customer debts or incorrect service providing parameters.	● **Allow statistics without address** — if cleared and no CPE IP address is specified in statistics, traffic is considered unaccounted. ● **Group statistics by address** — if selected and CPE has several IP addresses, traffic for them will be accounted and logged into a charge log separately; if cleared, traffic for several addresses is summed up and recorded in one row of a charge log. ● **Trace during next run** — if selected, the next task run will be logged in detail.

Task	Description	Settings
Obtaining traffic collector statistics	Is automatically added (while locked) when an object is transferred into the *Active* status if this object was created on the basis of the *Traffic collector* product catalog entry from the *Network services* section. Obtains statistics and rates traffic collected by the aggregator. If traffic volume matters for customers (when traffic is not free, or a bandwidth depends on it, etc.), a lock of the task or an error may lead to customer debts or incorrect service providing parameters.	• **Allow statistics without address** — if cleared and no CPE IP address is specified in statistics, traffic is considered unaccounted. • **Group statistics by address** — if selected and CPE has several IP addresses, traffic for them will be accounted and logged into a charge log separately; if cleared, traffic for several addresses is summed up and recorded in one row of a charge log. • **Trace during next run** — if selected, the next task run will be logged in detail. • **Session attribute with customer IP address** — a name of a session attribute which is used when searching for it while rating.
Synchronizing with equipment manager	Is automatically added (while locked) when an object is transferred into the *Active* status if this object was created on the basis of the *Active equipment manager* product catalog entry from the *Network services* section. Prepares and transfers generated managing commands to agent HAMD, processes obtained replies. If the task does not run for some reason, commands will not be transferred to equipment. As a result, for example, customers may be denied access regardless of a new billing period start. Or, on the contrary, customers will continue using services even with disabled access service, or without a charge log for a new period.	**Reply timeout** — a period in seconds during which the task waits for the HAMD agent respond with commands results. If the response is not received on time, the task is aborted with an error. With the task next run, commands previously transferred to the HAMD agent will be re-executed.

External Tasks

Task	Description
Executing data processing requests	Processes the data processing requests queue including requests for building reports.
Synchronizing with external service	Is used for replicating data to external services.

4. How-To

In this chapter, learn how to:

- structure customer equipment,
- restrict address assignment,
- create groups, contracts, price specifications,
- create price plans and services,
- change service providing parameters,
- set up and rate phone services,
- set up and use suspensions,
- manage regions,
- add a new customer,
- add an employee,
- work with invoices,
- issue charge logs manually,
- correct missent payments,
- create discount programs,
- set up service priorities, and
- manage contract price plans.

4.1. How to Structure CPE: Two Approaches

In this section:

- Individual Equipment Approach
- Network Service Components Approach

See also:

- Network Services
- Add a New Customer

> The given examples are not the only possible ways to structure customer premises equipment in Hydra Billing. To choose the final option, please contact Hydra Billing Solutions LLC technical support.

Hydra Billing provides flexible management of access and services independently of both the technology you use and the types of services.

Before implementing the management of access and services parameters, you should choose how to structure CPE in the system. The approach is chosen depending on the software and hardware configuration of your network, the method of identifying the CPE, and types of services, provided or planned for implementing.

Hydra Billing has several methods of CPE identification:

- using addresses of any type (street, IP, phone numbers);
- using login and password;
- using the binding to the provider equipment (the switch port);
- combined use of all the above.

The method of CPE identification defines the way of accounting equipment addresses. Addresses can be stored either as provider equipment addresses or CPE addresses, or, if not necessary, they are not stored in the system at all. For example, when implementing an Ethernet network with the VLAN-per-customer model, the VLAN is usually specified for the provider equipment, not for the customer's one. And in case of a dynamic IP address assigning, there is no need to specify IP addresses for equipment.

Besides CPE identification, the address and the binding are used to manage the equipment through events. For example, a binding between the network service and its component via specification (the *Specification* binding type) can be used to set events for access management.

With Hydra Billing, you can use the following approaches to structure CPE:

- Individual equipment approach. According to the approach, the customer is the owner of "their own" equipment. The access management and service parameters management are carried out via bindings of the components of the equipment to network services and/or provider equipment components.
- Network service components approach. Unlike the first approach, the customer owns only a component of a network service. The access management and service parameters management are carried out via bindings of the components to provider equipment components or network services.

Individual equipment approach	*Network service components approach*
- is used for providing IPoE broadband services, analog cable TV, leased lines, collocation, and IPTV; - enables setting up one service or price plan for several pieces of customer equipment (by creating several components of customer equipment); - is more often used when working with organizations.	- is used for providing PPP broadband services, phone, hosting, IPTV; - enables setting up RADIUS authorization (for IP telephony and such technologies as IPoE, PPP, dial-up, and Wi-Fi); - enables authentication by login and password; - enables separating access to services (by using different network services); - is more often used when working with individuals.

4.1.1. Individual Equipment Approach

The main advantage of an individual customer equipment approach is that it allows the provider to create several components (even of different types) for one item of a customer equipment, and provide one service for all components simultaneously.
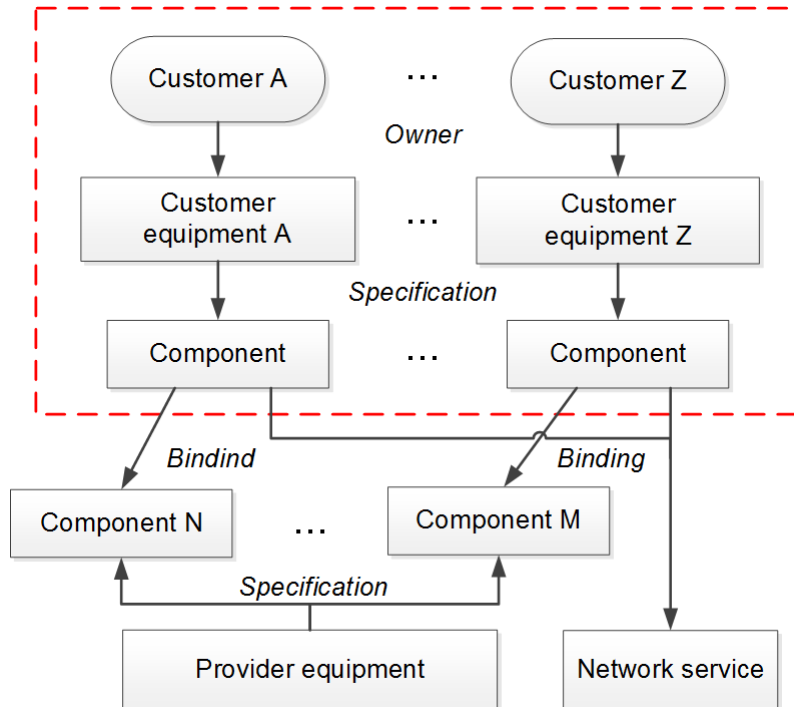
Scheme 12: Individual equipment approach

In general, the implementation is done in the following steps:

- creating a customer;
- creating customer premises equipment, so that automatically (according to a specification) one component of CPE is created by default;
- adding addresses for components of CPE;
- adding bindings to the components of equipment, equipment itself, and network services.

Typically, the components of CPE get bindings like:

- **Connection management** to the network service (firewall, shaper) in order to control the access parameters;
- **Network connection** to a component of provider equipment (for example, to a switch port) for CPE identification by port and managing the access via the provider equipment.

Possible cases within implementation also include:

- a customer, owning several items of CPE;
- one CPE with several components;
- a possible binding of a CPE component either to the provider equipment only, or to the network service only, or even no binding at all (if no management of CPE is required).

Example of Individual Equipment Approach

See the example below. The provider uses Ethernet and IPoE for the Internet access services. CPE authentication is done at the access control switch by combination: the provider equipment port, and the CPE IP and MAC addresses.
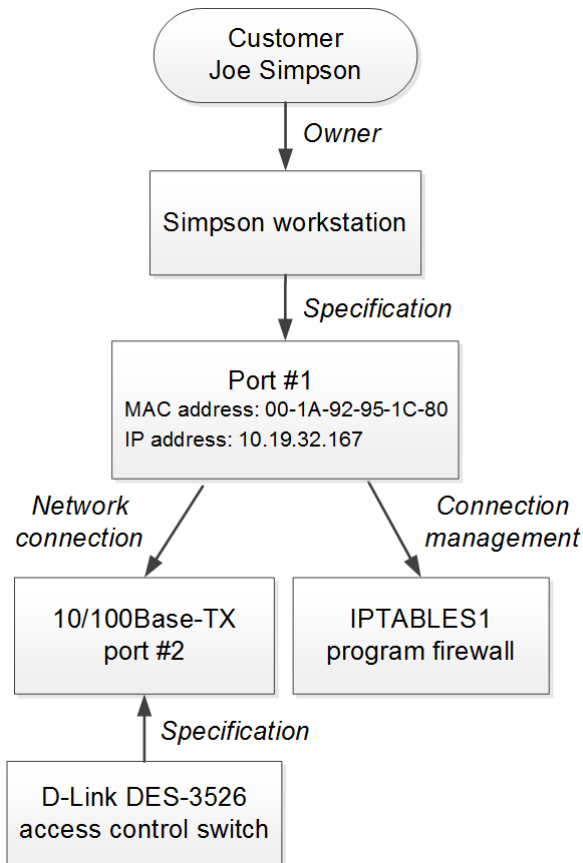
Scheme 13: Organizing IPoE access to the Internet

The customer owns CPE of a *Workstation* type with only one component of a *Port* type. In the system, the component has the IP and MAC addresses. It also gets the binding of the type *Network connection* to the access control switch port for authentication purposes, as well as the binding of the *Access management* type to the program firewall for the inbound and outbound bandwidth limitation.

For such product catalog entries as *D-Link DES-3526* and *Program firewall,* events are customized using the abovementioned types of binding.

4.1.2. Network Service Components Approach

This approach has its particular advantages, as only it allows authentication and authorization of customers with the help of RADIUS protocol.
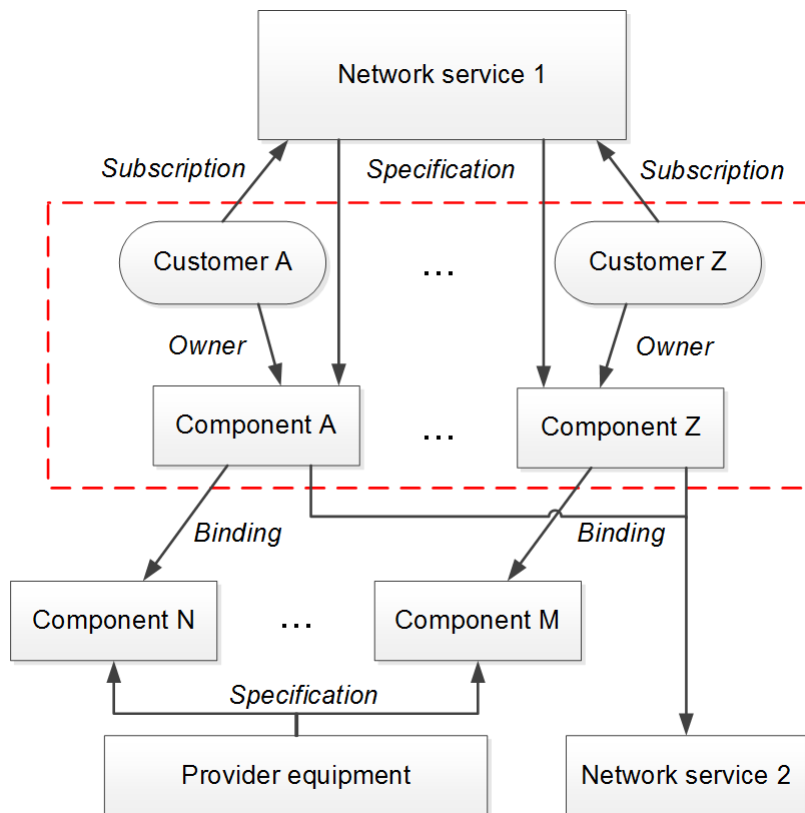
Scheme 14: Network service components approach

In general, the implementation in done in the following steps:

- creating a customer;
- adding a network service component;
- adding addresses to network service components;
- subscribing a customer to services;
- adding bindings to equipment components, pieces of equipment, network services.

Examples of Network Service Components Approach

See below two examples of the network service components approach implementation.
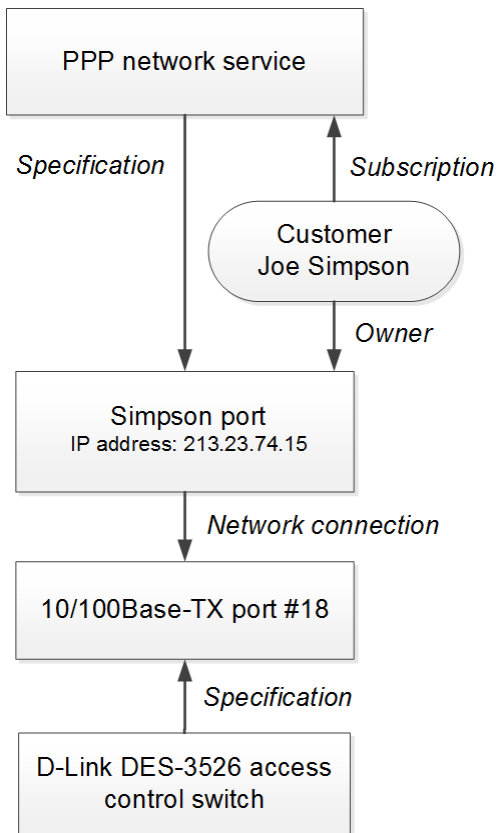
Scheme 15: Example of PPP access implementation

In the example, the service provider uses PPP to provide broadband services. On the basis of *VPN concentrator* catalog entry, the PPP network service is created. On the customer's page, a PPP network service component of the *Port* type is added. For it, the binding to the switch port of the *Network connection* type is created. To create the login and password, the customer is subscribed via the component to the PPP service on the [Services](#) tab. For the *VPN concentrator* entry, events of the abovementioned binding type are set.
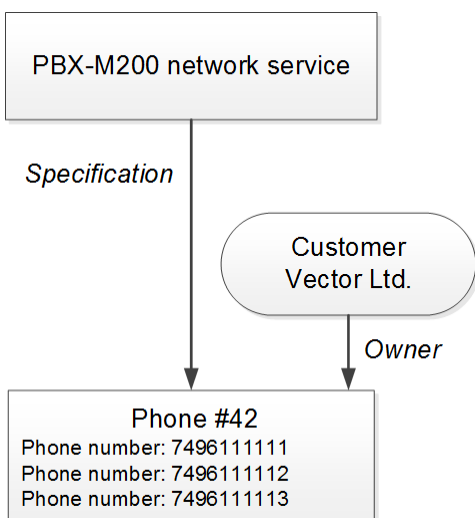
Scheme 16: Providing phone services

In the second example, the service provider, within the network services component approach, provides phone services to an organization. For the *PBX-M200* network service, a component of the *Phone* type is added. For the component, the address of the *Phone number* type is added. In this case, the organization uses several telephone numbers. Consequently, to all of the organization's telephone numbers one common service (a common price plan) can be applied. Events for the *PBX-M200* entry are set by the *Specification* binding type.

In case the customer uses a fixed phone service, there is no need to subscribe him or her to the *PBX-M200* service, because the authentication by login and password is not used. If the provider offers IP telephony services, a customer has to be subscribed to this service via its component.

4.2. How to Restrict Address Assignment

Oftentimes, service providers both of phone and Internet access services specify the range of phone numbers and network addresses to be used as a resource pool when assigning addresses to CPE. For example, when using several PBXs, you need to define the number range for each one, so their numbers can be assigned to customers. Or, in case you need to bind a subnet to a particular building in order to assign IP addresses from it to the customers living there. Depending on the approach to structure CPE, Hydra Billing allows restricting the resource pool and automatic assignment of addresses to CPE by:

- specification;
- bindings between objects;
- service address.

All three methods have the same step of specifying allowed range of addresses to a particular object (a network service, a segment object, or a building).

See below the schemes and examples of the abovementioned methods.

Restriction by Specification

The first method is suitable for the approach with CPE as a network service component.
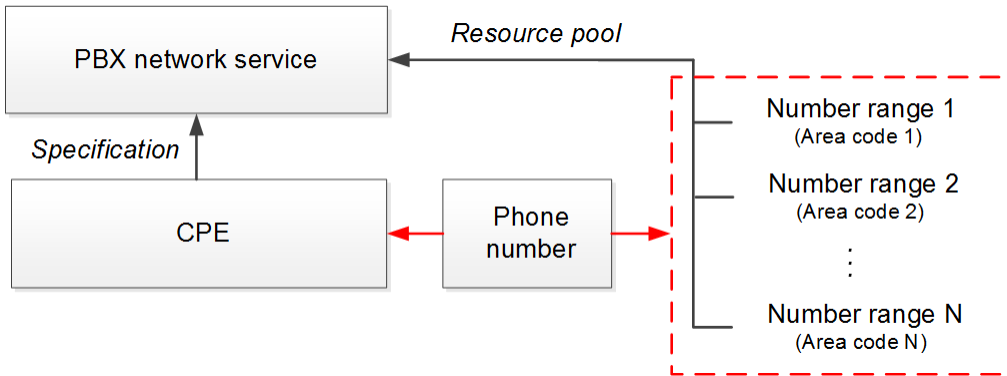
Scheme 17: Restriction by specification

See the example of this method for the restriction of phone numbers assignment.

Open the product catalog entry for the PBX network service and in the **Addresses** section add a row with the *Area code* type and the *Resource pool* purpose.

Then open the PBX network service and add permitted area codes in the **Addresses** section using the *Area code* type and *Resource pool* purpose.

Addresses

Address type	Address	Parent address	Bound to	Address purpose	Begin date	End date	Remark		
Area code (main)	13114440000-13114440999	1311444		Resource pool	01/08/2013 00:00:00			🗓	✖
Area code	13114441000-13114441999	1311444		Resource pool	01/08/2013 00:00:00			🗓	✖

+ Add Address

When adding a phone number to a PBX component, you should use 🔍 in the *Area* box, and then the system automatically suggests one vacant number from each of the permitted areas.

ID	Area	Free phone
62941101	13114440000-13114440999	13114440000
62941701	13114441000-13114441999	13114441000

Restriction by Bindings Between Objects

The second method is suitable for the approach with CPE as an individual equipment (IPoE, for example).

Scheme 18: Restriction by bindings between objects

Open the product catalog entry from the *Material assets* section and in the **Addresses** section add a row with the *Subnet* type and the *Resource pool* purpose.

Based on this entry, create an object to represent a segment of your network (*Segment object*), and for it specify the permitted subnets in the **Addresses** section.

This method uses [bindings](#) between the provider's and the customer's equipment via components. In the example below, see *Port #1* of the CPE bound to the switch port *SW-21-36* with the binding of the *Network connection* type*.

To restrict assigning addresses to the CPE *Workstation Sympson_G*, the abovementioned switch should be bound directly to the segment object.

Active equipment SW-21-36: Edit

Active equipment SW-21-36

General · Structure · Bindings · Events queue · Profiles · Configurations · Commands · Sessions · Comments

Forward

ID	Object 1	Component 1	Type	Object 2	Component 2	
62896701	SW-21-36	10/100Base-TX Port №10	Network connection	Segment object		✖

+ Add

Reverse

ID	Object 1	Component 1	Type	Object 2	Component 2	
62897301	Workstation Sympson_G	Port №1	Network connection	SW-21-36	10/100Base-TX Port №10	✖

+ Add

Save   Delete

> ⚠ You should note that the CPE must have a direct binding to the provider's equipment, which, in turn, must have a direct binding to a segment object.

When [adding](#) an address to a CPE component, you should use 🔍 in the **Subnet** box to see vacant IP addresses. The system then suggests one smallest vacant IP address from each of the subnets, if there are any.

ID	Subnet	Free IP address
62886701	193.178.118.128/26	193.178.118.129

Restriction by Service Address

The third method is a modification of the second one, and is used when the network segment is matched with a certain building, so there no need to bind multiple pieces of equipment. For each building, the system has a defined real estate object, and for it you add permitted subnets or subnet groups.
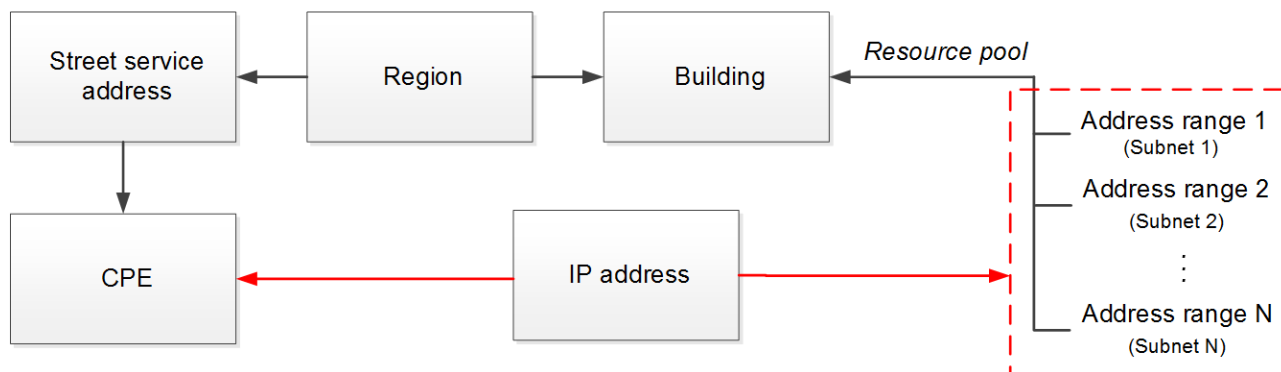
Scheme 19: Restriction by service address

Open the *Building* entry from the *Realty* section of the product catalog. In the **Addresses** section add a row with the *Subnet* type and the *Resource pool* purpose.

On the page of the real estate object (building), that corresponds to the network segment, add permitted subnets.

For the CPE from the network segment, you should add the street service address, with its region the same as the region of the real estate object.

Then use the magnifying glass in the *Subnet* box when adding an IP address to a CPE component. The system will suggest one smallest vacant address from the permitted subnets and from each of child subnets, if there are any in the registry of IP subnets.

ID	Subnet	Free IP address
62910601	193.178.118.0/25	193.178.118.17
62911001	193.178.118.32/27	193.178.118.33
62911201	193.178.118.64/26	193.178.118.65

> If the permitted range does not have any more added vacant addresses, the system automatically suggests adding a new one. If all possible addresses are taken, no variant is suggested. In this case, you should add a new permitted subnet for assigning addresses.

> Hydra Billing allows using multiple methods of restriction for assigning addresses, which can be applied at the same time.

4.3. How to Create Groups, Contracts, Price Specifications

In this section:
- Managing Groups and Basic Contracts
- Managing Contracts, Price Specifications, and Services
- Providing Services to Corporate Clients

See also:
- Groups
- Contracts
- Price Specifications

Managing Groups and Basic Contracts

Groups of customers can be divided into two types:

- Groups of customers defined by the services providing conditions (basic contracts with price specifications are created exactly for these groups). Services providing conditions can differ depending on: connection technologies (like ADSL or Ethernet), customers being entitled to benefits, loyalty programs, etc.; for corporate clients — the location of a firm, for example, at a particular office building, or at a plant premises, because services providing conditions for such groups are often differentiated.
- Groups used for the convenience of generating reports, issuing invoices, etc. (such groups do not require creating basic contracts). Customers are differentiated: into categories — as individuals, corporate clients, and staff; by region — for the convenience of issuing invoices for corporate clients and their delivery (there is no need for the delivery staff to sort out the invoices by regions).

It is obligatory for a customer to be placed into at least one group. A customer may also belong to several groups at the same time.

If a group has only one basic contract, the system chooses it automatically when creating a service contract. It can simplify your work with customers.

If a customer belongs to several groups with their basic contracts, you should choose *a primary group* for him or her, then the basic contract will be automatically chosen along with it. It is possible, for example, when a customer is provided with such services as phone and Internet access simultaneously, while the services belong to different basic contracts created for different groups.

See below an example of managing the customer groups. Groups with basic contracts are coloured, while those without them are not and have white background. The **Employees** group acts as both kinds of groups: there is a basic contract created for all the provider staff, but it is also used to distinguish employees from clients in reports.
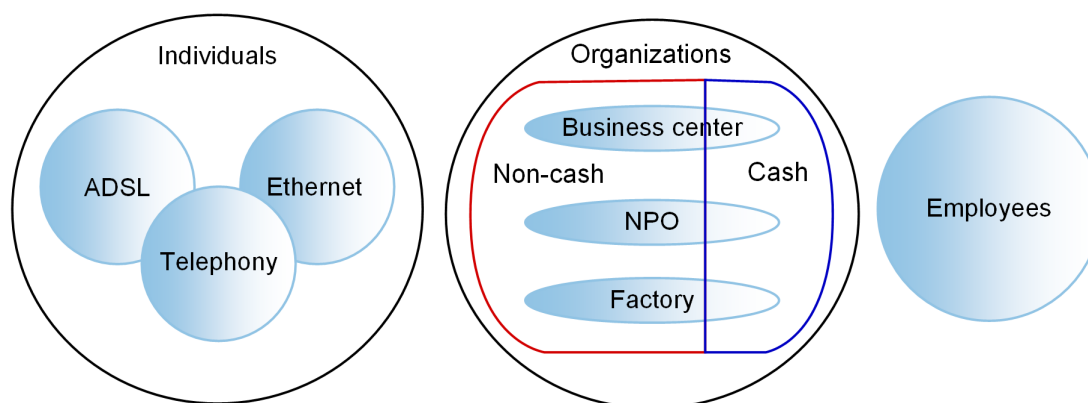
Scheme 20: Groups of customers

Basic subjects, such as individuals and organizations, can also be divided into groups. For example, to simplify building reports, organizations can be divided by their business activity types: banks, service providers, clients. It is not obligatory for basic subjects to be placed into a group, in contrast with customers.

Managing Contracts, Price Specifications, and Services

For each basic contract, you should create the necessary price specifications.

Basic Contract BC_Individual_Internet: edit

Basic Contract BC_Individual_Internet

← Back to search

General | Document dependencies | Comments | Audit | Copy

ID 40232501

Workflow | Standard for Basic Contracts ▼

Document number | BC_Individual_Internet | Date | 19/01/2011 | 01:41:37

Status | Effective ▼ | Change

Tags

Period | from 19/01/2011

Basic Contract

Subdocument workflow | Standard for Customer Contracts ▼

Subjects

Provider | Teleline

Client | Individual Customers

Contract conditions

Add Contract conditions

Content

id	Name	Status	Effective period	Remark
51291401	Price specification #PS16-7 from 01/03/2016	Effective	from 01/03/2016	Price plan "Student". Unlim 30Mbps (100Mbps incoming internet traffic at night).
51168401	Price specification #PS16-6 from 01/03/2016	Effective	from 01/03/2016	Tariff «Open». Unlim 30Mbps fully prepaid at the beginning of the period. New customers get 50% discount for the first 3 months.
51903601	Price specification #PS16-17 from 23/03/2016	Effective	from 23/03/2016	Triple Classic. Triple-play price plan with unlim internet access, prepaid local telephone calls and basic TV package.

See below possible options to place price specifications inside the contracts. As you see, with each possible scheme, a customer can subscribe to services from all the four price specifications.
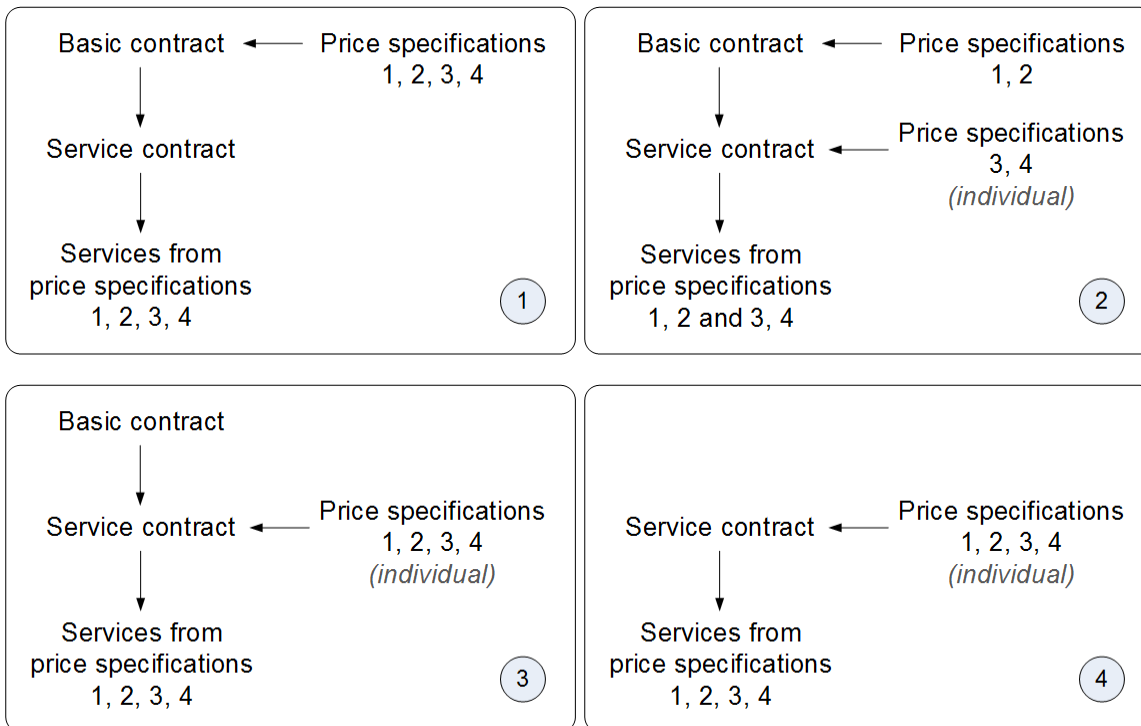
Scheme 21: Price specifications within basic contracts and service contracts

Typically, for groups of customers the 1st option is used, which has contracts created further to basic contracts, while all price specifications are made as annexes to basic contracts.

It is useful to create price specifications as annexes to service contracts (the 2nd, 3rd and 4th options) only in case a customer requires price plans or services with individual conditions. In such cases, the 2nd option is more preferable as it allows creating price specifications for the basic contracts, with all accompanying services included (for example, a static IP address, cabling, etc.). Such accompanying services can be multiple and difficult for differentiating by cost for different customers. Individual price specifications contain a shorter list of services which are actually provided to a customer on individual conditions.

Unlike the 2nd option, with the 3rd and the 4th ones you should duplicate all services, available to a customer, in each individual price specification. It means that in case of a services price change, you will have to manually create new price specifications for each customer, which can be very time-consuming and may lead to errors.

> We recommend using only the 1st or the 2nd option. Using a basic contract together with price specifications can simplify generating reports (as customers can be found by this contract) and managing of services with equal costs for a whole category of customers (it takes only one price specification based on the basic contract to create and to edit). It is not recommended to use the 3rd and especially the 4th options.

> Keep in mind that each separate pair (a basic contract and a service contract), along with a separate contract (not based on the basic contract) have to contain price specifications, which include all services that can be provided to a customer.

If an individual price specification contains the same services as the price specification of the basic contract, such services are provided according to the individual price specifications, not the basic one (in terms of prices, quotas, and payment deferments).
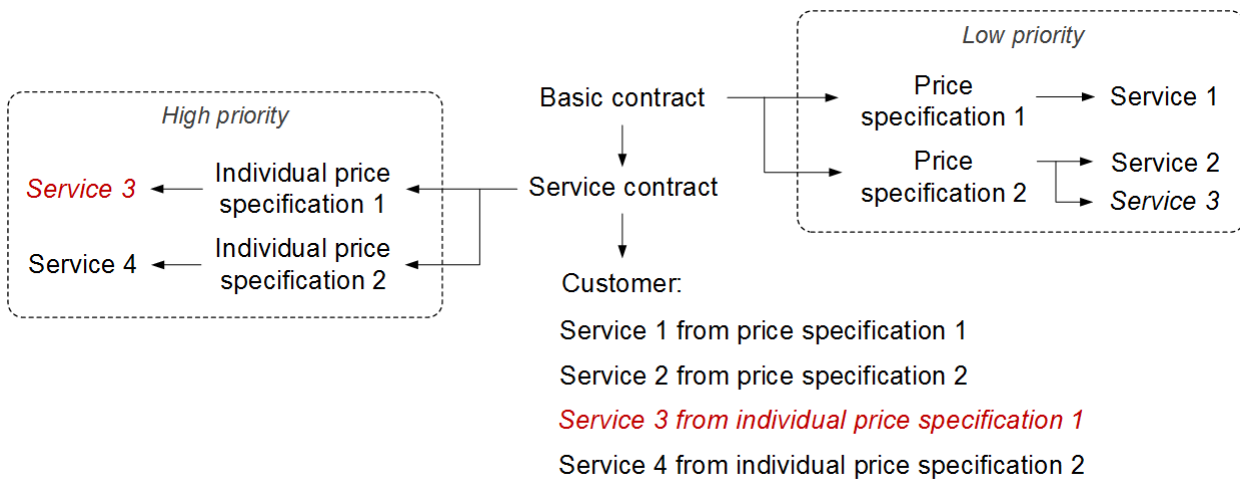
Scheme 22: Priority of services in price specifications

> ⚙️ All necessary services are to be included into a price specification before charge logs are issued. After charge logs are issued, price specifications are locked for editing.

Providing Services to Corporate Clients

Every provider has their own way to provide services to corporate clients. Such ways can be divided into 3 types, so there are tips on creating contracts for each type.

- **Using standard price plans**, when all corporate clients are divided into groups, each group with its own service providing conditions. In this case you create a basic contract with price specifications, for each group of customers.
- **Using individual price plans**, when each corporate client has its own service providing conditions. For such clients, you create one group and one general basic contract. On its basis, you create individual service contracts with individual price specifications.
- **Mixed**, when standard and individual price plans are combined. You create multiple groups with different types of providing conditions, and one more — for customers with individual conditions.

4.4. How to Create Price Plans and Services

Managing price plans and services with Hydra Billing is done in three steps:

- creating and customizing service providing schemes,
- adding price plans and services in the product catalog, and
- creating price specifications.

4.4.1. Customizing Services Providing Schemes

Before adding services and price plans in the product catalog, you should define the types of services to be provided to the customers: regular, suspension, access, or the traffic ones. Each type requires at least one service providing scheme.

The quantity of schemes for traffic services depends on the requirement, if the services need to be provided with different aggregation or archiving settings: each combination of corresponding parameters requires a particular scheme. Access services, as a rule, require only one service providing scheme (for example, a preset one).

Each type of suspension (a temporary one, or due to a non-payment) requires a special scheme. If you are going to to use suspensions with different parameters (for example, for a late payment with a 3- or 6-month period), the number of schemes increases correspondingly. Examples of the schemes for suspension services are given in the Customizing and using suspensions section.

Preset service providing schemes are enough in most cases.

4.4.2. Working with the Product Catalog

In this section:

- Creating Product Catalog Entries for Combined Price Plans
- Creating Catalog Entries for Individual Price Plans
- Creating Catalog Entries for Services

See also:

- Product Catalog

> Before reading this, please read about catalog entry parameters and service providing schemes.

> If one and the same service is provided to different categories of customers (for example, most of the customers are charged in the beginning of the billing period, whereas others are in the end), you need to create different catalog entries.
>
> If the difference is only about the price or access parameters (for example, the bandwidth is variable for customers in different regions), then only one product catalog entry is required. Different prices and access parameters can be specified in separate price specifications for each category of customers.

Creating Product Catalog Entries for Combined Price Plans

Price plans can be found in the **Price plans** section of the product catalog. It can be convenient to place them into different groups based on various characteristics.

Price plans can be classified by:

- types of clients: individuals, organizations;
- types of services: Internet, phone, television (IPTV), etc.;
- service providing technologies: ADSL, Ethernet, GPON, etc.;
- types of service providing: unlimited, high speed;
- price plan groups: promotional, by product line.
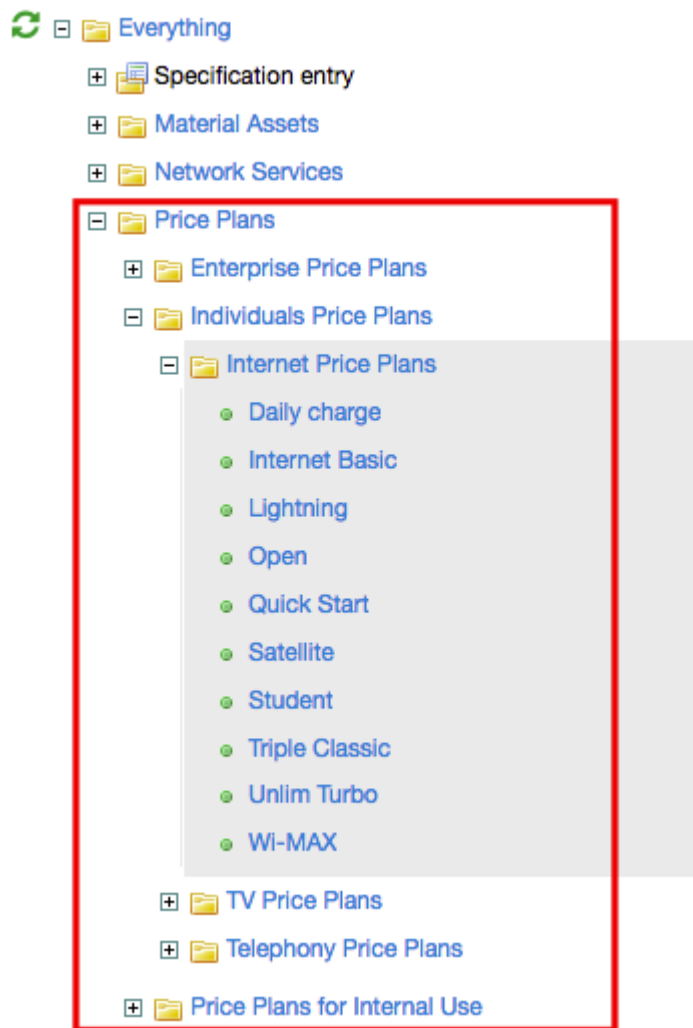
Services which are going to be provided within a price plan are entered separately in the *Services* section of the product catalog. A list of services in each price plan is specified in [price specifications](#).

Creating Catalog Entries for Individual Price Plans

> ⚙️ You should not create entries for each individual price plan. One entry in the product catalog may correspond to a number of price plans. At the same time, if price plans feature different providing schemes or other catalog settings, you need to create a separate catalog entry per each settings configuration.

Sometimes, particular customer categories (typically, organizations) are offered plans with individual prices, limits, access bandwidth and lists of services included. However, the main parameters of services are the same. For example, a customer can be subscribed to a such price plan only by the provider. And usually they have the same billing period (1 month), and charging is done daily in the morning. Thus, it is convenient to enter them into the product catalog as one entry (*Individual daily charge* below). Two other catalog entries are for price plan with different ways of charging, such as charging in the beginning of the period (prepaid), and at the end of the period (postpaid).

```
☐ 📁 Individuals Price Plans
    ☐ 📁 Internet Price Plans
        ● Individual daily charge
        ● Individual prepaid
        ● Individual postpaid
    ⊞ 📁 TV Price Plans
```

Creating Catalog Entries for Services

Services, much like price plans, can be easily placed into groups depending on the type, the way of providing, etc.

Services can be classified by:

- services characteristics: traffic services, and others;
- types of traffic: Internet traffic, local traffic, local calls, regional calls, etc.;
- types of customers: individuals, organizations;
- types of services: one-off, monthly.

```
🔄 ☐ 📁 Everything
    ⊞ 📄 Specification entry
    ⊞ 📁 Material Assets
    ⊞ 📁 Network Services
    ⊞ 📁 Price Plans
    ☐ 📁 Services
        ⊞ 📁 Core Business
        ☐ 📁 Traffic Services
            ☐ 📁 Customer Traffic
                ⊞ ● International Telephony
                ☐ ● Internet Traffic
                    ● Internet Traffic in
                    ● Internet Traffic out
                ⊞ ● Local Telephony
                ⊞ ● Local Traffic
                ⊞ ● Long Distance Telephony
            ⊞ 📁 Interconnect Traffic
    ⊞ 📁 Realty
    ⊞ 📁 Penalties
```

4.4.3. Creating Price Specification

In this section:

- [Price Plans in Price Specifications](#)
- [Services in Price Specifications](#)
- [Examples of Price Specifications](#)

See also:

- [Price Specifications](#)

> The cost of price plans and the services included into them are defined in [price specifications](#). An accurate and elaborate placement of price plans and services into specifications can simplify working with prices and correcting possible errors. For tips on how to structure contracts and price specifications see the [Creating Contracts and Price Specifications](#) section.

Price Plans in Price Specifications

Oftentimes, price plans which are placed into one group in the product catalog (for marketing reasons, technical or some other characteristics), can be more manageable when also placed into one price specification. See below the price specification with prices for Internet price planes which are placed into [one group in the product catalog](#).

Contents

Filter by row type [— ▾]

№	Service	Type	Unit	Price	Price excl. taxes	
▸ 1	Mercury	Basic	-	15.00	12.71	✕
▸ 2	Mars	Basic	-	18.00	15.25	✕
▸ 3	Venus	Basic	-	12.00	10.17	✕
▸ 4	Earth	Basic	-	15.00	12.71	✕
▸ 5	Neptune	Basic	-	20.00	16.95	✕

✛ Add

Then, directly with each new subscriber, you should conclude a service contract based on the basic one. This contract will be used when [subscribing](#) a customer to services.

Services in Price Specifications

If services are not included into price plans and have to be activated separately, they should be placed in a separate price specification created as an annex to the basic contract for a particular customer group. Such placement simplifies your further work with services included in price specifications and does not require [to unlock specifications](#) with price plans.

Contents

Filter by row type   —   ▼

	№	Service	Type	Qty. for price	Unit	Price	Price excl. taxes	
>	1	Connection Setup	Basic	1	pcs	50.00	42.37	✖
>	2	Technician Visit	Basic	1	pcs	10.00	8.47	✖
>	3	Line Diagnostics and Setup	Basic	1	pcs	20.00	16.95	✖

+ Add

This way, for each customer group, you should create a separate set of price specifications with services (or one specification which includes all services). Price specifications from different basic contracts can differ in lists of services, or may be similar. If specifications contain similar contents, you can use copying while creating them.

The services, which prices may often vary, should also be separated from others. You should create a particular price specification for them.

> ⚙ If a price specification is individual, you should check for the services availability to a customer.

Examples of Price Specifications

See the following sections for the examples of price specifications with different price plans:

- price plans for broadband services, and
- price plans for phone services.

4.4.3.1. Broadband Internet Price Plans

In this section:
- With Unlimited Traffic
- With Unlimited Traffic and Bandwidth Limitation
- With Prepaid Traffic Package
- With Multiple Traffic Quotas
- With Time Intervals

> ⚙ Make sure that the price plan contains prices for all traffic services which can be provided to a customer, even if they are free. If a customer generates traffic that can be regarded as a service according to traffic classes settings, but it is not included into the price specification, then this traffic cannot be rated, and becomes unaccounted.

Price Plan 1. With Unlimited Traffic

№	Service	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	Speed value	Speed unit	
▾ 1	Mercury			-	15.00	12.71			✕
1.1	Internet Access			-	0.00	0.00			✕
1.2	Internet Traffic In		1	MB	0.00	0.00	5	Mbit/s	✕
1.3	Internet Traffic Out		1	MB	0.00	0.00	5	Mbit/s	✕
1.4	Local Traffic In		1	MB	0.00	0.00	100	Mbit/s	✕
1.5	Local Traffic Out		1	MB	0.00	0.00	100	Mbit/s	✕

The subscription fee for the *Mercury* price plan is $15 (row 1), which includes Internet access with bandwidth limitation (both inbound and outbound) at 5 Mbit/s (rows 1.2 and 1.3). Bandwidth limitation for local Internet traffic is 100 Mbit/s (rows 1.4 and 1.5).

It is important to note that the bandwidth settings, entered in **Speed value** and **Speed unit**, do not in themselves affect the real bandwidth that a customer has. To have these settings applied, they need to be transferred to the access server, which regulates the customer's access (typically, a BRAS or a firewall) with the help of substitutes. Such substitutes are used in events, commands for network equipment management, and in profile attributes, checked during RADIUS authorization.

> We recommend **Speed value** to be always set for Internet traffic services, even if limitation is planned only because of technical characteristics of a channel, due to the fact that these values are transferred to the access server. Some equipment may incorrectly process packets with empty values of attributes, which can lead to denials of service.

Price Plan 2. With Unlimited Traffic and Bandwidth Limitation

№	Service	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	Speed value	Speed unit	
▸ 1	Mercury			-	15.00	12.71			✕
▾ 2	Mars			-	18.00	15.25			✕
2.1	Internet Access			-	0.00	0.00			✕
2.2	Internet Traffic In	2048	1	MB	0.00	0.00	10	Mbit/s	✕
2.3	Internet Traffic In		1	MB	0.00	0.00	3	Mbit/s	✕
2.4	Internet Traffic Out		1	MB	0.00	0.00	3	Mbit/s	✕
2.5	Local Traffic In		1	MB	0.00	0.00	100	Mbit/s	✕
2.6	Local Traffic Out		1	MB	0.00	0.00	100	Mbit/s	✕

The monthly subscription fee for the *Mars* price plan is $18 (row 2). The first 2048 MB of inbound Internet traffic are available at 10 Mbit/s (row 2.2), then the speed drops to 3 Mbit/s (row 2.3). The outbound Internet traffic speed is 3 Mbit/s regardless of volume (row 2.4). Bandwidth limitation for local Internet traffic is 10 Mbit/s (lines 2.5 and 2.6).

As in the previous example, speed values need to be transferred to the access server, which is responsible for the access to the network.

Price Plan 3. With Prepaid Traffic Package

№	Service	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▶ 1	Mercury			-	15.00	12.71	✖
▶ 2	Mars			-	18.00	15.25	✖
▼ 3	Venus			-	12.00	10.17	✖
3.1	Internet Access			-	0.00	0.00	✖
3.2	Internet Traffic In	5120	1	MB	0.00	0.00	✖
3.3	Internet Traffic In		1	MB	0.01	0.01	✖
3.4	Internet Traffic Out		1	MB	0.00	0.00	✖
3.5	Local Traffic In		1	MB	0.00	0.00	✖
3.6	Local Traffic Out		1	MB	0.00	0.00	✖

The *Venus* price plan with the subscription fee of $12 (row 3) includes 5120 MB of prepaid inbound traffic (row 3.2), whereas each megabyte above this quota costs 1 (row 3.3). The row 3.4 makes the outbound Internet traffic free, and the rows 3.5 and 3.6 make all local traffic free too.

Price Plan 4. With Multiple Traffic Quotas

№	Service	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▶ 1	Mercury			-	15.00	12.71	✖
▶ 2	Mars			-	18.00	15.25	✖
▶ 3	Venus			-	12.00	10.17	✖
▼ 4	Earth			-	15.00	12.71	✖
4.1	Internet Access			-	0.00	0.00	✖
4.2	Internet Traffic In	1024	1	MB	0.00	0.00	✖
4.3	Internet Traffic In	2048	1	MB	0.01	0.01	✖
4.4	Internet Traffic In	2048	1	MB	0.02	0.02	✖
4.5	Internet Traffic In	2048	1	MB	0.04	0.03	✖
4.6	Internet Traffic In	3072	1	MB	0.06	0.05	✖
4.7	Internet Traffic In		1	MB	0.08	0.07	✖
4.8	Internet Traffic Out		1	MB	0.00	0.00	✖
4.9	Local Traffic In		1	MB	0.00	0.00	✖
4.10	Local Traffic Out		1	MB	0.00	0.00	✖

With the *Earth* price plan, the subscription fee is $15 (row 4), which includes 1024 MB of prepaid Internet inbound traffic (row 4.2).

- The next 2048 MB cost 1 per each megabyte (row 4.3).
- The price for the next 2048 MB is 2 per megabyte (row 4.4).
- The next 2048 MB cost 4 per megabyte (row 4.5).

- The price for the next 3072 MB is 6   per megabyte (row 4.6).
- Any traffic above 10 GB (10240 MB summed in the **Qty. up to** column) costs 8   per megabyte (row 4.7). Row 4.8 makes all outbound Internet traffic free, local traffic is also free.

Price Plan 5. With Time intervals

№	Service	Time interval	Qty. up to	Qty. for price	Unit	Price	Price excl. taxes	
▶ 1	Mercury				-	15.00	12.71	✖
▶ 2	Mars				-	18.00	15.25	✖
▶ 3	Venus				-	12.00	10.17	✖
▶ 4	Earth				-	15.00	12.71	✖
▼ 5	Neptune				-	20.00	16.95	✖
5.1	Internet Access				-	0.00	0.00	✖
5.2	Internet Traffic In		15360	1	MB	0.00	0.00	✖
5.3	Internet Traffic In	Standard		1	MB	0.03	0.03	✖
5.4	Internet Traffic In	Night		1	MB	0.02	0.02	✖
5.5	Internet Traffic Out			1	MB	0.00	0.00	✖
5.6	Local Traffic In			1	MB	0.00	0.00	✖
5.7	Local Traffic Out			1	MB	0.00	0.00	✖

The subscription fee for the *Neptune* price plan is $20 (row 5). The plan includes 15 GB of prepaid inbound Internet traffic (row 5.2). After this quota is exceeded, the price per one megabyte of inbound Internet traffic in the daytime is 3¢ (row 5.3), at night — 2¢ (row 5.4). Outbound Internet traffic (row 5.5), as well as inbound and outbound local traffic (rows 5.6 and 5.7) are free.

The time intervals used here — *Standard* and *Night* — should be defined in the time intervals specification in force, and any specific time should fall within either of the intervals. In the given example, the *Standard* interval is an interval by default, whereas the *Night* one is specified for the 12.00 a.m. till 8.00 a.m. interval.

4.4.3.2. Phone Price Plans

In this section:
- A Price Plan for Local Phone Service
- Long-Distance Phone Price Plan Based on Area Codes
- Long-Distance Phone Price Plan Based on Groups of Area Codes
- A Price Plan with a Purchase Price Specification

> Make sure that a price plan contains prices for all phone services which can be provided to a customer, even if they are free. If a customer generates traffic that can be regarded as a service according to traffic classes settings, but it is not included into the price specification, then this traffic cannot be rated, and becomes unaccounted.

Price Plan 1. Local Phone Calls

№	Service	Type	Area	Qty. up to	Qty. for price	Unit	Price formula	Price	Price excl. taxes	
▼ 1	Local Telephony	Basic					-	20.00	16.95	✖
1.1	Local Telephony Out	Billing period specification	(all)	600	1	min		0.00	0.00	✖
1.2	Local Telephony Out	Billing period specification	(all)		1	min		0.02	0.02	✖
1.3	Local Telephony Out	Session specification	(all)	3	1	s	0			✖
1.4	Local Telephony Out	Session specification	(all)		60	s	$PRICE			✖
1.5	Local Telephony In	Billing period specification	(all)		1	min		0.00	0.00	✖
1.6	National Telephony In	Billing period specification	(all)		1	min		0.00	0.00	✖
1.7	International Telephony In	Billing period specification	(all)		1	min		0.00	0.00	✖

A subscription fee for the *Local Phone Calls* price plan is $20 (row 1). The price plan includes 600 minutes of outbound local phone calls (row 1.1). If a customer exceeds this amount, outbound phone calls cost $0.02 per minute (row 1.2).

Calls are rated per minute (row 1.4), whereas those lasting less than 3 seconds are free (row 1.3).

Rows from 1.5 to 1.7 set zero price for all inbound calls.

Price Plan 2. Long-Distance Phone Calls Based on Area Codes

№	Service	Type	Area	Qty. up to	Qty. for price	Unit	Price formula	Price	Price excl. taxes	
▶ 1	Local Telephony	Basic					-	20.00	16.95	✖
▼ 2	Long-Distance Telephony	Basic					-	0.00	0.00	✖
2.1	National Telephony Out	Session specification	(all)	5	1	s	0			✖
2.2	National Telephony Out	Session specification	(all)		1	min	$PRICE			✖
2.3	International Telephony Out	Session specification	(all)	5	1	s	0			✖
2.4	International Telephony Out	Session specification	(all)		1	min	$PRICE			✖
2.5	International Telephony Out	Billing period specification	Singapore		1	min		1.10	0.93	✖
2.6	International Telephony Out	Billing period specification	Indonesia		1	min		1.00	0.85	✖
2.7	International Telephony Out	Billing period specification	Philippines		1	min		1.15	0.97	✖

The subscription fee for the *Long-Distance Phone Calls* price plan is $0 (row 2). Calls are rated per minute (rows 2.2 and 2.4), and calls lasting less than 5 seconds are free (rows 2.1 and 2.3).

Rows starting from 2.5 set prices for outbound phone calls for each area code.

> Note that the first rows in such price plans should be of the *Session specification* type, so they can be easily found after adding prices for area codes (as well as after adding new codes). For your convenience, area codes with prices can be loaded from a file.

> Rows containing prices for inbound calls need not be included into the price plan for long-distance phone calls in case all customers are mandatorily subscribed to a price plan for local calls.
>
> When the price plan for long-distance phone calls is independent and a customer can be subscribed to it separately from a price plan for local calls, you need to add rows for inbound calls into it (see price plan 1, rows 1.5–1.7).

Price Plan 3. Long-Distance Phone Calls Based on Groups of Area Codes

№	Service	Type	Area	Qty. up to	Qty. for price	Unit	Price formula	Price	Price excl. taxes	
▸ 1	Local Telephony	Basic					-	20.00	16.95	✕
▾ 2	Long-Distance Telephony	Basic					-	0.00	0.00	✕
2.1	National Telephony Out	Session specification	(all)	5	1	s	0			✕
2.2	National Telephony Out	Session specification	(all)		1	min	$PRICE			✕
2.3	International Telephony Out	Session specification	(all)	5	1	s	0			✕
2.4	International Telephony Out	Session specification	(all)		1	min	$PRICE			✕
2.5	International Telephony Out	Billing period specification	Southeast Asia		1	min		1.05	0.89	✕
2.6	International Telephony Out	Billing period specification	Eastern Europe		1	min		0.95	0.81	✕
2.7	International Telephony Out	Billing period specification	Western Europe		1	min		1.20	1.02	✕

The subscription fee for the *Long-Distance Phone Calls* price plan is $0 (row 2). Calls are rated per minute (rows 2.2 and 2.4), and those lasting less than 5 seconds are free (rows 2.1 and 2.3).

Rows starting from 2.5 set prices for outbound calls for each group of area codes.

> Note that the first rows in such price plans should be of the *Session specification* type, so they can be easily found after adding prices for groups of area codes (as well as after adding new groups). For your convenience, groups of area codes with prices can be loaded from a file.

> Rows containing prices for inbound phone calls need not be included into the price plan for long-distance phone calls in case all customers are mandatorily subscribed to a price plan for local calls.
>
> When the price plan for long-distance phone calls is independent and a customer can be subscribed to it separately from the price plan for local calls, you need to add rows for inbound calls into it (see price plan 1, rows 1.5–1.7).

Price Plan 4. With a Purchase Price Specification

Purchase price specifications are commonly used when providing long-distance phone services based on a big number (from hundreds up to thousands and tens of thousands) of area codes with different prices. All of the prices should be defined in the specification, moreover, they can be often changed, and the selling prices may depend on purchase ones.

A purchase price specification does not differ from a regular one except that it corresponds to a contract which specifies **Provider** as the supplier, who provides phone services for purchasing, whereas **Client** is not a customer but a service provider.

Subjects

Provider | AT&T

Content

Filter by row type | —

№	Service	Type	Area	Qty. up to	Qty. for price	Unit	Price formula	Price	Price excl. taxes	
▾ 3	Long-Distance Telephony	Basic					-	0.00	0.00	✖
3.5	International Telephony Out	Billing period specification	Southeast Asia		1	min		0.90	0.76	✖
3.6	International Telephony Out	Billing period specification	Eastern Europe		1	min		0.80	0.68	✖
3.7	International Telephony Out	Billing period specification	Western Europe		1	min		1.00	0.85	✖

In the specification shown above, **Provider** is the *AT&T* company. The price plan with a zero subscription fee specifies prices for outbound long-distance calls depending on the group of area codes.

To resell the traffic purchased according to the specification above, you should create one more price specification. In it, fill in **Provider** with the service provider that has been defined as **Client** in the purchase contract.

Subjects

Provider | Teleline

Content

Filter by row type | —

№	Service	Type	Area	Qty. up to	Qty. for price	Unit	Price formula	Price	Price excl. taxes	
▸ 1	Local Telephony	Basic					-	20.00	16.95	✖
▾ 2	Long-Distance Telephony	Basic					-	0.00	0.00	✖
2.1	National Telephony Out	Session specification	(all)	5	1	s	0			✖
2.2	National Telephony Out	Session specification	(all)		1	min	$PRICE			✖
2.3	International Telephony Out	Session specification	(all)	5	1	s	0			✖
2.4	International Telephony Out	Session specification	(all)		1	min	$PRICE			✖
2.5	National Telephony Out	Billing period specification	(all)		1	min	$BUY_PRICE*1.2			✖
2.6	International Telephony Out	Billing period specification	(all)		1	min	$BUY_PRICE*1.3			✖

The subscription fee for the *Long-Distance Phone Calls* price plan is $0 (row 2). Calls are rated per minute (rows 2.2 and 2.4), and those lasting less than 5 seconds are free (row 2.1 and 2.3).

Rows 2.5 and 2.6 specify the price formulas for all long-distance outbound phone calls. See **Price formula** with the special `$BUY_PRICE` substitute used for this purpose.

The `$BUY_PRICE*1.2` formula allows reselling at a 20 % higher price than the purchase one.

Another example of applying the formula: `MIN(MAX($BUY_PRICE*1.3, 0.1), 0.48)` — the formula specifies the selling price 30 % higher than the purchase one, but not lower than $0.1 and not higher than $0.48.

> For certain (for example, most important or advertised) area codes you can set special prices. To do so, add a new row to the price plan and enter the necessary area code or a group of area codes in **Area**. Place this row higher than a similar row with the *All* area code. Prices can depend on the purchase ones (**Price formula** is to be filled in), or be fixed (**Price** is to be filled in).

> You need not include rows with prices for inbound calls in the price plan for long-distance phone calls in case all customers are mandatorily subscribed to a price plan for local calls.
>
> When the price plan for long-distance phone calls is independent and a customer can be subscribed to it separately from a price plan for local calls, you need to add rows for inbound calls into it (see price plan 1, rows 1.5–1.7).

4.5. How to Change Service Providing Parameters

See also:
- Service Providing Schemes
- Service Activation Rules
- Services and Price Plans Parameters
- Subscriptions to Services

Service providing parameters can be changed in service providing schemes, but Hydra Billing prohibits changing most of scheme settings after a charge log has been issued according to the scheme. Even without charge logs, some parameters (for example, **Service type** or **Service providing point**) cannot be changed, if customers have already subscribed to services with the given scheme.

If you need to change parameters of a currently provided service, or to correct the preset scheme, do it in the following three steps.

Step 1. Copy the Service Providing Scheme

Open the service providing scheme you want to change and click **Copy**.

Hydra Billing copies the chosen scheme, then automatically redirects you to the copied one.

Step 2. Customize the New Service Providing Scheme

Make necessary changes to the new service providing scheme.

Service type	Regular ▼
Service providing type	Recurrent ▼
Billing period	Time-based ▼ 1 month ▼
Reservation period	0 month ▼
Rating method	Default ▼
Permission to subscribe	Customer or operator ▼
Permission to unsubscribe	Customer or operator ▼
Early termination condition	☐ Insufficient balance for charge ☑ ☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Prorated according to charging period ▼
Service providing point	Equipment ▼
Charge log creation management	Internal ▼
Aggregation period	1 hour ▼
Service restriction condition	Never ▼
Service priority	Normal ▼

Step 3. Enter the Service Providing Scheme in the Product Catalog

Choose the new providing scheme for the service.

Service rendering scheme	Prepaid, single charge, 1 mont ▼ ✎

The new scheme will be applied when the new charge logs for the service are issued. Services included into already issued charge logs will continue to be provided according to the old scheme, which was in force at the time of issuing the charge log.

It is not possible to change the service providing parameters within the current charge logs. If you need to apply new settings immediately, you have to manually terminate charge logs for services with the chosen scheme. Issue new charge logs manually, or wait till they are issued automatically by the scheduled task. Services will begin to be provided according to the new scheme.

Be careful with these actions, as they may cause a break in providing of services to customers.

4.6. How to Set Up and Rate Phone Services

In this section, learn how to set up phone services in Hydra Billing in the following steps:

- [creating and customizing product catalog entries](#);
- [working with traffic classes and prices specifications](#);
- [creating objects](#);
- [working with customers](#).

See also how to [load CDR](#) into the system and [rate phone services](#).

4.6.1. Creating and Customizing Product Catalog Entries

In this section:

- [Creating Price Plans](#)
- [Creating Phone Services](#)
- [Customizing Entries for Network Services](#)

See also:

- [Product Catalog](#)
- [Working with Product Catalog](#)

Creating Price Plans

Create entries for phone price plans in the *Price plans* section of the product catalog. As a rule, price plans are grouped. For example, there can be groups for individuals and for organizations.
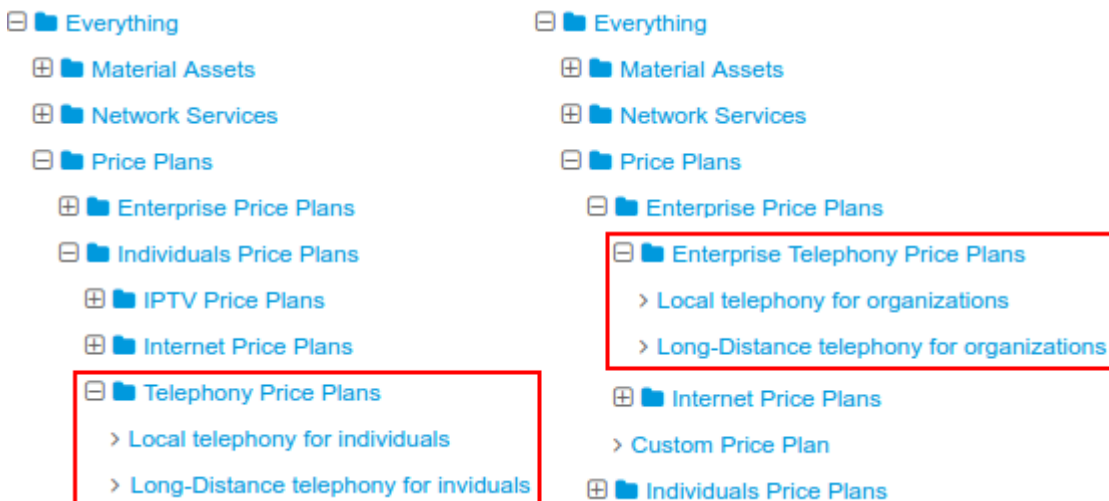
See here the *Regional/International for individuals* and *Regional/International for organizations* plans created for the local and long-distance phone services, whereas other plans are for local (grouped by location) and regional phone services.

Another example shows creating groups of price plans by dividing them not according to the types of customers, but to the types of provided services.

- ⊟ 📁 Everything
  - ⊞ 📁 Material Assets
  - ⊞ 📁 Network Services
  - ⊟ 📁 Price Plans
    - ⊞ 📁 Telephony Price Plans
      - ⊟ 📁 Individual Price Plans
      - ⊞ 📁 Per minute Price Plans
      - ⊞ 📁 Unlimited Price Plans
      - ⟩ Local telephony
      - ⟩ Long distance telephony
      - ⟩ Purchasing telephony
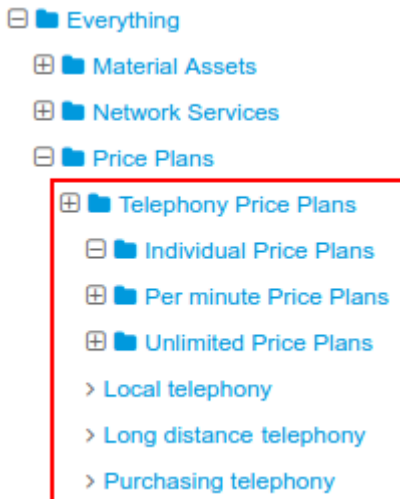
Service providing schemes for price plans depend on the provider, but, as a rule, preset providing schemes should be enough.

Creating Phone Services

Next step is to add basic phone services into the *Traffic services* group, so that there is a separate service for each type of voice traffic. More often, the following types of traffic are used: local, national, and international.

- ⊟ 📁 Everything
  - ⊞ 📁 Material Assets
  - ⊞ 📁 Network Services
  - ⊞ 📁 Price Plans
  - ⊟ 📁 Services
    - ⊞ 📁 Core Business
    - ⊟ 📁 Traffic Services
      - ⊟ 📁 Customer Traffic
        - ⊞ ⟩ International Telephony
        - ⊟ ⟩ Local Telephony
          - ⟩ Local Telephony In
          - ⟩ Local Telephony out
        - ⊞ ⟩ National Telephony
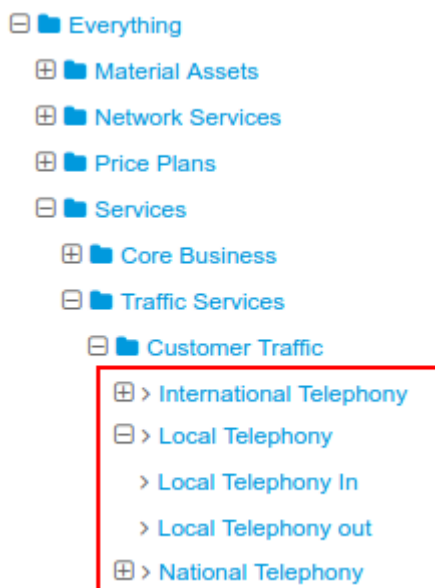
> ⚠ Pay attention, that the basic traffic services you use should be bound to the telephony network service (see below).

You can additionally set necessary recurrent and one-off services (for example, *Telephony access*, *Customer connection*, etc.). For example, with the help of the access service, such as *Telephony access*, and set events you can manage access to service at PBX.
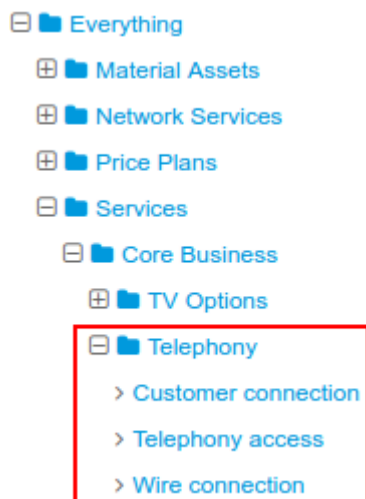
Customizing Entries for Network Services

When working with telephony in Hydra Billing, it is typical to use network service component approach to structure CPE. You should create an entry for a telephony network service inside the *System service* catalog group and define its specification.

In the example below, see the entry *PBX M2000* added to the group *Telephony services* and the *Phone* specification created for it.

Product catalog ⍰

In the **Addresses** section of the *Phone* specification item you should add a row with the *Phone number* type and the *Actual address* purpose, so you can assign phone numbers to network service components. They will be used to match CPE when rating telephone calls.

On the basis of this entry, you should create and customize the telephony network service.

Besides, when online calls rating is going to be used, you should create an entry for a RADIUS service inside the *RADIUS services* group.

4.6.2. Working with Traffic Classes and Prices Specifications

In this section:

- [Traffic Classes Specification](#)
- [Price Specification](#)

See also:

- Traffic Classes Specifications
- [Price Specifications](#)

Rating phone services is possible only if there is a traffic classes specification in force with the *Standard for voice data* workflow, and a price specification for these services.

Traffic Classes Specification

Open the traffic classes specification in force and load or add manually area codes and, if necessary, groups of area codes. (A specification is in force, when it is in *Active* status, with the period which includes the date when the phone calls are made). If there is no such specification, you should create it.

> Area codes and groups of area codes can be loaded into the traffic classes specification together with [prices loading](#) into the price specification. In this case, you should only specify the traffic classes in the specification.

> Calls rating can be done without filling in the registry of groups of area codes. You may get along with loading only area codes. However, groups of area codes can simplify the description of traffic classes, and they can be also used for price specifications and generating [reports](#).
>
> Note that groups of area codes used for defining services cost in price specifications may differ from groups of area codes used for defining traffic classes. Notice also that all groups of area codes should be added into traffic classes specifications.

> The registry of area code should also contain your own areas, i.e. areas used for assigning phone numbers to customers. If there are several area codes, you can combine them into one group (in the example below, see the *Provider's codes* group).

In the specification contents, via traffic classes, you should specify the correspondence between phone services, created in the product catalog, and call prefixes or groups of area codes.

Traffic classes specification TCS-12/1: Edit

Traffic classes specification TCS-12/1

| General | Areas | Code groups | Document dependencies | Comments | 📑 Copy | 🔃 Update registers |

ID 50131501

Workflow Стандартная для передачи голоса ▾

Document number TCS-12/1   Date 24/02/2012 📅   19:04:41

Status In force ▾ Change

Tags

Period from 19/01/2011 📅 🗑

Subjects

Provider Teleline 🔍 ✏ 🗑 ➕

Contents

	Service	Address A	Address B	Exclude	
1	Local Telephony	Provider's group	Provider's group	no	✖
2	National Telephony	Provider's group	UK 1	no	✖
3	National Telephony	Provider's group	UK 2	no	✖
4	National Telephony	Provider's group	UK 3	no	✖
5	International Telephony	Provider's group	(all)	no	✖

➕ Add

> ⚠ A call prefix may belong to a number of groups of area codes at the same time. In this case, you should check that the groups in the traffic classes correspond to the same service. It means that the price specification has to contain no rows with **Address A** populated as your own group of area codes or you code, different groups of area codes in **Address B** with one and the same area code, and different services in **Service**. Otherwise, there may be errors in the sessions rating.

> ⚠ Make sure that the traffic classes specification contains all possible phone call directions, which may be incoming and outcoming for customers. Otherwise some calls would not be rated.

> ⚠ Having made any changes in the specification, you should update the registers.

Price Specification

To rate phone calls, you create price specifications, stating the traffic classes specification in force in their headings. Only areas and groups of area codes from this traffic classes specification can be used to define the cost of phone services.

Typically, you manually add to the price specification only price plans, and rows of the *Session specification* type in their contents. Other lines of the *Billing period specification* type are created during file loading.

4.6.3. Creating Objects

In this section:

- Telephony Network Service
- RADIUS Network Service
- Customer Premises Equipment
- Service Providers

See also:

- Network Service Components Approach to Structure CPE
- Customer Equipment
- Network Services

Telephony Network Service

On the basis of a newly added entry inside the product catalog, you create a network service, which components (phones) are regarded as CPE.

> ⚠️ It is necessary to list all basic [phone services](#) that are currently used in the **Bound services** section of the network service.

Bound services

Service	
Local Telephony	✖
National Telephony	✖
International Telephony	✖
Transit telephony	✖

✚ Add

For phone numbers [assignment restriction](#), in the **Addresses** section of the telephony network service you should enter the allowed area codes with the *Resource pool* purpose.

If you use RADUIS protocol, you should also create a corresponding network service (see below) and specify necessary parameters in the **Network service management settings** section of the telephony network service.

RADIUS Network Service

Hydra Billing supports a pre-authorization and the online rating of completed phone calls using RADIUS protocol. For it, on the basis of the corresponding [product catalog entry](#), the RADIUS network service is created.

Network service RADIUS-TEL

Network service RADIUS-TEl

| General | Structure | Bindings | Events | Profiles | Configurations |

ID 62930301

Name RADIUS-TEL

Code RADIUS-TEL

Type* RADIUS-TEL

Status Active

Remark ✏

Network service management settings

+ Add

Access Reply

№	Attribute	Operator	Value	CPE type	
1	Credit-Time	—	$SEANCE_CREDIT_TIME		✖

+ Add

Access Request

№	Attribute	Operator	Value	CPE type	
1	User-Name	—	$USER_LOGIN		✖
2	Cleartext-Password	—	$USER_PASSWORD		✖

+ Add

Access Reject in case of authentication error

+ Add

No settings for managing the RADIUS network service are typically specified.

In the **Access Request** section, you should specify conditions for the RADIUS authorization: when an access request is received, the attribute values are compared with the ones specified in the table. The values in the table can be fixed or you can use substitutes, which values are defined for a particular customer or a piece of CPE. In the example, you see customer authentication by login and password.

Attributes for **Access Accept (successful authorization)** and **Access Reject (authorization is denied)** are specified depending on the services providing characteristics (for example, in case the access is granted, the Access Accept message may also contain the permitted call duration).

> If the attributes are specified in the **Access Reject** section, instead of the Access Reject response, there is the Access Accept response sent, containing the attributes specified in the section.

In the **Bound services** section you can add an access service if necessary (for example, *Telephony access*), so its status is checked with each customer's authorization. If the access service is off (due to a negative balance, etc.), the customer is denied authorization. If there are several access services, it is obligatory to have at least one of them on.

When RADIUS network service is created and set, add it to **Network service management settings** section of the telephony network service.

Network service management settings

Manager/Network service	Type	Interface	TCP/UDP Port	Login	Password	Organization	
RADIUS-TEL	RADIUS secret	10.0.16.22			not defined	Teleline	✖

+ Add

Populate **Interface** with the address the RADIUS requests are sent from. The address should be already added to the **Addresses** section on the telephony network service.

Addresses

Address type	Address	Parent address	Bound to	Address kind	Begin date	End date	Remark		
IP address (main)	10.0.16.22	10.0.16.0/20		Actual address	11/10/2010 00:00:00			🗓	✖

+ Add Address

Typically, there is no password specified in the **Network service management settings** section.

> The IP address (the interface) and the password should be specified in the **clients.conf** FreeRadius configuration file.

Customer Premises Equipment

The telephony network service component is added on a customer's page. An address of the *Phone number* type is assigned to the component. You can either enter it manually or let the system choose the smallest available number in the allowed range.

Phone numbers can be edited and added in the **Addresses** section on the component's page.

You can see added numbers in the **Equipment** section of the customer page too.

Equipment

Name	Component	Status	Service address	Phone
PBX	2	Active	Lexington Ave., 169, flat 12, floor 5	13615550101
		Active	Lexington Ave., 169, flat 12, floor 5	13615550102

+ Add equipment

On the network service **Components** tab, you can see all created components with added phone numbers. They are owned by customers.

Network service PBX: Edit

General   Structure   Bindings   Events   Profiles   Configurations   Commands   Sessions

+ Phone   (initialized 2 pcs, shown 2 pcs)   ▼ Status

Phone №1
[**Owner:** Heming A. (heming)

Phone №2
Owner: Sympson G. (Sympson_G)
Street address: Lexington Ave., 169, flat 12, floor 5
Phone number: 13615550101
Phone number: 13615550102

Save   Close   Delete

Each phone number created in the system is shown in the registry of area codes.

Registry of area codes

Document: TCS-12/1 ▾

🔍 Search 🗑

⇄ ⊟ 🔓 (all)
⬆ 📁 North West *678*
📁 South East *567*
⊟ 📁 The USA *1*
📁 Alabama *1205*
📁 New York *1315*
⊟ 📁 Texas *1361*
⊟ 📁 Internal area 1 *13615550100-13615550199*
🔒 Phone number 13615550100 *13615550100*
🔒 Phone number 13615550101 *13615550101*
🔒 Phone number 13615550102 *13615550102*
📁 Internal area 2 *13615550200-13615550299*
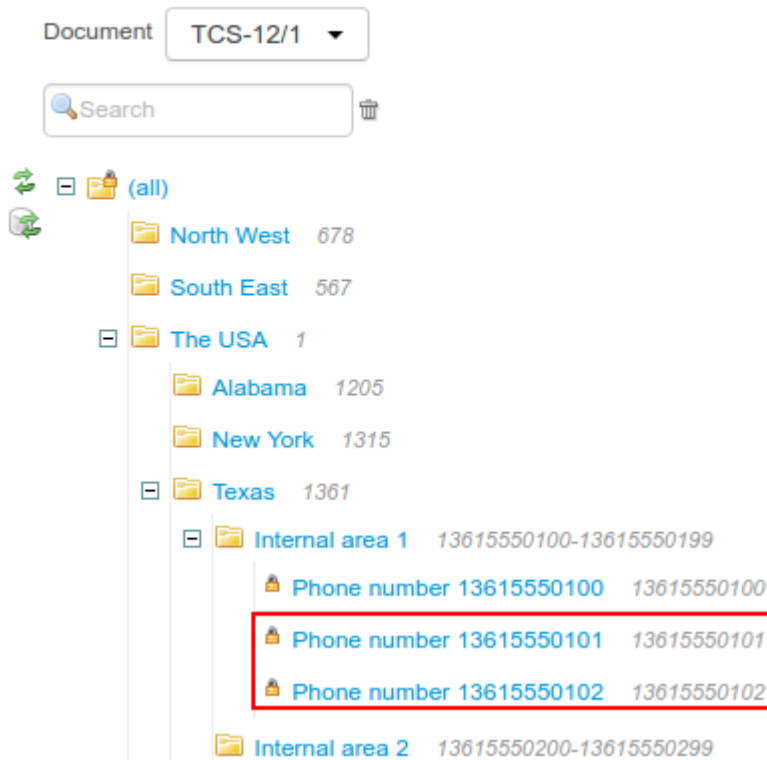
> ⚠ You should check that the customer phone numbers are in the correct area codes in the registry (usually, these are your own areas). Otherwise, there may be rating errors.

Service Providers

For all providers of phone services (i.e. providers with traffic classes specification, including your division) you should populate **Termination string** on their pages. The *Termination string* values correspond with **Route from initiator** and **Route to receiver** in CDRs, which are filled when [loading CDR](#).

4.6.4. Working with Customers

See also:
- [Customer Accounts](#)
- [Contracts](#)
- [Subscriptions to Services](#)

Accounts, Contracts, and Subscription to Services

To provide phone services to your customer, apart from [CPE](#), you should create a customer account, a service contract and a subscription to a proper price plan. If a customer is going to pay for different types of calls (local, regional, and long-distance) separately, you need to create three accounts (one per each type of calls), and three contracts with three subscriptions to the corresponding price plans.

> ⚠ Regardless of the number of customer accounts and contracts, there is always only one piece of CPE used to provide one customer with phone services.

If all types of communication are included in one price plan, then there is only one account, one contract, and one subscription to service.

Subscription to Network Services

If a customer is going to use IP telephony, you should subscribe him or her to the telephony network service, using his or her component.

Network services subscription

ID	Network service	Type of component	Equipment	String	Number	Login	Password	Hash type	
62922401	SIP-Telephony	Port	IP-Phone Sympson_G Port №1			gsympson	not defined	—	✖

+ Add

4.6.5. Loading CDRs

With Hydra Billing, you can either have online pre-authorization and phone calls rating, or have ended phone calls rated by periodical loading CDR files (offline mode). Check the list of PBXs with supported CDR formats at our website.

Working with CDRs Online

A FreeRADIUS server processes CDR online, so you should create a special RADIUS network service for it in the system. The interaction between the server and Hydra Billing is done by an agent application called **HARD (Hydra Autonomous RADIUS Daemon).**

A softswitch sends a RADIUS packet to the server for authorization. The server decodes the packet, and passes RADIUS attributes and their values to the HARD agent. HARD identifies a telephony network service by the softswitch IP address (the address should be entered in the management settings of the network service) and the corresponding RADIUS network service. Depending on the settings of the RADIUS network service, HARD requests necessary data from the system: a customer and CPE data, access services statuses, etc. If the authorization request is approved and the customer is granted access to service, HARD sends the response with attributes and their values defined for RADIUS network service to the RADIUS server. Then the server forms and sends an Access-Accept packet, otherwise, an Access-Reject packet is sent. However, if there are **Access-Accept attributes when service is disabled** specified in the RADIUS service settings, an Access-Accept packet with these attributes is sent.

Online call processing is done in the following way. At the start of a call, i.e. on receiving an Accounting-Request RADIUS packet with **Acct-Status-Type** = *Start*, the system creates a CDR for the call. Further, during the call, the CDR is updated via packets with **Acct-Status-Type** = *Interim-Update*. When the call ends (i.e. a packet with **Acct-Status-Type** = *Stop* is received), the status of the CDR becomes *Finished*, and its rating starts.

If the CDR has not been updated for a long time, it can be closed by the *Forced closing old CDRs* task bound to telephony

Loading CDRs Offline

In order to load and rate files with CDRs, the system uses **Hydra Mediation Daemon** (HMED) and **Hydra Online Charging System** (HOCS).

The HMED-C collector, which is a part of the mediation module, monitors one or several directories on the server. When new suitable files appear, it reads and parses them, then forwards all call data to the core of the mediation module (HMED-M). Processed files are then deleted.

> ⚠️ Adding files with CRDs to the directories, as well as moving them to an archive is done by third-party tools. If necessary, please contact our technical support for assistance.

The HMED-M core checks CDRs, processes and filters them according to the rules set in its configuration: it cuts off invalid CDRs, matches providers by trunks, converts phone numbers from the format used by a PBX into E.164 numbering plan, etc.

Prepared CDRs are forwarded to HOCS which loads them into Hydra and initiates the rating procedure.

4.6.6. CDR Rating

See also:
- Traffic Classes Specifications
- Charge Logs
- Price Specifications

CDR rating includes the following steps:

1. Defining providers of the initiator and the receiver according to the routes specified in the CDR (the search continues for correspondence with the provider's**Termination string**). If no match is found for at least one of providers, the CDR rating status changes to *Could not find a match for at least one of providers*.

2. Defining the organization according to [telephony network service](#) specified in the CDR. The organization should match one of the providers.

3. Finding the [traffic classes specification](#) in force at the time of the call for the provider that matches the organization. If no specification is matched, the CDR rating status changes to *No matching traffic classes specification*.

4. Matching closest (i.e. having most coinciding) area codes in the found traffic classes specification for the initiator's and the receiver's phone numbers. If at least one code is not matched, the CDR rating status changes to *No matching address*.

5. Searching for the equipment for the initiator and the receiver firstly by phone numbers, then, if impossible, by the area codes. If no equipment is matched, the CDR rating status changes to *No matching equipment*.

6. Defining the basic and detailed [voice services](#) by traffic classes according to the chosen specification. If services are not defined, the CDR rating status changes to *No matching service*. See the service matching process [below](#).

Further rating is carried out for the party, whose equipment has been defined. If equipment is defined for both parties (i.e. both the initiator and the receiver of the call are customers of the current provider), then the call is rated for both.

7. Defining the customer as the equipment owner.

8. Matching the [charge log](#) by the customer, CPE, and the detailed service. The charge log must be *In force, Prepared*, or *Being processed*; the start of the call must fall into its period, and it should be issued according to [the price plan](#), including this detailed service. If it is impossible to match the invoice, the CDR rating status changes to *No matching charge log row*.

9. Defining the customer account by the customer's role in the charge log (**Receiver**). If there is no account found, the CDR rating status changes to *No matching customer account.*

10. [Call rating](#). After rating is done, there is a row added to the charge log (or rows, if there are quotas in the price specification), which contain information about the cost of the session. After that, CDR status becomes *Successfully charged*.

Defining Service by the Traffic Classes Specification Contents

Registers are formed on the basis of traffic classes specification contents. Registers are special tables representing traffic classes in a more convenient way for rating purposes. Particularly, if there are groups of area codes in the traffic classes description, then in registers they are converted into multiple areas. For example, if there are two groups of area codes in the traffic classes specification:

and the following traffic classes are specified:

	Service	Address A	Address B	Exclude	
1	Local Telephony	Provider's group	Provider's group	no	✖
2	National Telephony	Provider's group	National	no	✖
3	International Telephony	Provider's group	(all)	no	✖

Then in the register the contents are shown in the expanded way:

Service	Address A	Address B	Exclude	
Local Telephony	Internal area 1	Internal area 1	no	✖
Local Telephony	Internal area 2	Internal area 2	no	✖
Local Telephony	Internal area 1	Internal area 1	no	✖
Local Telephony	Internal area 2	Internal area 2	no	✖
National Telephony	Internal area 1	Alabama	no	✖
National Telephony	Internal area 2	Alabama	no	✖
National Telephony	Internal area 1	New York	no	✖
National Telephony	Internal area 2	New York	no	✖
National Telephony	Internal area 1	Virginia	no	✖
National Telephony	Internal area 2	Virginia	no	✖
International Telephony	Internal area 1	(all)	no	✖
International Telephony	Internal area 2	(all)	no	✖

The row of the specification contents and the corresponding register rows are outlined in red. The example shows that using groups of area codes definitely simplifies the description of traffic classes.

After area codes are found by the initiator's and the receiver's phone numbers (step 4), the system needs to define the corresponding basic phone service, i.e. to choose the matching row from the traffic classes register.

The row selection is done using ancestor codes, which are situated in the same branches of the code tree, as the initiator's and the receiver's codes (source codes). Each of the codes is valued depending on its proximity to the source code. So the closest codes receive the value of 1; their parent codes — 2, etc. For example, the initiator's address *13615550101* belongs to the *Internal area 1* code and the receiver's address *13155551234* belongs to the *New York* code. Then ancestor codes have the following values:
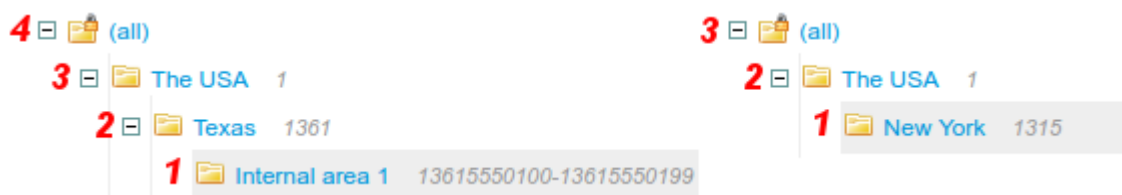
Further, the multiple rows of the traffic classes register are searched for those meeting the following criteria:

- contain a service which is one of the services bound to [the telephony network service](#);
- have one of the ancestor codes for the initiator's code or the initiator's code itself, in **Address A**; and an ancestor code for the receiver's code or the receiver's code itself, in **Address B**. Or, contrariwise, with an ancestor code for the receiver's one — in **Address A**, and an ancestor code for the initiator's code — in **Address B**.

Each of the rows has a value calculated as a total of values of the **Address A** and **Address B** codes. After that, a row with the smallest value is chosen:

For the initiator, a detailed service is rated as *Out*, and for the receiver — as *In.* As in the example above, the initiator is to pay for the *National Call Out*, and the receiver — for the *National Call In*.

Session Rating

1. The [price specification](#) and the its row with the corresponding price plan are defined according to the chosen charge log. The [price plan contents](#) are searched for the rows with the required detailed service.

2. In the contents, the row of the *Session specification* type is searched according to the following criteria: the call duration should not exceed the quota specified in the row; the code, specified in **Area**, should be as close as possible to the CDR code in the codes tree; the row should have the smallest number in the price specification. The following situations are possible:

   - The row is found and has *0* in **Price formula**. The call is free, and the row a with zero sum is added to the charge log, rating is completed.

   - The row is found and has *$PRICE* in **Price formula**. The call is rated according to the rules stated in the rows of the *Billing period specification* type, using the rating unit specified in the found row of the *Session specification* type.

   - The row is not found. Rating is done by the rows of the *Billing period specification* type.

3. The row chosen from all rows of the *Billing period specification* type should be the closest to the CDR code in the codes tree, and have the smallest number in the price specification contents. If it uses a quota, rating is done only for the part of the call, and the record about it appears in the charge log. Further, a row with the next quota is chosen, and so on, until the whole call is rated. So the quantity of rows in the charge log for the corresponding session depends on the number of quotas used for its rating.

Let us define the *National Call Out* service price for a 14-minute session from the example above. The rows from the price specification contents are chosen, which correspond to this service:

	№	Service	Type	Area	Route	Time interval	Qty. before	Qty. for price	Unit	Price formula	Price
▼	1	Hydra Phone (per minute)	Basic						-		10.00
	1.1	National Telephony out	Session specification	(all)			5	1	s	0	
	1.2	National Telephony out	Session specification	(all)				1	min	$PRICE	
	1.3	National Telephony out	Billing period specification	(all)			100	1	min		0.00
	1.4	National Telephony out	Billing period specification	(all)				1	min		0.43

As the call duration is more than 5 seconds, at the first step the second row is chosen from the two of the *Session specification* type (1.1 and 1.2). According to the parameters stated in the row, the rating is per minute.

Row 1.4 of the *Billing period specification* type shows that the price plan includes 100 minutes of free outbound regional calls. If in the current billing period the total duration of such calls has not exceeded 100 minutes, the next session rating starts with this row. For example, If a customer has already used 96 minutes, the 4 minutes are rated according to the row 1.4 (i.e. free), and the other 10 minutes — according to the row 1.5. As a result, the final price for the call is 15 rubles, and two records are added to the charge log.

4.7. How to Set Up and Use Suspensions

In this section:

- Suspensions General Settings
- Non-Payment Suspension
- Temporary Suspension (an Example of a Voluntary One)

See also:

- Create Price Plans
- Suspensions

For using suspensions in Hydra Billing, you need to set up the services properly both in the product catalog, and in the price specifications. Using suspensions requires understanding their functional principle, which is defined in detail in the Suspensions section.

In this section, we cover the examples of setting up and applying suspensions.

4.7.1. Suspensions General Settings

Suspensions are supposed to include no other services, so they typically exist in the product catalog as services, but not as price plans (the *Services* section).

- Everything
  - Material Assets
  - Network Services
  - Price Plans
  - Services
    - Core Business
      - Non-payment suspension
      - Voluntary suspension

Choose the required suspension in the product catalog, or create a new one. The general settings are the same for all types of suspensions. See below a non-payment suspension as an example.

Non-payment suspension: Edit

ID	62952401
Entry type	Product item
Unit	-
Type	Services
Parent	Core Business
Code*	Non-payment suspension
Name	Non-payment suspension
Remark	Customer contract will be terminated after a 3-month blocking for non-payment
Service providing scheme	Default Non-payment Suspens
Tags	suspension x

- There should be a dash in **Unit**.
- Type **Code**, **Name** is populated automatically.
- Add comment for more convenience.

Choose the providing scheme according to the suspension type and the required providing settings:

- non-payment suspension;
- temporary suspension (voluntary).

4.7.2. Non-Payment Suspension

In this section:

- [Grace Period Before the Non-Payment Suspension](#)
- [Setting Up the Non-Payment Suspension in the Product Catalog](#)
- [Adding the Non-Payment Suspension to a Price Specification](#)
- [Non-Payment Suspension Activation](#)

Grace Period Before the Non-Payment Suspension

On the **Administration** menu, click **Parameters**, then open the **Division parameters** tab. In **Grace period before non-payment suspension**, enter a number of days between the end of the last charge log under the contract and the date when the non-payment suspension takes effect.

Setting Up the Non-Payment Suspension in the Product Catalog

Open the suspension service in the product catalog. In **Service providing scheme** choose a scheme in which **Service type** is set to *Non-payment suspension*, for example, a [preset scheme](#). If you want to use a suspension with a different period you may either change it in the preset scheme or copy this scheme and enter a necessary **Billing period** in the new scheme.

Adding the Non-Payment Suspension to a Price Specification

Add the suspension service in a price specification. Typically, a suspension service belongs to the same specification as regular services.

> ⚙ Under one service or basic contract a non-payment suspension service is to be unique at any time. Periods of price specifications, related to this contract and containing suspension services, should not overlap.

№	Service	Type	Tax rate	Unit	Price formula	Price	Price excl. taxes	Currency
> 1	Tariff change	Basic	18%	-		30.00	25.42	$ [USD]
> 2	Voluntary suspension	Basic	18%	-		0.00	0.00	$ [USD]
> 3	Non-payment suspension	Basic	18%	-		0.00	0.00	$ [USD]

For the suspension service, choose dash in **Unit** and **Rating unit**. In most cases, the non-payment suspension is free of charge (**Price** = 0), but if necessary, you can enter a price for it.

Non-Payment Suspension Activation

Non-payment suspensions are activated by the standard *[Activating non-payment suspensions](#)* task. You cannot activate such a suspension manually.

4.7.3. Voluntary Suspension (an Example of a Temporary one)

In this section:

- [Setting Up the Voluntary Suspension in Product Catalog](#)
- [Adding the Voluntary Suspension to a Price Specification](#)
- [Scheduled Suspension Activation and Deactivation](#)
- [Activating and Deactivating Suspensions Instantly via the Service Provider Console](#)

See also:

Setting Up the Voluntary Suspension in the Product Catalog

Open the suspension service in the product catalog. In **Service providing scheme** choose a scheme in which **Service type** is set to *Temporary suspension*. You can use a [preset scheme](#), change it or copy it first and enter necessary parameters in a new one.

Service type	Temporary suspension ▼
Service providing type	Recurrent ▼
Billing period	Time-based ▼ 1 month ▼
Reservation period	0 month ▼
Rating method	Default ▼
Permission to subscribe	Customer or operator ▼
Permission to unsubscribe	Customer or operator ▼
Early termination condition	☐ Insufficient balance for charge ☑ ☐ Sufficient balance for billing period ☐
Charging when terminating charge log	Prorated daily ▼
Service providing point	Can be specified ▼
Charge log creation management	Internal ▼
Aggregation period	day ▼
Service restriction condition	Never ▼
Service priority	Normal ▼

● **Billing period** — by default a charge log is issued per month, so if you need to activate the suspension for a shorter period, you should enter a necessary **Charge log end date** in the subscription to the suspension service.

● **Permission to subscribe/unsubscribe** — one of the most important parameters, it is used to set up different kinds of suspensions: for virus activity (subscribe/unsubscribe by an operator only), voluntary (subscribe/unsubscribe by an operator or a customer), etc.

For a temporary suspension, one activation rule is typically enough.

Default rule

Activation conditions

— *Customer account status:* sufficient balance for billing period

Activation parameters

— *Charging type:* at period beginning
— *Charging period:* 1 month
— *Charging when opening charge log:* prorated daily

- **Customer account status** — if the service requires a payment, it is provided only on the condition that there are enough funds on the customer account. In the example above, it is available only with sufficient balance for the billing period. When the service is free of charge, it is available unless there are any debts on the account.

- **Activation parameters** — the customer is charged at the beginning of each billing period for the whole month, because the charging period equals one month, just like the billing period.

We recommend setting the rest of the values the same as in the example.

Adding the Voluntary Suspension to a Price Specification

Add the suspension service in a price specification. Typically, a suspension service belongs to the same specification as regular services.

> Price specifications for one and the same contract can contain several temporary suspension services. For example, one suspension can be activated only by an operator (i.e. in its service providing scheme, *Operator only* is chosen in **Permission to subscribe**), while another one can be activated by a customer via the Customer Self-Care Portal (as its **Permission to subscribe** is *By customer or operator*).
>
> If specifications contain several temporary suspension services that can be activated by a customer, in the Customer Self-Care Portal only the most expensive one is available for activation. In the Service Provider Console, a suspension service can be chosen when creating a subscription to it.

№	Service	Type	Unit	Price formula	Price	Price excl. taxes	Currency	
> 1	Connection Setup	Basic	pcs		70.00	59.32	$ [USD]	✖
> 2	Line Diagnostics and Setup	Basic	pcs		90.00	76.27	$ [USD]	✖
> 3	Static Public IP	Basic	pcs		10.00	8.47	$ [USD]	✖
> 4	Technician Visit	Basic	pcs		20.00	16.95	$ [USD]	✖
> 6	Voluntary suspension	Basic	pcs		0.00	0.00	$ [USD]	✖

For suspensions, enter a dash in **Unit** and **Rating unit**. A voluntary suspension (like any other temporary suspension) may be payable, or free (as in the example, **Price** = 0).

Scheduled Suspension Activation and Deactivation

In order to activate the suspension in the next billing period, you should add a subscription to the suspension service and click **Save**. The system will use the current date as **Start date**. This suspension will be activated as soon as a current charge log for a regular service gets out of force. If you enter **Start date** different from the current one, the suspension will be activated as soon as a regular service billing period that includes the specified date is over. In both cases, the suspension will be in force until you enter **End date** in the subscription to it.

If you enter **End date** in the subscription to the suspension service, the suspension will expire at the end of a billing period that includes this date.

If you need the suspension to be activated and deactivated at a specific time, please follow the steps below.

1. Open customer's subscriptions and add the *Voluntary suspension* service.

2. Enter **Start date** (frame #1) — a planned date to activate the suspension.

3. Enter **End date** (frame #2) — a planned date to deactivate the suspension.

4. For a regular service (price plan), enter **Charge log end date** (frame #3) a second earlier than **Start date** of the suspension. It is necessary if you want the suspension to get in force at a required time. The suspension charge log cannot be issued until the charge log for the regular service gets out of force.

5. For the suspension, enter **Charge log end date** (frame #4) equal to **End date** of the subscription (frame #2). Then the suspension will expire at the planned time. If **Charge log end date** for the suspension is not entered, the charge log will be issued for the whole billing period regardless of the subscription **End date**.

6. Leave **End date** blank for the customer's price plan (frame #5), so that he or she will start using it again when the voluntary suspension expires.

7. Click **Save**.

Thus, the voluntary suspension will be activated on the subscription begin date and deactivated on the subscription end date.

Activating and Deactivating Suspensions Instantly via the Service Provider Console

To activate the temporary suspension instantly, follow the steps below.

1. Open the customer's subscriptions, add the suspension service **(Start date** equals the current date by default). Click **Save**.

2. On the **Services** tab, in the **Current services** section, close the charge log for the regular price plan by entering the current date.

3. Issue a charge log for the suspension service. The suspension service will appear in the **Current services** section. The suspended price plan will remain in the **Ordered services** section.

Ordered services | from 12/03/2019 11:29:27 | 🗓 🗑 | Refresh

☑ Service	Equipment	Contract	Price specification	Period	Amount, $
✔ ☑ Voluntary suspension	STB-1	C17-38	PS17-5	from 12/03/2019 11:29:27 to 12/04/2019 11:29:26	0.00
❗ ☐ IPTV Basic	STB-1	C17-38	PS17-5	from 12/03/2019 11:29:27 to 12/04/2019 11:29:26	15.00
Total					**15.00**

[Issue charge logs]

The suspension can be deactivated similarly to its instant activation:

1. Open the customer's subscriptions and for the suspension service enter **End date** equal to the current date.
2. On the **Services** tab, in the **Current services** section, close the charge log for the suspension service using the current date.
3. Issue a charge log for the price plan the customer is subscribed to.

Activating and Deactivating Suspensions via the Customer Self-Care Portal

A customer can suspend a regular service in the Customer Self-Care Portal, if it is provided on equipment and the following conditions are met.

- The suspension service is added to a price specification in force that is connected to the contract for providing the regular service.
- In the service providing scheme of the suspension service, **Permission to subscribe** is set to *Customer or operator*, and **Service providing point** — to *Equipment* or *Can be specified*.

In this case, there is **Suspend** next to the regular service.

🏠 Home > Account

Account and services

Suspend all services

Payments and charges

Account #1088

Balance 992.05 $
Monthly payment 15 $
Enable auto top-up ❓

Last payment 56 $
03/05/2018 via Teleline

IPTV Basic 15 $ ❓ Change plan
monthly Suspend

Depending on the settings of the Customer Self-Care Portal, the suspension activates instantly, or as soon as the current billing period of the suspended service is over.

> ⚠️ If there are several available suspension services that meet the above conditions, the suspension with the highest price is activated.

To deactivate the suspension, click **Resume** next to the price plan. The suspension will be instantly deactivated.

🏠 Home > Account

Account and services

Payments and charges

Account #1088

Balance 1,006.57 $
Monthly payment 15 $
Enable auto top-up ❓

Last payment 56 $
03/05/2018 via Teleline

IPTV Basic 15 $ ❓ Resume
monthly

Suspended by service "Voluntary suspension"

Voluntary suspension free ❓
Valid since 13/03/2019 00:00 monthly

4.8. How to Manage Regions

Filling in the registry of regions includes the following steps:

- creating a federal hierarchy,
- creating a municipal hierarchy, and
- binding federal regions to municipal ones.

Step 1. Creating a Federal Hierarchy

By default, there is the *All* group inside the registry of regions. Firstly, you need to add federal regions, in which you provide services. See an example of a service provider for the city of *New York*. According to the general rule for postal address format, in the *All* group of the federal hierarchy, you need to add a region *USA* of the type *Country*, and a child region *New York* of the *State* type inside it. Consequently, inside the *New York* region, add a child region *New York* of the *City* type.

Further, to the *New York City* region, you add regions of the types *Street*, *Avenue*, *Boulevard*, and so on, with child regions of the *Building* type. Similarly to the *New York City* region, add other federal regions (you can use loading regions from the file).

Registry of regions

Display type Federal ▼

🔍 Search 🗑

🔄 ⊟ All
    ⊟ USA
        ⊟ New York
            ⊟ New York City
                ⊟ E Tremont Ave.
                    Building 2444
                ⊞ Flatbush Ave.
                ⊞ Jewel Ave.
                ⊞ Lexington Ave.
                ⊞ Walters Ave.

ID 62577401

Type Building ▼

Hierarchy type Federal ▼

Region name Building 2444

Parent region USA, New York, New York City, E Trem 🔍 ✎ 🗑

Code

External code

ZIP

House 2444

Building

Annex

Property

Catalog entry for real estate object House 🔍 ✎ 🗑

Municipal region 🔍 ✎ 🗑

Save   Delete

Step 2. Creating a Municipal Hierarchy

Choose a federal region to create municipal subdivision for it. As a rule, such subdivision is specified for regions the *City* type. In the example below, see creating a municipal subdivision for the *New York City* region, into districts, then districts into blocks. To do so, inside the federal hierarchy, choose *New York City* and add a child municipal region *Manhattan* of the *Borough* type.

> ⚠ You should not create municipal subdivisions for a federal region, if its parent or child regions already have other municipal subdivisions.

Registry of regions

Display type　Federal ▼

🔍 Search　🗑

🔁 ⊟ **All**
　　⊟ **USA**
　　　⊟ **New York**
　　　　⊟ **New York City**
　　　　　⊞ E Tremont Ave.
　　　　　⊞ Flatbush Ave.
　　　　　⊞ Jewel Ave.
　　　　　⊞ Lexington Ave.
　　　　　⊞ Walters Ave.

Type　Borough ▼

Hierarchy type　Municipal ▼

Parent region　USA, New York, New York City　🔍 ✎ 🗑

Code　Manhattan

External code

ZIP

[Add]

Go over to the municipal hierarchy. After adding the municipal region *Manhattan,* the *New York City* federal region will be shown in the municipal hierarchy together with its parent regions.

Registry of regions

Display type　Municipal ▼

🔍 Search　🗑

🔁 ⊟ **All**
　　⊟ **USA**
　　　⊟ **New York**
　　　　⊟ **New York City**
　　　　　⊞ Brooklyn
　　　　　⊞ Manhattan

Now in the municipal hierarchy we add a child region *Midtown* of the *District* type to the municipal region *Manhattan.* Then we similarly add the rest of the districts.

> ⚠ Do not create regions of the *Building* type in the municipal hierarchy.

Registry of regions

Step 3. Binding Federal Regions to Municipal Ones

> ⚙️ Note that binding federal regions to municipal ones is done only via federal regions of the *Building* type. Doing so, you can bind a building to only one municipal region.

In the example below, the building 768 on *Fifth Avenue* belongs to the *Midtown* district of the *Manhattan* region. To specify such a correspondence in the system, you need to open the *Building 768* federal region and fill in **Municipal region** with *Midtown* region, then click **Save**.

Type [Building ▼]

Hierarchy type [Federal ▼]

Region name Building 768

Parent region [USA, New York, New York City, Fifth A\ ] 🔍 ✏ 🗑

Code [   ]

External code [   ]

ZIP [   ]

House [768   ]

Building [   ]

Annex [   ]

Property [   ]

Catalog entry for real estate object [House] 🔍 ✏ 🗑

Municipal region [New York City, Manhattan, Midtown Dis] 🔍 ✏ 🗑

[Save] **Delete**

In the municipal hierarchy tree, the *Midtown* region is shown with *Building 768* of the *Building* type as its child federal region, with the same parameters except for missing *Parent region*.

Registry of regions

Display type Municipal ▾

🔍Search 🗑

⟳ ⊟ All
   ⊟ USA
     ⊟ New York
       ⊟ New York City
         ⊞ Brooklyn
         ⊟ Manhattan
           ⊟ Midtown Dist.
              Fifth Ave., Building 768
         ⊞ Queens
         ⊞ Staten Island
         ⊞ The Bronx

ID 63037701

Type — ▾

Hierarchy type Federal ▾

Region name Fifth Ave., Building 768

Code

External code

ZIP

House 768

Building

Annex

Property

Catalog entry for real estate object 🔍 ✎ 🗑

Similarly, other federal regions of the *Building* type are bound to corresponding municipal regions.

When necessary, you can change any building binding to a municipal region, or delete it on the building page in the federal hierarchy.

4.9. How to Add a New Customer

Creating and setting up a new customer is done in a few steps:

- creating a basic subject,
- creating a customer,
- creating customer accounts,
- creating contracts,
- creating equipment,
- subscribing to network services,
- subscribing to services,
- activating a customer, and
- granting access to the Self-Care Portal.

Step 1. Creating a Basic Subject

In Hydra Billing, a customer is a role of a basic subject, so before adding a customer, you should create a corresponding individual or organization. If it does not exist in the system yet, use instructions for registering individuals or organizations

If a basic subject has already been added, open it from the registry of individuals or organizations, or use quick search, entering a short name for an organization or the last name for an individual.
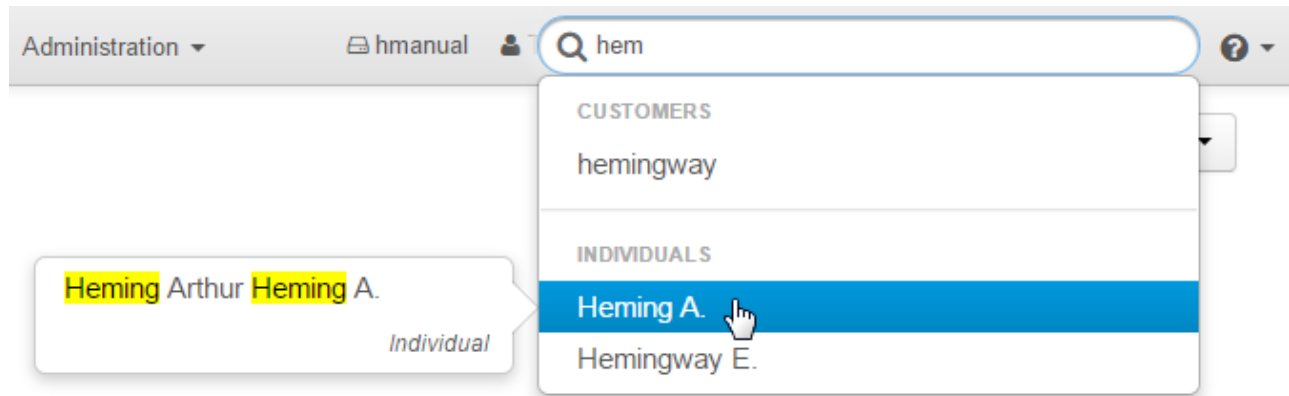
To specify the service address for the CPE, you should add this address to the individual or the organization. It is preferable to add customer's phone number and the email — later they will be useful for automatic notifications.

Step 2. Creating a Customer

Click **Add role** on the basic subject's page and choose **Customer**.
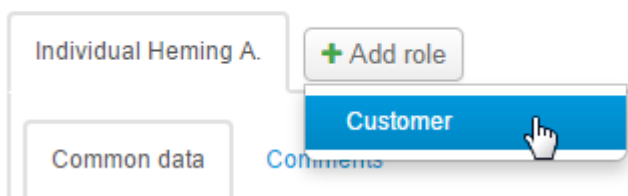
Enter the customer's details, choose *Inactive* status and click **Add**.

Step 3. Creating Customer Accounts

After the customer is added, you should create customer accounts, which are charged for provided services.

To create a customer account, click **Add account** on the **General** tab of the customer's page. You can add one or several accounts to a customer — in the first case, all services are paid for using one account, while in the second case, you distribute services to be paid from different accounts, for example, so that a customer pays separately for the Internet and phone services. Advantages and disadvantages of these schemes are discussed in the corresponding section.

Customer Accounts ⓘ

	Currency	Balance	Current Reserved	Available	Credit Limit	Auto top-up	
Customer account #1016	$ [USD]	0.00	0.00	100.00	100.00	Not present	🔍 ⊕ ✕

+ Add account

Step 4. Creating Contracts

Next step in the setting up a new customer is to create contracts. Click **Add document** in the **Contracts** section on the **General** tab, and a new contract page opens.

Contract: create

General | Document dependencies | Comments | Audit

Workflow: Standard for Customer Contracts ▾

Document number: C16-22 ✎ 🔒   Date: 14/10/2016 📅   10:38:29

Status: Draft ▾ | Change

Tags:

Period: 📅 🗑

Basic Contract: BC_Individual_QuickStart   🔍 ☑ 🗑

Subjects

Provider: Teleline   🔍 ☑ 🗑

Client: heming   🔍 ☑ 🗑

Content

⚠ Please save document in order to add attachments

Other

Remark:

Add | Close

If a number created by autonumbering does not fit, click 🗑 next to **Document number** to delete the connection with autonumbering, confirm the deletion, and type a new document number.

Enter **Period** for the contract. If you leave **Period** empty, it is automatically populated with the start date the same as at the time of document creation, and the end date not specified, i.e. the contract is termless.

Specify the basic contract. **Provider** is populated with the current service provider, and *Client* with the current customer.

Click **Add**. In **Status**, choose *In force*, and click **Save**. If the customer needs an individual price plan, add the corresponding price specification to the new contract. Close the contract page, and the new contract will appear on the customer's page in the **Contracts** section.

Contracts

☑ Only effective

Name	Status	Services subscription
Contract #C16-22 from 14/10/2016	Effective	✚

✚ Add document

When necessary, the customer can have several contracts and be provided different services according to corresponding contracts, for example, one contract for phone and one for the Internet services.

Step 5. Creating and Setting Up CPE

A customer can be either an individual equipment owner, or a component owner (a telephone, a VPN port) of the existing equipment (a PBX, or a VPN concentrator correspondingly). To learn how to create equipment, see the corresponding section.

Customer equipment is shown on the customer's page.

Equipment ⊚

Name	Component	Status	IP Address	Subnet Mask	Subnet	VLAN	VLAN
Workstation-17	1	Active	193.178.118.3	255.255.255.0	193.178.118.0/24		
VSAT Terminal-18	1	Active	172.16.0.10	255.240.0.0	172.16.0.0/12	BACKBONE	1199

✚ Add equipment

To manage the equipment via events, the customer equipment's components are bound to network services: it can be a program firewall, a shaper, ets. To edit these bindings, click the component name in the equipment table, then go to the **Bindings** tab.

In the **Direct** section, click ✚ **Add**. Choose **Binding type**, for example, *Network connection*, to bind equipment to the switch port, or *Connection management*, to bind to a shaper or a firewall. In **Object 2** enter a network service or other provider equipment, in **Component 2** choose a component if necessary, for example, a switch port.

Save changes and close the window.

Step 6. Subscribing the Customer to Network Services

If the customer authentication is done via login and password (dial-up, PPPoE, etc.), you should subscribe the customer to the corresponding network service. Do it on the **Services** tab of the customer's page.

Step 7. Subscribing the Customer to Services

After the customer has the contract, the account and CPE created, you can subscribe him or her to services.

In the **Contracts** section of the customer's page choose the row with the required contract and click ✚ in the **Subscriptions to services** column. In the popup window, click **Add**, so a new row appears in the table.

Choose an account which should be used for payments, equipment for the services to be provided, and a necessary price plan.

Start date is automatically populated with the current date when saved, and you may leave **End date** empty, so the subscription is termless. In **Monthly billing date** you may enter a certain day, or leave it empty; the the latter case, the charging date is determined by the charge log issuing date, i.e. the date is floating. Leave **Charge log end date** empty. Click **Save** and close the window.

If the customer has multiple accounts or contracts, you should follow the abovementioned steps for each of the services to be provided to the customer.

You can click **One-off services** to rate services which haven been provided to the customer only once, for example, to charge for connection, or for cabling.

Step 8. Customer Activation

A customer needs to be activated to be provided with services: on the **General** tab of the customer's page choose the *Active* status and click **Save**.

A list of services, which are to be provided to the customer, is shown on the **Services** tab in the **Ordered services** section.

Services cannot be provided until the charge logs for them are issued. Typically, charge logs for recurrent services are issued automatically, but you can issue them manually, without waiting for the system task execution, by clicking **Issue charge logs**.

To have charge logs issued, the customer is to have sufficient funds on the customer account to pay for the chosen services. If you want services to be provided before receiving a payment, you can grant a temporary credit limit to the customer: open the customer's account page by clicking a row in the **Accounts** table; enter a sum, sufficient for the chosen price plan, in **Temporary credit limit**; specify the credit limit period — the end date until which the customer can use the service without paying. Save the changes and close the page.

Step 9. Access to the Self-Care Portal

The Customer Self-Care Portal allows the customer to perform typical operations by themselves (for example, change a price plan), and also to receive information on contracts, CPE, current or previously provided services.

Bind a customer to a division on the **Permissions** tab of the customer's page.

To manually grant an access to the Self-Care Portal (including a password) to the customer, click **Add** in the **Access to applications** section of the **Network services** tab. In the **Application** column, choose *Customer Self-Care Portal*, specify the login (otherwise, the customer code is used as a login), set a password.
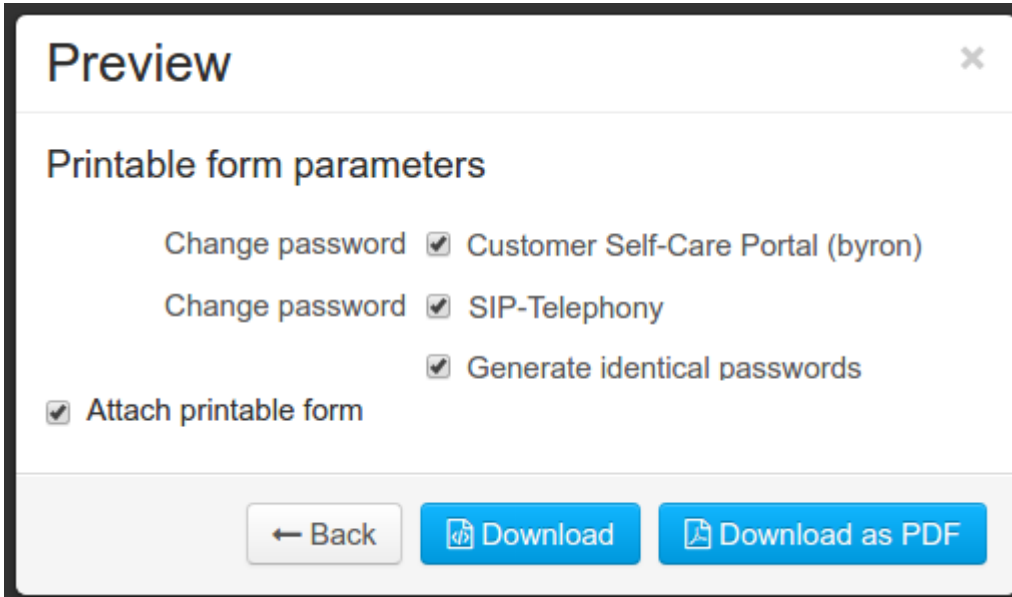
Another way to grant access to the Self-Care Portal to the customer is to print out the customer's record using a corresponding print template. The record contains information concerning the created customer, including CPE, addresses, access passwords, etc.

Click 🖶 **Print** in the upper right-hand corner of the customer page, choose the **Customer record** template, so the **Preview substitutes** window opens, in the **Access to applications** section select the necessary applications, click **Get file**. Then the customer is granted access to the chosen application, and a random password is generated and shown in the formed file.

You can use the customer record in the similar way to set passwords for network services — a check box for the network service password change will be shown on the customer's print template as soon as a network service subscription is created.

4.10. How to Add an Employee

Create and set up a new employee in the following steps:

- choose or create an organization,
- create departments,
- create an employee,
- open an individual for the employee,
- create a customer, and
- grant permissions.

Step 1. Choose or Create an Organization

Open the organization's page to add employees. You can search for the organization in the registry of organizations (**Master data** > **Organizations**) or use [quick search](#).
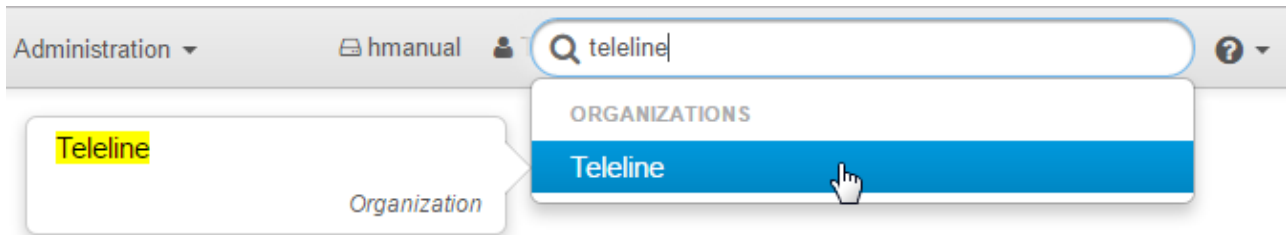
If the organization is not in the system yet, you should [create](#) it.

Step 2. Create Departments

On the organization's page, open the **[Employees](#)** tab. If you need to distribute employees between departments, add the departments.

Step 3. Create an Employee

Click **Add employee** under the right department and enter [employee's data](#).

Step 4. Open an Individual for the Employee

Search for the added employee in the staff list and click the link in the **Full name** column. A corresponding individual page opens. See the new row **Employee** with the link to the employer organization and employee's position.

Step 5. Create a Customer

The employee will be able to use the system after you add a customer role to him or her.

Click **Add role** on the individual's page and choose **Customer**.

Fill in customer data and click **Add**. A new customer is created.

If a person is both your employee and your customer, set him or her up according to the [Adding a new customer](#) manual.

Step 6. Grant Permissions

On the **Permissions** tab of the customer page add a binding to your division. On the **Network services** tab in the **Access to applications** section add access to the Service Provider Console. A password will be generated automatically, and you can change it in the **Password** column.

Access to applications

Application	Login	Password	Hash type	Locale	
Customer Self-Care Portal	financier	defined	MD5	—	✖
🗗 Network Operator Console	financier	setup	—	—	✖

➕ Add

Grant permissions depending on the employee's responsibilities. For more information on granting permissions and changing passwords go to the [Permissions](#) section.

4.11. How to Use Auto Top-up

In this section:

- [Setting Up Auto Top-Up](#)
- [How Auto Top-up Works](#)

See also:

- [Customer Accounts](#)

Auto top-up (recurring payments, subscription-based payments) allows you to charge a customer's credit card (or an account) for services on a regular basis. A customer enters card details in the Customer Self-Care Portal via a payment gateway thus giving a one-time consent to be charged automatically, i.e. ***subscribing to auto top-up***. Further, autopayments are made without customer's participation until he or she withdraws permission.

> To work with payment systems, Hydra uses a special agent called ***HPD (Hydra Payment Daemon)***. Please contact our tech support to check whether you can use auto top-up with a certain payment system.

Depending on a payment system, to subscribe, a customer may be required to make the first payment on his or her own (an initial payment). The amount of this payment is determined in the HPD agent settings, for example, it can be $1. A payment gateway stores entered details and generates a token that is retained in the billing. For further payments, the billing passes only the token and a required amount to the payment gateway.

Autopayments are created on the basis of ***payment requests***. A payment request is created for a certain customer account and contains the amount for topping it up. The amount depends on a payment request type, for example, it can be equal to a [recommended payment](#).

If a customer has entered card details an autopayment is generated on the basis of the payment request and in the same amount. Then, the HPD agent processes this autopayment and charges a customer's card or account.

Payment requests and autopayments are created by the *Creating payment requests* task according to certain rules. Set up rules for creating payment requests and autopayments so that customers can enable auto top-up.

4.11.1. Setting Up Auto Top-up

Follow these steps to make auto top-up available to your customers:

- create an organization and a bank for a payment system,
- create an account in the payment system,
- add a rule for creating payment requests, and
- add a rule for creating autopayments.

See below an example of setting up auto top-up with PayPal.

Step 1. Create an Organization and a Bank

Add an organization that will represent a payment system in Hydra Billing.

Add a *Bank* role to this organization. Enter a bank code, for example, a short name for the payment system. Make sure to specify this bank code in the HPD agent configuration file.

Bank PayPal

Organization PayPal, Inc. | Bank PayPal | + Add role

General

General

Code*	PayPal
Name	PayPal
Region	🔍 ✎ 🗑
Status	Active ▾

Step 2. Create an Account in the Payment System

Open your organization (that corresponds to the current provider). On the **General** tab, go to the **Accounts** section and add an account of the *Payment system* type with the previously created bank.

Create account ✖

Account type	Payment system ▾
Bank*	PayPal 🔍 ✎ 🗑
Currency	$ [USD] ▾
Account number*	PayPal
Opening date	03/01/2018 12:16:07 📅
Closure date	📅
Remark ✎	
Name	
Code	
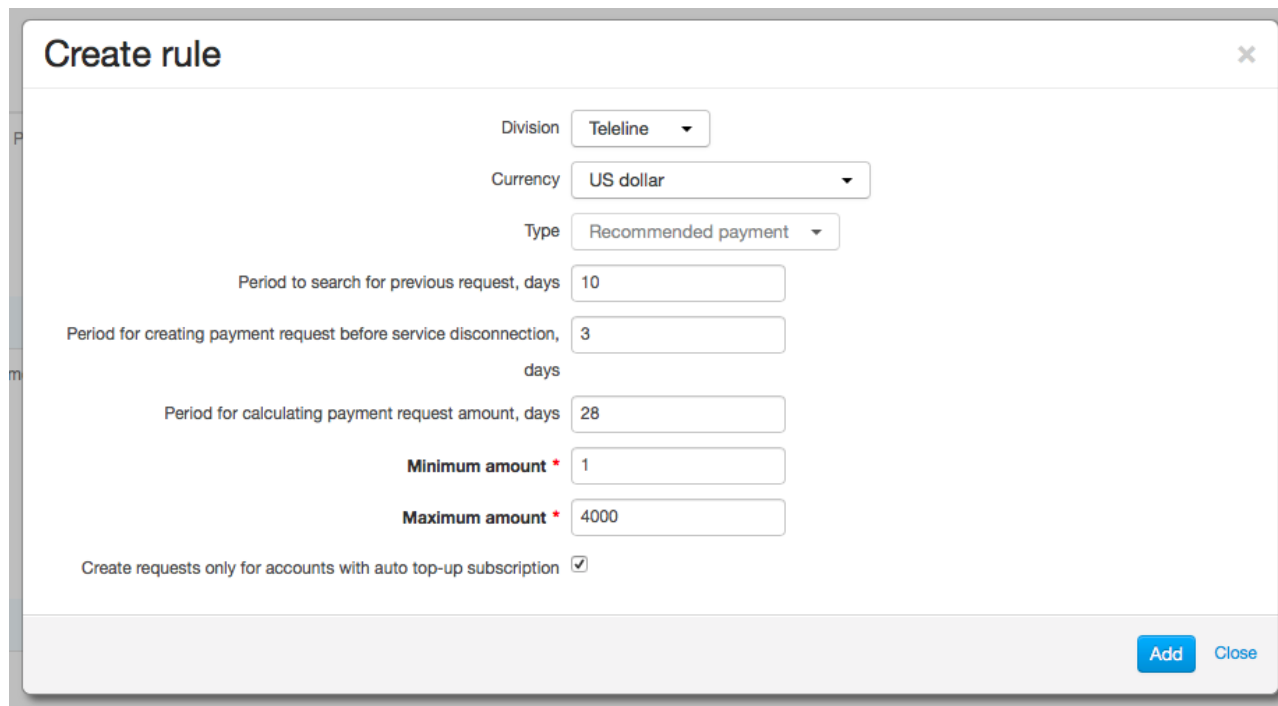
Add   Cancel

The number of this account is to be added in the HPD agent configuration file.

Step 3. Add a Rule for Creating Payment Requests

On the **Administration** menu, click **Parameters**. Go to the **Payment requests** tab. [Add a new rule for creating payment requests](#).

A payment request is created for a USD account on the condition that there are no other pending requests created less than 10 days ago.

A request is created if in the next three days providing services may be suspended (due to: end of a billing period, expiration of a deferred payment, etc.) and a non-zero recommended payment is calculated for the customer account.

When calculating a recommended payment, Hydra considers services that are to be provided to the customer within the next 28 days.

The amount of the payment request cannot be less than $1 and more than $4000. The request is created only if the customer is subscribed to auto top-up.

Step 4. Add a Rule for Creating Autopayments

[Add a rule for creating autopayments.](#)

Create rule

Division	Teleline ▼
Customer tags	
Currency	US dollar ▼
Bank	PayPal 🔍 ✎ 🗑
Creating condition	Recommended payment ▼
Minimum autopayment amount	1
Maximum autopayment amount	400
Maximum total amount of autopayments per month	400
Maximum number of autopayments per month	3
Maximum number of failed charging attempts before canceling auto top-up subscription	2
Charging delay, hours	23
Minimum interval between autopayments, days	1
Remark	

Add   Close

The rule is valid for the *PayPal* payment system and is applied to all customers as no tags are specified. The condition for creating an autopayment — *Recommended payment* — corresponds with the payment request type.

Autopayment amounts may vary from $1 to $400. Total amount of all autopayments over 1 month should not exceed $400. During one month no more than 3 autopayments can be created for one account.

After two consequent failed charging attempts a subscription to auto top-up is canceled.

Charging is carried out 23 hours after creating an autopayment. Autopayments for one customer account cannot be created more than once a day.

4.11.2. How Auto Top-up Works

Subscribing to Auto Top-up

One of the autopayment creation rules should apply to a customer: he or she is to belong to the division given in the rule and to have necessary tags and an account in the specified currency. Then he or she can subscribe to auto top-up in the Customer Self-Care Portal by clicking **Enable auto top-up**. If no rule suits, no link is shown.

When the customer clicks **Enable auto top-up** he or she is redirected to a page for entering payment details.

If a subscription is created successfully the customer sees the corresponding message. In the future, he or she can disable auto top-up (i.e. cancel the subscription) anytime.

On the customer's page in the Service Provider Console, you can see if there is an active auto top-up subscription for the customer account.

Creating and Processing Autopayments

Payment requests and autopayments are processed in the following way:

1. With each run, the *Creating payment requests* task checks if there is any payment request created for an account less than 10 days ago (the value from the rule for creating payment requests) and still pending.

2. If no request is found and a customer has 3 days (specified in the rule) or less until a service paid from this account gets deactivated, a recommended payment is calculated.

3. If the amount of the recommended payment falls within the range between the minimum and maximum amounts from the rule a payment request is created.

4. An autopayment in the same amount is created on the basis of the payment request. And the limitations from the autopayment creation rule are applied (the maximum and minimum amounts, the monthly total amount and number of autopayments, the interval between autopayments). If an autopayment cannot be created the request becomes *Unpaid* and its processing stops.

5. When, after creating the autopayment, the time specified in **Period before charging** passes the HPD agent makes an attempt to charge a card or an account in a payment system. If charging is successful the payment request becomes *Paid* and its processing stops.

6. If charging fails due to a reason that makes all further charging attempts for the subscription useless the request becomes *Unpaid*. Thus, the subscription to auto top-up becomes *Expired* (if the charged card has expired), or *Invalid* (for example, when the transaction is blocked by the card issuer).

7. If the reason for the failed charging allows further attempts, Hydra checks if the number of failures has reached the value specified in the autopayment creation rule. If not, with the next run the *Creating payment requests* task creates a new autopayment for this request (see step 4). Otherwise, the request becomes *Unpaid*, and the subscription to auto top-up becomes *Invalid*.

8. If charging fails due to an internal error with the next run the task creates a new autopayment (step 4). When the number of failures equals three the subscription to auto top-up becomes *Suspended*. After troubleshooting the subscription can be resumed. So another autopayment will be generated for the previously created payment request.

> Every 10 days (**Period to search for previous request** from the creation rule) for one account there can be only one pending payment request. However, there can be several autopayments for one and the same request if charging has not been carried out at the first attempt. Each autopayment corresponds to one charging attempt.

> If due to failed charging attempts a subscription to auto top-up becomes *Canceled*, or its period is over, and a customer wants to resume auto top-up, he or she has to enter new payment details in the Customer Self Care Portal.

4.12. How to Work with Invoices

In this section:

- Creating Invoices
- Checking and Putting in Force in Bulk
- Export Invoices

See also:

- Invoices

In this section, learn how to work with invoices in Hydra Billing, as a typical case of post-payment terms.

Creating Invoices

To create invoices, open **Bulk Actions** > **Invoice Creation**. In most cases, you need to fill in the boxes just as shown below.

Invoice creation

Creation mode	Invoices for rendered services ▾
Period*	Current month 📅 🗑
Organization	Teleline
Division Account	🔍 ✎ 🗑
Contract	🔍 ✎ 🗑
Invoices Date	📅 ☑ Charge logs end date
Customer type	— ▾
Customer Group	☑ Corporate Customers ✅ ☑ Employees ☐
Customer	🔍 ✎ 🗑
Exclude additional services for the billing period	📅 🗑
Charge logs status	— ▾
Unit	pcs ▾
	☑ Group by Contract
	☐ Group rows by equipment
	☐ Take into account pro forma invoices when creating invoices for services rendered
	☐ Separate accounts by equipment
	☐ Only for accounts with a negative balance
Service/Price plan	🔍 ✎ 🗑

Create

For more information concerning the invoice creation settings, see the Creating Invoices section.

Checking and Putting in Force in Bulk

Open the invoice registry (**Documents** > **Invoices**). On the **Filter** tab, in **Date** enter the date used as **Invoices date** when issuing invoices. Select the *Draft* status, enter your login in **Author**, click **Search**. On the **Results** tab, see the newly issued invoices.

> ⚙ Before you put invoices in force, go over the services and sums in them. To do so, use the bulk print function (click 🖨 on the **Results** tab of the invoices registry). When necessary, re-create invoices.

Put invoices in force in bulk.

Export Invoices

To export invoices from Hydra Billing to ERP software, open **Bulk actions** > **Export Invoices**.

- Choose the necessary month and year.
- Organization is populated automatically unless you use the Hydra Billing version for multiple divisions.
- File name is generated automatically.
- Select **Invoices**.
- Select customer groups or enter customer tags.
- Click **Export**.

4.13. How to Issue Charge Logs Manually

See also:

- [Charge Logs](#)
- [Subscription to Services](#)

In some cases you may need to issue a charge log manually. For example, in case when during the billing period you find out that a charge log has been issued according to a specification with the wrong price for a service. Right after [adding changes to the price specification](#) you should cancel this charge log and issue a new one with the begin date same as the one for the billing period, i.e. a backdated charge log.

> You can issue a charge log manually only if:
> - at the time of issuing, a customer has a subscription for the required price plan or a service, and
> - in terms of the current subscription, there are no uncanceled charge logs which periods intersect with the one for the charge log to be issued.

> A charge log is always issued for the whole billing period specified in the [service providing scheme](#).

To create a backdated charge log follow the steps below.

Step 1

Make sure that a customer has a subscription for the price plan or service at the time of issuing a charge log (the **General** tab > **Subscriptions to services**).

The subscription may be already closed, so select the **Closed subscriptions** check box to search for it.

In case there is no subscription, create a backdated one or change a period of an existing subscription (if there are no uncanceled charge logs based on it).

Step 2

Make sure that during the whole service billing period no services have been provided, i.e. there are no uncanceled charge logs, with periods overlapping the one for the charge log to be issued (the **Services** tab > **Provided services).** For example, if in the service providing scheme the billing period equals a month, then the required subscription should have no charge logs from the start date and during the whole month.

Step 3

In the **Ordered services** section, type the required period you need to issue a charge log for. The period can be equal to either one or several service billing periods. In the latter case, several charge logs will be issued.

Click **Refresh**. The table shows all billing periods that overlap no periods of existing charge logs and which begin dates fall into the specified time span. If there is only the begin date of the time span specified, the current date is used as the end one.

Check parameters of the ordered service. If everything is correct, choose necessary periods (if there are several) and click **Issue charge logs**.

If the charge log is successfully issued, a message with green background appears.

Step 4

You can once again make sure the charge log is issued correctly in the **Provided services** section by entering the required period.

	Service	Customer account	Equipment	Charge log	Status	Begin date	End date	Charged, $ [USD]	Amount for add. services, $ [USD]	Details
▶	Internet Basic	1020	Workstation-12	CL-16-114 from 01/05/2016	Executed	01/05/2016 00:00:00	31/05/2016 23:59:59	50.00	0.00	(Add. Services)
▶	Internet Basic	1020	Workstation-12	CL-16-136 from 01/04/2016	Executed	01/04/2016 00:00:00	30/04/2016 23:59:59	50.00	0.00	(Add. Services)
▷	*Services were never rendered*					*01/03/2016 00:00:00*	*31/03/2016 23:59:59*			
▶	Internet Basic	1020	Workstation-12	CL-16/2 from 01/02/2016	Executed	01/02/2016 00:00:00	29/02/2016 23:59:59	50.00	0.00	(Add. Services)

4.14. How to Correct Missent Payments

To correct a missent payment, follow the steps below. If a payment is registered in the system without a bank statement, simply follow the steps specified for processing a payment order.

Step 1

Open the bank statement and search for an improper payment. Click in the corresponding row.

Bank statement BS-10/1

Step 2

Open the payment order.

Edit bank statement rows

Matching reliability **100%**

ID 63021301

Payment document [Payment order #P10-19 of 27/04. 🔍 ✎ 🗑]

Document number P10-19

Initial document [   ]

Document date [27/04/2010 00:00:00 📅]

Transaction ID [18927537340   ]

Transaction number [   ]

Client ID [   ]

Payment received date [27/04/2010 16:25:57 📅]

Step 3

Change the payment order status to *Canceled* and type a comment explaining the reason for the change.

Payment order P10-19: Edit

Payment order P10-19

| General | Document dependencies | Comments | Audit | Copy | More ▾ |

ID 63021401

Workflow Default for payment orders ▾

Document number P10-19   Date 27/04/2010 📅   16:25:57

Status Canceled ▾   Change

Tags

Reason document Bank statement #BS-10/1 of 27/04/2010

Subjects

Payer Sheckley R.   Account

Paid for gsympson   Account 1021

Client Teleline   Account USD Cash

Contents

Date	Transaction type	Payment type	Tax rate	Amount	Taxes	Amount excl. taxes	Currency
27/04/2010 16:25:57	Credit	Cash	18%	15.34	2.34	13.00	$ [USD]

Other

Remark Correction of mistaken payment from account #1021 to account #1020 due to customer Sheckley R. claim.

Step 4

Go back to the bank statement row. Clear **Payment document**, as well as **Paid for (matched)** and **Account**.

Edit bank statement rows

Matching reliability **100%**

ID 63021301

Payment document [   ] 🔍 ✏ 🗑

Document number P10-19

Document date [27/04/2010 00:00:00] 📅

Transaction ID [18927537340]

Transaction number [   ]

Client ID [   ]

Payment received date [27/04/2010 16:25:57] 📅

Payer

Payer [   ]

Payer (matched) [Sheckley R.] 🔍 ✏ 🗑

Account [   ] 🔍 ✏ 🗑

Bank [   ]

Bank (matched)* [Teleline] 🔍 ✏ 🗑

BIC [   ]

Corr. account [   ]

Account [   ]

Other

Paid for [   ]

Paid for (matched) [   ] 🔍 ✏ 🗑

Customer account* [   ] 🔍 ✏ 🗑

Step 5

Enter the customer account number in **Customer account**, so **Paid for (matched)** is populated automatically. Type the comment as in the [step 3](#). Click **Save**.

Payer

Payer		
Payer (matched)	Sheckley R.	🔍 ✏ 🗑
Account		🔍 ✏ 🗑
Bank		
Bank (matched)*	Teleline	🔍 ✏ 🗑
BIC		
Corr. account		
Account		

Recipier

Re

Other

Paid for		
Paid for (matched)	sheckley	🔍 ✏ 🗑
Customer account*	1020	🔍 ✏ 🗑
Organization	Teleline	🔍 ✏ 🗑
Author	latera	✏
Payment refusal reason		
Purpose of payment	Correction of mistaken payment from account #1021 to account #1020 due to customer Sheckley R. claim.	

Step 6

On the bank statement page, click **Change and make payments**.

Bank statement BS-10/1

| Bank statement BS-10/1 | | | | |
| General | Document dependencies | Comments | Audit |

ID 63012201

Workflow Default for bank statements ▾

Document number BS-10/1 ✎ 🔒 Date 27/04/2010 📅 16:18:40

Status In force ▾ Change and make payments

Tags

Period 27/04/2010 📅 🗑

Step 7

If the corrections are properly made, the row with the corrected payment order in the bank statement becomes white, otherwise the system informs you about an error, and the payment order row is highlighted in red.

Step 8

Open a customer who has been credited the required amount, and check the customer account balance. Make sure the account balance is topped up with the amount equal to the one in the corrected payment.

Also check the account balance of the customer for whom you have had canceled the improper payment. The balance should be decreased by the amount equal to the one in the corrected payment.

If a customer has a new invoice issued (for example, when the balance before the payment was negative or 0) due to the improperly entered payment, you should plan your further actions as the service provider. It may be possible, that a customer has already used services paid with the mistakenly credited funds; then you need to contact this customer.

4.15. How to Create Discount Programs

In this section:
- Simple Discounts
- Bundle Discounts

See also:
- Subscriptions to Services

- [Tags](#)
- [Discount Specifications](#)
- [Discount Certificates](#)

Use discounts to change the prices for services you provide to certain customers. Discounts can be applied only to regular services which are provided based on subscriptions. Discounts cannot be applied to suspensions, access and traffic services.

Hydra Billing supports common types of discounts: simple, for payments in certain amount, and bundle ones.

Discounts are set up in [discount specifications](#). For each discount, you should specify the conditions a customer should meet (to subscribe to certain services, to make a payment in a specified amount), and the discount parameters (its amount and period).

As soon as the customer meets the conditions to be granted a discount, the system issues a [discount certificate](#) for him or her. Such documents are created only automatically and cannot be edited.

> A discount certificate is closely linked to a subscription. The discount is granted for the certain subscription, so if the price plan is changed the certificate will not be used when issuing a charge log for a new subscription.

When issuing a charge log based on the subscription, Hydra Billing checks if there are discount certificates in force for this subscription. If such certificates are found, prices of the services change according to the discount parameters as per the discount specifications.

> When a customer meets conditions to be granted several discounts, several discount certificates are created. Moreover, a customer can have any amount of certificates at once that can be applied to the same subscription. When a charge log is issued, the discount, which is most favorable for a customer, is applied.

Setting Up Discounts

First of all, you should create discount specifications. Determine the category of customers who can be granted discounts. With Hydra Billing, you can do it using customer tags and discount specification tags.

> A customer can be granted a discount as per the created discount specification when he or she has all tags that are specified in **For customers with tags** in the discount specification. However, it is not enough: besides it, a customer needs to meet certain conditions to be granted a discount. Still, meeting the condition to have all tags as per the discount specification is obligatory.

If you plan to offer various discounts to different categories of customers, you should create a separate discount specification for each of the categories. Hydra Billing also allows creating several discount specifications with the same set of tags, so that the discounts as per these documents can be effective for one category of customers. We recommend creating separate specifications for different discount types, for example, you can differentiate bundle discounts and those for large payments.

The most important part of a discount specification is its contents. Each record in the contents is a separate discount.

Discounts can be of different types. Specify the type of the discount when creating it.

In order to get a simple discount a customer should only subscribe to the necessary service, so that the discount is granted right after creating the necessary subscription. Such discounts are easily granted, that is why they are usually used for promotional offers for services provided to some categories of customers. These services can be: television at a reduced price, special offers for students, discount offers for subscribers in a new locality, etc. For example, a discount specification containing such a discount, can be applied only to customers with *middletown*, *promo* tags.

For customers with tags [promo x] [middletown x]

You can also specify an additional condition for the payment amount. It can be either a fixed amount (for example, one month for free with the $400 prepayment) or an amount which covers a specified period (a 20 % discount for a 6-month prepayment). The customer is to make one payment in a substantial amount on an account which is charged for the service.

Hydra Billing also supports bundle discounts — it means, discounts are granted for subscriptions to several services at the same time (for example, free television with a broadband Internet). Services included in the bundle are to be paid for using the same customer account (but may be provided on the ground of different contracts).

4.15.1. Simple Discounts

In this section:
- A Discount Without a Condition for a Payment
- A Discount for a Payment in a Specific Amount
- A Discount for a Payment Covering a Specific Period

In this section, learn about simple discounts — those that influence only one subscription.

A Discount Without a Condition for a Payment

It is the simplest discount type. A discount is granted to a customer as soon as he or she has subscribed to a service with certain tags. See see below the content of a discount specification which include such a discount.

Welcome Discount

Simple discount

For customers having service with tags [base_discount], in quantity from **1**, regardless of any payments made the percentage discount is applied with the value of [20%]

Activation period: from 13/10/2016

This discount is set up in the following way.

- ○ Simple discount   ○ Bundle

For customers having | service with tags ▼ | base_discount x | in quantity from | 1
to | | , | regardless of payments amount ▼
percent discount is being applied ▼ | of amount | 20 | %

▼ Additional

Discount duration | ○ | 1 | month ▼
○ | | 🗓 🗑
Activation period | from 13/10/2016 | 🗓 🗑
Maximum number of actuations |
Remark |

- **Services**, this discount is applied to, are limited by the *base_discount* tag. A service can have other tags too, but this tag is an obligatory condition for providing the discount. You can specify several tags. Then the obligatory condition for a service would be to have all these tags.
- **Quantity** — *from 1.* Since the quantity is not limited by any maximum number, the discount is to be granted for all customer's subscriptions to suitable services.
- The discount is granted *regardless of payments,* which means, the system checks the possibility to grant the discount right at the moment the subscription is saved. When all conditions for granting the discount are met, a [discount certificate](#) is issued immediately.
- *Percentage discount is applied* — i.e. when charge logs are issued within the discount certificate period, the amount to be charged is decreased by 20 %.
- As the **discount period** is not specified, there is no end date in the discount certificate, so the discount is applied as long as the subscription to services is in force.
- The *activation period* is specified as *from October 13, 2016*, so customers can be granted this discount starting from October 13, 2016.
- **Maximum number of actuations** is not specified, it means, the unlimited number of discount certificates with this discount for the customer account can be issued. If a customer changes this price plan for a new one with the identical set of tags, he or she can get the same discount again.

A Discount for a Payment in a Specific Amount

A discount is granted on the condition there is a necessary subscription to a service and a payment in the required amount is made.

Free month

Simple discount

For customers having service with tags **multiplay** **free_month**, in quantity from **1** to **1**, when payment is made in the amountfrom **100.00** $ [USD] price is being replaced with **0.00 $ [USD]**

Discount duration: 1 month
Activation period: from 01/11/2016 till 30/11/2016
Maximum number of actuations: 1

This discount is set up in the following way.

○ Simple discount   ○ Bundle

For customers having   service with tags ▼   multiplay x   free_month x   in quantity

from [1] to [1] ,

when carrying out a payment with amount from ▼

[100] to [ ] $ [USD] ▼

price is being replaced ▼

by value [0] $ [USD] ▼

▼ Additional

☑ Discount duration   ○ [1] month ▼

                        ○ [   ] 🗓 🗑

Activation period   from 01/11/2016 to 30/11/2016 🗓 🗑

Maximum number of actuations   [1]

Remark   [   ]

- **Services**, this discount is applied to, are limited by the *multiplay* and *free_month* tags. The necessary condition for the service is to have both tags.

- **Quantity** as *from 1 to 1* means that a customer is to have one and only one subscription to a suitable service. The discount is not granted in case the number of subscriptions is more than one.
- The discount is granted on the condition of *making a payment in the amount from $100.* The system checks the possibility to grant the discount right at the moment the payment is made. If the amount is sufficient, a discount certificate is created. The maximum amount is not specified, so any payment starting from $40 suits. If you offer various discounts depending on the payment amount (for example, 10 % with the payment in the amount from $40 up to $80, and 20 % starting from $80), then you need to specify the maximum amount to avoid creating excessive discount certificates.
- *Price is replaced* — when charge logs are issued, instead of the price from the corresponding row of the price specification, the one which is specified the discount parameters is used (in this case it is *$0*).
- A **discount period** is specified as *1 month*. So the discount certificate is in force for a 1-month period.

> The discount period of 1 month does not mean that a customer is provided services at the discounted price only for one month. It means that the discount certificate is in force during this period. The discount is applied to all charge logs for the certain subscription that start during period when the discount certificate is in force. For example, if a charge log with a one month period is terminated early, then the next charge log is issued as discounted, on the condition that its start date falls within the discount certificate period.

- The **activation period** is specified as *from November 1, 2016 to November 30, 2016,* so customers can be granted this discount if they meet the conditions within November, 2016.
- **Maximum number of actuations** is *1*. The discount certificate is to be created only once per one customer account. When the discount certificate period is over, the discount cannot be granted anymore even if the customer makes one more substantial payment.

A Discount for a Payment Covering a Specific Period

A discount is granted upon having a proper subscription to services and making a payment in the amount covering the specified period.

This discount is set up in the following way.

- **Services**, this discount is applied to, are limited by the *wimax_contract* and *encourage_large_payments* tags.

- **Quantity** as *from 1 to 1* means that a customer is to have one and only one subscription for a suitable service. **Количество** задано *от 1 до 1* — для предоставления скидки абонент должен иметь одну и только одну подписку на подходящую услугу.

- The discount is granted on the condition of *making a payment in the amount covering 6 months.* The system checks the possibility to grant the discount right at the moment the payment is made. It calculates the amount necessary to cover the 6-month period of providing the service as per the subscription. If the payment is bigger than amount, the condition is considered met. Evaluation is done based on the full price, and the possible discount is not applied.

- *Percentage discount is applied* — when charge logs are issued during the discount certificate period, the amount to be charged is decreased by *10 %*.

- The **discount period** is specified as *6 months*. The discount certificate period equals to this value.

- The **activation period** is specified as *from November 1, 2016*, so customers can be granted this discount starting from November 1, 2016.

- **Maximum number of actuations** is *1*. The discount certificate is to be created only once per one customer account. When the discount certificate period is over, the discount for this account is not granted anymore even if a customer makes one more substantial payment.

4.15.2. Bundle Discounts

Package discounts (bundles) are often used in marketing programs by large providers. To get such a discount, a customer should subscribe to several services at same time.

In the example below, a customer is granted a 50 % discount for an IPTV service when he or she has a subscription to the Internet service. At that, the discount is granted only for the first connection. Further connections are offered at the regular price.

Bundle discount

Bundle

For customers having service with tags `internet`, in quantity from **1** to **1**, the default price remains unchanged,
and having service with tags `tv`, in quantity from **1** to **1**, the percentage discount is applied with the value of `50%`,
and having service with tags `tv`, in quantity from **0**, the default price remains unchanged

Activation period: from 01/11/2016

Such a discount is set up in the following way.

○ Simple discount   ◉ Bundle

For customers having   [service with tags ▾]   [internet **x**]   in quantity from [1]   to

[1] , [price is not being changed ▾]

and having   [service with tags ▾]   [tv **x**]   in quantity from [1] to [1] ✖

, [percent discount is being applied ▾]   of amount [50] %

and having   [service with tags ▾]   [tv **x**]   in quantity from [0] to [ ] ✖

, [price is not being changed ▾]

+ Add condition

▾ Additional

☐ Discount duration   ○ [1]   [month ▾]

○ [ ] 📅 🗑

Activation period   [from 01/11/2016] 📅 🗑

Maximum number of actuations   [ ]

Remark   [ ]

- In order to get this discount, a customer is to subscribe to a service with the *internet* tag. This service price does not change.
- In order to get this discount, a customer is also to subscribe to a service with the *tv* tag. **Quantity** is specified as *from 1 to 1*, which means that the discount is granted on the condition the customer's number of suitable subscriptions equals to one. For this subscription the service price is decreased by 50 %.
- According to the third condition, again the services with the *tv* tag are checked, however, **Quantity** as per this condition is set up *from 0*. This condition is required for cases when the number of such subscriptions is more than one: a discount is granted, but service prices for such additional subscriptions remain the same. Without this condition the discount is to be granted only if such a subscription is the only one that is present.
- **Discount period** for such a discount is not specified, so it is valid until all subscriptions to services, this discount is set up for, are.
- As the **activation period** is specified *from November 1, 2016*, it means, customers can be granted this discount starting from November 1, 2016.
- **Maximum number of actuations** is not specified, it means, the unlimited number of discount certificates with this discount can be issued for one customer account. If a customer changes the price plan for a new one with the same set of tags, he or she can get the discount again.

4.16. How to Set Up Service Priorities

In this section:

- [Setting Up a Higher Priority](#)
- [Issuing Charge Logs for Services with Various Priorities](#)

See also:

- [Service Providing Schemes](#)
- [Receivables and Matching Payments](#)
- [Working with Contract Price Plans](#)

A service priority is specified in its [service providing scheme](#) and is used for issuing charge logs and [matching payments with receivables](#). Priorities are usually used for contract price plans.

By default, all services have an equal priority. It means that if one customer account is used to pay for several services, a customer is to have enough funds for charge logs to be issued for all services that require a sufficient balance.

For example, a customer is subscribed to two price plans: an *IPTV Basic* for $12 per month with an opportunity of a deferred payment, and an *Unlimited 20* for $20, prepaid in the amount equal to one month payment. There is a sum of $4 on the customer account. It is not enough to pay for the prepaid plan, so no charge logs are issued for both services even regardless of the allowed deferred payment for the *IPTV Basic.*

Ordered services

	Service	Equipment	Contract	Price specification	Period	Amount, $
⚠	IPTV Basic	MAG-250-3 TV Box	C16-11	PS16-13	from 25/02/2017 15:46:05 to 25/03/2017 15:46:04	15.00
⚠	Unlim Turbo	Terminal Equipment-92	C16-5	PS16-2	from 25/02/2017 15:46:05 to 25/03/2017 15:46:04	32.00
Total						**47.00**

Issue charge logs

Thus the insufficient funds for at least one service lock issuing charge logs for the rest of the services paid from the same customer account.

When one of the customer's price plans is [contract](#), a delay in issuing a charge log due to the lack of funds may lead to the contract period extension and charging penalties. In addition, contract price plans are typically post-paid, and a customer can start using the service regardless of any available funds at his or her account. At the same time, a customer can leave non-contract services unpaid, so they simply stop being provided.

You can influence the way charge logs are issued in such situations by using service priorities. If you set up a higher priority for the *IPTV Basic* service, it will be provided regardless of insufficient funds to pay for the second price plan.

Setting Up a Higher Priority

> By default, all services have the same priority — *Normal.*

Add a new value in the registry for priorities: open reference data and click ✚ next to the **Service priorities** registry.

Reference data

```
🔍 Priorit                               🗑
```

✚ ⊟ 📂 Service matching priorities   ↖ Select element to edit
🔒 Common   Add
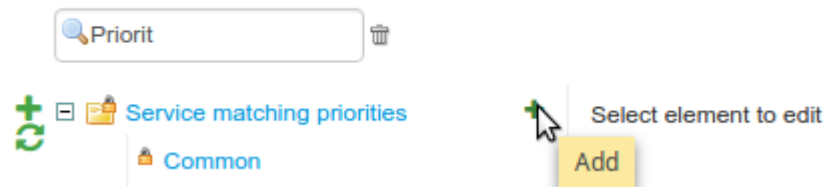
Enter a name and specify a priority value. The bigger the value, the higher the priority. Charge logs for services with higher priorities are issued first. The default *Normal* priority value is 100.

ID	
Parent	Service matching priorities
Name*	High
Code*	High
Matching priority	1000
	Add

Create a new service providing scheme for contract price plans and specify a higher priority for it.

Service priority	High ▼
	Normal
	High

Choose this service providing scheme for contract price plans. Then Hydra Billing will issue charge logs for contract plans even in case a customer account shows insufficient funds to pay for other services with a *Normal* priority.

Issuing Charge Logs for Services with Various Priorities

> When issuing charge logs, Hydra Billing considers priorities only for services with an activation condition of having sufficient balance. Charge logs for services which are provided regardless of available funds can be issued at any time (if there is no suspension in force).

When issuing charge logs, Hydra Billing groups services by priorities. Firstly, it checks if it possible to issue charge logs for all services with the highest priority. Further, if a customer still has available funds, services with a lower priority value are processed, etc.

In the example above, a customer has $4 on the account, and the *IPTV Basic* price plan has the higher priority and is provided on condition of a deferred payment. Thus, a charge log for this price plan can be issued.

However, a customer has insufficient funds to pay for the *Unlimited 20* service, so it remains disabled.

4.17. How to Manage Contract Plans

In this section:
- [Commitment Statuses](#)
- [Setting Up Contract Price Plans](#)
- [Commitment Fulfillment](#)
- [Actions with Commitments](#)

See also:
- [Contract Terms](#)
- [Setting Up Service Priorities](#)
- [Receivables and Payment Allocation](#)

Providers use **contract price plans** when a customer connection to a service is too expensive. For example, when additional equipment (a WiMAX modem, an IPTV set-top box, an LTE router, etc.) or some labor-consuming cabling works are required. Thus, a customer has an opportunity to cover these expenses gradually within a subscription fee. And at the same time, the customer is to follow an additional **contract commitment** to pay timely for the service during a certain **contract period**.

If a customer is late with a payment, then the provider charges penalties, and, over some time, terminates the commitment. So the customer is to pay a fee to the provider for the early termination. Similarly, the customer is to pay the fee in case he or she stops using the contract price plan voluntarily. Such measures help secure the fulfillment of the commitment and reduce customer churn.

And if the customer pays for the service in time, he or she pays off a **commitment amount** over the contract period (the cost of equipment or connection). Then the commitment is considered fulfilled, and no penalties are charged even in case of late payments.

> As the subscription fee for a contract price plan is closely connected with the payment of the commitment amount, it is impossible to change a price plan during the contract period. A customer is allowed to change the price plan (in the Customer Self-Care Portal or via the operator) strictly after the fulfillment of the contract commitment.

Before adding contract price plans, consider the following:
- customers they are to be available to;

- the duration of the contract period, when a customer is to pay for the services in time and is not allowed to change the price plan;
- the amount of the contract commitment;
- contractual remedies to be used;
- if the commitment is to be terminated early in case of the customer's non-payment.

Contract price plan parameters — a period, an amount, contractual remedies — are set up in **contract terms**. Certain tags are also specified in terms to identify the services these terms are applied to.

Contract terms are usually set up in a basic contract. They are valid for customers, whose service contracts are connected to this basic one.

> Contract terms can be set up in service contracts too. Such terms are regarded as individual.

When you choose a service for a subscription, Hydra Billing checks if there are contract terms specified for it. If yes, the terms' name is shown in the **Contract terms** column. To view the amount and the duration of the commitment, point to the icon next to it.

ID	Group	Service	Unit	Price	Currency	Change fee	Contract terms
178588301	IPTV	IPTV All Included	-	30.00	$ [USD]	Free of charge	
178581801	IPTV	IPTV Basic	-	15.00	$ [USD]	Free of charge	IPTV Annual Contract ❓
178582001	IPTV	IPTV Extended	-	20.00	$ [USD]	Free of charge	IPTV Annual Contract ❓

Latest price plan: **none**
Changes effective since: **immediately**

When creating a subscription, a contract commitment is made for a customer with the parameters as specified in the terms. The commitment is to be in force only for this subscription, and it is impossible to change the subscription during the contract period.

> Having permissions for managing contract commitments, you can change piece of equipment using a special action. To change other subscription parameters, you need to carry out early termination of the contract commitment, or wait till its fulfillment by the customer.

The contract commitment is shown in the corresponding section of the service contract. There you can see when the contract period is to be over, and the remainder of the commitment amount.

The fulfillment of the commitment is monitored by the special task — *Monitoring overdue receivables*. When the commitment is fulfilled (the amount is fully paid), the contract subscription can be closed, and then the customer is allowed to change the price plan.

> When the contract period is over, the subscription is still in force. The customer uses the contract price plan until he or she changes it for a new price plan in the Customer Self-Care Portel or via the operator.

Commitment Statuses

A contract commitment is created having an *Active* status. On the contract page it is outlined in green.

Contract commitments

IPTV Annual Contract effective until 24/05/2018 13:58:48

For services with tags `stb_contract_plans`

Commitment amount: 96 $, remainder: 96 $.

Contractual remedies:
— Late Payment Fee
— Early Termination Fee

Terminate Replace equipment ⏱ Renew

The commitment is transferred into *Fulfilled* status at the end of the contract period, when a customer has fully paid the commitment amount. The fulfilled commitment is outlined in grey.

Contract commitments

IPTV Annual Contract effective until 01/11/2016 13:36:59

For services with tags `stb_contract_plans`

Commitment amount: 96 $, paid off

Contractual remedies:
— Late Payment Fee
— Early Termination Fee

A commitment in force is transferred into *Awaiting payment* status when terminated early, on the condition there are unpaid receivables left. For example, when a customer is late with the next payment, and the period specified in **Days until termination** is over, so the commitment is terminated automatically. Or when the commitment is terminated manually during renew or equipment replacement, but a customer still has receivables to pay off.

The commitment awaiting payment is outlined in orange.

Contract commitments

IPTV Annual Contract effective until 24/05/2017 17:03:17

For services with tags `stb_contract_plans`

Commitment amount: 96 $, remainder: 72 $.

Contractual remedies:
— Late Payment Fee
— Early Termination Fee

↺ Cancel early termination fee

A commitment is *Canceled* if it is terminated during the trial period. Canceled commitments are outlined in grey.

Contract commitments

IPTV Annual Contract effective until 01/11/2016 13:36:59
For services with tags `stb_contract_plans`
Commitment amount: 96 $, remainder: 96 $.
Contractual remedies:
— Late Payment Fee
— Early Termination Fee

Depending on the commitment status, certain actions can be taken.

4.17.1. Setting Up Contract Plans

In this section:
- Creating a Service Providing Scheme
- Creating Price Plans and Penalty Services in the Product Catalog
- Creating a Basic Contract with Price Specifications
- Adding Contract Terms

See also:
- Contract Terms

Let's create a range of one-year IPTV contract plans for new customers. For all price plans within the range, customers are offered the same IPTV set-top boxes that cost $96.

A customer has 10 days to pay for the service provided in the previous month, i.e. there is a deferral for 10 days from the end date of the charge log. In case of a non-payment, a late payment fee is charged as 0.1 % interest on the overdue receivable. If the receivable remains unpaid for 15 days, the contract commitment is terminated. In addition, the customer is charged an early termination fee — the commitment amount remainder. So, even with early commitment termination, the customer is to pay the full cost of the IPTV set-top box.

The customer is to use the service for at least 4 months, but during the first 5 days he or she is allowed to withdraw from the commitment without paying the early termination fee.

To set up such contract plans you should follow these steps.

Creating a Service Providing Scheme

> For contract plans you need a service providing scheme with a full charge at the start of a billing period.

> If customers use only contract services, or pay for contract and non-contract price plans from different accounts, you should skip this step. Use the *Full charge at charge log opening, 1 month* preset scheme

If a customer uses one account to pay for not only contract, but also non-contract services, then the contract ones should have a higher priority. Copy the *Full charge at charge log opening, 1 month* scheme. Give a specific name to the new scheme in order to differentiate it from schemes for non-contract services, for example, *Full charge with higher priority*. Then change **Service priority** for a higher one.

If you assign a normal priority to contract price plans, then Hydra Billing does not issue invoices unless the funds on the customer account are sufficient to pay for both the contract price plan and other provided services. It may lead to charging late payment fees or extending the contract period, even if the funds on the account are enough to pay for the contract price plan.

Creating Price Plans and Penalty Services in the Product Catalog

Contract terms are applied to subscriptions on the ground of service tags. Create tags for your product range in the registry of tags. These tags link contract terms to price plans in the product catalog. In our example we use the *stb_contract_plans* tag.

Create product catalog entries for the whole range of price plans, assign necessary tags and choose the service providing scheme.

Contract price plans imply that there are fees charged when late payments for services appear, and some fee is to be paid for the commitment early termination. You need to create separate entries for the late payment fee and early termination fee in the product catalog. Add them in the **Penalties** section.

For the late payment fee, choose the *Late payment fee* type, and specify the charging period (1 day in our example), and the interest rate (0.1 %).

Similarly, choose the type for the early termination fee. There are no other settings for this fee in the product catalog, because the way Hydra Billing handles early terminations of contract commitments is set up later, in the contract terms.

If you want to charge for the resumption of contract commitments after the early termination fee has been charged, then add an entry for the resumption service in the **Services** section of the product catalog. In the service providing scheme, for this particular service you should specify, that it is *Regular*, *One-off*, *Transaction-based*, can be enabled/disabled by *Operator only*, and that the service providing point is *Not specified*. Further, this service should be included in the price specification for fees, and in the contract terms.

Creating a Basic Contract and Price Specifications

Create a basic contract for the contract plans. Plans will be available only to those customers whose service contracts are connected to this basic one.

> Contract price plans are also available to existing customers who want new services: to add IPTV to the already provided Internet connection, or simply to get connected at a different address. Typically, such customers already have contracts created on the ground of basic ones for non-contract services. In order to give them access to contract plans, you can create new contracts for them on the ground of the basic one for contract plans. Thus, non-contract and contract services will be provided according to different service contracts.

Add a price specification to the basic contract. In its heading, set up the deferred payment.

> In contract price plans, you should always apply the deferral from the end date of a charge log.

Specify the subscription fee for all price plans of the range.

№	Service	Unit	Price	Price excl. taxes	Currency	
▸ 1	IPTV All Included	-	30.00	25.42	$ [USD]	✖
▸ 2	IPTV Basic	-	15.00	12.71	$ [USD]	✖
▸ 3	IPTV Extended	-	20.00	16.95	$ [USD]	✖

The commitment amount (in our example — the cost of the IPTV set-top box) is $96. The contract period is 12 months, so with each full monthly payment for the provided service the commitment amount remainder is to be decreased by 96/12 = $8.

Add a separate price specification for fees to the same basic contract. Specify the method of price calculation as *Based on price incl. taxes*, and prohibit deferral.

№	Service	Unit	Price	Price excl. taxes	Maximum amount	Currency
> 1	Late Payment Fee	-	5.00	4.24	50.00	$ [USD]
> 2	Early Termination Fee	-	0.00	0.00		$ [USD]

The late payment fee consists of two parts: the percentage and the fixed one. The percentage part is set up in the product catalog. And in the **Price** column in the price specification you can specify the fixed part. When overdue receivables appear, this type of fee is charged to a customer on the one-off basis.

> If the fixed part is unnecessary for you, you should set up the price equal to 0. If, on the other hand, you need only a one-off charge, you should make the interest rate equal to 0 in the product catalog.

For late payment fees, you can set the maximum amount. If the contract commitment is active, and the total amount of fees has reached the defined value, then the commitment is terminated, and fees stop to be charged. In this case, an early termination fee is charged to the customer. But if at the time when the maximum amount is reached the commitment has the *Awaiting payment* status, the fees simply stop to be charged.

> The price of the early termination fee is used only when calculating compensation of the *Payment for minimum period* type. The value from the price specification is added to the amount the customer has to pay for the number of months remaining of the minimum period.

If you want to use the resumption service for an early terminated commitment, set its price in this price specification too.

Adding Contract Terms

Add contract terms to the basic contract. Name it appropriately (the name is shown in the service contract then), enter the contract duration (12 months), and the minimum period for using the service (4 months).

Specify, services with which tags this contract conditions applies to. Services are to have all necessary tags as specified in the terms. Enter the trial period (5 days in our example) and the contract commitment amount.

Contract terms ✕

General

ID 4572881857701

Name IPTV Annual contract

Duration 12 month ▾

Minimum duration 4 month ▾

Effective for services with tags stb_contract_plans x

Trial period, days 5

Commitment amount 96.00 $ [USD] ▾

Contractual remedies

Late payment fee Late Payment Fee 🔍 ✎ 🗑

Early termination fee Early Termination Fee 🔍 ✎ 🗑

Early termination fee type Commitment amount refund ▾

Days until termination 15

Resumption service 🔍 ✎ 🗑

Keep charging late payment fee after early termination ☐

Terminate charge logs when payment is overdue ☑

Delete   Save   Close

Set up the contractual remedies. In **Late payment fee** and **Early termination fee**, choose the penalty services which have been added to the price specification. Choose the fee type for the commitment early termination. In our example the customer is to pay back the commitment amount remainder (i.e. the remainder of the set-top box cost).

> When you carry out an early termination of a commitment with the help of a special action, you can choose another method of fee calculation. As the terms specify the minimum duration, you can claim that a customer, instead of paying back the commitment amount remainder, pays for the service over the required months.

Select the *Terminate charge logs when payment is overdue* check box*,* so that if there is a late payment, the service stops to be provided.

If the customer does not pay off the arrears within 15 days, then the commitment is terminated. After that, late payment fees are not charged, unless the *Keep charging late payment fee after early termination* check box is selected.

If necessary, select **Resumption service**. This service is to be rated if you cancel the early termination fee.

The contract terms are set up. Now when creating a subscription to the *IPTV Basic* service, Hydra Billing creates a contract commitment for the customer and monitors its fulfillment.

> You can change contract terms specified in the basic contract. New conditions will be applied only to new subscriptions. Contract commitment that are currently in force do not change.
>
> Individual contract terms in service contracts cannot be changed if contract commitments have already been created on their basis.

4.17.2. Fulfilling a Commitment

In this section:

- Extension of a Contract Period
- Early Termination of a Commitment

See also:

- Setting Up Contract Price Plans
- Actions with Commitments

When a customer subscribes to a contract price plan, a contract commitment is created for him or her according to specified terms. It is shown in the corresponding section of a customer contract.

Contract commitments

IPTV Annual Contract effective until 03/02/2018 15:59:59

For services with tags `stb_contract_plans`

Commitment amount: 96 $, remainder: 72 $.

Contractual remedies:

    — Late Payment Fee
    — Early Termination Fee

[Terminate] [Replace equipment] [⊘ Renew]

Click the commitment to view its parameters.

View contract commitments

General

ID 1836982501

Name IPTV Annual contract

Status ✔ Active

Period from 01/02/2017 to 03/02/2018

Commitment remainder 75 $

Duration 12 month ▾

Minimum duration 4 month ▾

Effective for services with tags stb_contract_plans

Trial period, days 5

Commitment amount 96.00 $ [USD] ▾

Contractual remedies

Late payment fee Late Payment Fee ✎

Early termination fee Early Termination Fee ✎

Early termination fee type Commitment amount refund ▾

Days until termination 15

Resumption service ✎

Keep charging late payment fee after early termination ☐

Terminate charge logs when payment is overdue ☑

Close

In the commitment, there is the end date of the contract period. It depends on the duration specified in the contract terms, and also on the way the customer uses the service. The contract period is calculated from the start date of the first issued charge log. If the customer pays for the service in time and uses it continually (without switching on a voluntary suspension, etc.), then the commitment should be fulfilled over the period specified in the terms (12 months, as in the example). The commitment amount remainder decreases gradually over the contract period (by $8 each month).

The following cases may happen over the period when the customer fulfills the contract commitment.

Extension of a Contract Period

When the customer is late with a next payment, the current charge log for the service closes if the **Terminate charge logs when payment is overdue** check box is selected in the contract terms. A new charge log for this subscription is issued when the customer pays off arrears and covers charged fees. Upon that, the end date of the contract period is postponed for the number of days equal to those from the last charge log end date till the start date of the new one.

For example, the customer has subscribed to the IPTV contract price plan, which costs $15 per month. There is a one year contract commitment created for the customer. Its status is *Active*, and the commitment amount is $96. A payment for the price plan is to be made within 10 days from the end date of the billing period.

A first charge log is issued on February 1, 2017, at 2 p.m., so originally the commitment is in force from 2 p.m. on February 1, 2017 till 1.59 p.m. on February 1, 2018. This charge log is closed on March 1 at 1.59 p.m. A receivable in the amount of $15 arises and is to be paid off until 1.59 p.m., March 11. On March 1 at 2 p.m. a new charge log is issued.
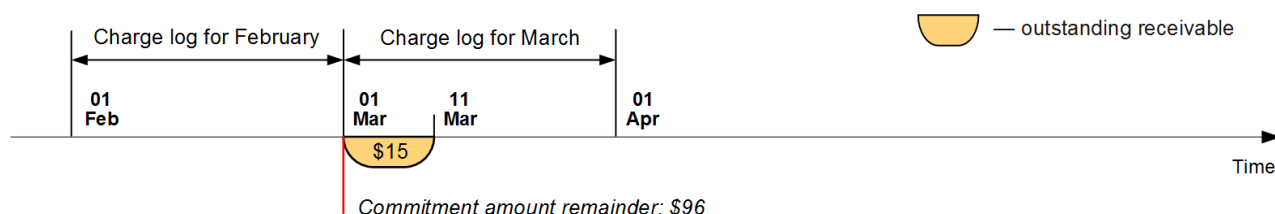
On March 9 the customer makes a payment in the amount of $15 and pays off the receivable. The commitment amount remainder is decreased by $8 and now equals $88. The service continues to be provided.
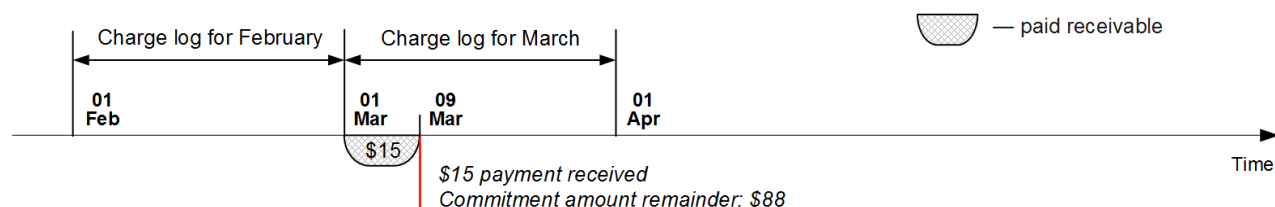
The second charge log is closed on April 1 at 1.59 p.m., and the customer is to pay off a receivable in the amount of $15 not later than 1.59 p.m. on April 11. And on April 1 at 2 p.m. the next charge log is issued.
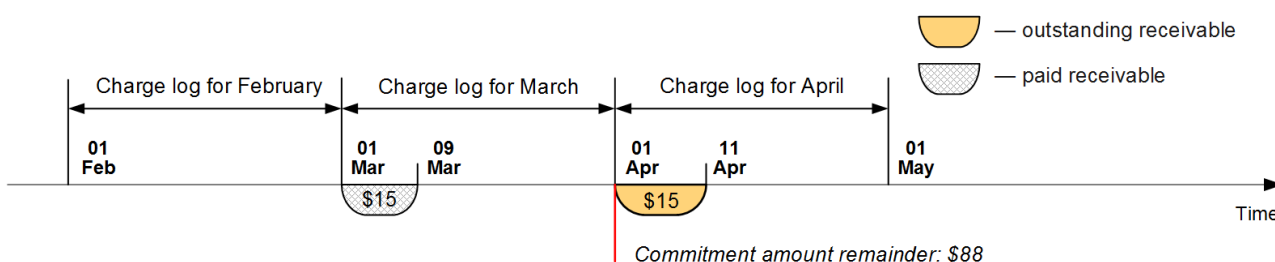
Let us study the case when the customer forgets to make another payment in time. On April 11 at 2 p.m. the receivable becomes overdue. The customer is charged a fixed part of the late payment fee (if set up), which equals $5 as in our example, and also the percentage part for the first day, 0.1% of $15. So a separate charge log for fees is issued with the total amount of $5.02.

According to the contract terms, the current charge log is terminated early and the service is disabled. A receivable in the amount of $5 for using the price plan from 2 p.m. April 1 to 1.59 p.m. April 11 arises and is to be paid off until 1.59 p.m. May 11.
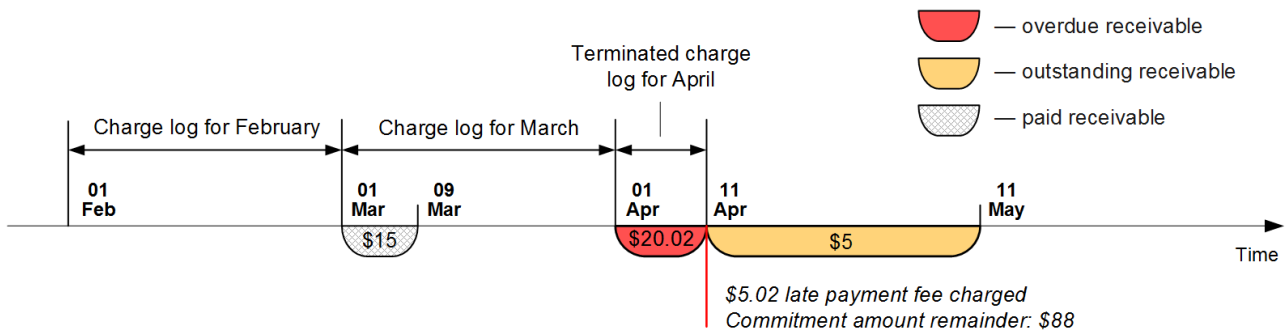
On April 12 at 2 p.m. the next percentage fee is charged: the second row with the amount of $0.02 is added into the previously issued charge log. At this time on the following day, a third row with the amount $0.02 is added. Now the customer is to pay back not only $15 for using the service in March, but also $5.02+$0.02+$0.02 = $5.06 to cover the charged fees.
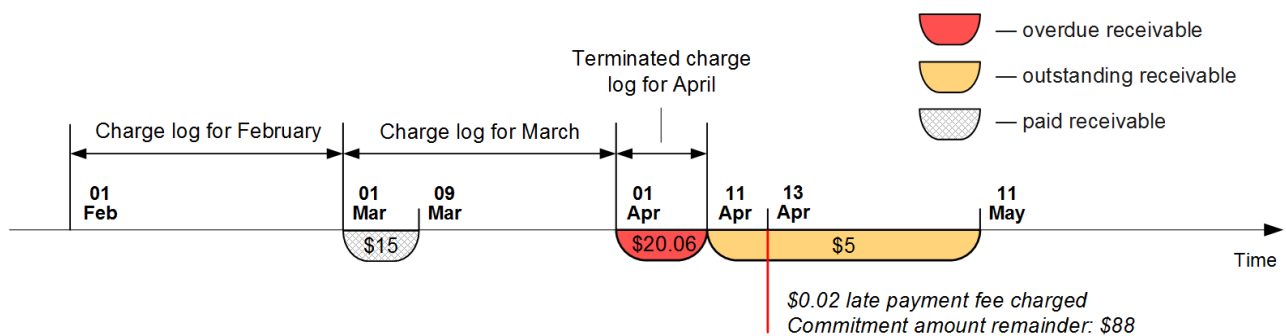
On April 13 at 4 p.m. the customer tops up the balance with the amount of $21. Hydra Billing matches the payment with the receivables: $20.06 for the overdue receivable and the fees. The charge log with fees becomes *Executed*. The rest of the payment, $0.96, is used to decrease the outstanding receivable, so that now it is $4.06.

The commitment amount remainder is decreased by $8 (proportional to the duration of the already paid charge log for March), and becomes equal to $80. A new charge log for the price plan is issued, and the service begins to be provided.
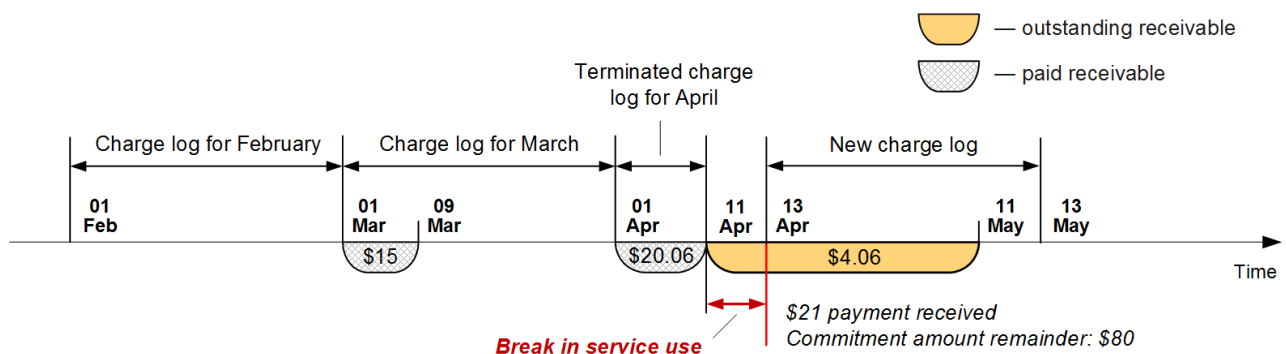
The contract period has extended for the period, during which the customer didn't use the service, — 2 days and 2 hours. Now it lasts until 3:59 p.m. February 3, 2018.

On May 10 the customer makes a payment of $5 to pay off the receivable in the amount of $4.06. So by the amount which is proportional to the duration of the already paid charge log (10 days from April 1 to April 11), i.e. (8/30)*10 =$2.67, the commitment amount remainder is decreased, and now it equals $77.33.
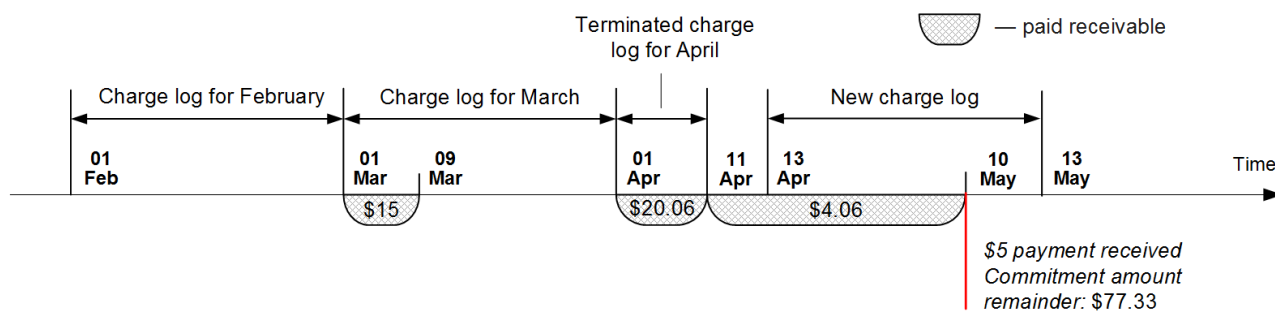
Let us say that the customer then makes payments in time. Over 9 months the commitment amount remainder decreases by 8*9 = $72. The last charge log in the contract period is to open on January 13, 2018, at 4 p.m. and to be in force until 3.59 p.m. February 13, 2018. When it is over, the customer will have an outstanding receivable in the amount of $15, and the commitment amount remainder will equal $77.33−$72 = $5,33.

When the customer pays off the receivable (he is to do it before 5.59 p.m. February 23), the commitment transfers into the *Executed* status, and he can change his price plan.

> If a customer continues using the contract price plan after fulfilling the commitment, no fees are charged in case of late payments.Если абонент продолжит пользоваться контрактным тарифом после исполнения обязательства, при задержке платежа пени начисляться не будут.

Early Termination of a Commitment

Let us say that the customer from the abovementioned example never paid for using the service in March (he was to make a payment before 1.59 p.m. on April 1). The charge log for April is closed. The customer is charged the fixed ($5) and the percentage ($0.02) parts of the late payment fee.
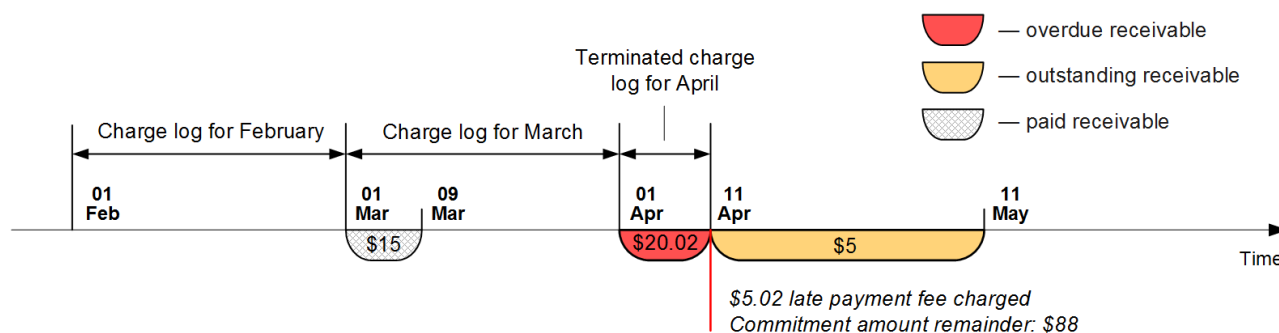
According to the contract terms, the commitment is terminated unless the payment is received within 15 days. Before this moment, the customer is charged the everyday fee in the amount of $0.02, which, when added to the fixed part, makes 5+0.02*15 = $5.3.

On April 26 at 2 p.m. Hydra Billing terminates the commitment and transfers it into the *Awaiting payment* status. The early termination fee is charged. The fee type is *Commitment amount refund* as per the contract terms, so to calculate the interest, the commitment amount remainder is used.The customer's current receivables are also taken into account: he is to pay for using the service in March ($15) and in April ($5 for 10 days). Having paid off the first receivable, the customer can decreases the remainder by $8, and paying off the second one — by (8/30)*10 = $2.67. Thus, the early termination fee is 88−8−2.67 = $77.33. A separate charge log is issued for this fee.
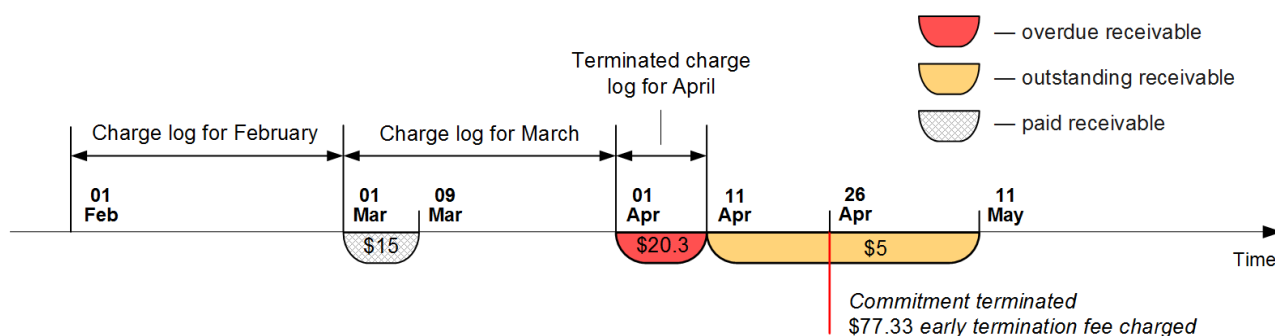
As a result, the customer is to pay $15 for using the service in March and $5 for April, $5.3 as late payment fees, and the $77.33 fee for the early termination of the commitment, so the total is $102.63.

> ⚙️ If in the contract terms the **Keep charging late payment fee after early termination check box** is selected, after the commitment termination, the customer's arrears is to increase by the percentage part of the fee. And the fee is applied not only to the overdue payments, but also to the unpaid early termination fee.

Even if the contract commitment is terminated and is awaiting a payment, the customer can return back to fulfilling it. He is to pay off the receivables for the service and the fees, and after that you can cancel the early termination fee.

4.17.3. Actions with Commitments

In this section:

- Early Termination of a Commitment
- Renewing a Commitment
- Equipment Replacement
- Canceling an Early Termination Fee

See also:

- Contract Terms

Contract commitments are shown in a service contract. To carry out any actions with them, you need to have the *Working with contract commitments* permission from the **Subjects > Other permissions** section.

The list of available actions depends on the commitment status. An active commitment can be terminated early, renewed, or modified by changing equipment in it.

Contract commitments

IPTV Annual Contract effective until 21/02/2017 14:33:14

For services with tags `stb_contract_plans`

Commitment amount: 96 $, remainder: 80 $.

Contractual remedies:

— Late Payment Fee
— Early Termination Fee

↺ Cancel early termination fee

For a commitment with the *Awaiting payment* status you can cancel charging an early termination fee.

For commitments with *Fulfilled* and *Canceled* statuses, no actions are available.

Early Termination of a Commitment

When you click **Terminate**, a commitment is terminated on the current date. An early termination fee is charged to the customer account. In addition, you can choose the type of the fee, different from the one specified in the contract terms. For example, instead of returning the commitment amount remainder, you can demand that a customer is to pay for the minimum period.

If a customer has sufficient funds to pay off all receivables, the commitment transfers into the *Fulfilled* status. Otherwise, it is transferred into the *Awaiting payment* status.

> If there is a trial period specified in the contract terms, and it is not over yet, then the contract commitment is canceled. No early termination fee is charged to the customer account. The subscription to the contract price plan is closed, and all charge logs for it are canceled.

Renewing a Commitment

Click **Renew** to extend the contract period for a customer:
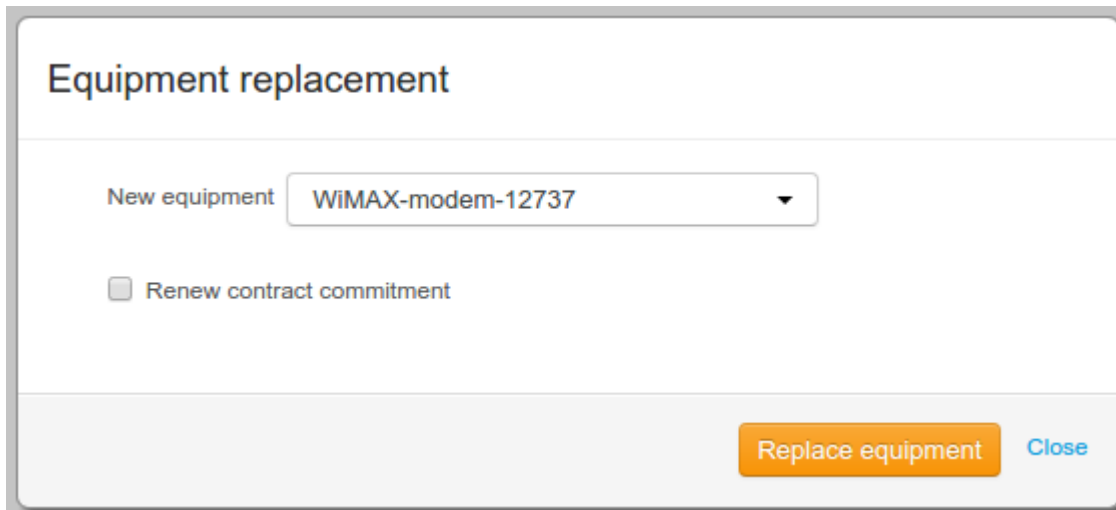
- an active contract commitment is then terminated without charging an early termination fee,
- the corresponding subscription and the current charge log are closed,
- a new contract commitment is created on the old contract terms, and
- a new subscription is created for the same price plan with the same equipment.

As a result, the customer continues using the service, and both the contract period and repayment of the commitment amount start anew.

For example, a customer has a two-year contract price plan which is almost over. The contract plan is outdated and unavailable anymore, its price it lower than for current price plans. A customer can request the operator to retain the old price plan. The operator may agree, on the condition that the customer continues using it for two more years. In this case, you can simply renew the customer's current contract commitment.

Equipment Replacement

You can change the equipment which is used for a contract price plan. For example, you may replace a WiMAX modem under the warranty.

[Add a new equipment](#) for a customer. It should have the *Active* status and should not be used in any subscriptions to services. Click **Replace equipment** in the commitment, and choose the new equipment from the list.

The following happens when you do it:

- the subscription that uses the previous equipment and the current charge log close,
- a new subscription is created for the same service, but now with the new equipment,
- a charge log is issued for the new subscription, and
- the old equipment is transferred into the *Deregistered* status.

Note than the contract period and the commitment amount remainder are not changed.

If you select the **Renew contract commitment** check box, then, together with creating a new subscription, a new contract commitment is created. It is based on the same terms as the current one. The current commitment is terminated without charging an early termination fee. In this case, the contract period and repayment of the commitment amount start anew. For example, you can use this scheme when replacing equipment with some modern (or more expensive) analogue.

Canceling an Early Termination Fee

> To carry out this action, you need to be granted not only the *Manage contract commitments* permission, but also the *Cancel early termination fee* permission from the **Subjects > Other permissions** section.

If a commitment has the *Awaiting payment* status, and an early termination fee has already been charged to the customer account, then you can cancel charging this fee on the customer's request, and resume the commitment.

After the customer pays off overdue receivables for the price plan and the fees, click **Cancel early termination fee**. The commitment then becomes *Active*, and the charge log with the early termination fee is canceled. In addition, the resumption service is charged, if it is set up in the contract terms (in this case, the customer is to have sufficient funds not only to pay off the receivables, but also to pay for this service). The customer then continues using the price plan on the old terms.

4.18. How to Create Reports

In this section:
- [Reports on Payments](#)
- [Reports on Services Usage](#)
- [Reports on Unaccounted Traffic](#)
- [Reports on Accounts Status](#)
- [Reports on Customers](#)
- [Reports on CDRs](#)

See also:
- [Working with Reports](#)

With the help of the Hydra Billing reports builder, you can create reports for any periods using various criteria with the necessary degree of detail or grouping.

> Before proceeding with examples, study general information on [reports](#).

4.18.1. Reports on Payments

In this section:
- [Aggregated Payments over a Period](#)
- [Average Payments over a Period](#)
- [Payments by Types and Accounts](#)
- [Searching for Payments by Payers and Receivers](#)

See also:
- Payment Documents

Reports on payments are used to analyze the movement of funds on customer and settlement accounts. They are created on the ground of payment documents. The most common applications of these reports are:

- analyzing trends in average monthly revenue per customer,
- analyzing incoming payments from various groups of customers,
- reconciliation with the accounting department, or
- detecting missent payments and investigating cases of permissions abusing.

Payments report

Choose the type of payments. ***Real payments*** show the funds movement on settlement accounts of individuals and organizations, that act as payees and payers. ***Virtual payments*** show the funds movement on customer accounts within Hydra Billing, where customers and operators act as receivers and suppliers.

Choose necessary groups of customers to build a report.

> ⚙ When settlements in Hydra Billing are carried out in several currencies simultaneously, you should add the **Currency** criterion, in order to group the data by each of the used currencies.

Aggregated Payments over a Period

One of the most commonly used reports is the determining the amount of payments received over a certain period, for example, over the current month.

In **Period**, choose *Current month*, in **Payment type** — *Real payments.* Specify customer groups whose payments are to be included in the report. Add criteria: **Transaction type**, **Amount incl. taxes**, **Currency**. For the **Amount incl.taxes** criterion, apply the *Sum* function.

Criteria	+
Transaction type	
Amount incl. taxes	**sum**
Currency	

Applied filters

Not specified

As a result, the following report is created.

№	**Transaction type** ^	Σ *Amount incl. taxes*	*Currency*
1	Credit	43,451.25	US dollar

If you want to determine the amount of payments per each of the customer groups, add the **Customer group** criterion and clear the **Group** check box in its settings. Thus, the payments made by customers that belong to several groups at the same time would be considered only once.

№	**Transaction type** ^	Σ *Amount incl. taxes*	*Currency*	*Customer group*
1	Credit	43,451.25	US dollar	Corporative clients
2	Credit	21,294.61	US dollar	GPON (property), TelecomBox
3	Credit	2318.00	US dollar	TelecomBox
4	Credit	4,919.68	US dollar	TV (property), Discount
5	Credit	350.00	US dollar	Discount

If for the **Customer group** criterion, the **Group** check box is selected, then payments made by customers that belong to several groups (for example, *TV (property)* or *Discount*), are aggregated in rows for each of the groups, and the total amount of payments is incorrect.

№	**Transaction type** ^	Σ *Amount incl. taxes*	*Currency*	*Customer group*
1	Credit	43,451.25	US dollar	Corporative clients
2	Credit	20,262.61	US dollar	GPON (property)
3	Credit	3,350.00	US dollar	TelecomBox
4	Credit	4,719.68	US dollar	TV (property)
5	Credit	550.00	US dollar	Discount

In order to analyze the changes in aggregated monthly payments over the first quarter of the year, choose the corresponding time interval in **Period**, and select the necessary customer groups. Add the **Operation date** criterion to the report, and in its settings specify the duration of a period for calculating the aggregated payments by choosing the *Month* unit.

№	Transaction type	∑ Amount incl. taxes	Currency	Operation date (month) ⌃
1	Credit	63,648.33	US dollar	01/01/2017
2	Credit	57,435.04	US dollar	01/02/2017
3	Credit	61,862.24	US dollar	01/03/2017
Total		182,945.61		

Average Payments over a Period

Let us suppose that you need to view average amounts of real funds that have been paid every week over the previous month by certain customers, for example, by individuals.

On the **Filter** tab, enter the necessary month in **Period**, choose the *Real payments* type, and select the required customer groups.

To create a report, you will need the following criteria: **Transaction type**, **Operation date**, **Amount incl. taxes** (or **Amount excl. taxes**), **Currency**, and **Basic payer type**. As you need to view average payments, apply the *AVG* function to the **Amount incl. taxes** criterion.

Now you need to specify the period the average payment is to be calculated for: thus, for the **Operation date** criterion you need to choose *Week* in **Unit**.

For the **Basic payer type** criterion apply the condition to be equal to *Individual* (without applying this condition the report would contain average payments for individuals and organizations separately).

Criteria	+
Transaction type	
Amount incl. taxes	**avg**
Currency	
Operation date	**week**
Basic payer type	

Applied filters

    Basic payer type = Individual

The created report appears as follows.

№	Transaction type	(avg.) Amount incl. taxes	Currency	Operation date (week) ⌃	Basic payer type
1	Credit	606.85	US dollar	26/06/2017	Individual
2	Credit	652.77	US dollar	03/07/2017	Individual
3	Credit	579.60	US dollar	10/07/2017	Individual
4	Credit	667.55	US dollar	17/07/2017	Individual
5	Credit	662.03	US dollar	24/07/2017	Individual
6	Credit	656.27	US dollar	31/07/2017	Individual

In our case the report contains 6 rows in terms of the number of weeks the days of the month fall into: the first row shows the payments made on July 1 and 2, and the last — those on July 31.

In order to get additional information on the number of individuals who have made the payments, you should add the **Basic payer** criterion and apply the *COUNT* function to it.

№	Transaction type	(avg.) Amount incl. taxes	Currency	Operation date (week) ^	Basic payer type	(count) Basic payer
1	Credit	606.85	US dollar	26/06/2017	Individual	236
2	Credit	652.77	US dollar	03/07/2017	Individual	344
3	Credit	579.60	US dollar	10/07/2017	Individual	132
4	Credit	667.55	US dollar	17/07/2017	Individual	133
5	Credit	662.03	US dollar	24/07/2017	Individual	442
6	Credit	656.27	US dollar	31/07/2017	Individual	143

Payments by Types and Accounts

Using such criteria as **Real payment type** and **Virtual payment type** you can analyze trends in the funds flows via different payment systems. For example, if you want to view the number of customers that have used any particular payment system over the previous month, you should choose the necessary period, enter *Real payments* in **Payment type**, add the following criteria: **Real payment type**, **Amount incl. taxes** and **Customer**. Apply the *SUM* function to the **Amount incl. taxes** criterion, and the *COUNT* function to the **Customer** criterion.

Criteria	+
Real payment type	
Amount incl. taxes	**sum**
Customer	**count**

Applied filters

Not specified

The report is created as follows:

№	Real payment type ^	∑ Amount incl. taxes	(count) Customer
1	Bank of America	51,163.07	64
2	Barclays	264,701.85	378
3	Cash	49,236.00	91
4	Cashless	123,615.64	54
5	Citibank	5,785.35	11
6	PayPal	111,025.00	177
7	Perfect Money	7,955.19	11
Total		**613,482.10**	**786**

In order to search for all customers who have used some particular system, for the *Real payment type* criterion apply the condition to be equal to this system, *Bank of America* for example, and remove the *COUNT* function in the **Customer** criterion settings. If you also add the **Document** criterion, then the report would contain corresponding payment orders.

№	Real payment type ∧	∑ Amount incl. taxes	Customer	Document
1	Bank of America	570.00	630005031	Payment order №17/22225 от 11.08.2017
2	Bank of America	654.83	630004273	Payment order №17/21928 от 07.08.2017
3	Bank of America	1,900.00	631000101	Payment order №17/21172 от 01.08.2017
4	Bank of America	650.00	630005177	Payment order №17/21205 от 01.08.2017
5	Bank of America	570.00	630001236	Payment order №17/21358 от 01.08.2017
6	Bank of America	490.00	630000107	Payment order №17/21862 от 06.08.2017
7	Bank of America	620.00	630000761	Payment order №17/21134 от 01.08.2017
8	Bank of America	734.00	630000829	Payment order №17/22401 от 16.08.2017
9	Bank of America	520.00	630000950	Payment order №17/22493 от 18.08.2017
10	Bank of America	1,000.00	630001040	Payment order №17/22324 от 14.08.2017

With the help of the **Receiver account** criterion you can create reports as per accounts in order to, for example, monitor the funds incoming via any particular cash desk, or your settlement account. To do so, add the condition to be equal to a necessary account to this criterion.

Searching for Payments by Payers and Receivers

The **Payer** criterion can be used when searching for payments received from an individual or an organization. For example, when searching for the amount of funds paid by some particular organization over several months, you should enter the required interval in **Period**, and add the following criteria to the report: **Amount incl. taxes**, **Payer**, and **Operation date**. Apply the *SUM* function to the *Amount incl. taxes* criterion, specify *Month* as a unit for the **Operation date** criterion, and for the **Payer** criterion apply the condition to be equal to an organization.

Criteria	✚	Applied filters
Amount incl. taxes	sum	Payer = Mercury LLC
Payer		
Operation date	month	

In the created report you can view summed up monthly payments made by the given organization.

№	∑ Amount incl. taxes	Payer	Operation date (month) ∧
1	2,000.00	Mercury LLC	01/05/2017
2	1,000.00	Mercury LLC	01/06/2017
3	1,000.00	Mercury LLC	01/07/2017
Total	4,000.00		

With the help of the **Recipient** criterion you can search for payments made by a certain customer over the specified period. To do so, choose *Virtual payments* in **Payment type**, and add the **Amount incl. taxes**, **Recipient**, and **Document** criteria. For the **Recipient** criterion, set the condition to be equal to the required customer.

№	∑ Amount incl. taxes	Recipient	Document ⌄
1	500.00	Teleline LLC	Payment order №17/22543 от 20.08.2017
2	600.00	Teleline LLC	Payment order №17/22541 от 20.08.2017
3	1,000.00	Teleline LLC	Payment order №17/22539 от 20.08.2017
4	570.00	Teleline LLC	Payment order №17/22537 от 20.08.2017

4.18.2. Reports on Services Usage

In this section:

- Statistics on Price Plans Usage
- Quantity of Services Consumed by Customers
- The Total Cost of Provided Services

Reports of this type are used for viewing data on services provided to customers. They are created on the basis of charge log contents. Hydra Billing report builder allows grouping the data according to product catalog entries (including price plans), customers and their accounts, groups of customers, and many other criteria.

Such reports are used mostly for:

- analyzing statistics on price plans usage by customers,
- temporal trends in the numbers of customers per various price plans, or
- analyzing price plans profitability.

Services usage report

In addition to the box for entering a certain report period, the **Filter** tab contains **Period type**. Depending on the type entered in it, certain charge log rows are used to provide information for a report (for scheduled services, each charge log row stands for one charging period, whereas for one-off services it stands for the duration of a provided service, and for traffic services it stands for one session).

- *Start date falls within report period* — when chosen, the report contains only the data from such rows of charge logs that have start dates within the period the report is created for:
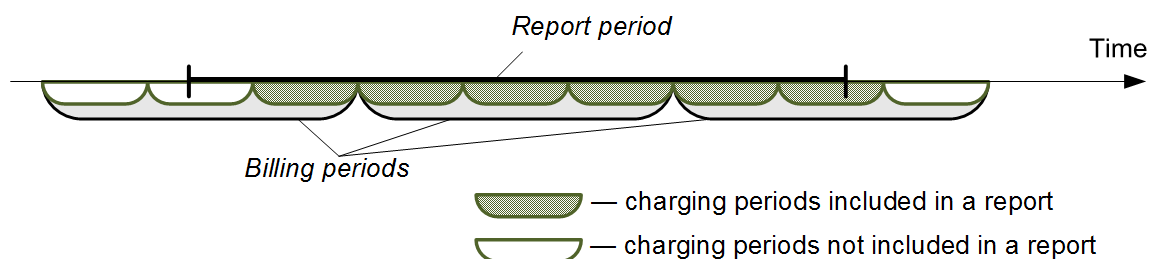
- *End date falls within report period* — when chosen, the report contains only the data from such rows of charge logs that have end dates within the period the report is created for:
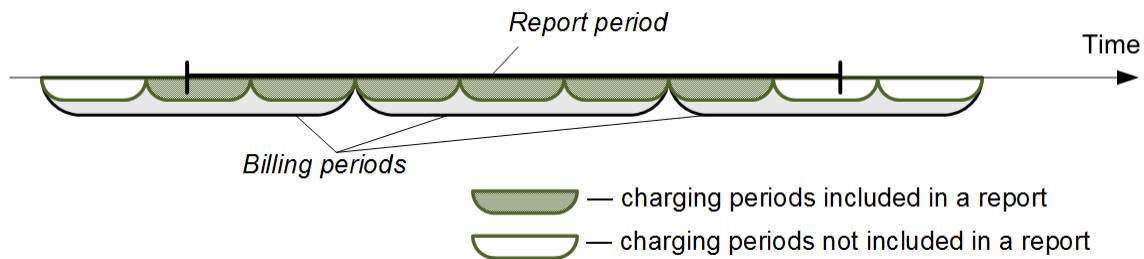
- *Charging period overlaps report period* — when chosen, the report contains the data from rows with start or end dates falling within the report period:
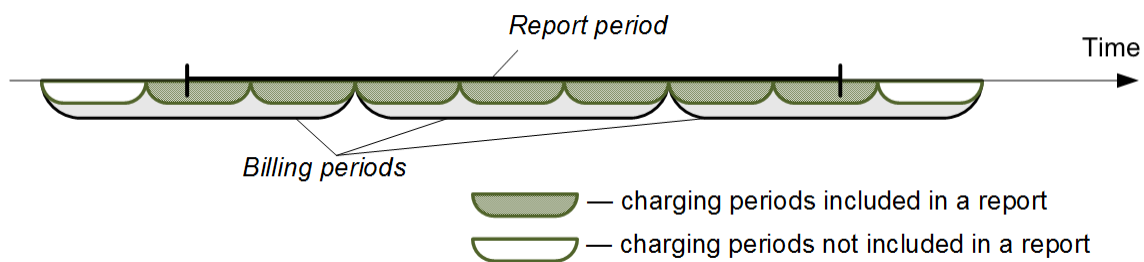
- *Charging date falls within report period* — rows are added to the report if their charging dates fall within the report period: if charging is carried out at the beginning of the period, then rows to be included into report are the same as for the *Start date falls within report period* type; if charging is carried out at the end of the period, then rows to be included into report are the same as for the *End date falls within report period* type.

In **Organization**, enter the organization that provides services or goods.

Statistics on Price Plans Usage by Customers

To view the number of customers using services in terms of certain price plans, follow these steps. Choose the period for creating a report, add two criteria — **Price plan** and **Customer**. Apply the *COUNT DISTINCT* function to the **Customer** criterion. In **Period type** choose, for example, *Charging date falls within report period.*

After clicking **Search** the following report is created.

№	Price plan ⌄	Customer/Recipient (count distinct)
1		649
2	Pro	102
3	Light	214
4	Basic	398

The second column of the table shows the number of customers who have been charged for services provided within price plans over the report period. There is a row with no value in the **Price plan** column, which means 3 customers have been provided services outside any price plan (this number includes the customers using price plans that contain no services in them). In order to leave these details out of the report you should apply the *defined* filter to the **Price plan** criterion.

To analyze trends in customer usage per various price plans over a certain period, add the **Operation date** criterion, and specify the necessary unit in its settings, for example, a month.

The table shows the number of customers per each month that consumed services within the corresponding price plans.

№	Price plan ∧	Customer/Recipient (count distinct)	Operation date (month)
1	Basic	375	01/08/2017
2	Basic	53	01/07/2017
3	Expert	21	01/08/2017
4	Expert	15	01/07/2017
5	Expert	6	01/06/2017
6	Light	203	01/08/2017
7	Light	188	01/06/2017
8	Light	179	01/07/2017
9	Pro	81	01/07/2017
10	Pro	99	01/08/2017
11	Pro	65	01/06/2017

> Certain customers are not included in the abovementioned report. It happens when there are charge logs issued for them according to some price plan, but no services have actually been consumed within it (i.e. no child rows are present in such charge logs).
>
> To determine the total number of customers using certain price plans you should use the **Customer**, **Service**, and **Service type** criteria when creating a report.

Apply the *COUNT DISTINCT* function to the **Customer** criterion together with the condition to be equal to *Price plans* to the **Service type** criterion.

№	Service ∧	Customer/Recipient (count distinct)	Service type
1	Basic	401	Price plans
2	Expert	21	Price plans
3	Light	211	Price plans
4	Pro	102	Price plans

You can see that there are 401 customers subscribed to the *Basic* price plan, but according to the report above 398 of them use services within this plan.

There is another way to utilize reports on goods and services, such as to search for customers who use a certain service. For example, to search for all customers suspended at the moment, you should choose *Current date* in **Period**, and *Service period overlaps report period* in **Period type**. Add such criteria as **Service** and **Customer**. Make the **Service** criterion equal to the suspension service.

№	Service	Customer/Recipient	Start date	End date
1	Non-payment suspension	631000433	28/06/2017 11:57:24	30/06/2017 23:59:59
2	Non-payment suspension	631000433	01/07/2017 00:00:00	24/07/2017 23:59:59
3	Non-payment suspension	631000158	01/06/2017 00:00:00	30/06/2017 23:59:59
4	Non-payment suspension	631000018	11/07/2017 09:58:17	31/07/2017 23:59:59
5	Non-payment suspension	631000018	01/08/2017 00:00:00	31/08/2017 23:59:59

Quantity of Services Consumed by Customers

In the example below, let us create a report to check the amounts of services customers consumed in the previous month. Specify the month in **Period** on the **Filter** tab, and choose *Service period overlaps report period* in **Period type**. Add such criteria as **Quantity**, **Unit**, and **Service** to the **Criteria** table. Apply the *SUM* function to the **Quantity** criterion.

Criteria	+	Applied filters
Service		Not specified
Quantity	**sum**	
Unit		

The following report is created.

№	Service	Σ Quantity ^	Unit
1	Setup	25.00	pcs
2	Installation	28.00	pcs
3	Internet traffic out	92,654,110.00	MB
4	Internet traffic in	184,099,664.00	MB
5	Voluntary suspension		-
6	Light		-
7	Basic		-

Price plans are considered just like services, so they are also included in the report. However, they have no units, and the **Quantity** and **Unit** columns are empty.

To create a report containing data on separate services (for example, to check the number of installations), you should add the **Service type** criterion and add the condition to be equal to *Services*.

Let us suppose that you need to view the quantity of a particular service consumed, for example, of the inbound traffic. In this case, you should apply an additional filter to the **Service** criterion, that is to be equal to the corresponding service in the product catalog (*Internet traffic in*). The result table is created with only one row.

To view the consumed traffic by price plans you should add the **Price plan** criterion. Thus, the total quantity of the consumed service would be calculated per each price plan separately:

№	Price plan ^	Service	∑ Quantity	Unit
1	Speed (202 Mbps)	Internet traffic in	112,191.00	MB
2	Optimal (102 Mbps)	Internet traffic in	803,686.00	MB
3	Basic (52 Mbps)	Internet traffic in	1,325,615.00	MB

Moreover, you can view the changes that occurred in the course of a month in the amount of the inbound traffic consumed within the *Optimal* price plan. Apply the condition for the **Price plan** criterion to be equal to *Optimal*. Add the **Operation date** criterion, and in its settings choose *Week* in **Unit**. Now the quantity of the service is determined per each week of the month.

№	Price plan	Operation date (week) ^	Service	∑ Quantity	Unit
1	Optimal (102 Mbps)	31/07/2017	Internet traffic in	187,385.00	MB
2	Optimal (102 Mbps)	07/08/2017	Internet traffic in	222,166.00	MB
3	Optimal (102 Mbps)	14/08/2017	Internet traffic in	169,526.00	MB
4	Optimal (102 Mbps)	21/08/2017	Internet traffic in	171,236.00	MB
5	Optimal (102 Mbps)	28/08/2017	Internet traffic in	53,373.00	MB

In the example above, in the first row you can see the amount of the inbound Internet traffic consumed from August 1 to August 6, and in the last row — that from August 28 to August 31.

By using the **Customer** criterion you can search for customers with largest amount of inbound Internet traffic consumed over the current month. To do so, add the **Service**, **Quantity**, **Unit** and **Customer** criteria. Make the **Service** criterion equal to a corresponding service, and apply the *SUM* function to the **Quantity** criterion. In the created report, sort out the results by the **Quantity** column.

№	∑ Quantity ⌄	Unit	Service	Customer/Recipient
1	5,912,169.00	MB	Internet traffic in	631000314
2	1,972,993.00	MB	Internet traffic in	631000191
3	972,201.00	MB	Internet traffic in	630005598
4	843,416.00	MB	Internet traffic in	630005143
5	833,969.00	MB	Internet traffic in	630000752
6	819,424.00	MB	Internet traffic in	630002108
7	795,005.00	MB	Internet traffic in	630005664

The Total Cost of Provided Services

You can determine the amount the services have been provided for, in terms of a certain price plans. Add the following criteria to your report: **Price plan**, **Service**, **Currency**, **Amount incl. taxes**. Apply the *SUM* function to the **Amount incl. taxes** criterion, and also set the condition to be > *0* in order to avoid including free services.

Criteria	+
Price plan	
Service	
Amount incl. taxes	sum
Currency	

Applied filters

SUM(Amount incl. taxes) > 0

The table shows the total cost of services provided over the report period.

№	Price plan ⌃	Service	∑ Amount incl. taxes	Currency
1		Static IP	286.00	US dollar
2		Corp.1(10 Mbps)	5483.00	US dollar
3		Corp.2(20 Mbps)	4872.00	US dollar
4		Corp.3(25 Mbps)	614.00	US dollar
5	Corp.1(10 Mbps)	Incoming traffic	9485.00	US dollar
6	Corp.2(20 Mbps)	Incoming traffic	7021.00	US dollar
7	Corp.3(25 Mbps)	Incoming traffic	5980.00	US dollar

Rows with no values in the **Price plan** column correspond with the cost of services provided outside any price plans (row 1), and also with the customer fee for the price plans excluding the cost of services within these price plans (in the latter case, the **Service** column shows the name of the price plan, rows 2–4). To exclude such rows from the report, apply the *Defined* filter to the **Price plan** criterion. Or, if you apply the *Not defined* filter, the final table would include only the costs of price plans and services provided outside price plans.

Rows 5–7 show the cost of services included in corresponding price plans, and they do not contain any customer fee for such plans.

If you want to determine only the customer fee for price plans, use the **Service type** criterion instead of **Price plan** applying the condition for it to be equal to *Price plans*.

When necessary, you can create a table containing data only on several particular services or price plans by applying additional filters to corresponding criteria.

To see not only costs but also the quantity of services, add the **Quantity** (and apply the *SUM* function to it) and **Unit** criteria.

4.18.3. Reports on Accounts Status

Accounts status reports are used to trace the movement of funds on [customer accounts](#) for any periods, and mostly often are created to monitor customers' debts.

Accounts status report

| Filter | Results | Filter not selected ▾ | 💾 |

☐ Current status

Period | from 01/08/2017 to 23/08/2017 | 📅 🗑

Organization | Teleline ▾

Customer groups
- ☑ Closed
- ☑ Corporative clients
- ☑ Employees
- ☑ GPON(property)

☑ ☐

Customer tags [   ]

Criteria	+
Customer	
Customer status	
Account	
Currency	
Opening balance	
Credit	
Debit	
Closing balance	
Current reserved amount	
Total reserved amount	
Available funds	
Credit limit	
Credit limit end date	

Applied filters

Not specified

Search Show [20 ▾] results per page Sort [Ascending ▾]

The **Filter** tab contains the following settings:

- **Current status** — when selected, the report contains the current accounts status (accurate to a second). When cleared, you can create a report for any period.

- **Period** — is used to enter the period for a report, it is locked when the **Current status** check box is selected.
- **Organization** — an organization which data is to be included in a report;
- **Customer groups** — here you enter groups of customers to create a report on.

With the help of available criteria you can view customer accounts in detail. Select the **Current status** check box and add the following criteria: **Customer**, **Closing balance**, **Current reserved amount**, **Total reserved amount**, **Available funds**, **Credit limit**, and **Credit limit end date**. The **Opening balance** criterion corresponds to the customer account [balance](#) at the beginning of a period, and the **Closing balance** criterion — at the end of a period (when the **Current status** check box is selected, both balances match).

Criteria	+
Customer	
Opening balance	
Closing balance	
Current reserved amount	
Total reserved amount	
Available funds	
Credit limit	
Credit limit end date	

	Applied filters
	Not specified

> ⚠ Such criteria as **Current reserved amount**, **Total reserved amount**, **Available funds**, **Credit limit**, and **Credit limit end date** are reasonable only for reports created for the current period, i.e. when the **Current status** check box is selected. You should not use them in reports for previous periods.

On the **Results** tab you can view a detailed report on customer accounts:

№	Customer	Opening balance ∧	Closing balance	Current reserved amount	Total reserved amount	Available funds	Credit limit	Credit limit end date
1	631000122	−100,000.00	−100,000.00	0.00	0.00	0.00	100,000.00	
2	631000123	−71,000.00	−71,000.00	0.00	0.00	29,000.00	100,000.00	
3	631000101	−48,000.00	−48,000.00	0.00	0.00	0.00	36,000.00	
4	631000191	−36,000.00	−36,000.00	0.00	0.00	64,000.00	100,000.00	
5	630009899	−35,456.98	−35,456.98	0.00	0.00	94,543.02	130,000.00	
6	631000253	−29,058.06	−29,058.06	0.00	0.00	0.00	0.00	
7	631000132	−20,951.77	−20,951.77	0.00	1,800.00	79,048.23	100,000.00	

When a negative amount appears in the **Opening balance** column, or the sum of amounts in the **Closing balance** and **Credit limit** columns is negative, then both **Opening balance** and **Closing balance** are highlighted in red (rows 1 and 2 as per the example). When both conditions are met, the whole row in the table becomes red (rows 3 and 6). As for the **Credit limit** and **Credit limit end date** columns, they are highlighted in red in case less than three days remain before the credit limit expires.

In the example below, see how to view all active customers in arrears. Select the **Current status** check box, choose necessary customer groups, add the following criteria: **Customer**, **Customer status**, **Closing balance**, **Total reserved amount**. Make the **Customer status** criterion equal to *Active*, and the **Closing balance** criterion less than 0.

Criteria	+
Customer	
Customer status	
Closing balance	
Total reserved amount	

	Applied filters
	Customer status = Active
	Closing balance < 0

The report is created containing all customers with a negative [balance](). The total amount in arrears of these customers is calculated as the sum of their total closing balance and the total reserved amount.

№	Customer	Customer status	Closing balance ^	Total reserved amount
1	631000122	Active	−100,000.00	0.00
2	631000123	Active	−76,300.00	0.00
3	631000191	Active	−40,000.00	0.00
4	630009899	Active	−35,456.98	0.00
5	631000132	Active	−28,751.77	1,800.00
6	631000248	Active	−23,600.00	0.00
7	631000252	Active	−22,435.48	6,500.00

With the help of this report you can view customers with credit limits by using **Credit limit** and **Credit limit end date** criteria. For example, if you are interested only in permanent credit limits, you should apply *Not defined* filter to the **Credit limit end date** criterion while clearing the **Display** check box, so that a table is created without an empty column for credit limit periods.

№	Customer	Credit limit ˅
1	631000322	500,000.00
2	631000287	500,000.00
3	630009899	130,000.00
4	631000321	100,000.00
5	631000123	100,000.00

You can use the **Basic subject type** criterion equal to *Organization* to create a report on organizations only. With the help of the **Account** criterion you can view the movement of funds on a certain account.

4.18.4. Reports on Unaccounted Traffic

Reports on unaccounted traffic are used mostly by system administrators and technicians that are responsible for Hydra Billing and equipment maintenance. Such reports are used for:

- detecting unauthorized and suspicious connections to the provider's network,
- detecting errors in Hydra Billing and network equipment configuration, or
- controlling traffic flows and traffic classes within the network.

Unaccounted traffic report

| Filter | Results | Filter not selected ▾ | 💾 |

| **Period*** | from 01/08/2017 to 23/08/2017 | 📅 🗑 |

| **Organizatio** | Teleline ▾ |

Details/Group	➕
Direction	
Quantity	**sum megabyte**

Applied filters

Not specified

| Search | Show | 20 ▾ | results per page | Sort | Ascending ▾ |

You should add the **Quantity** (apply the *SUM* function to it, and choose *MB* in **Unit**) and **Direction** criteria to your report. Enter the report period and click **Search**. On the **Results** tab, view the created report containing the total outbound and inbound traffic quantity, that has not been rated for some reason.

№	**Direction** ∧	**∑** *Quantity (MB)*
1	In	114,215.647
2	Out	121,215.368

In order to determine why the traffic has not been rated, add to your table the **Reason** criterion, which may be stated as:

- *Could not identify CPE* — no CPE registered in the system has the IP address specified in the session.
- *Ambiguous IP address mapping* — several pieces of CPE have the IP address specified in the session.
- *Nonexistent traffic service* — the session does not correspond with any of the determined traffic classes and cannot be matched with any traffic service.
- *No matching entry in service movement register* — the rating has not been carried out due to a number of reasons, including: no charge log was issued for a customer; the statistics aggregation date did not fall within the current charge log period; a customer was not subscribed to a service; no price specification existed for a service, or it had expired; no price was specified for the service in the price specification, etc.
- *Session end date is less than its start date*.
- *Session end date is greater than current date*.
- *Total unaccounted traffic per session* — unaccounted traffic falls into this category if at a synchronization session with the traffic collector its quantity has not exceeded the quota specified in the division settings. For example, if at a synchronization session total quantity of unaccounted traffic has not exceeded 2 MB, then it is related to the total unaccounted traffic without defining any reason why the rating was not performed.

№	Direction ∧	∑ Quantity (MB)	Reason
1	In	3,891.659	Could not identify CPE
2	In	1,708.215	Total unaccounted traffic per session
3	In	72.131.476	No matching entry in service movement register
4	Out	3,891.659	Could not identify CPE
5	Out	6712.378	Total unaccounted traffic per session
6	Out	36,473.659	No matching entry in service movement register
Total		114,215.647	

If you add the **Status** criterion, then the report is created with the status of synchronization with traffic collector:

- *Synchronization started* — is used in the very beginning of a synchronization, before connecting to a collector.
- *Statistics received* — data on provided services has been received from the collector.
- *Statistics processed* — the data format has been verified, the data has been processed and is ready for rating.
- *Synchronization completed* — statistics has been rated.
- *Statistics retransfer required* — is not used in the current version of the software.

When necessary, by adding corresponding criteria you can view start and end synchronization dates in a report (they are determined as minimum and maximum dates of statistics rows per synchronization session), participants' addresses, and other useful data.

For example, to search for sessions that has not been rated due to the absence of equipment, and the traffic quantity has been bigger than 1 MB, you should set up criteria as follows (the quantity limit is entered in bytes):

Details/Group	+
Direction	
Quantity	**sum** megabyte
Reason	
IP/Subnet A	
Subnet mask A	
IP/Subnet B	
Subnet mask B	

Applied filters

SUM(Quantity) > 1,048,576

Reason = No matching entry in service movement register

The report is created as:

№	Direction	∑ Quantity (MB) ∧	Reason	IP/Subnet A	Subnet mask A	IP/Subnet B	Subnet mask B
1	In	26,689.427	No matching entry in service movement register	10.0.0.14	255.255.255.255	0.0.0.0	0.0.0.0
2	Out	8,515.234	No matching entry in service movement register	10.0.0.14	255.255.255.255	0.0.0.0	0.0.0.0
3	In	6,584.693	No matching entry in service movement register	10.0.0.19	255.255.255.255	0.0.0.0	0.0.0.0

4.18.5. Reports on Customers

In this section:
- [Recently Connected Customers](#)
- [Number of Customers per Group](#)
- [Number of Customers Per Address](#)
- [Searching by Customers Statuses and Contracts](#)

Reports on customers are a useful tool to receive a summary on customers, including:

- trends in new customer connections (the number of customers who have started using services at certain periods),
- statistics on customer statuses (*Active*, *Suspended*, etc.), or
- customer addresses and groups statistics.

Customer report

On the **Filter** tab you can choose an organization, customer groups, groups of basic subjects — individuals or organizations, and customer and basic subject tags.

Recently Connected Customers

You can view the customers that have used some services for the first time since the start of the month. Choose necessary groups of customers and basic subjects, and add the **Customer** and **Start date of first charge log** criteria. Apply the *COUNT* function to the **Customer** criterion, then apply the condition for **Start date of first charge log** to be greater than or equal to the required date and clear the **Display** check box in its settings.

The report is created with only one value — the number of customers whose first charge logs have been issued over the period starting from August 1.

If you disable the *COUNT* function in the **Customer** criterion, and select the **Display** check box in the **Start date of first charge log** criterion, you can view the list of customers together with their start dates for using the services.

№	Customer	Start date of first charge log ⌄
1	630005729	18/08/2017 14:22:54
2	630005728	18/08/2017 13:58:58
3	631000454	14/08/2017 15:25:56
4	630005727	14/08/2017 11:13:54
5	630004458	11/08/2017 10:34:00
6	630004459	11/08/2017 10:13:58
7	631000453	09/08/2017 00:00:00
8	630005726	08/08/2017 14:45:43
9	631000451	07/08/2017 16:38:18

Number of Customers per Group

In order to view statistics on customers belonging to each of the groups you should use both the **Customer** (apply the *COUNT* function to it) and **Customer group** (select the **Group** check box in its settings) criteria.

Criteria	+
Customer	**count**
Customer group	

Applied filters

Not specified

The report is created as:

№	(count) Customer ⌄	Customer group
1	1978	Individuals
2	246	Corporate
3	37	Employees
4	45	Promo

If you clear the **Group** check box in the **Customer group** criterion, the report is created with different values:

№	(count) Customer ⌄	Customer group
1	1896	Individuals
2	246	Corporate
3	37	Employees, Individuals
4	45	Individuals, Promo

In the first report, you can see that customers belonging to several groups at once have been included in the total number per each of the groups. For example, a customer belonging to both the *Individuals* and *Promo* groups at once is added to the number of customers in *Individuals* and *Promo* at the same time, so the total number of customers shown in the first report does not match the actual number of customers. In the second report, such customers are shown separately in the corresponding row.

Number of Customers per Address

With the help of a report on customers you can define the number of customers connected at a certain address. Choose necessary groups of customers and basic subjects, and add the following criteria: **Customer** (apply the *COUNT* function to it), **Status** (apply the condition to be equal to *Active*), **Region** (apply the condition to be equal to the necessary address, for example, a street), and **Number of residential premises**, in order to calculate the penetration rate.

Criteria	➕		Applied filters
Customer	count		Status = Active
Status			Region = Baker st.
Region			
Number of residential premises			

The report is created as:

№	(count) Customer ⌄	Status	Region	Number of residential premises
1	16	Active	UK,London,Baker st.,47	84
2	14	Active	UK,London,Baker st.,24	73
3	11	Active	UK,London,Baker st.,80	180
4	8	Active	UK,London,Baker st.,11	90
5	7	Active	UK,London,Baker st.,26	80

Each row contains the number of active customers per the building in the specified street, and the number of residential premises. To leave the **Status** column out of the table with total values, clear the **Display** check box in the corresponding criterion. Likewise, if you clear the **Display** check box in the **Region** and **Number of residential premises** criteria, then there is only one value shown in the report — the number of active customers at the chosen street without specifying by houses.

№	(count) Customer ⌄
1	246

Now let's search for all customers based at a certain entrance of the specified building (for example, in order to inform on the scheduled maintenance works). Add the following criteria to your report: **Customer**, **Status**, **Region**, **Entrance**, **Basic subject**, and **Mobile phone**. Apply the condition for the criteria to be equal to a needed status, a building, and an entrance.

Criteria	+
Customer	
Status	
Region	
Entrance	
Basic subject	
Mobile Phone	

Applied filters

Status = Active

Region = Baker st.

Entrance = 3

In order to leave the columns with the same values out of the total table you should clear the **Display** check box for all criteria the filters are applied to (**Status**, **Entrance**, **Region**). The created report contains logins and full names of customers based at the specified entrance of the building, and their mobile phone numbers.

№	Customer ⌄	Basic subject	Mobile Phone
1	630005682	Jack Smith	447871679403
2	630005609	Howard Huges	447871243790
3	630005519	Jack London	447871583908
4	630005509	Harry Abramson	447871589340
5	630005422	Bob Bishop	447871684209

Searching by Customers Statuses and Contracts

In some situations you need to view all suspended customers, for example, to call them and inquire if they are going to continue using your services. Add the following criteria to your report: **Customer**, **Status** (make it equal to the *Suspended* status and clear the **Display** check box), **Balance**, **Last charge log end date**, **Basic subject**, and **Mobile phone**.

Criteria	+
Customer	
Status	
Balance	
End date of last charge Log	
Basic subject	
Mobile Phone	

Applied filters

Status = Suspended

The report is created containing details on dates customers stopped using services, and their account balances

№	Customer	Balance ⌄	End date of last charge Log	Basic subject	Mobile Phone
1	630004024	82,76	26/08/2016 23:59:59	Matthew Summers	447871256123
2	630004023	71,03	31/08/2016 23:59:59	James O'Neal	447871645326
3	630004021	54,06	30/05/2017 17:08:56	Gerald Hawkins	447871467357
4	630004020	32,64	17/06/2017 23:59:59	Kevin Sutton	447871326451

You can search for customers whose contracts have been terminated this month as follows. Use the criteria to create your report: **Customer**, **Balance**, **Contact status**, **Contract end date**. Apply the condition for the **Contact status** criterion to be equal to *Terminated*, and clear the **Display** check box. The **Contract end date** criterion should be equal to or greater than the first day of the month.

Criteria	✚
Customer	
Balance	
Contract status	
Contract end date	

Applied filters

Contract status = Terminated

Contract end date ≥ 01/08/2017 00:00:00

See the corresponding report created:

№	Customer	Balance ⌃	Contract end date
1	630004117	94.39	17/08/2017 00:00:00
2	630002048	86.43	22/08/2017 00:00:00
3	630002313	33.47	22/08/2017 00:00:00
4	630002225	33.24	22/08/2017 00:00:00
5	630002368	26.55	17/08/2017 00:00:00

4.18.6. Reports on Calls

In this section:
- [Searching for Customer's Calls](#)
- [Viewing Calls by Providers](#)
- [Viewing Calls by Area Codes and Groups of Area Codes](#)
- [Searching for Unrated Calls](#)

See also:
- CDR Registry

With the help of the CDR registry (**Master Data** > **Telephony** > **CDRs**) you can view both particular calls in detail and summaries on, for example, duration or cost of a certain customer's or provider's calls. The registry is also useful when searching for calls that have not been rated for some reason.

Searching for Customer's Calls

Let's assume that you need to view all calls a particular customer made over the last month. Enter the month in **Period**, specify the organization and the necessary provider. In **Customer** choose the necessary customer. Add the following criteria to your report: **External ID**, **Rating status** (it should be equal to *Charged*), **Call start date**, **Call duration**. You should also add criteria that contain necessary details on the initiator and the receiver.

Period* from 01/08/2017 to 24/08/2017

Organization* Teleline

Provider Teleline

Customer 630000927

☐ Include archived data

Criteria	+
External ID	
Rating status	
Call start date	
Call duration, s	

Applied filters

   Rating status = Charged

Initiator	+
Customer A	
Area A	
Amount A	**sum**

Applied filters

Not specified

Recipient	+
Customer B	
Area B	
Amount B	**sum**

Applied filters

Not specified

The report contains all calls the specified customer has taken part in either as the initiator or the receiver.

№	ID	External ID	Call start date	Call duration, s ∧	Customer A	Area A	∑ Amount A	Customer B	Area B	∑ Amount B
1	153504901	4c82b3dcf7c72b663913423b8f1aefbf	11/08/2017 13:02:32	1		Vodafone		630000927	Local	0.00
2	153055901	dbfc16f66bfc904ce63c7f584f0c1bbf	04/08/2017 18:32:01	10	630000927	Local	0.05		T-mobile	
3	153055001	4f1c337242148d2d284ca2ae50ba4caa	04/08/2017 18:23:41	11		Vodafone		630000927	Local	0.00
4	152937701	2920c8fcd0828d5dcc4c7b3c82faa015	03/08/2017 14:04:34	12		Orange		630000927	Local	0.00
5	153565001	dfd5af82950a96a1bf54a327795009eb	12/08/2017 18:25:20	12		T-mobile		630000927	Local	0.00

If you need to search only for calls initiated by the customer, you should apply the condition for the **Customer A** criterion to be equal to this customer.

In order to view the total duration and cost of the calls made by the customer, you should set up the criteria as follows:

Criteria	+	Applied filters
Rating status		Rating status = Charged
Call duration, s	**sum**	

Initiator	+	Applied filters
Customer A		Not specified
Amount A	**sum**	

Recipient	+	Applied filters
Customer B		Not specified
Amount B	**sum**	

The created report contains the total number of seconds the customer has used and the cost.

№	Rating status ^	$\sum$ Call duration, s	Customer A	$\sum$ Amount A	Customer B	$\sum$ Amount B
1	Charged	4,790			630000927	0.00
2	Charged	4,064	630000927	34.68		
Total		8,854		34.68		0.00

In the example above, outbound calls lasted 4064 s, and inbound ones — 4790 s.

Viewing Calls by Providers

Now let us define the total cost of calls made by a certain provider's customers. Enter the required period and the organization, and leave **Provider** and **Customer** empty. Apply the following criteria: **Rating status** (apply the condition for it to be equal to *Charged* and clear the **Display** check box), **Call duration** (apply the *SUM* function to it), **Amount A** (also apply the *SUM* function to it), **Initiator provider** (apply the condition for it to be equal to a certain provider), and **Recipient provider**.

Criteria	+	Applied filters
Rating status		Rating status = Charged
Call duration, s	**sum**	

Initiator	+	Applied filters
Amount A		Initiator provider = Teleline
Initiator provider		

Recipient	+	Applied filters
Recipient provider		Not specified

The created report contains the total duration and cost of outbound calls processed by the chosen provider, and the calls are considered separately for each recipient provider.

№	∑ Call duration, s	∑ Amount A	Initiator provider	Recipient provider
1	4,064	24.47	Teleline	Vodafone
2	24	0.78	Teleline	T-mobile
3	4,766	27.15	Teleline	Orange
Total	8,854	52.40		

Without the **Recipient provider** criteria, the report is created containing total duration and total cost of outbound calls without details on the recipient provider.

№	∑ Call duration, s ∧	∑ Amount A	Initiator provider
1	8,854	52.40	Teleline
Total	8,854	52.40	

In order to view both inbound and outbound calls via one certain provider, you should enter this provider in **Provider** on the **Filter** tab, and remove the filter from the **Initiator provider** criterion.

You can search for calls by provider by entering the provider in **Provider** and adding the **External ID** criterion to the report.

Viewing calls by Area Codes and Groups of Area Codes

In some cases you need to view duration or total cost of calls made to certain area codes (for example, to define the most popular ones). In **Provider** choose the necessary one, and use such criteria as **Call duration**, **Amount A** (with the *SUM* function applied to both of them), and **Area B**.

Criteria		Applied filters
Call duration, s	sum	Not specified
Initiator	+	Applied filters
Amount A	sum	Not specified
Recipient	+	Applied filters
Area B		Not specified

Sort out the results by either the **Call duration** or **Amount A** column.

№	∑ Call duration, s ∨	∑ Amount A	Area B
1	4,790	0.00	Manchester
2	3,168	43.60	Transborder
3	596	5.37	West
4	300	3.43	London

In order to view all calls by certain area codes, add more criteria to the abovementioned ones: **External ID**, **Call start date**, and **Customer A**. Make **Area B** equal to the necessary area, and clear the **Display** check box in its settings.

Criteria	+
External ID	
Call start date	
Call duration, s	sum

Applied filters

Not specified

Initiator	+
Amount A	sum
Customer A	

Applied filters

Not specified

Recipient	+
Area B	

Applied filters

Area B = London

The report is created containing all calls made to the selected area over the specified period.

№	ID	*External ID*	*Call start date*	Σ **Call duration, s** ⌄	Σ *Amount A*	*Customer A*
1	152974701	b60565e68923c895eaf9d2d4732e2d76	03/08/2017 20:26:34	842	8.76	630000927
2	153016801	8d7e3c5daab82c18cb91771bb6d566f2	04/08/2017 12:24:06	816	8.15	630000814
3	153302801	f59bee6a6dcccaac801d01469fa64ea0	09/08/2017 10:04:17	637	6.23	630000927
4	153901201	0bd83ee44eb7b4ad486d7e279abb7082	17/08/2017 10:45:21	462	4.57	630000122

When phone services are provided by groups of area codes, i.e. in a price specification, groups of area codes are entered in **Area**, then you can create a similar report to display calls statistics by groups of area codes using the **Group of area codes for recipient** criterion instead of **Area B**.

Searching for Unrated Calls

Now let us search for all unrated outbound calls made over the previous month. In **Period**, choose the necessary month, and apply the following criteria: **External ID**, **Rating status**, **Call start date**, **Call duration**, **Area A**, **Amount A**, **Initiator provider**, **Area B**, **Recipient provider**. To the **Amount A** criterion you should apply the *Not defined* condition, and clear the **Display** check box so there is no empty column in your report. To the **Initiator provider** criterion you should apply the condition to be equal to the current provider.

Criteria	+
External ID	
Rating status	
Call start date	
Call duration, s	

Applied filters

Not specified

Initiator	+
Customer A	
Amount A	
Initiator provider	

Applied filters

Amount A: not defined

Initiator provider = Teleline

Recipient	+
Area B	
Recipient provider	

Applied filters

Not specified

The report is created containing a list of calls together with the reasons (in **Rating status**) why they have not been rated.

№	ID ^	External ID	Rating status	Call start date	Call duration, s	Area A	Initiator provider	Area B	Recipient provider
1	152684101	44e33b3d19426994159fb88374ece2c7	No matching charge log row	01/08/2017 00:22:15	410	Local	Teleline	Manchester	Vodafone
2	152685101	9a3272d5031fb95d6e52c3b98b31dce9	No matching charge log row	01/08/2017 07:13:04	20	Local	Teleline	Transborder	T-mobile
3	152685801	bbed9155423b0105eea1492ffb6e22a2	No matching charge log row	01/08/2017 07:47:52	7	Local	Teleline	West	Vodafone
4	152687801	29bd836586e92980298923ba3de1e81a	No matching charge log row	01/08/2017 08:11:22	38	Local	Teleline	West	Orange
5	152689601	0b901106f91d75ef741fdcc57718eba0	No matching charge log row	01/08/2017 08:17:08	843	Local	Teleline	London	Vodafone

Click the link in the **External ID** column to view the CDR with detailed information on the corresponding call.

Just as in the abovementioned reports, you can use additional criteria to limit your search to certain customers, area codes, etc.