CSUI Documentation

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Maslova

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CloudStack-UI is a project which purpose is to provide an easy-to-use, light, and user friendly frontend interface for the Apache CloudStack virtualization management system.

Apache CloudStack is a great product which is widely used. But its frontend is developed for administrators (from our point of view), not for cloud end users. Some of the interactions are not straightforward and unnatural to an average user and require quite a long time to adapt. Other reasons to develop the UI are connected with lack of functions like virtual machine statistics & charting, sophisticated resource accounting, and application management.

That's what we are trying to add to Cloudstack-UI. The work is still in progress. But for now we have already covered lots of features that make CloudStack more good-looking and intuitive.

Project on GitHub

Join CloudStack-UI LinkedIn Group

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Contents

- *Overview*
  - *Project History*
  - *Implementation Details*
  - *Documentation*
  - *How to Contribute*

CHAPTER 1

Overview

CloudStack-UI is a project which purpose is to provide an easy-to-use, light, and user-friendly front-end interface for the Apache CloudStack virtualization management system.

Apache CloudStack is a great product which is widely used. But its front end is developed for administrators (from our point of view), not for cloud end-users. Some of the interactions are not straightforward and unnatural to an average user and require quite a long time to adapt. Other reasons to develop the UI are connected to the lack of functions like virtual machine statistics & charting, sophisticated resource accounting, and application management.

That is what we are trying to add to Cloudstack-UI. The work is still in progress. But for now we have already covered lots of features that make CloudStack more good-looking, intuitive and convenient.

Project on GitHub.

Join the CloudStack-UI LinkedIn Group.

1.1 Project History

This page provides some background about the project, describes what CloudStack-UI is, and why it was developed.

At Bitworks Software, we have been running an ACS public cloud for 3 years (actually we still run CS 4.3 cloud in production). And we have found that average users who are familiar with Digital Ocean, Amazon AWS, and other VPS management systems feel uncomfortable with original CloudStack UI and make a lot of operational mistakes. That is why we have decided to implement a convenient and neat end-user facing UI covering regular activities, which are important for day-to-day VM management.

There are several aims we strived to achieve with the new UI:

1. The first goal is to make the UI more intuitive in terms of usability, business processes and typical use-cases.
2. As nowadays people move further from desktop PCs and go full mobile, we wanted the UI to have a support for that. Having a full control of your cloud from a smartphone, what could be better?
3. One of the major goals we want to achieve is to build a UI that is possible to support for many years. That's why we have to use only modern technologies.

4. From the technical perspective we also want the UI to support additional meta-information like descriptions, colors, groups, helpers. All of that is not supported by the native UI and it could be used to add some additional semantics to the entities that user has: like Vms, snapshots and so on.
5. The next key point that we wanted to cover with the new UI is to have some extra features beyond the functionality that CloudStack provides, e.g. DNS management, helpdesk integration, PaaS management, runtime statistics charts and monitoring.
6. And a final goal is to have a community support that could help us to improve the product and provide better user experience for the CloudStack users.

1.2 Implementation Details

Designed compatible with Apache CloudStack 4.10 and has been tested for 4.9.

Powered by Angular and Material 2.

Tested and works fine in next modern browsers:

- Google Chrome 60.0.3112.78
- Chromium 60.0.3169.0
- Mozilla Firefox 54.0.1
- Safari 5.1.7
- Internet Explorer 11.483.150630

1.3 Documentation

The documentation for the project is presented in the *CloudStack-UI User Guide* that explains to average users how to use the UI when working with CloudStack. It also includes explanations on managers' part clarifying how to manage the cloud infrastructure via CloudStack-UI.

We hope the new features we support will be useful for both end-users and administrators.

1.4 How to Contribute

CloudStack-UI is an open-source project. It is developed by an open and friendly community. Everybody is welcome to contribute and engage with the community. We are happy to accept any contribution. You can contribute to the project development in various ways:

1. Share the information about the project with other people, try to install the UI and share your opinion with us and your colleagues.
2. Propose useful features. Ideas are always welcome.
3. Deploy it somewhere and inform us about your success story and we will share it in the adopters section.
4. Fix bugs and send us the PR.
5. Implement a feature from the Roadmap or simply make something new.
6. Support and promote the development of specific functions which are important to you and may be shared.
7. Provide testing environment for other deployment schemes. Now we interested in testing the app with

   (a) KVM with RBD

   (b) Xen with NFS, Local, RBD

   (c) Oher browsers and operating systems

8. Hire us for frontend or backend development of custom software development projects. Take a look at our website to know where we can be useful. Take a look at our presentation to learn more about us.

To contribute, just contact us via e-mail: info@bw-sw.com

CHAPTER 2

CloudStack-UI User Guide

CloudStack-UI is created to make it easier for end-users to use cloud infrastructure - to view and use their cloud resources, including virtual machines, templates and ISOs, data volumes and snapshots, security groups, and IP addresses.

The documentation gives precise instructions on working with the interface. The UI is quite intuitive and user-friendly, but we still advise studying the documentation first to get deeper insight of the features.

Here is the documentation structure:

2.1 Start Working With CloudStack-UI

Contents

- *Start Working With CloudStack-UI*
  - *Logging In*
  - *Resource Usage*
  - *Notifications on Pending Operations*

This page is aimed to help you to make first steps at CloudStack-UI. If you have never worked with CloudStack before, you should start with installing the CloudStack platform. Follow the instruction in the official documentation.

Then deploy CloudStack-UI (see the instructions for deployment).

2.1.1 Logging In

To enter the platform use your credentials provided by an administrator:

Note: Required fields are marked with asterisks (*).

- User name * - The user ID of your account.
- Password * - The password associated with the user ID.
- Domain - Specify domain when you log in. CloudStak-UI supports three ways to do it. Choose the one which is more convenient for you:

  1. Enter a domain in the field under the "Show advanced options" button .
  2. Administrator can set a domain in configurations. Domain field will be prepopulated with the specified value. It is more convenient for a user as he/she does not need to enter the domain every time at logging in. In this case the domain field can be hidden by clicking . Find more information on the feature configuration at the configuration guide.
  3. Other way to log in is to enter a URL in the format `http://<ip-address>/login?domain=<domain>`. The domain will be prepopulated in the logging in form with the value that is specified in the URL. Please, note, the domain value in URL will override the domain set in the configurations by Administrator.

Push "Login" to proceed to CloudStack. You will see the first section - *Virtual Machines*.

To the left you can see the main navigation bar. It shows the user name and allows moving from section to section.

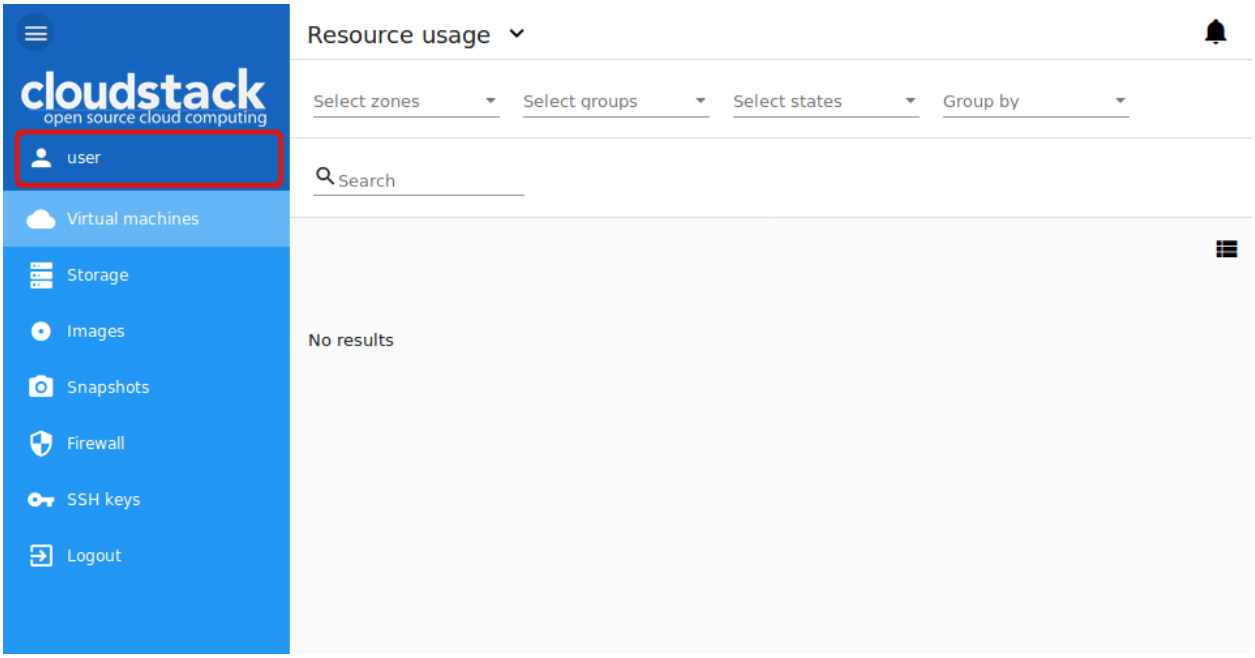
When entering the system, a user sees the *Virtual Machines* section at the second level of the menu. At the first level, the main navigation bar has two expandable sections with the following nested menu items:

- ***Virtual Machines***
  - Virtual machines
  - Storage
  - Images
  - Snapshots
  - Firewall
  - SSH keys
  - Logout
- ***Accounts***
  - Accounts
  - Activity log
  - Settings
  - Logout

Note: The Logout section is placed at both levels.

To move between levels, click and then one of the two levels.

cloudstack
open source cloud computing
Username *
Administrator
Password *
Domain
Administrator
LOGIN



2.1.2 Resource Usage

In this section you can see the resource statistics: used and free VMs, computational resources, volumes and storage space.

Unfold *Resource Usage* panel in the upper part of the screen. It provides information on the following resources:

1. Virtual machines;
2. Computational resources - CPU, RAM;
3. Volumes and snapshots;
4. Storage - primary and secondary.

You can switch between used or free resources by clicking the option you need above the resource data list.

A user can see the resource usage statistics for his/her user only.

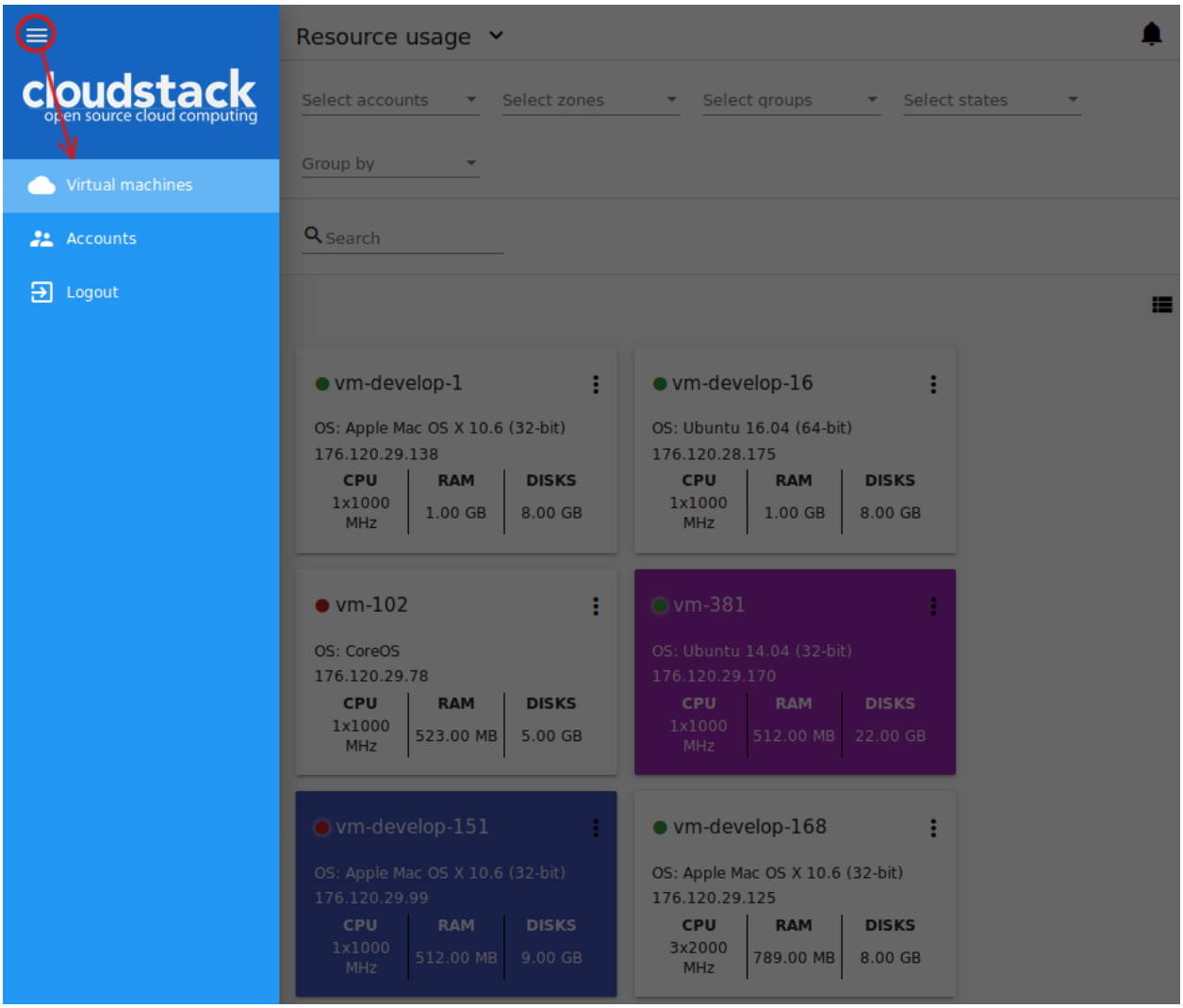
A Domain Administrator can view resources for his/her account and for the whole domain.

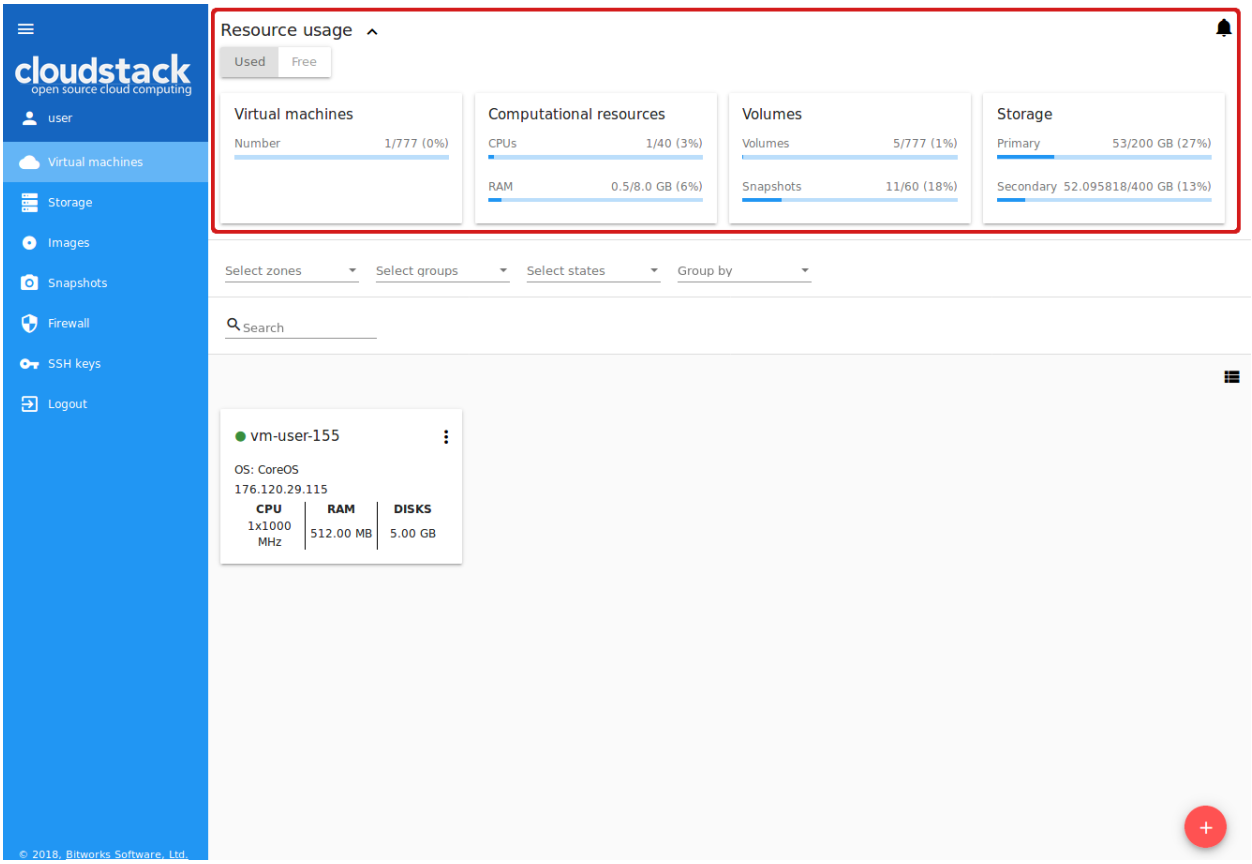
2.1.3 Notifications on Pending Operations

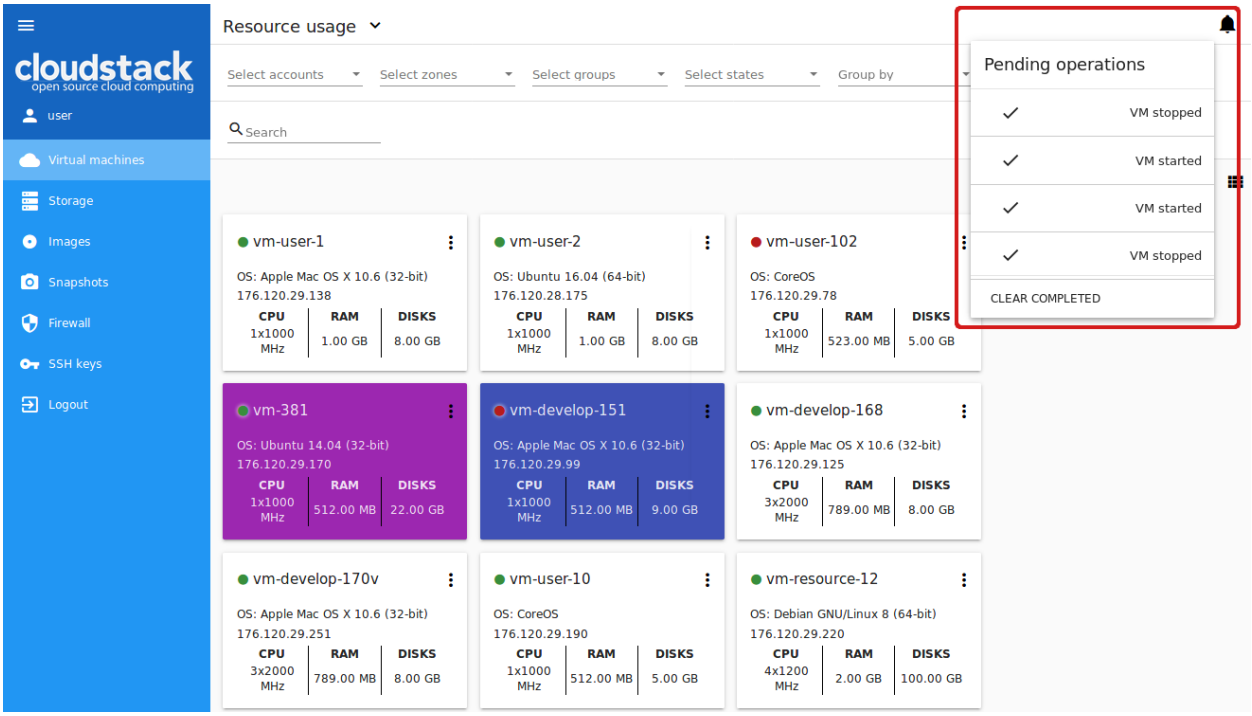
In the upper-right corner of the screen, you can see the list of pending operations by clicking a bell button . It informs you of the latest operations in the system. You can clear the list after its reviewing by deleting every notification one by one or by clicking "CLEAR ALL" at the list bottom.

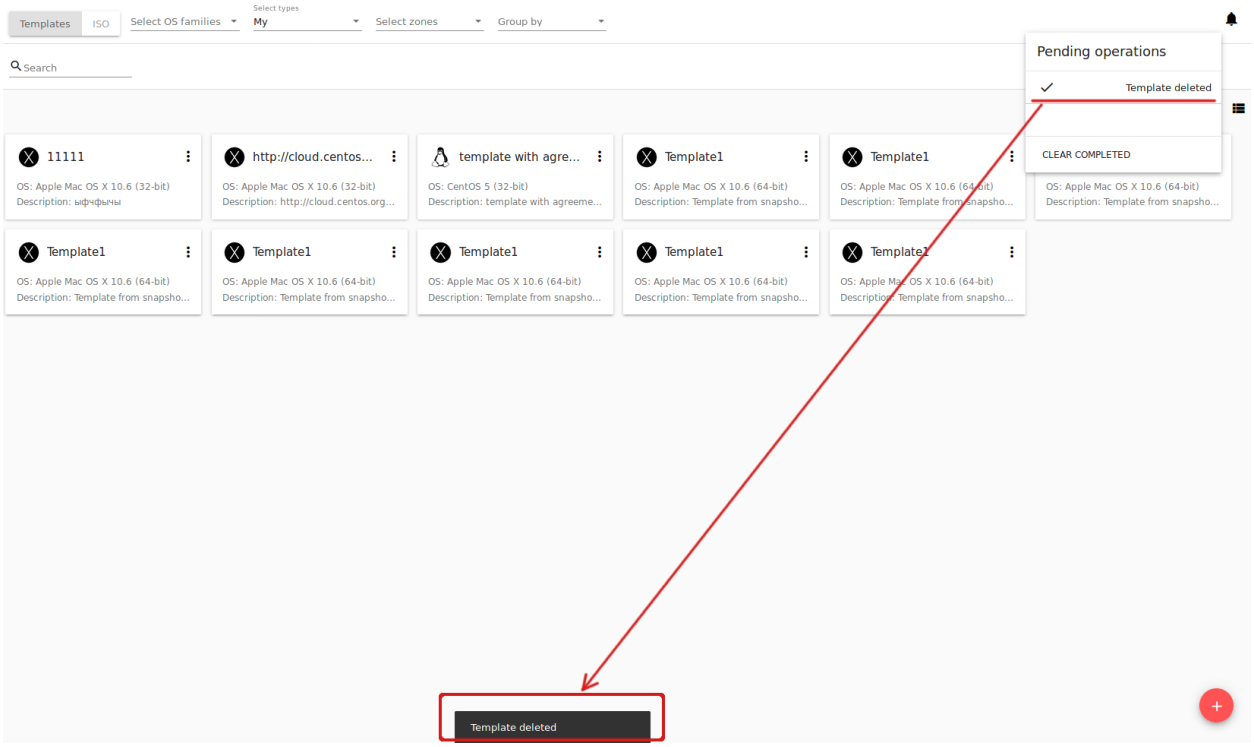
Alongside with the notification panel, the action completion confirmation additionally appears in the snackbar notification at the page bottom.

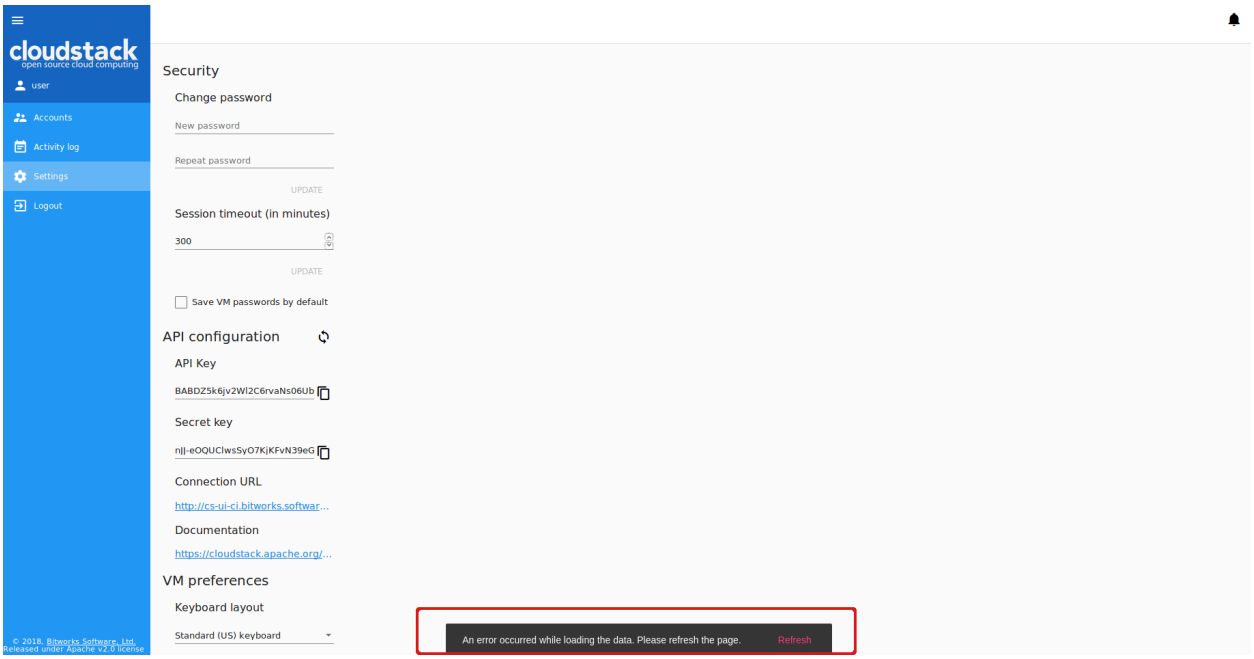
In case of errors at data loading the snackbar also notifies of them. In this case it has a refresh button that refreshes the whole app.


cloudstack
open source cloud computing
Virtual machines
Accounts
Logout
Resource usage
Select accounts
Select zones
Select groups
Select states
Group by
Search
vm-develop-1
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.138
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 8.00 GB
vm-develop-16
OS: Ubuntu 16.04 (64-bit)
176.120.28.175
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 8.00 GB
vm-102
OS: CoreOS
176.120.29.78
CPU 1x1000 MHz
RAM 523.00 MB
DISKS 5.00 GB
vm-381
OS: Ubuntu 14.04 (32-bit)
176.120.29.170
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 22.00 GB
vm-develop-151
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.99
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 9.00 GB
vm-develop-168
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.125
CPU 3x2000 MHz
RAM 789.00 MB
DISKS 8.00 GB


cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
© 2018, Bitworks Software, Ltd.
Resource usage
Used
Free
Virtual machines
Number 1/777 (0%)
Computational resources
CPUs 1/40 (3%)
RAM 0.5/8.0 GB (6%)
Volumes
Volumes 5/777 (1%)
Snapshots 11/60 (18%)
Storage
Primary 53/200 GB (27%)
Secondary 52.095818/400 GB (13%)
Select zones
Select groups
Select states
Group by
Search
vm-user-155
OS: CoreOS
176.120.29.115
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 5.00 GB


cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
Resource usage
Select accounts
Select zones
Select groups
Select states
Group by
Search
Pending operations
VM stopped
VM started
VM started
VM stopped
CLEAR COMPLETED
vm-user-1
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.138
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 8.00 GB
vm-user-2
OS: Ubuntu 16.04 (64-bit)
176.120.28.175
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 8.00 GB
vm-user-102
OS: CoreOS
176.120.29.78
CPU 1x1000 MHz
RAM 523.00 MB
DISKS 5.00 GB
vm-381
OS: Ubuntu 14.04 (32-bit)
176.120.29.170
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 22.00 GB
vm-develop-151
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.99
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 9.00 GB
vm-develop-168
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.125
CPU 3x2000 MHz
RAM 789.00 MB
DISKS 8.00 GB
vm-develop-170v
OS: Apple Mac OS X 10.6 (32-bit)
176.120.29.251
CPU 3x2000 MHz
RAM 789.00 MB
DISKS 8.00 GB
vm-user-10
OS: CoreOS
176.120.29.190
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 5.00 GB
vm-resource-12
OS: Debian GNU/Linux 8 (64-bit)
176.120.29.220
CPU 4x1200 MHz
RAM 2.00 GB
DISKS 100.00 GB


Templates
ISO
Select OS families
Select types
My
Select zones
Group by
Search
Pending operations
Template deleted
CLEAR COMPLETED
11111
http://cloud.centos...
template with agre...
Template1
OS: Apple Mac OS X 10.6 (32-bit)
OS: Apple Mac OS X 10.6 (64-bit)
OS: CentOS 5 (32-bit)
Template deleted


cloudstack
open source cloud computing
user
Accounts
Activity log
Settings
Logout
Security
Change password
New password
Repeat password
UPDATE
Session timeout (in minutes)
300
Save VM passwords by default
API configuration
API Key
Secret key
Connection URL
Documentation
VM preferences
Keyboard layout
Standard (US) keyboard
An error occurred while loading the data. Please refresh the page.
Refresh

2.2 Virtual Machines

Contents

- *Virtual Machines*
  - *Virtual Machines List*
    - *Filtering of Virtual Machines*
  - *Create a Virtual Machine*
    - *Possible Issues When Creating a Virtual Machine*
  - *VM Action Box*
  - *VM Details Sidebar*
    - *Virtual Machine Tab*
    - *Storage Tab*
      - *Volume Action Box*
      - *Snapshot Action Box*
    - *Network Tab*
    - *Tags Tab*
  - *Access a Virtual Machine*
    - *VNC console*
    - *SSH*
    - *HTTP*

Virtual Machines is the starting section. Here and in all other views we have implemented a "one-step" approach, and we also made it work without moving from view to view. So all actions on VMs can be managed from one screen view.

In this section you can perform actions over a VM that is create, start, stop, delete it. Besides, here you can configure the machine editing its service offering parameters, group, firewall rules. Finally, you can access a VM selecting the most appropriate way. We support three options for accessing a VM: via the console, SSH or HTTP.

Below you will find the detailed information on the aforementioned options for VM management via CloudStack-UI.

2.2.1 Virtual Machines List

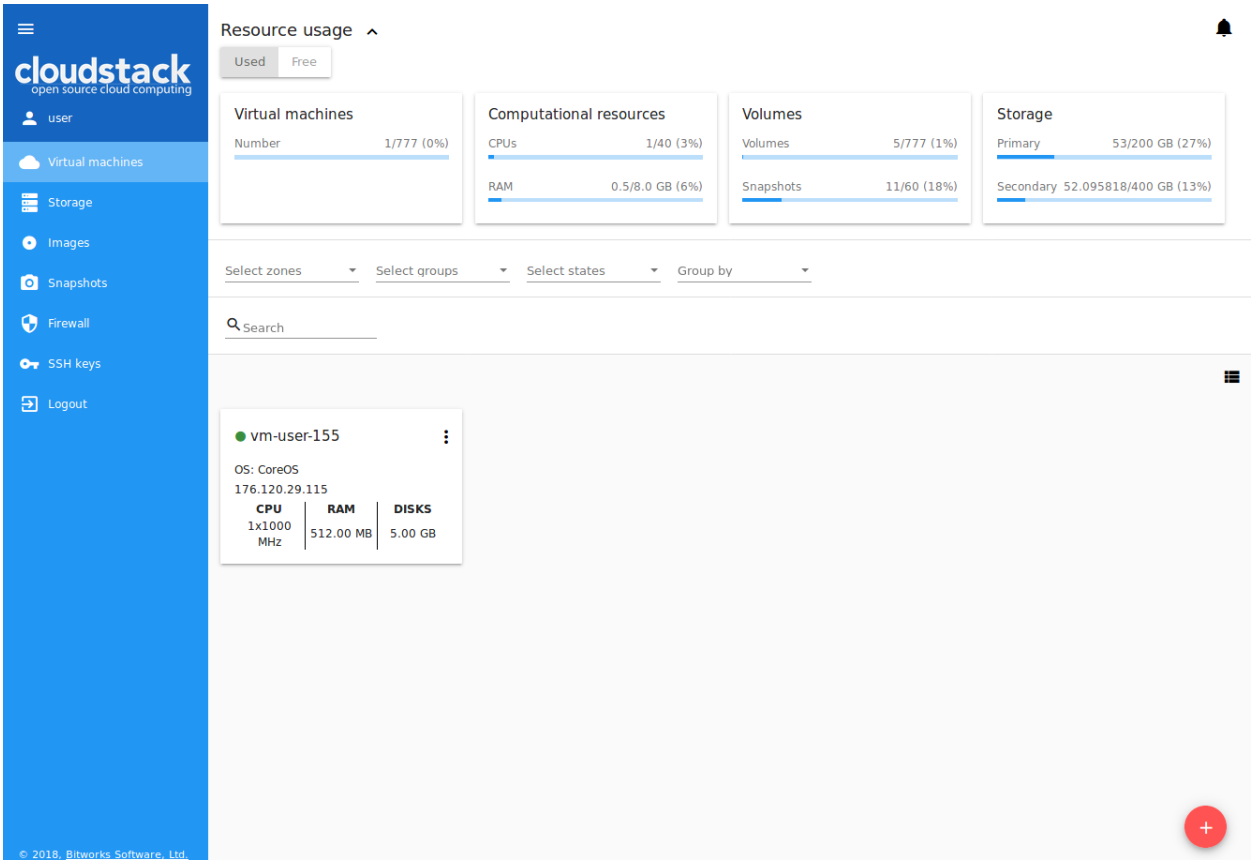
At this page, you can see the list of your virtual machines available to your user only.

If you are a Domain Administrator you can see the virtual machines of all users in the domain.

You can change the data representation of existing virtual machines from "card" to "list". We have added the switch / in the upper-right corner of each section. This improvement gives a user an opportunity to work with data in each specific section in a more convenient way.

A list view can be switched to a box view:

And vice versa, switch a list view to a box view:


cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
© 2018, Bitworks Software, Ltd.
Resource usage
Used
Free
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Computational resources
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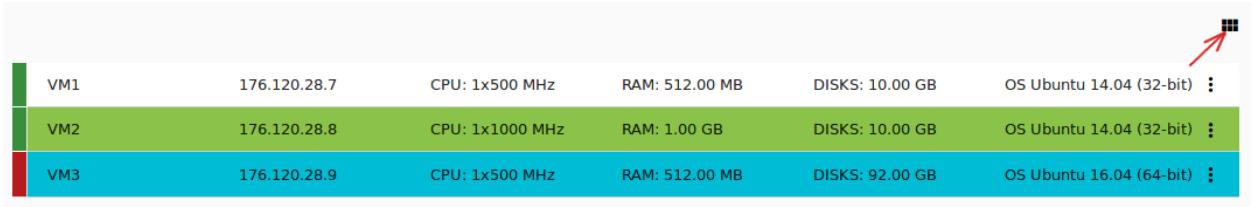
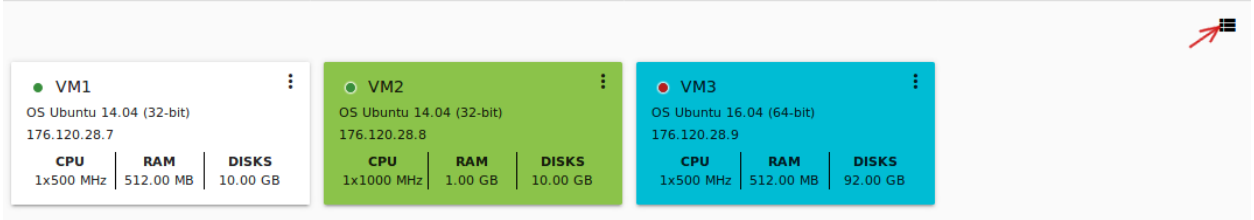
Select zones
Select groups
Select states
Group by
Search
vm-user-155
OS: CoreOS
176.120.29.115
CPU
1x1000 MHz
RAM
512.00 MB
DISKS
5.00 GB


VM1 176.120.28.7 CPU: 1x500 MHz RAM: 512.00 MB DISKS: 10.00 GB OS Ubuntu 14.04 (32-bit)
VM2 176.120.28.8 CPU: 1x1000 MHz RAM: 1.00 GB DISKS: 10.00 GB OS Ubuntu 14.04 (32-bit)
VM3 176.120.28.9 CPU: 1x500 MHz RAM: 512.00 MB DISKS: 92.00 GB OS Ubuntu 16.04 (64-bit)


VM1
OS Ubuntu 14.04 (32-bit)
176.120.28.7
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
VM2
OS Ubuntu 14.04 (32-bit)
176.120.28.8
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 10.00 GB
VM3
OS Ubuntu 16.04 (64-bit)
176.120.28.9
CPU 1x500 MHz
RAM 512.00 MB
DISKS 92.00 GB

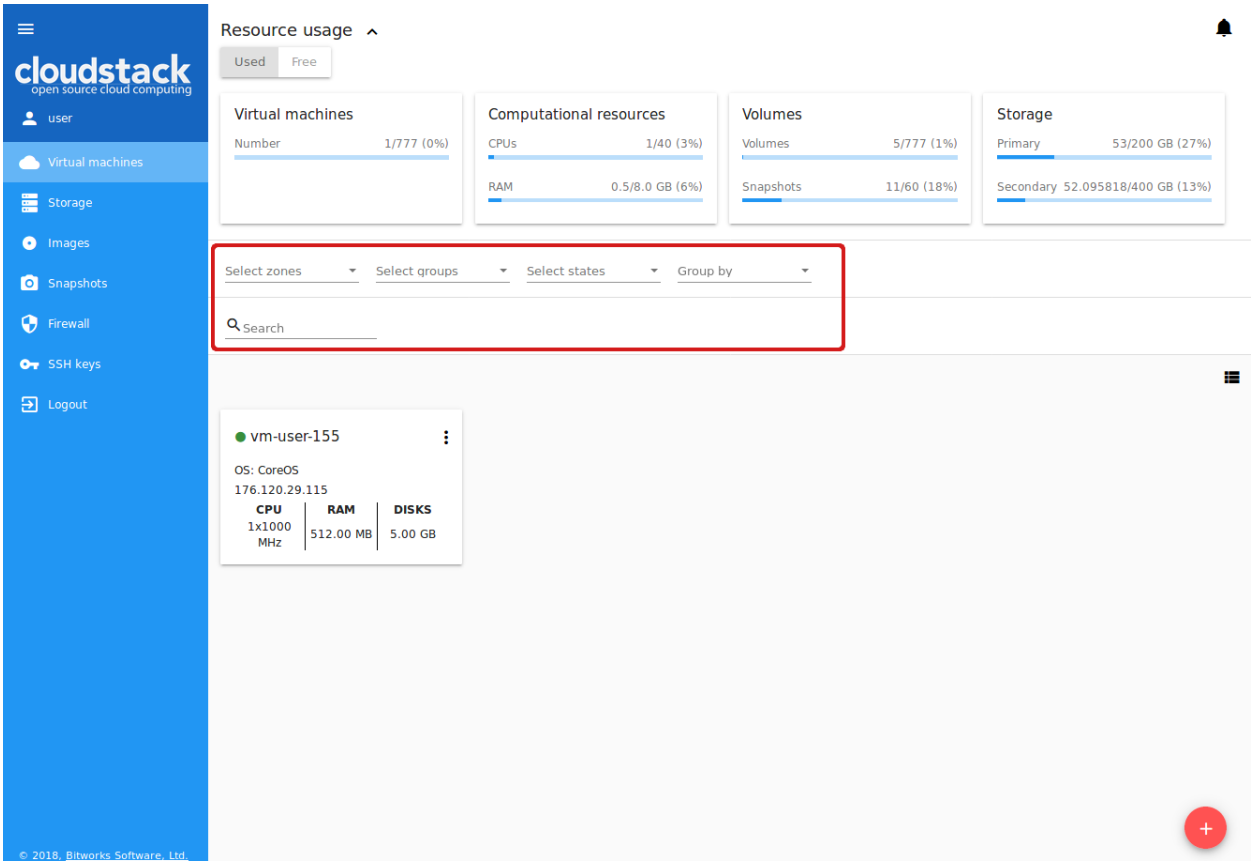
For each VM in the list you can see the following information:

- VM name and IP;
- State - shows the VM state by color spot: green for Running, red for Stopped, yellow for changing status;
- OS family;
- CPU;
- RAM;
- Disks.

To the right the Actions button ⋮ expands the list of actions available for the VM.

Filtering of Virtual Machines

The filtering and search tool will help you to find a virtual machine in the list.

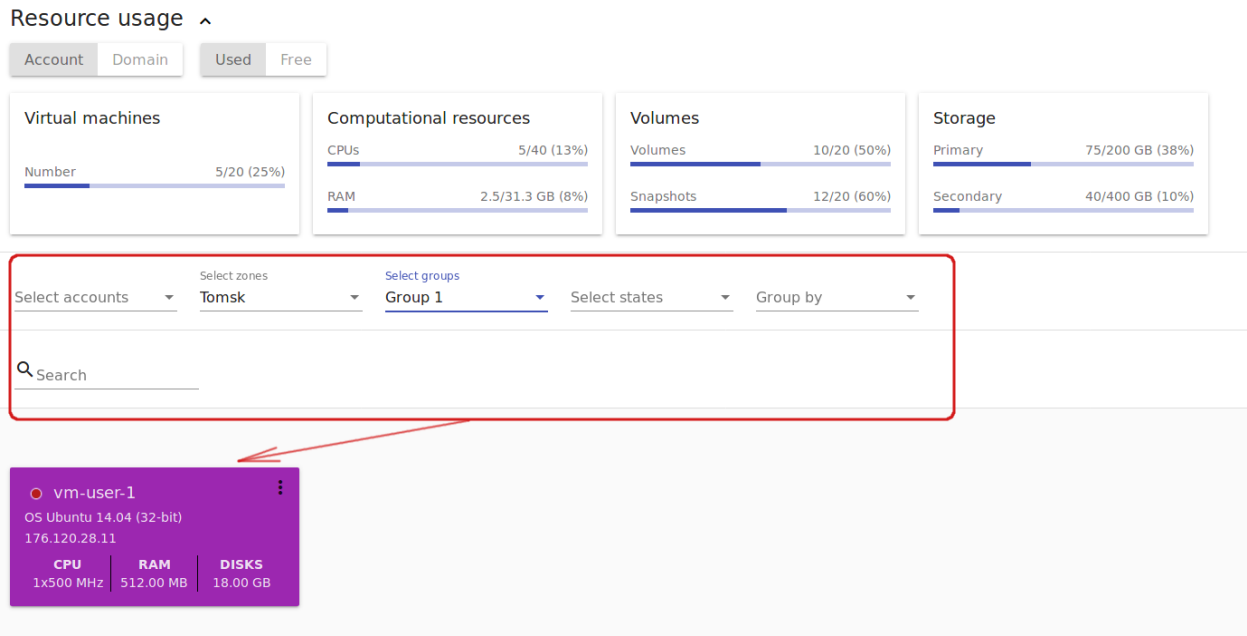


You can filter the VM list by accounts (available for Domain Administrators) and/or zones and/or groups and/or states. In the drop-down lists tick the filtering parameters and see the immediate result.

Besides, VMs can be grouped by zones and/or groups and/or colors and/or accounts. Grouping makes it easier to identify necessary VMs on the list.

Use the search tool to find a virtual machine by its name or a part of the name.

Under the *Virtual Machines* section, you can open a form to create a new virtual machine.

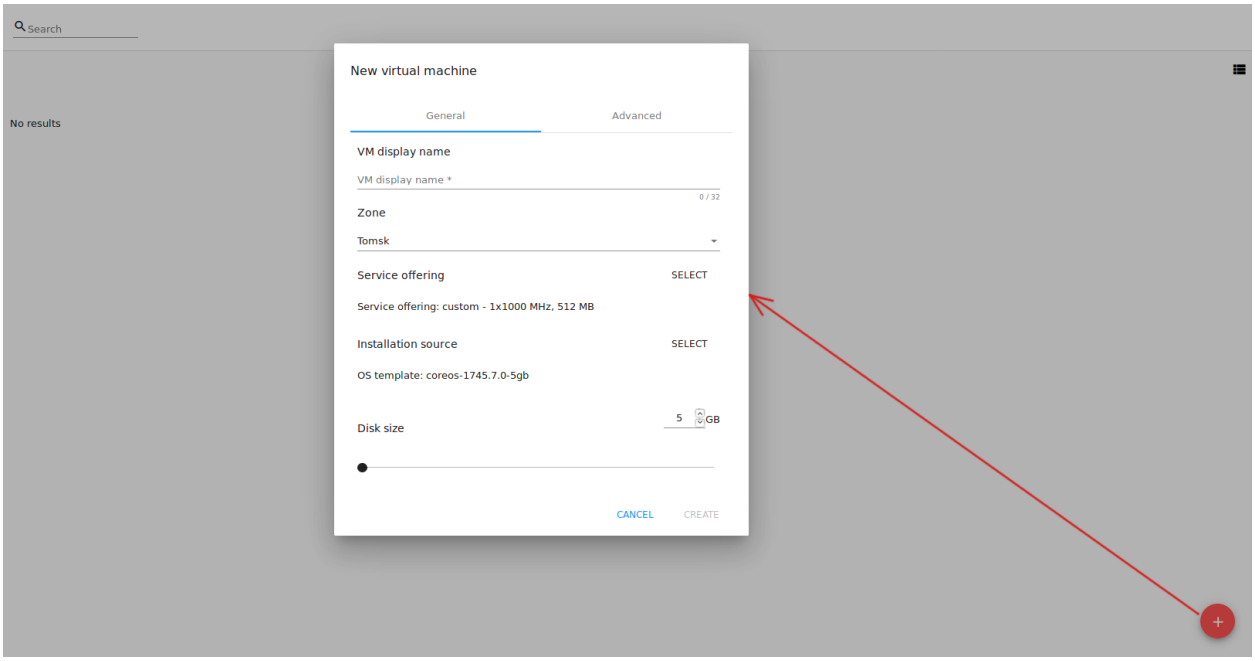


2.2.2 Create a Virtual Machine

Creating a new VM in CloudStack-UI is a one-step action. You can select options from one screen without additional steps.

Please, note that a virtual machine is created with a root disk so you do not need to add any volume at the VM creation step. If necessary, you can add a data disk to the VM later.

To create a new VM click the “Create” button at the bottom-right corner.



The *New virtual machine* form contains two tabs: *General* and *Advanced*.

In the *General* tab the following fields should be filled in:

Note: Required fields are marked with an asterisk (*).

1. **VM display name** * - A name of VM that will be displayed in the machine list and in any other interface place (except VM details). You can define here any VM name you wish.
2. **Zone** * - A zone of VM operation. Select a zone from the drop-down list. The list of available zones is managed by a Root Administrator. More information about zones in CloudStack can be found in the official documentation.
3. **Service offerings** * - Select a set of options and resources for a VM, such as templates for creating virtual machines, disk storage, and other. In the block you can see a default service offering specified in the configuration file

Click "SELECT" in the Service Offerings block and choose any other option you wish in the modal window.

The list of available service offerings is managed by an Administrator. Service offering availability is determined by zone in the configuration file. The list of service offerings can be of two types: Fixed and Custom.

Fixed service offerings are the offerings with fixed parameters. They can not be changed.

Custom service offerings are offerings with adjustable parameters. You can set the amount of CPU cores, CPU memory and Network rate as you need.

Use the switcher "Fixed/Custom" above the list to select a necessary type of offerings.

If service offering classes are determined in the configuration file (see the configuration guide), the list of service offerings is displayed as a list grouped by the determined classes. You can filter the list by classes using the filtering tool above the list. Classes provide additional semantics defining the purpose of VM.

You also can use the search tool to find an option in the list by a name or a part of the name.

Fixed Service Offerings

For fixed service offerings the parameters are provided in the table per each option. Four main parameters are provided by default. They are:

- CPU Cores;
- CPU (MHz);
- Memory (MB);
- Network Rate (Mb/s).

Click "SHOW DETAILS" to the right to expand the range of parameters. Scroll the table to right and you will see:

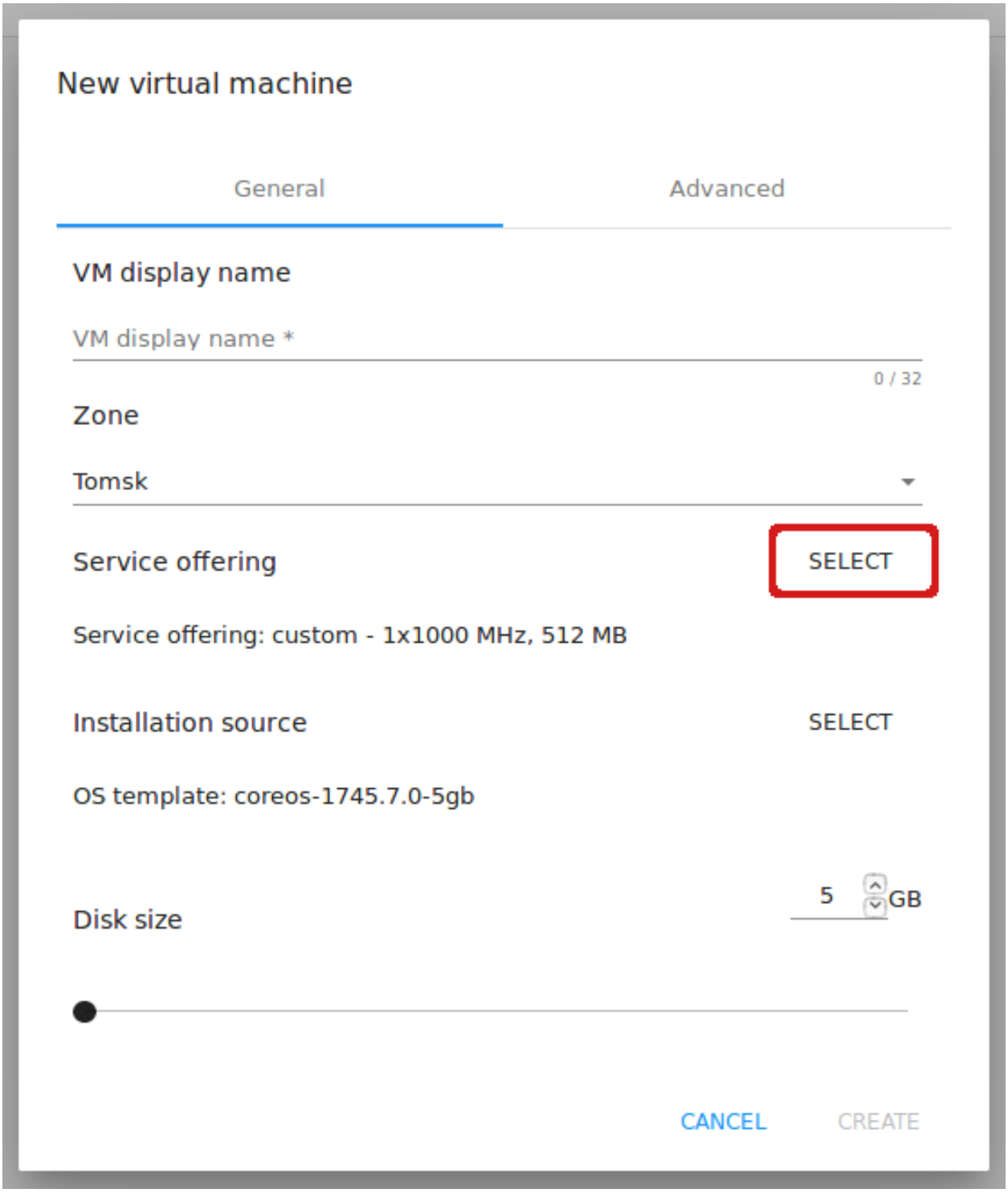
- Disk read rate (Mb/s);
- Disk write rate (Mb/s);
- Disk read rate (IO/s);
- Disk write rate (IO/s).

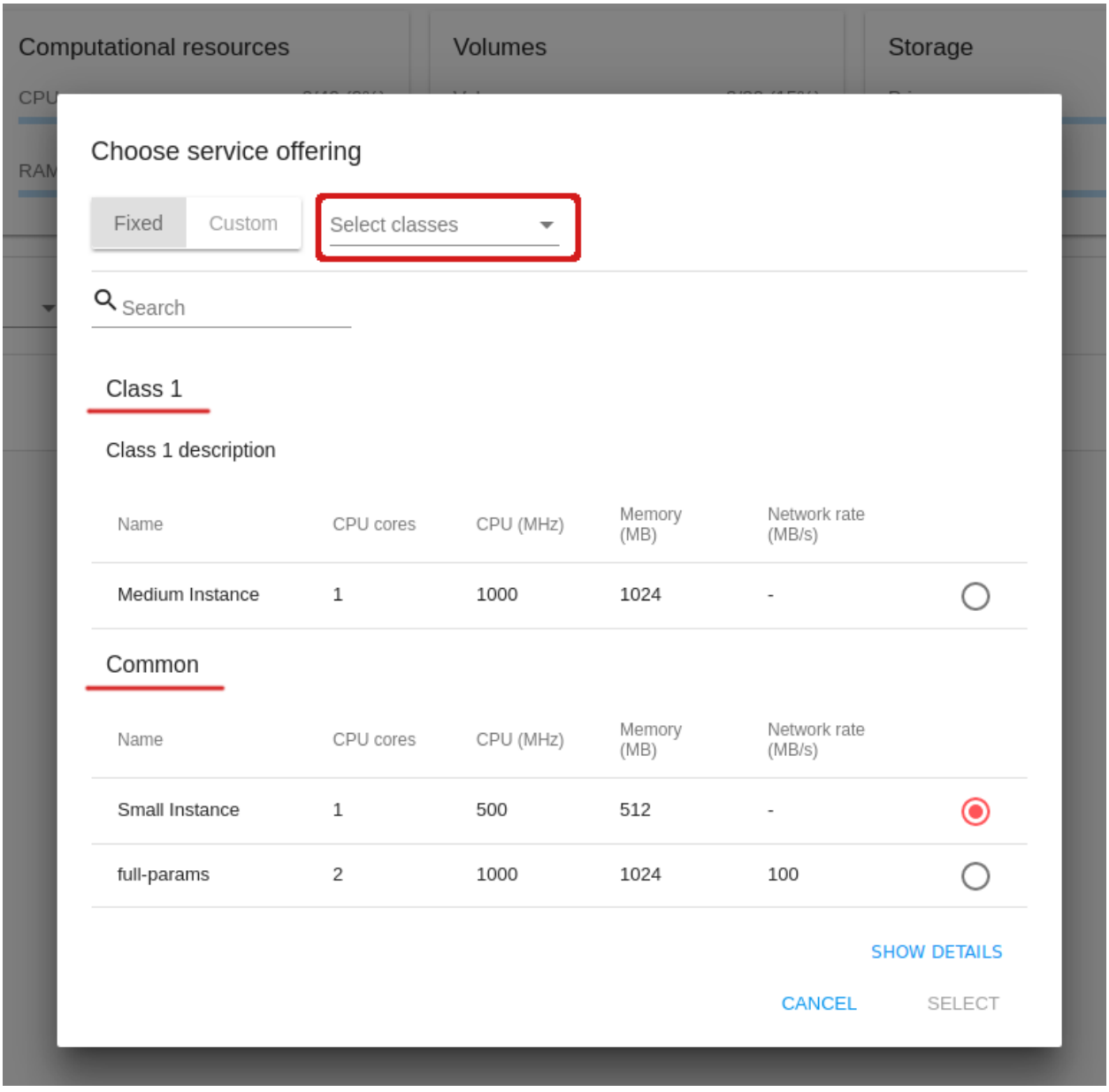
You can hide the additional parameters by clicking "HIDE DETAILS".

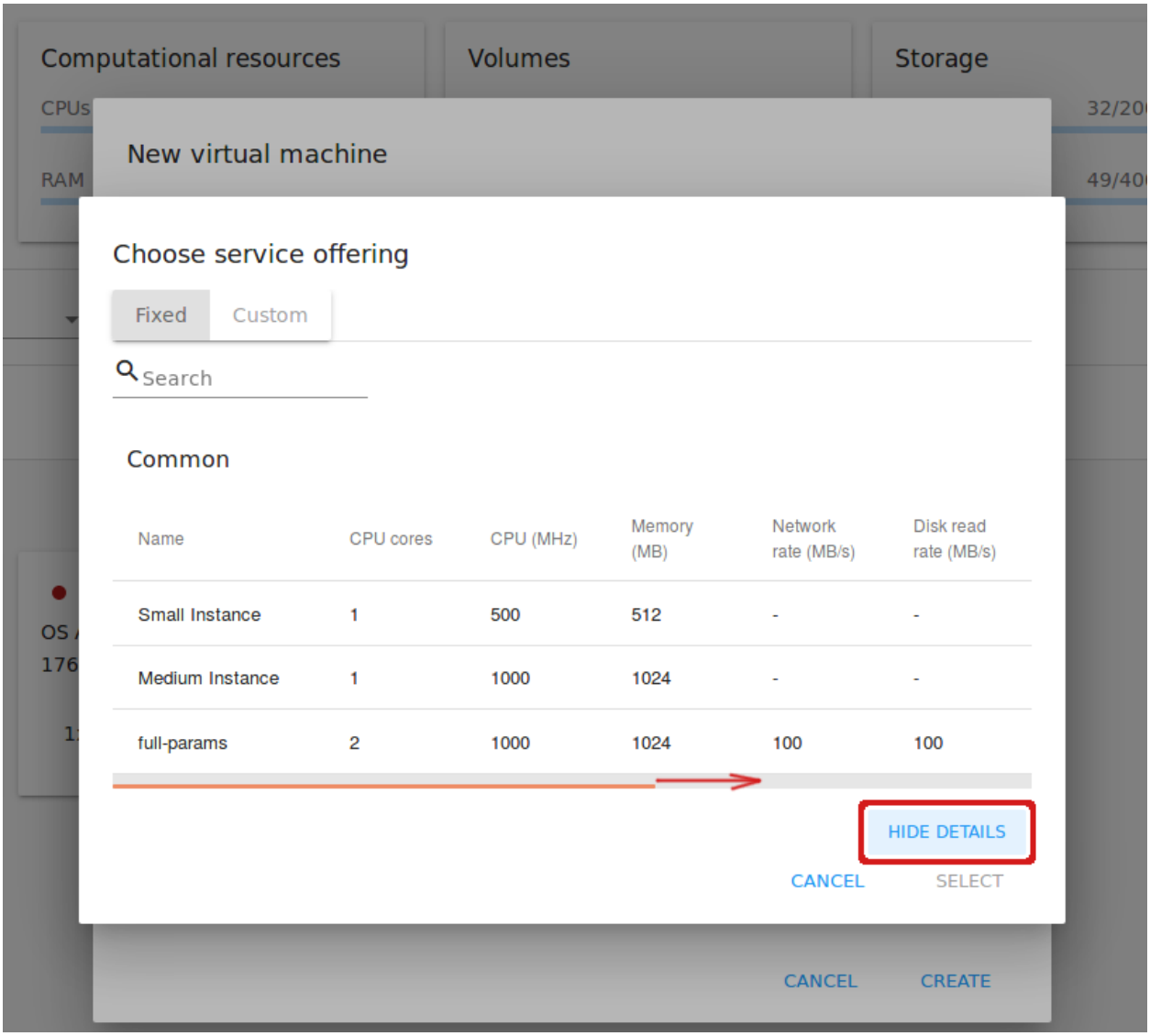
Choose the option in the list and click "SELECT" below.

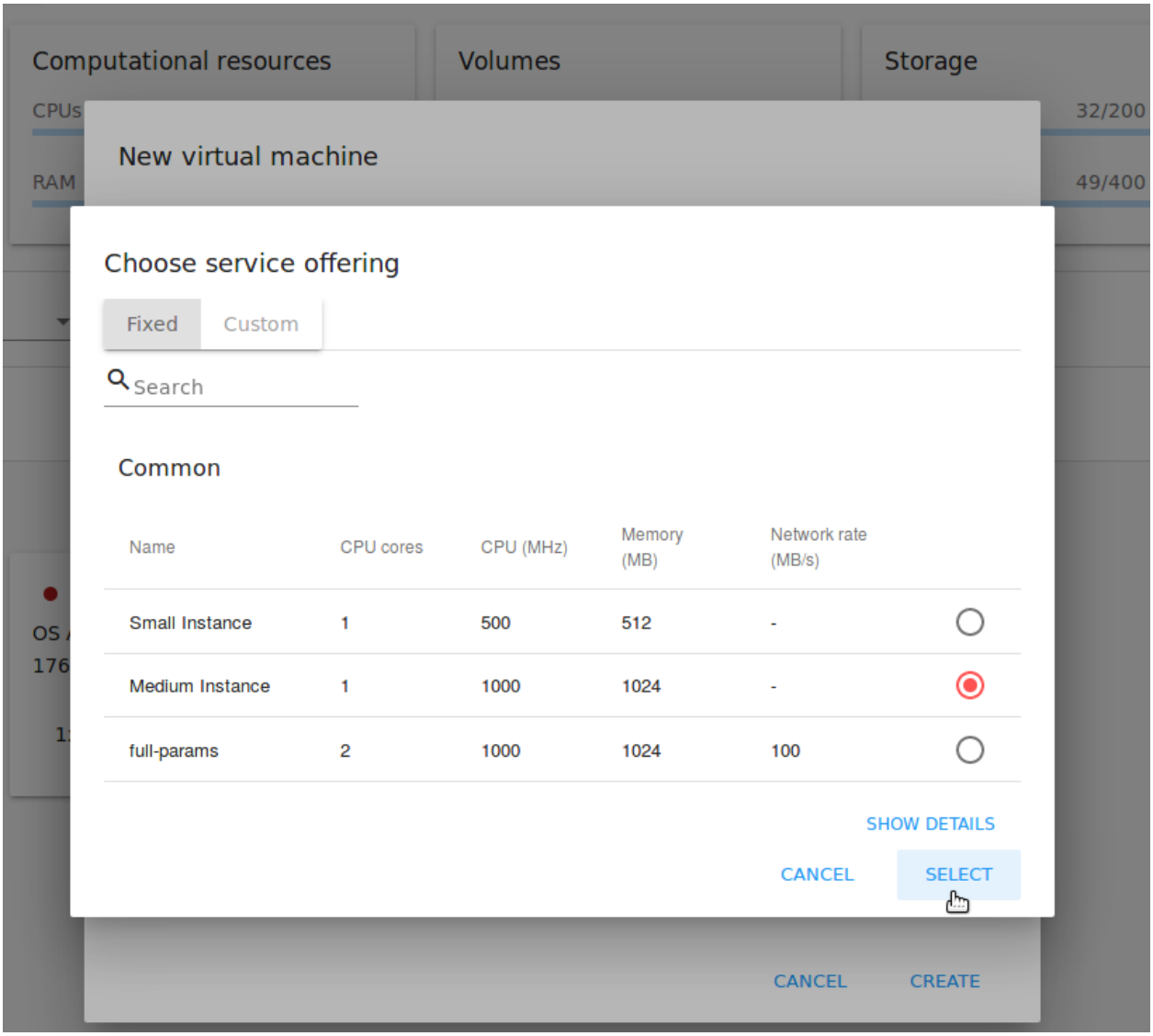
The settings will appear for the VM service offerings.

Custom Service Offerings


New virtual machine
General
Advanced
VM display name
VM display name *
0 / 32
Zone
Tomsk
Service offering
SELECT
Service offering: custom - 1x1000 MHz, 512 MB
Installation source
SELECT
OS template: coreos-1745.7.0-5gb
Disk size
5
GB
CANCEL
CREATE


Computational resources
Volumes
Storage
CPU
RAM
Choose service offering
Fixed
Custom
Select classes
Search
Class 1
Class 1 description
Name
CPU cores
CPU (MHz)
Memory (MB)
Network rate (MB/s)
Medium Instance
1
1000
1024
-
Common
Name
CPU cores
CPU (MHz)
Memory (MB)
Network rate (MB/s)
Small Instance
1
500
512
-
full-params
2
1000
1024
100
SHOW DETAILS
CANCEL
SELECT


Computational resources
Volumes
Storage
CPUs
32/20
RAM
49/40
New virtual machine
Choose service offering
Fixed
Custom
Search
Common
Name
CPU cores
CPU (MHz)
Memory (MB)
Network rate (MB/s)
Disk read rate (MB/s)
Small Instance
1
500
512
-
-
Medium Instance
1
1000
1024
-
-
full-params
2
1000
1024
100
100
HIDE DETAILS
CANCEL
SELECT
CANCEL
CREATE


Computational resources
Volumes
Storage
CPUs
32/200
RAM
49/400
New virtual machine
Choose service offering
Fixed
Custom
Search
Common
Name
CPU cores
CPU (MHz)
Memory (MB)
Network rate (MB/s)
Small Instance 1 500 512 -
Medium Instance 1 1000 1024 -
full-params 2 1000 1024 100
SHOW DETAILS
CANCEL
SELECT
CANCEL
CREATE

For custom service offerings the parameters are also provided in the table per each option. Besides, you can see more parameters by clicking “SHOW DETAILS”.

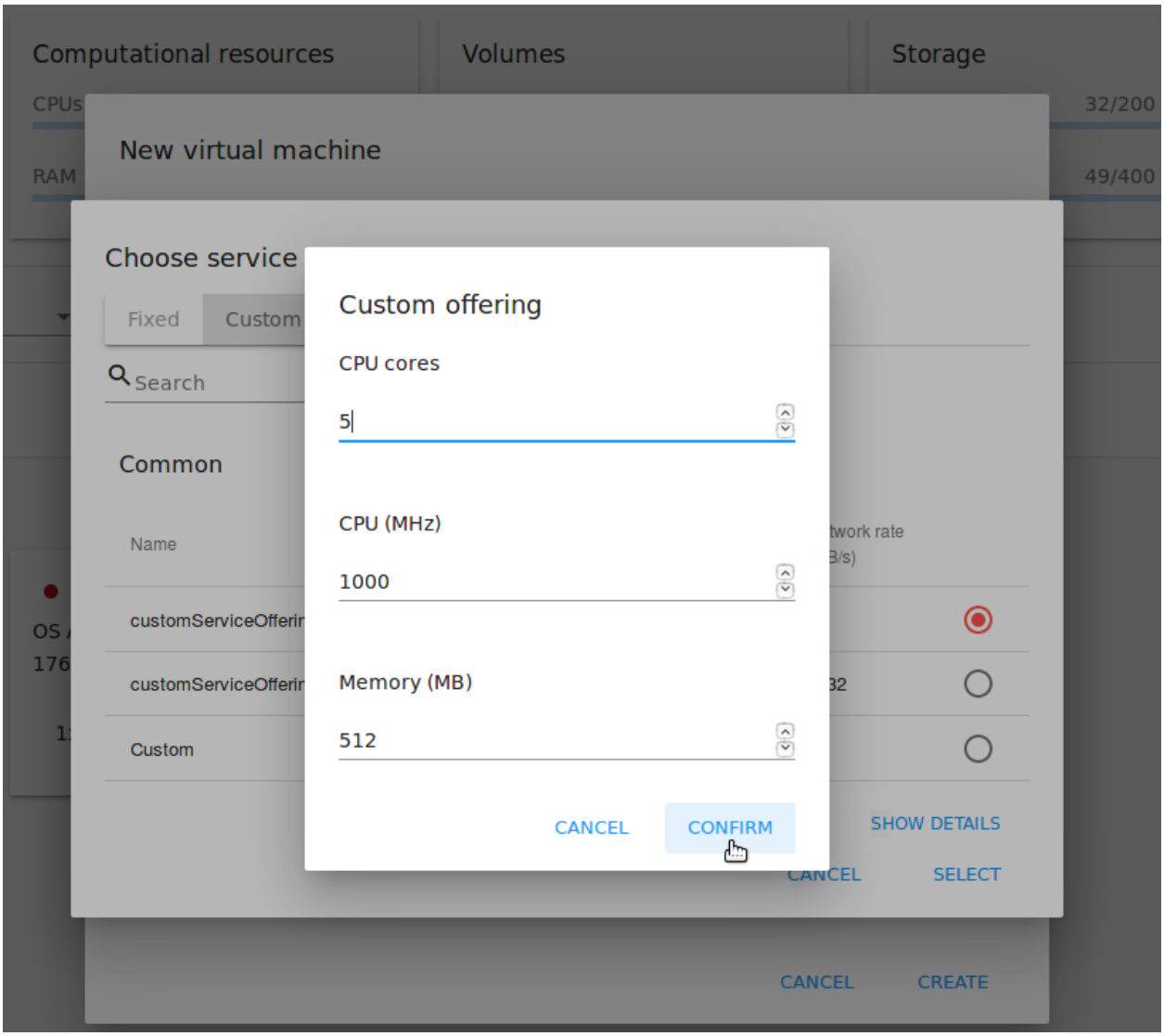
By selecting an option in the list, you open a modal window where you can set values for the following parameters:

- CPU Cores;
- CPU (MHz);
- Memory (MB).

These parameters can be predefined in the configuration file by an Administrator. The values specified there will be used as default parameters for a custom service offering.

Administrators can set limits for custom service offering parameters in the configuration file. That means you cannot set values larger than the limits specified for custom service offerings.

Besides, the system checks the available account resources. And if you try to enter a value larger than the available amount of resources, the system will automatically change it to the maximum available value.



Click “CONFIRM” to set the custom service offering parameters. The modal window will close and the set values will appear in the list for the selected custom service offerings option. Click “CANCEL” to drop all the settings.

Click “SELECT” below the list to assign a selected service offering to your machine. The custom settings will appear for the VM service offerings. Custom service offering parameters are saved to account tags (see the list of tags) if they are supported for the account. This will make it easier for you to use saved custom parameters for service offerings next time at VM creation as they will be predefined in the form automatically.

Note: The system checks the amount of available account resources. In case a selected service offering does not fit the amount of available account resources, a warning message will appear saying the offering cannot be selected.

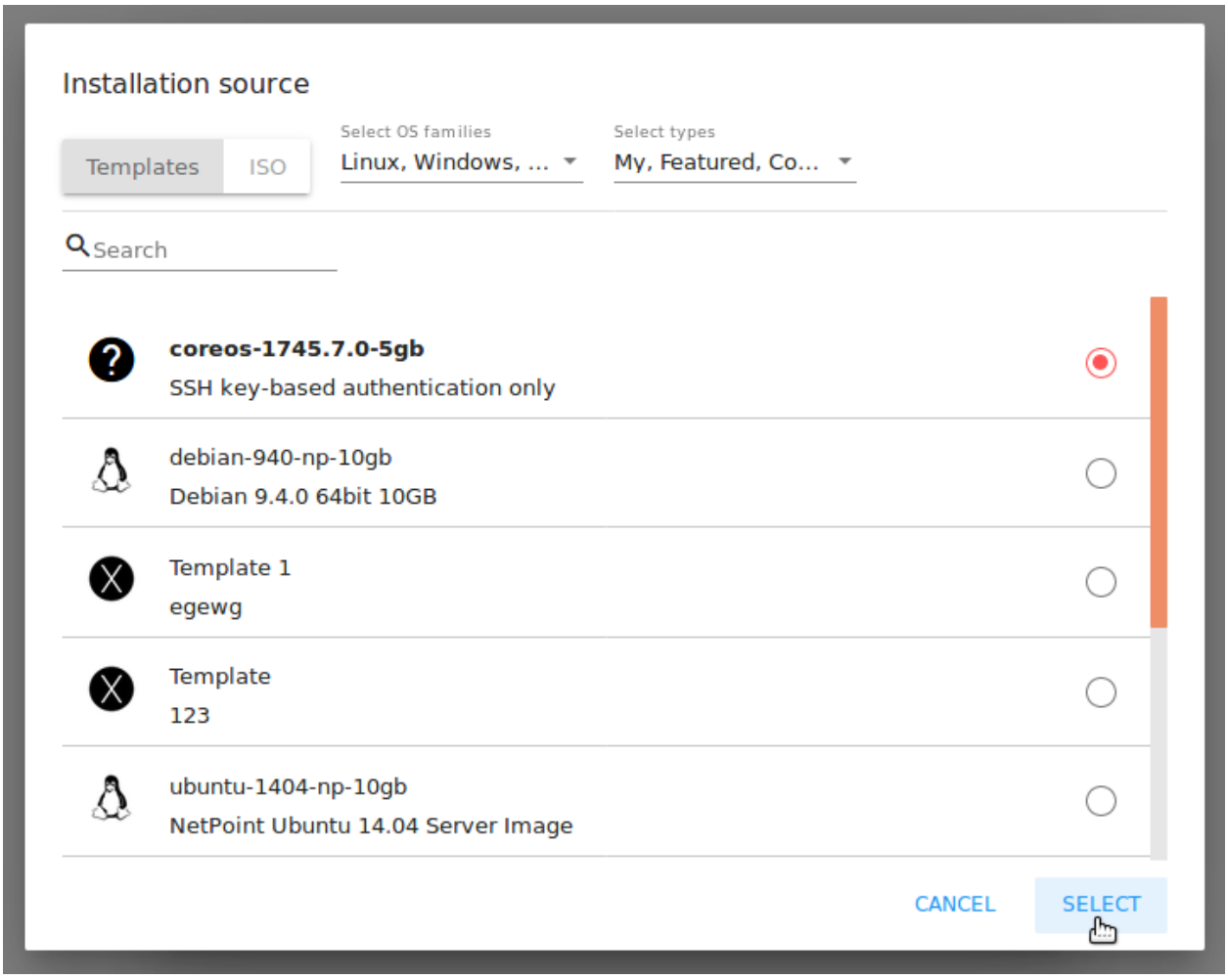
---

4. **Installation source** * - Select an installation source - a Template or an ISO file - that will be used to create the machine from. In the block you can see the installation source selected by default. Click “Select” to choose an installation source you wish. In a modal window you will see a list of templates/ISOs with the “Ready” status available for the selected zone as well as for user’s account or the whole domain.

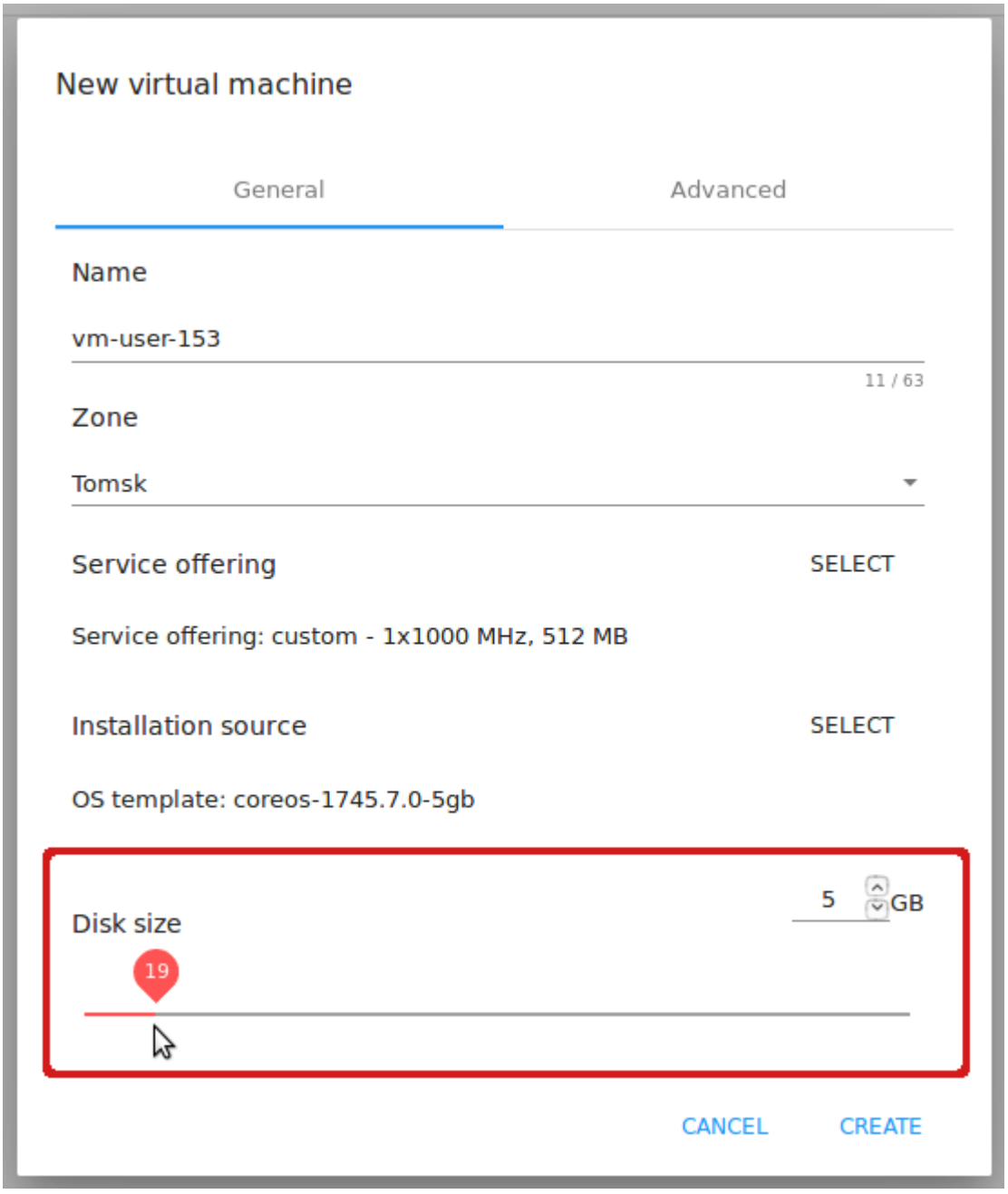
   The filtering tool allows finding a necessary option by selecting among templates/ISOs by OS families, types and groups, or search the source by a name or a part of its name.

   Tick the source in the list and click “SELECT” to implement the selected source.

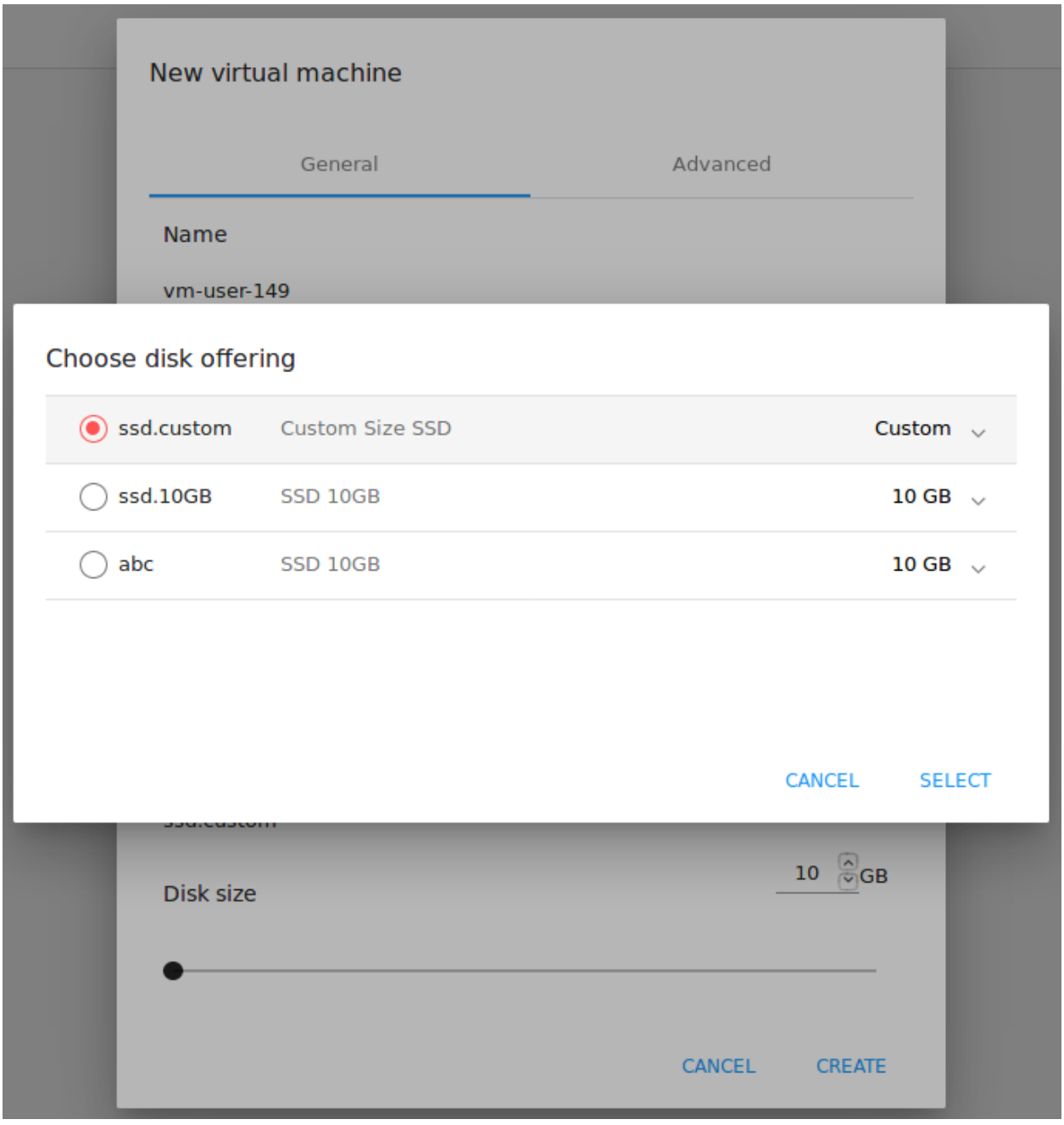
   Click “CANCEL” to drop selected options. No source will be selected then.



The Disk size slider below the **Installation source** block allows changing the size of a root-disk of the VM. The default minimum size is determined by the account limits and shown in the number field. Move the slider or enter a number value in the field to set the root-disk size.


New virtual machine
General
Advanced
Name
vm-user-153
11 / 63
Zone
Tomsk
Service offering
SELECT
Service offering: custom - 1x1000 MHz, 512 MB
Installation source
SELECT
OS template: coreos-1745.7.0-5gb
Disk size
5
GB
19
CANCEL
CREATE

5. **Disk offering** - Available if ISO is selected as a source. Here you can see a disk offering preselected for the machine. To choose another disk offering open a modal window by clicking "SELECT" in the disk offering section and choose a disk offering in the list of available disk offerings. The list of available options is managed by an Administrator. Disk offering availability is determined by the zone defined in the configuration file.



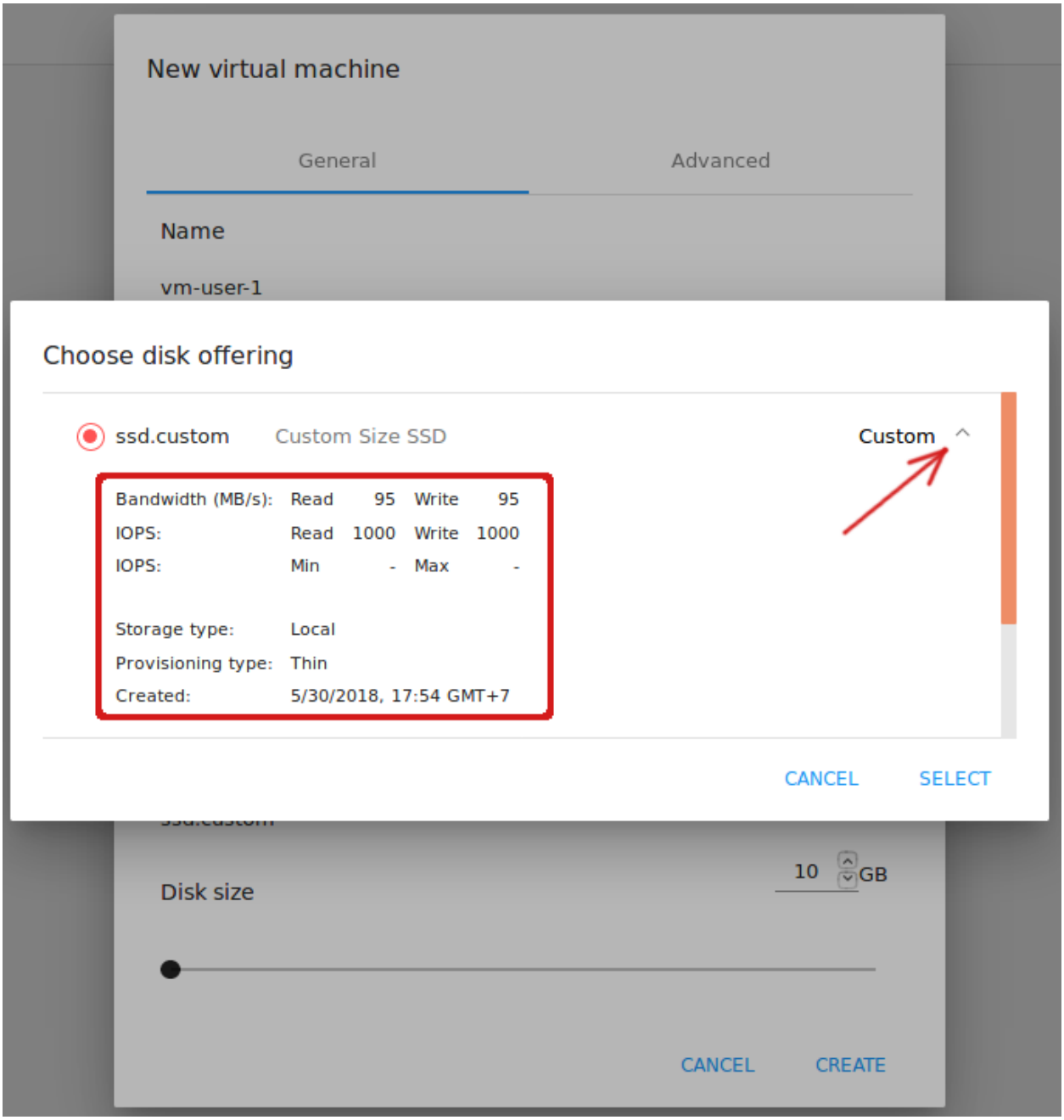
For each disk offering you can expand detailed information by clicking the arrow icon or the whole line in the list. In the appeared section you will see a range of parameters. The following parameters are shown by default:

- Bandwidth (MB/s): Read/Write rates;
- IOPS: Read/Write rates and Min/Max values;
- Storage type;

- Provisioning type;
- Creation date.

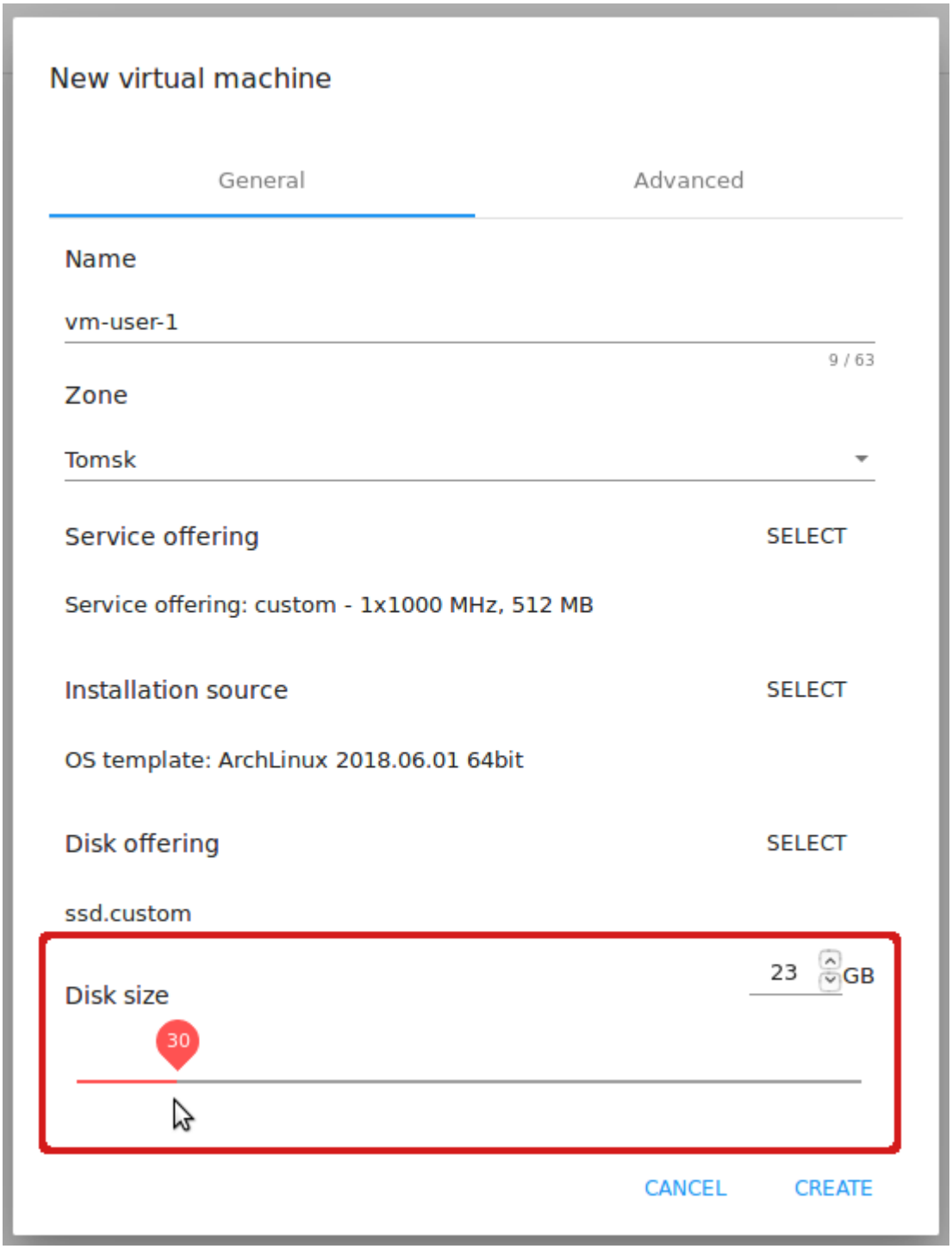
Use the scrolling tool to view them all.

More parameters can be added via the configuration file by an Administrator. Select a disk offering in the list and click "SELECT".



If the selected disk offering has a custom disk size (it is set by Administrator), you can change the disk size. Move the slider up to the volume size you wish.

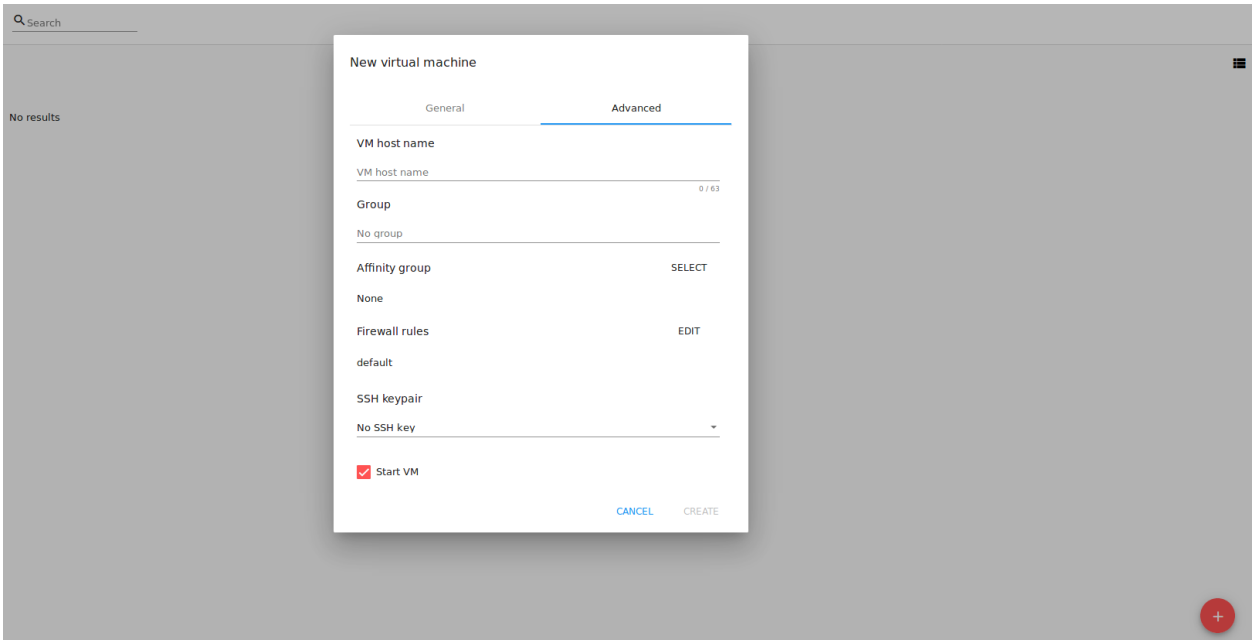
Note: If you do not have enough account resources, you will not be able to select the disk that does not fit the available


New virtual machine
General
Advanced
Name
vm-user-1
9 / 63
Zone
Tomsk
Service offering
SELECT
Service offering: custom - 1x1000 MHz, 512 MB
Installation source
SELECT
OS template: ArchLinux 2018.06.01 64bit
Disk offering
SELECT
ssd.custom
Disk size
23
GB
30
CANCEL
CREATE

amount of resources - an error will display.

Find more about disk offerings in the official documentation.

In the *Advanced* tab you will find the following fields:



1. **VM host name** - This is a hostname for the machine. It will be shown only in the Virtual Machine tab of the VM details sidebar. The field is optional. You can enter any name you wish but it should start with a Latin letter, contain figures, Latin letters and '-' (up to 63 symbols) and be unique within the domain. If the field is left empty, the system auto-generates a name in the following form: `vm-<UID>`.
2. **Group** - Select a group from the drop-down list. Or create a new group by typing its name right in the field. The group will be saved to the machine tags.
3. **Affinity group** - Select an affinity group in the list or create a new group filling in the form. By clicking "SELECT" in the block you open a form with the list of existing groups and a creation block above the list.

   Create an Affinity group. To create a new affinity group you should fill in the form at the top of the dialog box:

   - Name * - Enter a name for the group. The name should contain letters, figures, start with a letter and should not contain spaces. Maximum length is 63 symbols.
   - Type * - Select type of the group - "anti-affinity" or "affinity".
   - Description - Provide a short description. Maximum length is 63 symbols.

   Click "+" to add the new group with the specified settings to the list.

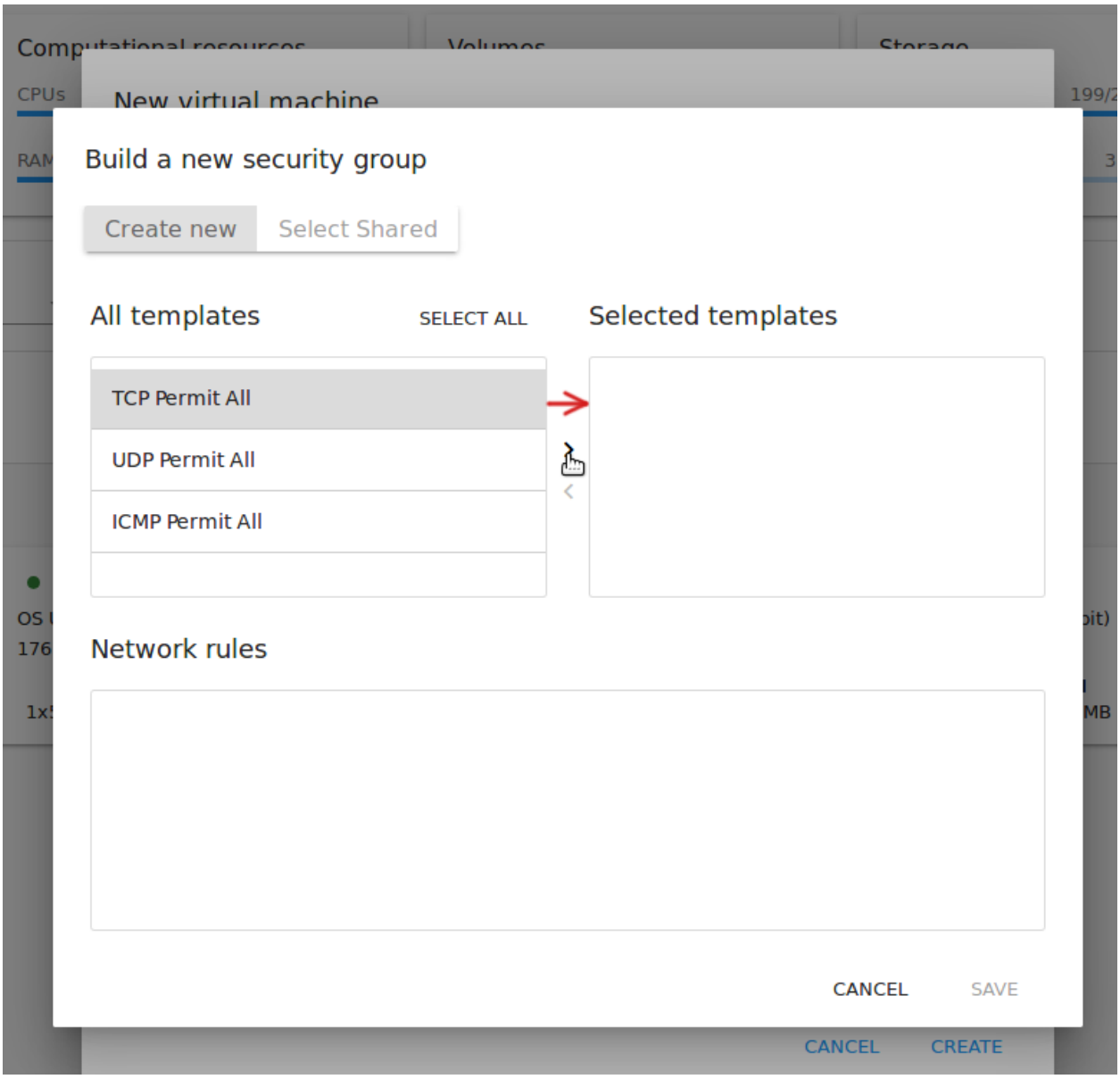
   Select a group. Click on a group in the list and press "SELECT".

   What an affinity group is you can read in the official documentation.
4. **Firewall rules** - Select a security group for the machine. Click "EDIT" to specify a security group for the VM. A default security group, defined in the configuration file, is shown in this field. To change it click "EDIT". In the appeared window choose between "Create new" or "Select Shared" options.

Create a new security group

A new security group can be created on the base of templates. This security group will be created as a *private* group used for this VM only.

When creating a new security group, you can see the templates in the "All templates" section of the modal window. To form your custom security group, select a template in the "All templates" list at the left and move it to the "Selected templates" list at the right by clicking the arrow icon:



Click "SELECT ALL" to move all templates from left to right at once.

Click "RESET" to drop all selected templates.

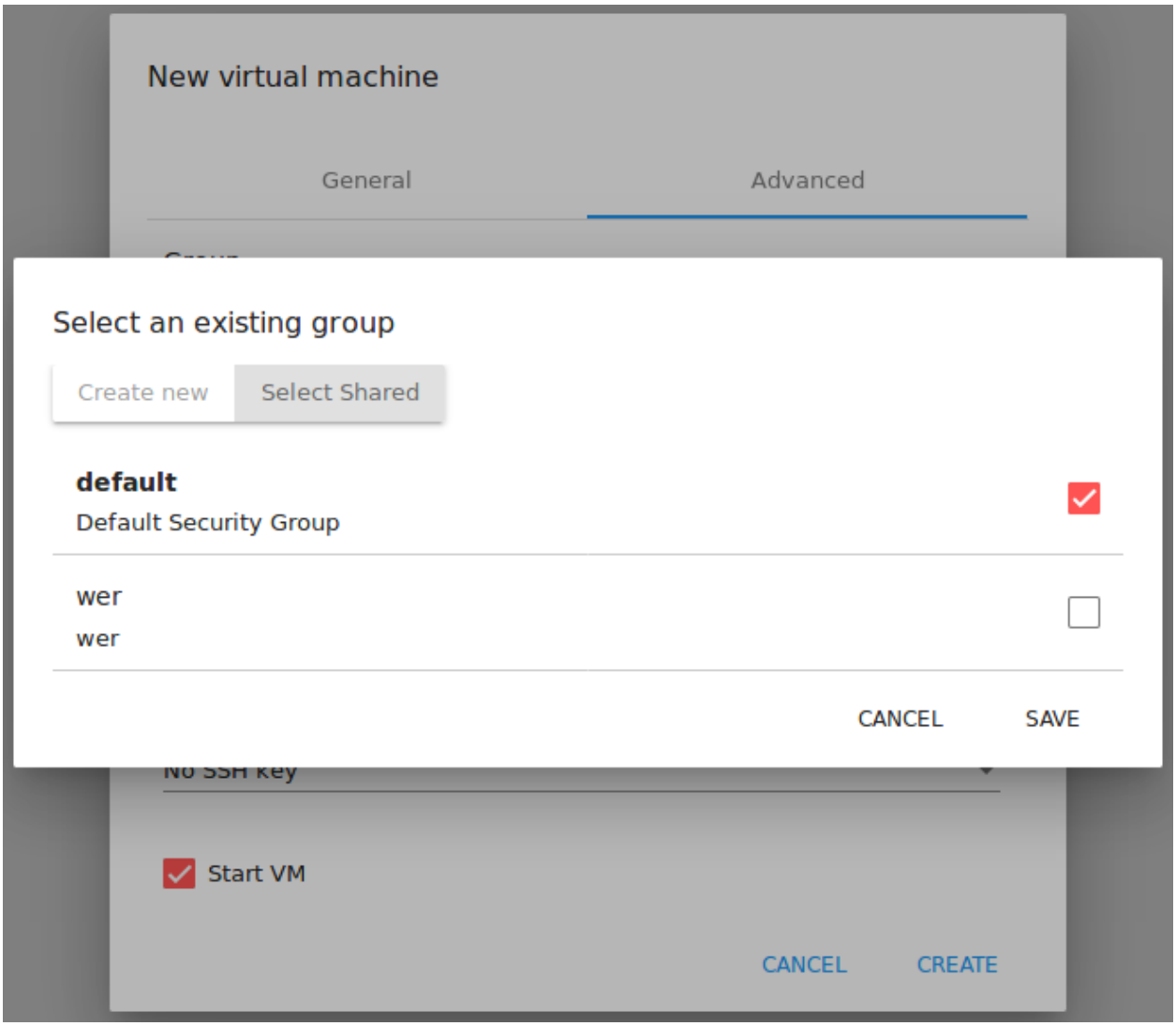
In the list below you will see the rules corresponding to the selected templates. All of them are checked as selected. Uncheck those you do not wish to add to your VM as firewall rules.

Click "SAVE" to apply the selected rules to your virtual machine.

Click "CANCEL" to drop the selected options. No rules will be assigned to the virtual machine. You will return to the "Create new virtual machine" window.

Select Shared security group

If you would like to select an existing group of firewall rules, you can click the "Select Shared" option and tick those groups in the list that you want to assign to your VM. The security groups in the *Shared* list are used by other VMs in the domain. That means you won't be able to uncheck some rules in the group that you do not want to include into the list (like at creating VM from a template). You can assign only the whole shared security group to your VM.



You can edit a shared security group after the VM is created. In the *Network* tab of the VM details sidebar the assigned shared security group(s) can be viewed and edited. Please, find more information on security group editing in the *Network Tab* section.

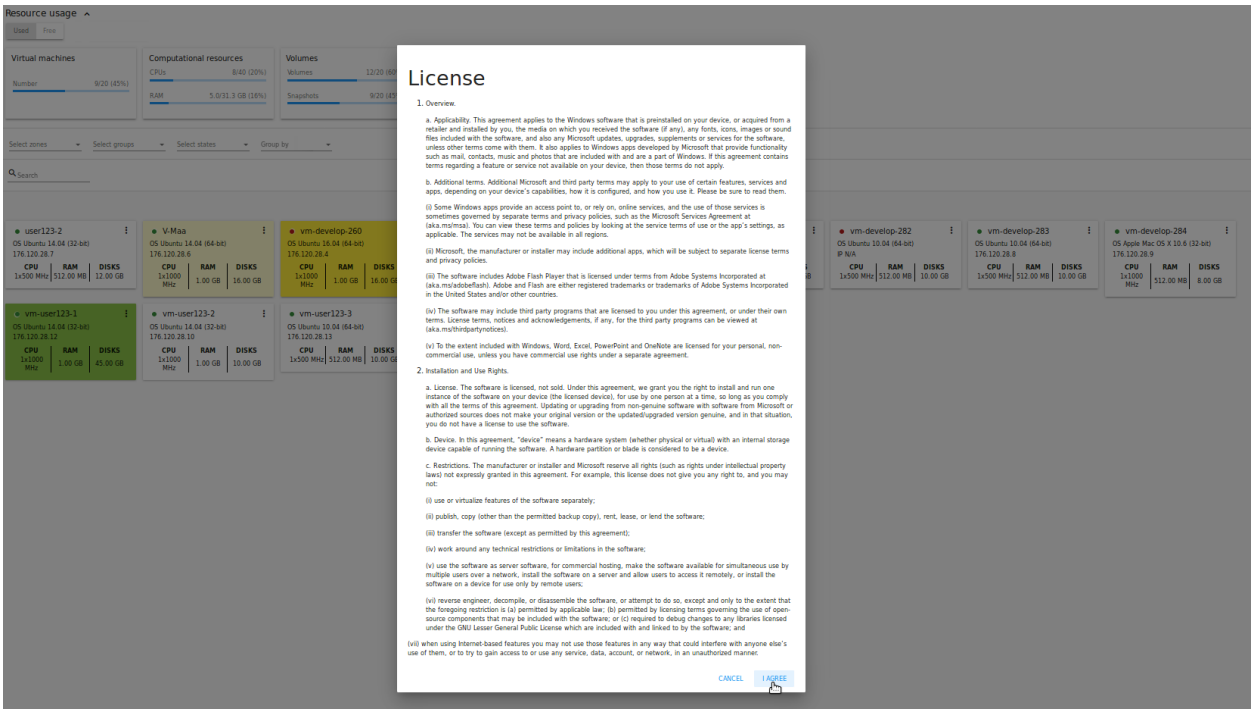
Click "Cancel" to drop the selected options. No rules will be assigned to the virtual machine.

5. **SSH keypair** - Select an SSH keypair. The list of keys contains the SSH keys available for the account under which the VM is being created. Find more information on SSH keys in the *SSH Keys* section.
6. **Start VM** - Tick the box to start the VM right after its deployment. If this option is activated, the VM acquires an IP and a password (if required by the template). If it is not, the machine IP is not available till VM is started, no password is assigned to it.

Once all fields are filled in, click "Create".

For some templates/ISOs used at VM creation you are offered to accept a “Template/ISO Terms and Conditions Agreement”. An administrator is able to specify an agreement for a template or ISO. An agreement may determine, for example, software licensing terms or restrictions on the liability of the software template vendor. A user must confirm it to continue VM installation from a chosen source.

If you are creating a virtual machine on the base of a template/ISO that requires an agreement, read the terms in the appeared window and click “I AGREE” to continue.



Click “CANCEL” to close the terms and move back to the creation form. Change the installation source.

After clicking “CREATE”, a dialog window will appear where you can monitor the VM creation process: security group creation, virtual machine deployment, template tags copying, etc. These procedures are fulfilled one by one. A procedure in progress is marked with a spinner in the message. In case of an error occurring at any VM creation step, a user can understand at what step it has happened.

Once the VM creation process finishes, the success message will inform you of that.

The message will show the list of all creation steps and the virtual machine information:

- VM name and IP (if it is available),
- VM Password - This field appears after the VM creation if a password is enabled for the template used for creating this machine. A password is autogenerated. Click “SAVE” next to it in the dialog window if you want to save it for this VM. The password will be saved to the VM tags. You can see the saved password later by clicking “Access VM” in the Actions box for this machine.

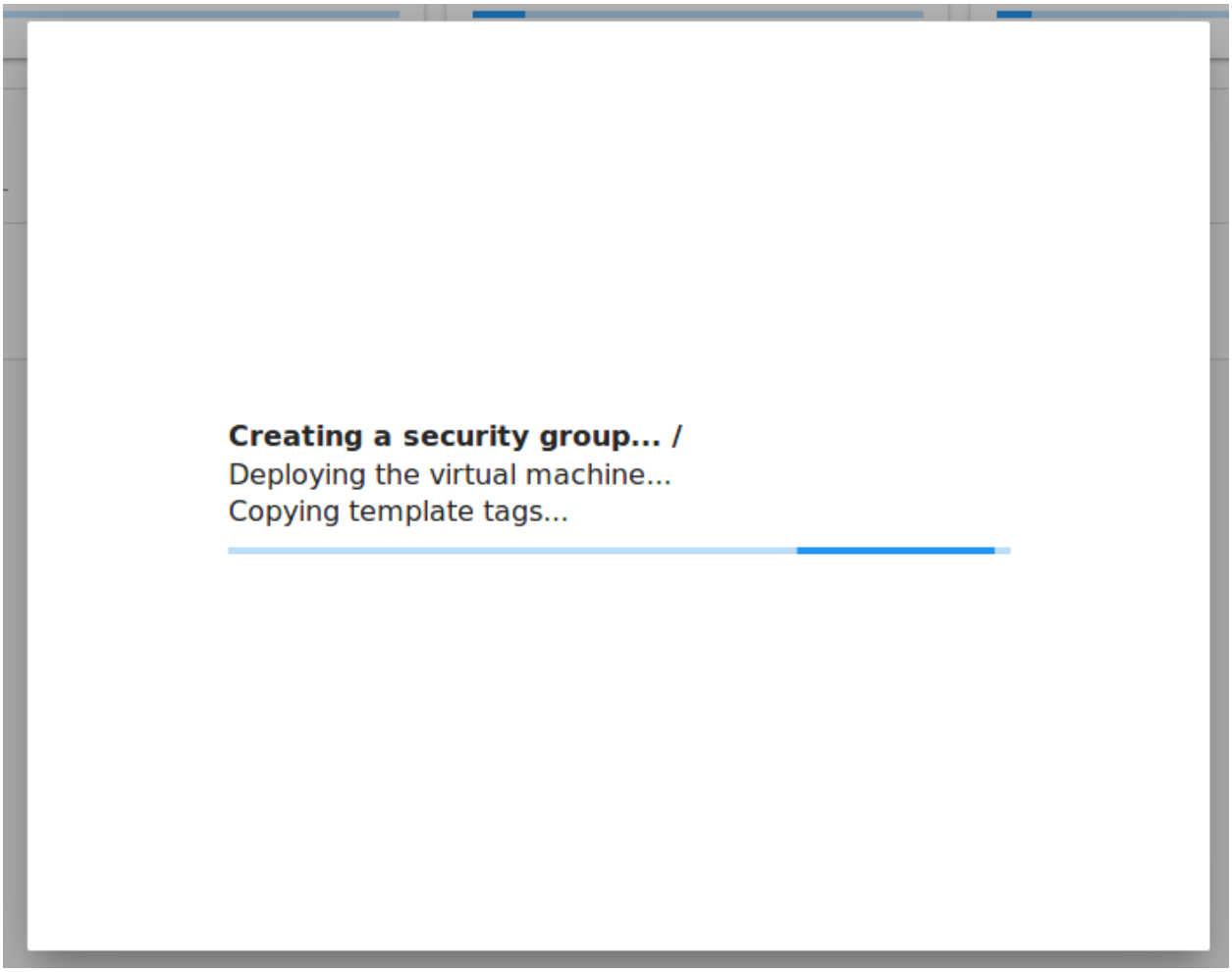
The system will ask you if you wish to save passwords to VM tags by default for the virtual machines created in the future. Click “Yes” and the “Save VM password by default” option will be activated in the account settings:

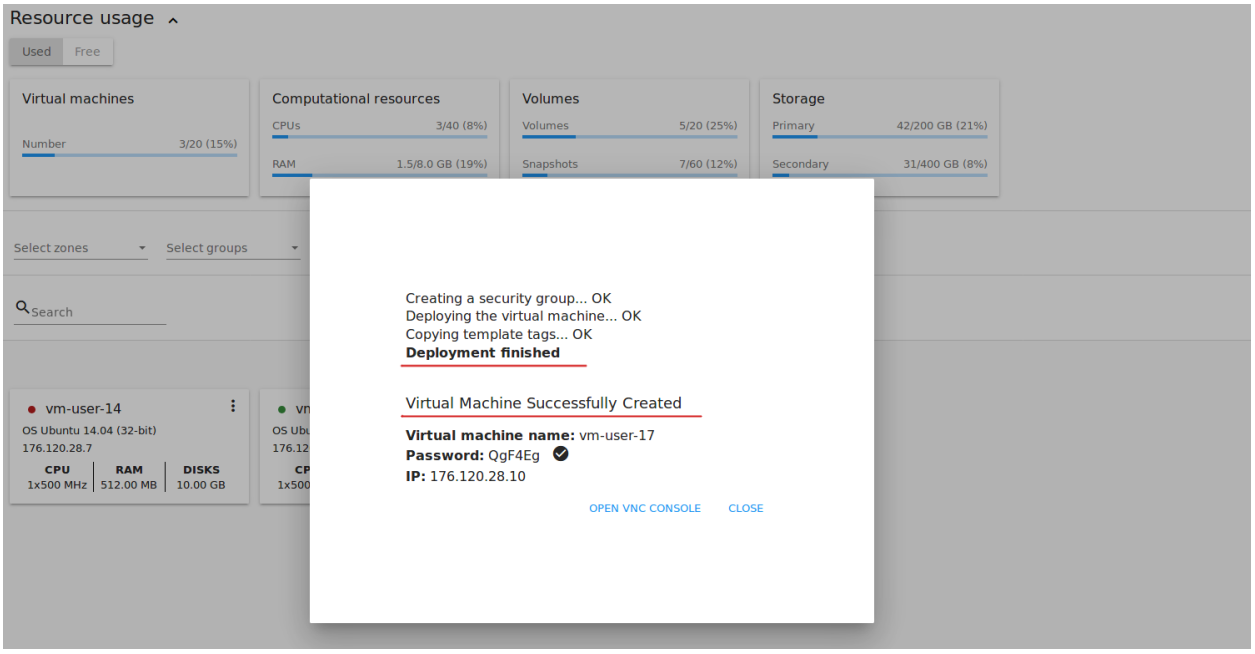
It means the password will be saved to tags automatically for all created virtual machines.

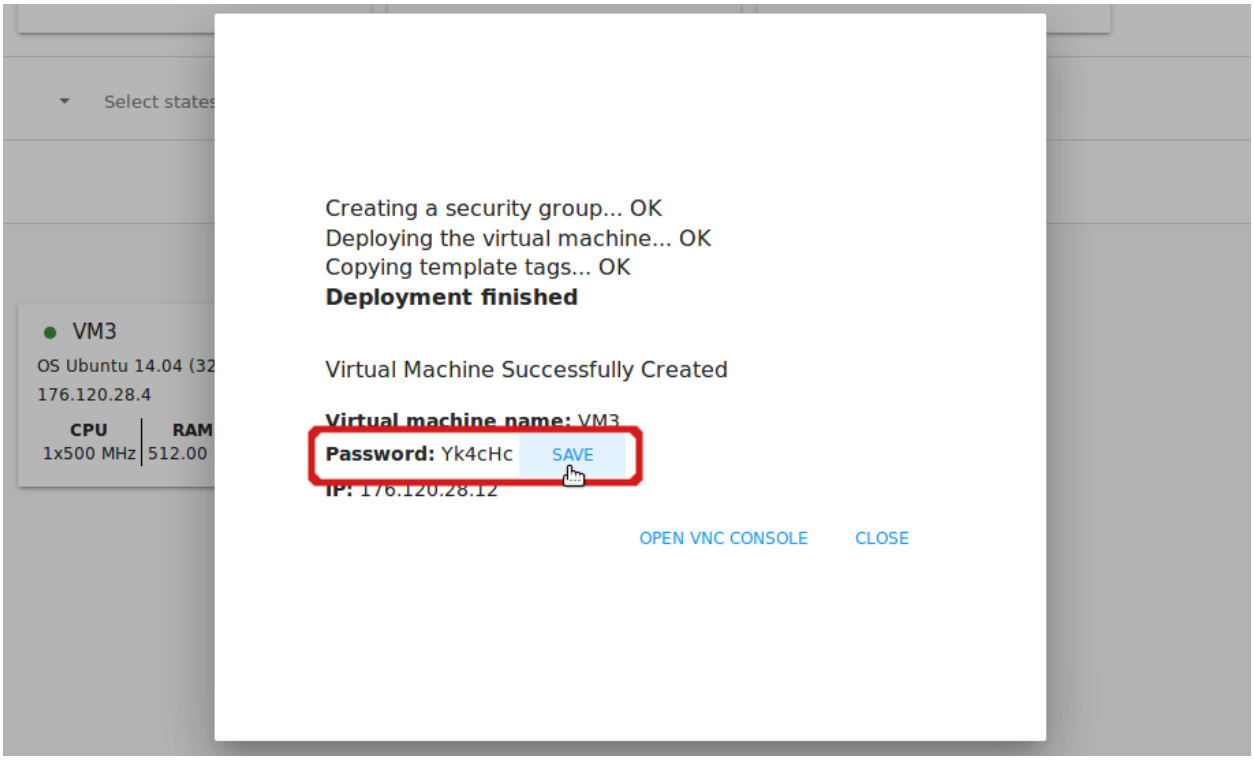
From this window, you can access the VM opening VNC console.

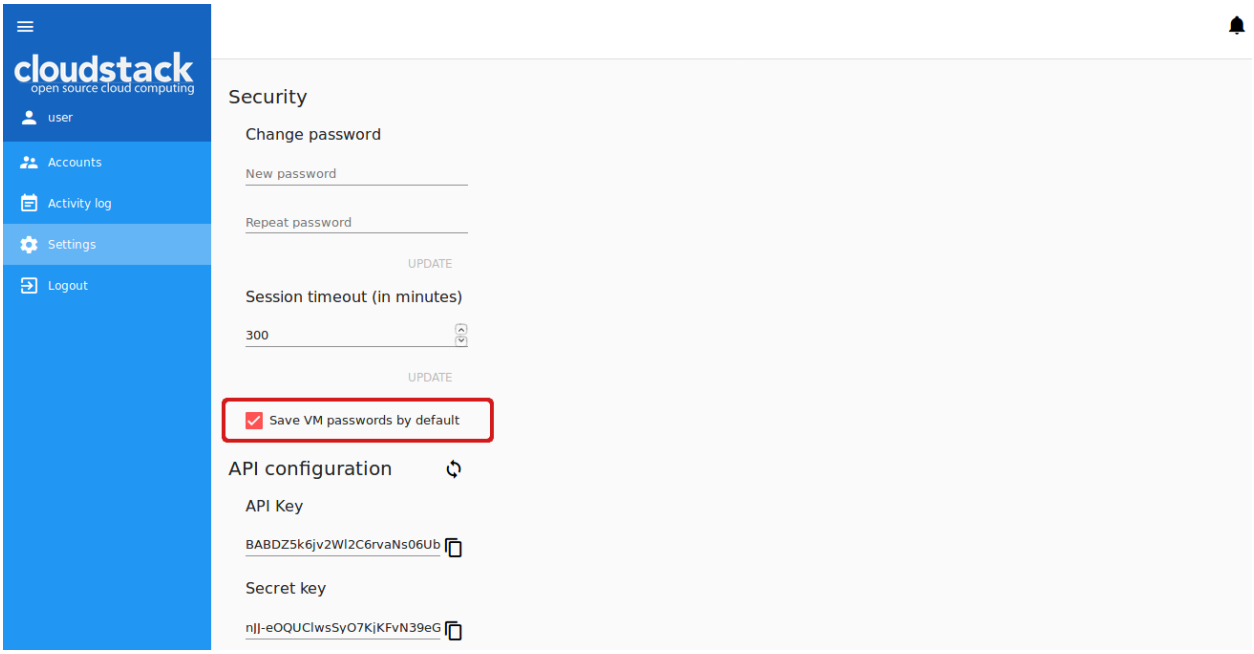
Close the dialog window and make sure the newly created VM is in the list of virtual machines.

Click “CANCEL” to drop the VM creation.


Creating a security group... /
Deploying the virtual machine...
Copying template tags...


Resource usage
Used
Free
Virtual machines
Number
3/20 (15%)
Computational resources
CPUs
3/40 (8%)
RAM
1.5/8.0 GB (19%)
Volumes
Volumes
5/20 (25%)
Snapshots
7/60 (12%)
Storage
Primary
42/200 GB (21%)
Secondary
31/400 GB (8%)
Select zones
Select groups
Search
vm-user-14
OS Ubuntu 14.04 (32-bit)
176.120.28.7
CPU
1x500 MHz
RAM
512.00 MB
DISKS
10.00 GB
Creating a security group... OK
Deploying the virtual machine... OK
Copying template tags... OK
Deployment finished
Virtual Machine Successfully Created
Virtual machine name: vm-user-17
Password: QgF4Eg
IP: 176.120.28.10
OPEN VNC CONSOLE
CLOSE


Select states
VM3
OS Ubuntu 14.04 (32
176.120.28.4
CPU
1x500 MHz
RAM
512.00
Creating a security group... OK
Deploying the virtual machine... OK
Copying template tags... OK
Deployment finished
Virtual Machine Successfully Created
Virtual machine name: VM3
Password: Yk4cHc
SAVE
IP: 176.120.28.12
OPEN VNC CONSOLE
CLOSE


cloudstack
open source cloud computing
user
Accounts
Activity log
Settings
Logout
Security
Change password
New password
Repeat password
UPDATE
Session timeout (in minutes)
300
UPDATE
Save VM passwords by default
API configuration
API Key
BABDZ5k6jv2Wl2C6rvaNs06Ub
Secret key
nJJ-eOQUClwsSyO7KjKFvN39eG

Possible Issues When Creating a Virtual Machine

You can face the following issues when creating a virtual machine:

- Lack of resources.

  An important thing in CloudStack-UI is that the system immediately checks that a user has the amount of resources required to create a virtual machine. It does not allow launching the creation of a VM which will fail for sure because of the resource lack.

  If you lack the required amount of resources, the message will appear when clicking "Create Virtual Machine":

  "Insufficient resources. You ran out of Primary storage."

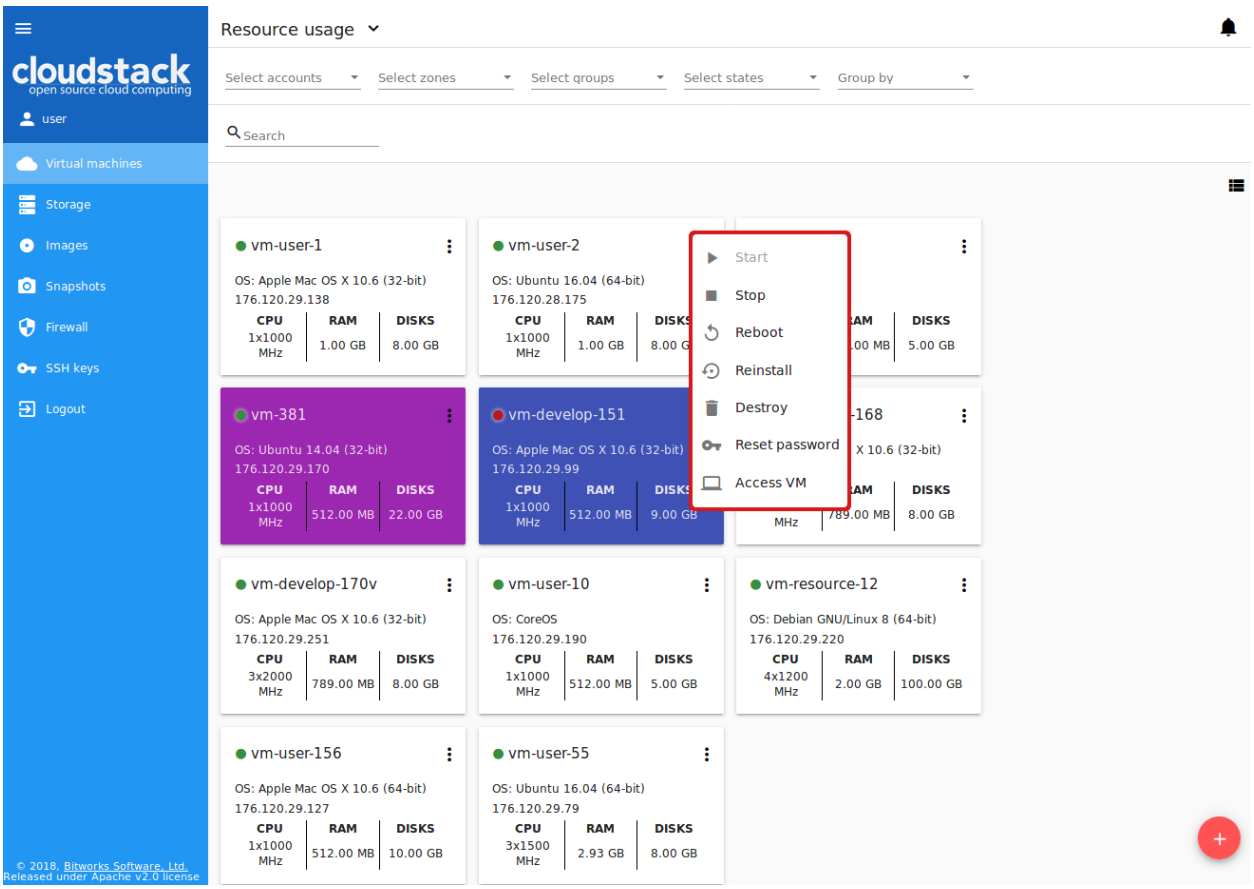
  No VM creation form is available.

- VM name is not unique.

  If the name specified for the virtual machine is not unique within a domain, the dialog window after VM creation will show an error. The VM will not be created. The creation form will be closed. You will have to open the VM creation form and fill it in again. You will have to specify another name for your VM.

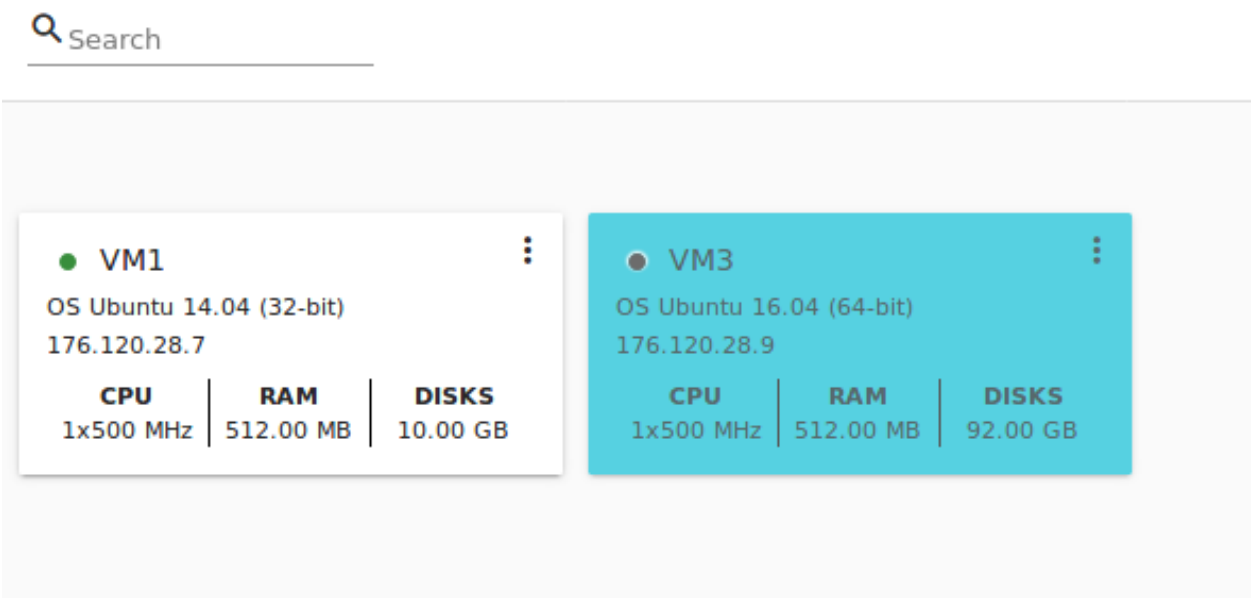
2.2.3 VM Action Box

Once a VM instance is created, you can stop, restart, or delete it as needed. These actions are available under the "Actions" button ⋮ to the right from each virtual machine in the list.

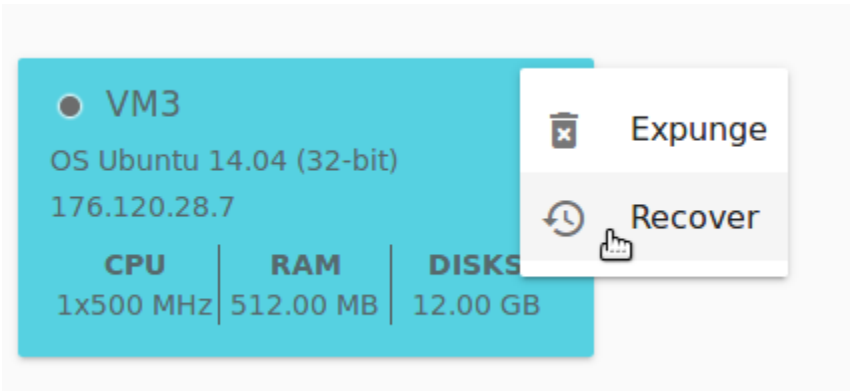


It allows performing the following actions with the VM:

- Start VM - Allows a user to launch a VM,
- Stop VM - Allows a user to stop a running VM,
- Reboot VM - Allows a user to restart a VM,
- Reinstall VM - Allows a user to reinstall a VM,
- Destroy VM - Allows a user to delete a VM. After deleting the virtual machine will remain in the system. It will look faded in the list and can be recovered later.



To recover a destroyed VM (which is not expunged) open the Actions list and click “Recover”.

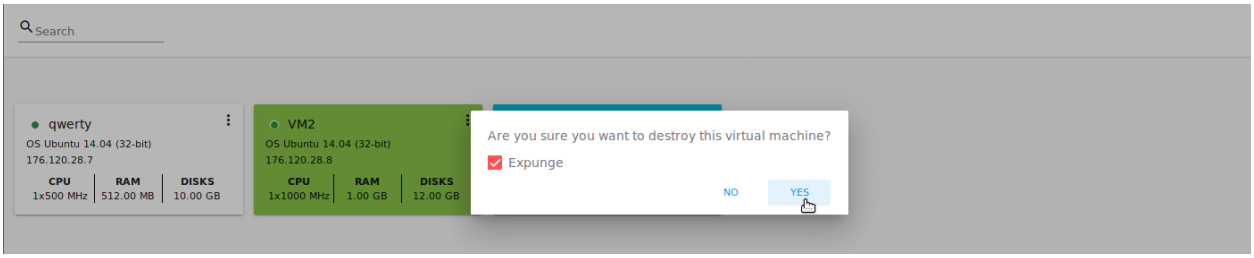


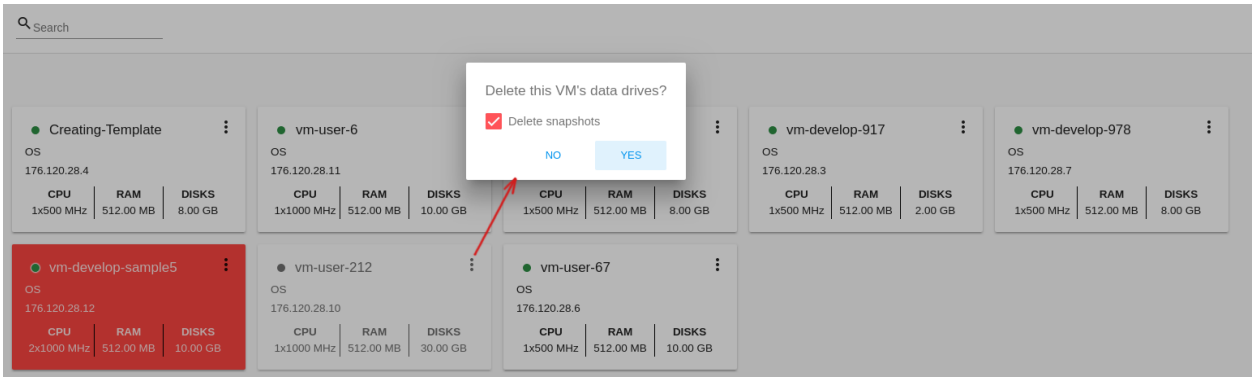
Click “Expunge” to completely destroy the VM. The VM will not be available for recovering anymore.

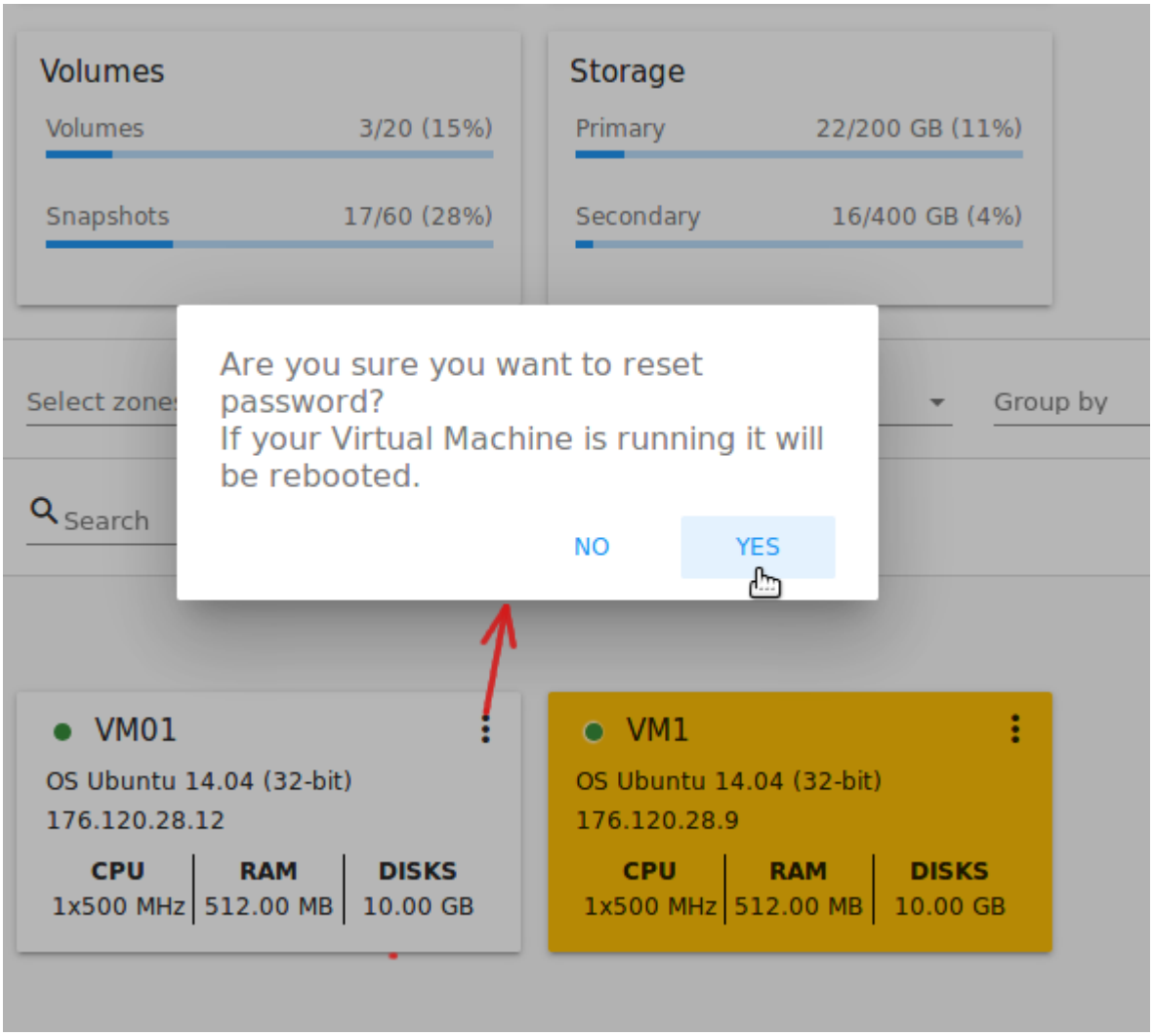
When deleting a virtual machine, if the machine has data disks attached, the system will ask you in a dialog window whether these disks should be deleted. If data disks have snapshots, you will be offered to delete the snapshots as well by activating a “Delete snapshots” option in the dialog.

Confirm your intention to delete disks (and snapshots) by clicking “Yes”. Click “No” to cancel the disk (and snapshots) deleting.

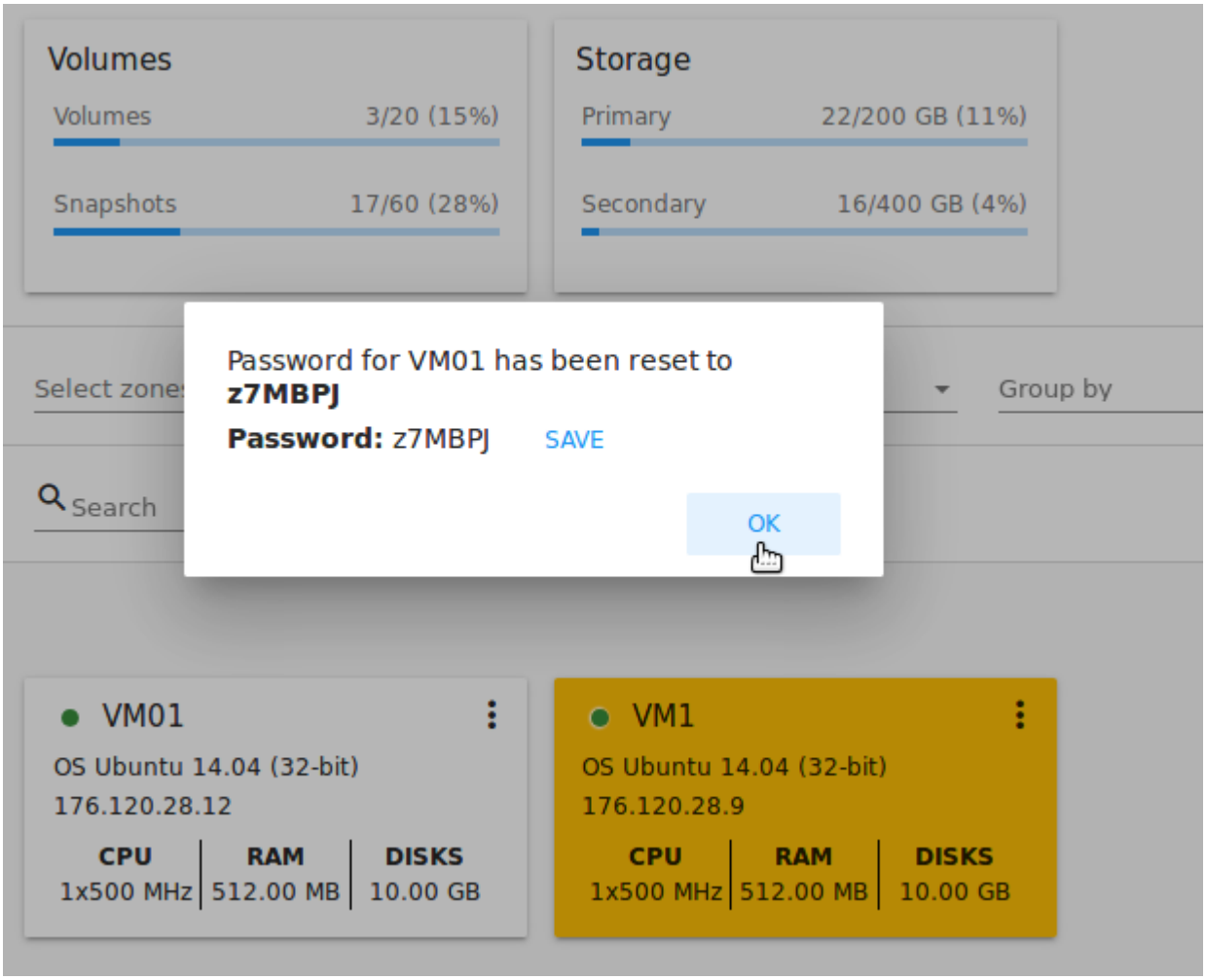
- Reset password - Allows a user to change the password for VM (available for started VMs only in case a VM requires a password). The VM will be rebooted if you reset the password.


Search
qwerty
OS Ubuntu 14.04 (32-bit)
176.120.28.7
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
VM2
OS Ubuntu 14.04 (32-bit)
176.120.28.8
CPU 1x1000 MHz
RAM 1.00 GB
DISKS 12.00 GB
Are you sure you want to destroy this virtual machine?
Expunge
NO
YES


Search
Delete this VM's data drives?
Delete snapshots
NO
YES
Creating-Template
OS
176.120.28.4
CPU 1x500 MHz
RAM 512.00 MB
DISKS 8.00 GB
vm-user-6
OS
176.120.28.11
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 10.00 GB
vm-develop-917
OS
176.120.28.3
CPU 1x500 MHz
RAM 512.00 MB
DISKS 2.00 GB
vm-develop-978
OS
176.120.28.7
CPU 1x500 MHz
RAM 512.00 MB
DISKS 8.00 GB
vm-develop-sample5
OS
176.120.28.12
CPU 2x1000 MHz
RAM 512.00 MB
DISKS 10.00 GB
vm-user-212
OS
176.120.28.10
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 30.00 GB
vm-user-67
OS
176.120.28.6
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB


Volumes
Volumes 3/20 (15%)
Snapshots 17/60 (28%)
Storage
Primary 22/200 GB (11%)
Secondary 16/400 GB (4%)
Select zone
Group by
Search
Are you sure you want to reset password?
If your Virtual Machine is running it will be rebooted.
NO
YES
VM01
OS Ubuntu 14.04 (32-bit)
176.120.28.12
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
VM1
OS Ubuntu 14.04 (32-bit)
176.120.28.9
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB

After clicking "Yes" the VM will be rebooted and a new password will be autogenerated for it. You will see the new password in the dialog window.



Click "Save" to save the password for this VM. It will activate the "Save VM passwords by default" option in the *Settings* section (see *Save VM passwords by default*). In the future the password will be saved automatically right at VM creation. Click "OK" to close the dialog window.

- Access VM - Opens an "Access VM" dialog window which allows to view VM name and IP, view and save a password for the VM and access the VM via the VNC console.

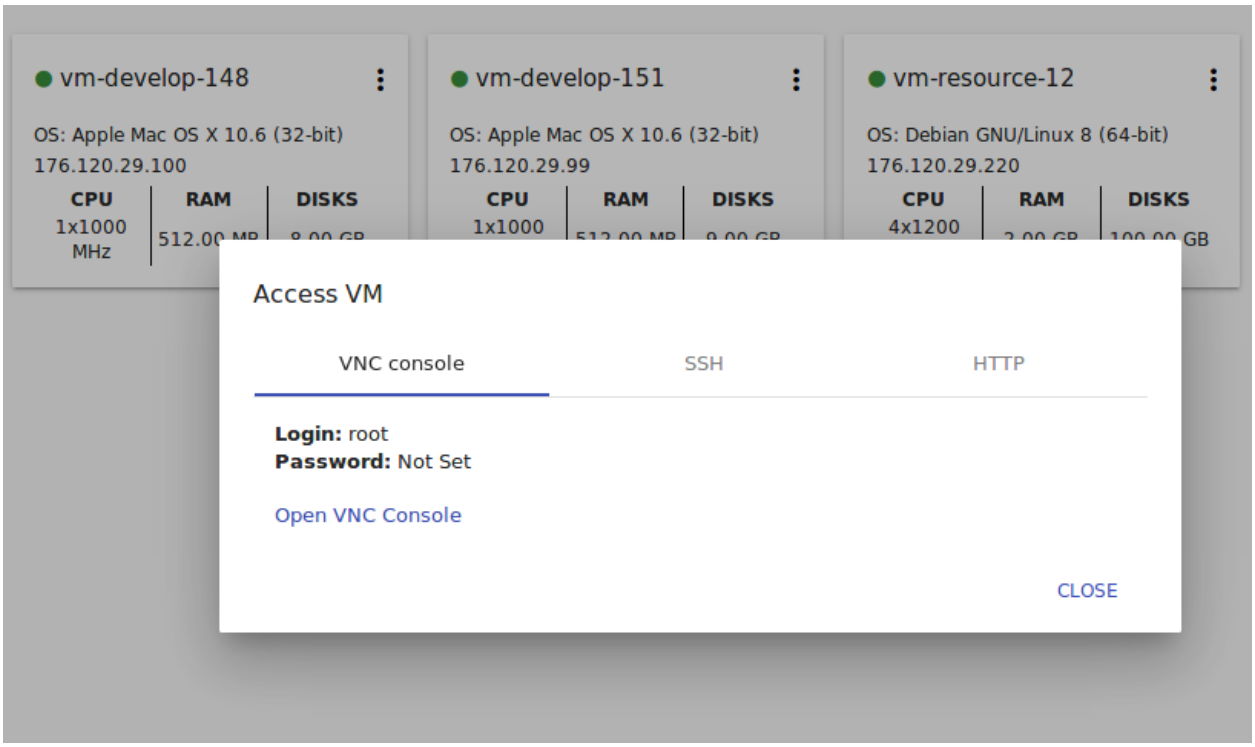
In the *Access a Virtual Machine* section you can find more information on accessing a VM.

- Pulse - It is a new feature created in CloudStack-UI to visualize the VM performance statistics. By clicking "Pulse" at the Actions box you will open a modal window with 3 tabs: CPU/RAM, Network, Disk. There you can see the charts of resources statistics for the VM.

You can adjust the graphs by range, data aggregation period, shift interval and other parameters.

This plugin is convenient for dynamic monitoring of VM performance. Find more information about it in the official documentation. Pulse plugin deployment instructions can be found at the *Pulse Plugin* page.

Note: Please, note, when performing one of the actions from the list, other actions in this list are disabled until the action in progress finishes.



2.2.4 VM Details Sidebar

For each virtual machine, you can get the details.

By clicking a VM line or card you can open a sidebar to the right.

In the details sidebar you will find the information for the selected virtual machine:

1. VM name.
2. Color-picker - Allows marking a virtual machine with a color to distinguish it in the list. The range of available colors for VMs is specified in the configuration file.
3. Actions on the VM. See the *VM Action Box* section below.

You will see four tabs in the sidebar. Let's describe what information on the virtual machine is presented in each tab.

Virtual Machine Tab

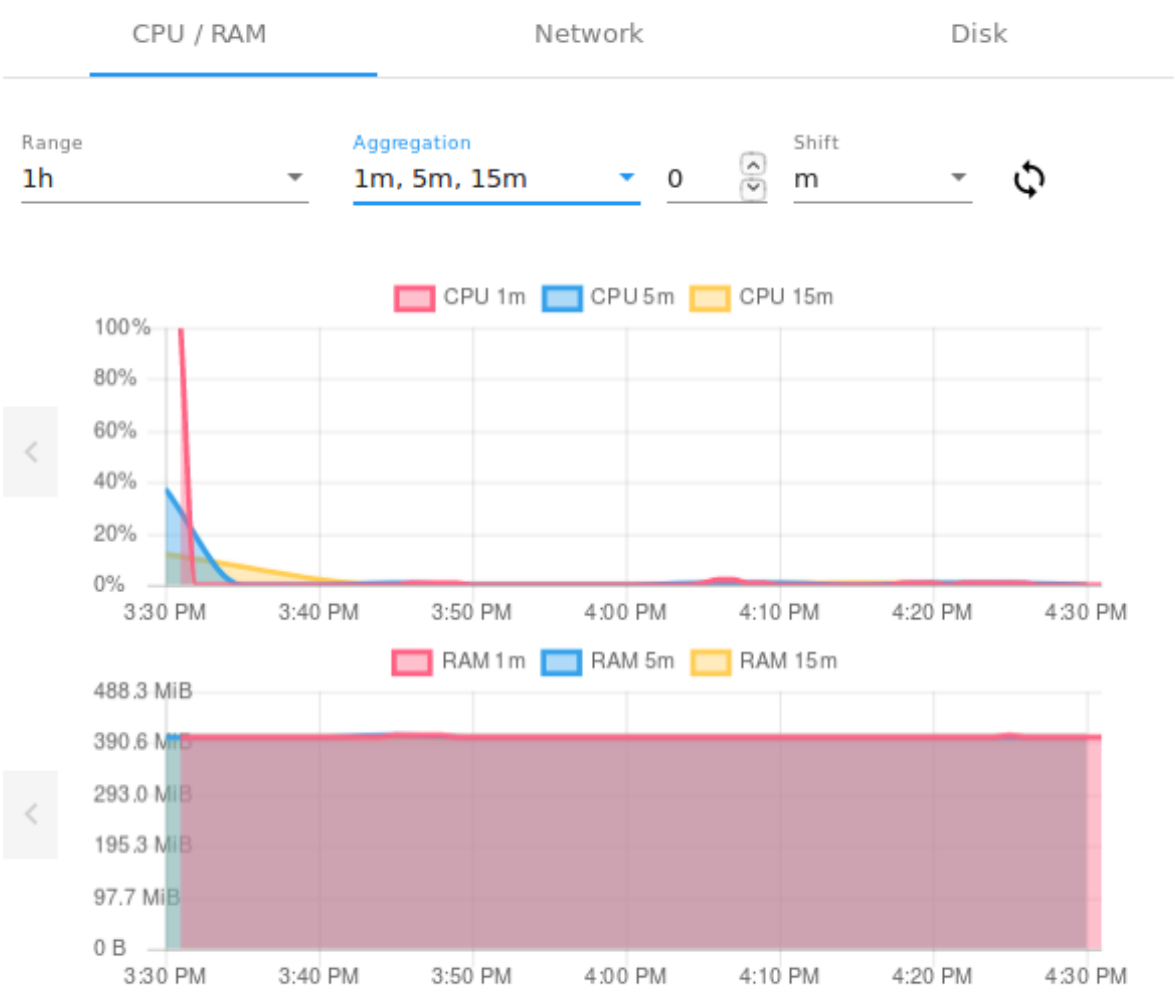
The Virtual Machine tab contains the general setting of the VM. Some settings can be edited here. At the bottom you can see the Statistics section which shows real-time data for the VM performance.

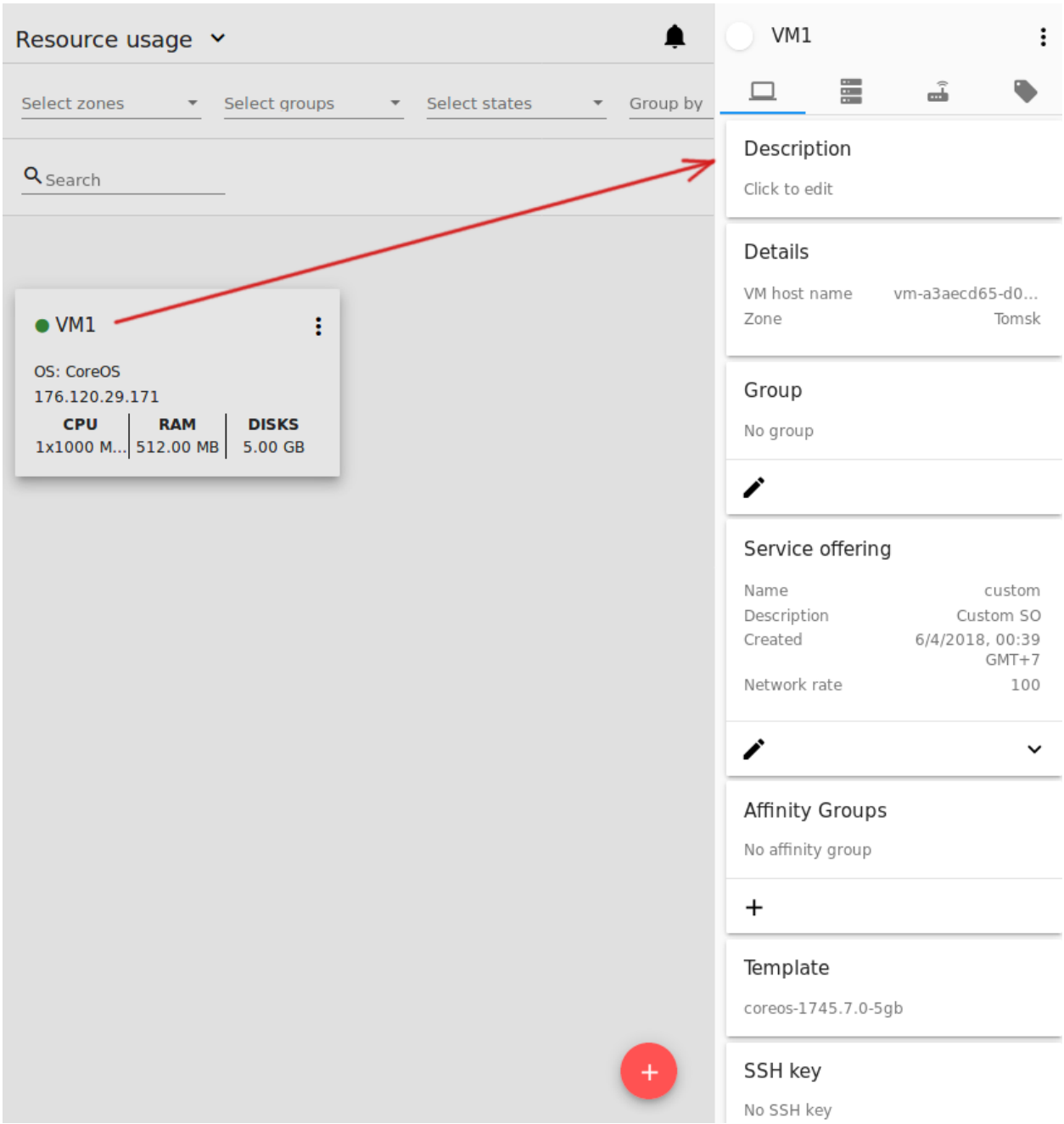
1. Description - A short description of the VM. Click the block to edit it. Enter a few words about the VM. Click "Save" to save the description. It is a custom description for your machine. It is saved to tags with `csui.vm.description` tag.

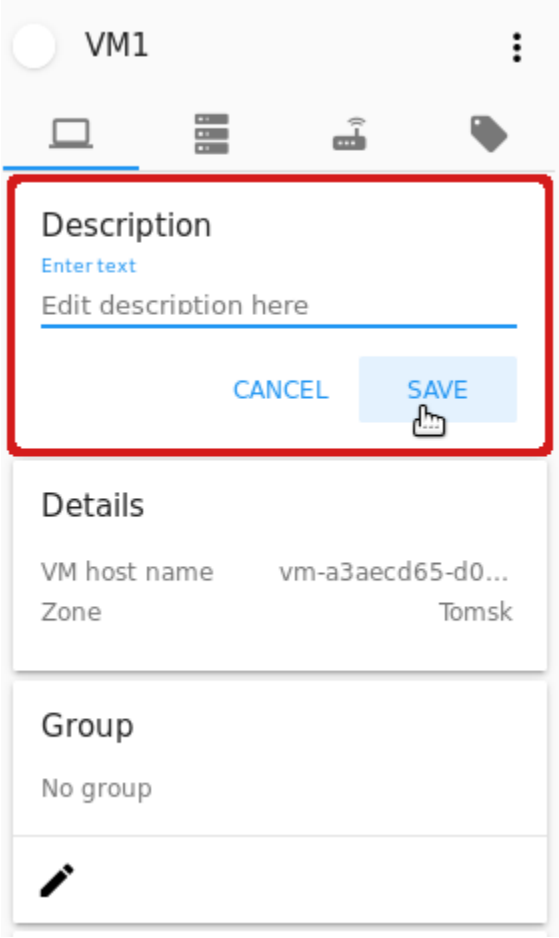
The description can be edited. Click "Edit" to change the description.

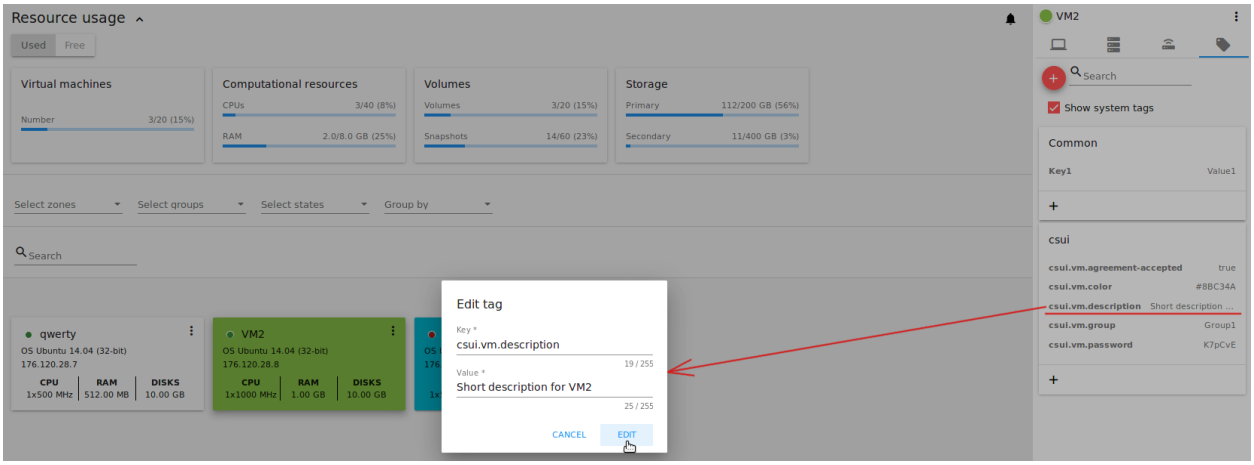
It also can be edited from the Tags tab. Click Edit icon next to the `csui.vm.description` tag and change the description text in the appeared form.

2. Details - Displays the VM host name and a zone selected for the VM to be available in.

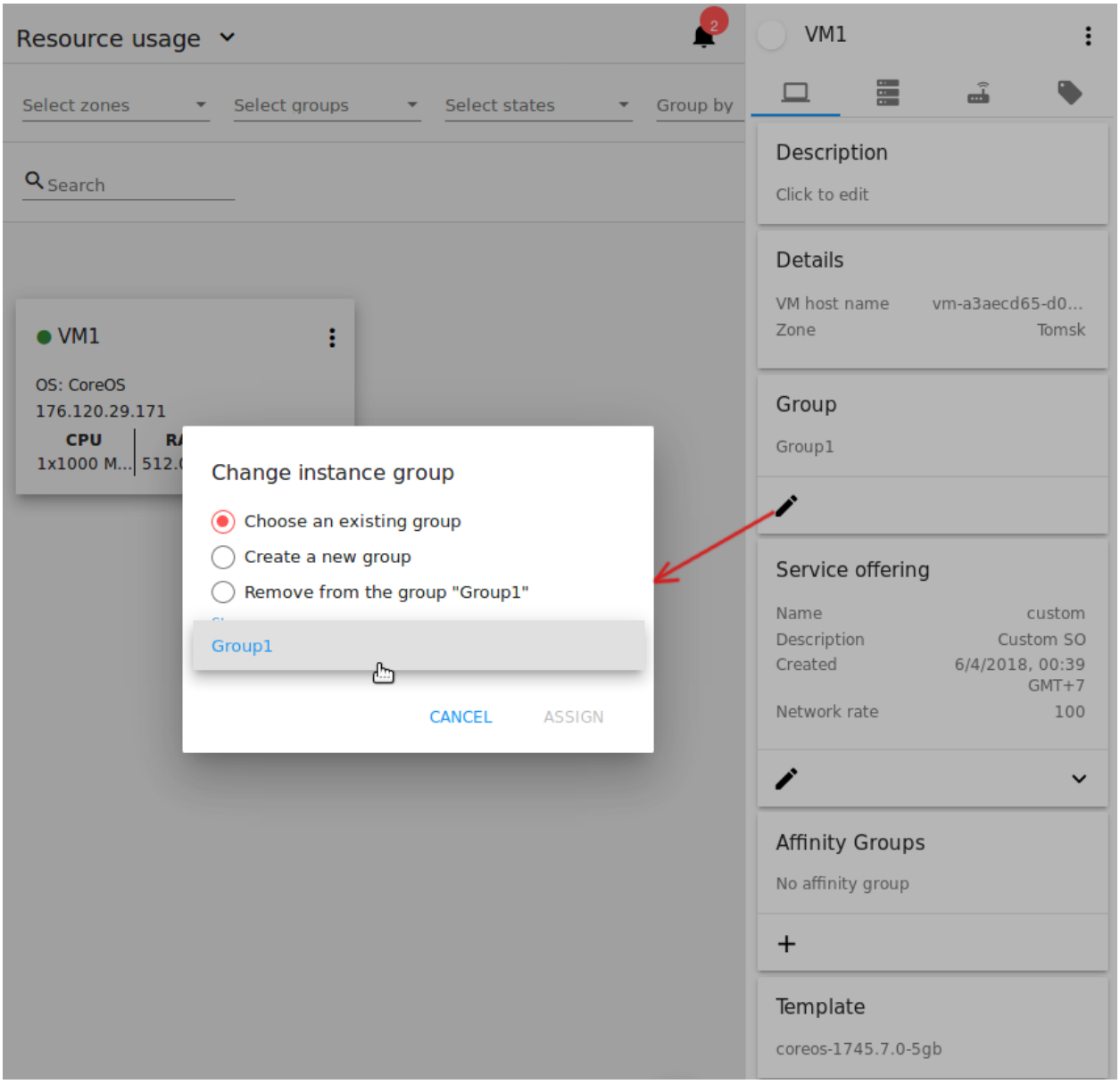

CPU / RAM
Network
Disk
Range
1h
Aggregation
1m, 5m, 15m
0
Shift
m
CPU 1m
CPU 5m
CPU 15m
100%
80%
60%
40%
20%
0%
3:30 PM
3:40 PM
3:50 PM
4:00 PM
4:10 PM
4:20 PM
4:30 PM
RAM 1m
RAM 5m
RAM 15m
488.3 MiB
390.6 MiB
293.0 MiB
195.3 MiB
97.7 MiB
0 B
3:30 PM
3:40 PM
3:50 PM
4:00 PM
4:10 PM
4:20 PM
4:30 PM


Resource usage
Select zones
Select groups
Select states
Group by
Search
VM1
OS: CoreOS
176.120.29.171
CPU
1x1000 M...
RAM
512.00 MB
DISKS
5.00 GB
VM1
Description
Click to edit
Details
VM host name
vm-a3aecd65-d0...
Zone
Tomsk
Group
No group
Service offering
Name
custom
Description
Custom SO
Created
6/4/2018, 00:39 GMT+7
Network rate
100
Affinity Groups
No affinity group
Template
coreos-1745.7.0-5gb
SSH key
No SSH key


VM1
Description
Enter text
Edit description here
CANCEL
SAVE
Details
VM host name
vm-a3aecd65-d0...
Zone
Tomsk
Group
No group


Resource usage
Used
Free
Virtual machines
Computational resources
Volumes
Storage
Select zones
Select groups
Select states
Group by
Search
qwerty
VM2
Edit tag
csui.vm.description
Short description for VM2
CANCEL
EDIT
VM2
Search
Show system tags
Common
csui
csui.vm.agreement-accepted
csui.vm.color
csui.vm.description
csui.vm.group
csui.vm.password

3. Group - A custom group assigned to the VM. Edit this field by clicking the "Edit" button . In the appeared dialog window choose a group from the drop-down list. Click "Assign" to assign the chosen group to the VM.



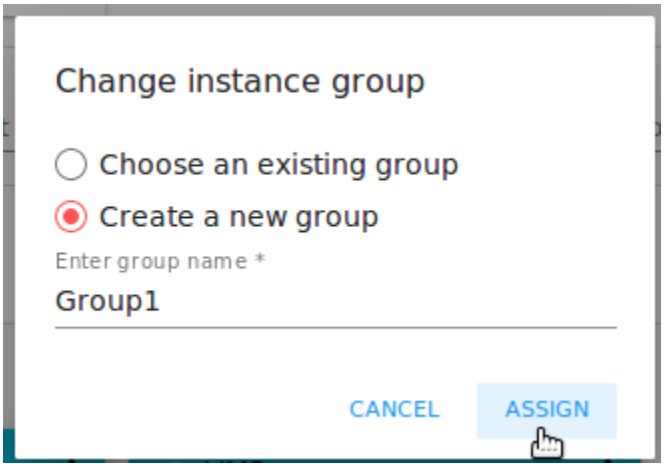
Or you can create a new group right from this window selecting the "Create a new group" option. Click "ASSIGN" to assign the created group to the VM.

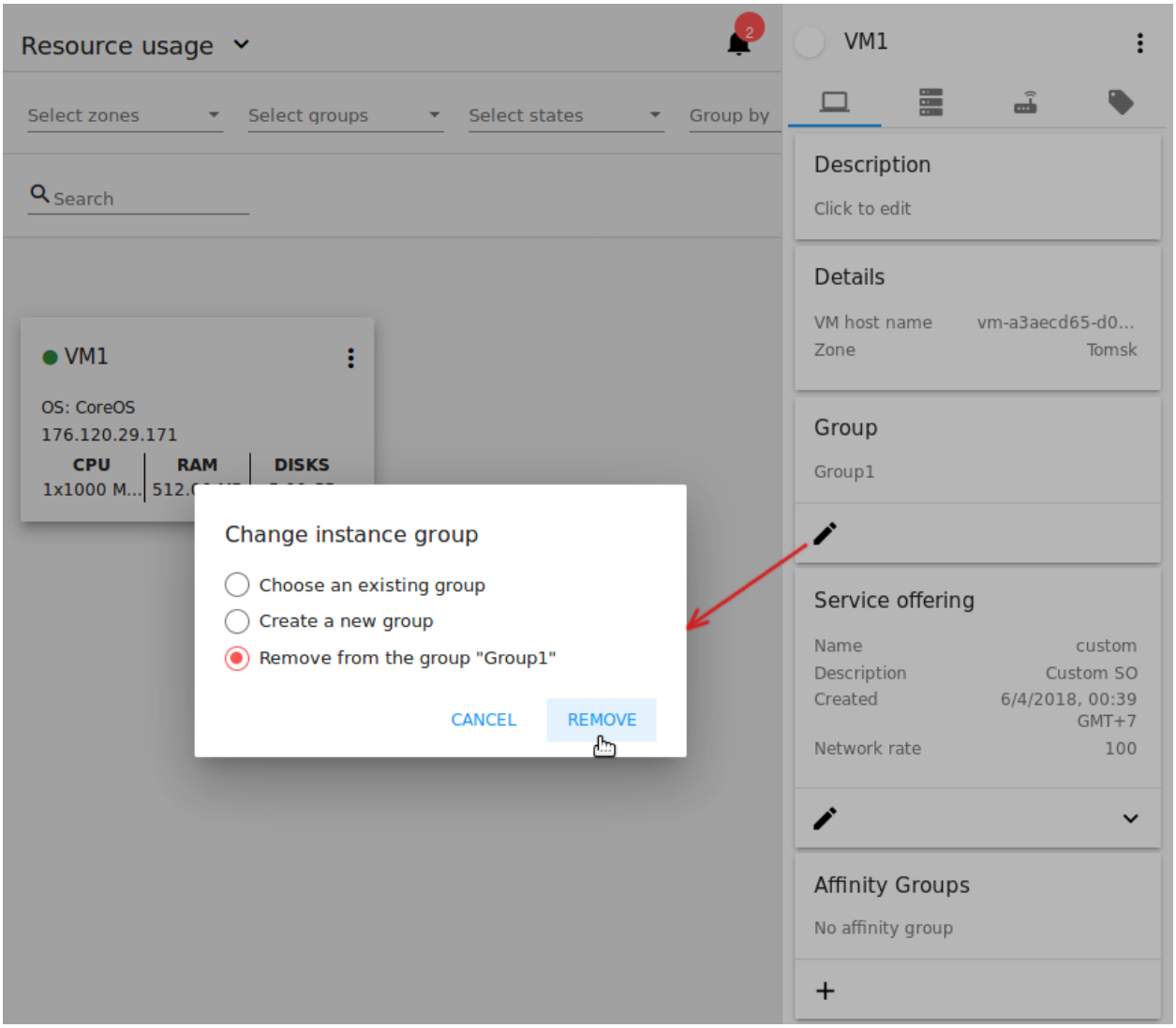
To remove the assigned group select the "Remove from the group" option and click "REMOVE" to eliminate the assigned group from the VM.

The VM group is a custom group. It is saved to VM tags with `csui.vm.group` tag. From the Tags tab, it also can be edited or deleted.

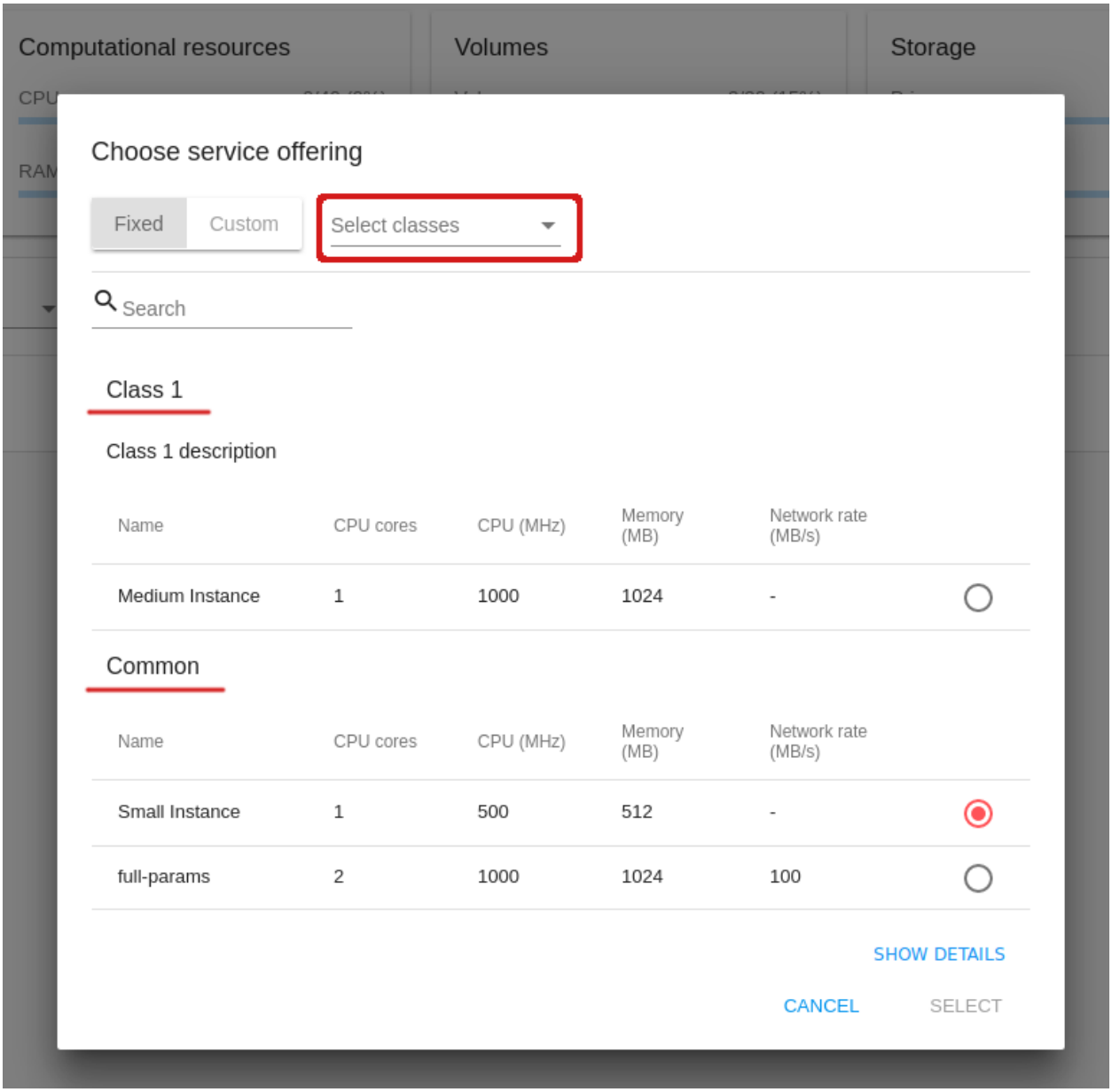
4. Service offering - The service offerings of the VM. Expand the section to view the whole list of offering parameters.

Edit this field by clicking the "Edit" button . In the appeared window you will see the list of available service offerings.


Change instance group
Choose an existing group
Create a new group
Enter group name *
Group1
CANCEL
ASSIGN


Resource usage
2
Select zones
Select groups
Select states
Group by
Search
VM1
OS: CoreOS
176.120.29.171
CPU
1x1000 M...
RAM
DISKS
Change instance group
Choose an existing group
Create a new group
Remove from the group "Group1"
CANCEL
REMOVE
VM1
Description
Click to edit
Details
VM host name
vm-a3aecd65-d0...
Zone
Tomsk
Group
Group1
Service offering
Name
custom
Description
Custom SO
Created
6/4/2018, 00:39 GMT+7
Network rate
100
Affinity Groups
No affinity group

The list consists of two sections - Fixed and Custom. In each section, offerings can be filtered by classes if classes are determined in the configuration file.



You can use the search tool to find an offering in the list by a name or a part of the name.

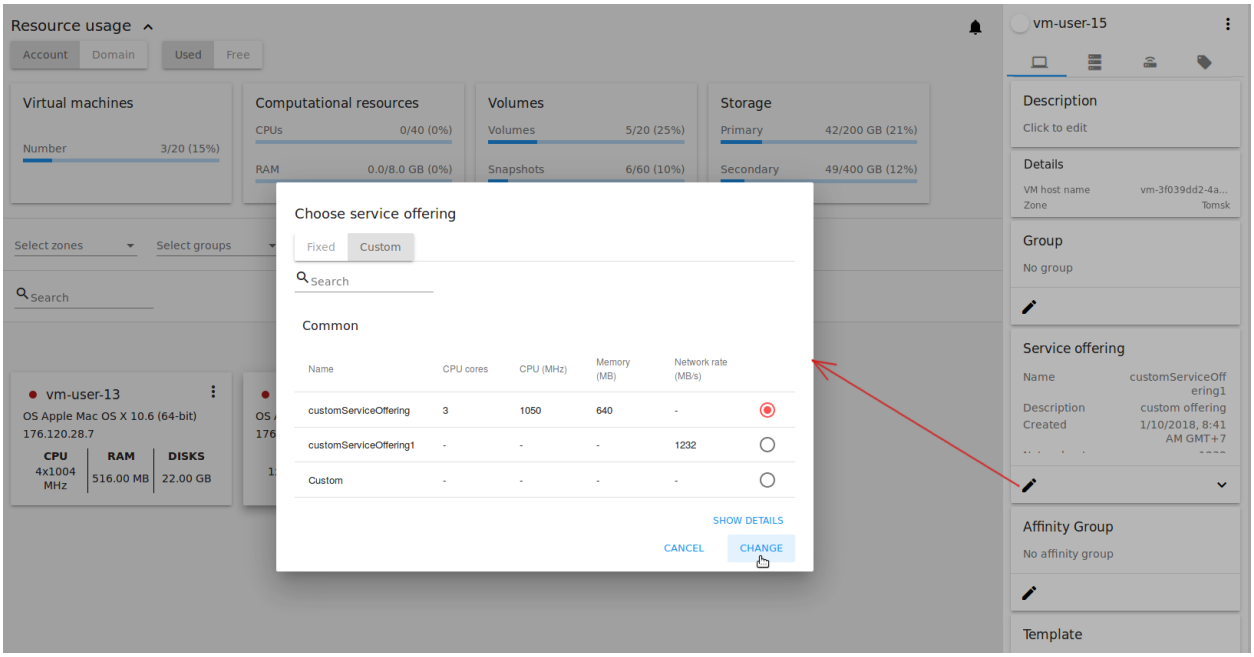
Select an option from the list to change the service offering.

Click “Change” to implement the edits.

Note: The system checks the amount of available account resources. In case a selected service offering does not fit the amount of available account resources, a warning message will appear saying the offering cannot be selected.

A started virtual machine will be rebooted at editing the service offering.

5. Affinity Group - The affinity group(s) assigned to the virtual machine. A name and a type of groups are displayed



here. Groups are listed in alphabetic order. Hovering over a group name shows a description of a group (if provided at creation).

If no affinity group is assigned to the VM, or you wish to add another affinity group to the list, click "Add" (+) in the block. A dialog box appears where you can choose an existing group or create a new one.

Select a group in the list and click "Assign" to assign it to the VM. A user can add several groups to one virtual machine.

To create an affinity group fill in the form at the top of the dialog box and click "+" to add the group to the list. Then, you can assign the newly created group to the VM.

When assigning an affinity group to a started virtual machine, the system will suggest you stopping the VM. Click "OK" in the dialog window. Then, the VM will be started again.

The selected group/groups can be deleted by clicking **|delete icon|** near the group name in the list.

6. Template - Shows the template used to create the virtual machine.
7. SSH key - Shows the SSH key of the virtual machine. Add the SSH key by clicking "+". In the appeared window select the SSH key in the drop-down list and click "CHANGE":

At saving the new SSH key for a started VM you will see the warning: "You need to stop the virtual machine to reset SSH key." Click "OK" if you want to stop it right now. Click "Cancel" to drop the edits.

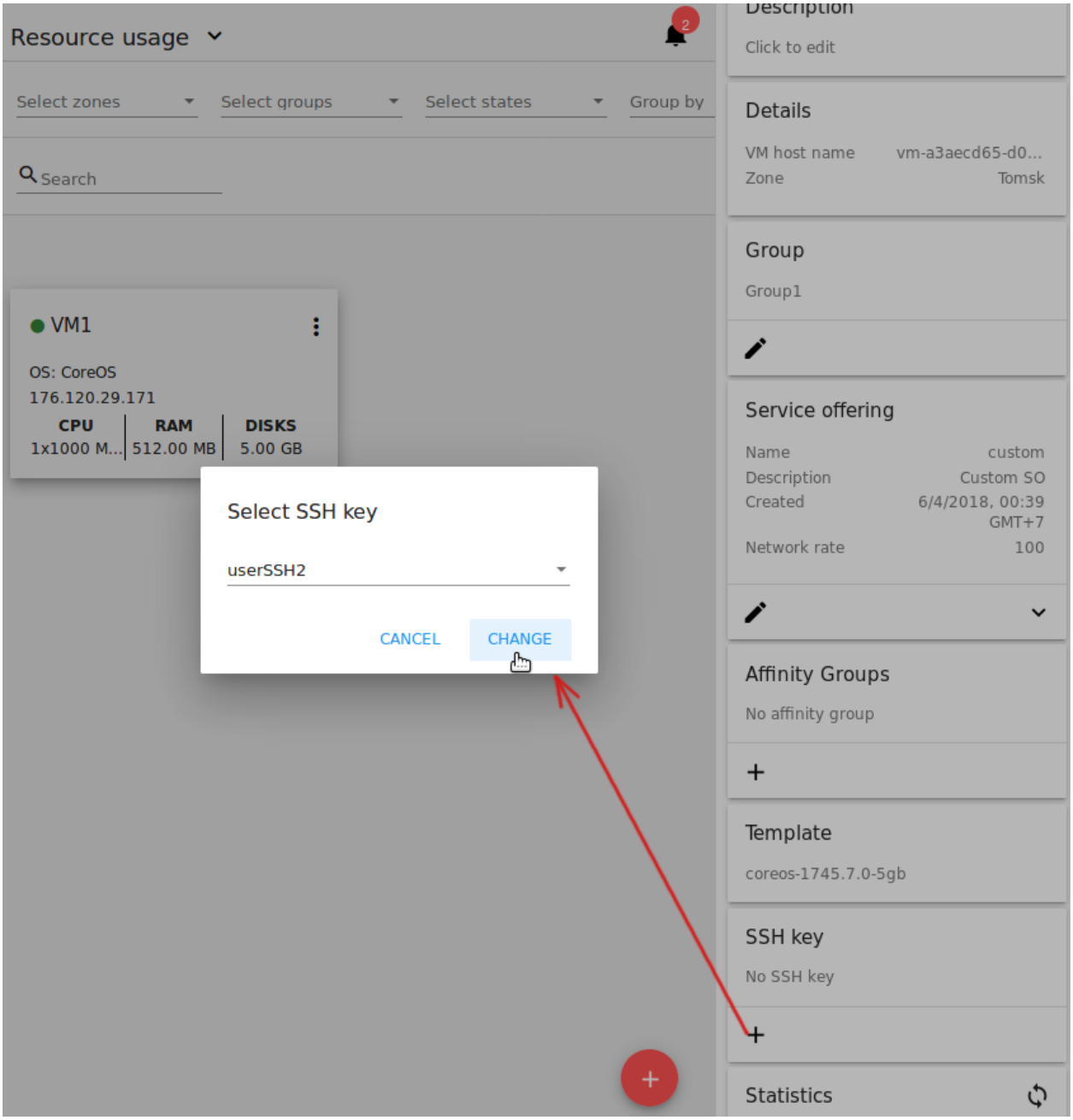
8. Statistics - shows VM statistics on CPU utilized, Network read, Network write, Disk read, Disk write, Disk read (IO), Disk write (IO). Refresh data by clicking the "Refresh" button in the upper-right corner.

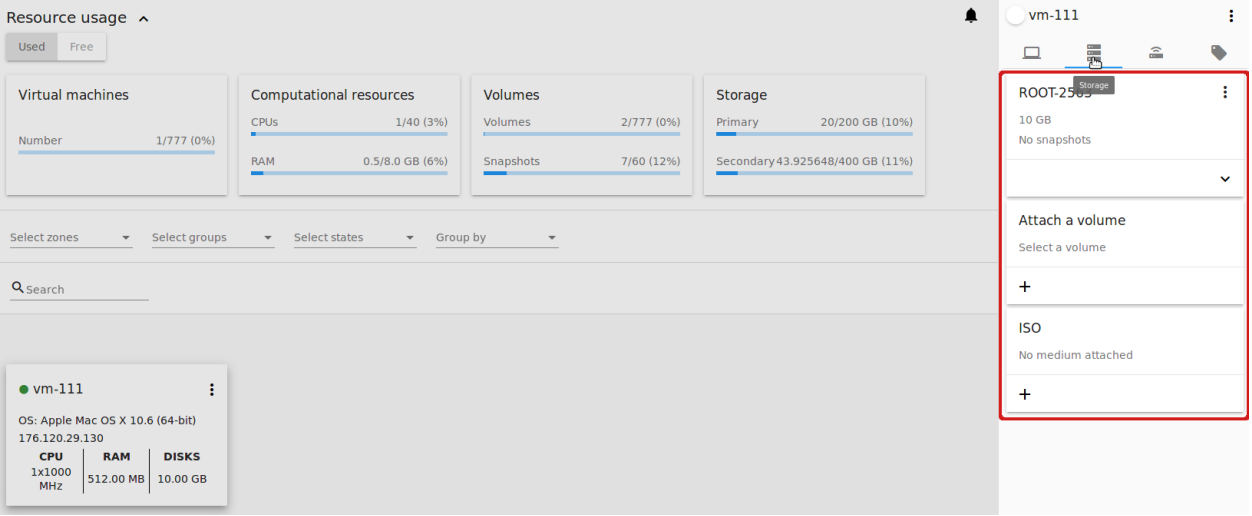
Storage Tab

The second tab - Storage - contains the information on the volumes allocated to the virtual machine.

In this tab the following information is presented:

1. **Disk information**


Resource usage
2
Select zones
Select groups
Select states
Group by
Search
VM1
OS: CoreOS
176.120.29.171
CPU
1x1000 M...
RAM
512.00 MB
DISKS
5.00 GB
Select SSH key
userSSH2
CANCEL
CHANGE
Description
Click to edit
Details
VM host name
vm-a3aecd65-d0...
Zone
Tomsk
Group
Group1
Service offering
Name
custom
Description
Custom SO
Created
6/4/2018, 00:39 GMT+7
Network rate
100
Affinity Groups
No affinity group
Template
coreos-1745.7.0-5gb
SSH key
No SSH key
Statistics



Each VM has a root disk. Besides, data disks can be added to the VM.

The following general information on a root disk is presented (expand the card to see the whole list):

- Name - The disk name.
- Size - The disk size.
- Creation Date and Time.
- Storage Type (Shared/Local).
- Last Snapshot information.
- Action Box.

2. **Attach a volume** - Allows attaching a data disk to the VM.

Additional volume (a data disk) can be attached to the VM. Click "Select" to select a data disk. Select a disk in the drop-down list and click "SELECT".

The chosen data disk will appear for the virtual machine with the "Attach" button. Click "Attach" to attach the selected disk to the virtual machine.

If there are no available spare drives yet, you can create one right from this panel.

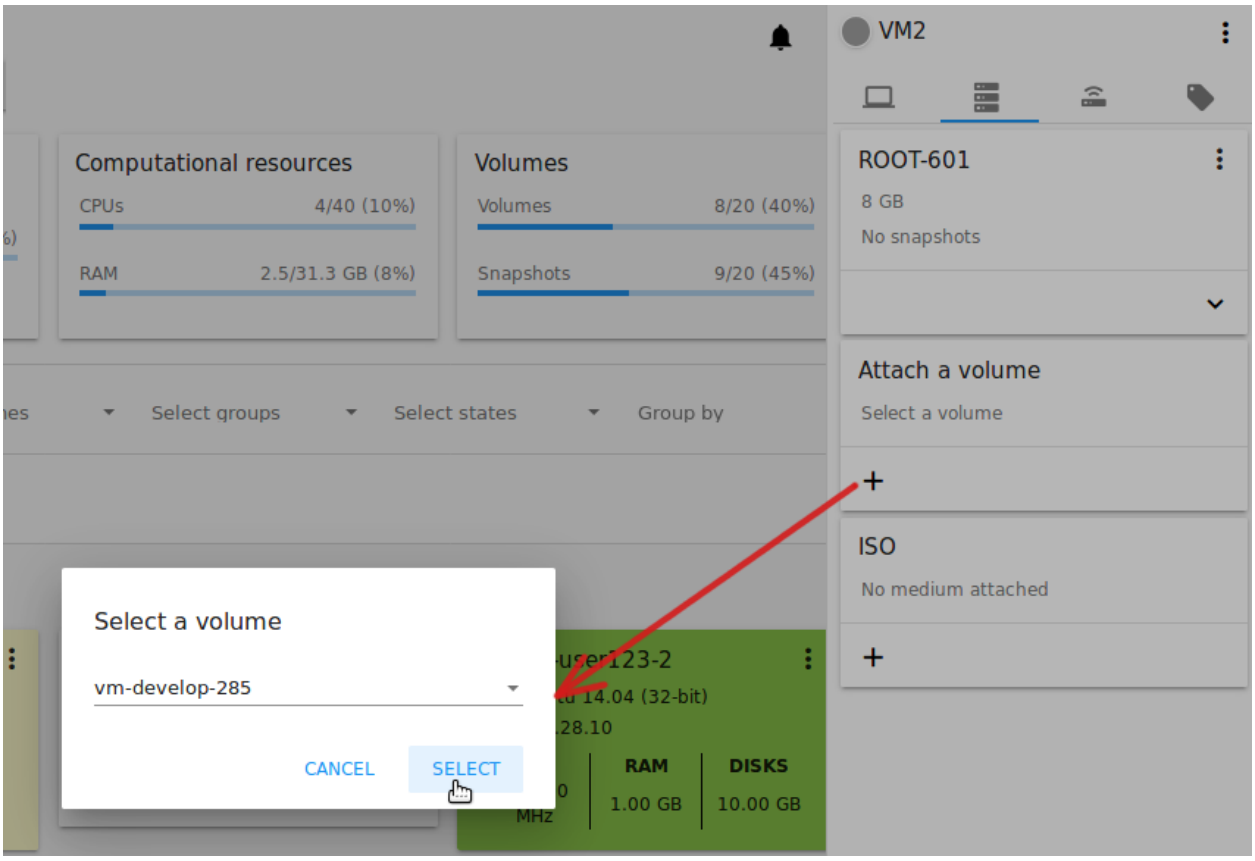
Click "Create new volume" and you will be moved to the Storage section. A "New volume" form will appear where you should specify the following information:

Note: Required fields are marked with an asterisk (*).

- Name * - Name of the new data disk.
- Zone * - Select a zone for it from the drop-down list.
- Disk offering * - Select a disk offering from the list in the modal window. The disk offering list is managed by Root Administrator.
- Size - Set the disk size if it is available. Disk size can be changed if a custom disk offering is selected above.

Once all fields are filled in, click "CREATE" to save the new volume.

Click "CANCEL" to drop the new volume creation.



Move back to the virtual machine information sidebar. Under the "Storage" tab in the "Attach a volume" section click "+" to select an additional disk. Select a data disk in the drop-down list and click "Select" to add it to the "Attach a volume" section. To attach the volume press the "Attach" button.

Volume Action Box

For each volume, the Actions list can be opened by clicking the actions icon ⋮.

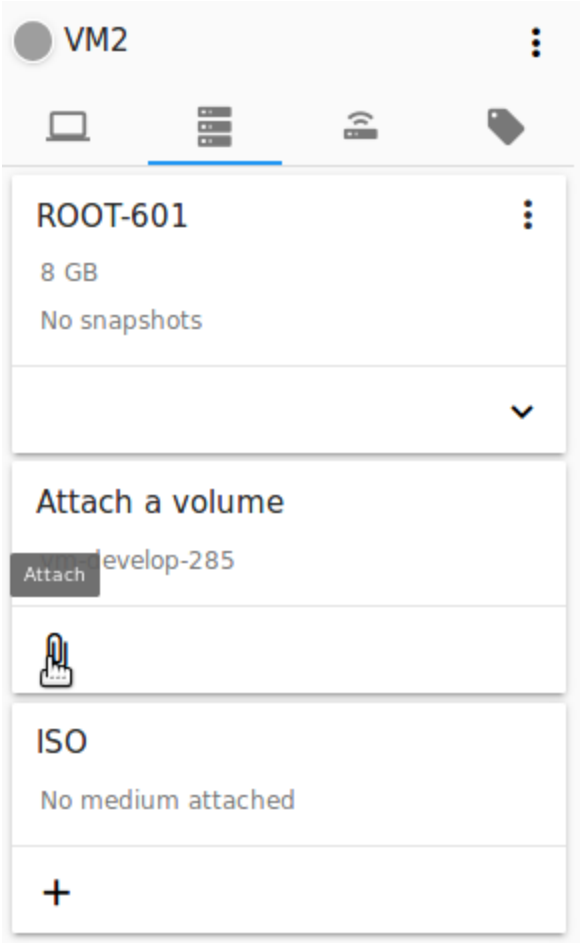
The following actions on disks are available in this list:

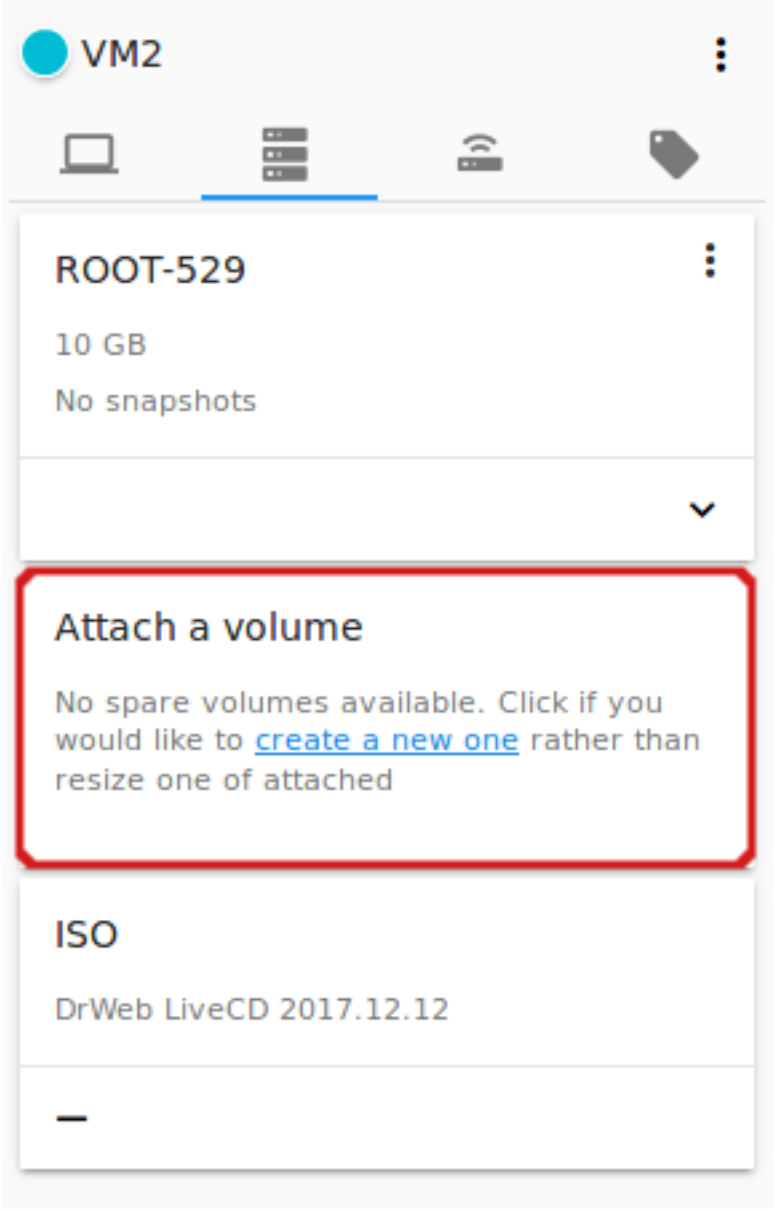
For root disks:

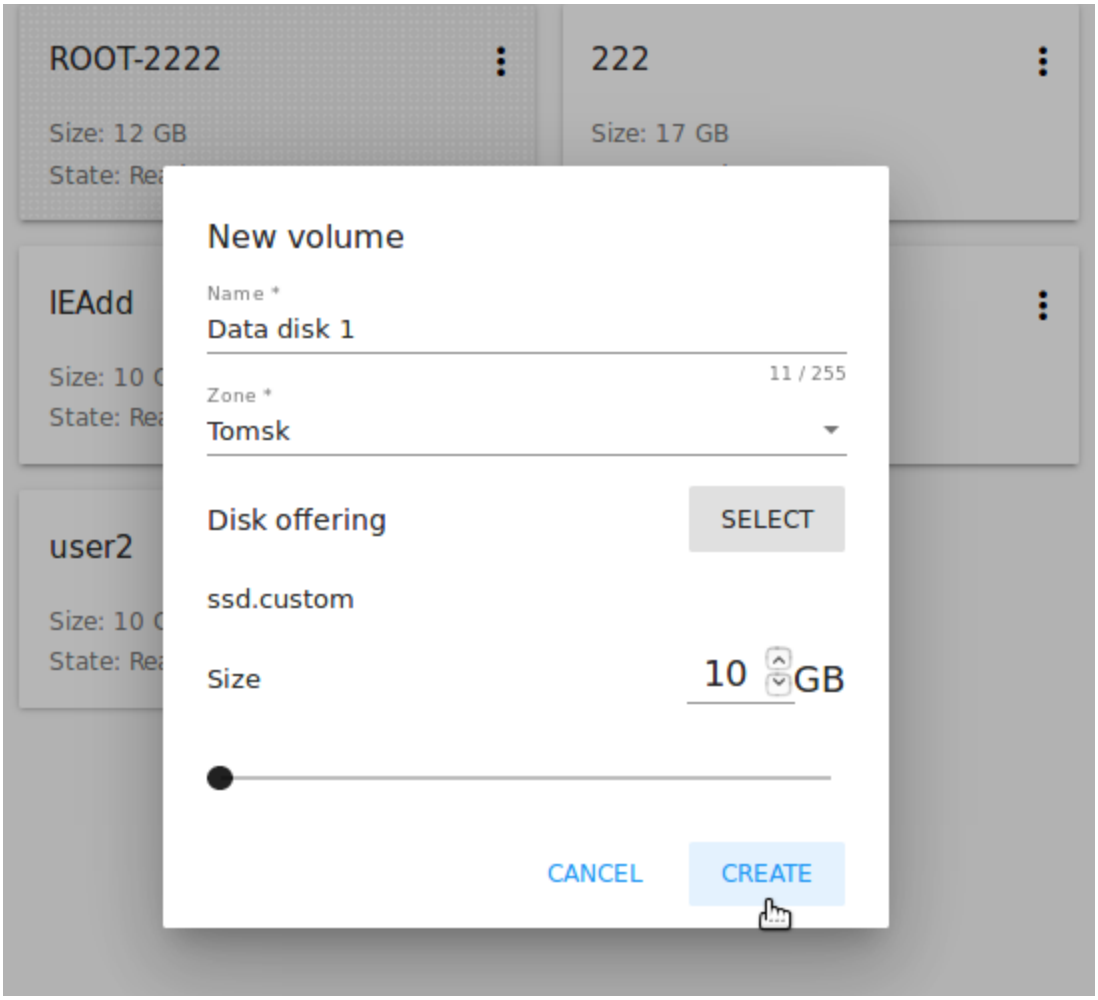
- Take a snapshot;
- Set up snapshot schedule;
- Resize the disk.

For data disks:

- Take a snapshot;
- Set up snapshot schedule;
- Detach;
- Resize the disk;
- Delete.


VM2
ROOT-601
8 GB
No snapshots
Attach a volume
Attach
evelop-285
ISO
No medium attached


VM2
ROOT-529
10 GB
No snapshots
Attach a volume
No spare volumes available. Click if you would like to create a new one rather than resize one of attached
ISO
DrWeb LiveCD 2017.12.12


ROOT-2222
Size: 12 GB
222
Size: 17 GB
IEAdd
user2
New volume
Name *
Data disk 1
11 / 255
Zone *
Tomsk
Disk offering
SELECT
ssd.custom
Size
10
GB
CANCEL
CREATE

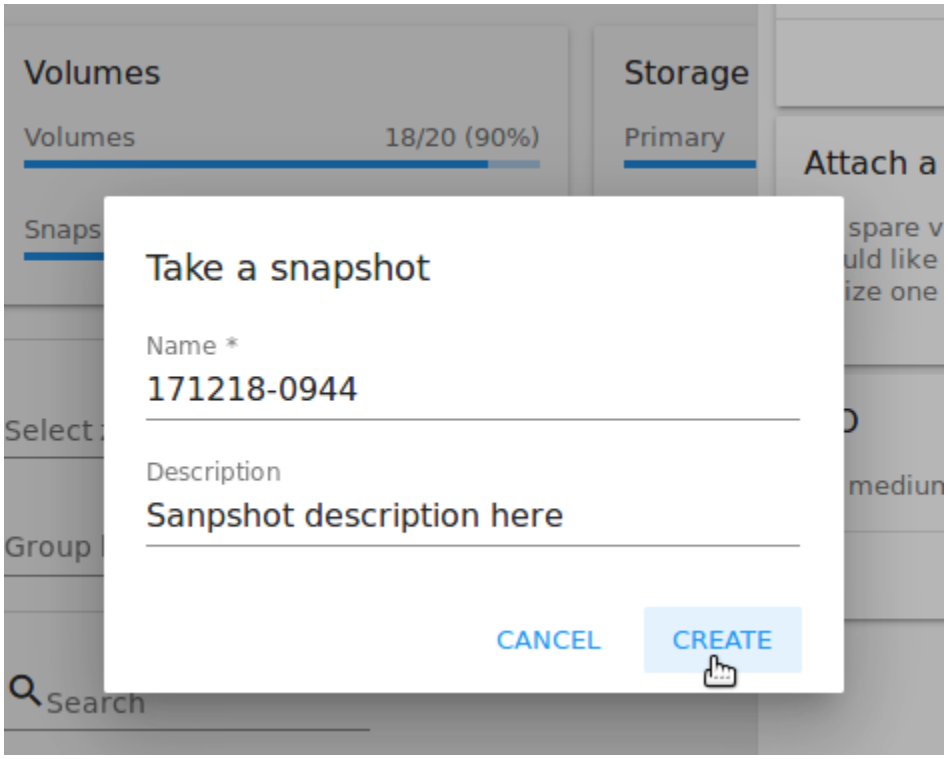
Take a snapshot

You can take a VM snapshot to preserve all the VM's data volumes as well as (optionally) its CPU/memory state. This is useful for quick restore of a VM.

Click "Take a snapshot" in the disk Actions list and in the dialog window enter the following information:

Note: Required fields are marked with an asterisk (*).

- Name of the snapshot * - Define a name for the snapshot. It is auto-generated in the form `<date>-<time>`. But you can specify any name you wish.
- Description - Add a description of the snapshot to know what it contains.



All snapshots are saved in the list of snapshots. In the disk information, you will see the name and time of the *last-taken snapshot*. For each snapshot the list of actions is available. Find more information on snapshot actions in the *Snapshot Action Box* sections below.

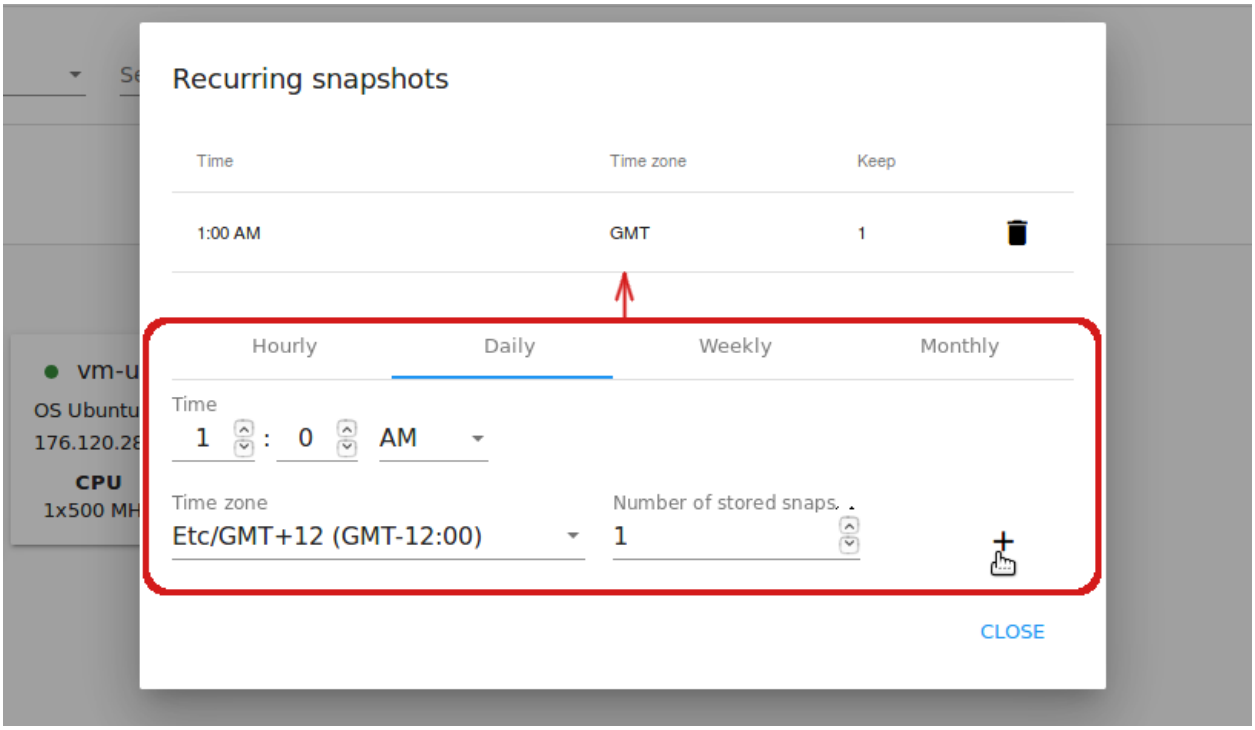
Set up snapshot schedule

You can schedule regular snapshotting by clicking "Set up snapshot schedule" in the Actions list.

In the appeared window set up the schedule for recurring snapshots:

- Select the frequency of snapshotting - hourly, daily, weekly, monthly;
- Select a minute (for hourly scheduling), the time (for daily scheduling), the day of week (for weekly scheduling) or the day of month (for monthly scheduling) when the snapshotting is to be done;
- Select the timezone according to which the snapshotting is to be done at the specified time;
- Set the number of snapshots to be made.

Click “+” to save the schedule. You can add more than one schedule but only one per each type (hourly, daily, weekly, monthly).



Resize the disk

Note: This action is available to data disks created on the base of disk offerings with a custom disk size. Disk offerings with custom disk size can be created by Root Administrators only.

Selecting “Resize the disk” option in the Actions list you are able to enlarge the disk size.

In the appeared window set up a new size using the slider and click “RESIZE” to save the edits.

Click “CANCEL” to drop the size changes.

Detach

This action can be applied to data disks. It allows detaching the data disk from the virtual machine.

Click “Detach” in the Actions list and confirm your action in the dialog window.

The data disk will be detached. It will be in the list of **Spare** drives in the *Storage* section.

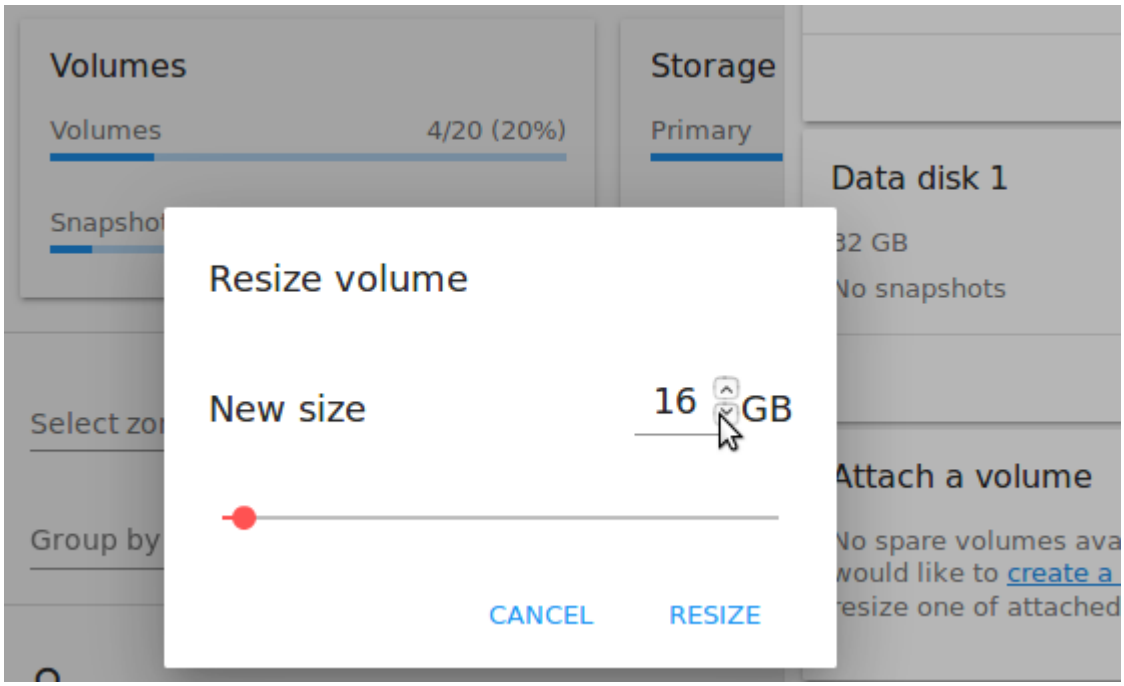
Delete

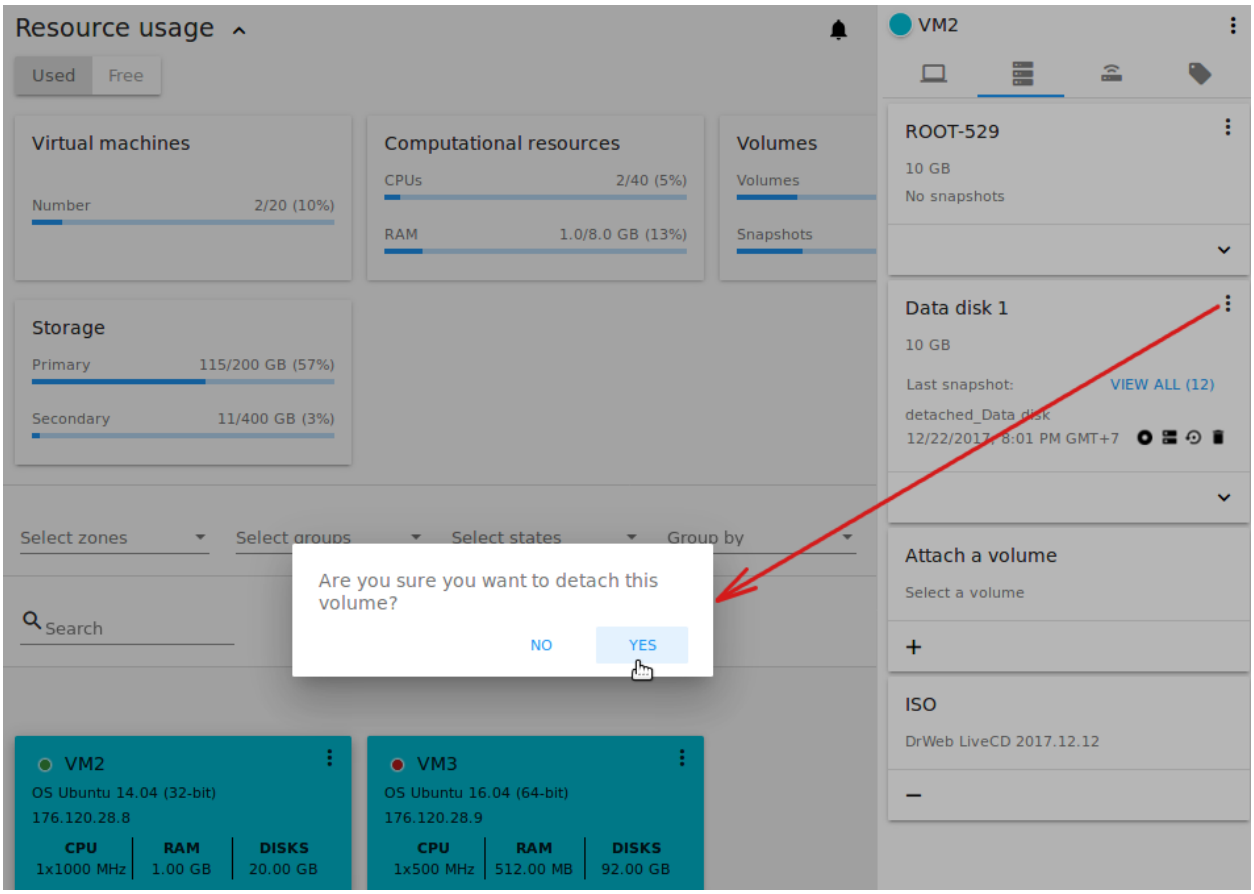
This action can be applied to data disks. It allows deleting a data disk from the system right in the *Storage* VM details sidebar.

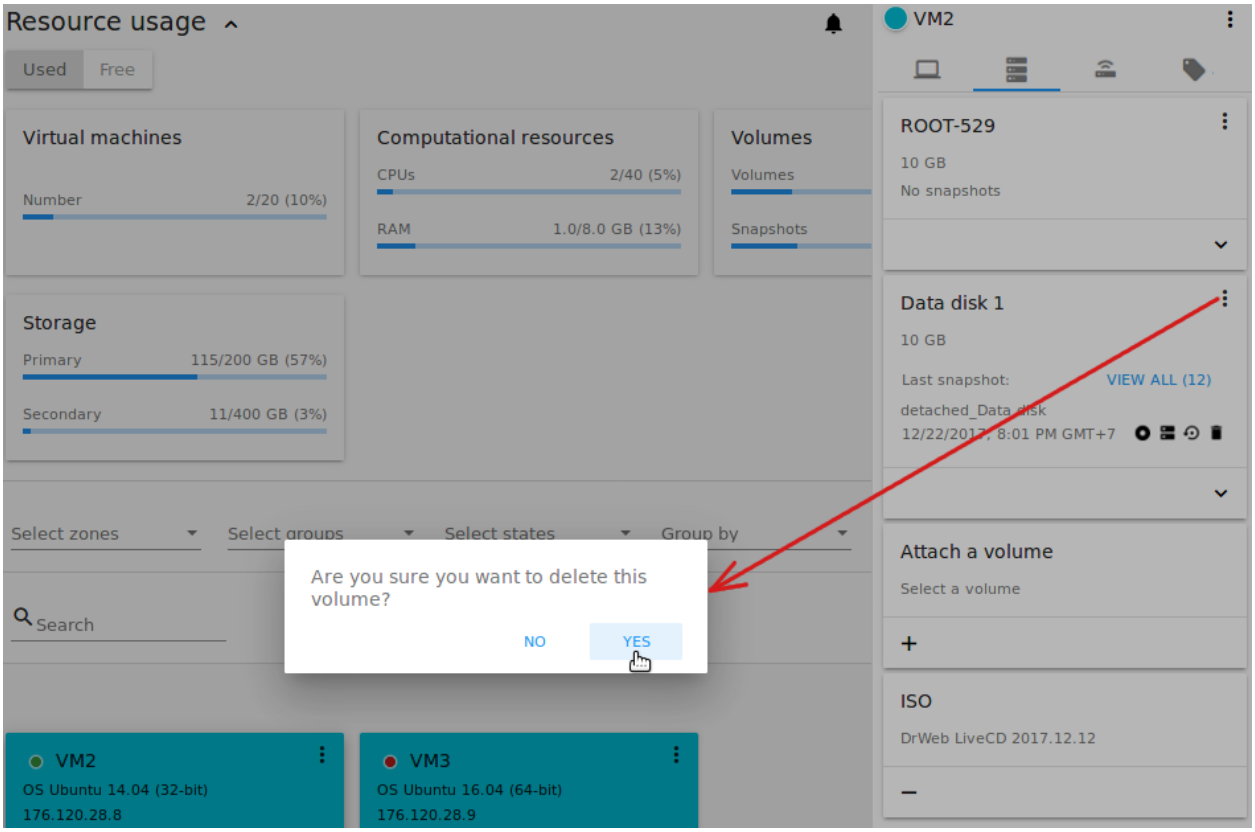
Click “Delete” in the volume Actions list and confirm your action in the dialog window.

The data disk will be deleted from the system right at this moment.

If a disk has snapshots, the system will ask you if you want to delete the snapshots of the disk as well. Click “Yes” to delete the snapshots. Click “No” to leave the snapshots in the system after volume deleting.


Volumes
Volumes
4/20 (20%)
Storage
Primary
Data disk 1
32 GB
No snapshots
Resize volume
New size
16
GB
CANCEL
RESIZE
Attach a volume
No spare volumes ava
would like to create a
resize one of attached
Select zo
Group by


Resource usage
Used
Free
Virtual machines
Number
2/20 (10%)
Computational resources
CPUs
2/40 (5%)
RAM
1.0/8.0 GB (13%)
Volumes
Volumes
Snapshots
Storage
Primary
115/200 GB (57%)
Secondary
11/400 GB (3%)
Select zones
Select groups
Select states
Group by
Search
Are you sure you want to detach this volume?
NO
YES
VM2
OS Ubuntu 14.04 (32-bit)
176.120.28.8
CPU
1x1000 MHz
RAM
1.00 GB
DISKS
20.00 GB
VM3
OS Ubuntu 16.04 (64-bit)
176.120.28.9
CPU
1x500 MHz
RAM
512.00 MB
DISKS
92.00 GB
VM2
ROOT-529
10 GB
No snapshots
Data disk 1
10 GB
Last snapshot:
VIEW ALL (12)
detached_Data disk
12/22/2017, 8:01 PM GMT+7
Attach a volume
Select a volume
ISO
DrWeb LiveCD 2017.12.12



Snapshot Action Box

Note: For a newly taken snapshot all actions except "Delete" are disabled until the snapshot is backed up to the Secondary Storage that may take some time. Once it is backed up, a full range of actions is available to a user.

For each snapshot the following actions are available:

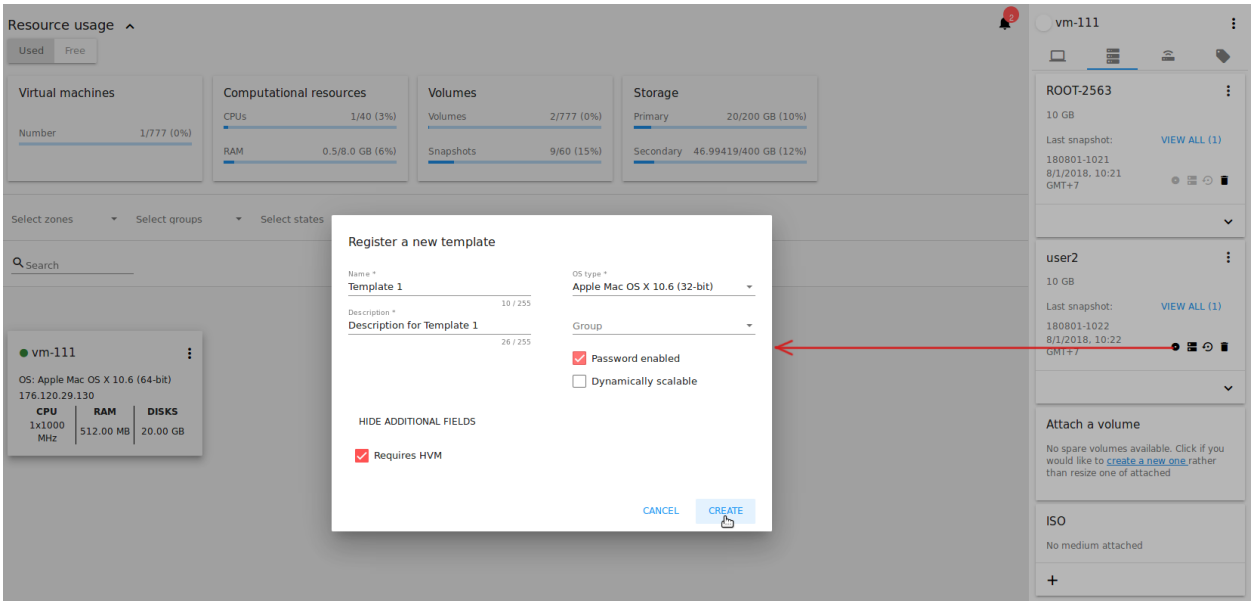
- **Create a template** - Register a new template right from the disk information block of the sidebar. In the appeared window fill in the form:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter a name of the new template.
- Description * - Provide a short description of the template.
- OS type * - Select an OS type from the drop-down list.
- Group - Select a group from the drop-down list.
- Password enabled - Tick this option if your template has the CloudStack password change script installed. That means the VM created on the base of this template will be accessed by a password, and this password can be reset.
- Dynamically scalable - Tick this option if the template contains XS/VM Ware tools to support dynamic scaling of VM CPU/memory.

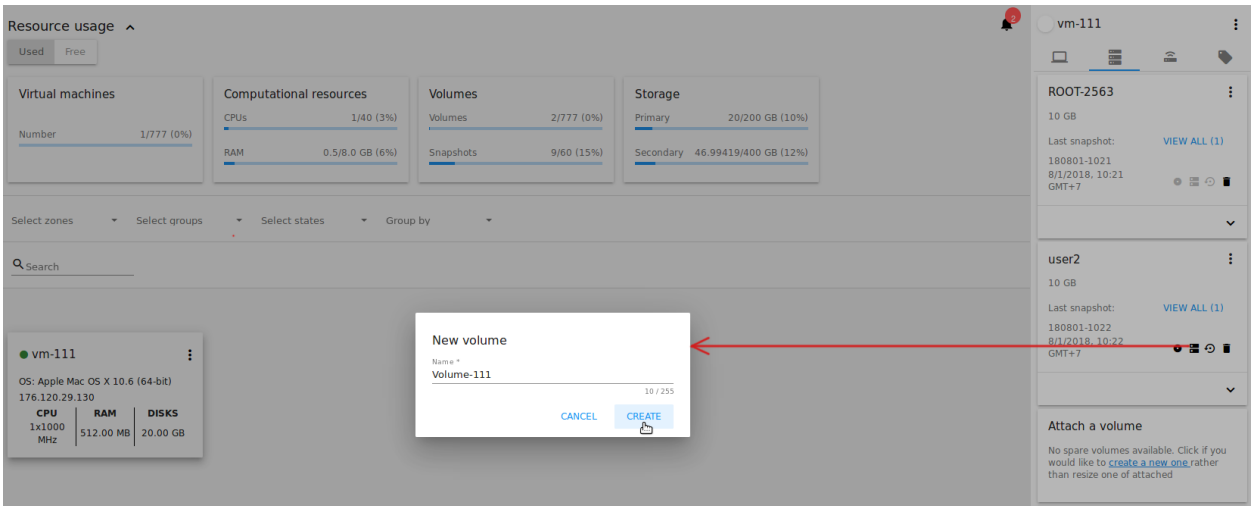
Click “SHOW ADDITIONAL FIELDS” to expand the list of optional settings. It allows creating a template that requires HVM. Tick this option in this case.

Once all fields are filled in click “CREATE” to create the new template.



- **Create Volume** - Allows creating a volume from the snapshot.

Type a name for a new volume into the Name field in the modal window. Click “CREATE” to register a new volume.



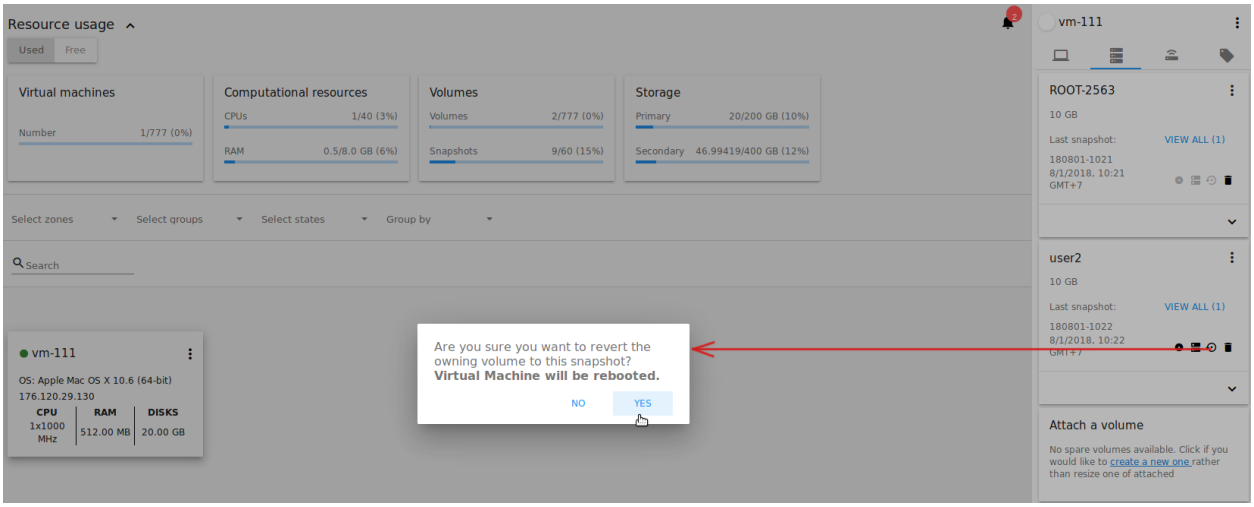
Click “CANCEL” to cancel the volume creation.

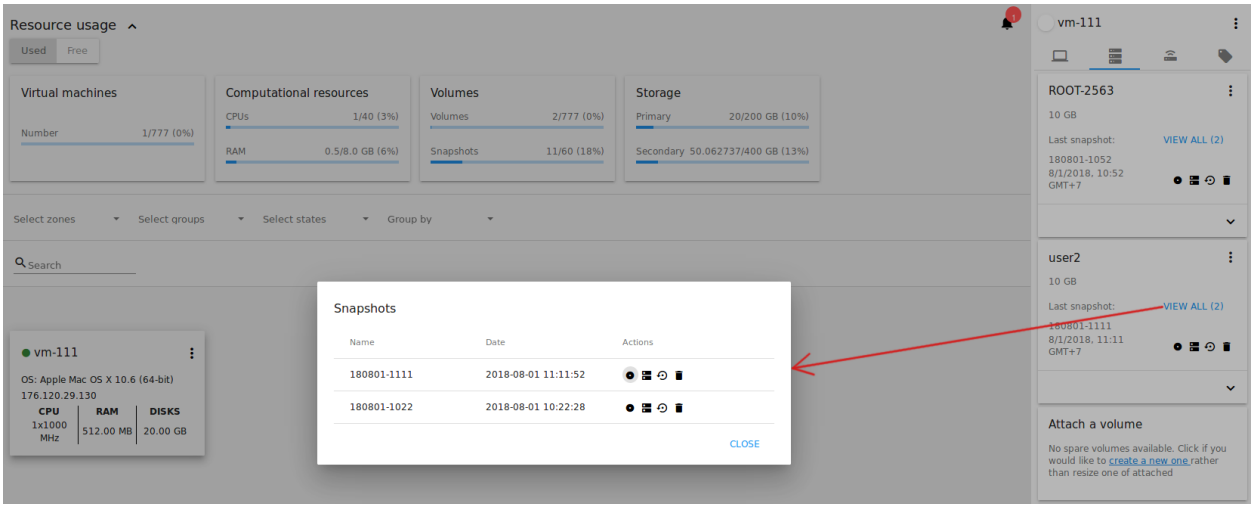
- **Revert Volume To Snapshot** - Allows turning the volume back to the state of the snapshot.

In the dialog window confirm your action. Please, note, the virtual machine the volume is assigned to will be rebooted.

- **Delete** - allows deleting the last-taken snapshot.

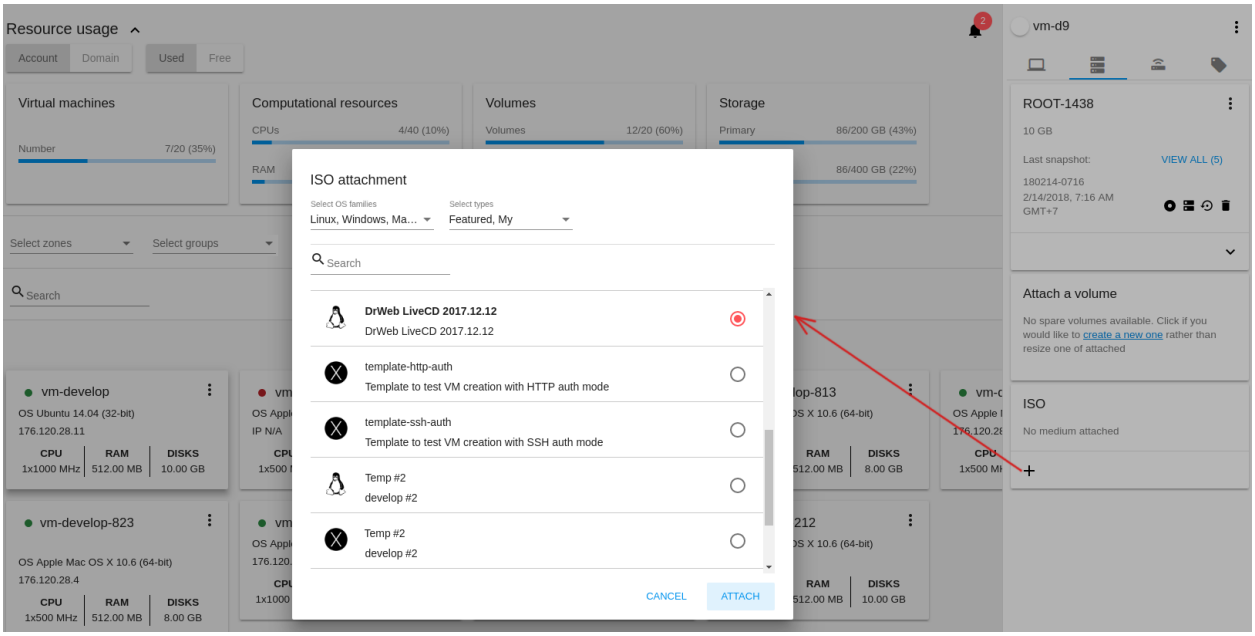
Besides, you can see all the snapshots in the list by clicking the “VIEW ALL” button. In the appeared window you will see the list of all snapshots. For each snapshot in the list, the same actions are available: you can create a template, or delete a snapshot.


Resource usage
Used
Free
Virtual machines
Number 1/777 (0%)
Computational resources
CPUs 1/40 (3%)
RAM 0.5/8.0 GB (6%)
Volumes
Volumes 2/777 (0%)
Snapshots 9/60 (15%)
Storage
Primary 20/200 GB (10%)
Secondary 46.99419/400 GB (12%)
Select zones
Select groups
Select states
Group by
Search
vm-111
OS: Apple Mac OS X 10.6 (64-bit)
176.120.29.130
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 20.00 GB
Are you sure you want to revert the owning volume to this snapshot?
Virtual Machine will be rebooted.
NO
YES
vm-111
ROOT-2563
10 GB
Last snapshot:
VIEW ALL (1)
180801-1021
8/1/2018, 10:21 GMT+7
user2
10 GB
Last snapshot:
VIEW ALL (1)
180801-1022
8/1/2018, 10:22 GMT+7
Attach a volume
No spare volumes available. Click if you would like to create a new one rather than resize one of attached


Resource usage
Used
Free
Virtual machines
Number 1/777 (0%)
Computational resources
CPUs 1/40 (3%)
RAM 0.5/8.0 GB (6%)
Volumes
Volumes 2/777 (0%)
Snapshots 11/60 (18%)
Storage
Primary 20/200 GB (10%)
Secondary 50.062737/400 GB (13%)
Select zones
Select groups
Select states
Group by
Search
vm-111
OS: Apple Mac OS X 10.6 (64-bit)
176.120.29.130
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 20.00 GB
Snapshots
Name
Date
Actions
180801-1111
2018-08-01 11:11:52
180801-1022
2018-08-01 10:22:28
CLOSE
vm-111
ROOT-2563
10 GB
Last snapshot:
VIEW ALL (2)
180801-1052
8/1/2018, 10:52 GMT+7
user2
10 GB
Last snapshot:
VIEW ALL (2)
180801-1111
8/1/2018, 11:11 GMT+7
Attach a volume
No spare volumes available. Click if you would like to create a new one rather than resize one of attached

3. **ISO** - Allows attaching ISO.

Attach ISO by clicking the “Attach” button in the ISO card. In the dialog window you will see the list of available ISO files. To easily find the ISO file you need, please, use the search tool above the list. Additionally, you can filter the list by OS family(-ies), by type(-s), by group(-s). Tick the ISO file you wish in the list and click “ATTACH”. The ISO will be attached to the VM.



You can detach the ISO file by clicking the “Detach” button.

Network Tab

Under the Network tab the network configurations of the VM are presented.

1. **NIC information** - VM network details are shown here: Network nam, Netmask, Gateway, IP, Broadcast URI, Traffic Type, Type, Default, MAC address.

You can add a secondary IP for the VM from this tab. Click “+” next to the Secondary IP option and confirm your action in the dialog window. The IP appears for the VM.

You can delete the secondary IP by clicking the “Delete” button next to it.

2. **Firewall rules** - Allows viewing the security group assigned to the virtual machine. Click to open the list of assigned security group(-s).

You can filter the list by IP version, types and/or protocols. Or you can adjust the view by grouping the list by types and/or protocols.

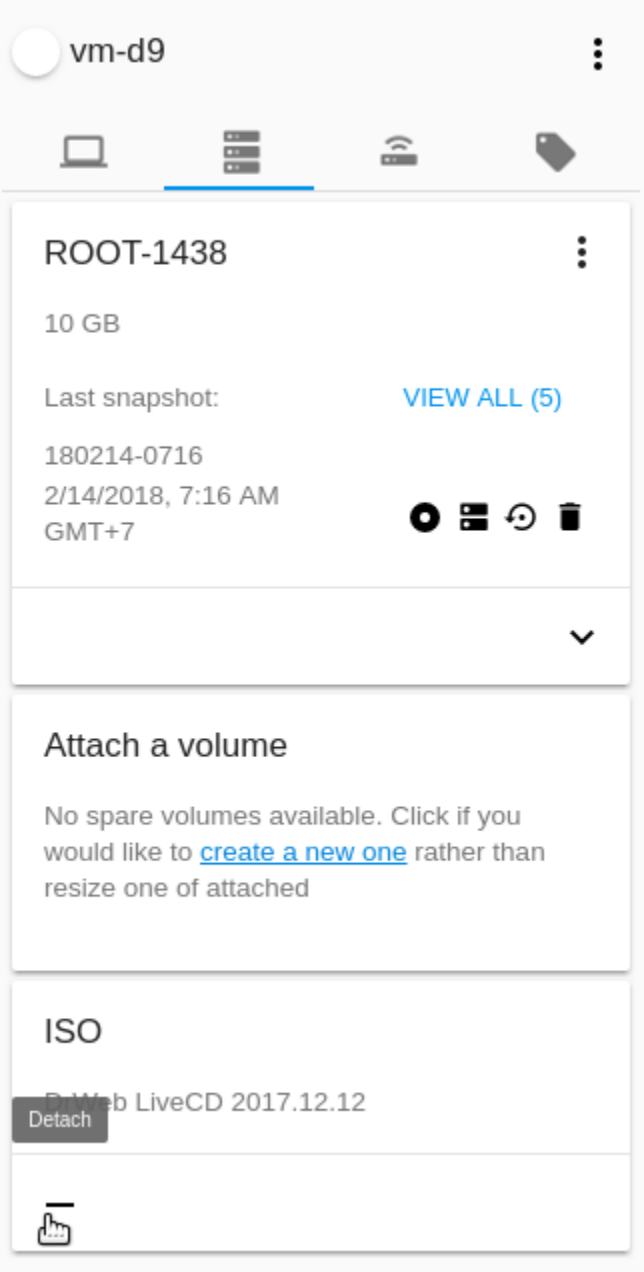
In the modal window you can edit a security group. Click “EDIT” to move to editing form. There you will be able to add rules, or delete the selected ones from the list.

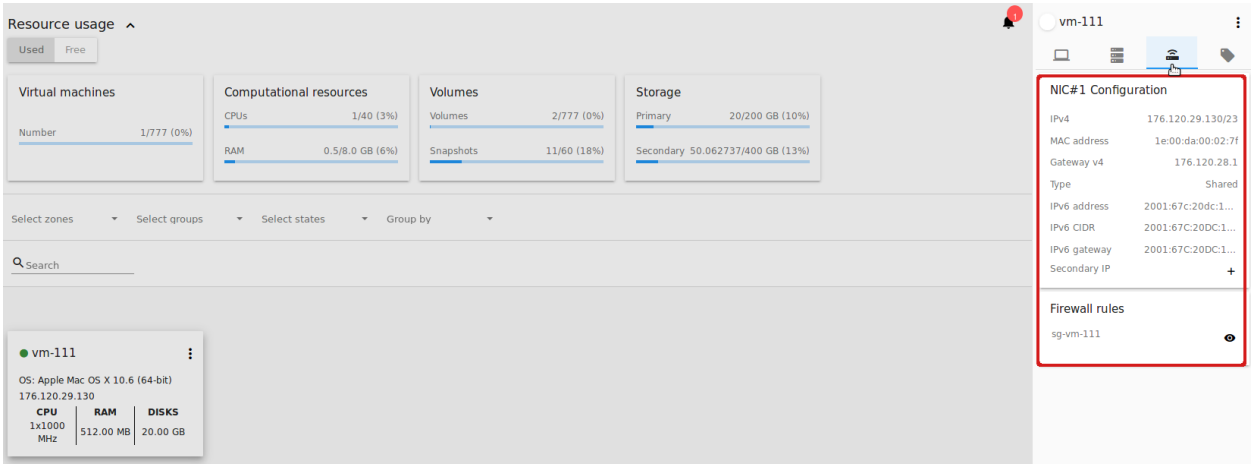
To add rules, please, fill in the fields in the bar above the list and click “+”:

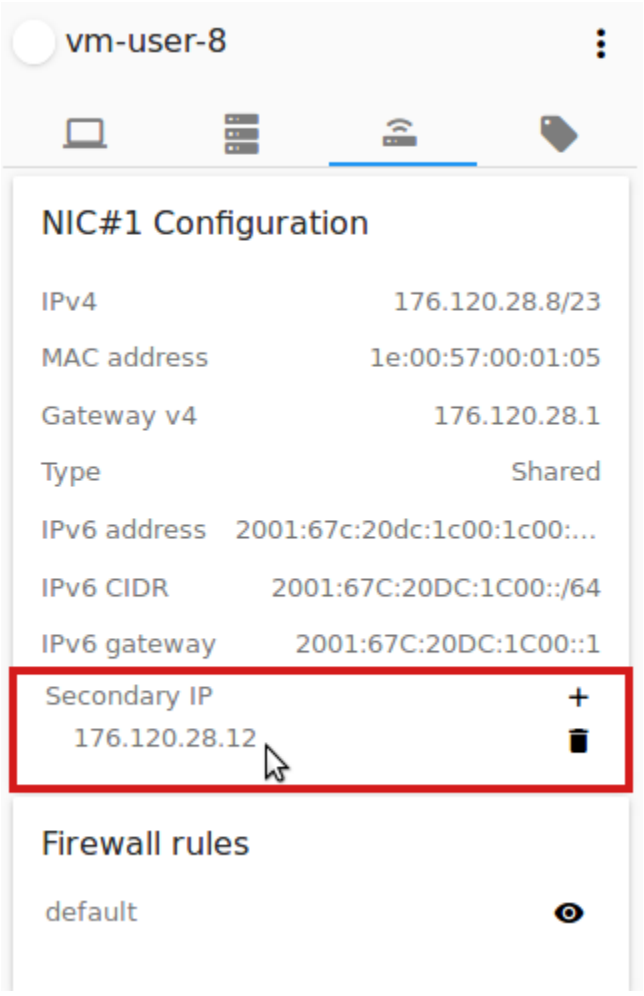
To delete rules, please, click “Delete” icon in the list. The rule will be deleted from the security group.

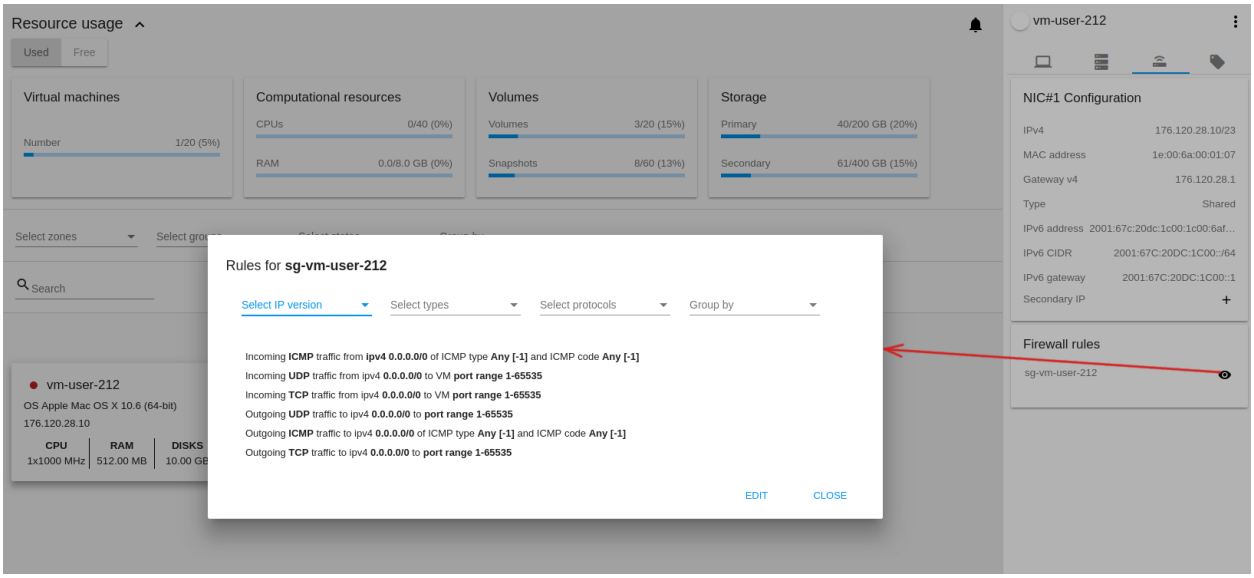
Then you can move back to the view mode, or close the window.

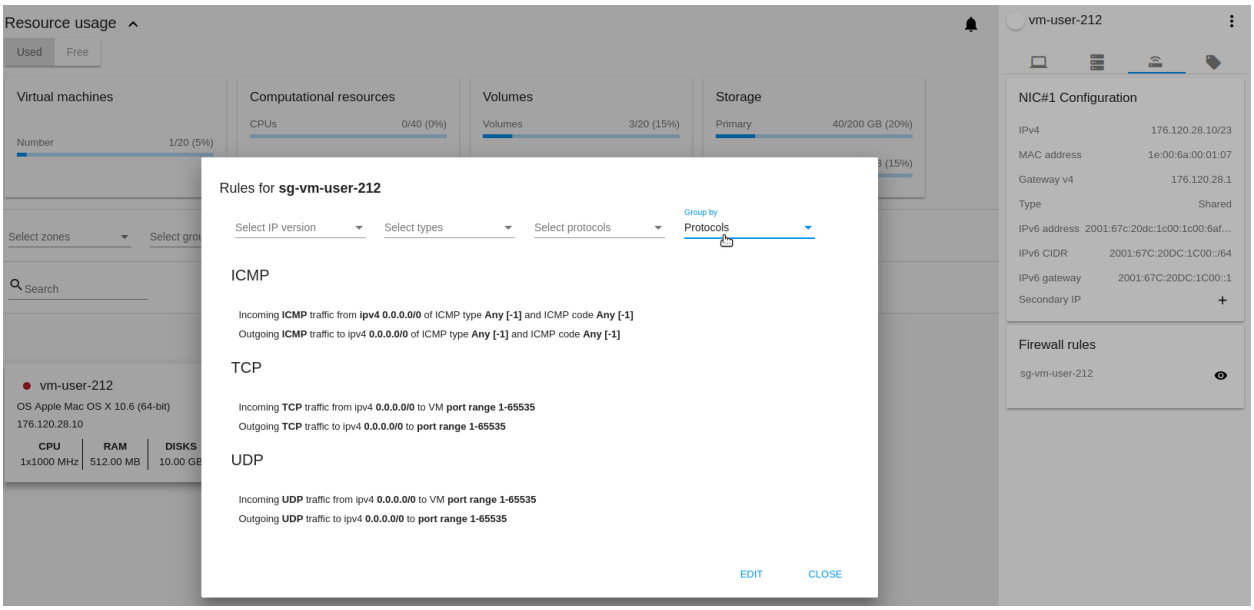
Please, note, when editing shared security groups, a warning message appears:

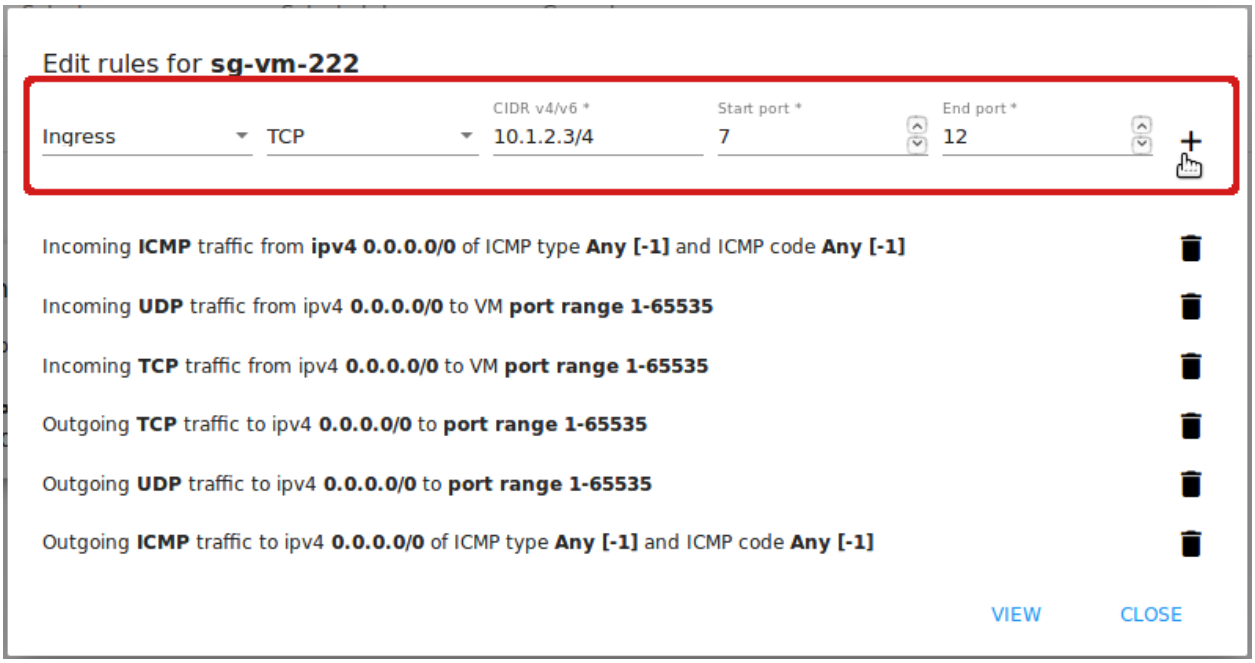

vm-d9
ROOT-1438
10 GB
Last snapshot:
VIEW ALL (5)
180214-0716
2/14/2018, 7:16 AM
GMT+7
Attach a volume
No spare volumes available. Click if you would like to create a new one rather than resize one of attached
ISO
b LiveCD 2017.12.12
Detach

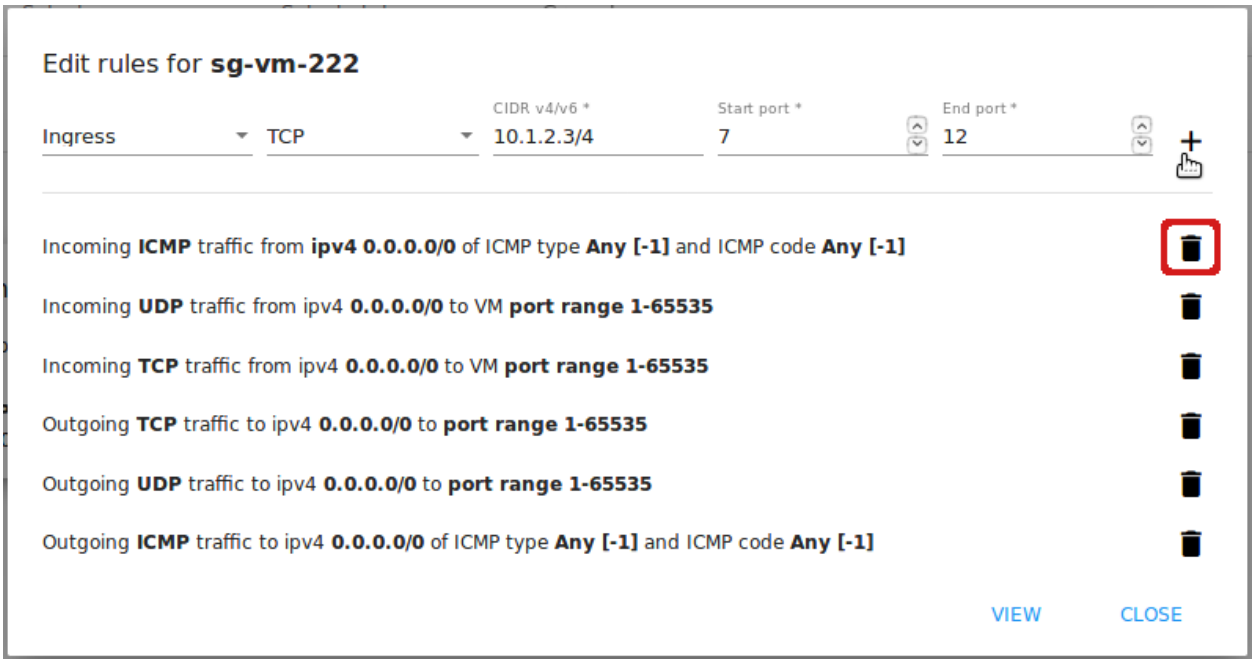

Resource usage
Used
Free
Virtual machines
Number 1/777 (0%)
Computational resources
CPUs 1/40 (3%)
RAM 0.5/8.0 GB (6%)
Volumes
Volumes 2/777 (0%)
Snapshots 11/60 (18%)
Storage
Primary 20/200 GB (10%)
Secondary 50.062737/400 GB (13%)
Select zones
Select groups
Select states
Group by
Search
vm-111
OS: Apple Mac OS X 10.6 (64-bit)
176.120.29.130
CPU
1x1000 MHz
RAM
512.00 MB
DISKS
20.00 GB
vm-111
NIC#1 Configuration
IPv4 176.120.29.130/23
MAC address 1e:00:da:00:02:7f
Gateway v4 176.120.28.1
Type Shared
IPv6 address 2001:67c:20dc:1...
IPv6 CIDR 2001:67C:20DC:1...
IPv6 gateway 2001:67C:20DC:1...
Secondary IP
Firewall rules
sg-vm-111

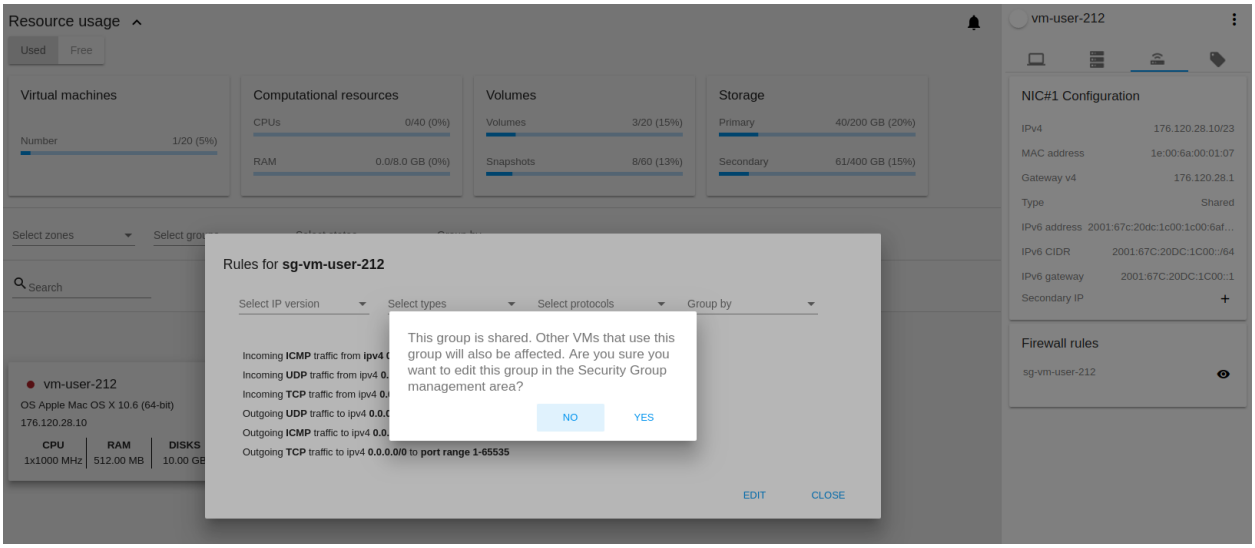

vm-user-8
NIC#1 Configuration
IPv4 176.120.28.8/23
MAC address 1e:00:57:00:01:05
Gateway v4 176.120.28.1
Type Shared
IPv6 address 2001:67c:20dc:1c00:1c00:...
IPv6 CIDR 2001:67C:20DC:1C00::/64
IPv6 gateway 2001:67C:20DC:1C00::1
Secondary IP
176.120.28.12
Firewall rules
default


Resource usage
Used
Free
Virtual machines
Number 1/20 (5%)
Computational resources
CPUs 0/40 (0%)
RAM 0.0/8.0 GB (0%)
Volumes
Volumes 3/20 (15%)
Snapshots 8/60 (13%)
Storage
Primary 40/200 GB (20%)
Secondary 61/400 GB (15%)
Select zones
Search
vm-user-212
OS Apple Mac OS X 10.6 (64-bit)
176.120.28.10
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 10.00 GB
Rules for sg-vm-user-212
Select IP version
Select types
Select protocols
Group by
Incoming ICMP traffic from ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
Incoming UDP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Incoming TCP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Outgoing UDP traffic to ipv4 0.0.0.0/0 to port range 1-65535
Outgoing ICMP traffic to ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
Outgoing TCP traffic to ipv4 0.0.0.0/0 to port range 1-65535
EDIT
CLOSE
vm-user-212
NIC#1 Configuration
IPv4 176.120.28.10/23
MAC address 1e:00:6a:00:01:07
Gateway v4 176.120.28.1
Type Shared
IPv6 address 2001:67c:20dc:1c00:1c00:6af...
IPv6 CIDR 2001:67C:20DC:1C00::/64
IPv6 gateway 2001:67C:20DC:1C00::1
Secondary IP
Firewall rules
sg-vm-user-212


Resource usage
Used
Free
Virtual machines
Number 1/20 (5%)
Computational resources
CPUs 0/40 (0%)
Volumes
Volumes 3/20 (15%)
Storage
Primary 40/200 GB (20%)
Select zones
Search
vm-user-212
OS Apple Mac OS X 10.6 (64-bit)
176.120.28.10
CPU 1x1000 MHz
RAM 512.00 MB
DISKS 10.00 GB
Rules for sg-vm-user-212
Select IP version
Select types
Select protocols
Group by
Protocols
ICMP
Incoming ICMP traffic from ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
Outgoing ICMP traffic to ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
TCP
Incoming TCP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Outgoing TCP traffic to ipv4 0.0.0.0/0 to port range 1-65535
UDP
Incoming UDP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Outgoing UDP traffic to ipv4 0.0.0.0/0 to port range 1-65535
EDIT
CLOSE
vm-user-212
NIC#1 Configuration
IPv4 176.120.28.10/23
MAC address 1e:00:6a:00:01:07
Gateway v4 176.120.28.1
Type Shared
IPv6 address 2001:67c:20dc:1c00:1c00:6af...
IPv6 CIDR 2001:67C:20DC:1C00::/64
IPv6 gateway 2001:67C:20DC:1C00::1
Secondary IP
Firewall rules
sg-vm-user-212


Edit rules for sg-vm-222
Ingress
TCP
CIDR v4/v6 *
10.1.2.3/4
Start port *
7
End port *
12
Incoming ICMP traffic from ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
Incoming UDP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Incoming TCP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Outgoing TCP traffic to ipv4 0.0.0.0/0 to port range 1-65535
Outgoing UDP traffic to ipv4 0.0.0.0/0 to port range 1-65535
Outgoing ICMP traffic to ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
VIEW
CLOSE


Edit rules for sg-vm-222
Ingress
TCP
CIDR v4/v6 *
10.1.2.3/4
Start port *
7
End port *
12
Incoming ICMP traffic from ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
Incoming UDP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Incoming TCP traffic from ipv4 0.0.0.0/0 to VM port range 1-65535
Outgoing TCP traffic to ipv4 0.0.0.0/0 to port range 1-65535
Outgoing UDP traffic to ipv4 0.0.0.0/0 to port range 1-65535
Outgoing ICMP traffic to ipv4 0.0.0.0/0 of ICMP type Any [-1] and ICMP code Any [-1]
VIEW
CLOSE

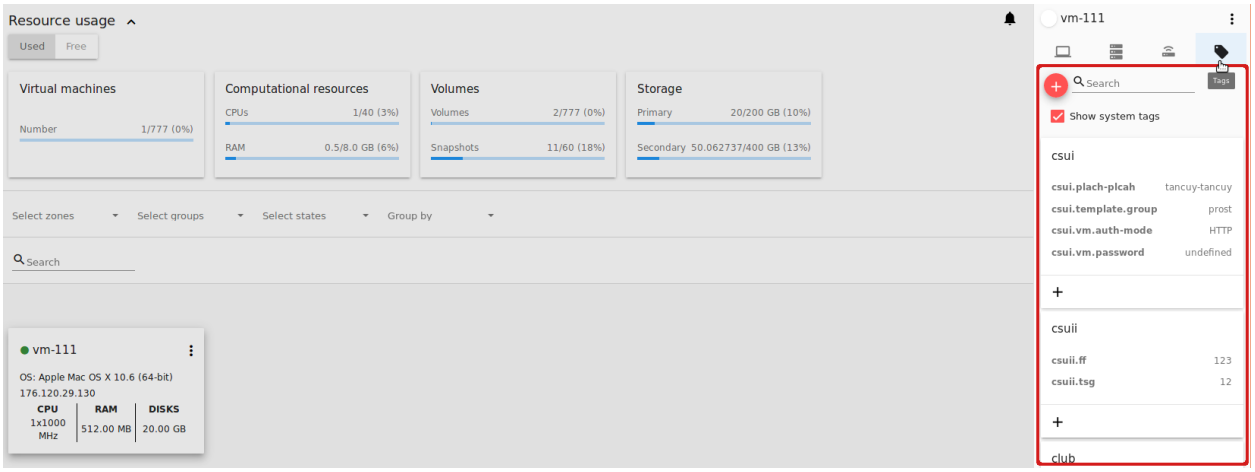


Click “Yes” if you still want to edit a shared security group. You will be moved to the “Firewall” section where you can edit the security group. After editing, go back to the virtual machine that uses this group. You will see the rules are edited.

See the *Firewall* section for more information on firewall rules in the system.

Tags Tab

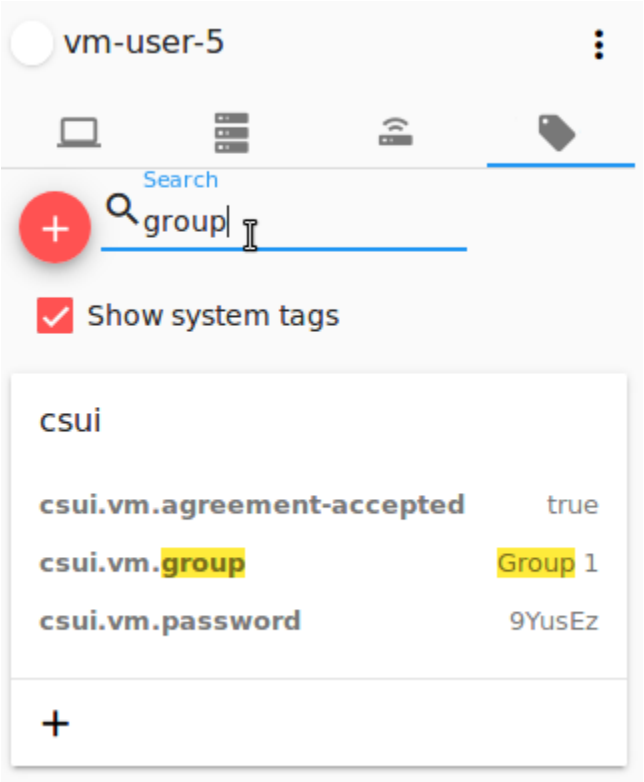
Under this tab, you can create and see the VM tags.



CloudStack-UI uses tags very extensively to provide additional UX capabilities. Tags are key-value pairs. So it makes a kind of a key-value storage for the meta-information - VM description or group, or a user language. The tags used by Cloudstack-UI are system tags. They are prefixed with `csui`. You can find the full list of system tags supported by CloudStack-UI at the page.

System tags are used to provide functionality from the user interface perspective. Changing these tags affects the functionality of the application. The “Show system tags” checkbox allows to view or hide system tags of the virtual machine. Uncheck this box to hide system tags from the list. It helps to avoid accidental unwanted changes. If a user has disabled displaying of these tags, the system will remember it and next time tags will also be hidden.

To find the tag you are interested in, please, use the search tool above the tag list. You can enter a name or a part of the tag name to distinguish it in the list.



The tags assigned to the virtual machine are presented in the list. System tags are presented in one card, other tags - in a separate card. For each tag in the list the following actions are available when hovering the mouse over the tag key:

- Edit - Allows editing the tag. In the appeared form define a new key and/or value (both fields are required). Click "Edit" to save the edits. Click "Cancel" to drop the edits. The tag won't be changed then.
- Delete - Allows deleting the tag. Click "Delete" and confirm your action in the dialog window.

Create Tags

You can create a tag right from *Tags* tab.

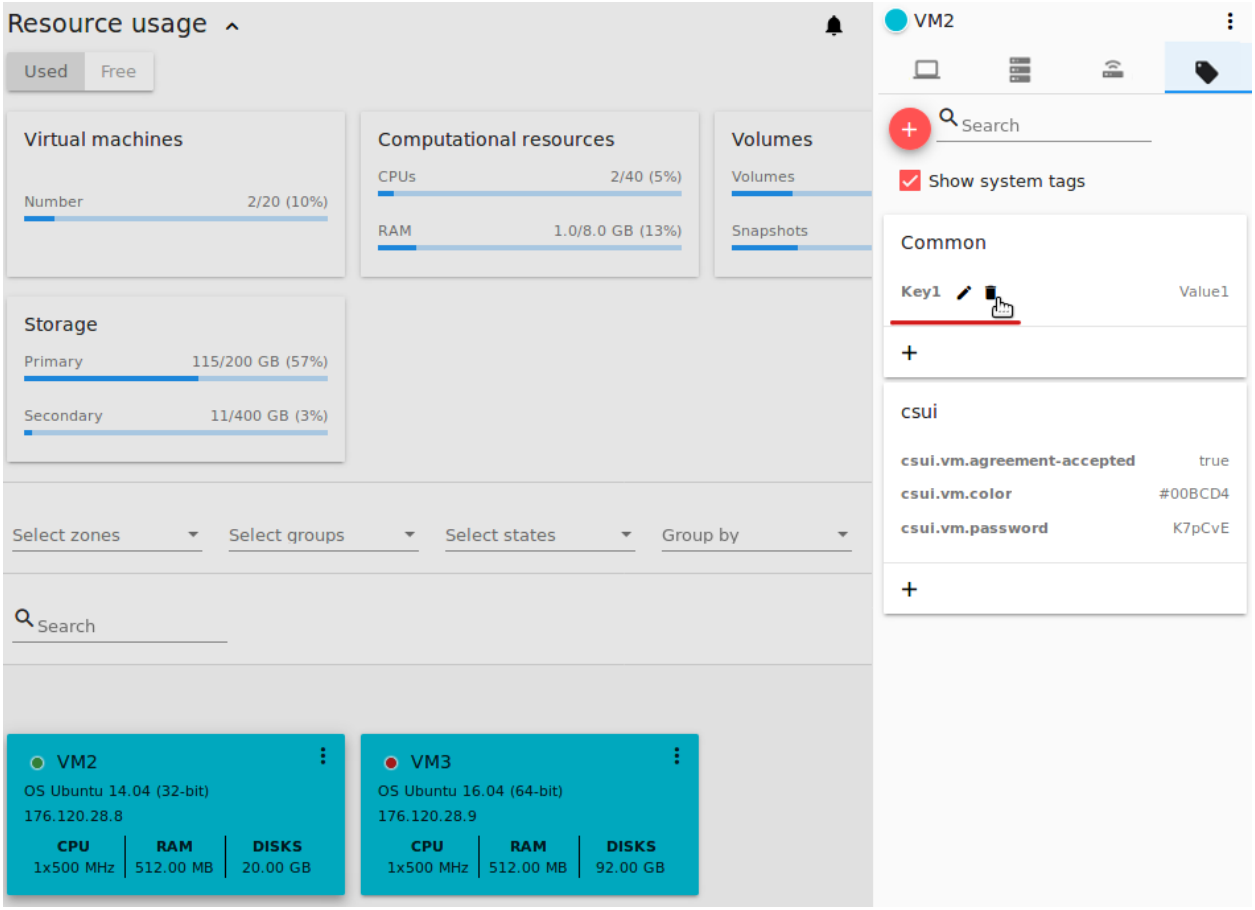
Click "Create" and fill in the appeared form:

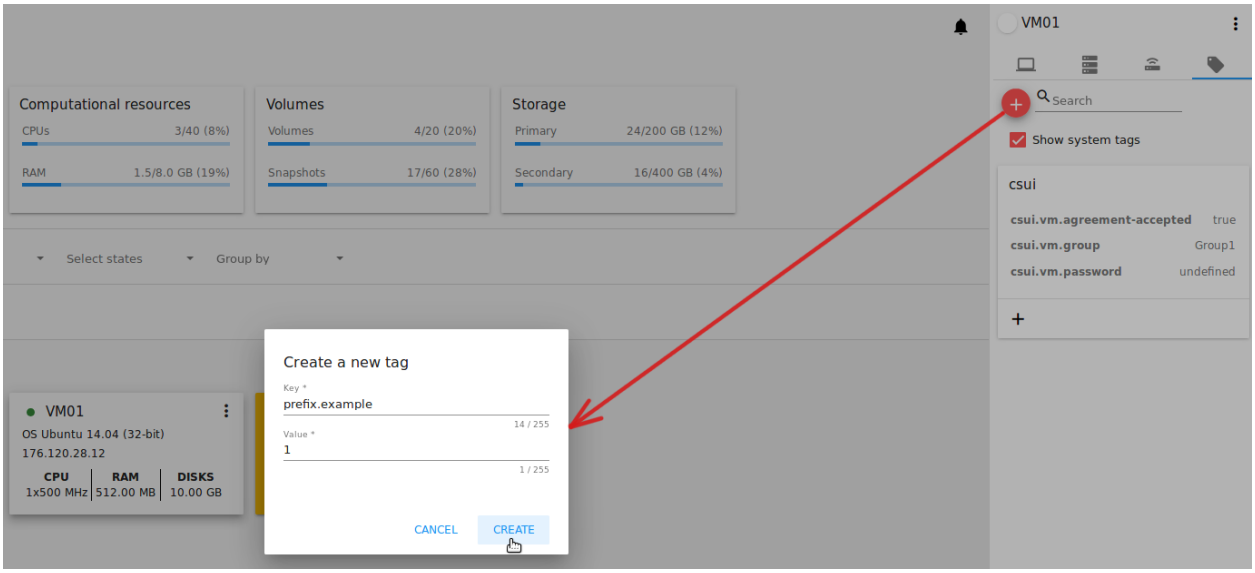
Note: Required fields are marked with an asterisk (*). You cannot use space as the first symbol.

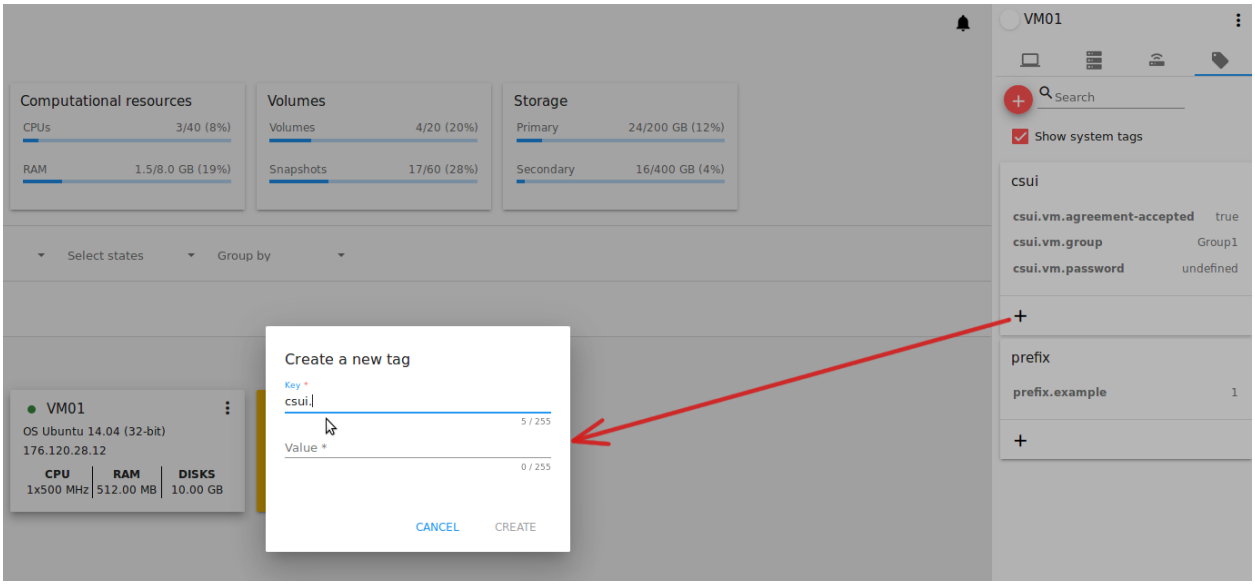
- Key * - Enter a key here.
- Value * - Enter the value here.

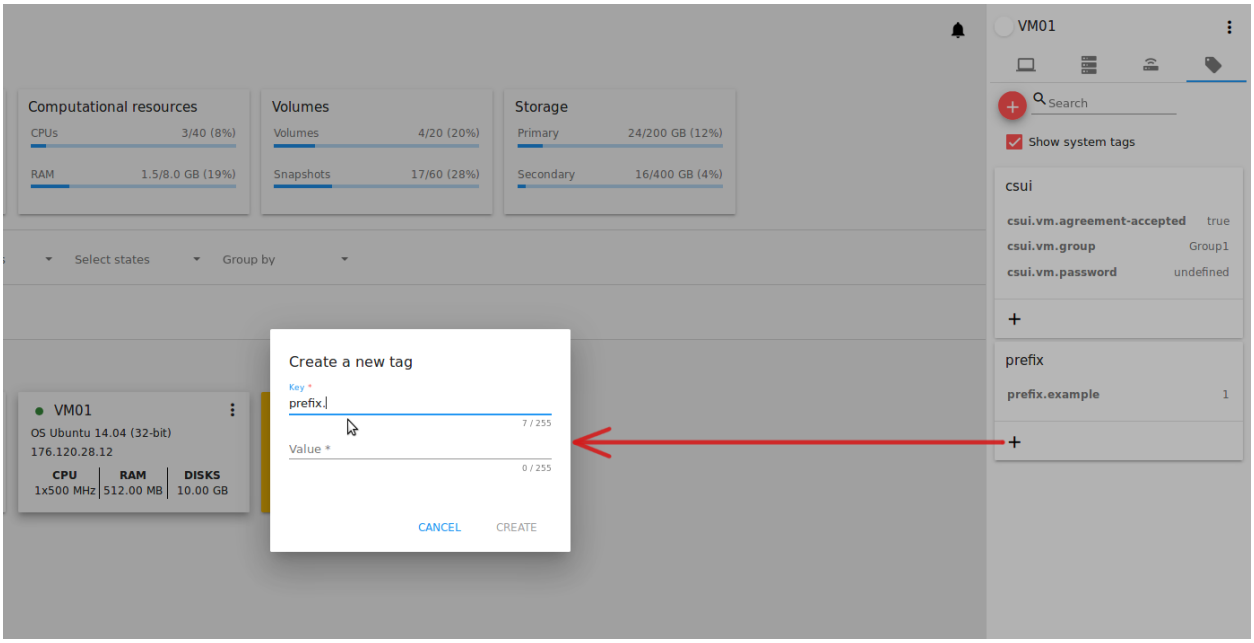
When adding a system tag, click "+" in the card to open the creation form. You will see that the `csui` prefix is automatically prepopulated here.

If you create a non-system tag, it will be saved in a new card. If you have entered a key in the format `<prefix>.<example>`, a card will be named as "<prefix>". When creating a new tag from this card, click "+" in the card and in the tag creation form the *Key* field will be prepopulated with the <prefix>.


Resource usage
Used
Free
Virtual machines
Number 2/20 (10%)
Computational resources
CPUs 2/40 (5%)
RAM 1.0/8.0 GB (13%)
Volumes
Volumes
Snapshots
Storage
Primary 115/200 GB (57%)
Secondary 11/400 GB (3%)
Select zones
Select groups
Select states
Group by
Search
VM2
OS Ubuntu 14.04 (32-bit)
176.120.28.8
CPU 1x500 MHz
RAM 512.00 MB
DISKS 20.00 GB
VM3
OS Ubuntu 16.04 (64-bit)
176.120.28.9
CPU 1x500 MHz
RAM 512.00 MB
DISKS 92.00 GB
VM2
Search
Show system tags
Common
Key1
Value1
csui
csui.vm.agreement-accepted true
csui.vm.color #00BCD4
csui.vm.password K7pCvE


Computational resources
CPUs 3/40 (8%)
RAM 1.5/8.0 GB (19%)
Volumes
Volumes 4/20 (20%)
Snapshots 17/60 (28%)
Storage
Primary 24/200 GB (12%)
Secondary 16/400 GB (4%)
Select states
Group by
VM01
OS Ubuntu 14.04 (32-bit)
176.120.28.12
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
Create a new tag
Key *
prefix.example
14 / 255
Value *
1
1 / 255
CANCEL
CREATE
VM01
Search
Show system tags
csui
csui.vm.agreement-accepted true
csui.vm.group Group1
csui.vm.password undefined


Computational resources
CPUs 3/40 (8%)
RAM 1.5/8.0 GB (19%)
Volumes
Volumes 4/20 (20%)
Snapshots 17/60 (28%)
Storage
Primary 24/200 GB (12%)
Secondary 16/400 GB (4%)
Select states
Group by
VM01
OS Ubuntu 14.04 (32-bit)
176.120.28.12
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
Create a new tag
Key *
csui.
5 / 255
Value *
0 / 255
CANCEL
CREATE
VM01
Search
Show system tags
csui
csui.vm.agreement-accepted true
csui.vm.group Group1
csui.vm.password undefined
prefix
prefix.example 1


Computational resources
CPUs 3/40 (8%)
RAM 1.5/8.0 GB (19%)
Volumes
Volumes 4/20 (20%)
Snapshots 17/60 (28%)
Storage
Primary 24/200 GB (12%)
Secondary 16/400 GB (4%)
Select states
Group by
VM01
OS Ubuntu 14.04 (32-bit)
176.120.28.12
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
Create a new tag
Key *
prefix.
7 / 255
Value *
0 / 255
CANCEL
CREATE
VM01
Search
Show system tags
csui
csui.vm.agreement-accepted true
csui.vm.group Group1
csui.vm.password undefined
prefix
prefix.example 1

2.2.5 Access a Virtual Machine

Access VM component allows a user to obtain all necessary credentials to access a VM in the final dialog box shown after VM creation, or later when a user selects a corresponding action in the VM Action box. Depending on tags determined for a template or a VM, the system allows getting access to the VM interaction interface. Currently, the following access modes are supported:

- Via a VNC console - active by default for all VMs;
- Via SSH;
- Via HTTP.

The three access modes can be used at the same time for one machine.

You can find more information on how to enable a necessary access mode at the wiki-page.

Selecting "Access VM" in the VM action list, you open a modal window with three tabs. The view and contents of the modal window are determined by the defined tags. Some tabs in the window can be inactive. That means these access modes are not enabled for the machine. In active tab(s) you can view detailed access information for the machine: login, password, port, path and other.

In each tab you can click on a corresponding link to open a console or a window to access the VM.

Below you will find more information on each access mode.

VNC console

This tab contains the following details:

- Login;
- Password (if available);
- Open VNC console link that opens a console to access the VM.

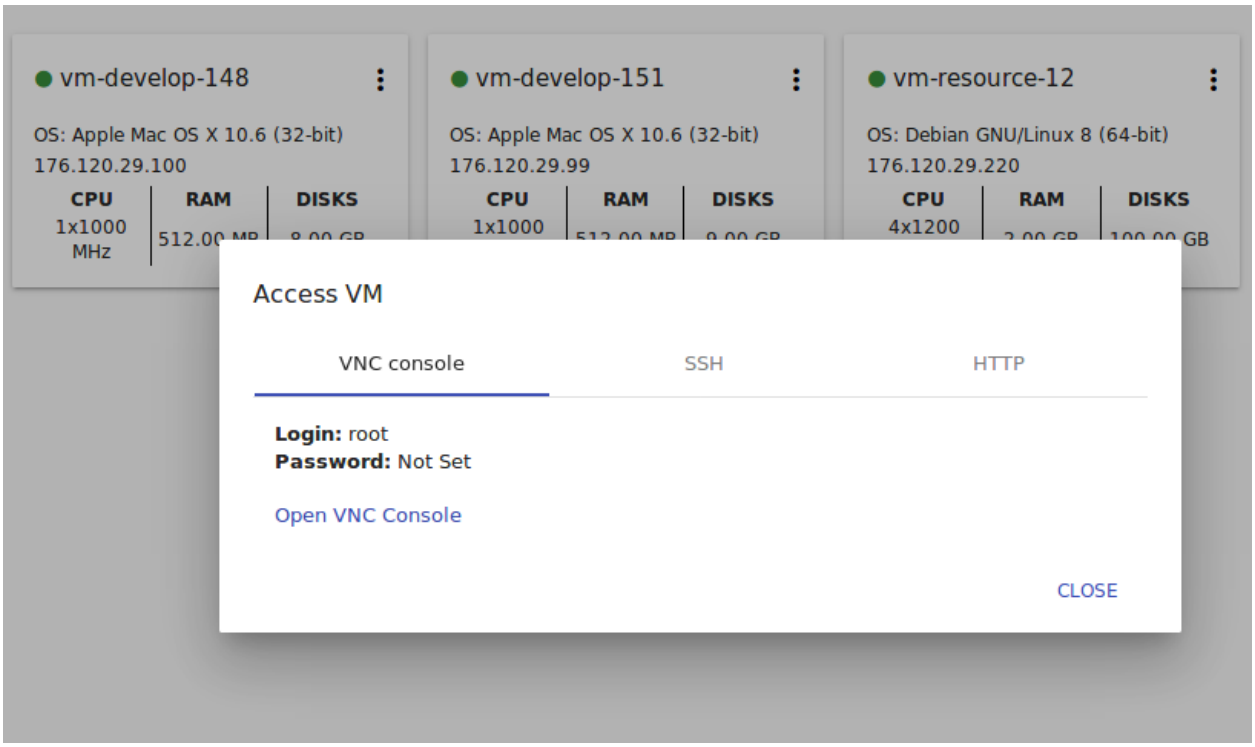
SSH

This tab is active if the access via SSH is enabled. It is determined by the following template tags:

```
csui.vm.auth-mode = SSH
csui.vm.ssh.login = login
csui.vm.ssh.password = password
csui.vm.ssh.port = port
```

This tab displays the following details:

- Connection String (IPv4), that can be copied by clicking on .
- Connection String (IPv6), that can be copied by clicking on .
- IPv4
- IPv6
- Port
- Login



- Password
- SSH Key
- Open WebShell - a clickable link to open a WebShell console.

In case the WebShell plugin is enabled, a user can SSH to VM in browser. To find more information on deployment and using the WebShell plugin, please, refer to the page.

HTTP

Under this tab you can access a VM via HTTP/HTTPS URL. This mode is defined by the tags:

```
csui.vm.auth-mode = HTTP
csui.vm.http.protocol = HTTP|HTTPS
csui.vm.http.port =
csui.vm.http.path =
csui.vm.http.login =
csui.vm.http.password =
```

Note: If no `csui.vm.http.port` is defined, then default values are used:

- for HTTPS protocol: 443
- for HTTP protocol: 80

This tab displays the following information:

- Login;
- Password (if available);

- Open URL with a clickable URL.

To configure VM access via HTTP/HTTPS, please, refer to page.

To close the modal window click “CLOSE”.

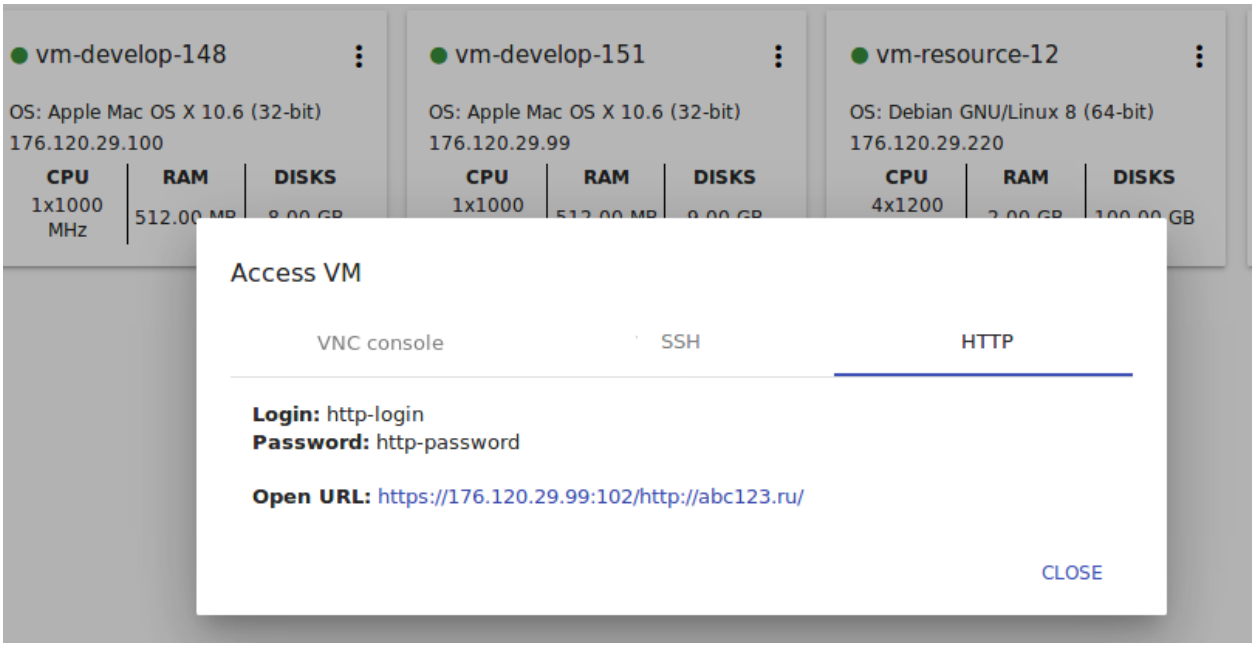
2.3 Storage

Contents

- *Storage*
  - *Drive list*
    - *Filtering of Drives*
  - *Create New Volume*
  - *Volume Details Sidebar*
    - *Snapshots Action Box*
  - *Volume Action Box*

In the *Virtual Machines* -> *Storage* section, you can create and manage drives for virtual machines. Here you can add new disks, create templates and snapshots of a volume, view the list of snapshots for each volume.

2.3.1 Drive list



Note: If you have just started working with CloudStack and you do not have virtual machines yet, you have no disks in the list. Once you create a VM, a root disk is created for it automatically. Creation of an additional disk takes resources and requires expenses. Please, make sure you definitely need an additional data disk.

Here you can find a list of disks existing for your user.

Domain Administrator can see disks of all accounts in the domain.

Disks can be viewed as a list or as a grid of cards. Switch the view by clicking a view icon / in the upper-right corner.

Filtering of Drives

Root disks are visually distinguished from data disks in the list. There is an option to display only spare disks which allows saving user's time in certain cases.

As in all lists, there is the filtering tool for selecting drives by zones and/or types. You also can apply the search tool selecting a drive by its name or a part of the name.

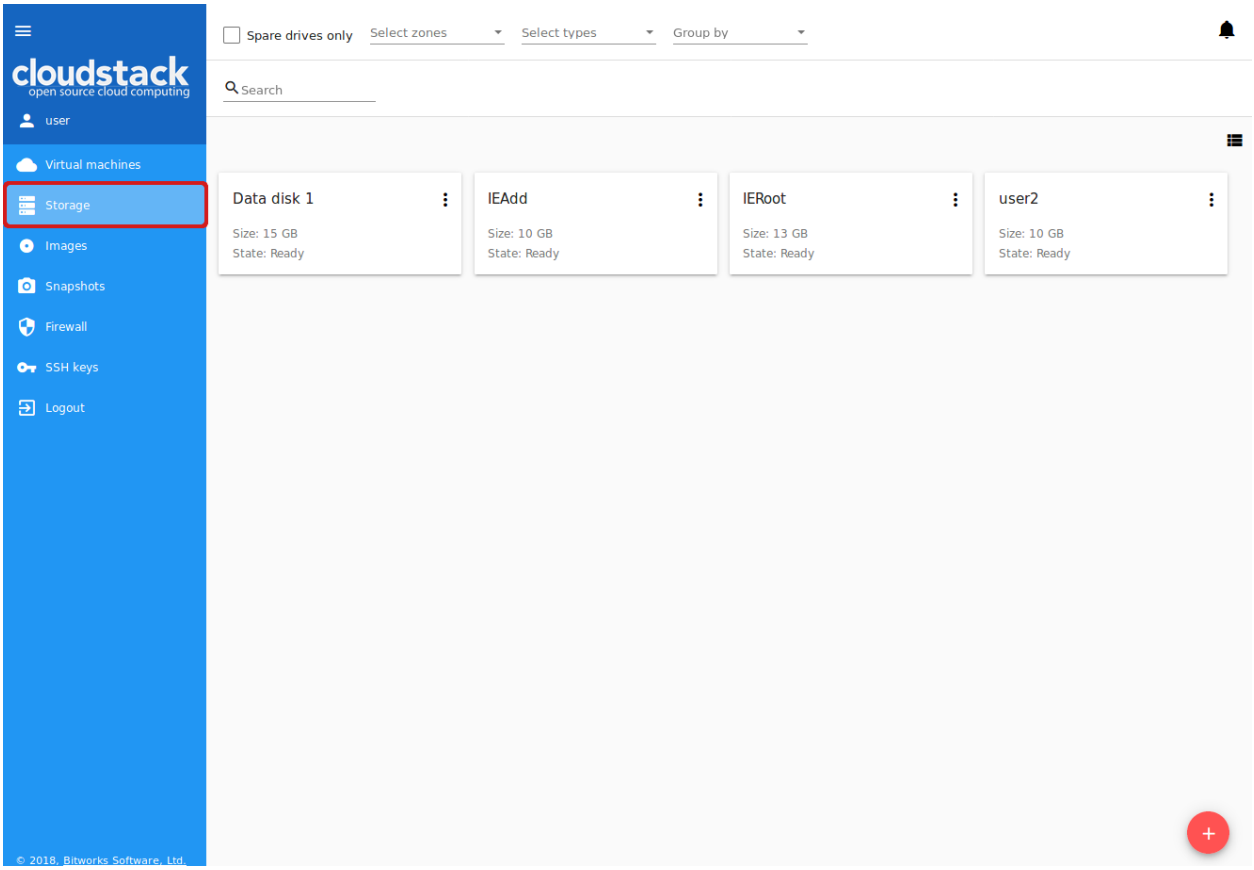
For better distinguising of drives in the list you can group them by zones and/or types, like in the figure below:

Domain Administrators can see the list of drives of all accounts in the domain. Filtering by accounts is available to Administrators.

For each drive in the list the following information is presented:

- Drive name,
- Size,
- State - Ready or Allocated.

The Actions button is available to the right. It expands the list of actions for a disk. See the information on actions in the *Volume Action Box* section below.



2.3.2 Create New Volume

In the *Storage* section you can create new volumes. Please, note that if you are aimed at creation of a virtual machine, we do not recommend starting from adding new disks to the system. You can go right to the *Virtual Machines* section and create a VM. A root disk will be cerated for the VM automatically.

If necessary, you can create a data disk and attach it to your VM. By clicking the "Create" button in the bottom-right corner you will open a creation form. Please, make sure you definitely need an additional disk as it takes resources and requires expenses. If you do not have disks yet, when clicking "Create", a dialog box will ask you if you surely want to create a drive. Confirm your creation action by clicking "CONTINUE":

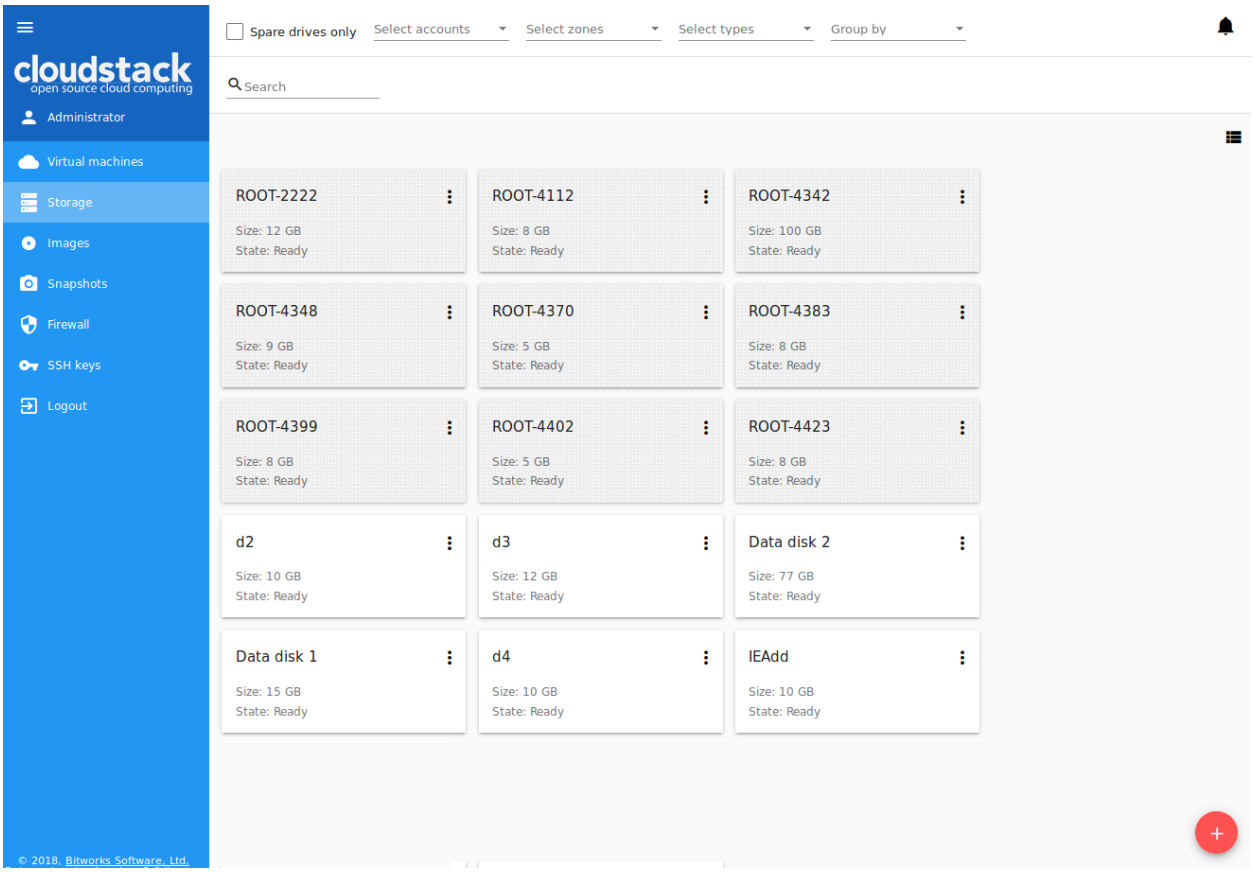
A creation form will appear.

To create a new volume fill in the fields:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter a name of the volume.
- Zone * - Select a zone from the drop-down list.
- Disk offering * - Select from the list of available offerings opening it in a modal window by clicking "SELECT". The list of available disk offerings is determined in the configuration file by Administrator.

In the modal window you can see the name and short description for each disk offering and a radio-button to select any option.



For each disk offering you can expand detailed information by clicking the arrow icon or the whole line in the list. In the appeared section you will see a range of parameters. The following parameters are shown by default:

- Bandwidth (MB/s): Read/Write rates;
- IOPS: Read/Write rates and Min/Max values;
- Storage type;
- Provisioning type;
- Creation date.

Use the scrolling tool to view them all.

More parameters can be added via the configuration file by an Administrator.

Select a disk offering in the list and click “SELECT”.

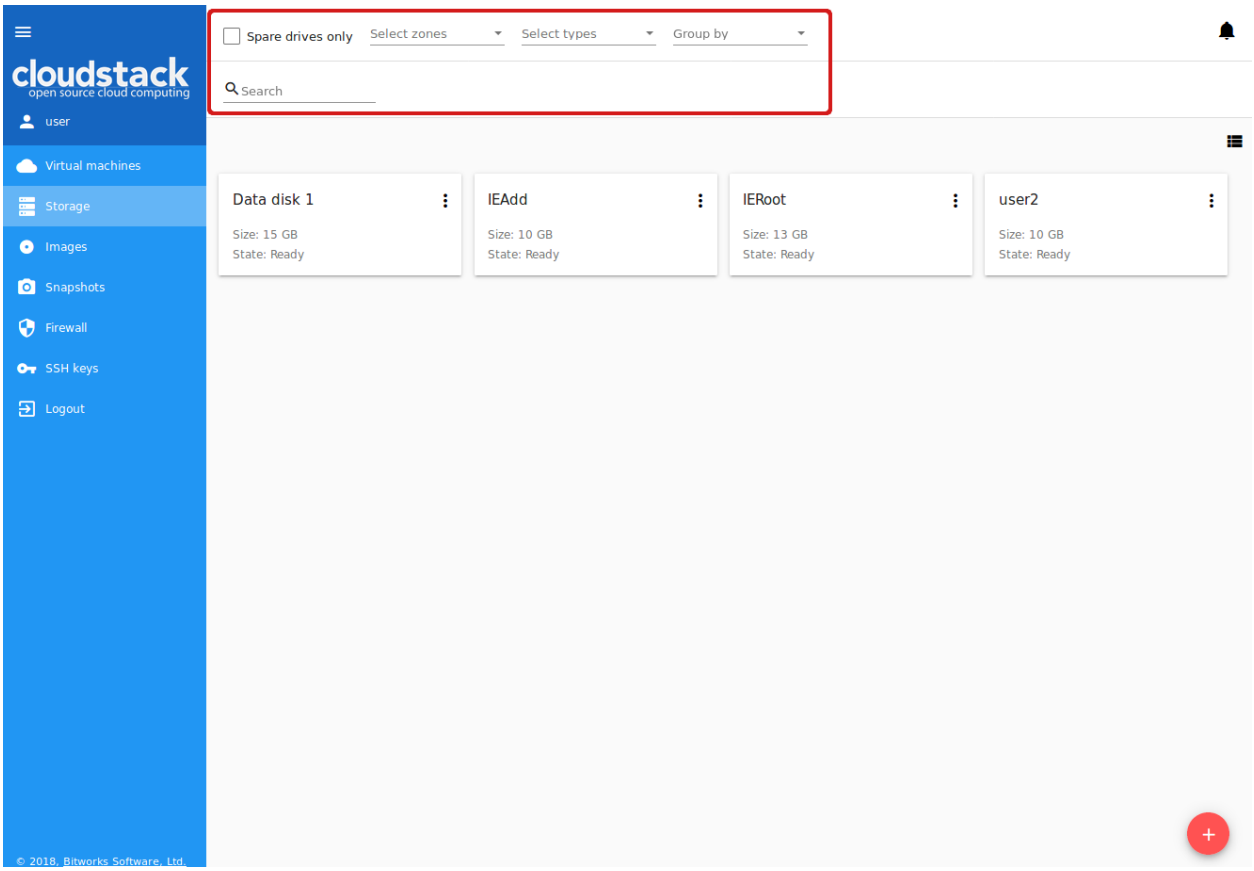
If the selected disk offering has a custom disk size (it is set by Administrator), you can change the disk size moving the slider to the volume size you wish or entering a value into the number field.

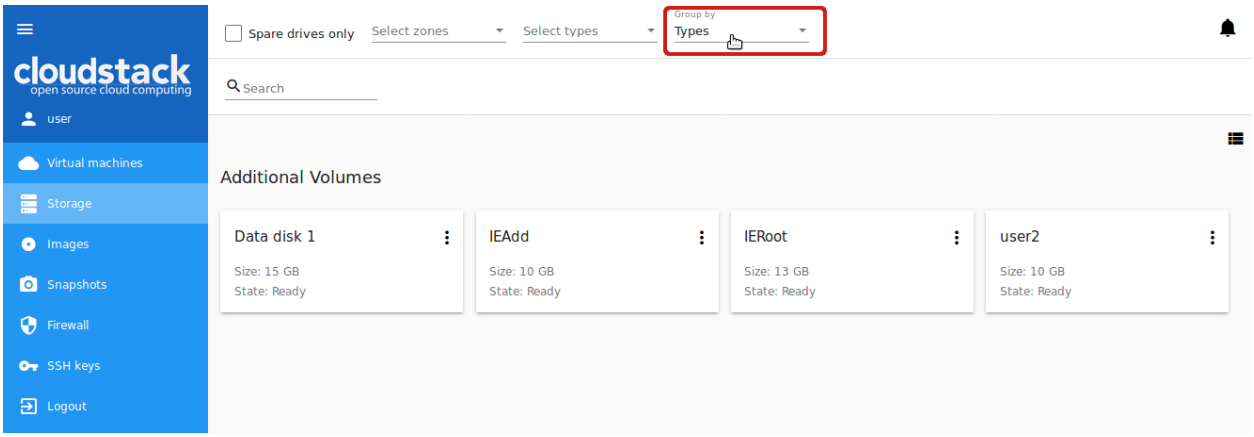
Click “CREATE” to save the settings and create the new volume. You will see the drive appears in the list.

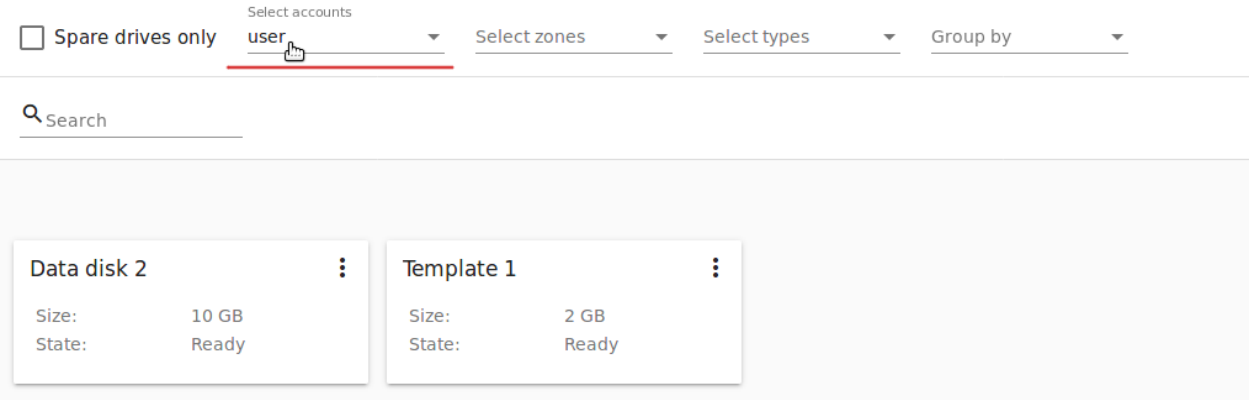
Click “CANCEL” to drop all the settings. The drive will not be created then.

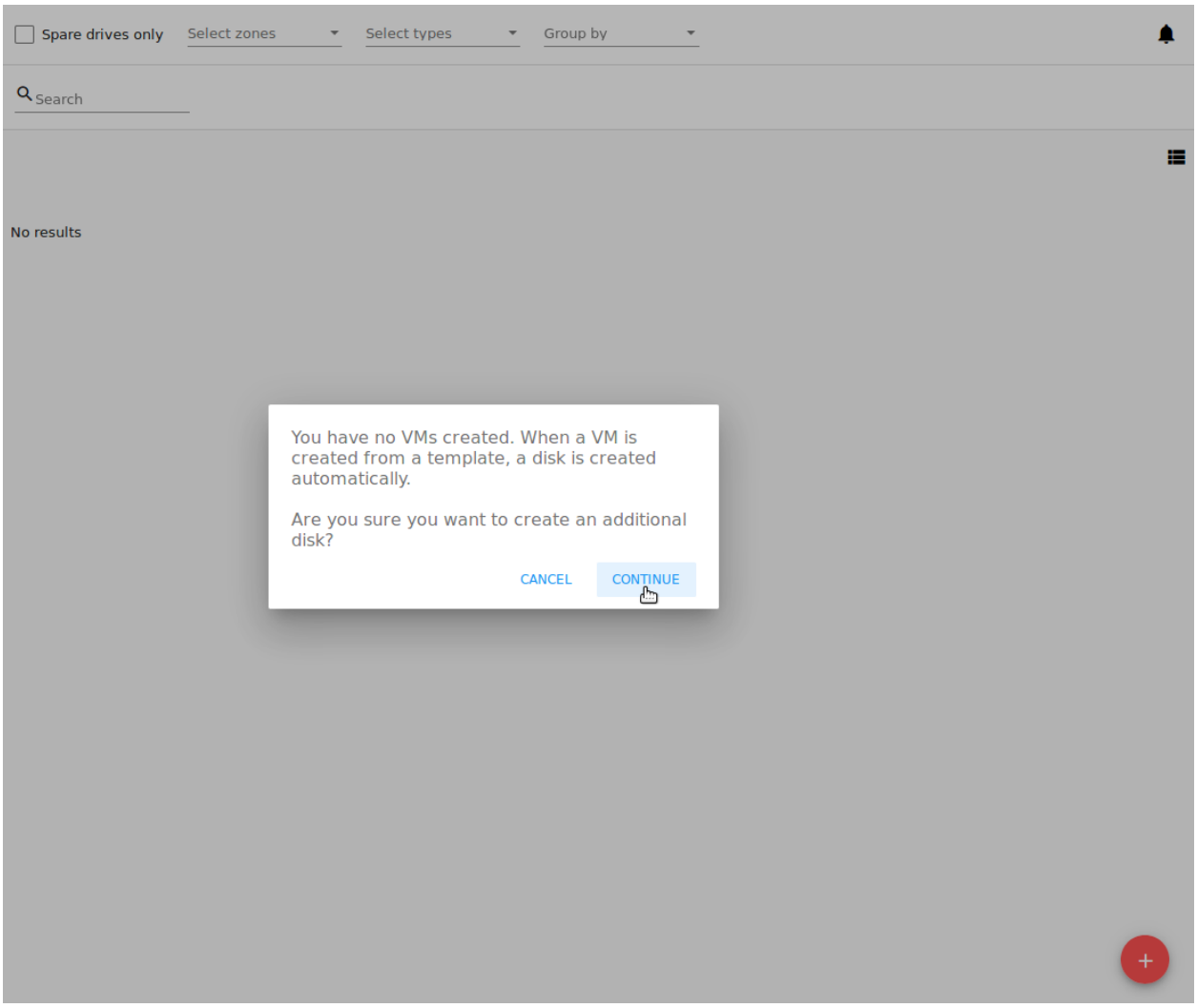
2.3.3 Volume Details Sidebar

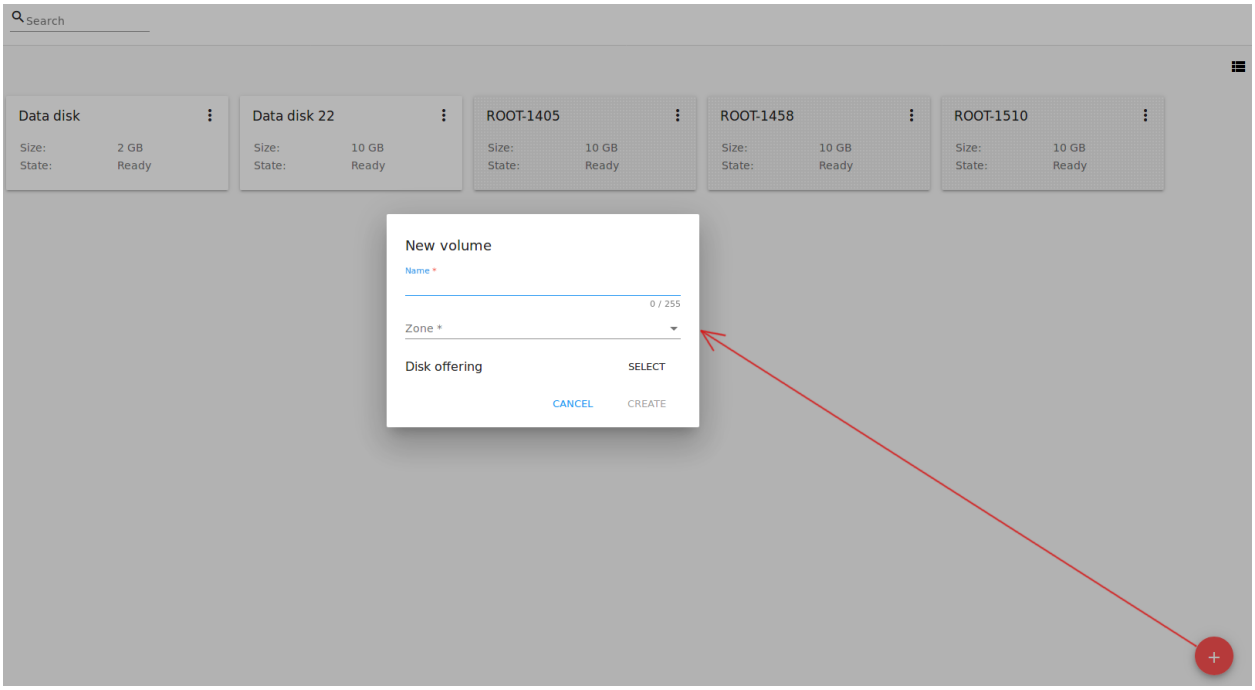
By clicking a disk in the list you can access the information on the volume.

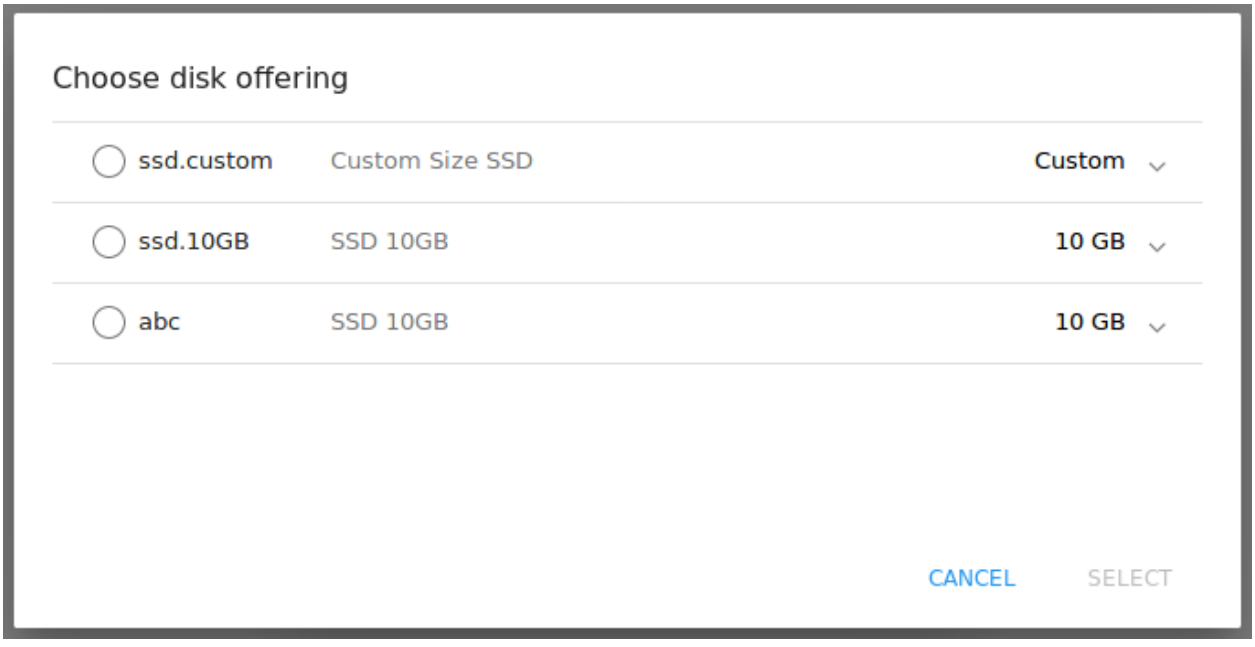

Spare drives only
Select zones
Select types
Group by
Search
cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
© 2018, Bitworks Software, Ltd.
Data disk 1
Size: 15 GB
State: Ready
IEAdd
Size: 10 GB
State: Ready
IERoot
Size: 13 GB
State: Ready
user2
Size: 10 GB
State: Ready

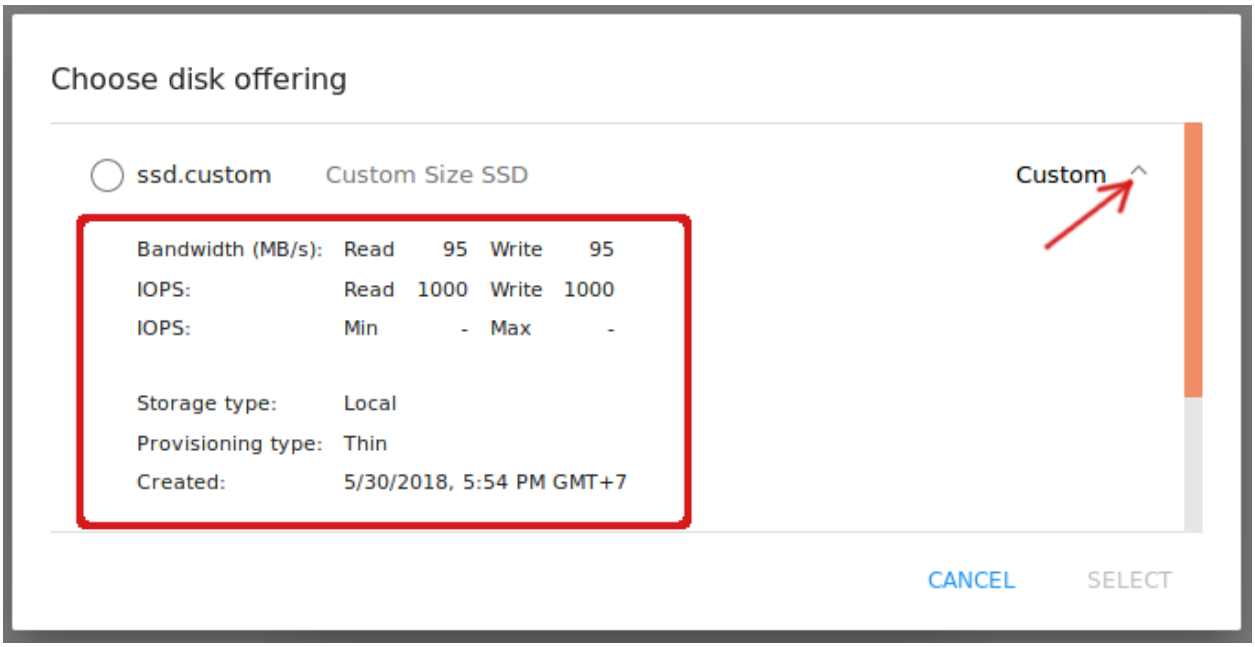

Spare drives only
Select zones
Select types
Group by
Types
Search
cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
Additional Volumes
Data disk 1
Size: 15 GB
State: Ready
IEAdd
Size: 10 GB
State: Ready
IERoot
Size: 13 GB
State: Ready
user2
Size: 10 GB
State: Ready

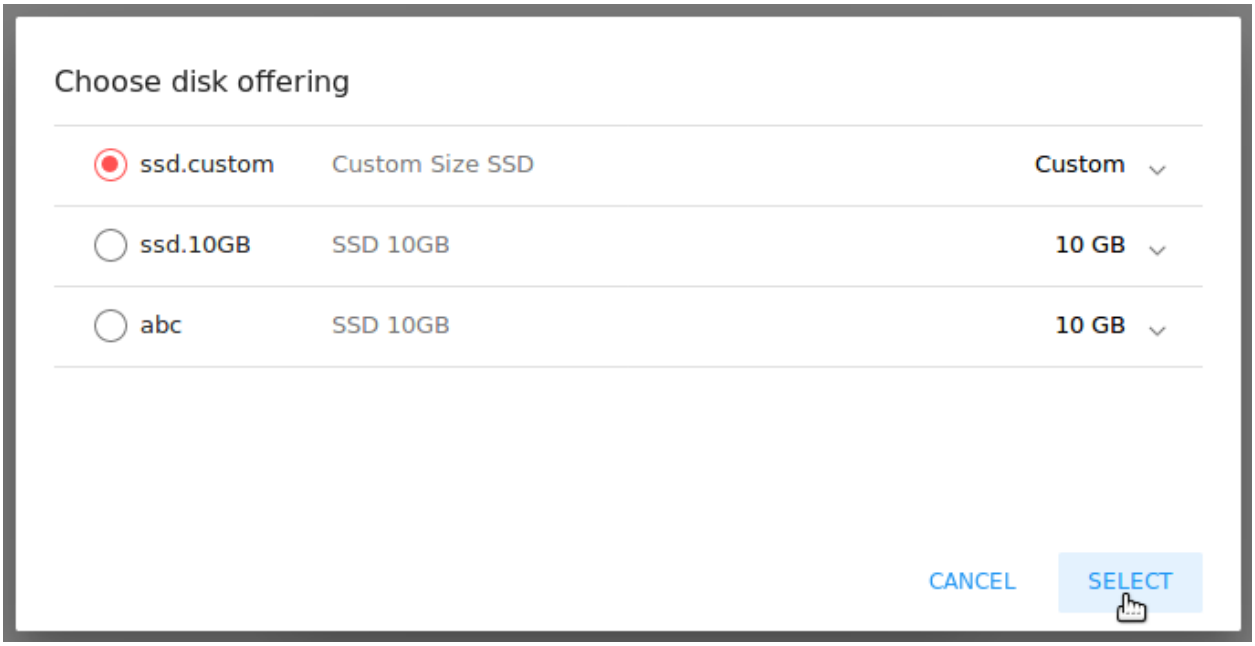

Spare drives only
Select accounts
user
Select zones
Select types
Group by
Search
Data disk 2
Size: 10 GB
State: Ready
Template 1
Size: 2 GB
State: Ready

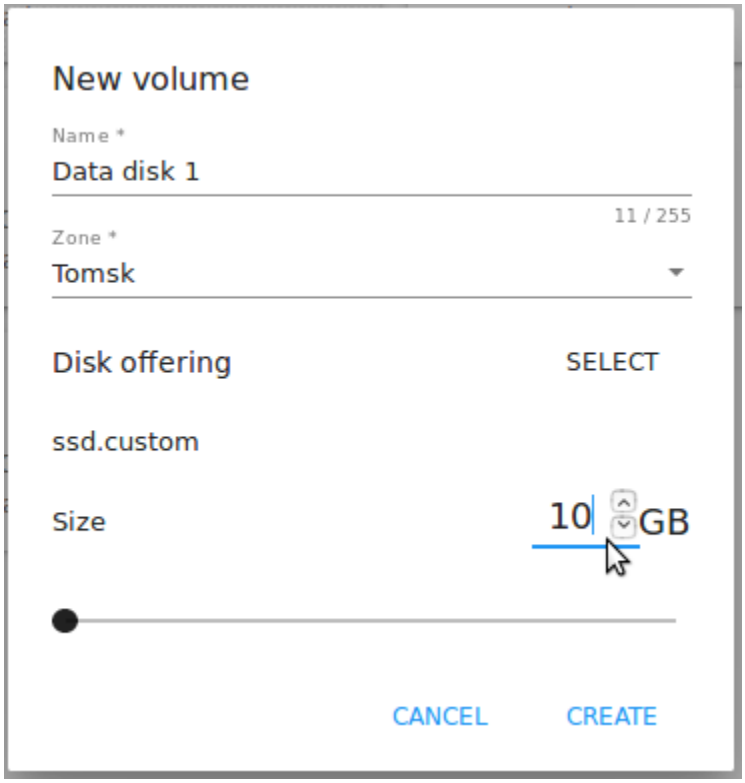

Spare drives only
Select zones
Select types
Group by
Search
No results
You have no VMs created. When a VM is created from a template, a disk is created automatically.
Are you sure you want to create an additional disk?
CANCEL
CONTINUE

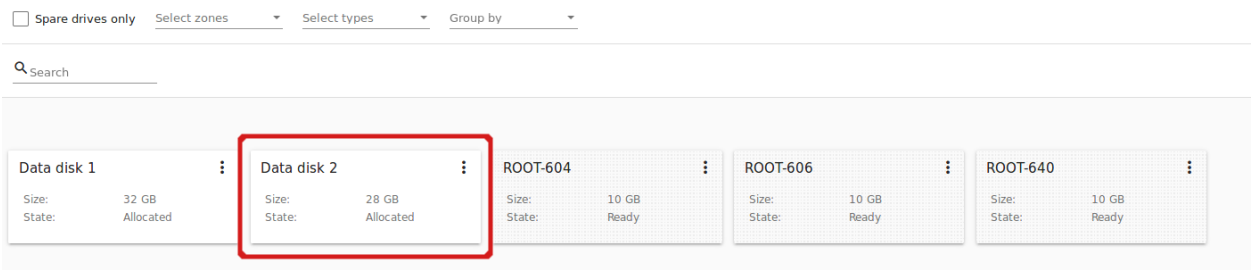

Search
Data disk
Size: 2 GB
State: Ready
Data disk 22
Size: 10 GB
State: Ready
ROOT-1405
Size: 10 GB
State: Ready
ROOT-1458
Size: 10 GB
State: Ready
ROOT-1510
Size: 10 GB
State: Ready
New volume
Name *
0 / 255
Zone *
Disk offering
SELECT
CANCEL
CREATE

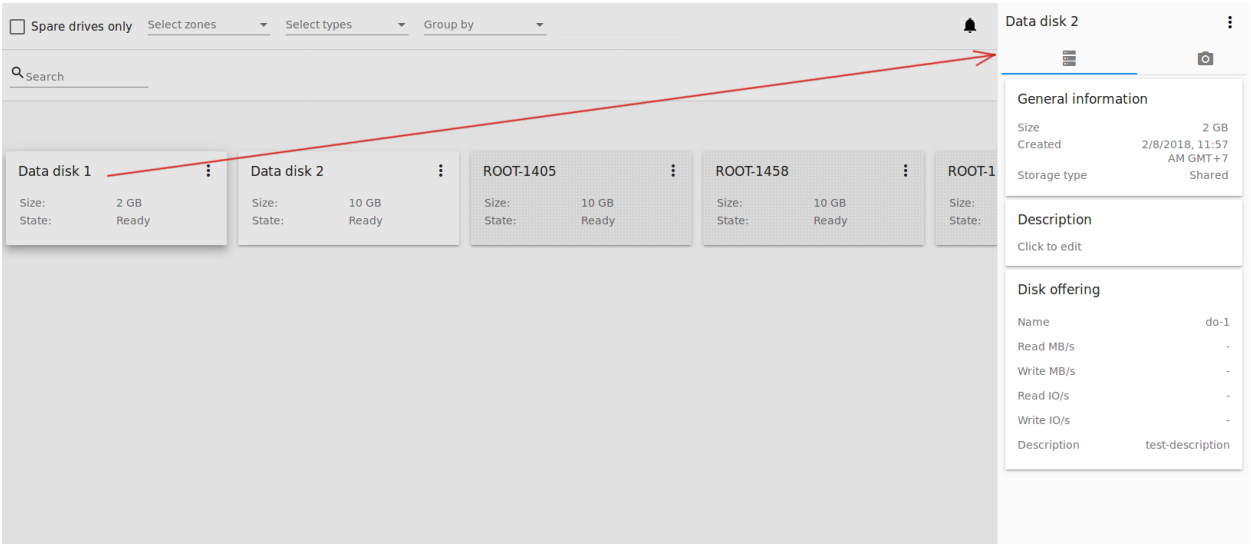

Choose disk offering
ssd.custom
Custom Size SSD
Custom
ssd.10GB
SSD 10GB
10 GB
abc
SSD 10GB
10 GB
CANCEL
SELECT


Choose disk offering
ssd.custom
Custom Size SSD
Custom
Bandwidth (MB/s): Read 95 Write 95
IOPS: Read 1000 Write 1000
IOPS: Min - Max -
Storage type: Local
Provisioning type: Thin
Created: 5/30/2018, 5:54 PM GMT+7
CANCEL
SELECT


Choose disk offering
ssd.custom
Custom Size SSD
Custom
ssd.10GB
SSD 10GB
10 GB
abc
SSD 10GB
10 GB
CANCEL
SELECT


New volume
Name *
Data disk 1
11 / 255
Zone *
Tomsk
Disk offering
SELECT
ssd.custom
Size
10
GB
CANCEL
CREATE

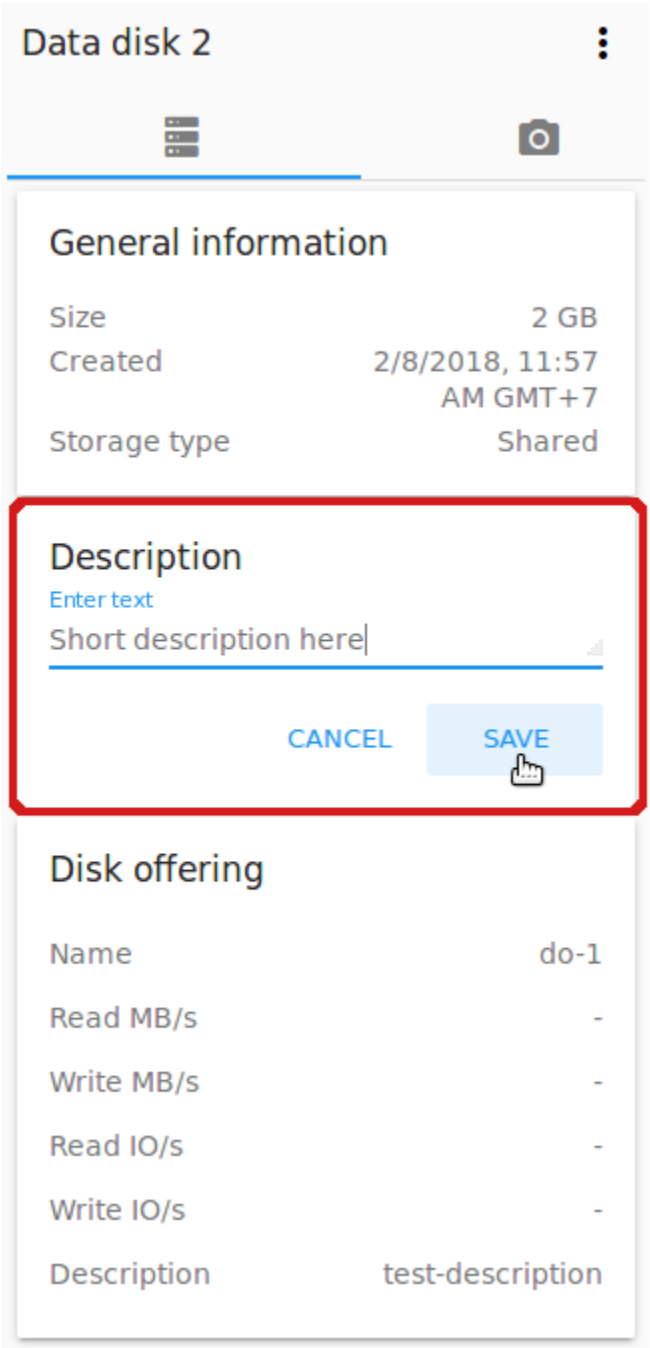

Spare drives only
Select zones
Select types
Group by
Search
Data disk 1
Size: 32 GB
State: Allocated
Data disk 2
Size: 28 GB
State: Allocated
ROOT-604
Size: 10 GB
State: Ready
ROOT-606
Size: 10 GB
State: Ready
ROOT-640
Size: 10 GB
State: Ready


Spare drives only
Select zones
Select types
Group by
Search
Data disk 1
Size: 2 GB
State: Ready
Data disk 2
Size: 10 GB
State: Ready
ROOT-1405
Size: 10 GB
State: Ready
ROOT-1458
Size: 10 GB
State: Ready
Data disk 2
General information
Size 2 GB
Created 2/8/2018, 11:57 AM GMT+7
Storage type Shared
Description
Click to edit
Disk offering
Name do-1
Read MB/s -
Write MB/s -
Read IO/s -
Write IO/s -
Description test-description

At the right sidebar you can find two tabs:

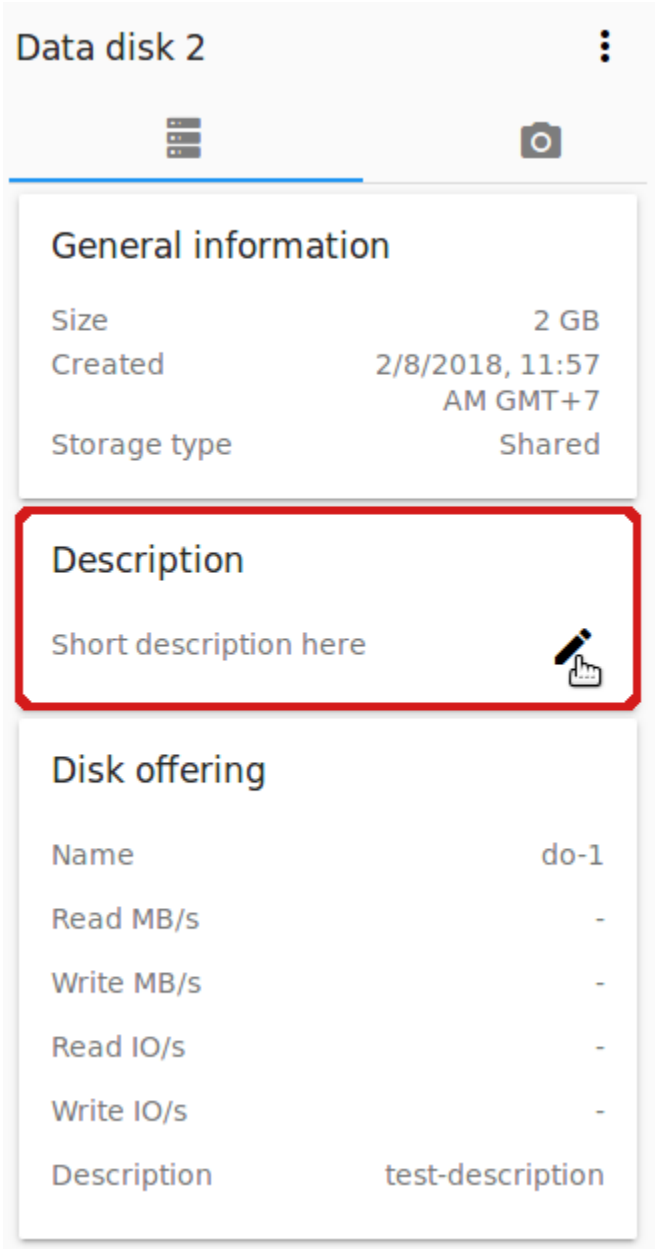
1. Volume tab - Provides the information on the disk volume:

- General information - Presents disk size, date and time of creation, the storage type (shared, local).
- Description - Allows entering a short description to the drive. Click at the Description card and enter a short description in the text block.



Click "Save" to save the description. Description will be saved to volume tags.

You can edit the description by clicking the "Edit" button in the tab.


Data disk 2
General information
Size
2 GB
Created
2/8/2018, 11:57 AM GMT+7
Storage type
Shared
Description
Short description here
Disk offering
Name
do-1
Read MB/s
-
Write MB/s
-
Read IO/s
-
Write IO/s
-
Description
test-description

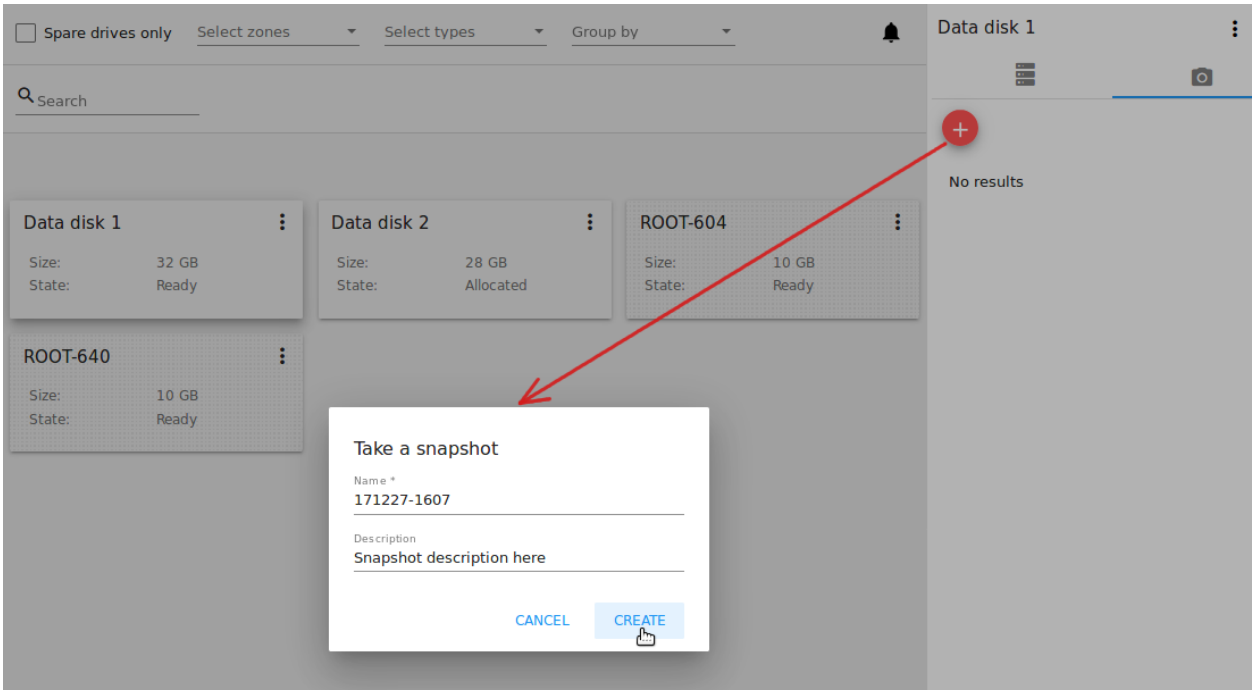
- Disk offering - Presents the information on the disk offering chosen at disk creation.

2. Snapshots tab - Allows creating disk snapshots. Snapshots can be taken for disks with the "Ready" status only.

   Click the "Add" button and enter in the dialog box:

   - Name - Define a name for the snapshot. It is auto-generated in the format `<date>-<time>`. But you can specify any name you wish.
   - Description - Add a description of the snapshot to know what it contains.

   Then click "Create" and see the snapshot has appeared in the list.



Every snapshot is saved in a separate card. There you will see the name and time of the snapshot.

For each snapshot the list of actions is available. Find more information on snapshot actions in the *Snapshots Action Box* section below.

Snapshots Action Box

Note: For a newly taken snapshot all actions except "Delete" are disabled until the snapshot is backed up to the Secondary Storage that may take some time. Once it is backed up, a full range of actions is available to a user.

Likewise the Virtual Machine information tab, the same actions are available for a snapshot:

- **Create a template** - Allows creating a template from the snapshot. This template can be used for VM creation.

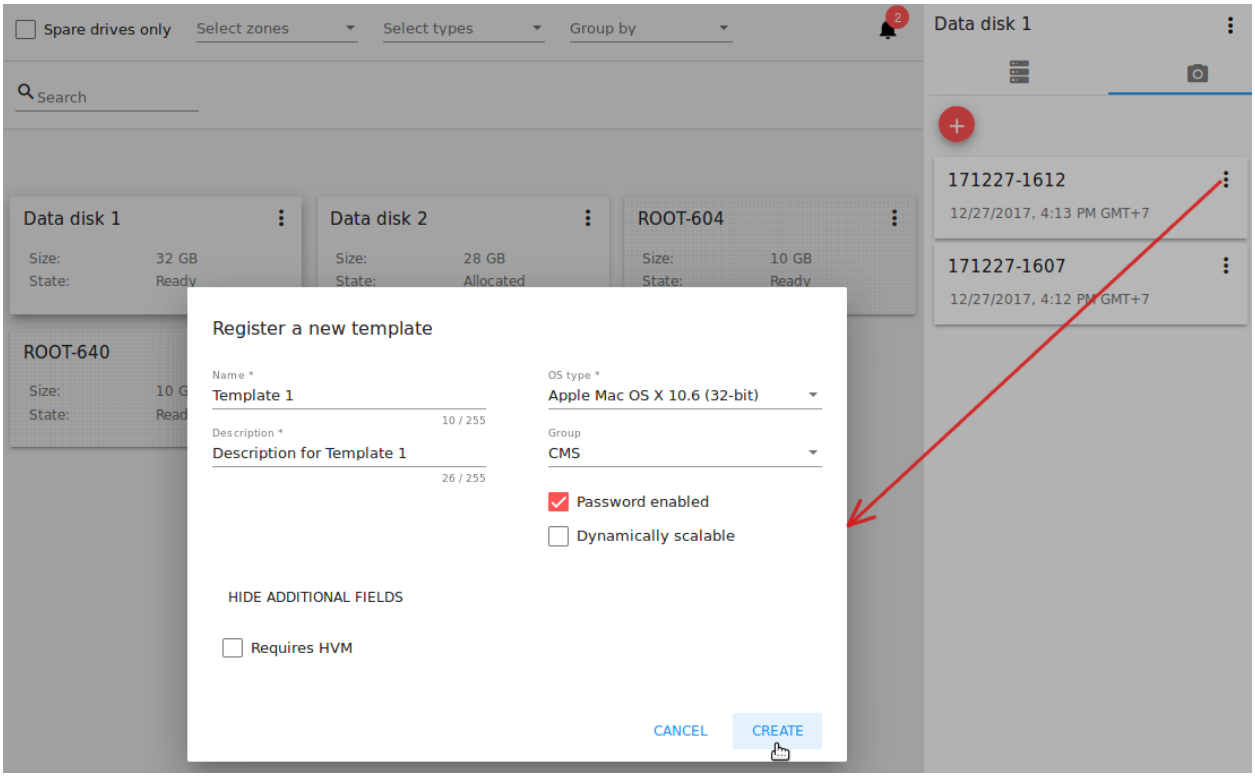
Fill in the form to register a new template:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter a name of the new template.
- Description * - Provide a short description of the template.
- OS type * - Select an OS type from the drop-down list.
- Group - Select a group from the drop-down list.
- Password enabled - Tick this option if the template has the password change script installed. That means the VM created on the base of this template will be accessed by a password, and this password can be reset.
- Dynamically scalable - Tick this option if the template contains XS/VM Ware tools to support the dynamic scaling of VM CPU/memory.

Click "SHOW ADDITIONAL FIELDS" to expand the list of optional settings. It allows creating a template that requires HVM.

Once all fields are filled in click "Create" to create the new template.



- **Create Volume** - Allows creating a volume from the snapshot.

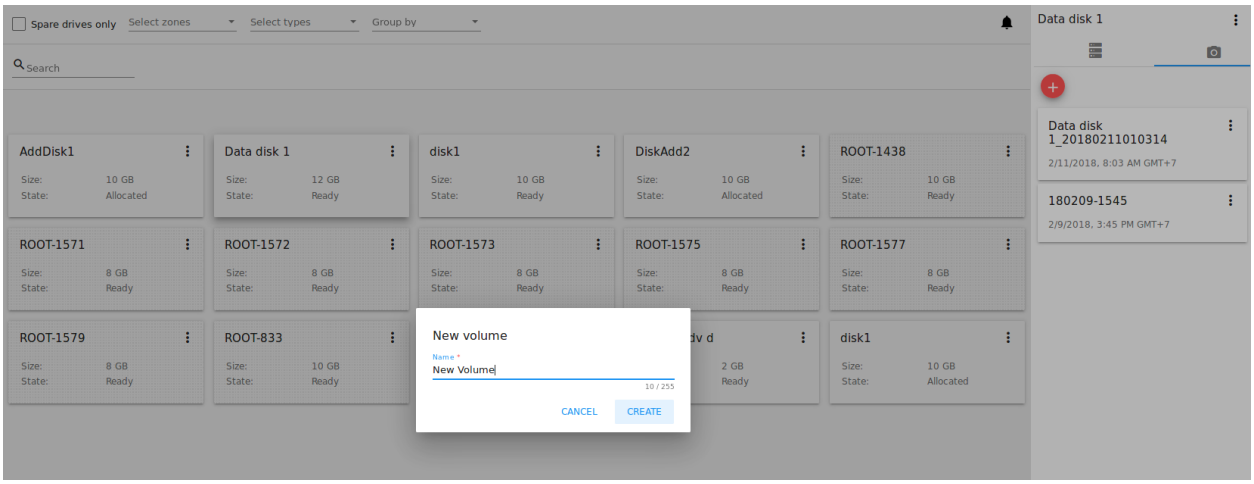
Type a name for a new volume into the Name field in the modal window. Click "Create" to register a new volume.

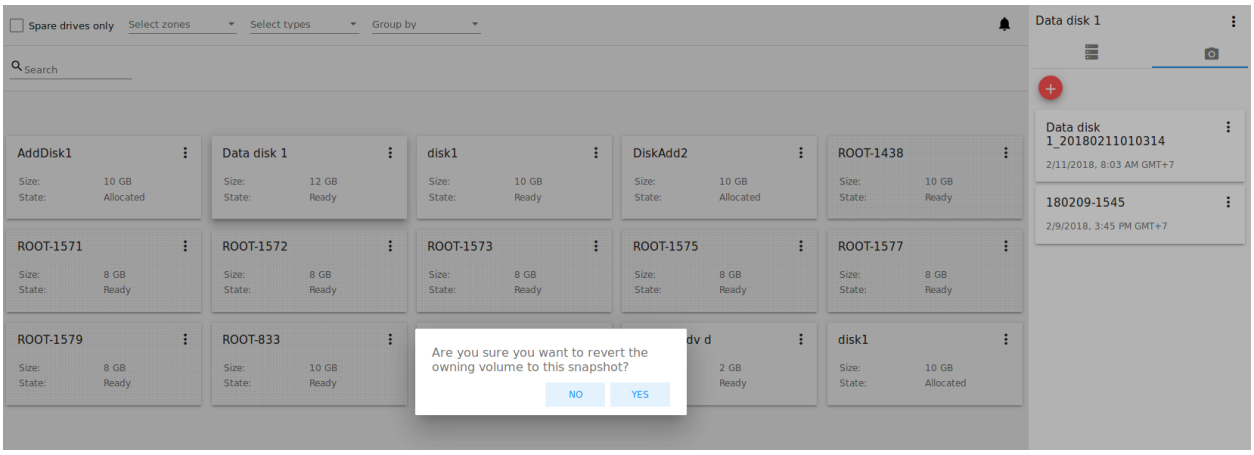
Click "Cancel" to cancel the volume creation.

- **Revert Volume To Snapshot** - Allows turning the volume back to the state of the snapshot.

In the dialog box confirm your action. Please, note, the virtual machine the volume is assigned to will be rebooted.

- **Delete** - Allows deleting the snapshot. Click "Delete" in the Action box and confirm your action in modal window. The snapshot will be deleted. Click "Cancel" to cancel the snapshot deleting.


Spare drives only
Select zones
Select types
Group by
Search
AddDisk1
Size: 10 GB
State: Allocated
Data disk 1
Size: 12 GB
State: Ready
disk1
Size: 10 GB
State: Ready
DiskAdd2
Size: 10 GB
State: Allocated
ROOT-1438
Size: 10 GB
State: Ready
ROOT-1571
Size: 8 GB
State: Ready
ROOT-1572
Size: 8 GB
State: Ready
ROOT-1573
Size: 8 GB
State: Ready
ROOT-1575
Size: 8 GB
State: Ready
ROOT-1577
Size: 8 GB
State: Ready
ROOT-1579
Size: 8 GB
State: Ready
ROOT-833
Size: 10 GB
State: Ready
New volume
Name *
New Volume
10 / 255
CANCEL
CREATE
Size: 2 GB
State: Ready
disk1
Size: 10 GB
State: Allocated
Data disk 1
Data disk 1_20180211010314
2/11/2018, 8:03 AM GMT+7
180209-1545
2/9/2018, 3:45 PM GMT+7


Spare drives only
Select zones
Select types
Group by
Search
AddDisk1
Size: 10 GB
State: Allocated
Data disk 1
Size: 12 GB
State: Ready
disk1
Size: 10 GB
State: Ready
DiskAdd2
Size: 10 GB
State: Allocated
ROOT-1438
Size: 10 GB
State: Ready
ROOT-1571
Size: 8 GB
State: Ready
ROOT-1572
Size: 8 GB
State: Ready
ROOT-1573
Size: 8 GB
State: Ready
ROOT-1575
Size: 8 GB
State: Ready
ROOT-1577
Size: 8 GB
State: Ready
ROOT-1579
Size: 8 GB
State: Ready
ROOT-833
Size: 10 GB
State: Ready
Are you sure you want to revert the owning volume to this snapshot?
NO
YES
Size: 2 GB
State: Ready
disk1
Size: 10 GB
State: Allocated
Data disk 1
Data disk 1_20180211010314
2/11/2018, 8:03 AM GMT+7
180209-1545
2/9/2018, 3:45 PM GMT+7

2.3.4 Volume Action Box

Action on drives are available under the Actions button ⋮.

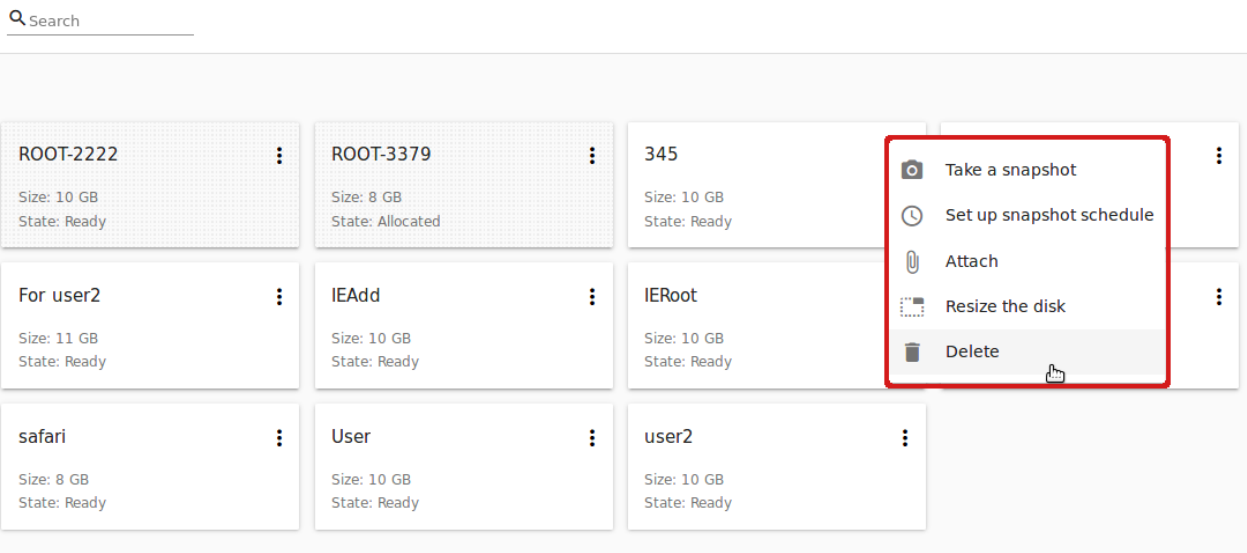
The following actions are available on disk:

For root disks:

- Take a snapshot;
- Set up snapshot schedule;
- Resize the disk.

For data disks:

- Take a snapshot;
- Set up snapshot schedule;
- Detach;
- Resize the disk;
- Delete.



Take a snapshot

You can take a snapshot of the disk to preserve the data volumes. Snapshots can be taken for disks with the "Ready" status only.

Click "Take a snapshot" in the disk Actions list and in the dialog window enter the following information:

Note: Required fields are marked with an asterisk (*).

- Name of the snapshot * - Define a name for the snapshot. It is autogenerated in the form `<date>-<time>`. But you can specify any name you wish.
- Description - Add a description of the snapshot to know what it contains.

All snapshots are saved in the list of snapshots. For a snapshot you can:

- Create a template;
- Delete the snapshot.

See the *Snapshots Action Box* section for more information.

Set up snapshot schedule

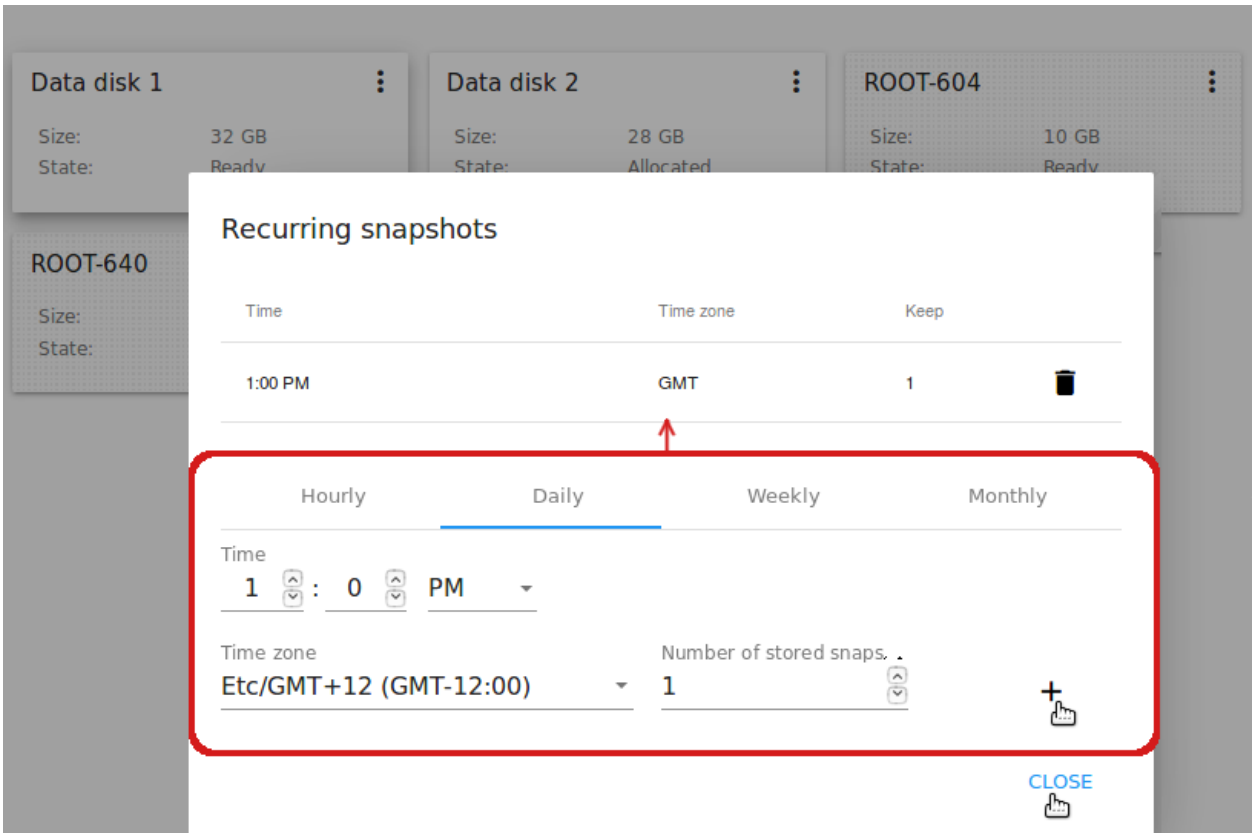
This action is available for disks with the "Ready" status only.

You can schedule the regular snapshotting by clicking "Set up snapshot schedule" in the Actions list.

In the appeared window set up the schedule for recurring snapshots:

- Select the frequency of snapshotting - hourly, daily, weekly, monthly;
- Select a minute (for hourly scheduling), the time (for daily scheduling), the day of week (for weekly scheduling) or the day of month (for monthly scheduling) when the snapshotting is to be done;
- Select the timezone according to which the snapshotting is to be done at the specified time;
- Set the number of snapshots to be made.

Click "+" to save the schedule. You can add more than one schedule but only one per each type (hourly, daily, weekly, monthly).

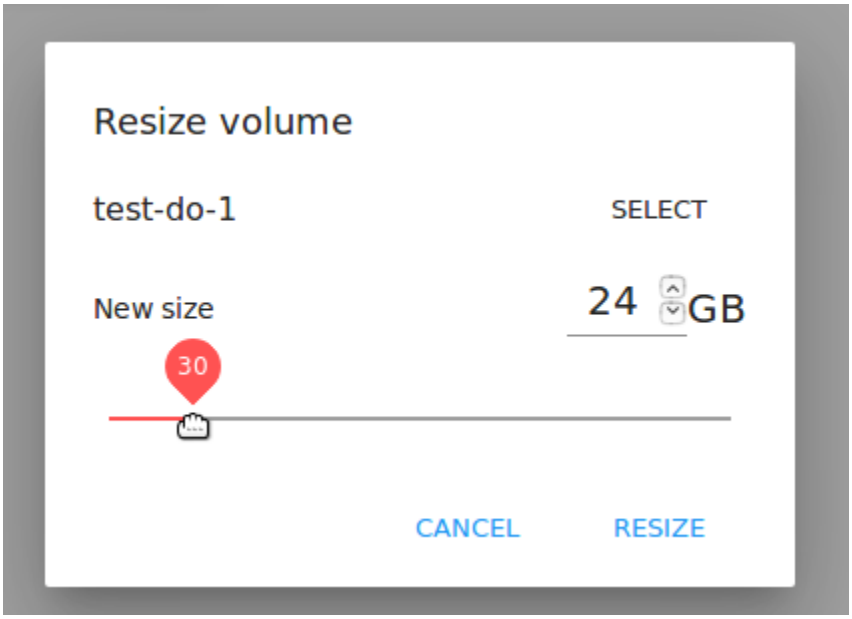


Resize the disk

Note: This action is available to root disks as well as data disks created on the base of disk offerings with a custom disk size. Disk offerings with custom disk size can be created by Root Administrators only.

You can change the disk size by selecting “Resize the disk” option in the Actions list. You are able to enlarge disk size only.

In the appeared window set up a new size and click “RESIZE” to save the edits.



Click “Cancel” to drop the size changes.

Attach/Detach

This action can be applied to data disks. It allows attaching/detaching the data disk to/from the virtual machine.

Click “Attach” in the Actions list and in the dialog window select a virtual machine to attach the disk to. Click “ATTACH” to perform the attachment.

An attached disk can be detached. Click “Detach” in the Actions list and confirm your action in the dialog window. The data disk will be detached from the virtual machine.

Delete

This action can be applied to data disks. It allows deleting a data disk from the system.

Click “Delete” in the Actions list and confirm your action in the dialog window.

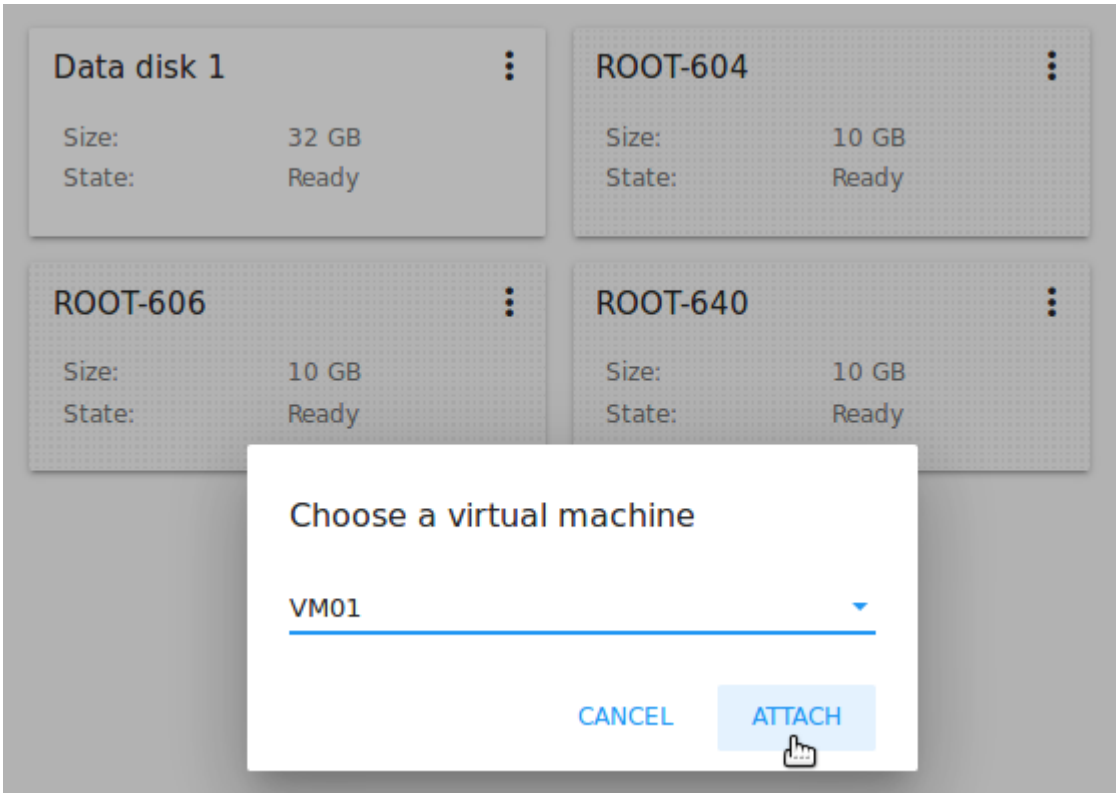
If a volume has snapshots the system will ask you if you want to delete them as well. Click “YES” to delete the snapshots of the volume. Click “NO” to keep them.

The data disk will be deleted from the system.

2.4 Images

Contents

- *Images*
  - *Images List*
    - *Filtering of Images*



- *Create Template*
- *Create ISO*
- *Template/ISO Details Sidebar*
- *Template/ISO Action Box*

In the *Virtual Machines* -> *Images* section, you can manage Templates and ISO files that are used as installation sources for VMs.

A template is a reusable configuration for virtual machines. When users create a VM, they can choose from a list of templates. Administrators and users can create new templates and add them to CloudStack.

ISO files are another installation source for virtual machines.

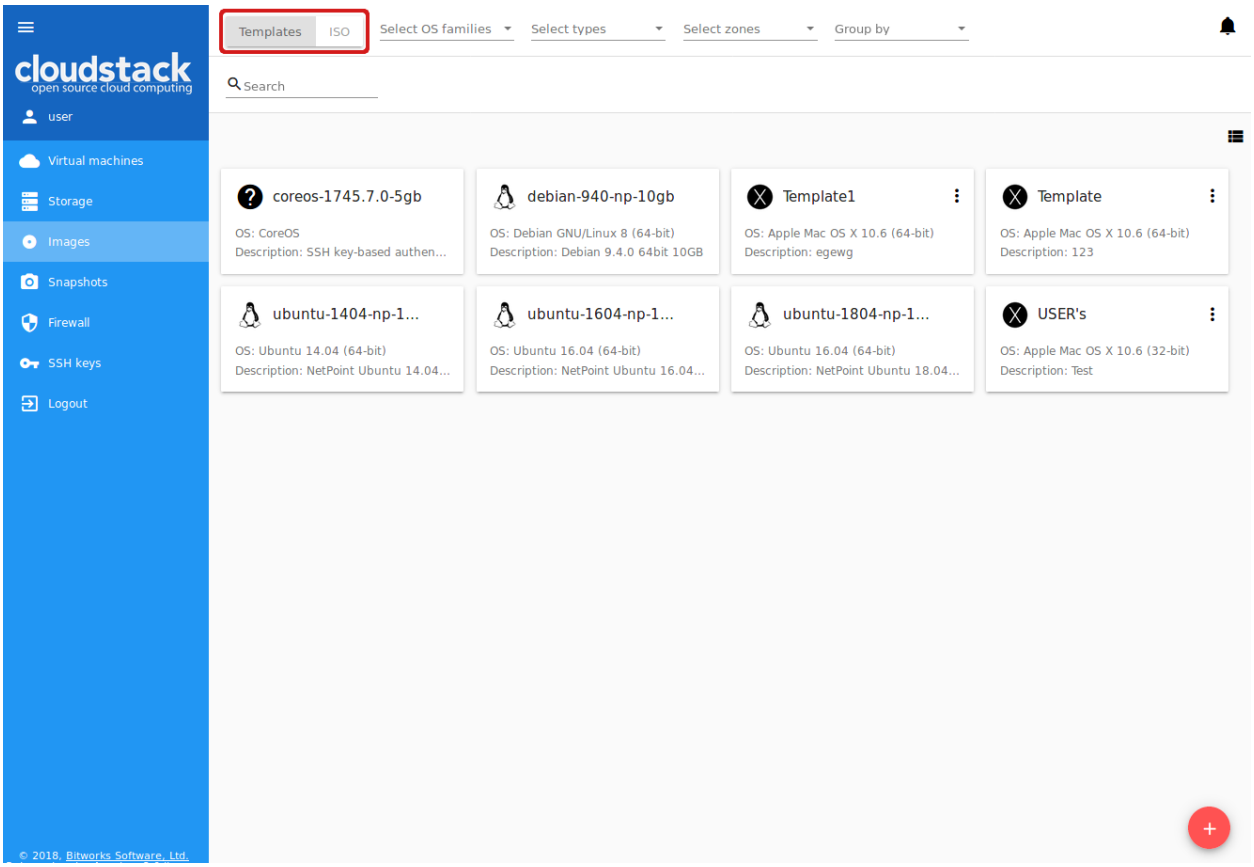
You can switch from Templates to ISOs by selecting a corresponding option above:

2.4.1 Images List

Existing templates/ISOs are presented in the list in the "Images" section. A user can see the templates/ISOs belonging to his/her user only. Domain Administrator can see templates/ISOs of all users in the domain but cannot perform actions on other users' templates.

You can switch the list view of templates/ISOs to the box view using the view button in the upper-right corner.

For each template/ISO in the list, you can see its name, OS family, description. The Actions button expands the list of actions. Actions are available to those templates/ISOs that belong to your user only (corresponding to "My" type). Administrators can see templates/ISOs of all users in the domain, but cannot manage them.



Filtering of Images

The list of templates/ISOs can be filtered using the filtering tool. The filtering parameters are as follows:

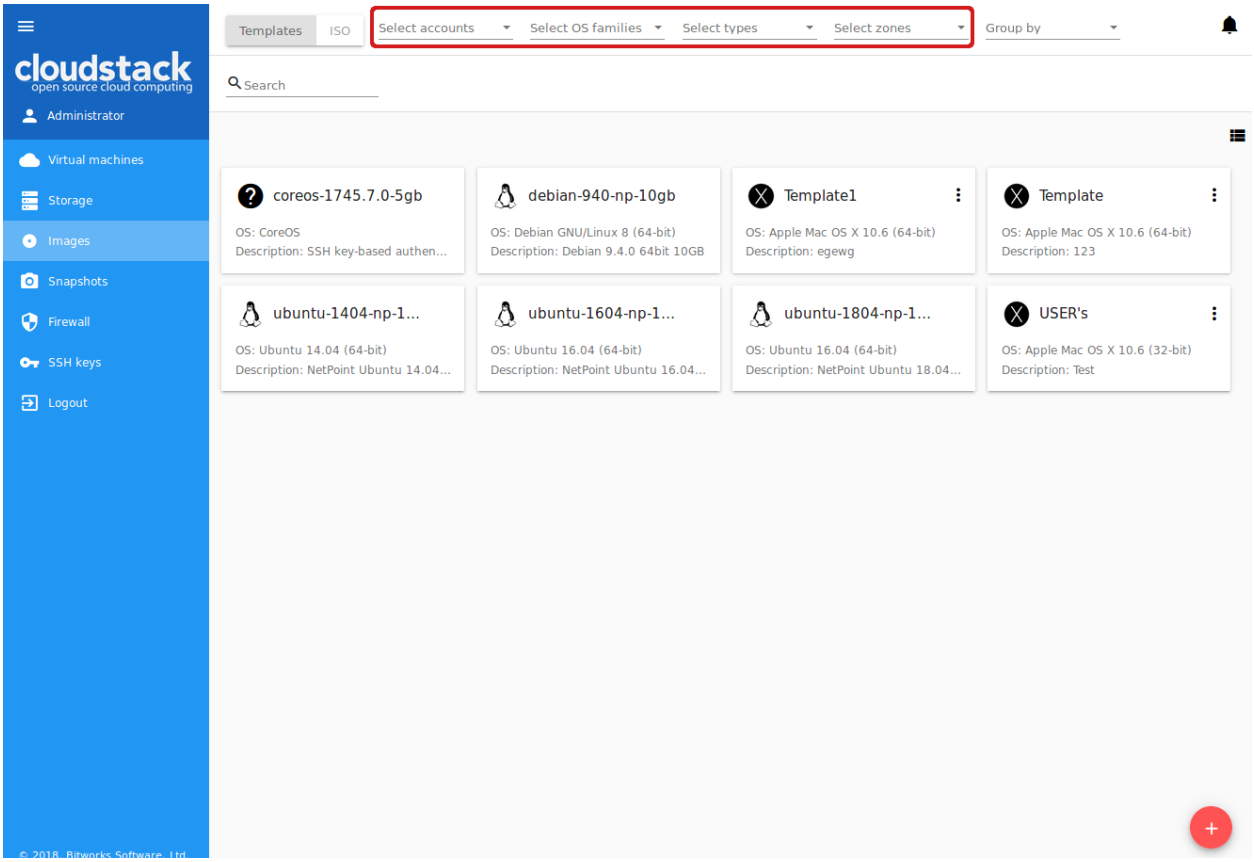
- Accounts (for Domain Administrators);
- OS families;
- Types of templates/ISO:
  - My - for user's templates or ISOs (Private),
  - Featured - for templates marked by an Administrator as most prominent for users to select,
  - Community - for templates accessible to all users of this CloudStack installation (Public);
- Zones.

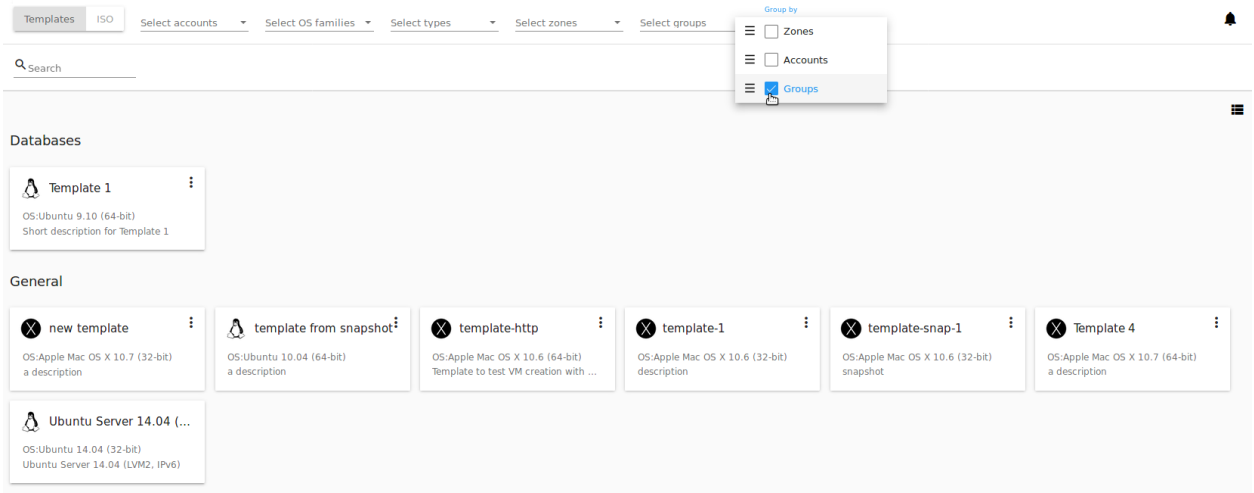
Besides, you can adjust the list view using the grouping tool. Templates/ISOs can be grouped by zones or/and groups. Administrators can group the list by accounts.

Use the search tool to easily find a template/ISO by its name or by a part of the name.

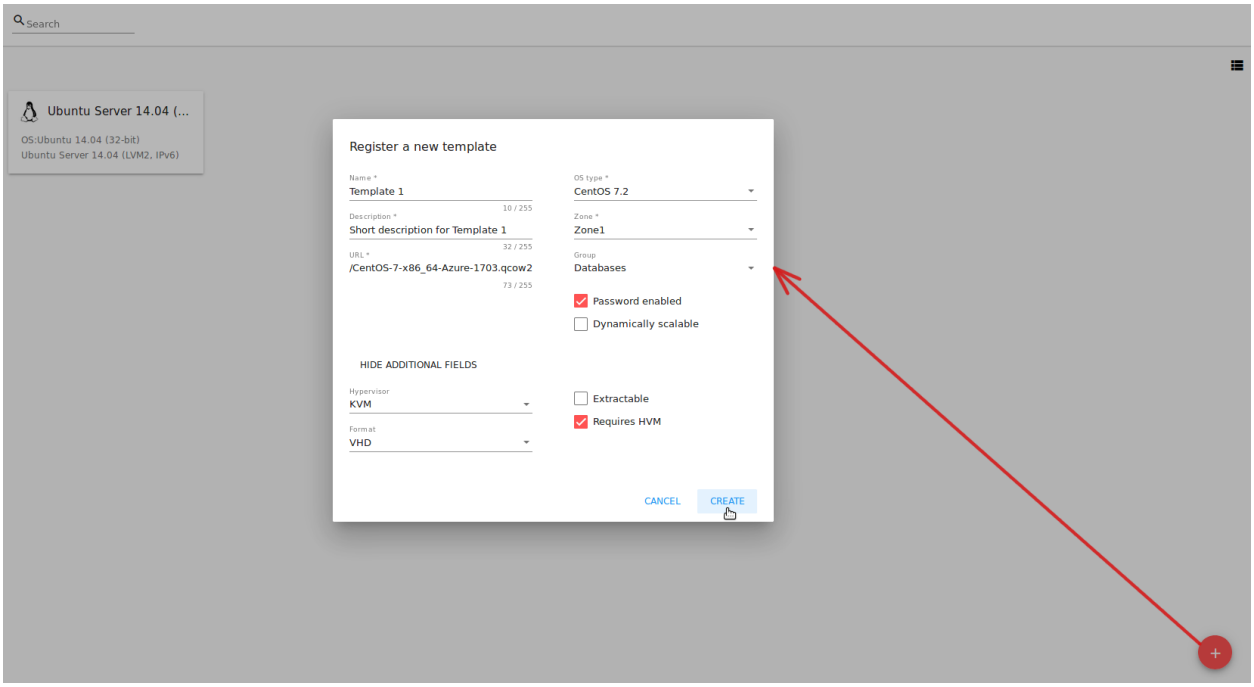
2.4.2 Create Template

There is a variety of ways to add more templates to the system. In the *VM Details Sidebar* section, we have described one way of template creation from a VM volume snapshot in the "Storage" tab of the VM information sidebar (see *Snapshot Action Box*). From the *Volume Details Sidebar* of the "Storage" section, you also can create a template on the base of the volume snapshot (see *Snapshots Action Box*).


cloudstack
open source cloud computing
Administrator
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
Templates
ISO
Select accounts
Select OS families
Select types
Select zones
Group by
Search
coreos-1745.7.0-5gb
OS: CoreOS
Description: SSH key-based authen...
debian-940-np-10gb
OS: Debian GNU/Linux 8 (64-bit)
Description: Debian 9.4.0 64bit 10GB
Template1
OS: Apple Mac OS X 10.6 (64-bit)
Description: egewg
Template
OS: Apple Mac OS X 10.6 (64-bit)
Description: 123
ubuntu-1404-np-1...
OS: Ubuntu 14.04 (64-bit)
Description: NetPoint Ubuntu 14.04...
ubuntu-1604-np-1...
OS: Ubuntu 16.04 (64-bit)
Description: NetPoint Ubuntu 16.04...
ubuntu-1804-np-1...
OS: Ubuntu 16.04 (64-bit)
Description: NetPoint Ubuntu 18.04...
USER's
OS: Apple Mac OS X 10.6 (32-bit)
Description: Test
© 2018, Bitworks Software, Ltd.


Templates
ISO
Select accounts
Select OS families
Select types
Select zones
Select groups
Group by
Zones
Accounts
Groups
Search
Databases
Template 1
OS:Ubuntu 9.10 (64-bit)
Short description for Template 1
General
new template
OS:Apple Mac OS X 10.7 (32-bit)
a description
template from snapshot
OS:Ubuntu 10.04 (64-bit)
a description
template-http
OS:Apple Mac OS X 10.6 (64-bit)
Template to test VM creation with ...
template-1
OS:Apple Mac OS X 10.6 (32-bit)
description
template-snap-1
OS:Apple Mac OS X 10.6 (32-bit)
snapshot
Template 4
OS:Apple Mac OS X 10.7 (64-bit)
a description
Ubuntu Server 14.04 (...
OS:Ubuntu 14.04 (32-bit)
Ubuntu Server 14.04 (LVM2, IPv6)

One more way to create a new template is filling in the form in the *Images* section by clicking "Create" in the bottom-right corner.



It will open a creation form where you should specify the following information:

Note: Required fields are marked with an asterisk (*).

1. Name * - Enter a name for the new template.
2. Description * - Provide a short description to have a general idea about the template.
3. URL * - Specify a valid URL of the template file.
4. OS type * - This helps CloudStack and the hypervisor perform certain operations and make assumptions that improve the VM performance. Select from the drop-down list the necessary option, or select "Other" if there is no needed option in the list.
5. Zone * - Choose the zone where you want the template to be available.
6. Group - Select a group from the drop-down list. The list of groups is managed by Administrator in the configuration file. The group assigned to a template is saved to template tags with the `csui.template.group` tag. The group can be edited or deleted from the *Template/ISO Details Sidebar* from the "Template" tab or by editing or deleting the corresponding tag in the "Tags" tab.
7. Password enabled checkbox - Tick this option if your template has the CloudStack password change script installed. That means the VM created on the base of this template will be accessed by a password, and this password can be reset.
8. Dynamically scalable checkbox - Tick this option if the template contains XS/VM Ware tools to support dynamic scaling of VM CPU/memory.
9. "Show additional fields" allows expanding the form and set more settings:
    - Hypervisor - Select a hypervisor from the drop-down list.

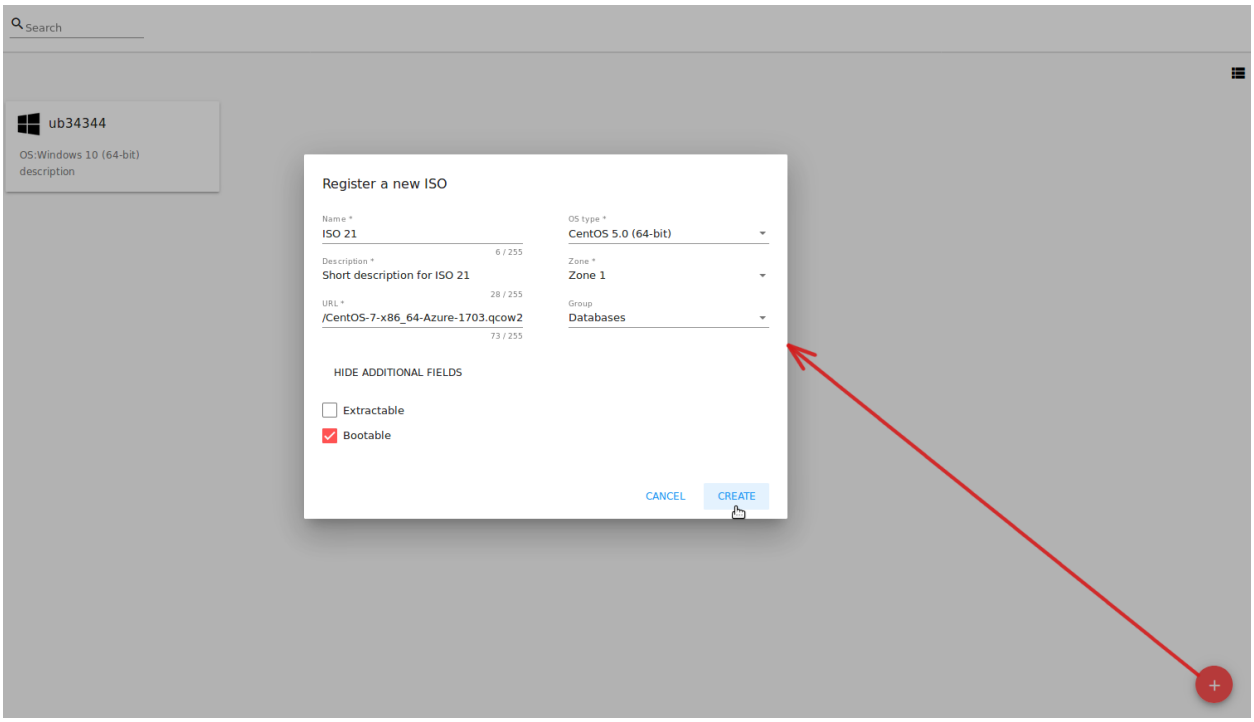
- Format - The format of the template upload file, e.g. VHD or RAW or VMDK.
- Extractable - Tick this option if the template is available for extraction. If this option is selected, end-users can download a full image of a template.
- Requires HVM - Tick this option for creating a template that requires HVM.

Once all fields are filled in, click "Create" to create the template with these settings. The created template will appear in the list.

Click "Cancel" to close the form without template creation. All fields will be cleared.

2.4.3 Create ISO

You can create a new ISO file in the *Images* section by clicking "Create" in the bottom-right corner.



It will open a creation form where you should specify the following information:

Note: Required fields are marked with an asterisk (*).

1. Name * - Enter a name for the new ISO file.
2. Description * - Provide a short description to have a general idea about the ISO file.
3. URL * - Specify a valid URL of the ISO file.
4. OS type * - This helps CloudStack and the hypervisor perform certain operations and make assumptions that improve the VM performance. Select from the drop-down list the necessary option, or select "Other" if there is no needed option in the list.
5. Zone * - Choose the zone where you want the ISO file to be available.

6. Group - Select a group from the drop-down list. The list of groups is managed by Administrator in the configuration file. The group assigned to ISO is saved to ISO tags with the `csui.template.group` tag. The group can be edited or deleted from the *Template/ISO Details Sidebar* from the "Template" tab or by editing or deleting the corresponding tag in the "Tags" tab.
7. "Show additional fields" allows expanding the form and set more settings:
   - Extractable - Tick this option if the ISO file is available for extraction. If this option is selected, end-users can download a full image of an ISO file.
   - Bootable - Tick this option to indicate whether the machine can be booted using this ISO.

Once all fields are filled in, click "CREATE" to create the ISO file with these settings. The created ISO file will appear in the list.

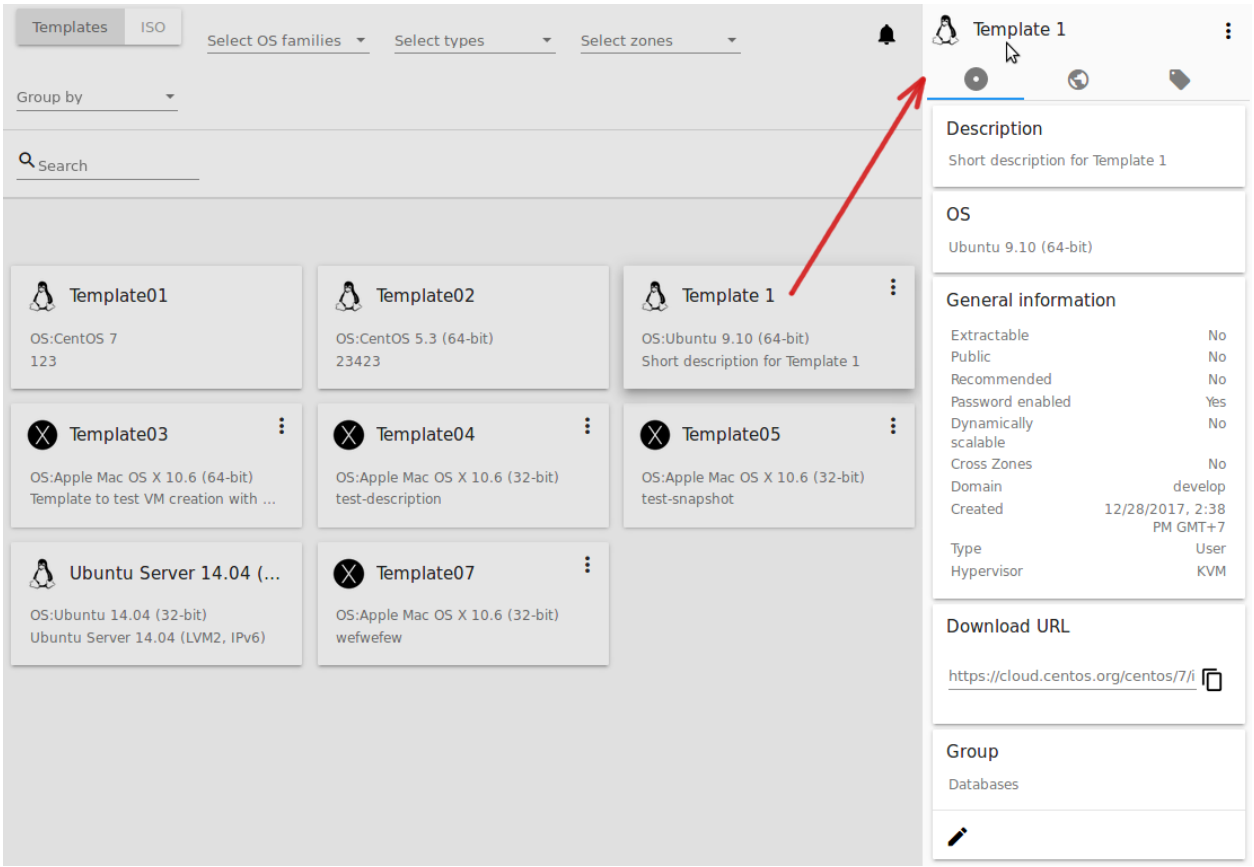
Click "CANCEL" to close the form without ISO creation. All fields will be cleared.

The created ISO will appear in the list.

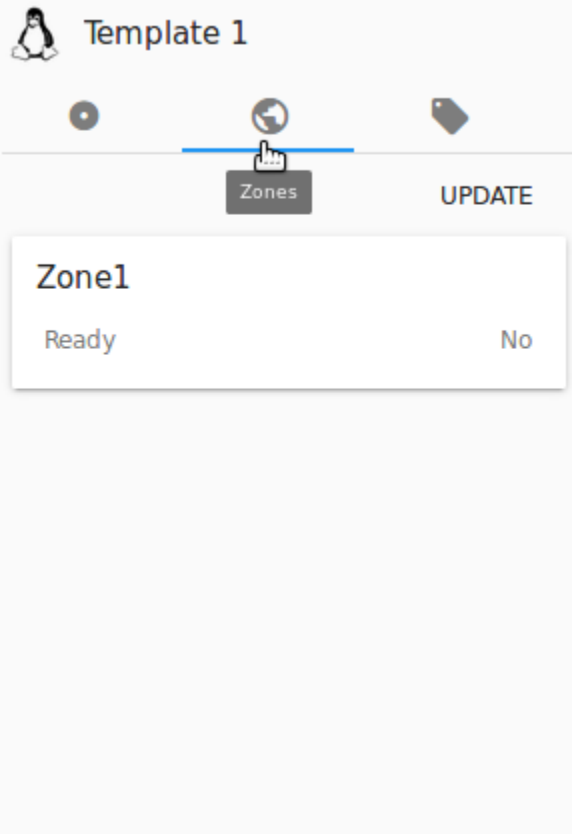
2.4.4 Template/ISO Details Sidebar

The information on each template/ISO is presented in the sidebar to the right. It is opened by clicking the template/ISO card or line in the list. The information is presented here in 3 tabs. Above the tabs you can see the template/ISO general information:

- Name - Template/ISO name and symbol,
- Actions button - Actions list allowing the Delete action.



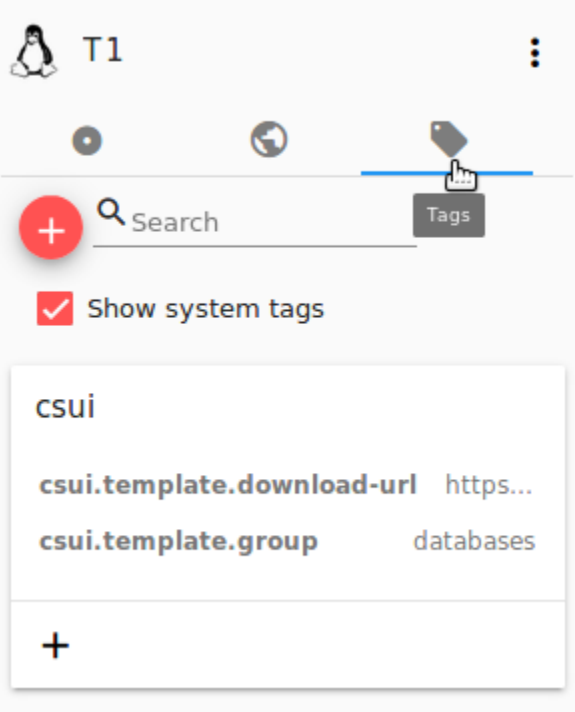
1. Template tab:
   - Description - Template/ISO description provided at its creation.
   - OS - The OS selected for this template/ISO.
   - General Information - The settings saved for this template/ISO: size, creation date, type, hypervisor, other settings.
   - Download URL - The URL provided for this template/ISO. Next to it you can see the "Copy" icon . Click it to copy the URL to clipboard and then paste it in the address line.
   - Group - Shows the template/ISO group if it is enabled via the configuration file. You can change the group by clicking "Edit" . Choose an existing group in the appeared window and click "ASSIGN" to assign the template/ISO to the selected group. You can remove the template/ISO from the group. Select the "Remove from the group <group name>" option and click "REMOVE".
2. Zones tab - Shows the zone where the template/ISO is available. If the zone has "Yes" for the *Ready* status, the template/ISO can be used for VM creation.



3. Tags tab - Presents the list of tags assigned to the template/ISO.

Tags can be system or non-system. System tags are used to provide the functionality from the user interface perspective. Changing these tags affects the functionality of the application. The "Show system tags" checkbox allows to view or hide system tags of the template. Hiding system tags helps to avoid accidental unwanted changes. If a user has disabled displaying of these tags, the system will remember it and next time tags will also be hidden. Uncheck the "Show system tags" checkbox to hide system tags from the list.

The following system tags can be used for templates/ISOs:



- `csui.template.group` - Used to assign a template/ISO to a group.
- `csui.template.download-url` - Used for URL, if any provided for the template/ISO.

Note: Please, see the list of tags to find system tags that can be used for a template/ISO.

To find the tag you are interested in, please, use the search tool above the tag list. You can enter a name or a part of the tag name to distinguish it in the list.

To add a tag for the template/ISO click "Create" . In the appeared form enter:

- Key *
- Value *

Note: Required fields are marked with an asterisk (*). The values in the fields cannot start with a space.

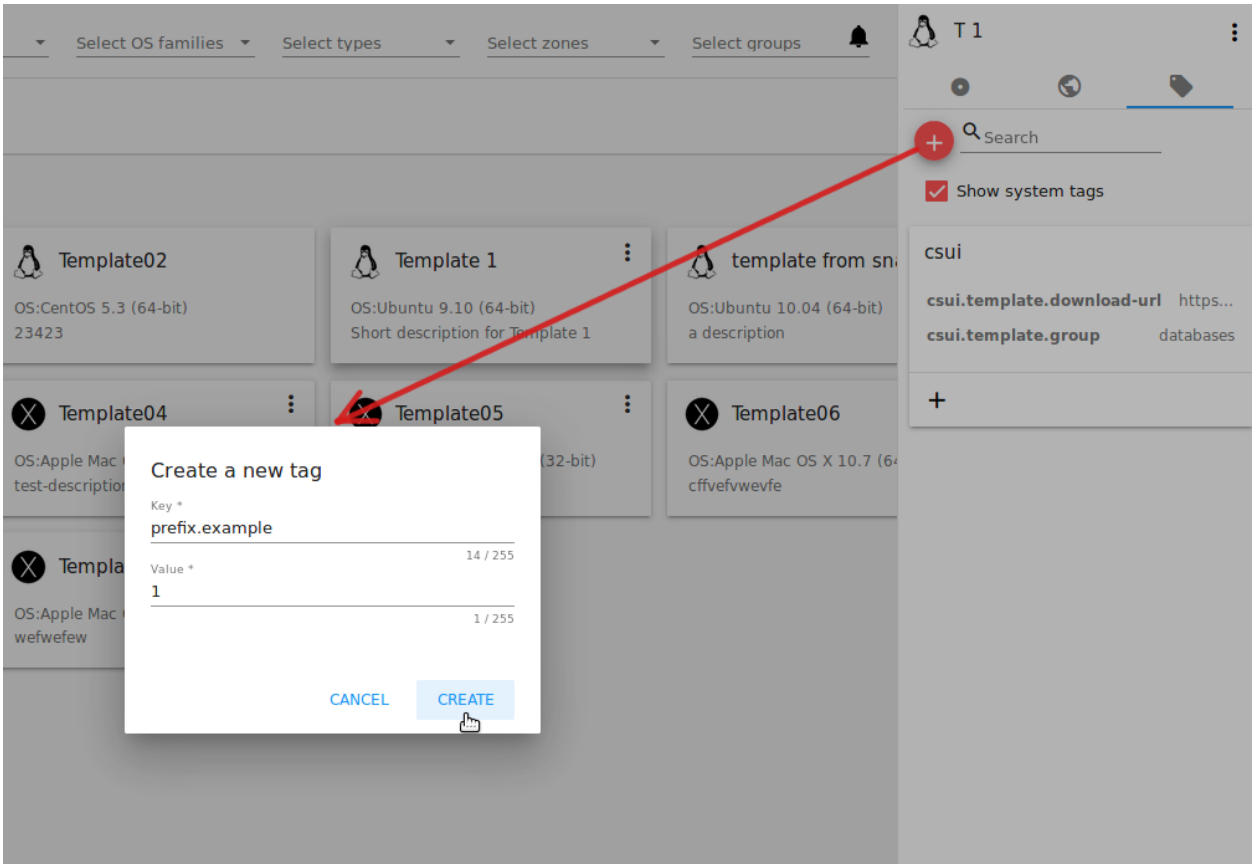
Click "Create" to assign a new tag to the template/ISO.

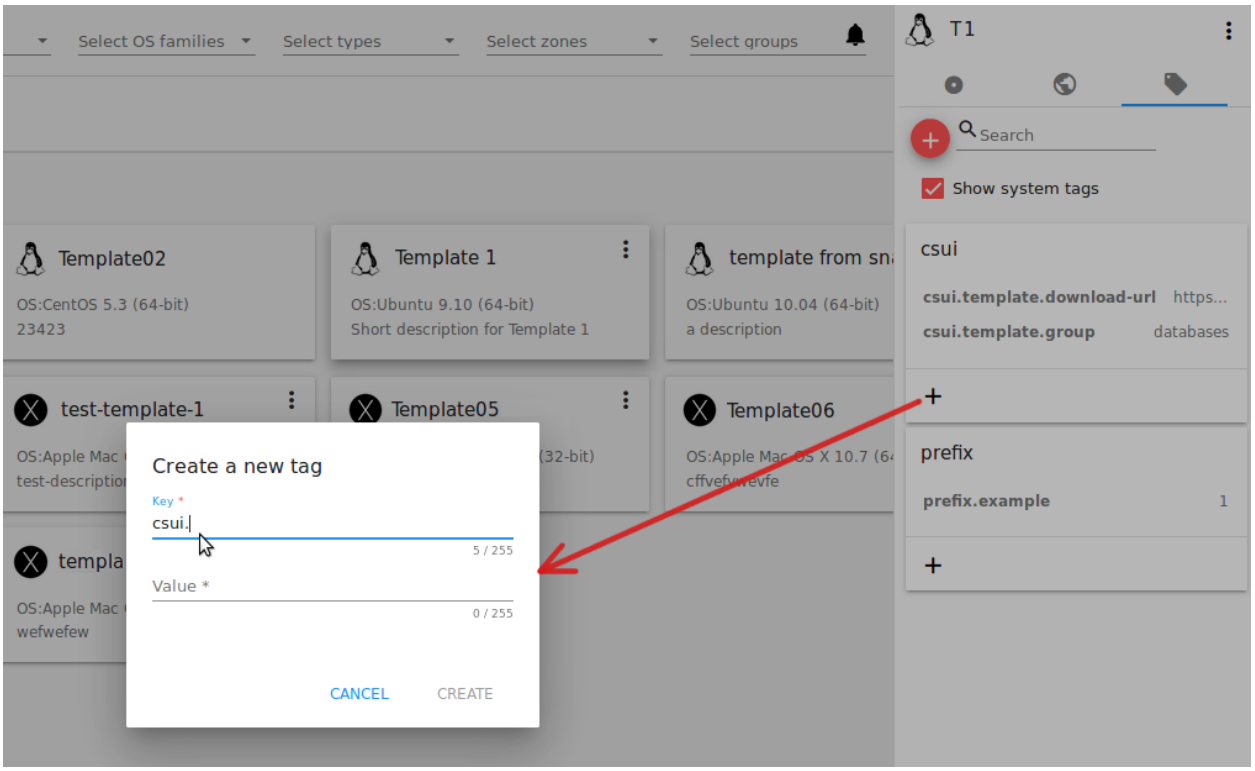
When adding a system tag, click "+" in the card to open the creation form. You will see that the `csui` prefix is automatically prepopulated here.

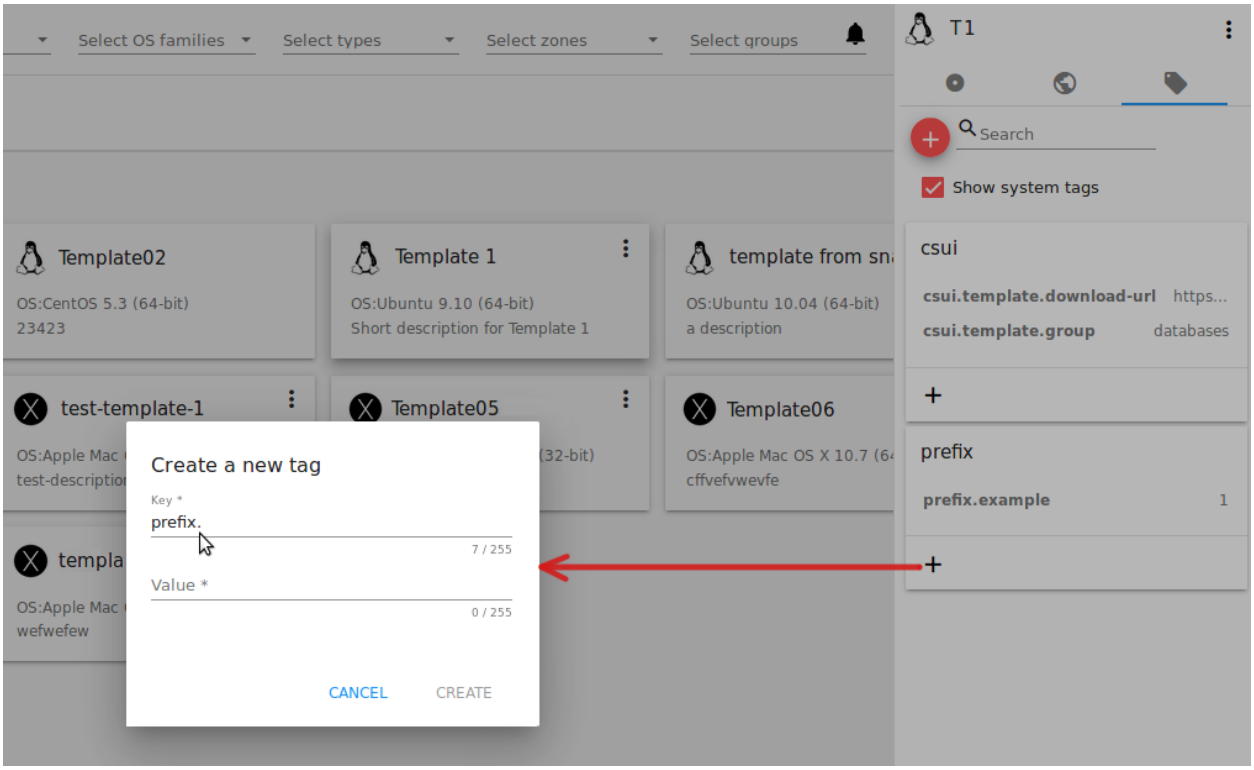
If you create a non-system tag, it will be saved in a new card. If you have entered a key in the format `<prefix>.<example>`, a card will be named as "<prefix>". When creating a new tag from this card, click "+" in the card and in the tag creation form the *Key* field will be prepopulated with the <prefix>.

Tags can be edited or/and deleted. Mouse over the tag in the list and see "Edit" and "Delete" buttons.

Click "Edit" to change the tag's key or value in the appeared form. Save the edits.


Select OS families
Select types
Select zones
Select groups
T 1
Search
Show system tags
csui
csui.template.download-url https...
csui.template.group databases
Template02
OS:CentOS 5.3 (64-bit)
23423
Template 1
OS:Ubuntu 9.10 (64-bit)
Short description for Template 1
template from sn
OS:Ubuntu 10.04 (64-bit)
a description
Template04
Template05
Template06
Create a new tag
Key *
prefix.example
14 / 255
Value *
1
1 / 255
CANCEL
CREATE


Select OS families
Select types
Select zones
Select groups
T1
Search
Show system tags
csui
csui.template.download-url https...
csui.template.group databases
Template02
OS:CentOS 5.3 (64-bit)
23423
Template 1
OS:Ubuntu 9.10 (64-bit)
Short description for Template 1
template from sn
OS:Ubuntu 10.04 (64-bit)
a description
test-template-1
Template05
Template06
Create a new tag
Key *
csui.
5 / 255
Value *
0 / 255
CANCEL
CREATE
prefix
prefix.example 1



Click “Delete” to delete the tag from the list for this template. Confirm your action in the dialog window. Make sure the tag disappeared from the list of assigned tags.

2.4.5 Template/ISO Action Box

By clicking “Actions” ⋮ you can expand the list of actions for those templates/ISO that are in the account your user belongs to (corresponding to “My” type). The deleting action is available here.

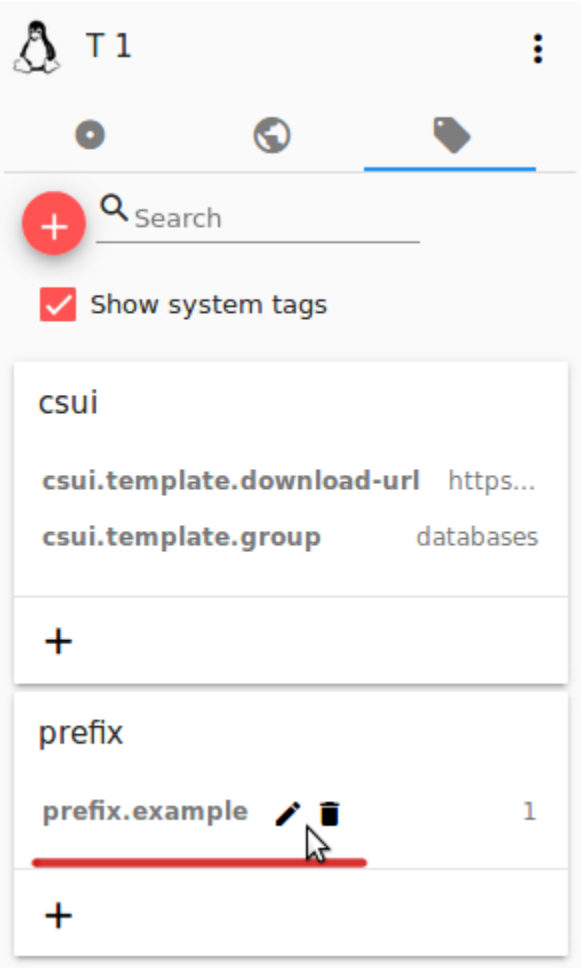
Click “Delete” to delete the template/ISO and then confirm your action in the dialog window. The template/ISO will be deleted.

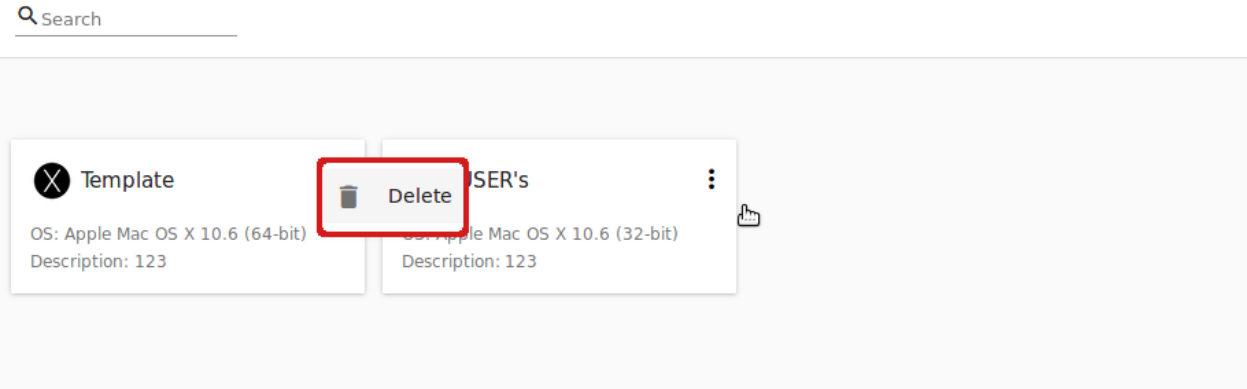
Click “Cancel” to close the window without deleting a template/ISO.

2.5 Snapshots

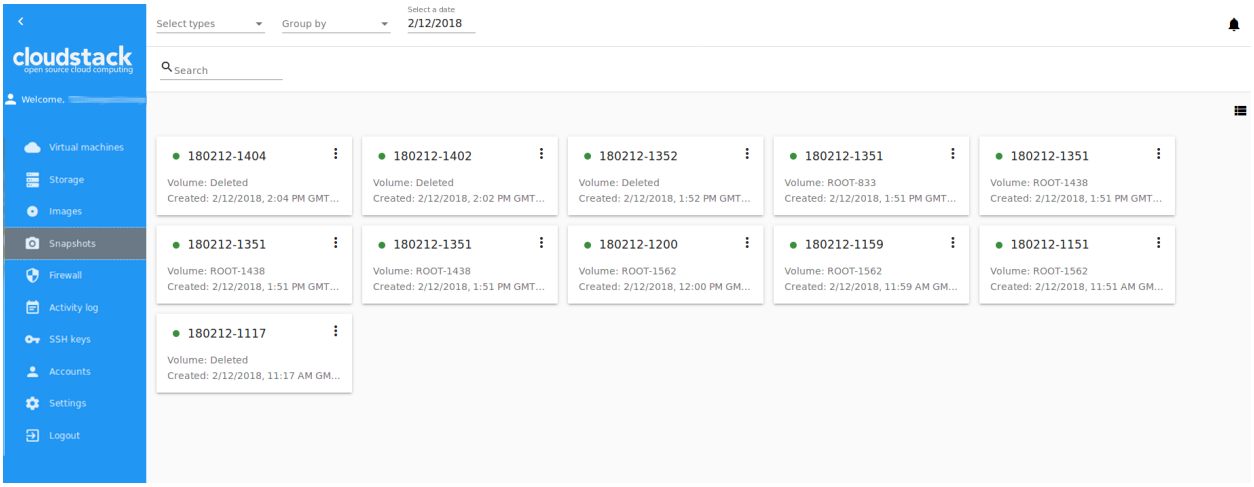
Contents

- *Snapshots*
  - *Snapshots List*
    - *Filtering of Snapshots*
  - *Snapshot Details Sidebar*
  - *Snapshot Actions Box*


T 1
Search
Show system tags
csui
csui.template.download-url
https...
csui.template.group
databases
prefix
prefix.example
1


Search
Template
Delete
SER's
OS: Apple Mac OS X 10.6 (64-bit)
Description: 123
Description: 123

The *Virtual Machines -> Snapshots* section contains the information on snapshots existing in the system.

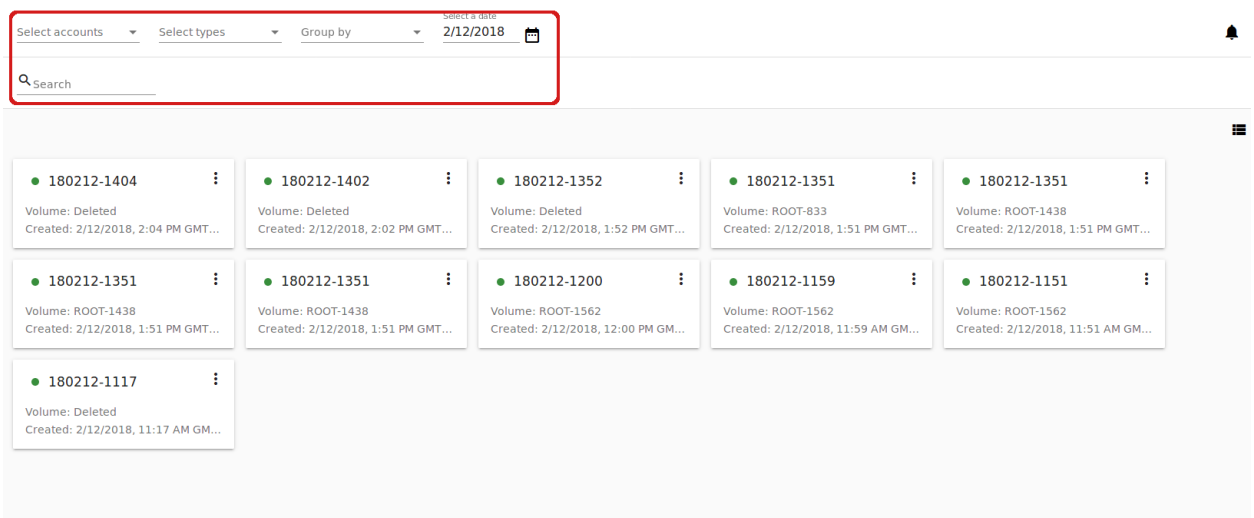


2.5.1 Snapshots List

The list of snapshots can be presented in the box view or in the list view. Change the view using / button.

Filtering of Snapshots

Filtering of snapshots is available above the list.



You can filter the list by the following parameters:

- by Accounts (for Administrators);
- by Type - Hourly, Daily, Weekly, Monthly, Manual depending on the schedule of snapshotting.
- by Creation Date - Select a date using a date picker.

Group snapshots by accounts (available for Administrators) and/or by type.

The searching tool allows to find a snapshot by:

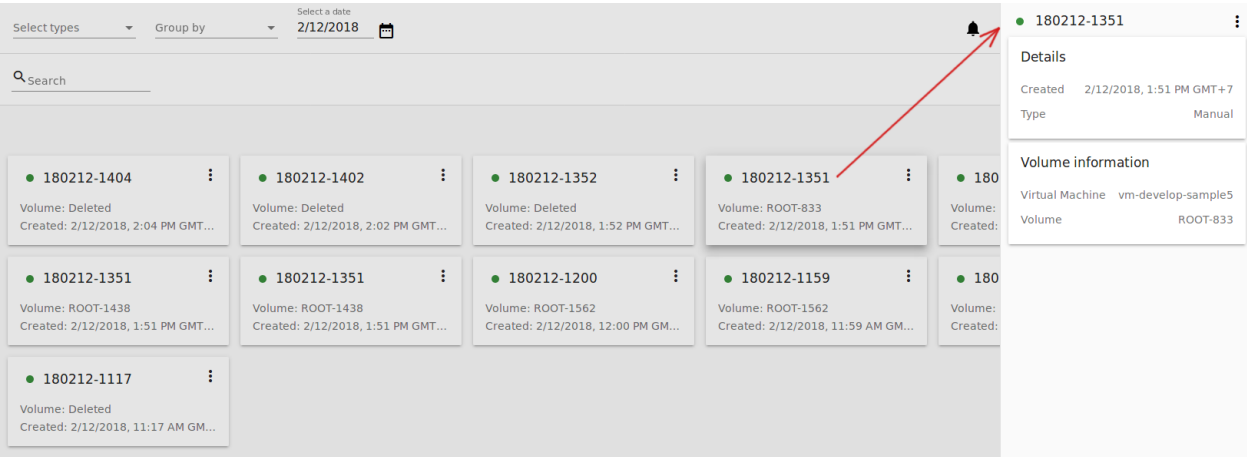
- its name or a part of the name;
- snapshot description.

For each snapshot in the list the following information is presented:

- State bullet - green for backed up, red for any error behavior, yellow for creating, grey for allocated.
- Name of the snapshot.
- Volume the snapshot is created for.
- Date and time of creation.
- Actions button ⋮.

2.5.2 Snapshot Details Sidebar

A details sidebar presents the information on a snapshot. It appears to the right by clicking a snapshot in the list.



The following information is presented in the details sidebar:

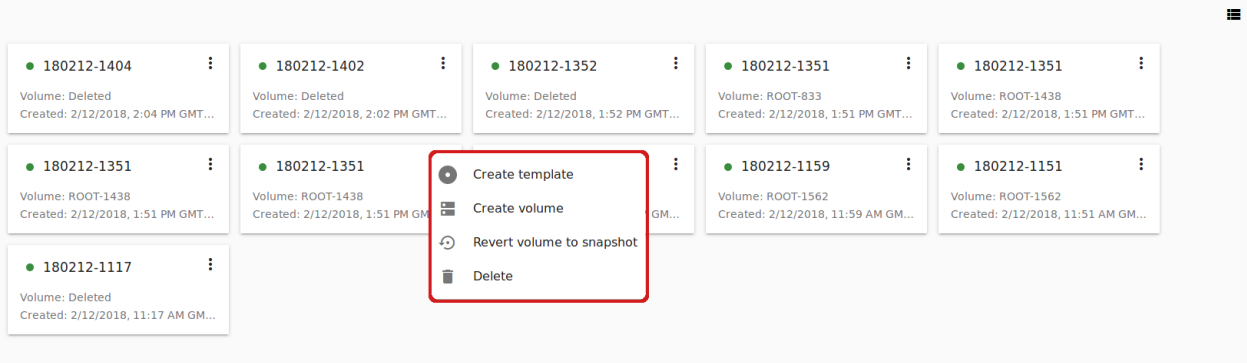
- Date and time of creation;
- Type - Presents the snapshot type;
- Volume information and a virtual machine it is assigned to.

2.5.3 Snapshot Actions Box

The following actions are available for snapshots:

- Create template;
- Create volume;
- Revert volume to snapshot;
- Delete.

Note: For a newly created snapshot the "Delete" action is available only till the snapshot is backed up to the Secondary Storage that may take some time. Once it is backed up (marked with a green state icon), a full range of actions is available to a user.



Below you will find details for each action.

Create Template

Open a creation form to register a new template from the snapshot.

Fill in the fields:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter a name of the new template.
- Description * - Provide a short description of the template.
- OS type * - Select an OS type from the drop-down list.
- Group - Select a group from the drop-down list.
- Password enabled - Tick this option if your template has the CloudStack password change script installed. That means the VM created on the base of this template will be accessed by a password, and this password can be reset.
- Dynamically scalable - Tick this option if the template contains XS/VM Ware tools to support dynamic scaling of VM CPU/memory.

Click “Show additional fields” to expand the list of optional settings. It allows creating a template that requires HVM. Tick this option in this case.

Once all fields are filled in click “Create” to create the new template.

Click “Cancel” to cancel the template creation.

Create Volume

This action allows creating a volume from the snapshot.

Type a name for a new volume into the Name field in the modal window. Click “CREATE” to register a new volume.

Click “CANCEL” to cancel the volume creation.

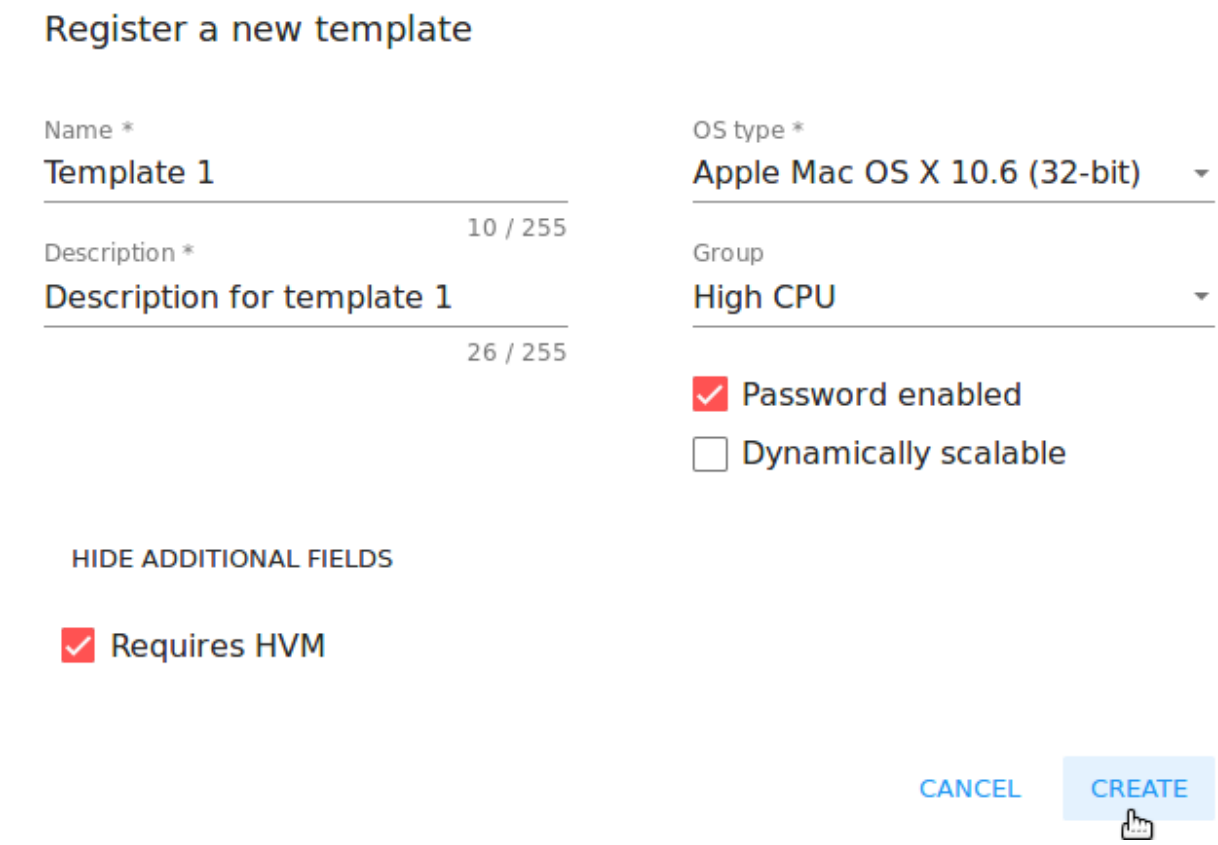
Revert Volume to Snapshot

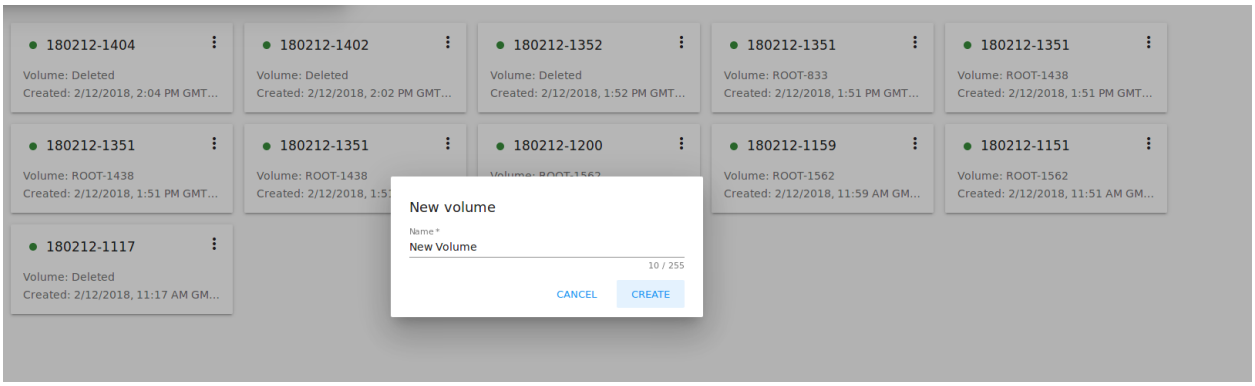
This action allows turning the volume back to the state of the snapshot. It is available to those snapshots that have a volume.

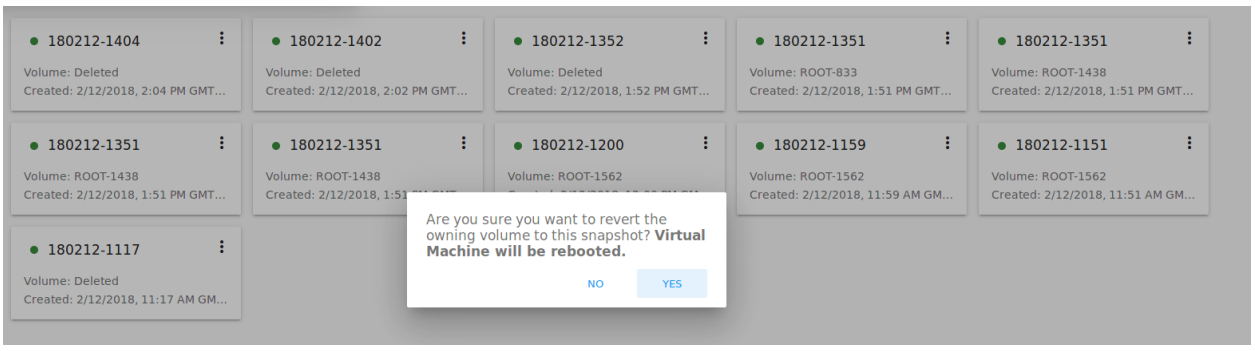
In the dialog window confirm your action. Please, note, the virtual machine the volume is assigned to will be rebooted.

Delete

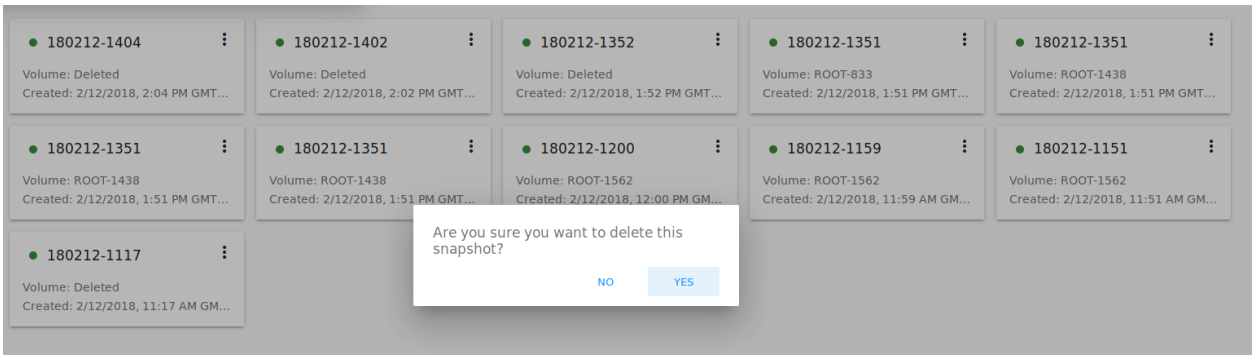
This action allows deleting a snapshot from the system.


Register a new template
Name *
Template 1
10 / 255
Description *
Description for template 1
26 / 255
OS type *
Apple Mac OS X 10.6 (32-bit)
Group
High CPU
Password enabled
Dynamically scalable
HIDE ADDITIONAL FIELDS
Requires HVM
CANCEL
CREATE


180212-1404
Volume: Deleted
Created: 2/12/2018, 2:04 PM GMT...
180212-1402
Volume: Deleted
Created: 2/12/2018, 2:02 PM GMT...
180212-1352
Volume: Deleted
Created: 2/12/2018, 1:52 PM GMT...
180212-1351
Volume: ROOT-833
Created: 2/12/2018, 1:51 PM GMT...
180212-1351
Volume: ROOT-1438
Created: 2/12/2018, 1:51 PM GMT...
180212-1351
Volume: ROOT-1438
Created: 2/12/2018, 1:51 PM GMT...
180212-1351
Volume: ROOT-1438
180212-1200
180212-1159
Volume: ROOT-1562
Created: 2/12/2018, 11:59 AM GM...
180212-1151
Volume: ROOT-1562
Created: 2/12/2018, 11:51 AM GM...
180212-1117
Volume: Deleted
Created: 2/12/2018, 11:17 AM GM...
New volume
Name *
New Volume
10 / 255
CANCEL
CREATE


180212-1404
Volume: Deleted
Created: 2/12/2018, 2:04 PM GMT...
180212-1402
Volume: Deleted
Created: 2/12/2018, 2:02 PM GMT...
180212-1352
Volume: Deleted
Created: 2/12/2018, 1:52 PM GMT...
180212-1351
Volume: ROOT-833
Created: 2/12/2018, 1:51 PM GMT...
180212-1351
Volume: ROOT-1438
Created: 2/12/2018, 1:51 PM GMT...
180212-1351
Volume: ROOT-1438
180212-1351
Volume: ROOT-1438
180212-1200
Volume: ROOT-1562
180212-1159
Volume: ROOT-1562
Created: 2/12/2018, 11:59 AM GM...
180212-1151
Volume: ROOT-1562
Created: 2/12/2018, 11:51 AM GM...
180212-1117
Volume: Deleted
Created: 2/12/2018, 11:17 AM GM...
Are you sure you want to revert the owning volume to this snapshot? Virtual Machine will be rebooted.
NO
YES

Click “Delete” in the Action box and confirm your action in modal window. The snapshot will be deleted.



Click “NO” to cancel the snapshot deleting.

2.6 Firewall

Contents

- *Firewall*
  - *Firewall List*
  - *Create a Security Group Template*
  - *Create a Shared Security Group*
  - *Private Security Groups*
  - *Security Group Details Sidebar*
  - *Security Group Action Box*
    - *Edit a Firewall Template/Security Group*
    - *“Convert to Shared” Action for Private Security Groups*

The *Virtual Machines -> Firewall* section contains templates to create a security group for a virtual machine and shared security groups used for virtual machines of other users.

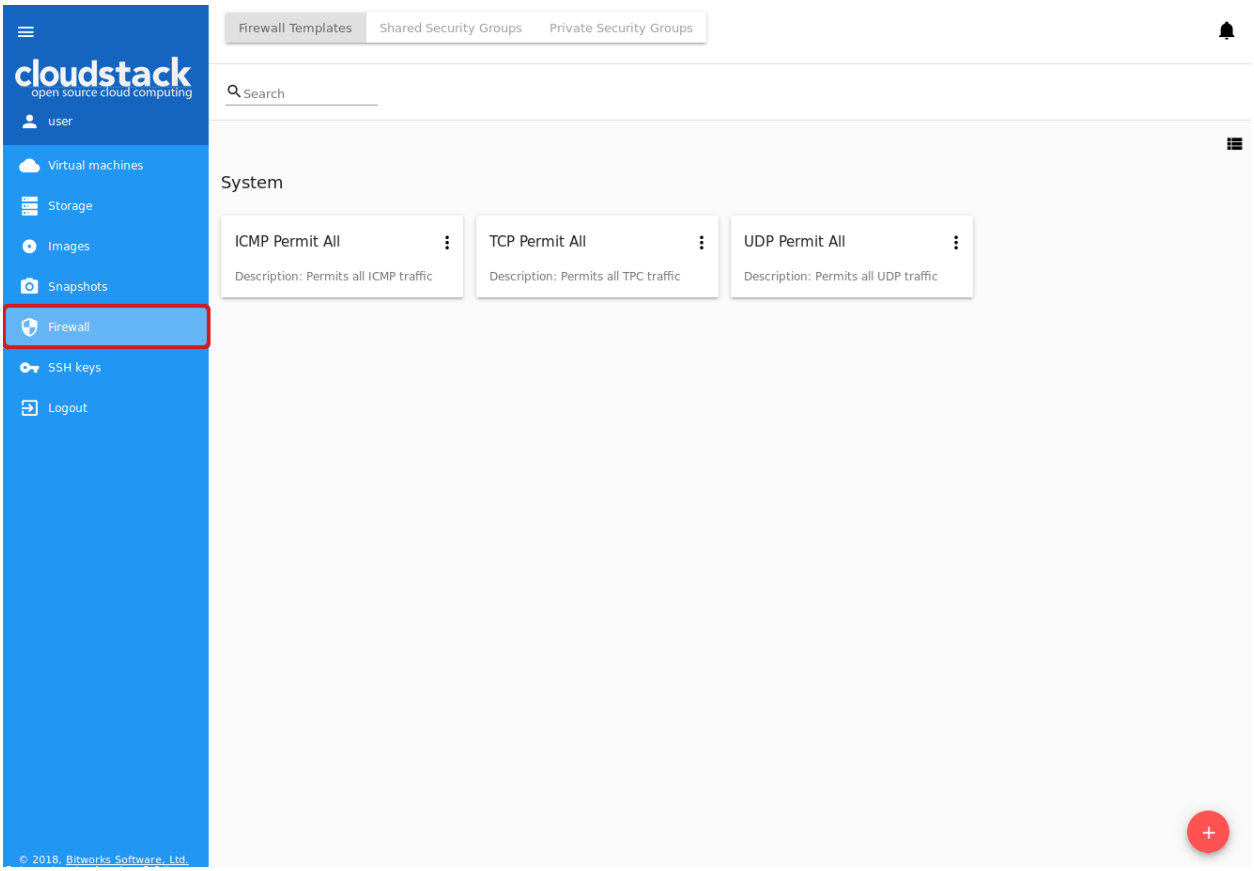
Firewall templates are presets of rules that can be system or developed by a user (custom). Administrators can specify default presets during the interface deployment via the JSON configuration file (find more in configurations guide). These presets will be used when creating a new security group.

A custom security group template can be created via the UI. Find more information on how to create a custom security group template at *Create a Security Group Template*.

Upon VM creation the system creates a new security group for a VM on the base of templates (if they exist). Next, when the user changes the rules for a certain virtual machine, it does not affect other machines. These changed rules make a **private security group** used for that virtual machine only.

The second way is to use a **shared security group** for your virtual machine. Shared groups are used by several VMs. Changes of rules in them may affect other VMs.

Users can manage security group rules in two modes: a “view” mode with filtering by types and protocols and an “edit” mode. Security groups editing is available when switching from “view” mode to “editing” mode. If the group



is shared, the user is warned that changes will affect other VMs using this group. This behavior allows avoiding undesirable changes for other VMs.

Templates, shared and private security groups are placed in different tabs of the *Firewall* section. You can switch from templates to shared or private security groups using the tool above the list.

A user can see security groups of his/her user only. An Administrator can observe security groups of all accounts in the domain.

2.6.1 Firewall List

The security groups are presented in a list format. You can change the view from list to cards clicking the switch view icon / in the upper-right corner.

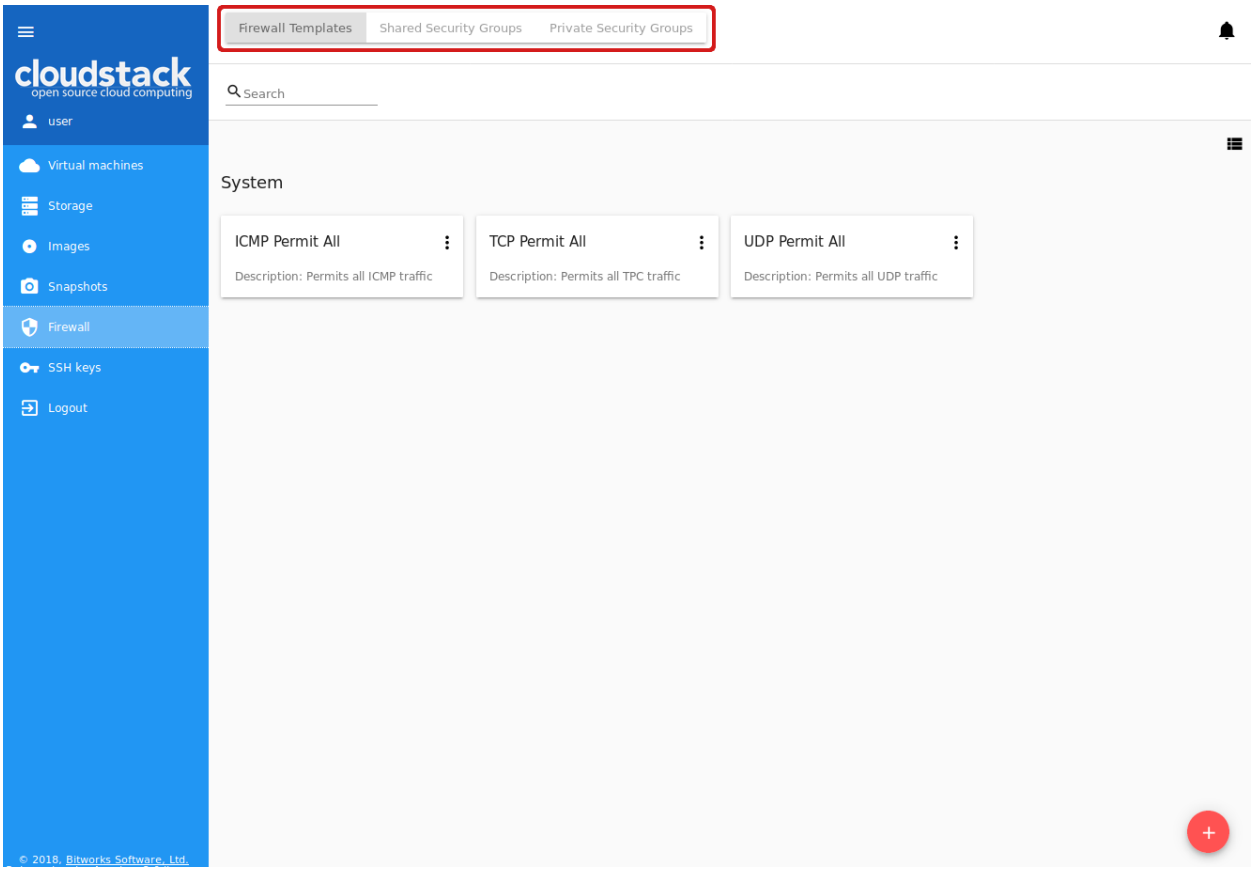
To quickly find the security group you need, please, use the search tool above the list. Enter a name or a part of the name of the template/security group and see the immediate result.

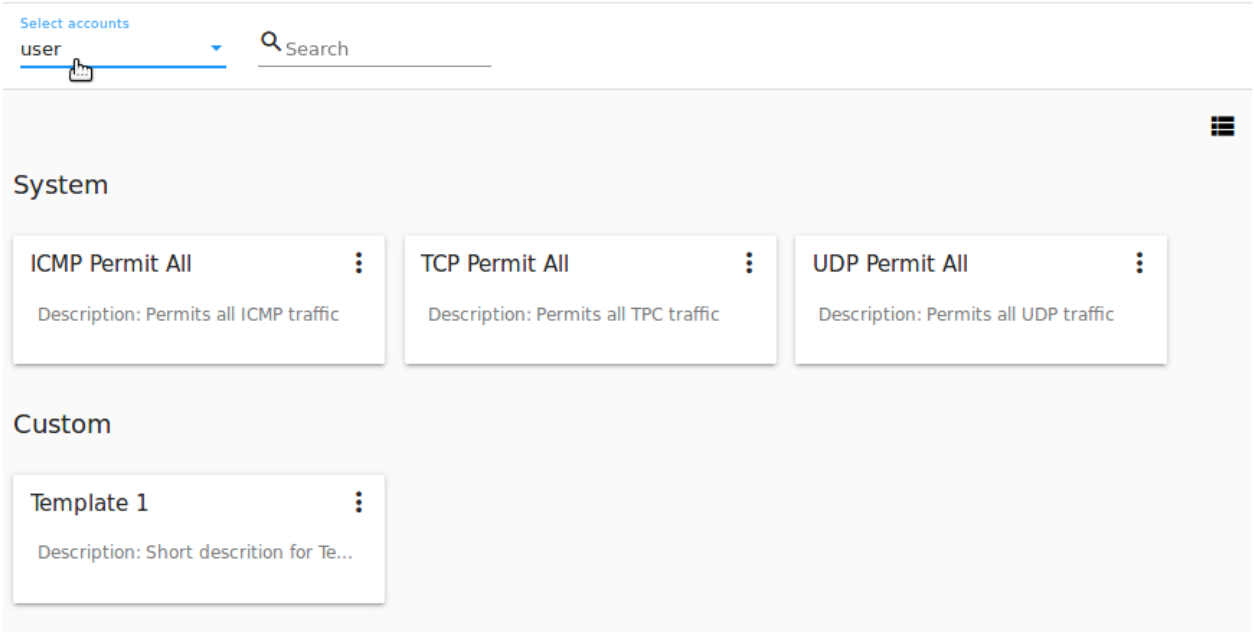
Administrators can filter the list of templates/shared groups by accounts.

2.6.2 Create a Security Group Template

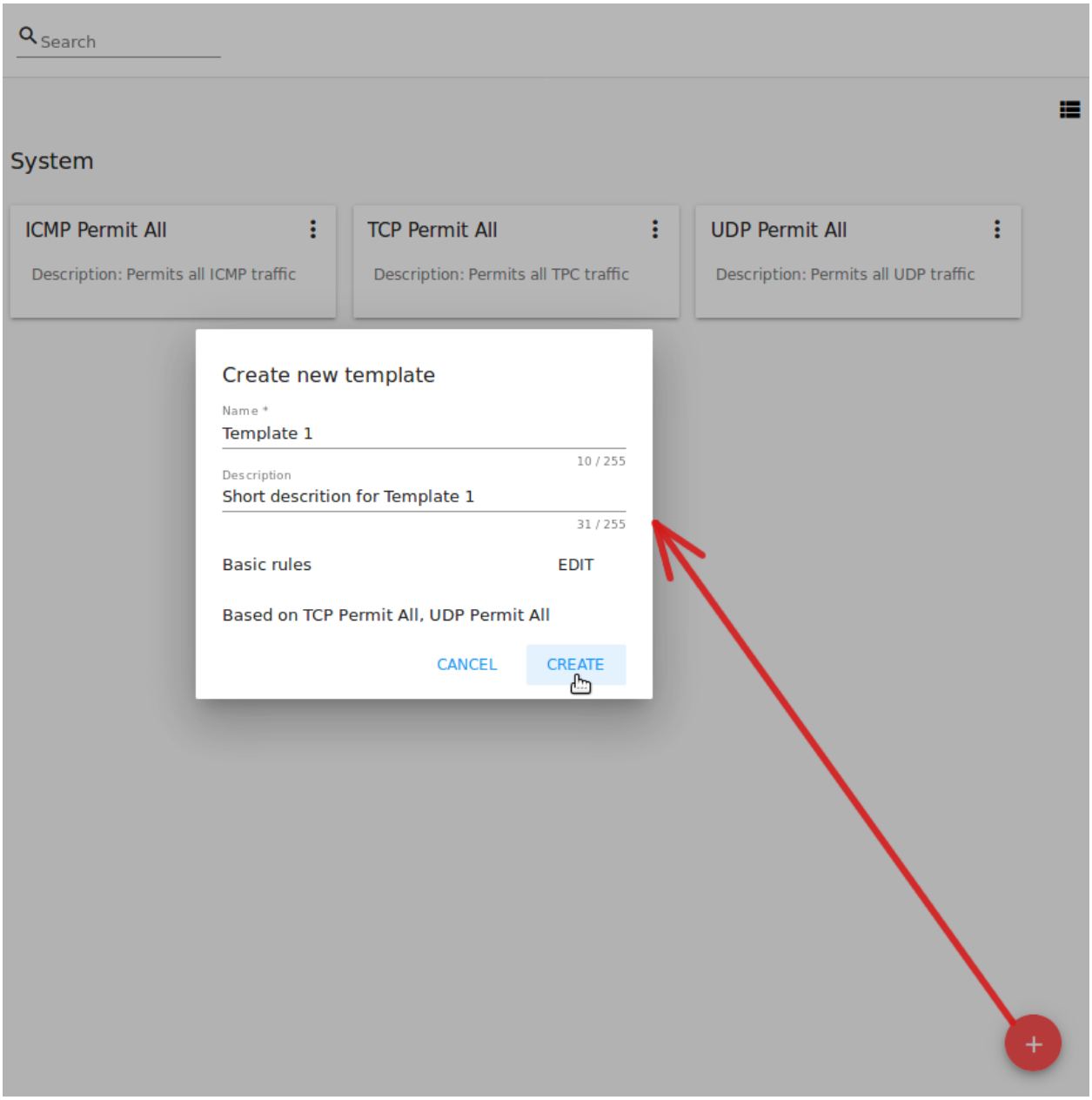
You can create your own template. It will be available as a base at a new private security group creation for VM.

A new security group template is created on the base of existing templates. This security group will be created as a custom template (with a `custom-template` type).


Firewall Templates
Shared Security Groups
Private Security Groups
cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
Search
System
ICMP Permit All
Description: Permits all ICMP traffic
TCP Permit All
Description: Permits all TPC traffic
UDP Permit All
Description: Permits all UDP traffic
© 2018, Bitworks Software, Ltd.

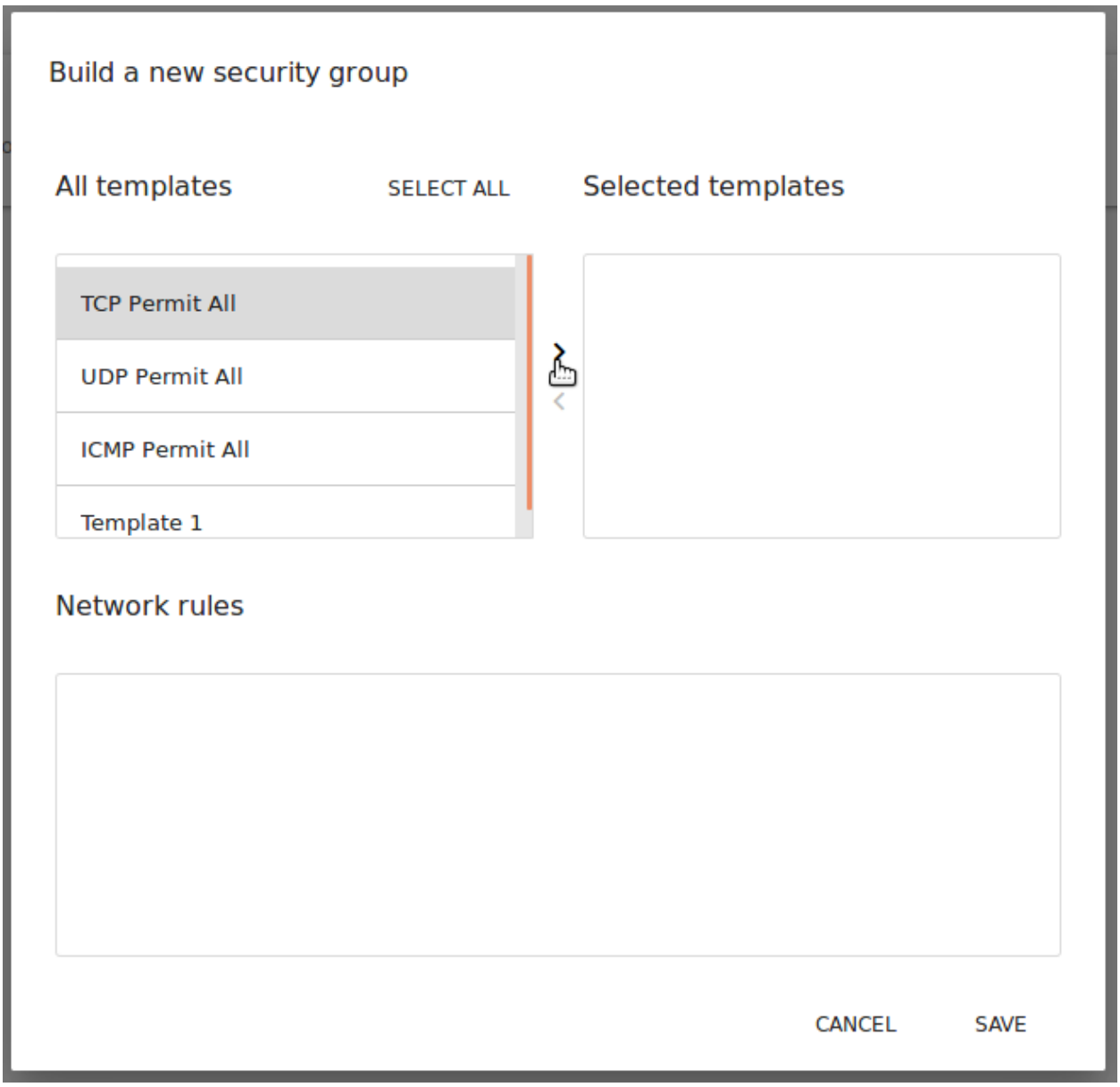

Select accounts
user
Search
System
ICMP Permit All
Description: Permits all ICMP traffic
TCP Permit All
Description: Permits all TPC traffic
UDP Permit All
Description: Permits all UDP traffic
Custom
Template 1
Description: Short descrition for Te...

If you would like to create a new security group template, click “Create” in the bottom-right corner and fill in the form:



Note: Required fields are marked with an asterisk (*).

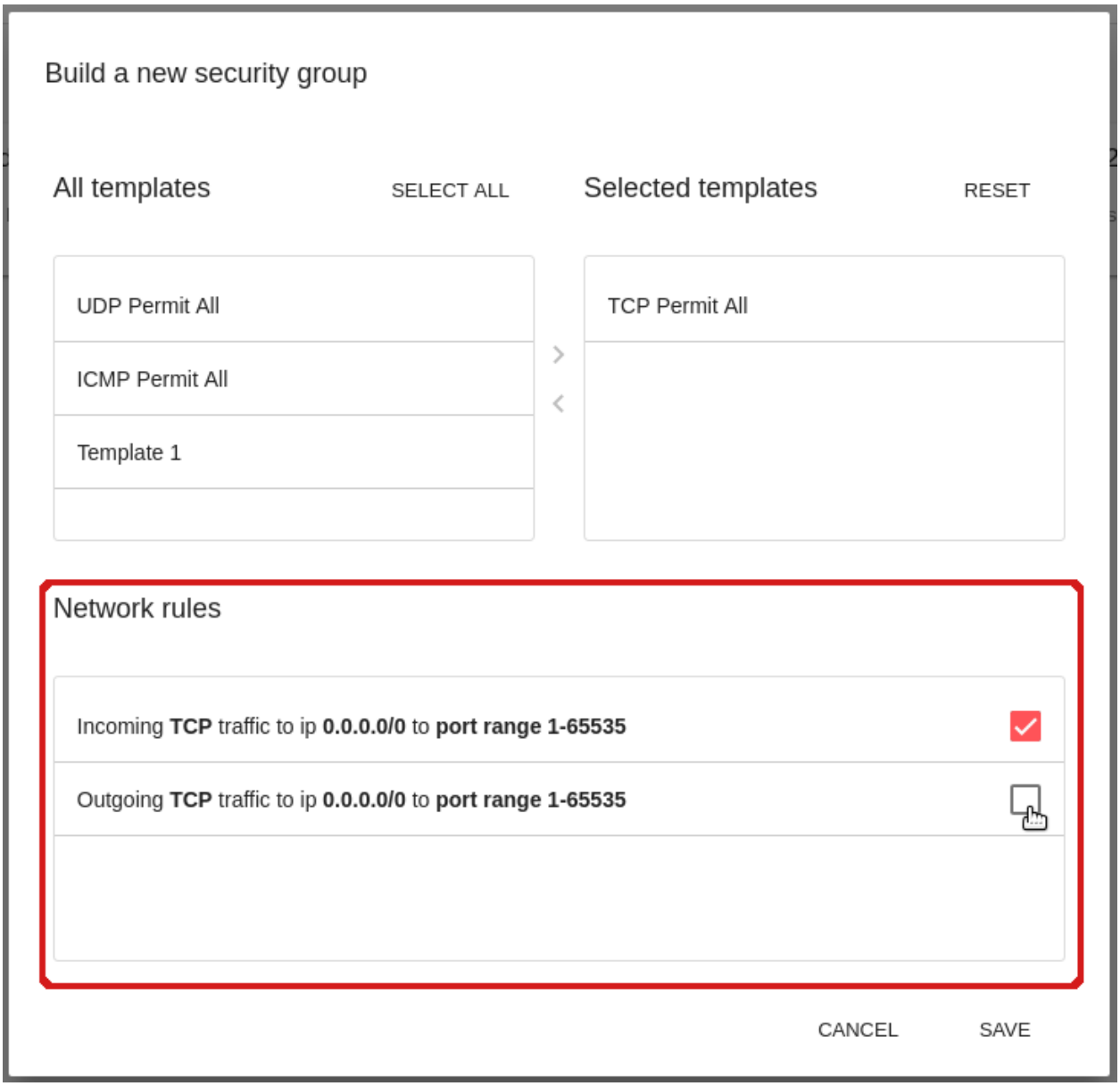
- Name * - Enter a name for the template.
- Description - Provide a short description for the firewall template.
- Basic rules - Click “ADD” to open the list of rules to assign them to the template. In the appeared window select a template in the “All templates” list at the left and move it to the “Selected templates” list at the right by clicking the arrow icon:


Build a new security group
All templates
SELECT ALL
Selected templates
TCP Permit All
UDP Permit All
ICMP Permit All
Template 1
Network rules
CANCEL
SAVE

Click “SELECT ALL” to move all templates from left to right at once.

Click “RESET” to drop all selected templates.

In the list below you will see the rules corresponding to the selected templates. All of them are checked as selected. Uncheck those you do not wish to add to your firewall template.

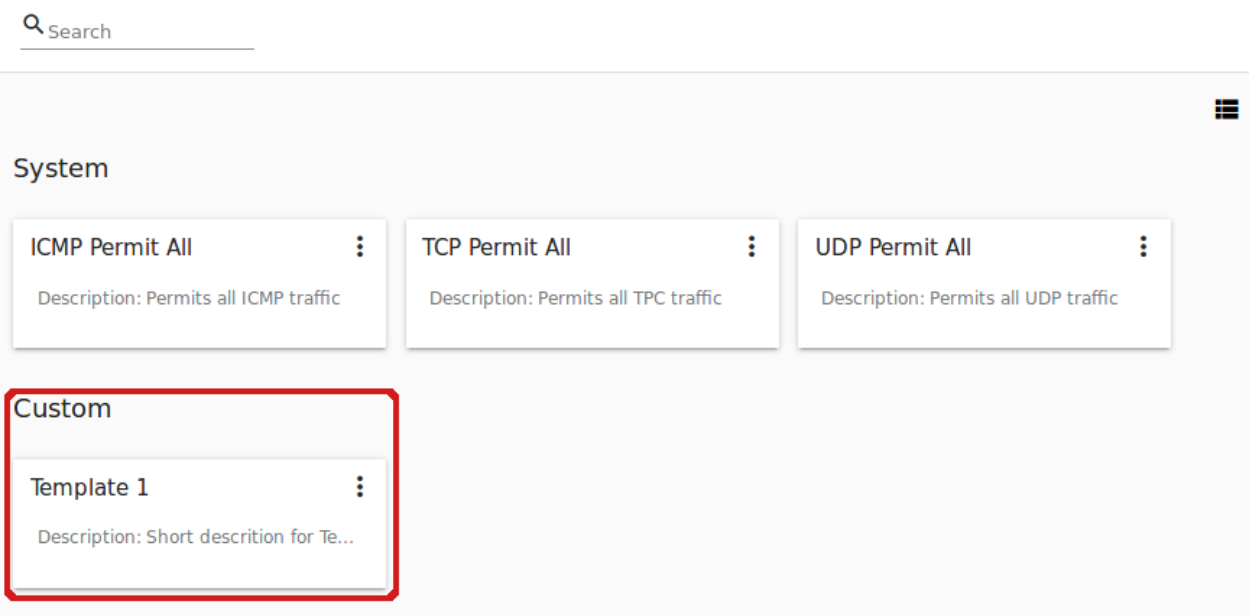


Click “SAVE” to apply the selected rules to your security group template.

Click “CANCEL” to drop the selected options. No rules will be assigned to the template. You will return to the “Create a new security group” window.

When all fields are completed, click “CREATE” to create the new firewall template. The template will appear in the list of firewall templates as *Custom*:

Click “CANCEL” to cancel the template creation process. No firewall templates will be created then. All fields will be cleared in the form.



2.6.3 Create a Shared Security Group

You can create a shared security group and it will be available for creating virtual machines of other users.

A new shared security group is created on the base of existing templates. This security group will be created with a `shared` type.

If you would like to create a new shared security group, navigate to the Shared Security Group section and click "Create" in the bottom-right corner. Then, fill in the form:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter a name for the group.
- Description - Provide a short description for the group.
- Basic rules - Click "ADD" to open the list of rules to assign them to the group. In the appeared window select a template in the "All templates" list at the left and move it to the "Selected templates" list at the right by clicking the arrow icon:

Click "SELECT ALL" to move all templates from left to right at once.

Click "RESET" to drop all selected templates.

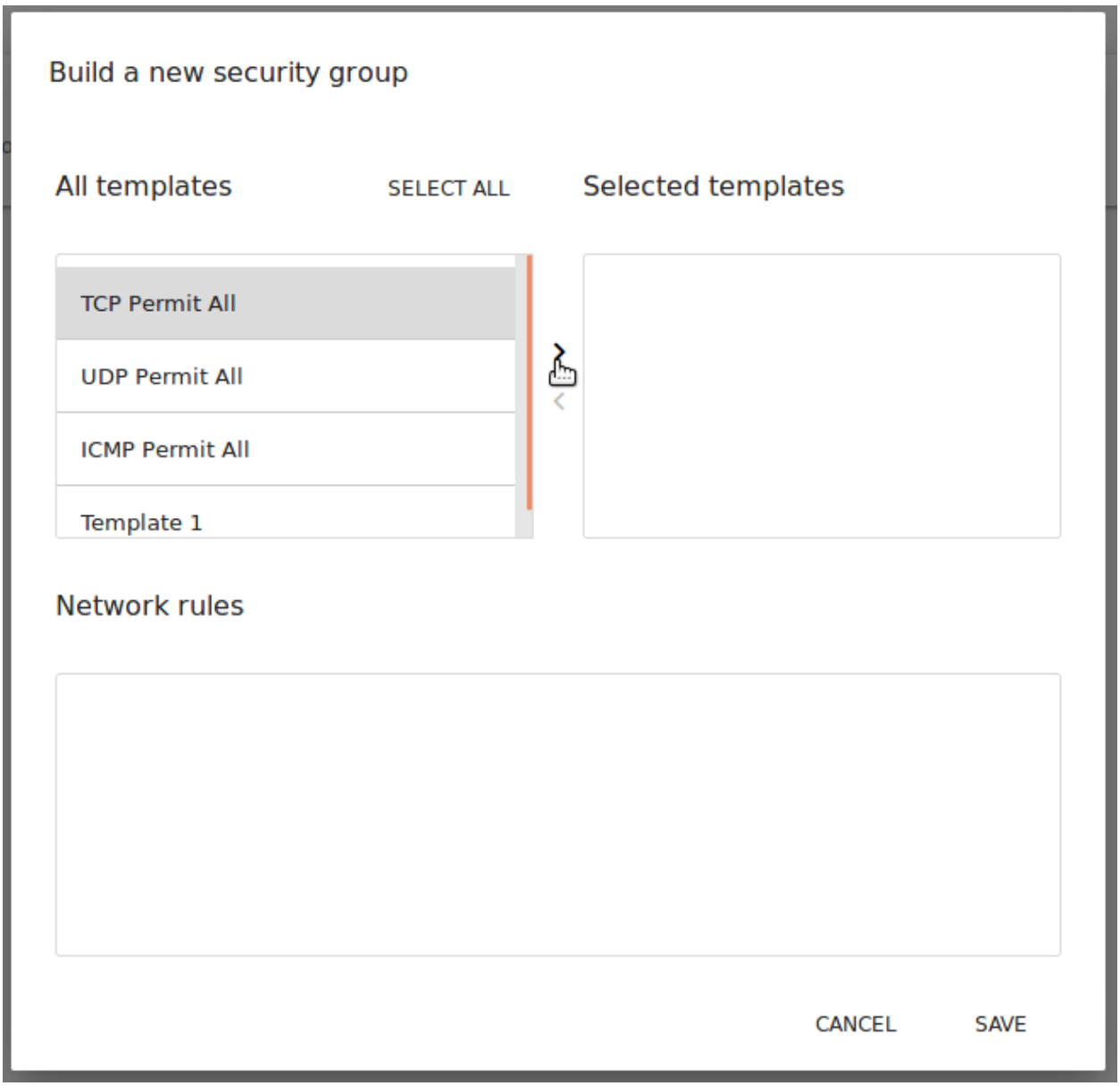
In the list below you will see the rules corresponding to the selected templates. Check those you wish to add to your shared security group.

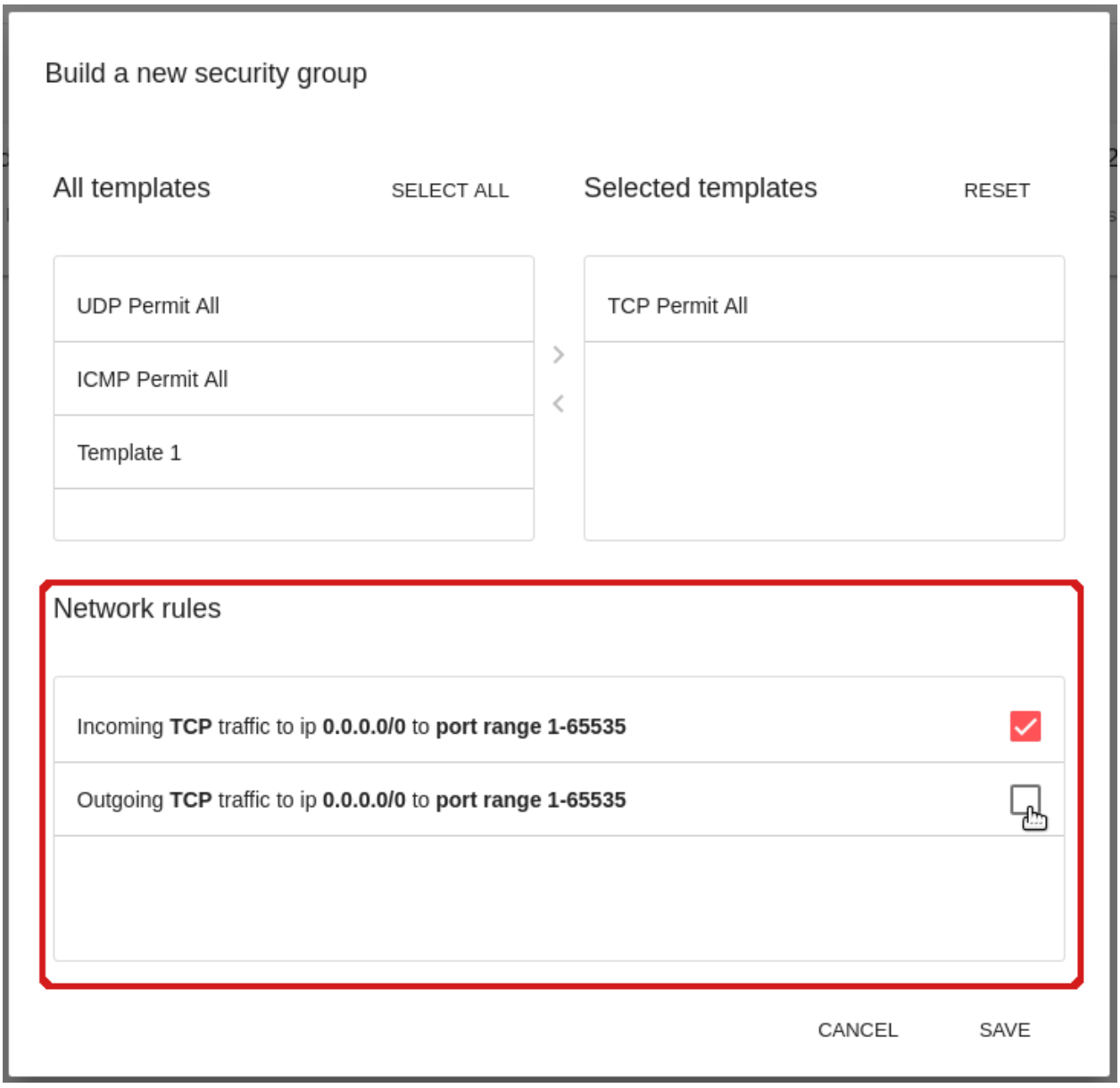
Click "SAVE" to apply the selected rules to your security group template.

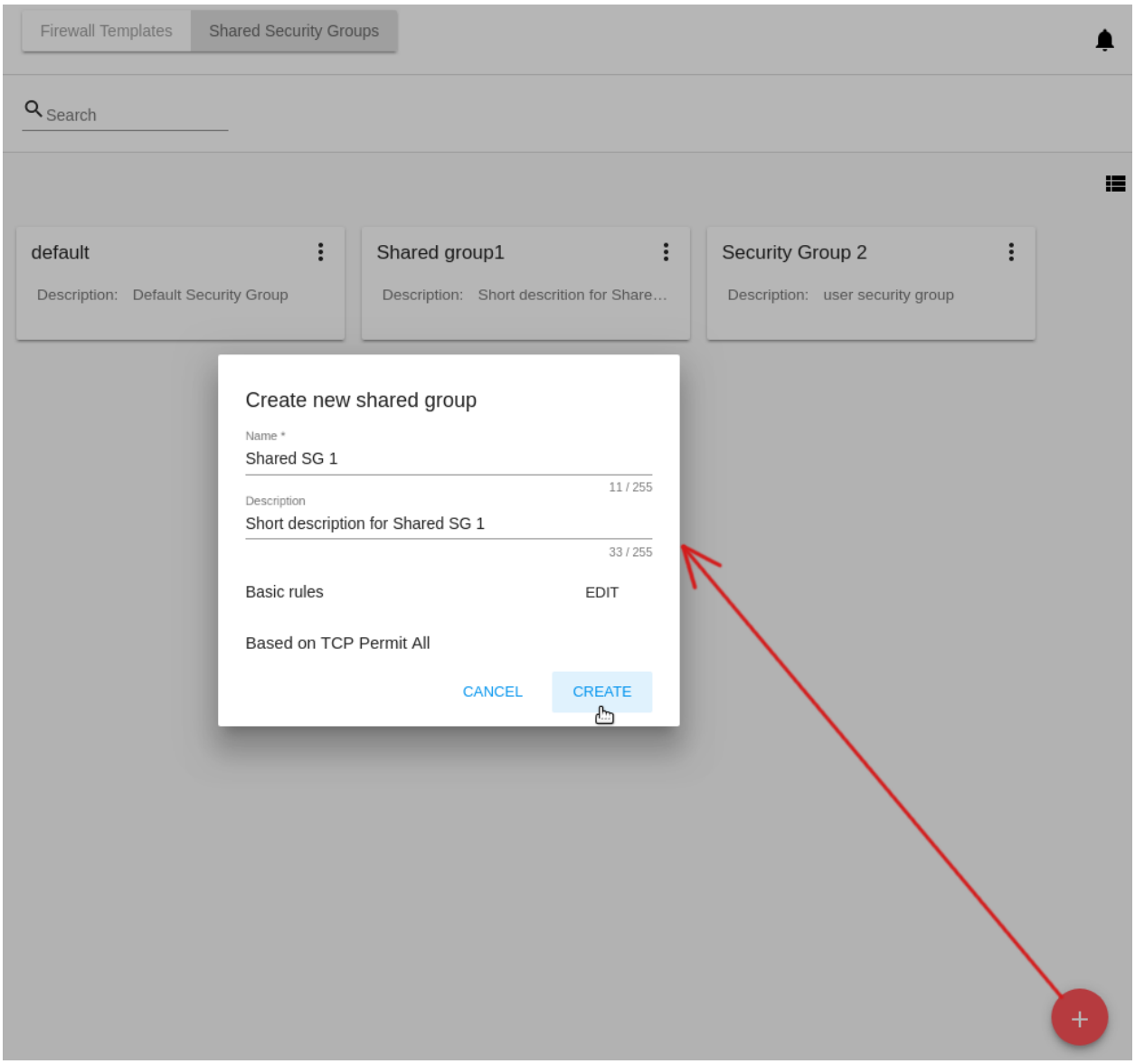
Click "CANCEL" to drop the selected options. No rules will be assigned to the security group. You will return to the "Create a new security group" window.

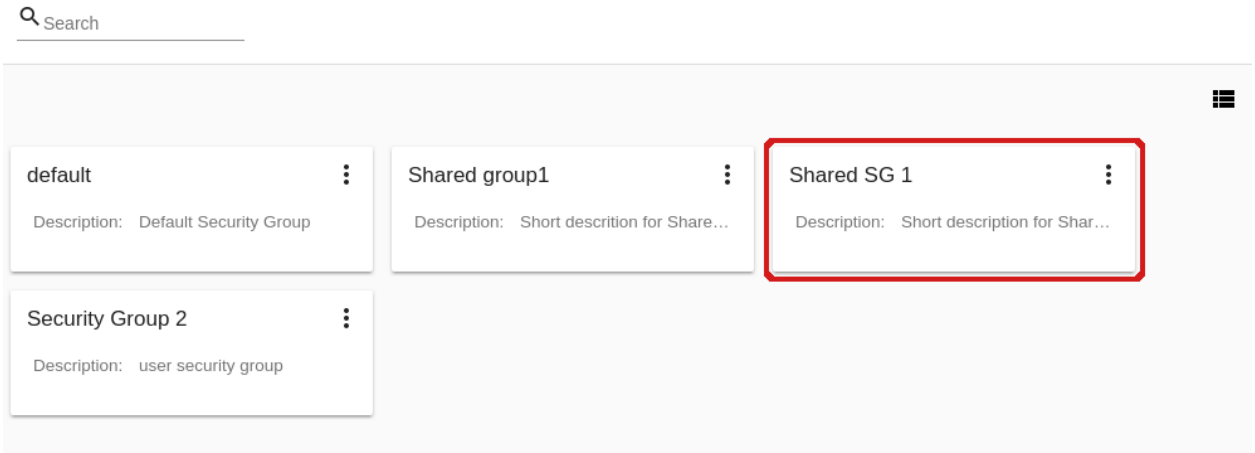
Click "CREATE" to create the new shared security group. The group will appear in the list of shared security groups.

Click "CANCEL" to cancel the group creation process. No group will be created then. All fields will be cleared in the form.


Build a new security group
All templates
SELECT ALL
Selected templates
TCP Permit All
UDP Permit All
ICMP Permit All
Template 1
Network rules
CANCEL
SAVE


Build a new security group
All templates
SELECT ALL
Selected templates
RESET
UDP Permit All
ICMP Permit All
Template 1
TCP Permit All
Network rules
Incoming TCP traffic to ip 0.0.0.0/0 to port range 1-65535
Outgoing TCP traffic to ip 0.0.0.0/0 to port range 1-65535
CANCEL
SAVE


Firewall Templates
Shared Security Groups
Search
default
Description: Default Security Group
Shared group1
Description: Short descrition for Share…
Security Group 2
Description: user security group
Create new shared group
Name *
Shared SG 1
11 / 255
Description
Short description for Shared SG 1
33 / 255
Basic rules
EDIT
Based on TCP Permit All
CANCEL
CREATE

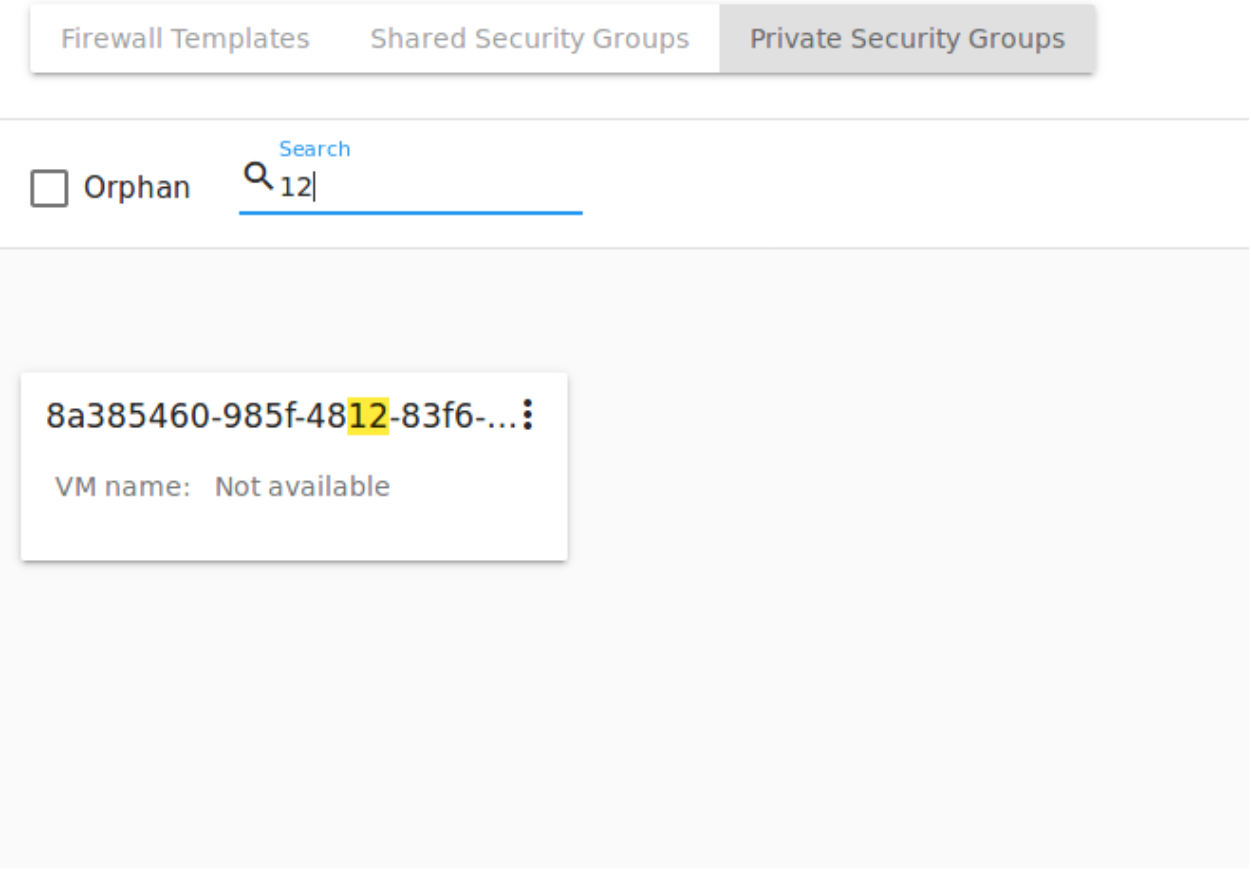

Search
default
Description: Default Security Group
Shared group1
Description: Short descrition for Share…
Shared SG 1
Description: Short description for Shar…
Security Group 2
Description: user security group

2.6.4 Private Security Groups

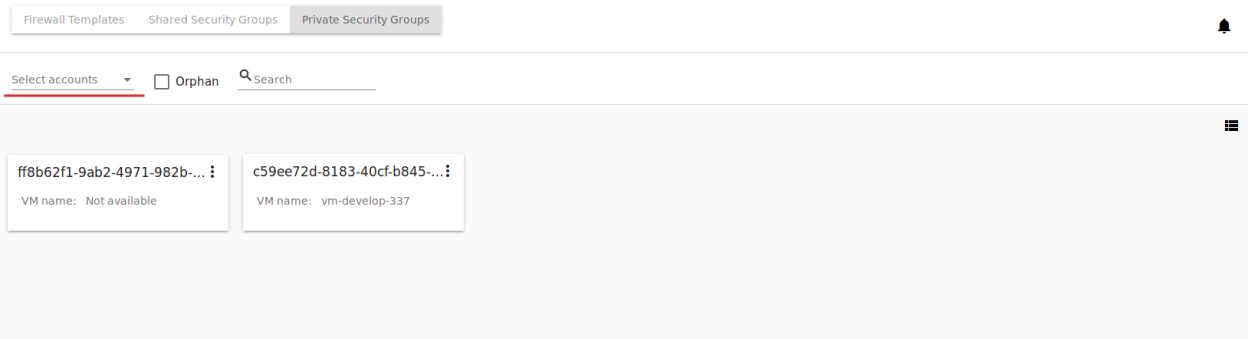
Private security groups are listed in the *Private Security Groups* section.

Security groups appear in this section once they are created for a virtual machine (see *Create a Virtual Machine*). A private security group name has the following format - `sg-{{ virtual machine name }}` - containing the name of the virtual machine it is created for.

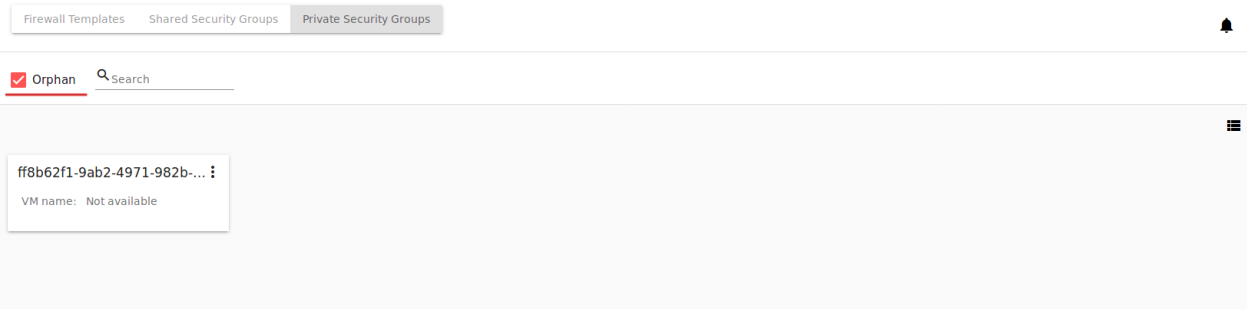
You can quickly find a group by its name or a part of the name using the searching tool above the list.



Besides, Administrators can filter the list by accounts.



You can filter the list by ticking the “Orphan” checkbox above. It allows displaying only the security groups that are not used by any machine.



The "Orphan" option appears above the list in case the security groups that are not used by any VM exist in the list. This might happen in case a VM has been deleted but a group has been not (because of an error or incorrect behavior).

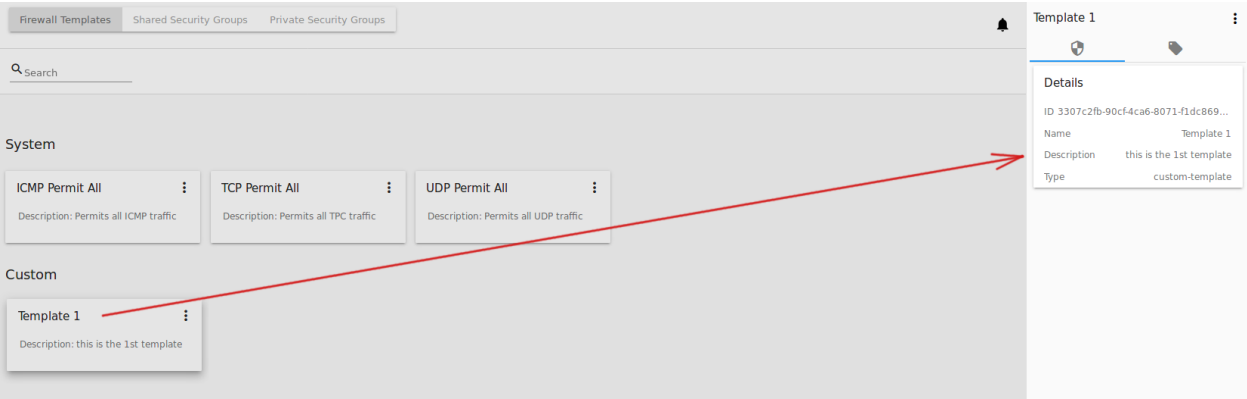
2.6.5 Security Group Details Sidebar

You can see the firewall rules details in the sidebar to the right.

Click the template/shared/private security group in the list and open the sidebar. You will see two tabs there - Details and Tags.

The **Details** tab contains the following information:

- Name of the security group;
- *Security Group Action Box* under ⋮;
- ID of the security group;
- Description giving an idea what the security group contains (not available for private security groups);
- Type - Defines the security group types. For firewall templates it can be `custom-template` for custom templates, or `predefined-template` for system templates. For shared security groups it is `shared`. For private security groups you will see `private`.

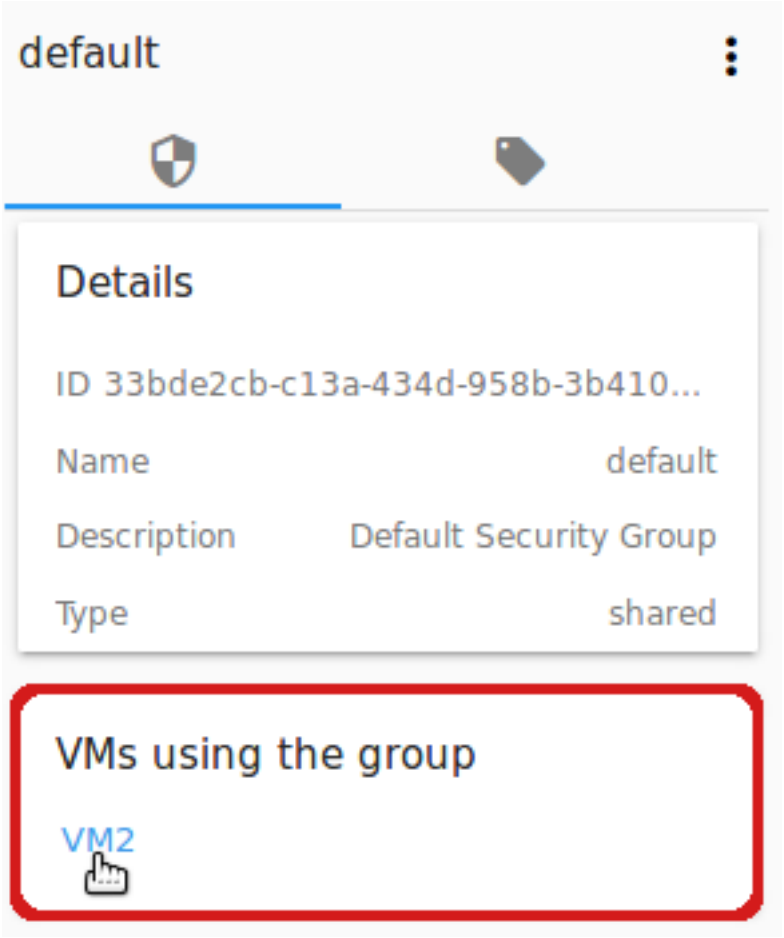


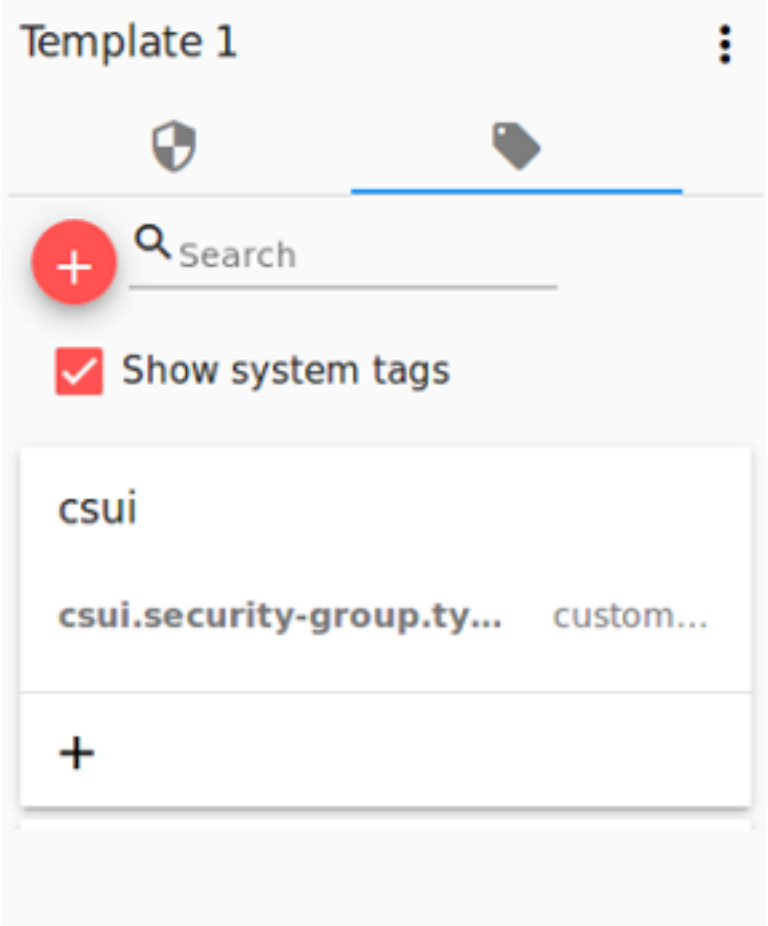
For shared security groups you also can see what virtual machines are assigned to this group. The machine name in the list is active. You can move to the virtual machine details bar by clicking it.

For private security groups a VM name is also displayed in the details sidebar, but it is not active.

The **Tags** tab presents the list of tags assigned to the security group. Using the search tool above you can quickly find a tag by its name.

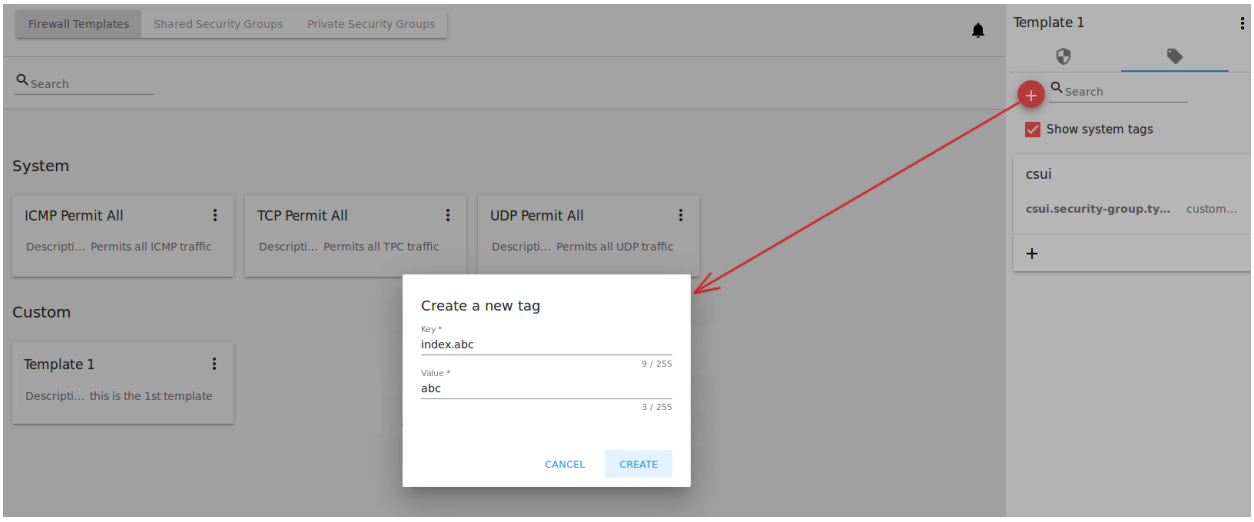
System tags are listed in a separate card.


default
Details
ID 33bde2cb-c13a-434d-958b-3b410...
Name
default
Description
Default Security Group
Type
shared
VMs using the group
VM2


Template 1
Search
Show system tags
csui
csui.security-group.ty...
custom...

lick to add a tag. Enter a key and a value.

Note: Both fields are required. The input values for both fields cannot start with a space.



Click “CREATE” to create the new tag. It will be saved in a separate card.

An existing tag can be edited or deleted by clicking a correspondent icon next to the tag’s name.

2.6.6 Security Group Action Box

Firewall templates, shared and private security groups have an Action box with the following actions in it:

- View - Allows viewing the rules in the group/template. Click “Rules” to open the rules implemented to the template.
- Delete - Allows deleting the group or the template from the system.

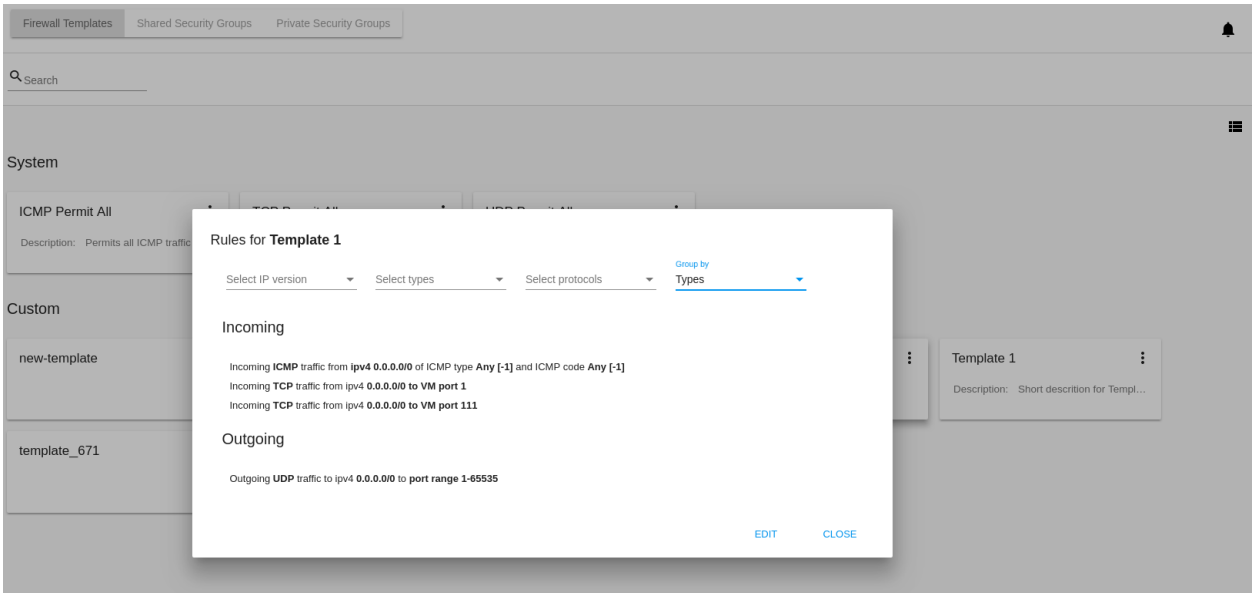
Note: A template/security group cannot be deleted if it is used for a virtual machine, or it belongs to another user. Deleting action is not available for system firewall templates.

Edit a Firewall Template/Security Group

When clicking “Rules” in the Action box you open a modal window where the rules of the template/security group are listed. The list of rules can be filtered by:

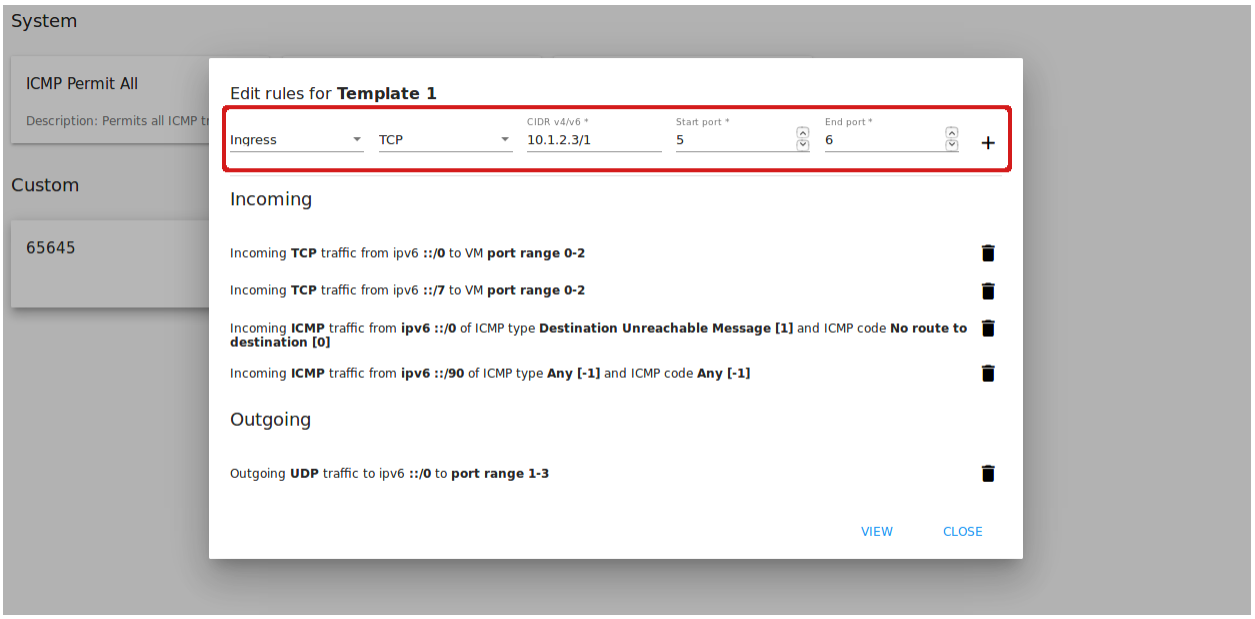
- IP versions - IPv4 and/or IPv6;
- Types - Ingress and/or Egress;
- Protocols - TCP and/or UDP and/or ICMP.

Besides, you can group the rules by types and/or protocols.



You can edit the implemented rules right in this modal window by clicking “EDIT” below the list. When switching to the edit mode you are enabled to add rules or delete the selected ones from the list.

To add rules, please, fill in the fields in the panel above the list and click “+”:



Validation

Please, make sure you enter valid values for Start and End ports:

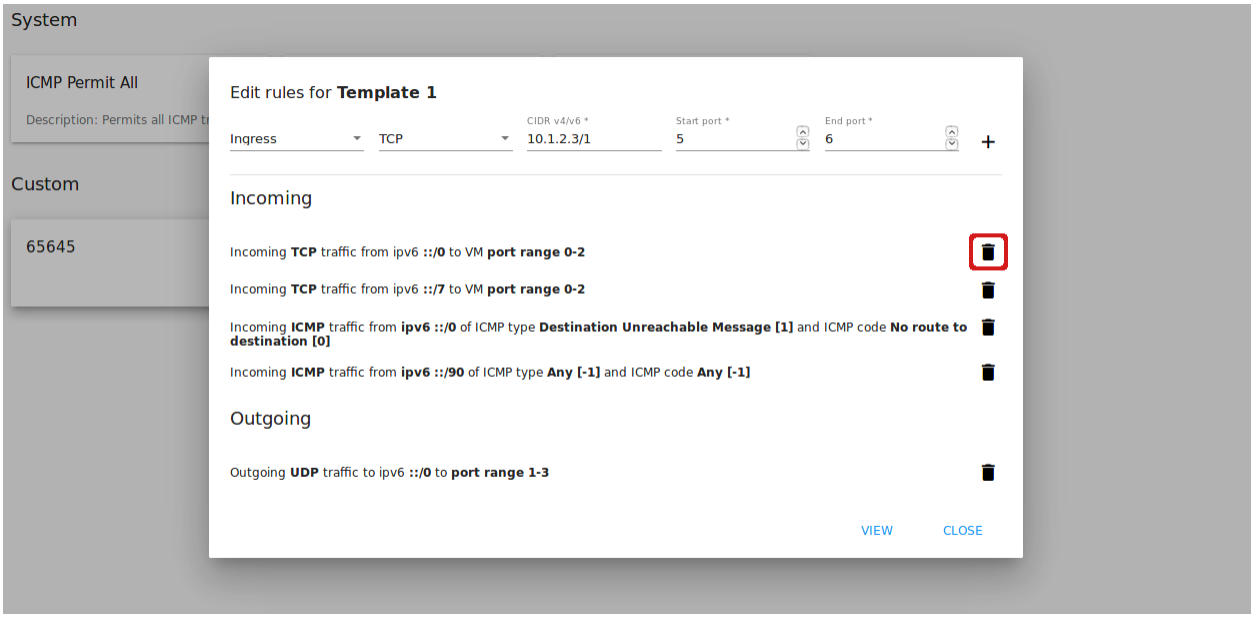
- Start port can be less or equal to End port. For more convenience, we added the autocomplete, that is, when entering a Start port value, the End port field is prepopulated with an equal value.
- The values in these fields cannot be greater/less than maximum/minimum allowed values (for TCP/UDP max port is 65535, for ICMP - 255).
- The fields cannot be empty.

For ICMP type make sure you input a valid CIDR, ICMP type and code.

- You will not be able to enter an ICMP type and a code until a valid CIDR is specified. Likewise, you will not be able to enter an ICMP code until a valid ICMP type is specified.
- CIDR allows entering IP addresses in both IPv4 and IPv6 formats.
- ICMP IPv6 the "[-1] Any" value is supported for type and code.
- ICMP type and code fields cannot be empty.

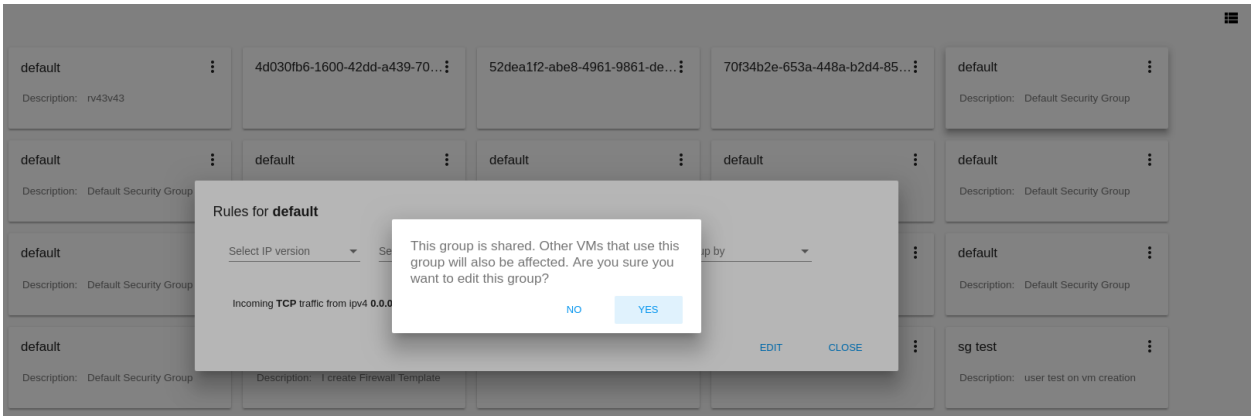
For invalid values the add button "+" is disabled.

To delete rules, please, click the Delete icon in the list. The rule will be deleted from the security group.



Then you can move back to the view mode, or close the window. You will see the rules are edited.

Please, note, when editing shared security groups, a warning message appears:



Click "Yes" if you still want to edit a shared security group. You will be switched to the "Edit" mode. Change the security group as you need following the instructions above.

Note: Editing is not available for system firewall templates and security groups of other users. You can view the rules

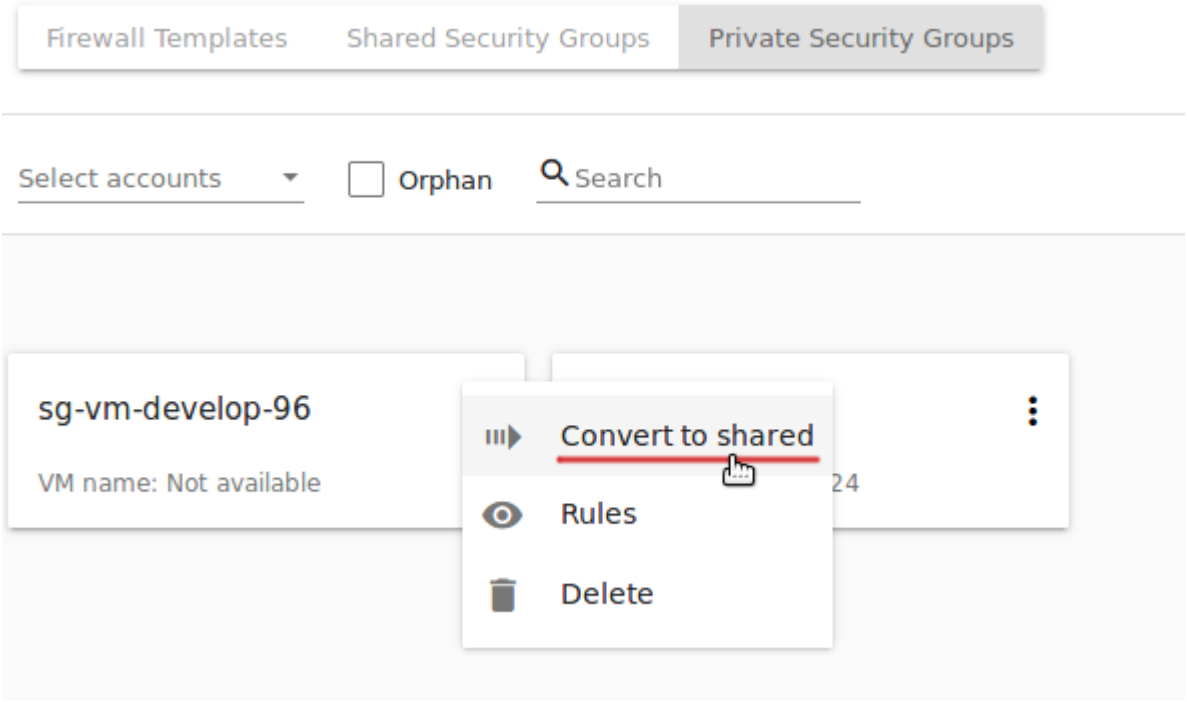
only.

"Convert to Shared" Action for Private Security Groups

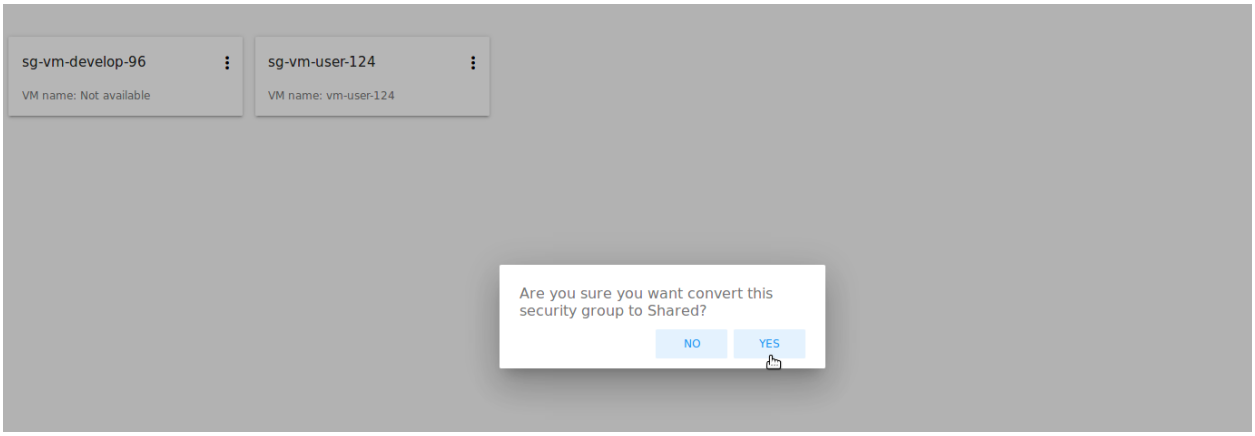
For private security groups you can find a "Convert to shared" action in the Action box. It allows making a shared SG from a private SG so that it can be used for VMs by other users.

To convert a private security group into a shared one, please, follow the steps:

1. Move to the list of Private Security groups,
2. Select "Convert to shared" option in action box for a security group,



3. A warning dialog appears. Click "YES" to confirm your action.



The security group will be moved to the list of "Shared Security Groups". The tag "is private" will be removed for this security group.

Click “NO” to cancel the convertion, the security group will stay private.

2.7 SSH Keys

Contents

- *SSH Keys*
  - *SSH Key List*
    - *Filtering of SSH Keys*
  - *Create an SSH Key*
  - *SSH Key Details Sidebar*
  - *SSH Key Action Box*

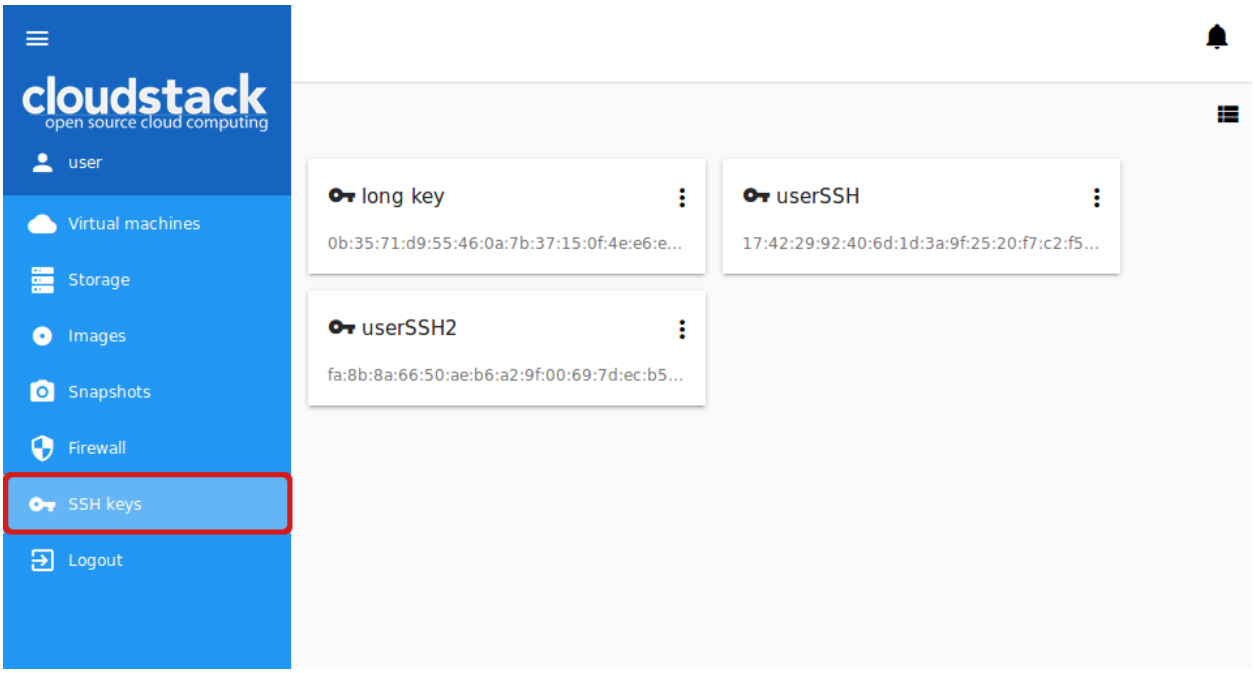
In the *Virtual Machines -> SSH keys* section you can create and manage SSH keys.

In addition to the username and password authentication, CloudStack supports using SSH keys to log in to the cloud infrastructure for additional security. Find more information in the official documentation.

CloudStack-UI allows managing SSH key in a separate section which is more convenient for a user.

2.7.1 SSH Key List

SSH keys existing in the account are presented in this section. A user can see and manage SSH keys for his/her user only.



Administrators can see and manage keys for all accounts in the domain.

You can switch the view from a list mode to a card mode using the switch tool / in the upper-right corner.

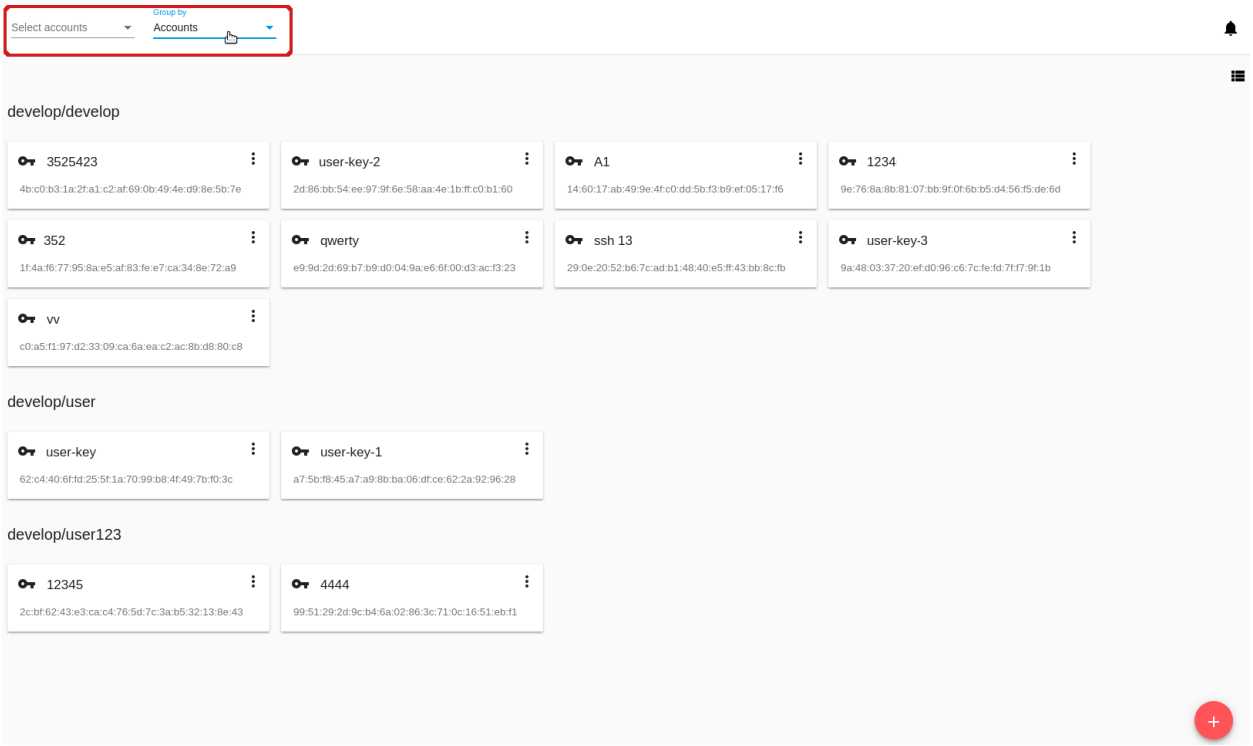
For every key the following information is displayed:

- Key name;
- SSH public key;
- Action box - Allows deleting a key from the system.

Filtering of SSH Keys

The filtering tool is available to Administrators. It is placed above the list of keys and allows filtering keys by accounts.

Besides, the keys can be grouped by accounts that may be convenient for list viewing.



2.7.2 Create an SSH Key

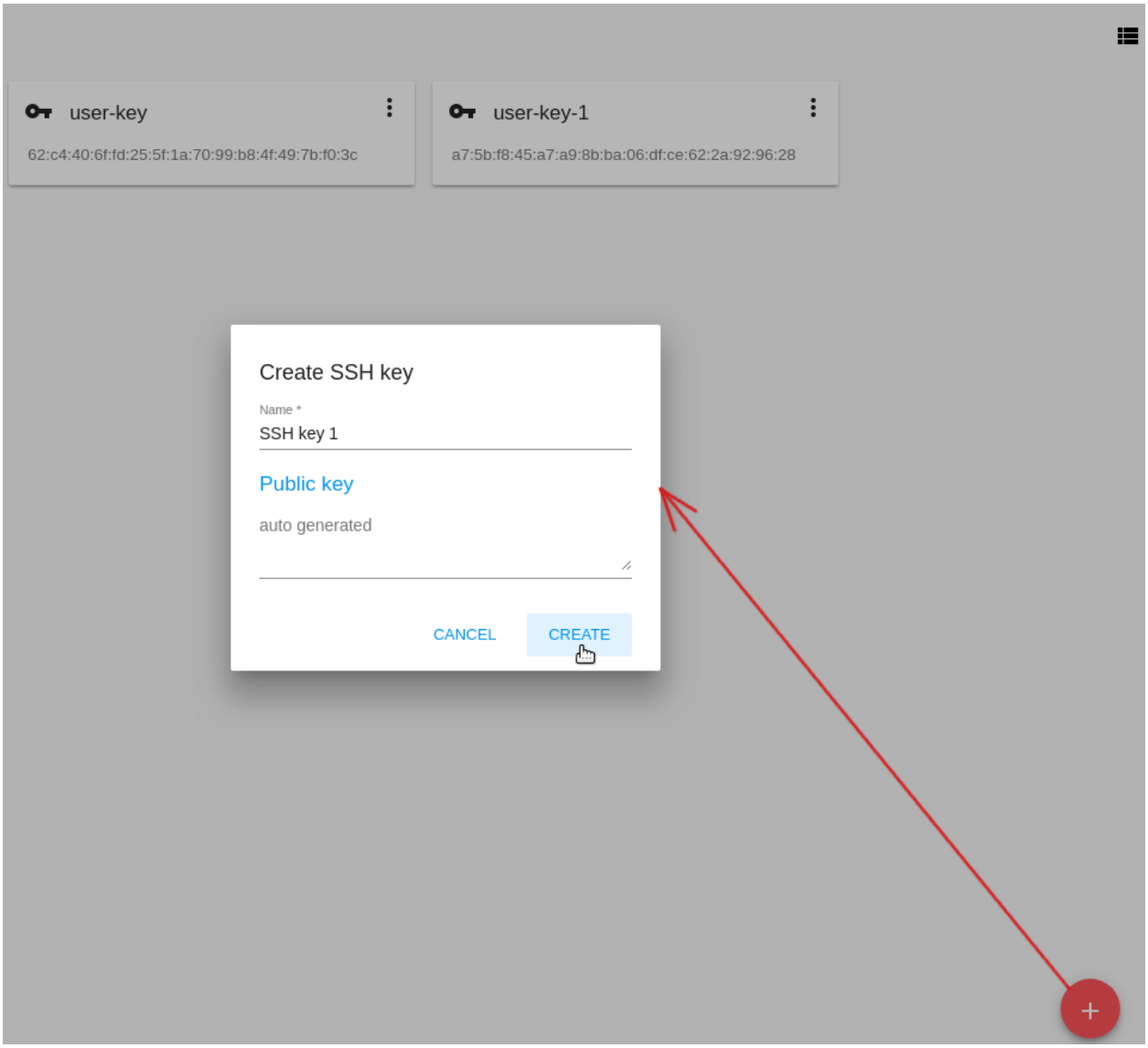
You can generate a new SSH key to use for authentication.

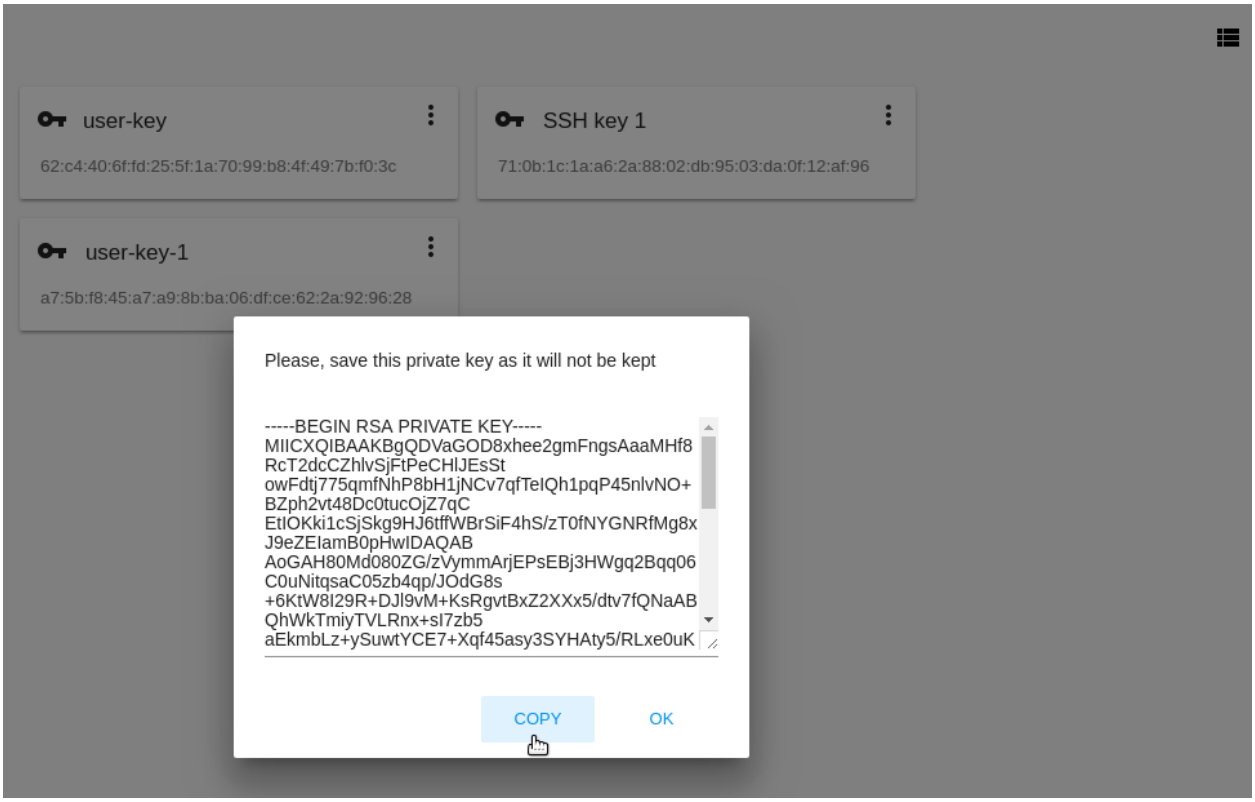
By clicking “Create” in the bottom-right corner you will open a form where you should specify a key name:

Then click “CREATE”. The SSH key will be auto-generated. The public key will appear in the list of SSH keys with a fingerprint. In the modal window, you will see the private key. This private key is not saved in the system. You should save it for yourself. Click “COPY” to correctly copy it and save it locally.

Then click “OK” to close the window.

You can specify an SSH public key entering its value in the field. It should start from `ssh-rsa` followed by one space and at least one symbol. Then click “CREATE”. The key will be saved. No private key is required in this case.


user-key
62:c4:40:6f:fd:25:5f:1a:70:99:b8:4f:49:7b:f0:3c
user-key-1
a7:5b:f8:45:a7:a9:8b:ba:06:df:ce:62:2a:92:96:28
Create SSH key
Name *
SSH key 1
Public key
auto generated
CANCEL
CREATE



The created SSH key is available to assign to VMs now.

2.7.3 SSH Key Details Sidebar

By clicking an SSH key in the list you will open a details sidebar to the right.

It contains the following information:

- SSH key name;
- Key action box allowing key deleting;
- SSH public key fingerprint;
- SSH key description - In this block a description can be added to understand better what this key is for. Click the block and enter a short description in the text field. Then click “SAVE” to save it.

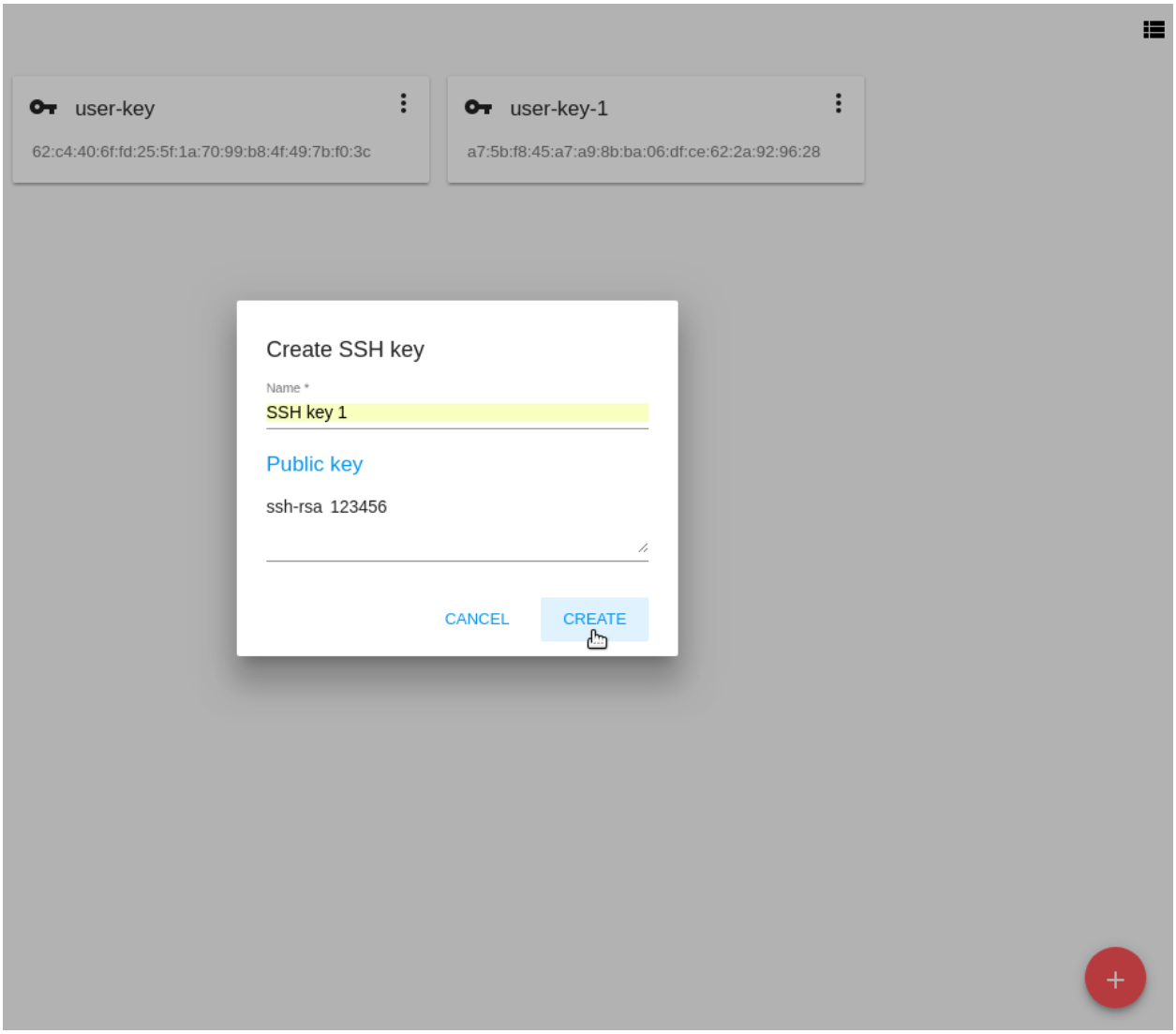
Click “CANCEL” to drop adding a description.

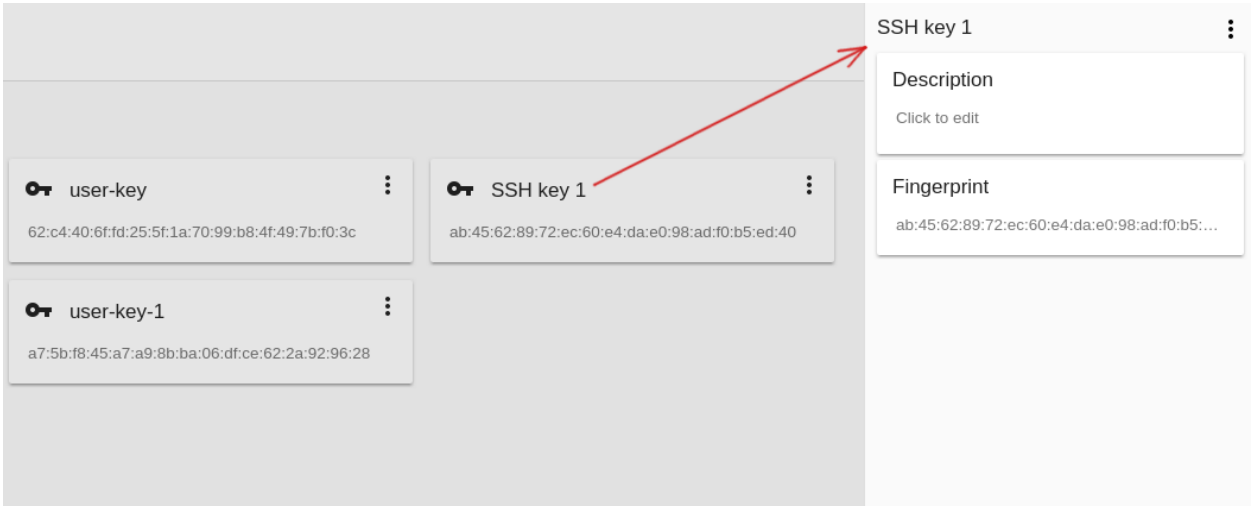
You can edit the description of an SSH key by clicking . Change the existing description in the text field and save the edits. The description is saved to account tags.

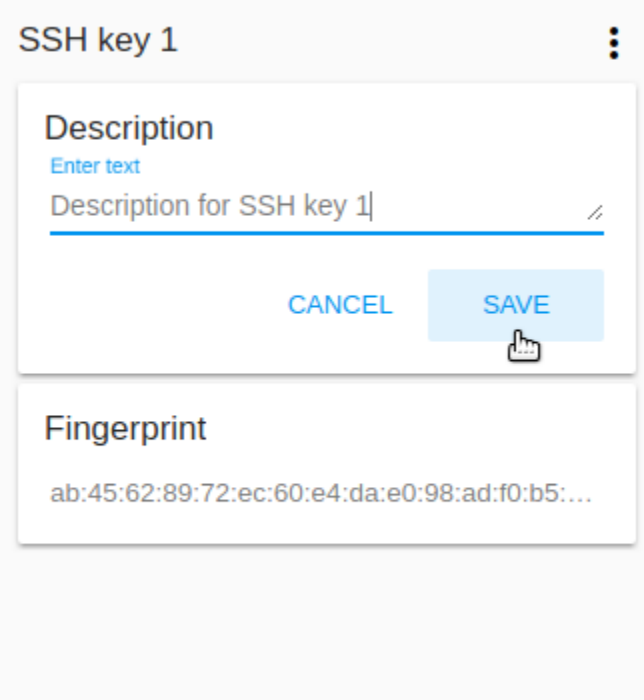
2.7.4 SSH Key Action Box

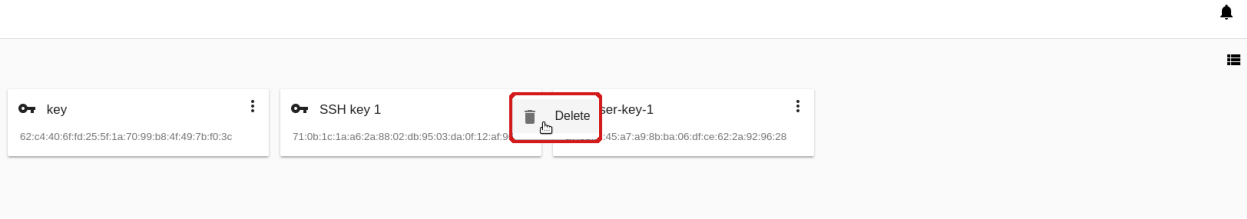
By clicking “Actions” you can expand the list of actions for those SSH keys that belong to your user only. The deleting action is available here.

Click “Delete” to delete a key and then confirm your action in the dialog box. The key will be deleted. Click “Cancel” to close the window without deleting a key.


user-key
62:c4:40:6f:fd:25:5f:1a:70:99:b8:4f:49:7b:f0:3c
user-key-1
a7:5b:f8:45:a7:a9:8b:ba:06:df:ce:62:2a:92:96:28
Create SSH key
Name *
SSH key 1
Public key
ssh-rsa 123456
CANCEL
CREATE


user-key
62:c4:40:6f:fd:25:5f:1a:70:99:b8:4f:49:7b:f0:3c
SSH key 1
ab:45:62:89:72:ec:60:e4:da:e0:98:ad:f0:b5:ed:40
user-key-1
a7:5b:f8:45:a7:a9:8b:ba:06:df:ce:62:2a:92:96:28
SSH key 1
Description
Click to edit
Fingerprint
ab:45:62:89:72:ec:60:e4:da:e0:98:ad:f0:b5:...


SSH key 1
Description
Enter text
Description for SSH key 1
CANCEL
SAVE
Fingerprint
ab:45:62:89:72:ec:60:e4:da:e0:98:ad:f0:b5:...


key
62:c4:40:6f:fd:25:5f:1a:70:99:b8:4f:49:7b:f0:3c
SSH key 1
Delete

2.8 Accounts

Contents

- *Accounts*
  - *Account List*
    - *Filtering of Accounts*
  - *Create an Account*
  - *Account Details Sidebar*
    - *Create a User*
    - *User Action Box*
  - *Account Action Box*

In the *Accounts* section Administrators can manage accounts and users in them, as well as user settings and activity logs. For an account, details and resource limits can be viewed. Please, note that the account limits are shared by all users in the account. If you are facing the problem of the lack of resources, contact your Administrator. Administrators are able to edit the limits of an account. Besides, they can monitor resource usage having access to the resource statistics for each account.

Administrators can see the list of accounts for the whole domain. They can create new users for an account, edit or delete a user.

If you are a User, you can view but not manage your account and users in it. For each user in the account, you can see the settings.

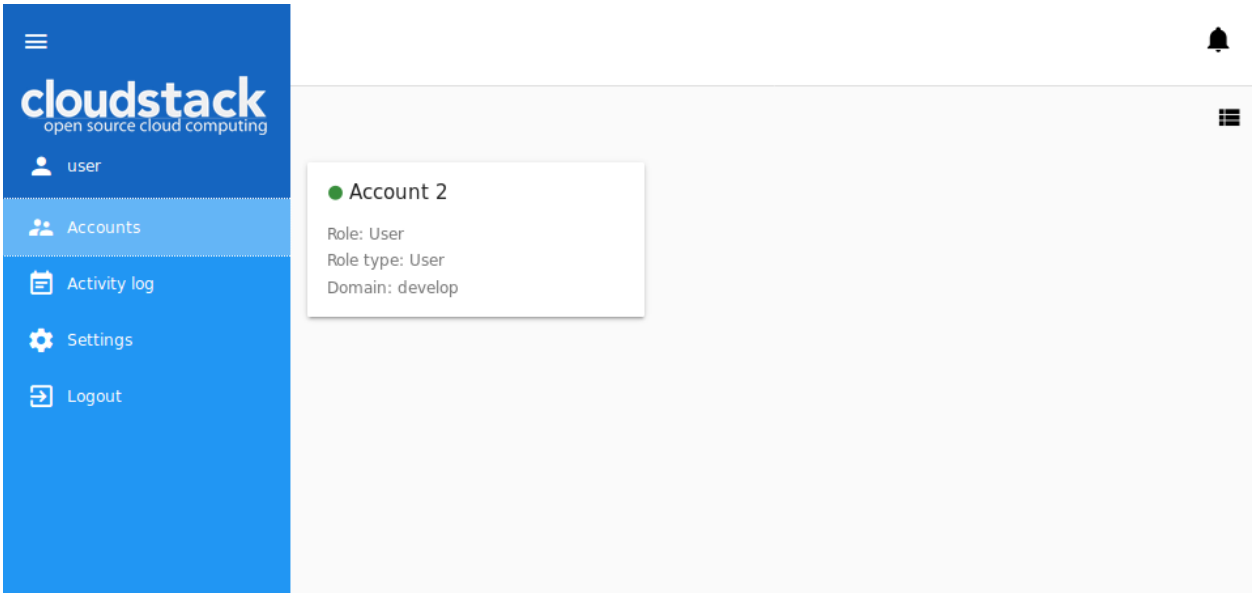
2.8.1 Account List

Clicking *Accounts* in the left-side navigation bar you open the *Accounts* section. It presents the list of accounts. Administrators can see accounts for the whole domain. A user can see his/her account only, that is the account his/her user belongs to.

You can switch the view from list to box using the switch tool / in the upper-right corner.

For each account in the list you can see the following information:

- Account name;
- State - Shows the account state by color spot: green for Enabled, red for Disabled statuses;
- Role - A role assigned to the account - Root Administrator, Resource Administrator, Domain Administrator, User. Find more information on roles in CloudStack in the official documentation.
- Role type - A role type connected to the role.
- Domain - The domain which the account belongs to.
- Action list - Allows an Administrator to manage the account - to disable or delete it. Find more details at *Account Action Box*.



Filtering of Accounts

If you are an Administrator, filtering and search tools will help you to find an account in the list.

You can filter the list by:

- Domains - Select a domain/domains available to you from the drop-down list.
- Roles - Select a role - Root Administrator, Resource Administrator, Domain Administrator and/or User -from the drop-down list.
- Role types - Select a role type/types from the drop-down list.
- States - Select a state/states - Enabled and/or Disabled - from the drop-down list.

Besides, accounts can be grouped by the parameters mentioned above.

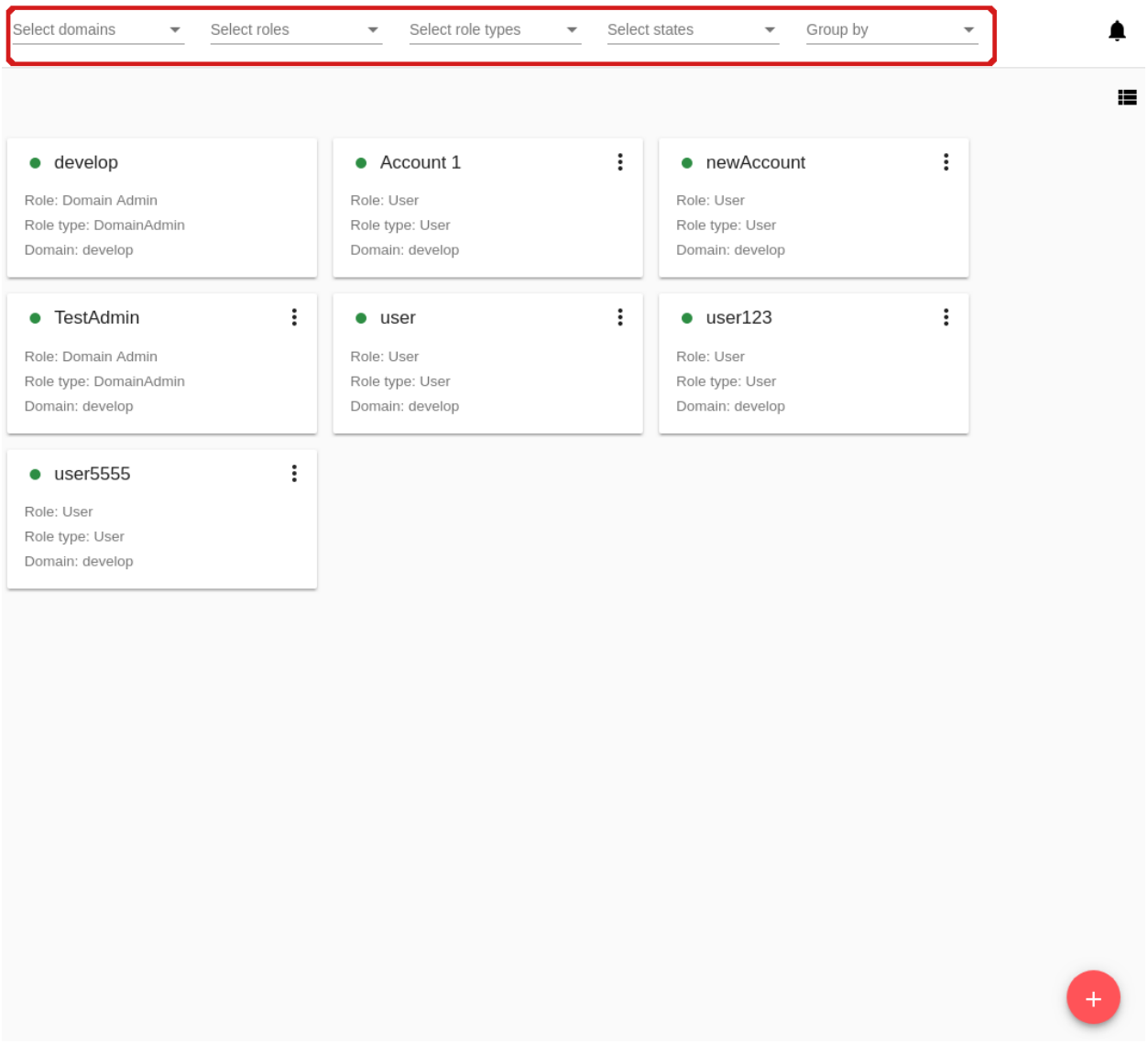
2.8.2 Create an Account

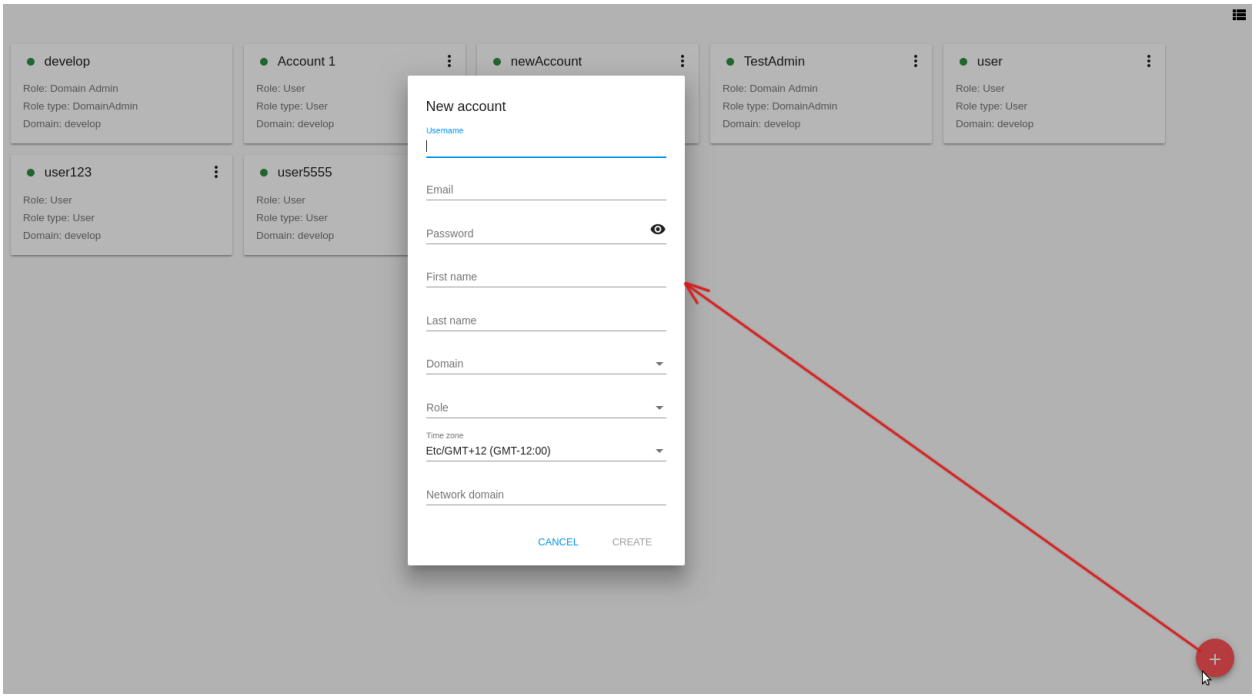
An Administrator can create a new account in the domain.

By clicking "Create" in the bottom-right corner you will open a form where the following fields should be completed:

Note: Required fields are marked with an asterisk (*).

- Name * - Enter any desired login ID for the account name. It should be unique within the domain.
- Email * - Enter the accounts email address.
- Password * - Enter any password you like. You can view the password that you are entering by clicking to the right. Hide the password under dots by clicking .


Select domains
Select roles
Select role types
Select states
Group by
develop
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
Account 1
Role: User
Role type: User
Domain: develop
newAccount
Role: User
Role type: User
Domain: develop
TestAdmin
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
user
Role: User
Role type: User
Domain: develop
user123
Role: User
Role type: User
Domain: develop
user5555
Role: User
Role type: User
Domain: develop



- First name * - Enter the first name of a person or the first part of the entity represented by the account. It can be a department or a customer.
- Last name * - Enter the last name of a person or the second part of the entity represented by the account (a customer or a department).
- Domain * - Select a domain in which the account is to be created.
- Role * - Select the role for the account.
- Time zone - Set the time zone that corresponds to the account locale.
- Network domain - If you want to assign a special domain name to the account's guest VM network, specify the DNS suffix.

Click "CREATE" to create the new account. Make sure it has appeared in the list of accounts.

A user is created automatically for the new account. User's name corresponds to the first and the last name specified in the account creation form. This user inherits account's email and time zone.

Click "CANCEL" to leave the account creation form. No account will be created then.

2.8.3 Account Details Sidebar

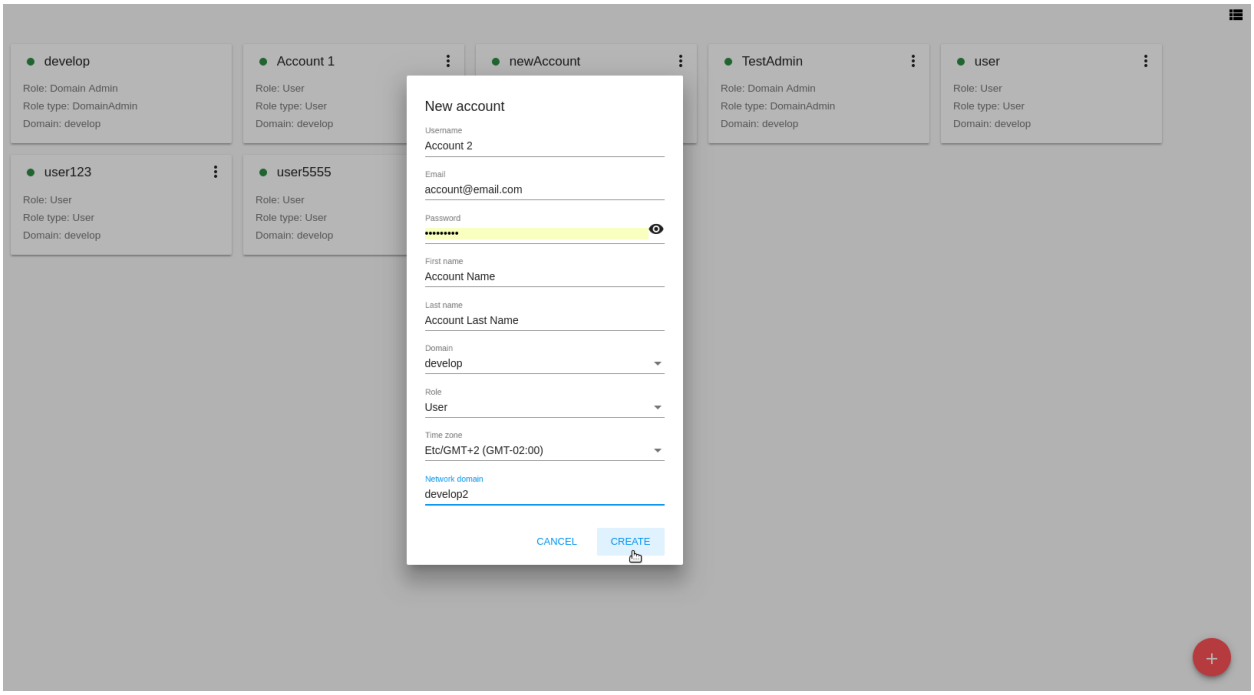
For each account, the information is available in the details sidebar to the right. Click the account in the list to open the sidebar:

There are two tabs in the sidebar: General and Users.

The *General* tab contains the general information on the account: details, limits for resources.

Administrators can edit the limits. Click "Edit" in the Limits block and change the values right in the block.

Administrators can see the statistics on resource usage at the bottom. Refresh the data by clicking .



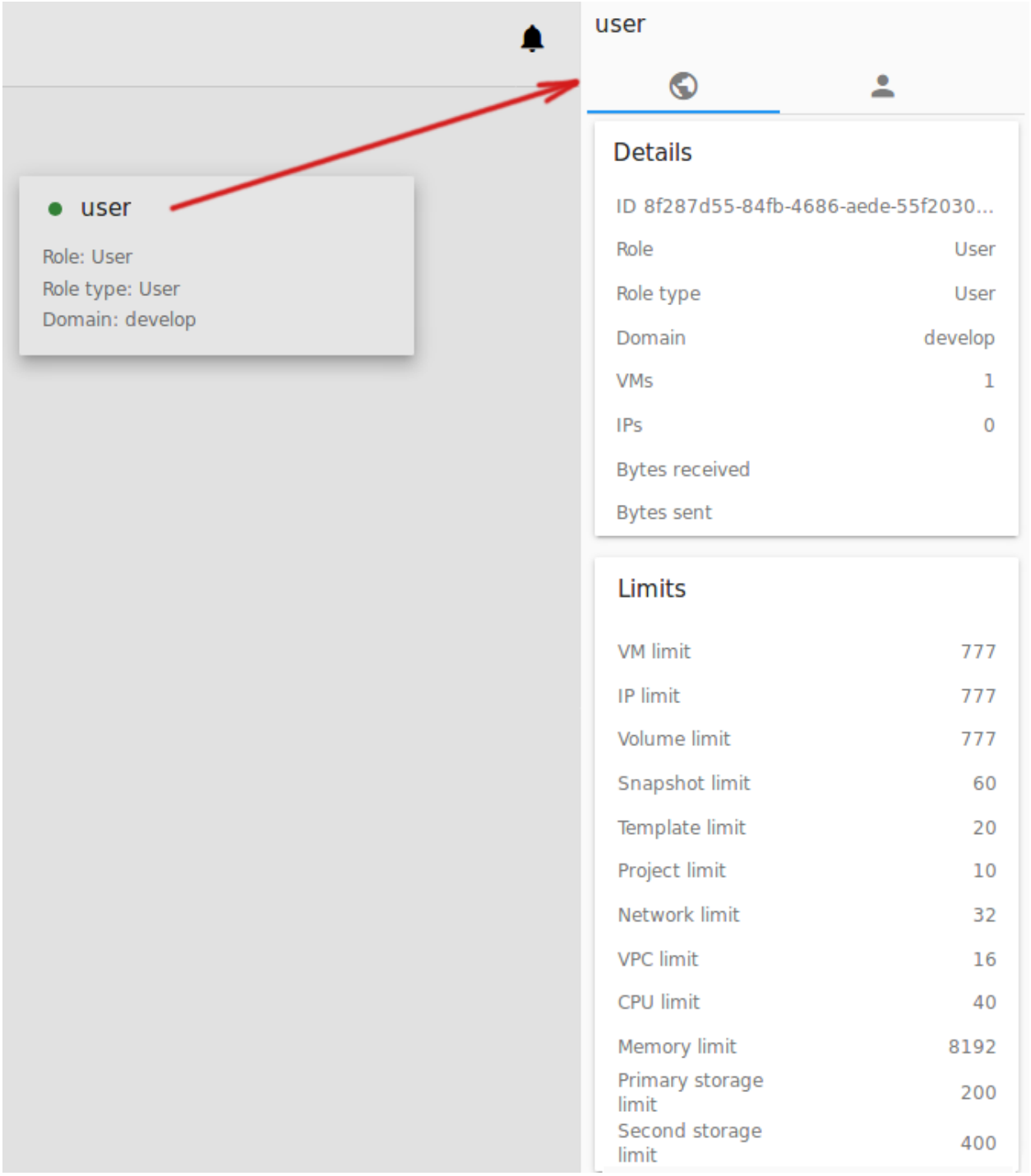
The *Users* tab contains the list of users in the account. For each user you can expand the information card where the following information is listed:

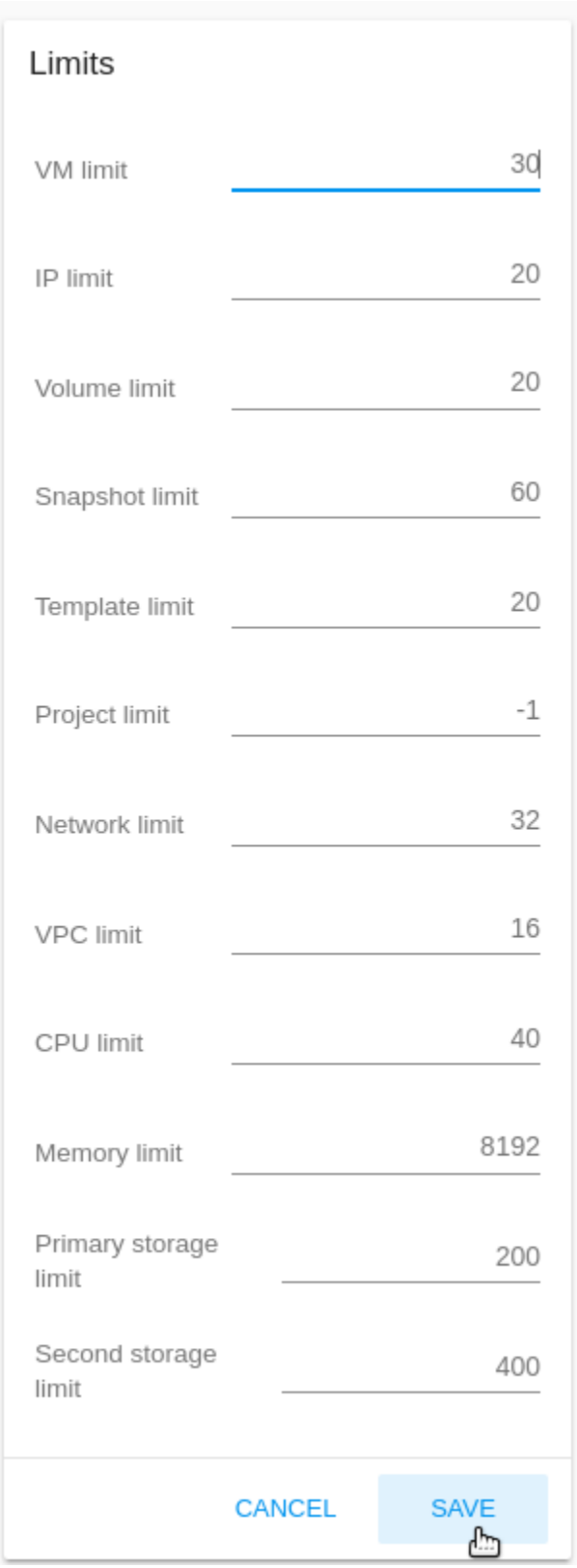
- Username;
- First and Last name;
- Timezone;
- Email;
- Secret key - The key generated for a user by clicking "Regenerate key" in the Action box. You can copy it to the buffer by clicking .
- API key - The key generated for a user by clicking "Regenerate key" in the Action box. You can copy it to the buffer by clicking .

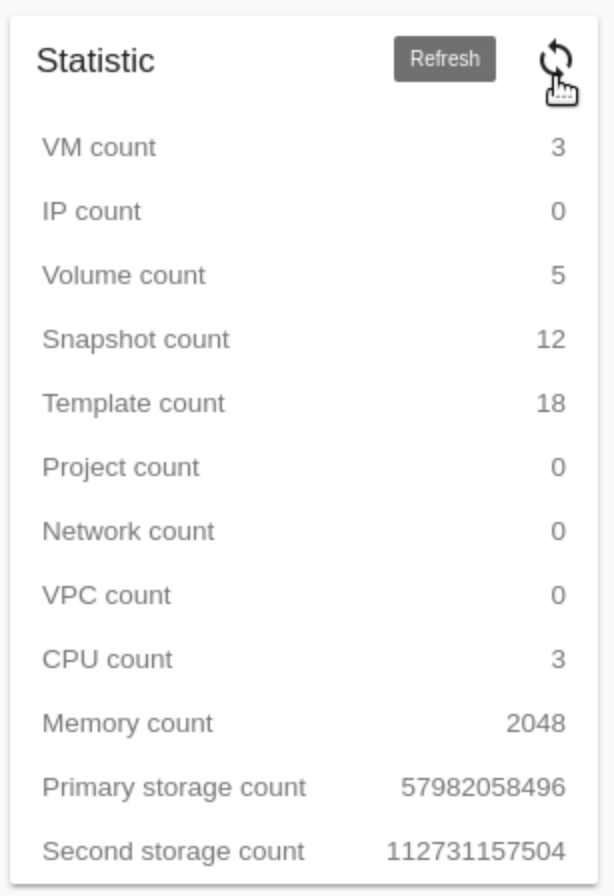
An Administrator has a list of actions available for each user. A user can manage his/her user only. A list of actions is available under the button. It contains the following actions:

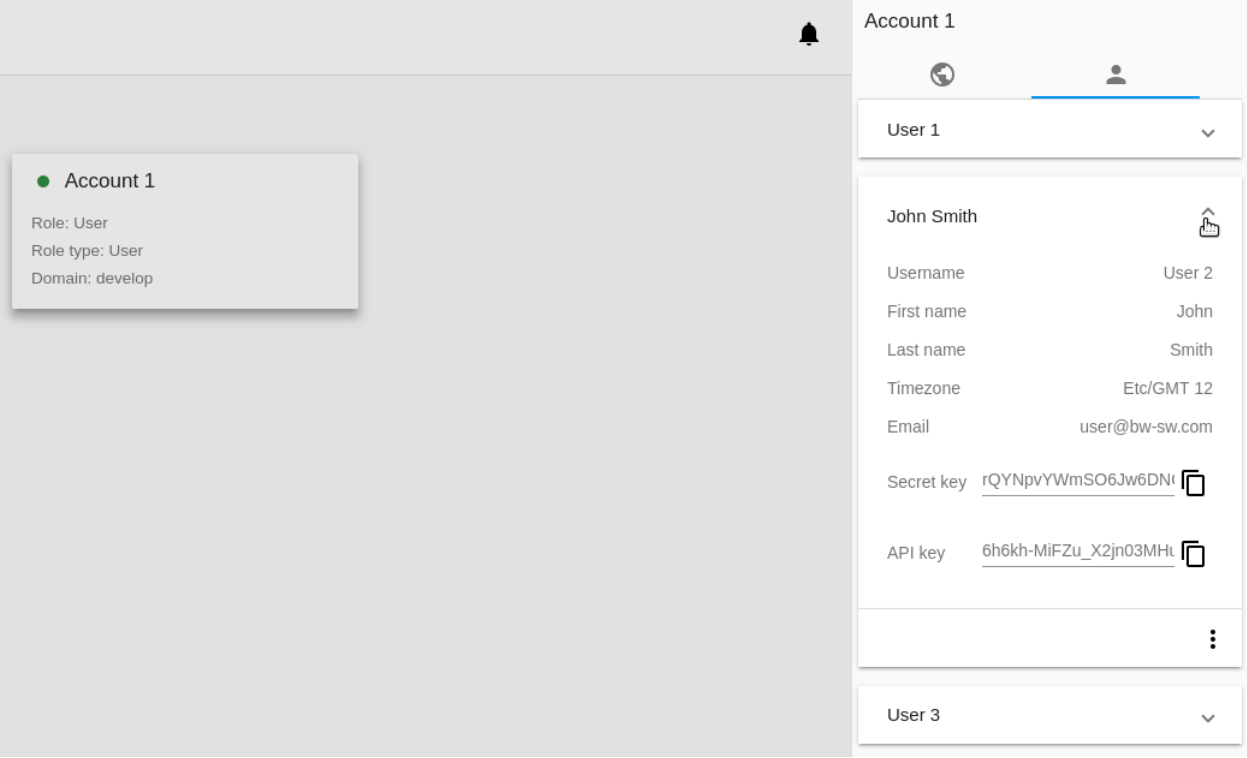
- Edit user;
- Change password;
- Regenerate key;
- Delete user (available for Administrators).

Find more about actions for users in the *User Action Box* section.


user
user
Role: User
Role type: User
Domain: develop
user
Details
ID 8f287d55-84fb-4686-aede-55f2030...
Role User
Role type User
Domain develop
VMs 1
IPs 0
Bytes received
Bytes sent
Limits
VM limit 777
IP limit 777
Volume limit 777
Snapshot limit 60
Template limit 20
Project limit 10
Network limit 32
VPC limit 16
CPU limit 40
Memory limit 8192
Primary storage limit 200
Second storage limit 400


Limits
VM limit
30
IP limit
20
Volume limit
20
Snapshot limit
60
Template limit
20
Project limit
-1
Network limit
32
VPC limit
16
CPU limit
40
Memory limit
8192
Primary storage limit
200
Second storage limit
400
CANCEL
SAVE


Statistic
Refresh
VM count 3
IP count 0
Volume count 5
Snapshot count 12
Template count 18
Project count 0
Network count 0
VPC count 0
CPU count 3
Memory count 2048
Primary storage count 57982058496
Second storage count 112731157504


Account 1
Role: User
Role type: User
Domain: develop
Account 1
User 1
John Smith
Username User 2
First name John
Last name Smith
Timezone Etc/GMT 12
Email user@bw-sw.com
Secret key
API key
User 3

Create a User

Administrators can create a new user from the *Users* tab of the Account Details sidebar by clicking "Create" .

_static/Accounts_CreateUser.png

In the appeared form fill in the following fields:

Note: Required fields are marked with asterisks (*).

- Username * - Enter any desired user ID. It should be unique within the domain.
- Password * - Enter any password you like. You can view the password that you are entering by clicking to the right. Hide the password under dots by clicking .
- First name * - User's first name.
- Last name * - User's last name.
- Email * - Enter the user's email address.
- Time zone * - Set the timezone that corresponds to the user's locale. Select an option from the drop-down list.

Click "CREATE" to create the new user. It will appear in the list of users for this account.

Click "CANCEL" to cancel the user creation.

User Action Box

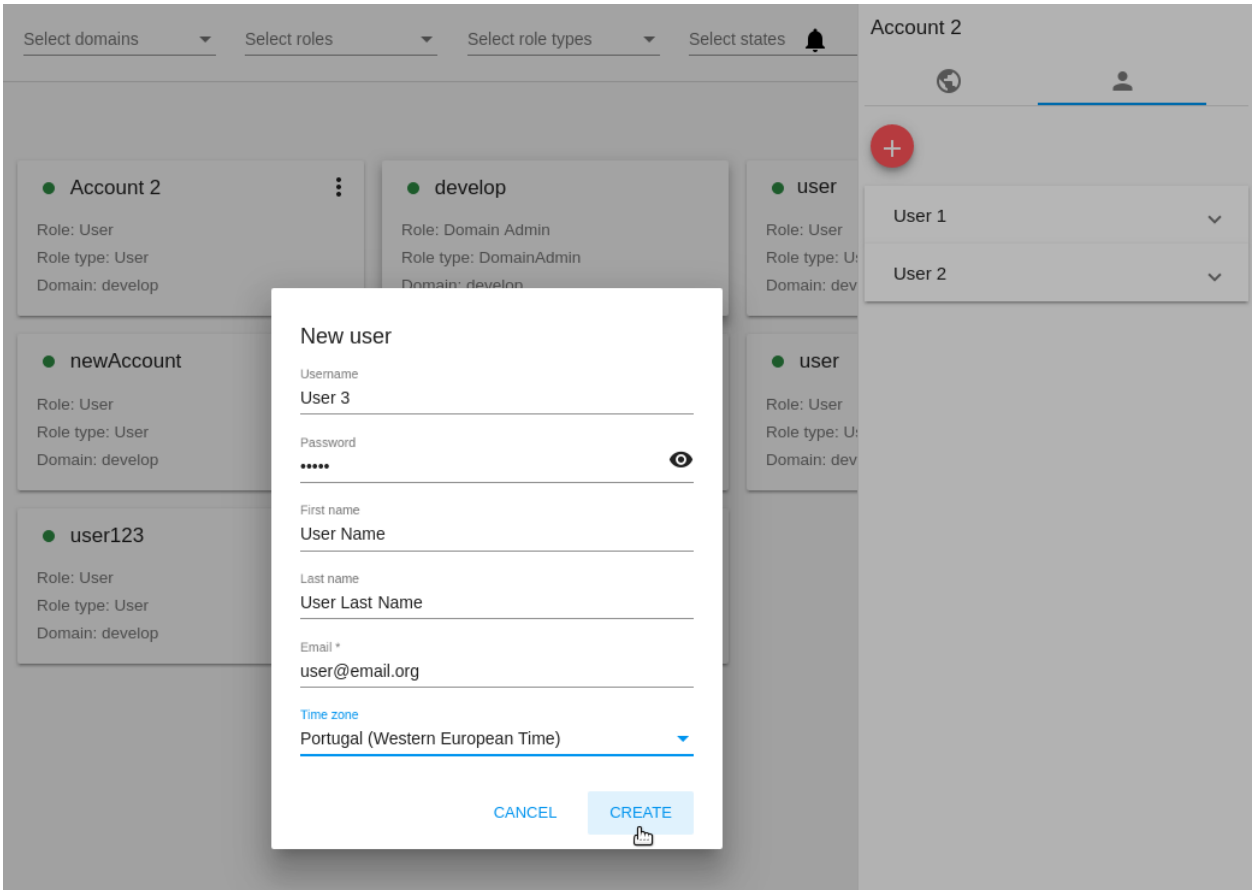
Administrators can manage a user via the Action box.

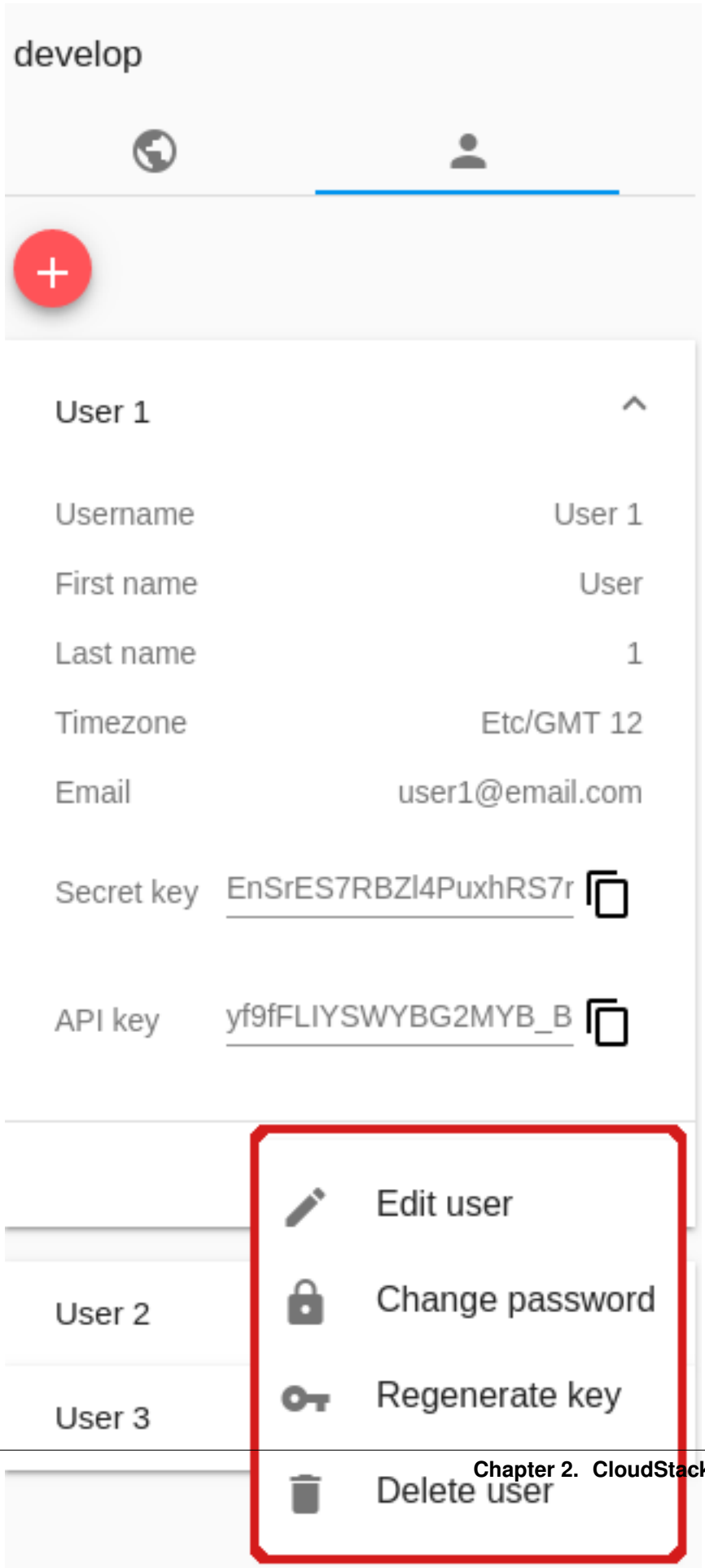
The list of actions allows an Administrator to:

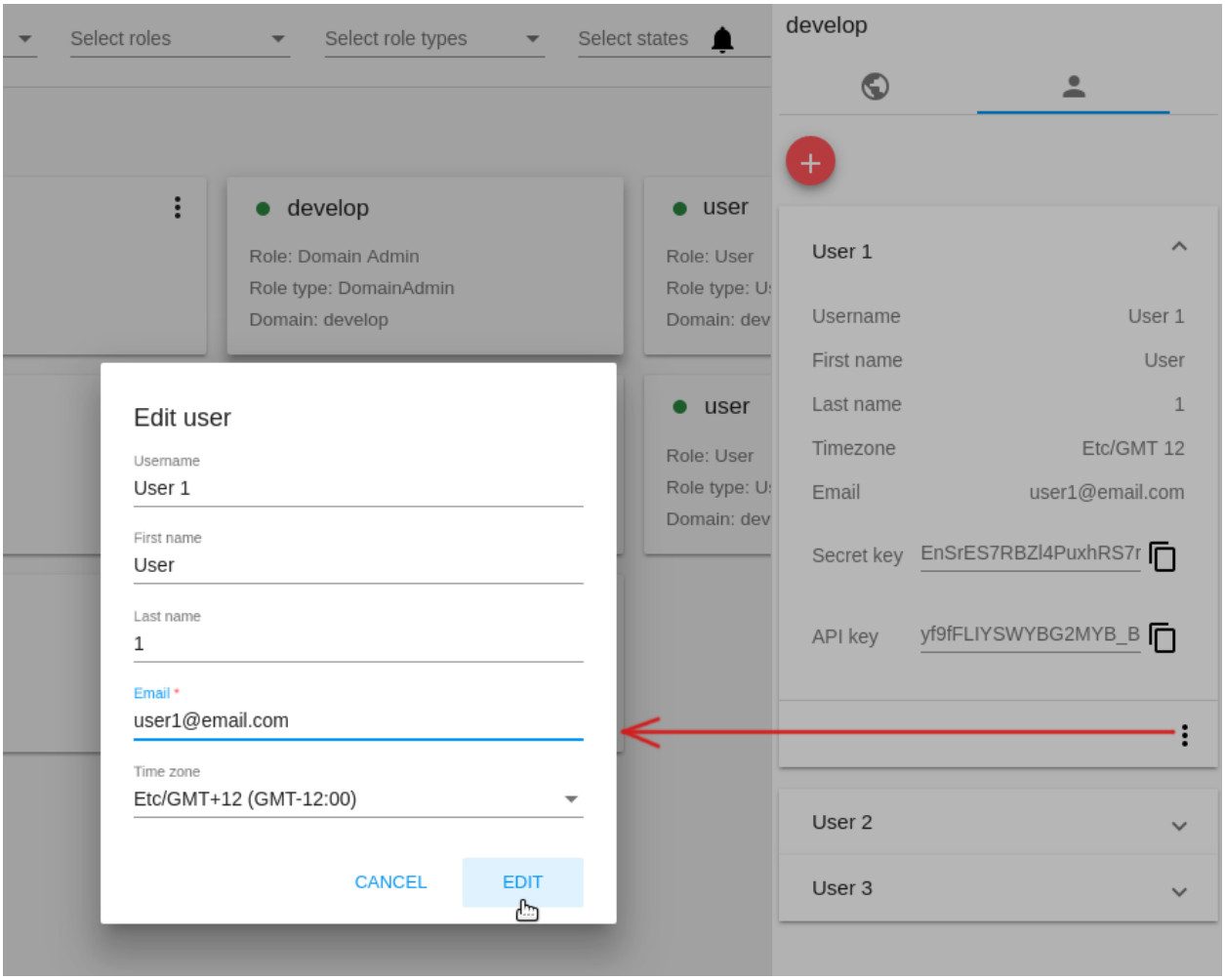
- Edit user - Opens a form to edit user's settings (name, email, timezone). Edit the information and click "SAVE" to save the edits.
- Change password - Opens a modal window with two fields for you to enter a new password and confirm it. Use the view tool to view or hide a password while entering. Click "SAVE" to save the new password.
- Regenerate key - Allows changing the keys - secret and API - for the user. Confirm your action in the dialog window, and the keys will be changed.
- Delete a user - Allows deleting a user from the system. Confirm your action in the dialog window, and the user will be deleted.

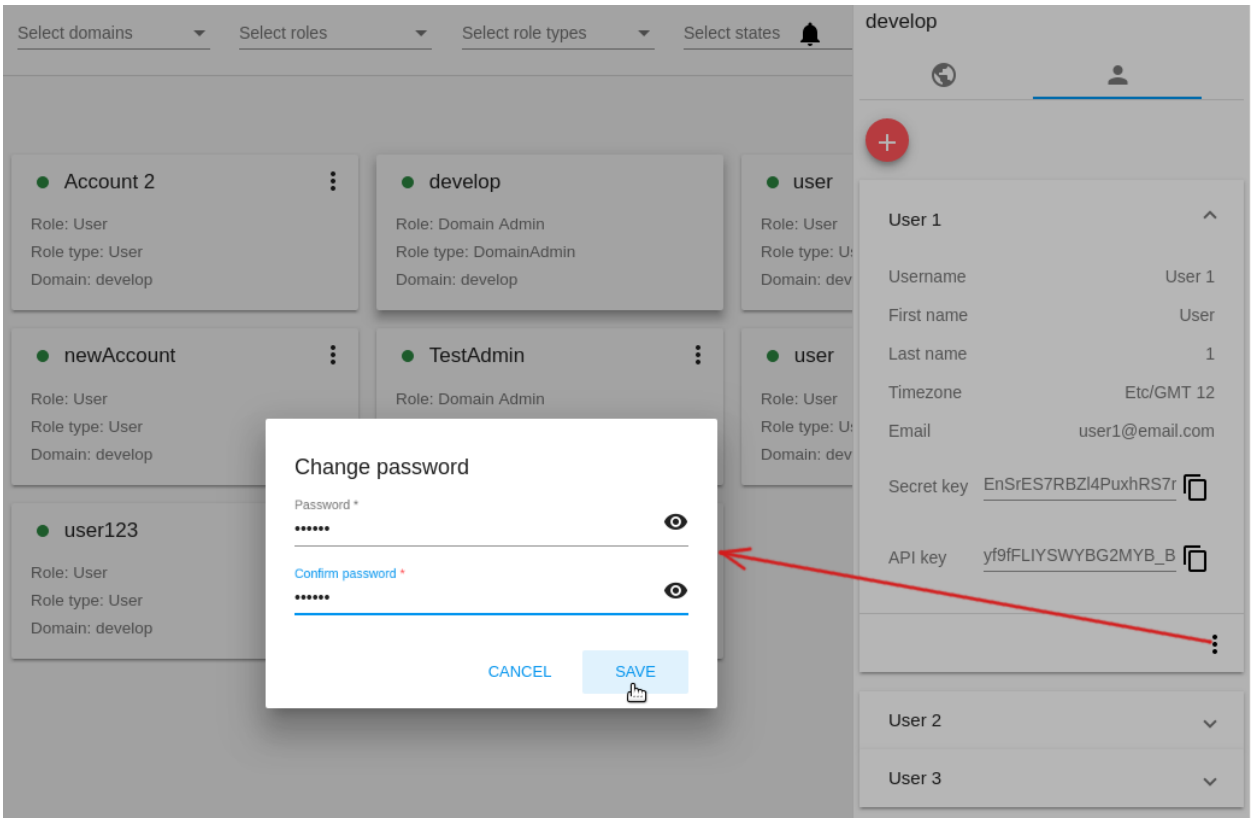
2.8.4 Account Action Box

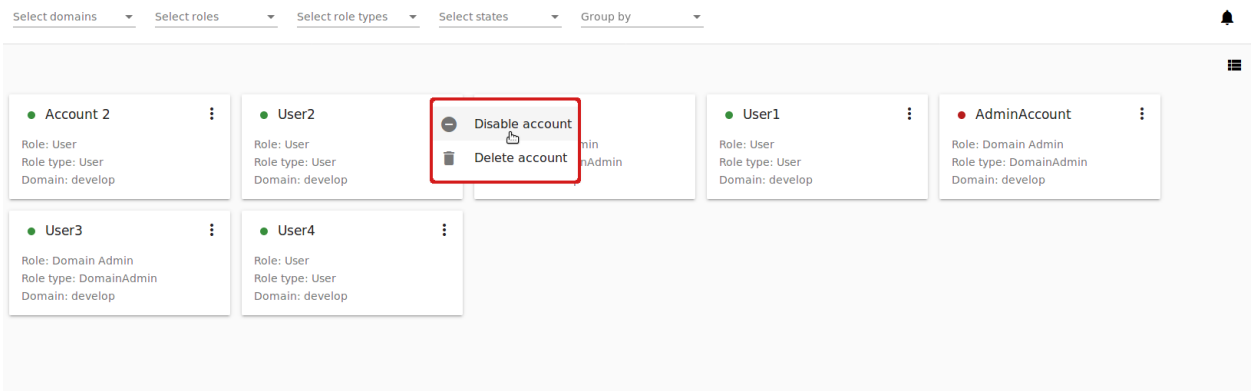
Administrators can manage an account via the Action box under .


Select domains
Select roles
Select role types
Select states
Account 2
Role: User
Role type: User
Domain: develop
develop
Role: Domain Admin
Role type: DomainAdmin
user
Role: User
newAccount
Role: User
Role type: User
Domain: develop
user123
Role: User
Role type: User
Domain: develop
New user
Username
User 3
Password
First name
User Name
Last name
User Last Name
Email *
user@email.org
Time zone
Portugal (Western European Time)
CANCEL
CREATE
Account 2
User 1
User 2


develop
User 1
Username
User 1
First name
User
Last name
1
Timezone
Etc/GMT 12
Email
user1@email.com
Secret key
EnSrES7RBZl4PuxhRS7r
API key
yf9fFLIYSWYBG2MYB_B
Edit user
Change password
Regenerate key
Delete user
User 2
User 3


Select roles
Select role types
Select states
develop
develop
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
user
Role: User
Role type: U
Domain: dev
user
Role: User
Role type: U
Domain: dev
Edit user
Username
User 1
First name
User
Last name
1
Email *
user1@email.com
Time zone
Etc/GMT+12 (GMT-12:00)
CANCEL
EDIT
User 1
Username
User 1
First name
User
Last name
1
Timezone
Etc/GMT 12
Email
user1@email.com
Secret key
EnSrES7RBZl4PuxhRS7r
API key
yf9fFLIYSWYBG2MYB_B
User 2
User 3


Select domains
Select roles
Select role types
Select states
develop
Account 2
Role: User
Role type: User
Domain: develop
develop
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
user
Role: User
Role type: U
Domain: dev
newAccount
Role: User
Role type: User
Domain: develop
TestAdmin
Role: Domain Admin
user
Role: User
Role type: U
Domain: dev
user123
Role: User
Role type: User
Domain: develop
Change password
Password *
Confirm password *
CANCEL
SAVE
User 1
Username
User 1
First name
User
Last name
1
Timezone
Etc/GMT 12
Email
user1@email.com
Secret key
EnSrES7RBZl4PuxhRS7r
API key
yf9fFLIYSWYBG2MYB_B
User 2
User 3


Select domains
Select roles
Select role types
Select states
Group by
Account 2
Role: User
Role type: User
Domain: develop
User2
Role: User
Role type: User
Domain: develop
Disable account
Delete account
User1
Role: User
Role type: User
Domain: develop
AdminAccount
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
User3
Role: Domain Admin
Role type: DomainAdmin
Domain: develop
User4
Role: User
Role type: User
Domain: develop

The list of actions allows an Administrator to:

- Disable account - Allows disabling an account. By disabling the account all users for this account will no longer have access to their cloud resources. All running VMs will be immediately shut down. Click "Disable account" and confirm your action in the dialog window. The account will be inactive.
- Enable account - Allows activating a disabled account. Click "Enable account" and confirm your action in the dialog window. The account will be activated.
- Delete account - Allows an Administrator to delete an account from the system. Confirm your action in the dialog window, and the account will be deleted.

2.9 Activity Log

Contents

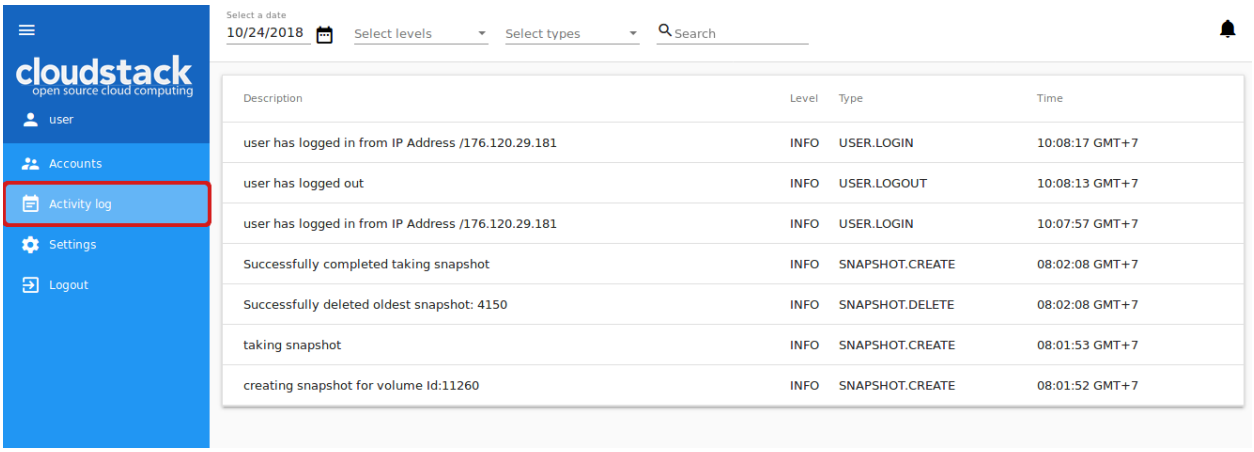
- *Activity Log*
  - *Events List*
    - *Filtering of Events*

In the *Accounts* -> *Activity log* section you can see user activity in the account. Event search by main parameters - date and keywords - is supported to make it easier to find a necessary event for a specific date or type.

2.9.1 Events List

Events in the Activity log are listed in a chronological order from the latest till the earliest. It represents the full list of events for a selected day.

A user can view activities for his/her user only. An Administrator can see events for all accounts in the domain.



The following information for each event is presented in the list:

- Event description.
- Level - A kind of a category the event belongs to. It can show:
  - INFO - For regular activities, for example, logging in, creating a VM, attaching a disk.

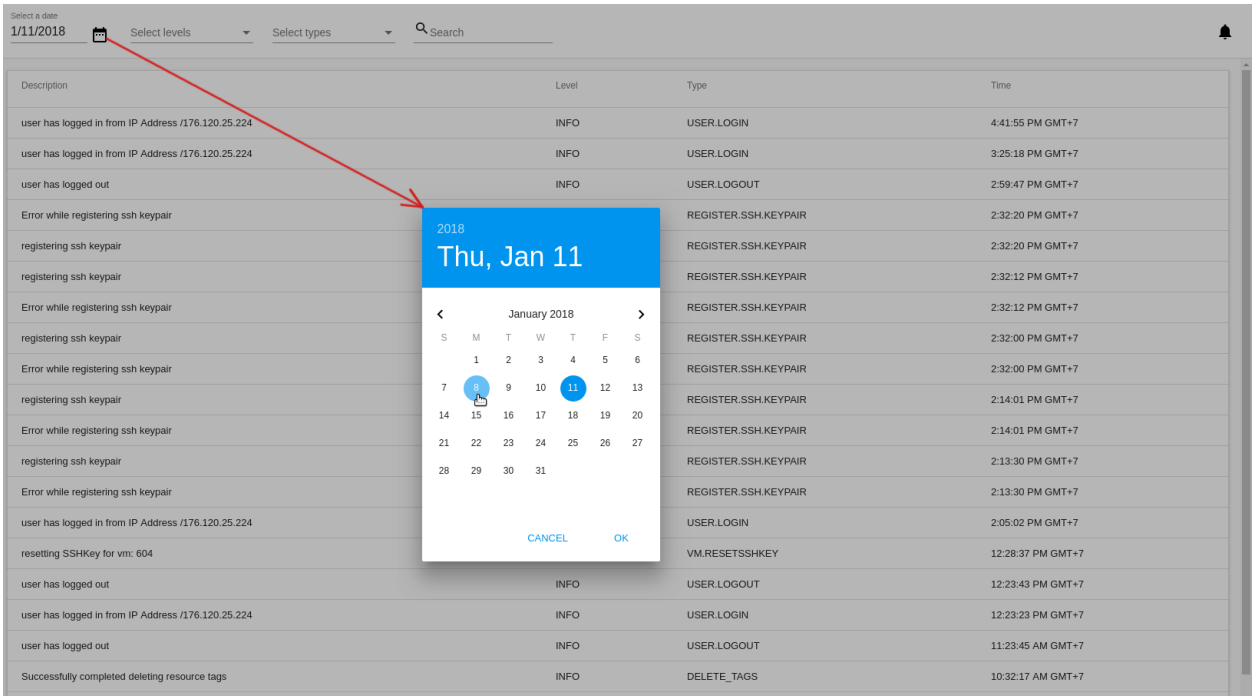
  - WARN - For any warnings occurred.
  - ERROR - For any errors occurred, for example, an error while registering an SSH key pair.
- Type - Displays in what aspect of the system the event has taken place, for example: `USER.LOGIN` - for events happened at user authentication to the system; `VOLUME.RESIZE` - for events at disk size change.
- Time of the event.

Filtering of Events

To easily find an event in the list use the filtering tool above.

Any user can filter events by:

- Date - Allows selecting events for a specific date. By default, the today's date is selected. Click and in the appeared calendar change the date for the day you wish to see activities for.



Click "OK" to filter the list. The events will be selected in accordance with the chosen date.

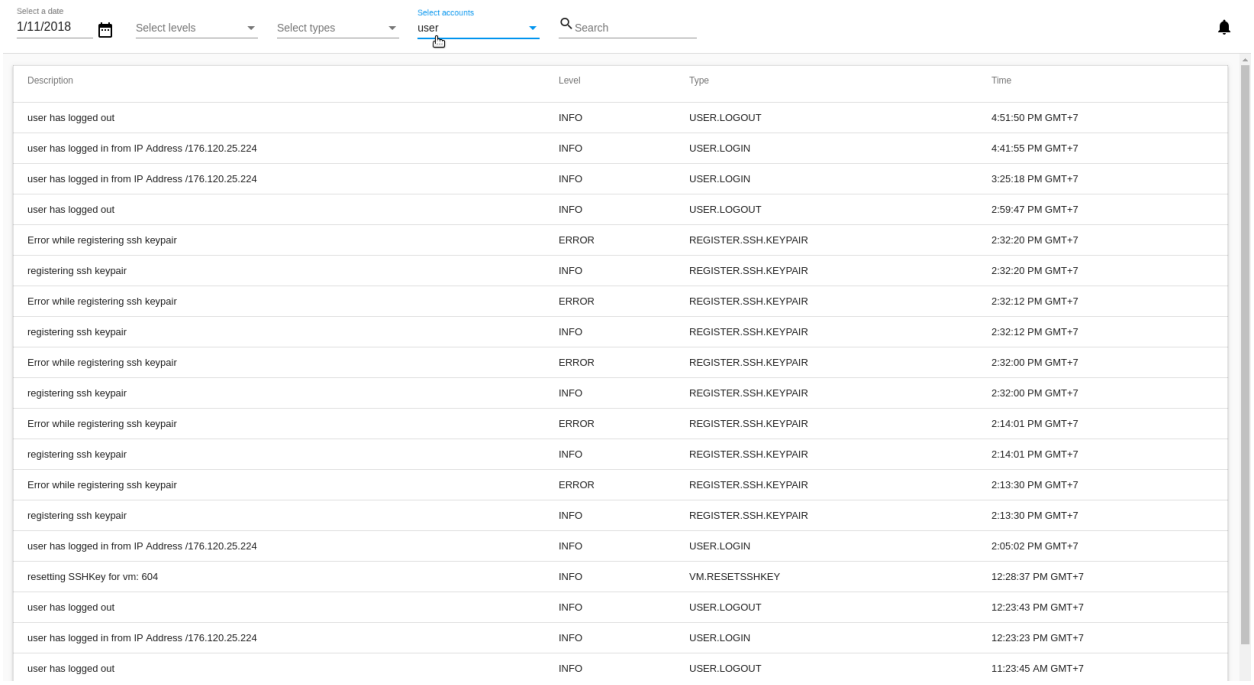
Click "CANCEL" to drop the selection.

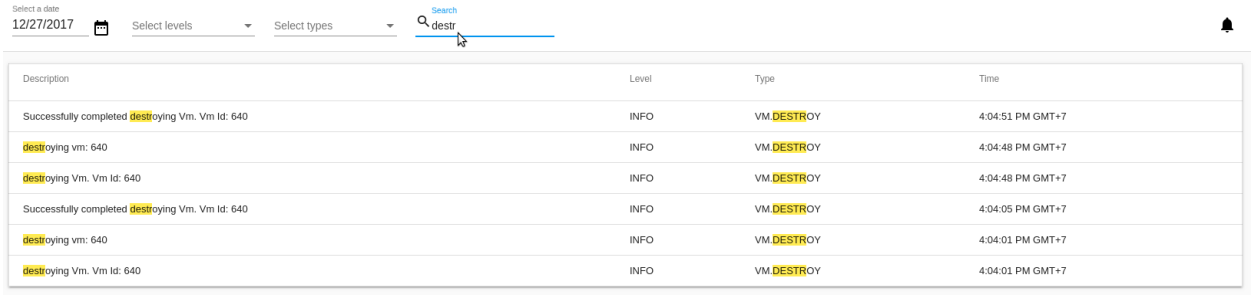
- Levels - Allows selecting events by levels. Choose the level/levels you with from the drop-down list.
- Types - Allows selecting events by types. Choose the type/types from the drop-down list.

An Administrator has an additional filtering parameter - accounts.

Use the search tool to find an event by keywords or a part of a word.

2.10 Settings


Select a date
1/11/2018
Select levels
Select types
Select accounts
user
Search
Description
Level
Type
Time
user has logged out
INFO
USER.LOGOUT
4:51:50 PM GMT+7
user has logged in from IP Address /176.120.25.224
INFO
USER.LOGIN
4:41:55 PM GMT+7
user has logged in from IP Address /176.120.25.224
INFO
USER.LOGIN
3:25:18 PM GMT+7
user has logged out
INFO
USER.LOGOUT
2:59:47 PM GMT+7
Error while registering ssh keypair
ERROR
REGISTER.SSH.KEYPAIR
2:32:20 PM GMT+7
registering ssh keypair
INFO
REGISTER.SSH.KEYPAIR
2:32:20 PM GMT+7
Error while registering ssh keypair
ERROR
REGISTER.SSH.KEYPAIR
2:32:12 PM GMT+7
registering ssh keypair
INFO
REGISTER.SSH.KEYPAIR
2:32:12 PM GMT+7
Error while registering ssh keypair
ERROR
REGISTER.SSH.KEYPAIR
2:32:00 PM GMT+7
registering ssh keypair
INFO
REGISTER.SSH.KEYPAIR
2:32:00 PM GMT+7
Error while registering ssh keypair
ERROR
REGISTER.SSH.KEYPAIR
2:14:01 PM GMT+7
registering ssh keypair
INFO
REGISTER.SSH.KEYPAIR
2:14:01 PM GMT+7
Error while registering ssh keypair
ERROR
REGISTER.SSH.KEYPAIR
2:13:30 PM GMT+7
registering ssh keypair
INFO
REGISTER.SSH.KEYPAIR
2:13:30 PM GMT+7
user has logged in from IP Address /176.120.25.224
INFO
USER.LOGIN
2:05:02 PM GMT+7
resetting SSHKey for vm: 604
INFO
VM.RESETSSHKEY
12:28:37 PM GMT+7
user has logged out
INFO
USER.LOGOUT
12:23:43 PM GMT+7
user has logged in from IP Address /176.120.25.224
INFO
USER.LOGIN
12:23:23 PM GMT+7
user has logged out
INFO
USER.LOGOUT
11:23:45 AM GMT+7


Select a date
12/27/2017
Select levels
Select types
Search
destr
Description
Level
Type
Time
Successfully completed destroying Vm. Vm Id: 640
INFO
VM.DESTROY
4:04:51 PM GMT+7
destroying vm: 640
INFO
VM.DESTROY
4:04:48 PM GMT+7
destroying Vm. Vm Id: 640
INFO
VM.DESTROY
4:04:48 PM GMT+7
Successfully completed destroying Vm. Vm Id: 640
INFO
VM.DESTROY
4:04:05 PM GMT+7
destroying vm: 640
INFO
VM.DESTROY
4:04:01 PM GMT+7
destroying Vm. Vm Id: 640
INFO
VM.DESTROY
4:04:01 PM GMT+7

Contents

- *Settings*
  - *Security*
    - *Change Password*
    - *Session Timeout*
    - *Save VM passwords by default*
  - *API Configuration*
  - *VM preferences*
    - *Keyboard layout*
  - *Look and Feel*
    - *Interface Language*
    - *First Day of Week*
    - *Time Format*
    - *Theme Color*

In the *Accounts* -> *Settings* section a user can modify the interface by changing settings.

2.10.1 Security

A user can manage the following security settings:

- Change password;
- Set the session timeout interval;
- the "Save VM passwords by default" option.

Change Password

Here you can change the password provided by your Administrator to the one you like. This will improve the account security.

Enter a new password and re-enter it in the next field to confirm it:

Click "UPDATE" to save the new password.

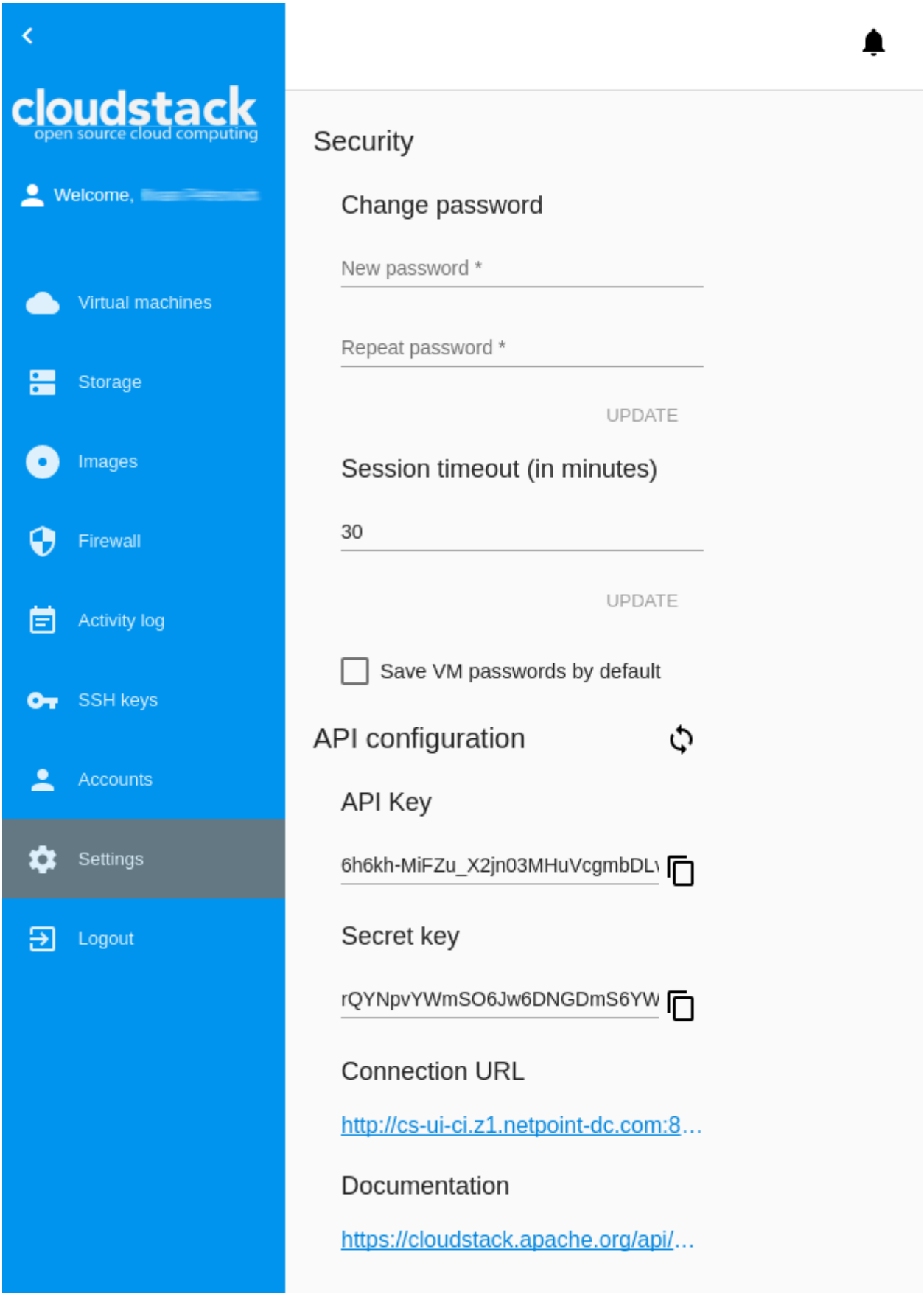
In case you have lost or forgotten your password, contact your Administrator.

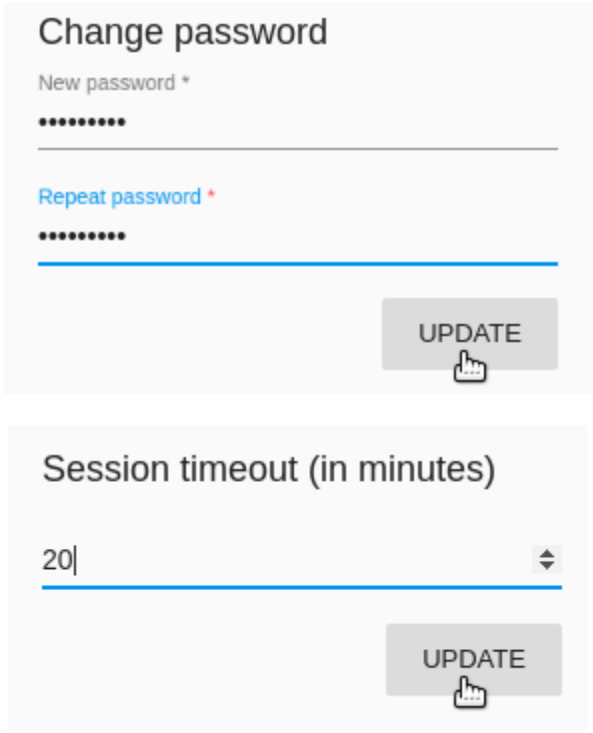
Session Timeout

Here you can specify the maximum amount of time that an active session can be idle (without user activity) before it automatically closes. The default interval is 30 minutes.

Set the desired time limit in minutes using the switch button to the right or typing it just into the field. Then click "UPDATE" to save the changes.

The value is stored in user's tags.


cloudstack
open source cloud computing
Welcome,
Virtual machines
Storage
Images
Firewall
Activity log
SSH keys
Accounts
Settings
Logout
Security
Change password
New password *
Repeat password *
UPDATE
Session timeout (in minutes)
30
UPDATE
Save VM passwords by default
API configuration
API Key
6h6kh-MiFZu_X2jn03MHuVcgmbDL
Secret key
rQYNpvYWmSO6Jw6DNGDmS6YW
Connection URL
http://cs-ui-ci.z1.netpoint-dc.com:8…
Documentation
https://cloudstack.apache.org/api/…



The maximum allowed value is 300 minutes. Please, note that a long time period of an idle session decreases the account security.

The session timeout can be set in the configuration file. You will find more information in the configuration guide.

Save VM passwords by default

This checkbox allows saving passwords to VM tags automatically for all created virtual machines requiring passwords.

Tick this option here. The passwords will be saved to VM tags right at the moment VMs are created. You will see a password (if it is required for the VM) is marked as saved in a dialog window after the new VM is deployed:

If this option is not activated, every time when creating a machine the system will ask you to save the password by clicking "SAVE" next to it:

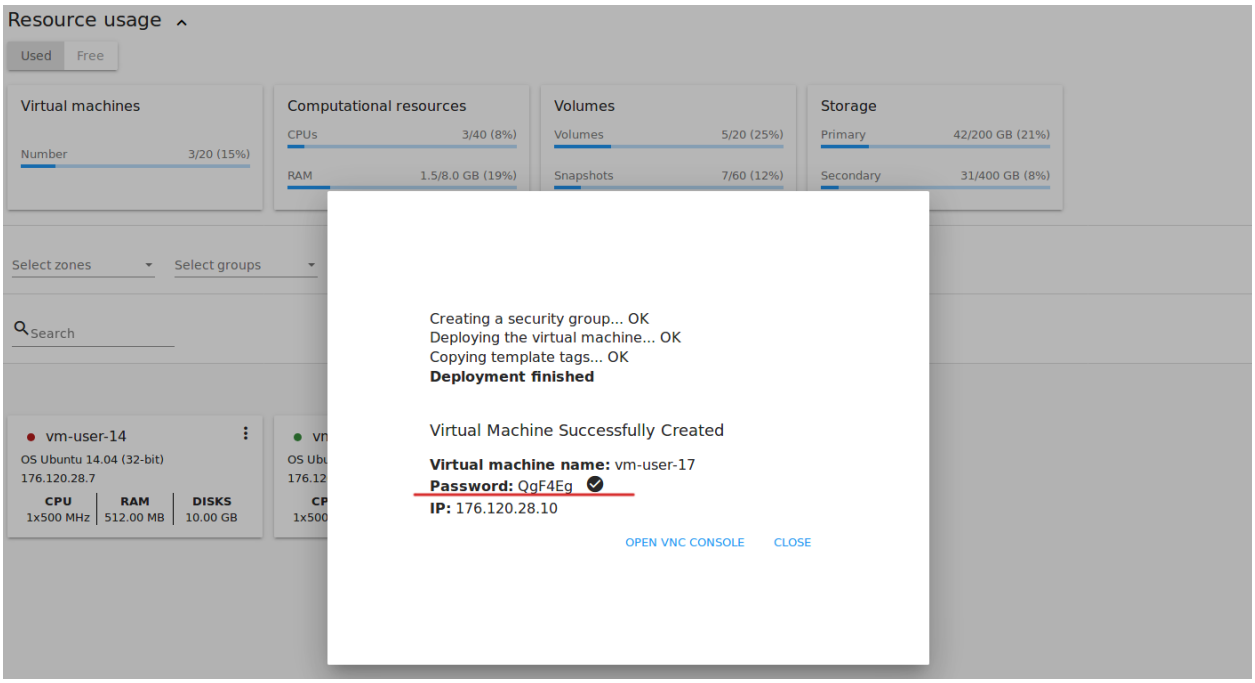
Then the system will ask you if you wish to save passwords to VM tags automatically. If you click "Yes", the "Save VM passwords by default" option will be activated in *Settings*. You will find more information about VM creation in the *Create a Virtual Machine* section.

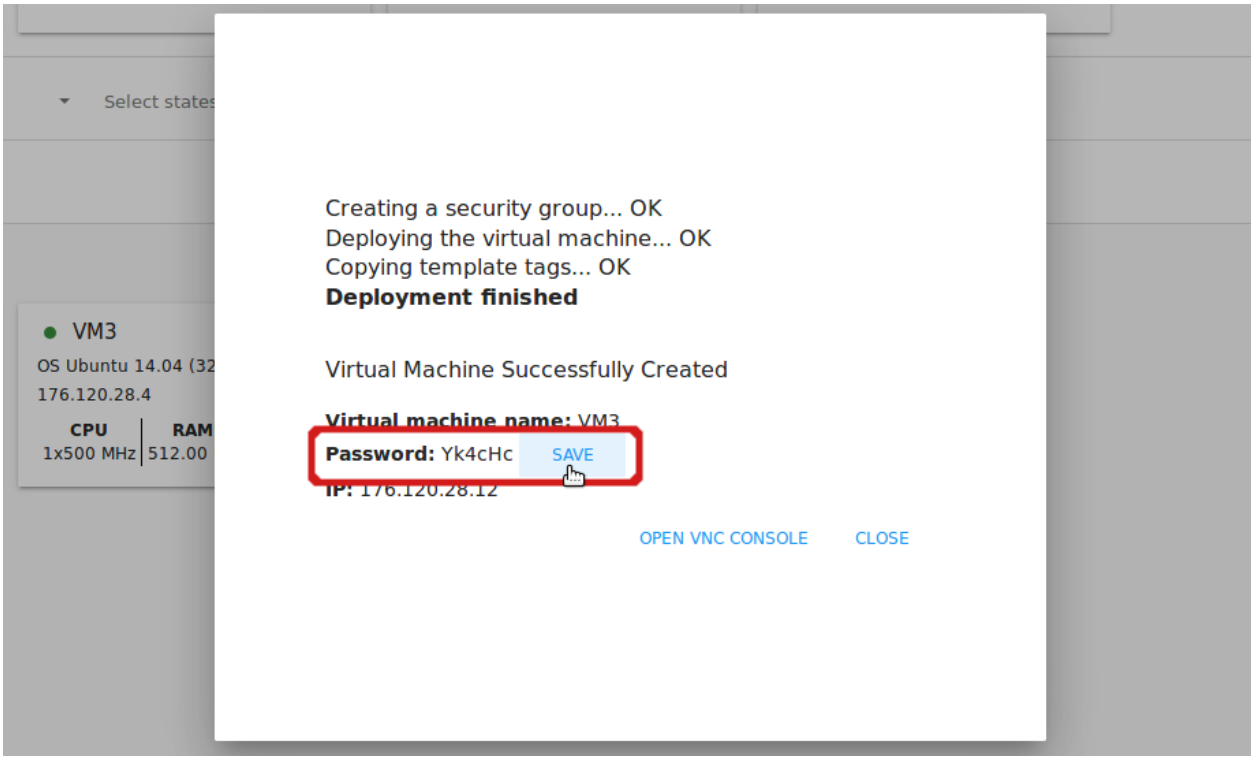
2.10.2 API Configuration

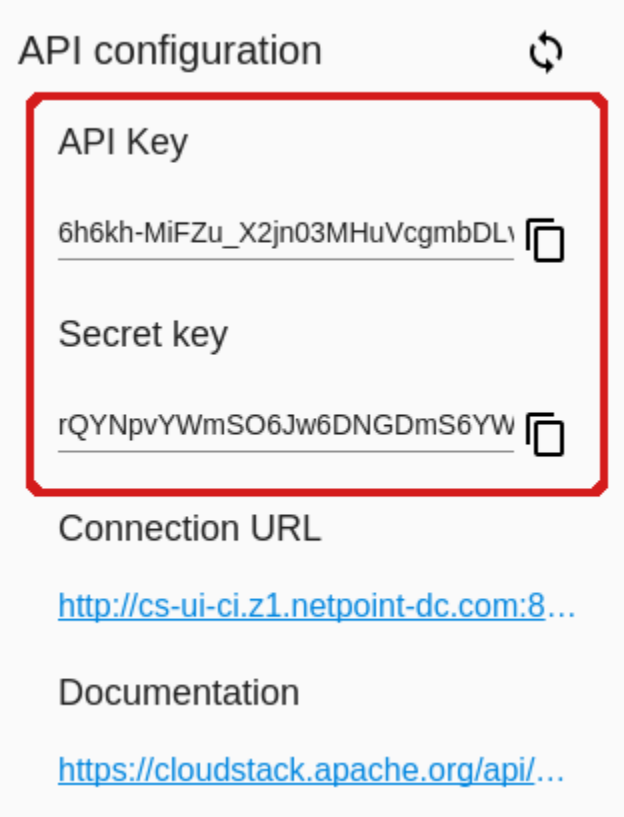
In this block of settings you can see and manage the API configurations: regenerate API keys, see the connection URL.

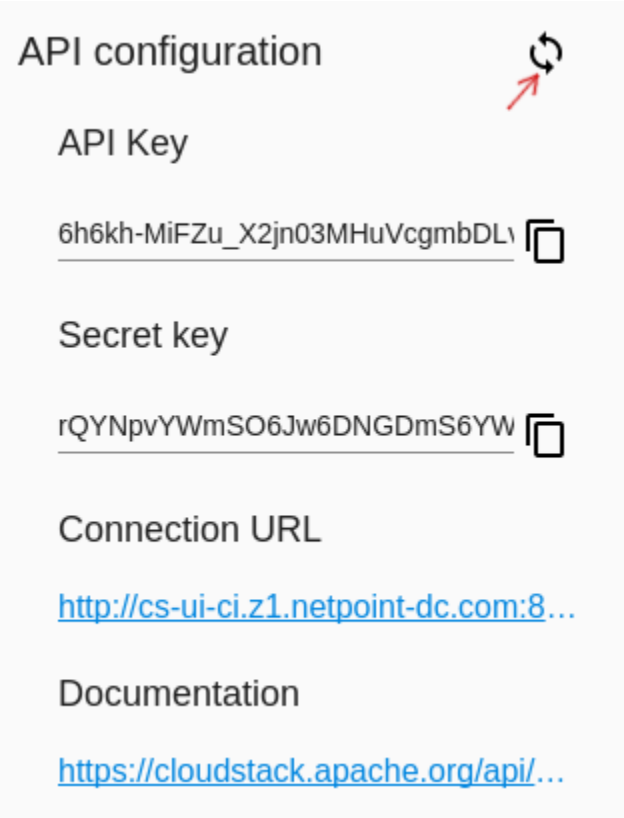
You can see an API key and a Secret key in corresponding fields. You can copy any of them clicking to the right.

Regenerate the keys by clicking above the fields. New keys will be generated.

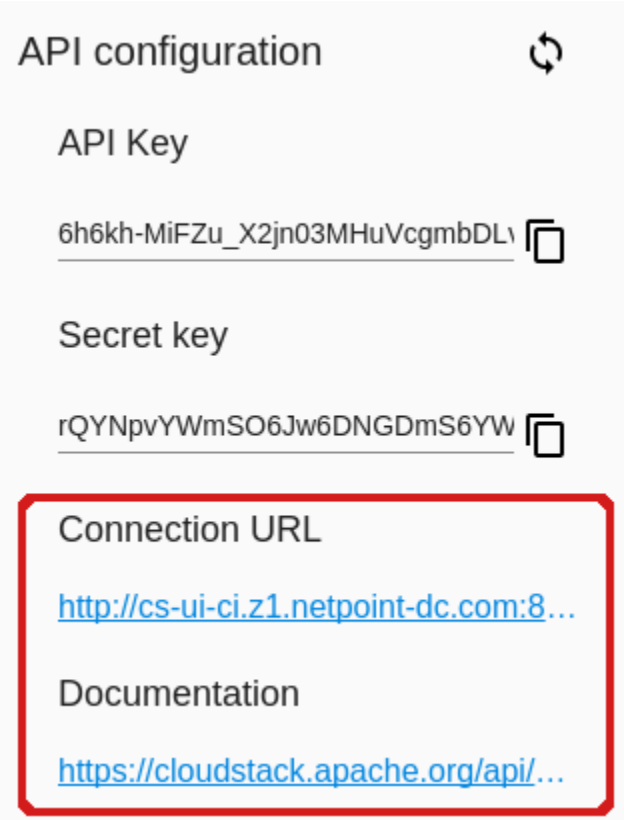

Resource usage
Used
Free
Virtual machines
Number 3/20 (15%)
Computational resources
CPUs 3/40 (8%)
RAM 1.5/8.0 GB (19%)
Volumes
Volumes 5/20 (25%)
Snapshots 7/60 (12%)
Storage
Primary 42/200 GB (21%)
Secondary 31/400 GB (8%)
Select zones
Select groups
Search
vm-user-14
OS Ubuntu 14.04 (32-bit)
176.120.28.7
CPU 1x500 MHz
RAM 512.00 MB
DISKS 10.00 GB
Creating a security group... OK
Deploying the virtual machine... OK
Copying template tags... OK
Deployment finished
Virtual Machine Successfully Created
Virtual machine name: vm-user-17
Password: QgF4Eg
IP: 176.120.28.10
OPEN VNC CONSOLE
CLOSE


Select states
VM3
OS Ubuntu 14.04 (32
176.120.28.4
CPU
1x500 MHz
RAM
512.00
Creating a security group... OK
Deploying the virtual machine... OK
Copying template tags... OK
Deployment finished
Virtual Machine Successfully Created
Virtual machine name: VM3
Password: Yk4cHc
SAVE
IP: 176.120.28.12
OPEN VNC CONSOLE
CLOSE


API configuration
API Key
6h6kh-MiFZu_X2jn03MHuVcgmbDL
Secret key
rQYNpvYWmSO6Jw6DNGDmS6YW
Connection URL
http://cs-ui-ci.z1.netpoint-dc.com:8…
Documentation
https://cloudstack.apache.org/api/…


API configuration
API Key
6h6kh-MiFZu_X2jn03MHuVcgmbDL
Secret key
rQYNpvYWmSO6Jw6DNGDmS6YW
Connection URL
http://cs-ui-ci.z1.netpoint-dc.com:8…
Documentation
https://cloudstack.apache.org/api/…

Below you can view a connection URL which is used to send requests to CloudStack API. All requests are listed in the Apache CloudStack documentation available by the link.



2.10.3 VM preferences

In this block you may set up the keyboard layout.

Keyboard layout

Select a keyboard layout in the drop-down list.

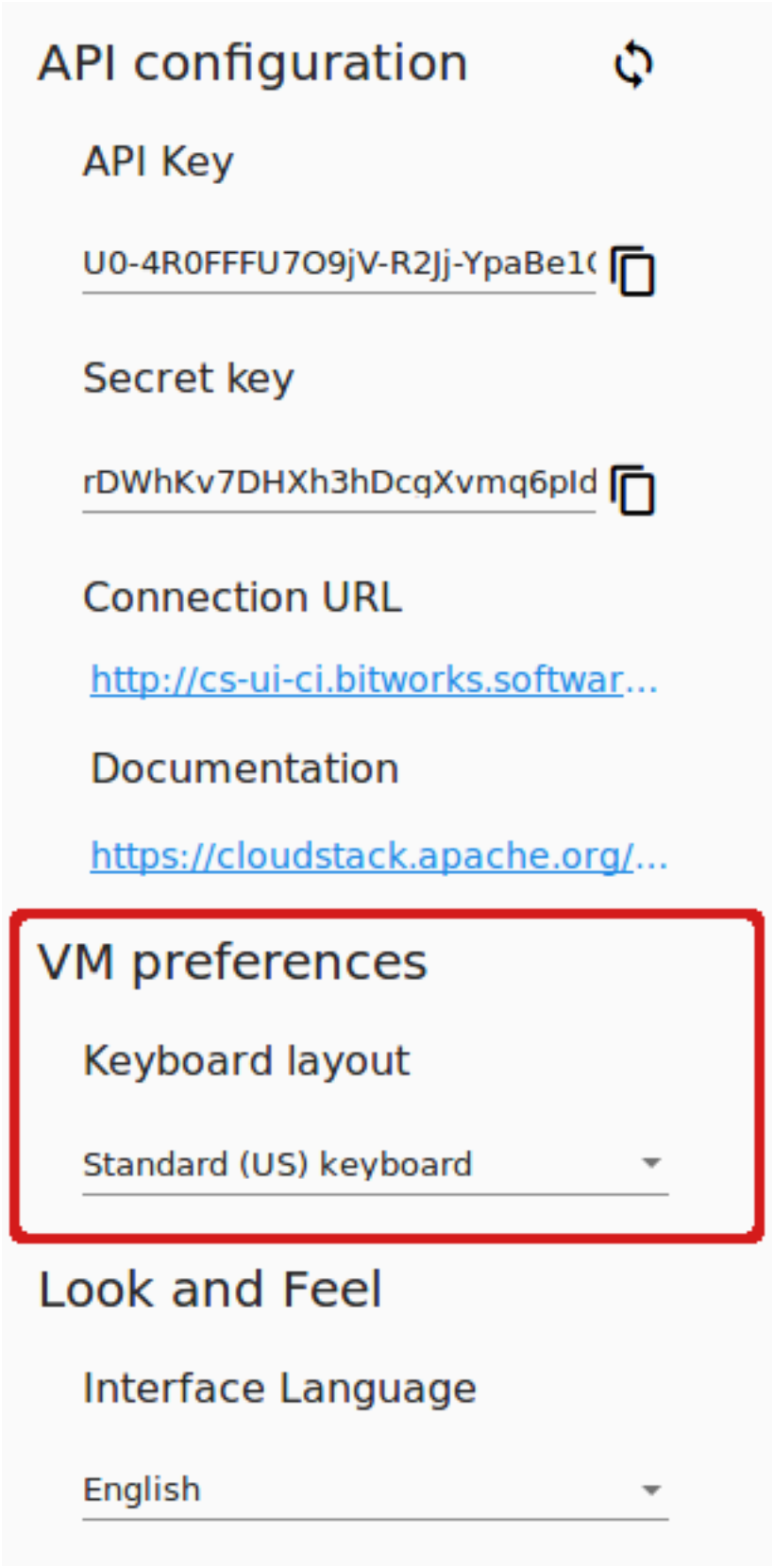
The following options are available:

- Standard US keyboard (default value)
- UK keyboard
- Japanese keyboard
- Simplified Chinese keyboard.

The selected option will appear in the VNC console kayboard layout parameter when accessing a VM via concole. The selected option is also saved to account tags.

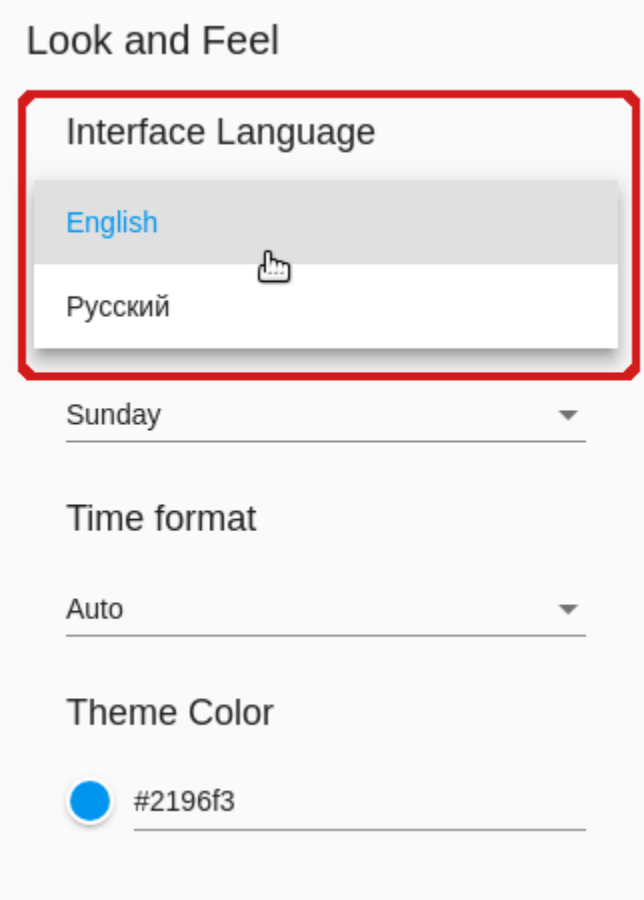
2.10.4 Look and Feel

In this block you can adjust the interface look.


API configuration
API Key
U0-4R0FFFU7O9jV-R2Jj-YpaBe1(
Secret key
rDWhKv7DHXh3hDcqXvmq6pId
Connection URL
http://cs-ui-ci.bitworks.softwar...
Documentation
https://cloudstack.apache.org/...
VM preferences
Keyboard layout
Standard (US) keyboard
Look and Feel
Interface Language
English

Interface Language

Select the language of your interface. Currently two options are available in the drop-down list: Russian and English.



First Day of Week

In this block, you have the opportunity to choose between two types of weeks: Sunday - Saturday or Monday - Sunday.

From the drop-down list select the day when a week starts: Monday or Sanday.

Time Format

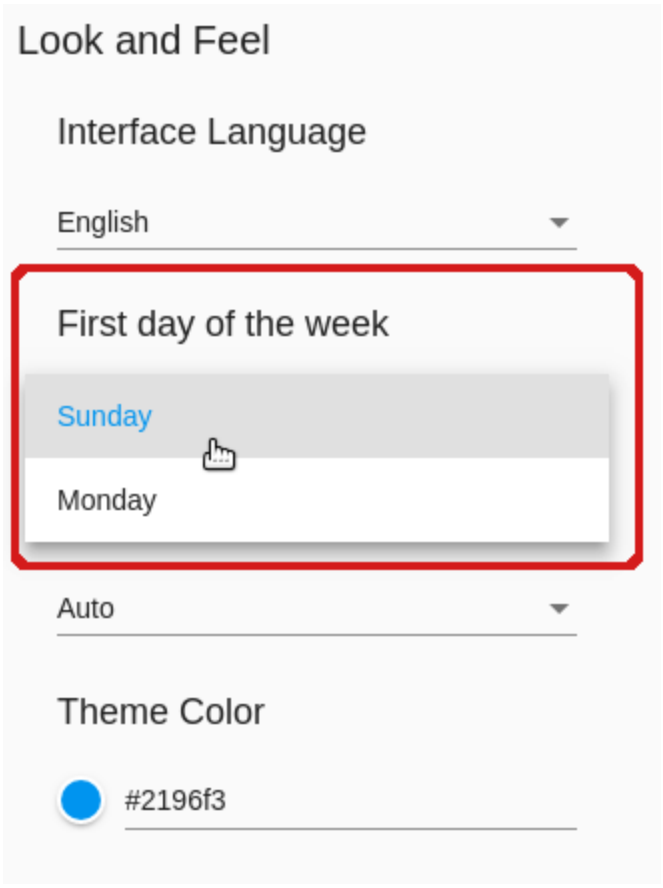
Here you have the opportunity to switch the time format from AM/PM to 24H. You can set it to "Auto" and the time format will be set in correspondence to the interface language: AM/PM if you select English and 24H if you select Russian.

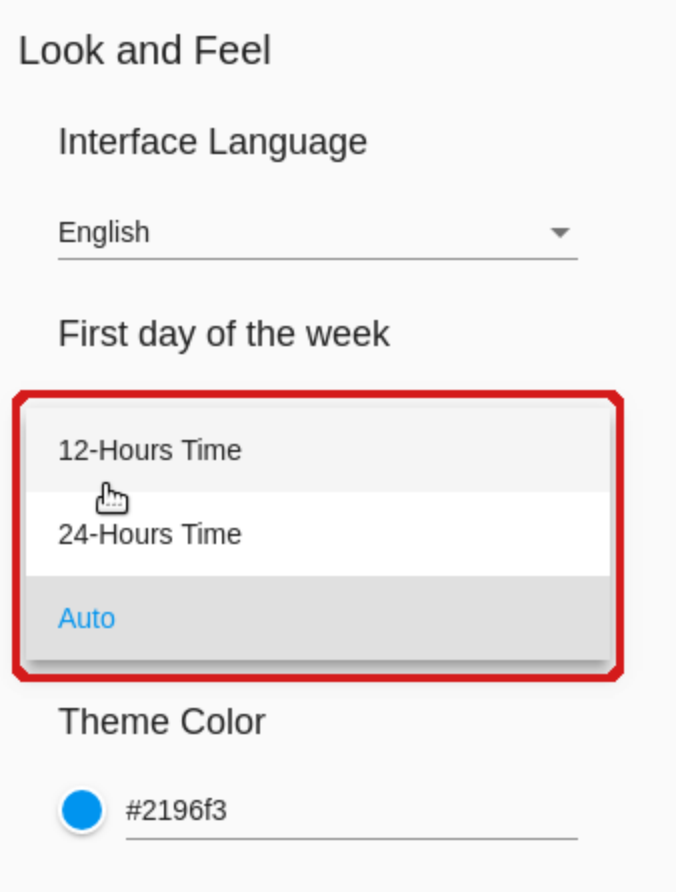
Theme Color

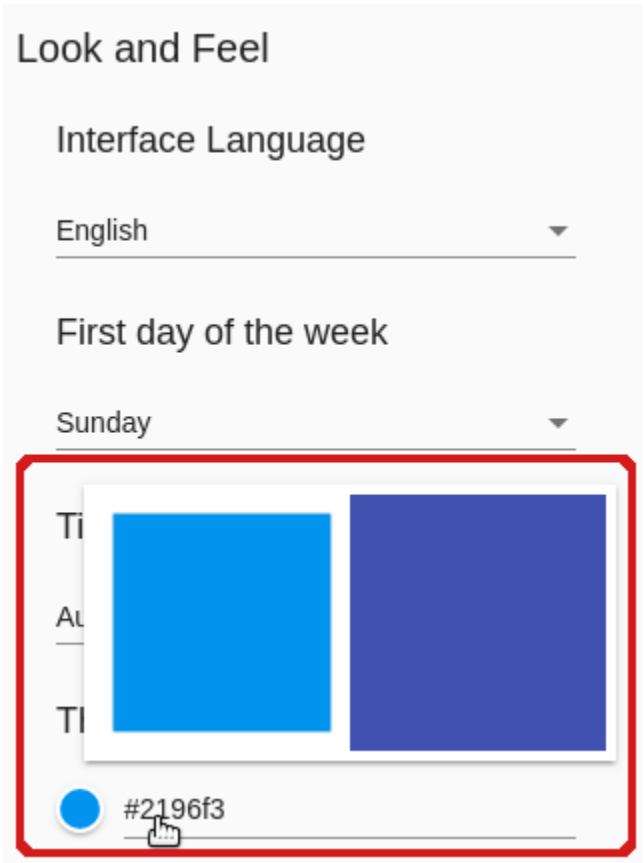
Select a preferred theme color. Currently two options are available: "blue-red" and "indigo-pink". The blue-red one is used by default.

Click the field and select another color if you wish.

A theme color can be set in the configuration JSON file. You will find more information in the configuration guide.


Look and Feel
Interface Language
English
First day of the week
Sunday
Monday
Auto
Theme Color
#2196f3

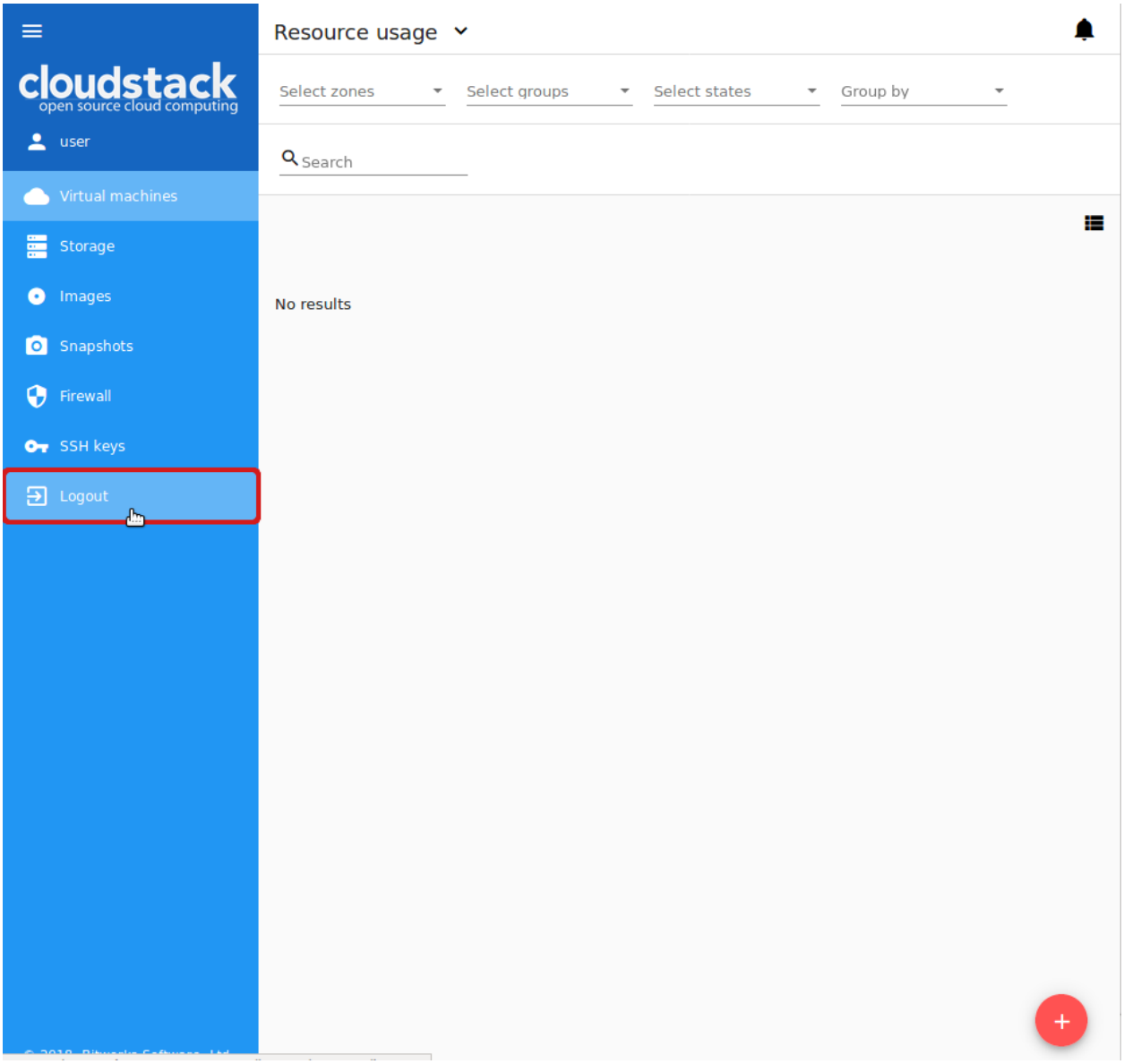

Look and Feel
Interface Language
English
First day of the week
12-Hours Time
24-Hours Time
Auto
Theme Color
#2196f3



2.11 Logout

Clicking *Logout* in the bottom of the navigation bar a user can logout from CloudStack.

It will move a user back to the Login form.


cloudstack
open source cloud computing
user
Virtual machines
Storage
Images
Snapshots
Firewall
SSH keys
Logout
Resource usage
Select zones
Select groups
Select states
Group by
Search
No results

CHAPTER 3

Log View Plugin

Warning: The section is under development!

Contents

- *Log View Plugin*
  - *Overview*
  - *Deployment Instructions*
  - *View Logs*
    - *Filtering Logs*
    - *View Logs List*
      - *Sorting Logs*
      - *Searching Logs*
    - *Following Logs*

3.1 Overview

In the *Virtual Machines-View Logs* section a user can see VM logs. This section appears if the UI-plugin - Log View - is activated. This UI-plugin works together with the backend API plugin developed to process and view virtual machine logs which are handled by ELK and delivered by Filebeat. The version of the backend API plugin matches Apache CloudStack version that it is built for. The plugin is developed and tested only with Apache CloudStack 4.11.1

To make the *View logs* section available, first deploy the backend API plugin and then activate the Log View UI-plugin via the `config.json` file. See deployment instructions below.

3.2 Deployment Instructions

Full instructions on the Log View plugin deployment is presented at the plugin page.

To enable the Log View plugin you need to:

1. Install the backend API plugin into CloudStack.
2. Deploy the necessary components: ElasticSearch, Filebeat, Logstash, Curator.
3. Enable the UI extension via the `config.json` file.

3.3 View Logs

After successful deployment you can see the *View logs* section under the *Virtual Machines* menu in UI. In this section you can view the log files for a defined period of time or in a real-time mode. To view logs you should specify an account (for Administrators), a VM for which you wish to see the logs, and a log file to view the logs from. More details are provided below.

3.3.1 Filtering Logs

To view logs in the list, please, set up the filtering parameters.

Select the following parameters in the provided order from drop-down lists:

- Accounts * - Allows Administrators to further select a VM in a specific account/accounts. Select an account or a number of accounts in the drop-down list.
- VM * - Allows selecting logs for a specific VM. Choose a machine you wish in the drop-down list. The list of available VMs is determined by the account(s) selected at the previous step, if you are an Administrator. If you are a user, you can see the machines belonging to your user only.
- Log file - Allows viewing logs by a log file available for the selected VM. Choose a log file in the drop-down list. If no log file selected, all machine logs will display in the list.
- Date * - Allows selecting logs for a specific period. Click and in the appeared calendar choose the start and end dates to see the logs for. By default, the system shows logs for the last day.
- Time - Allows selecting logs for a specific time period within the selected dates. By default, 00:00 is defined for the start time and 23:59 is defined for the end time. Enter start and end time you wish into the fields to set a custom time period.

Click “Show logs” to implement the filtering settings.

The logs will be displayed in accordance with the chosen period.

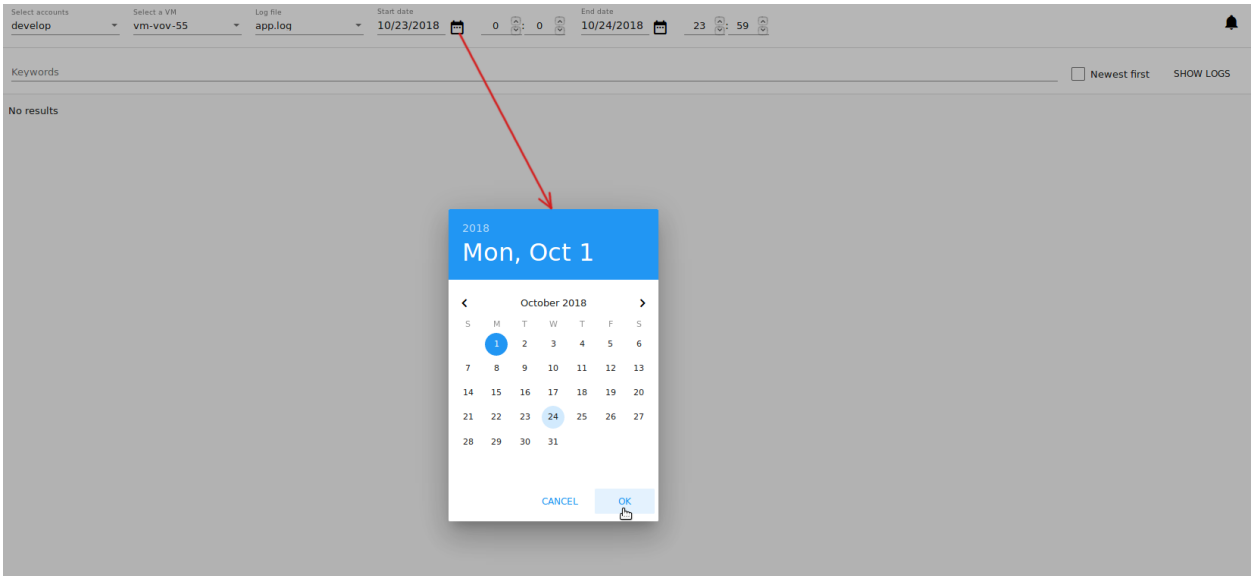
You can change filtering parameters and refresh the list of logs by clicking “SHOW LOGS”.

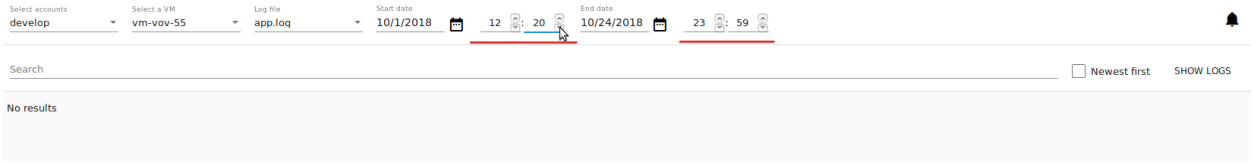
3.3.2 View Logs List

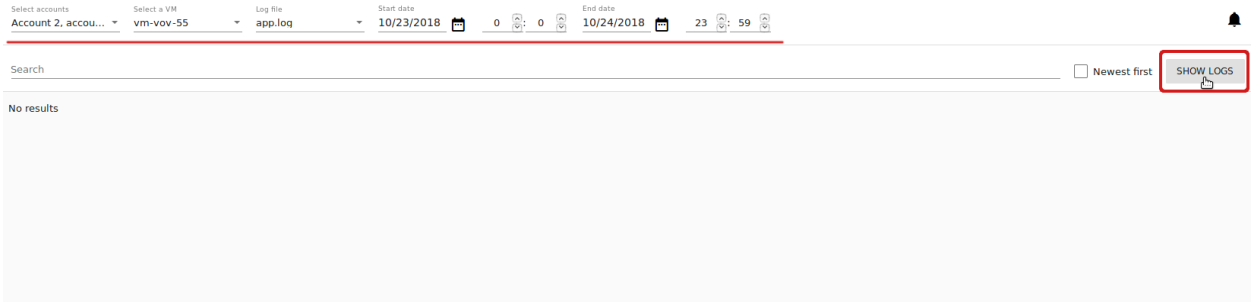
By clicking “SHOW LOGS”, a user can view log files corresponding to the filtering parameters. Logs are listed in a chronological order from the earliest till the latest.

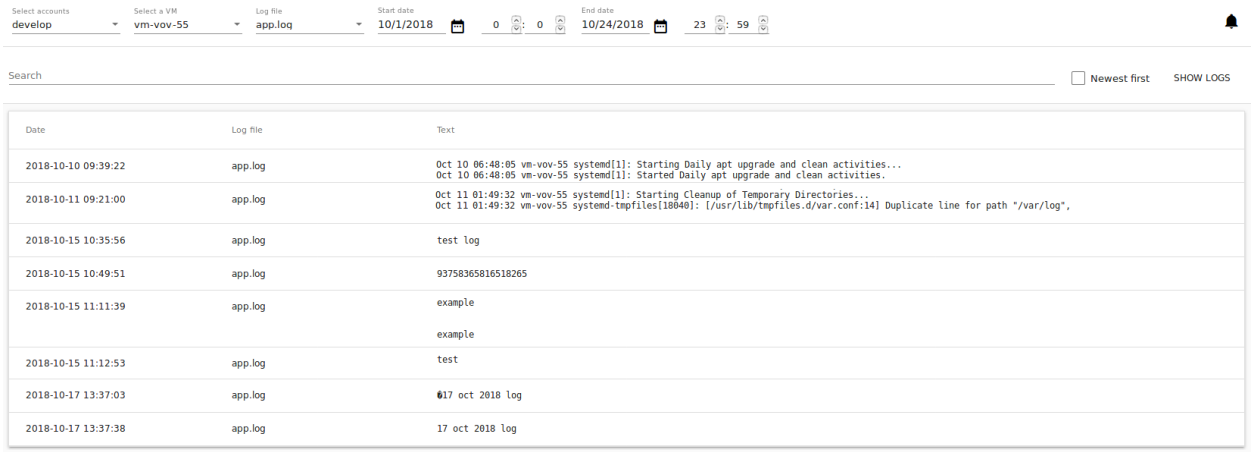
By default, the system shows logs for the last day.

A user can view logs for his/her VMs only. An Administrator can see logs for all accounts in the domain.


Select accounts
develop
Select a VM
vm-vov-55
Log file
app.log
Start date
10/23/2018
0 : 0
End date
10/24/2018
23 : 59
Keywords
Newest first
SHOW LOGS
No results
2018
Mon, Oct 1
October 2018
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
CANCEL
OK


Select accounts
develop
Select a VM
vm-vov-55
Log file
app.log
Start date
10/1/2018
12 : 20
End date
10/24/2018
23 : 59
Search
Newest first
SHOW LOGS
No results


Select accounts
Account 2, accou...
Select a VM
vm-vov-55
Log file
app.log
Start date
10/23/2018
0 : 0
End date
10/24/2018
23 : 59
Search
Newest first
SHOW LOGS
No results


Select accounts
develop
Select a VM
vm-vov-55
Log file
app.log
Start date
10/1/2018
0 : 0
End date
10/24/2018
23 : 59
Search
Newest first
SHOW LOGS
Date
Log file
Text
2018-10-10 09:39:22
app.log
Oct 10 06:48:05 vm-vov-55 systemd[1]: Starting Daily apt upgrade and clean activities...
Oct 10 06:48:05 vm-vov-55 systemd[1]: Started Daily apt upgrade and clean activities.
2018-10-11 09:21:00
app.log
Oct 11 01:49:32 vm-vov-55 systemd[1]: Starting Cleanup of Temporary Directories...
Oct 11 01:49:32 vm-vov-55 systemd-tmpfiles[18040]: [/usr/lib/tmpfiles.d/var.conf:14] Duplicate line for path "/var/log",
2018-10-15 10:35:56
app.log
test log
2018-10-15 10:49:51
app.log
93758365816518265
2018-10-15 11:11:39
app.log
example
example
2018-10-15 11:12:53
app.log
test
2018-10-17 13:37:03
app.log
17 oct 2018 log
2018-10-17 13:37:38
app.log
17 oct 2018 log

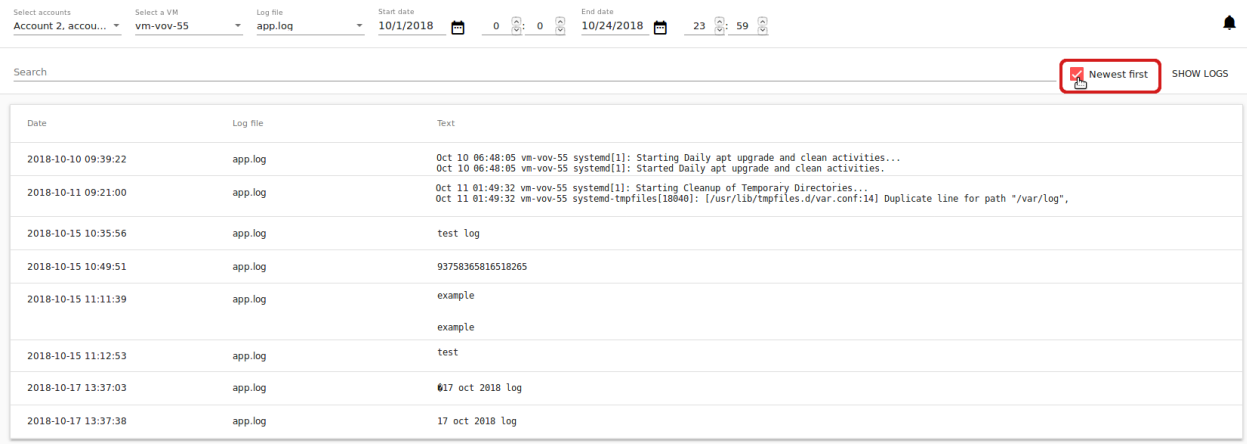
The following information for each log file is presented in the list:

- Date
- File
- Text

You can change filtering parameters and refresh the list of logs by clicking “SHOW LOGS”.

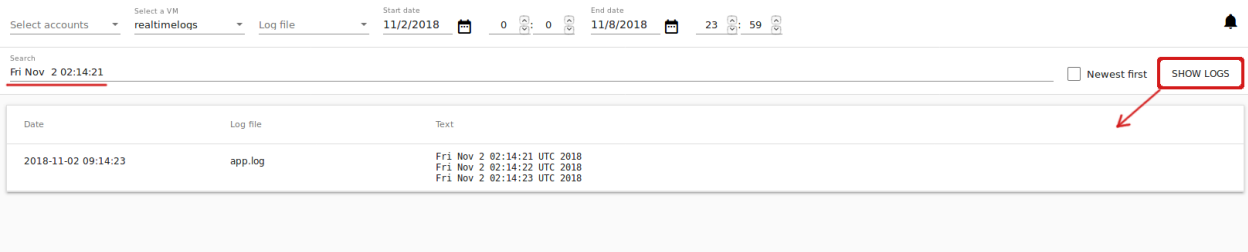
Sorting Logs

The sorting tool allows viewing the newest logs first in the list. Enable the checkbox to the right and click on “Show logs” to refresh the list.



Searching Logs

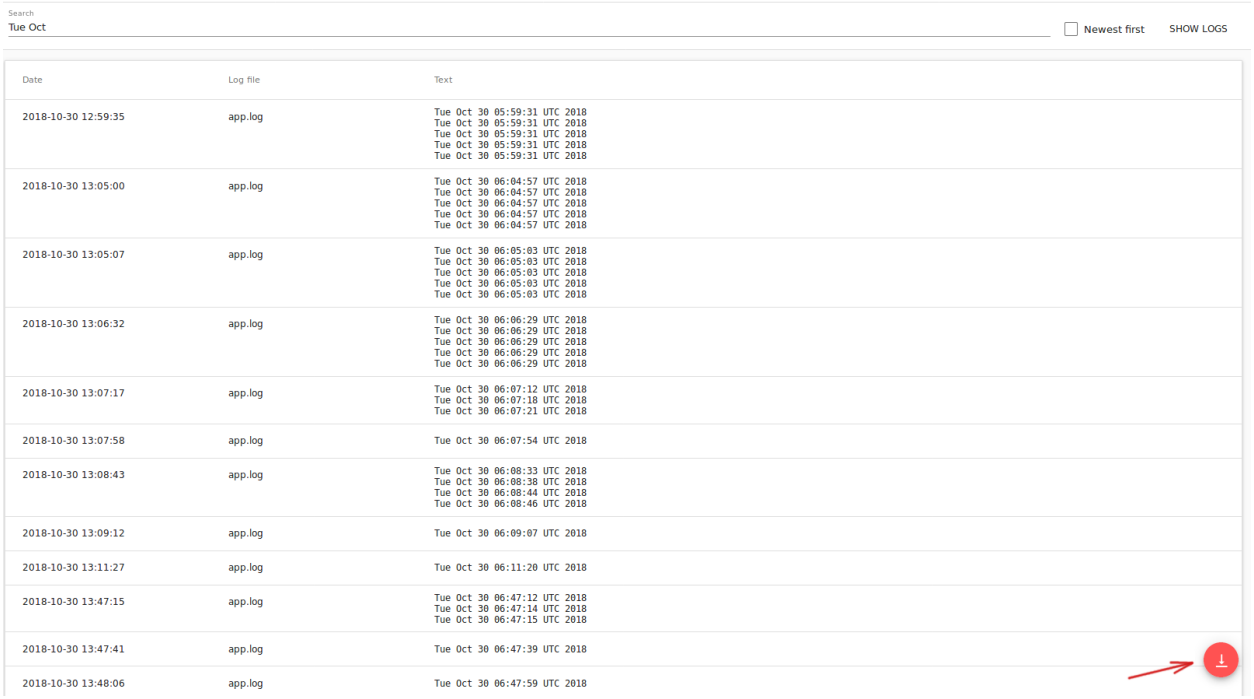
Use the search tool to find logs by a word or a text. Enter the text in the search field above the list and click on “Show logs” to refresh the list.



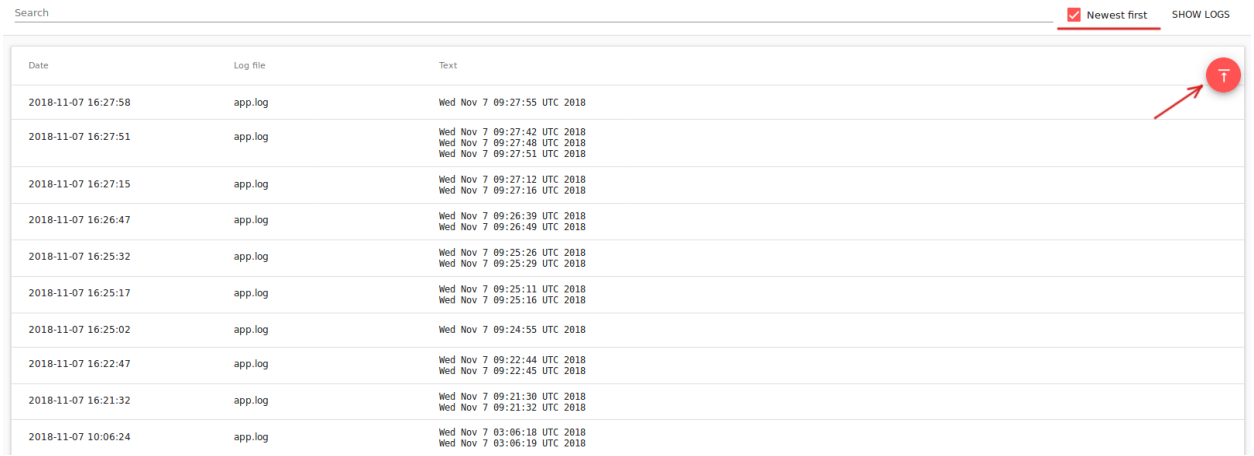
3.3.3 Following Logs

After setting filtering parameters and clicking “Show logs”, a user can start following logs, in other words, start monitoring the logs online.

Click “Follow log” for the uploaded log files, you will see the list is automatically getting refreshed per every second.



The “Follow logs” button changes its position depending on the applied sorting mode. If the “Newest first” option is disabled the button stands in the bottom-right corner, like at the screenshot above. If “Newest first” is enabled, the button goes to the upper-right corner and the latest logs will be displayed at the top of the list.



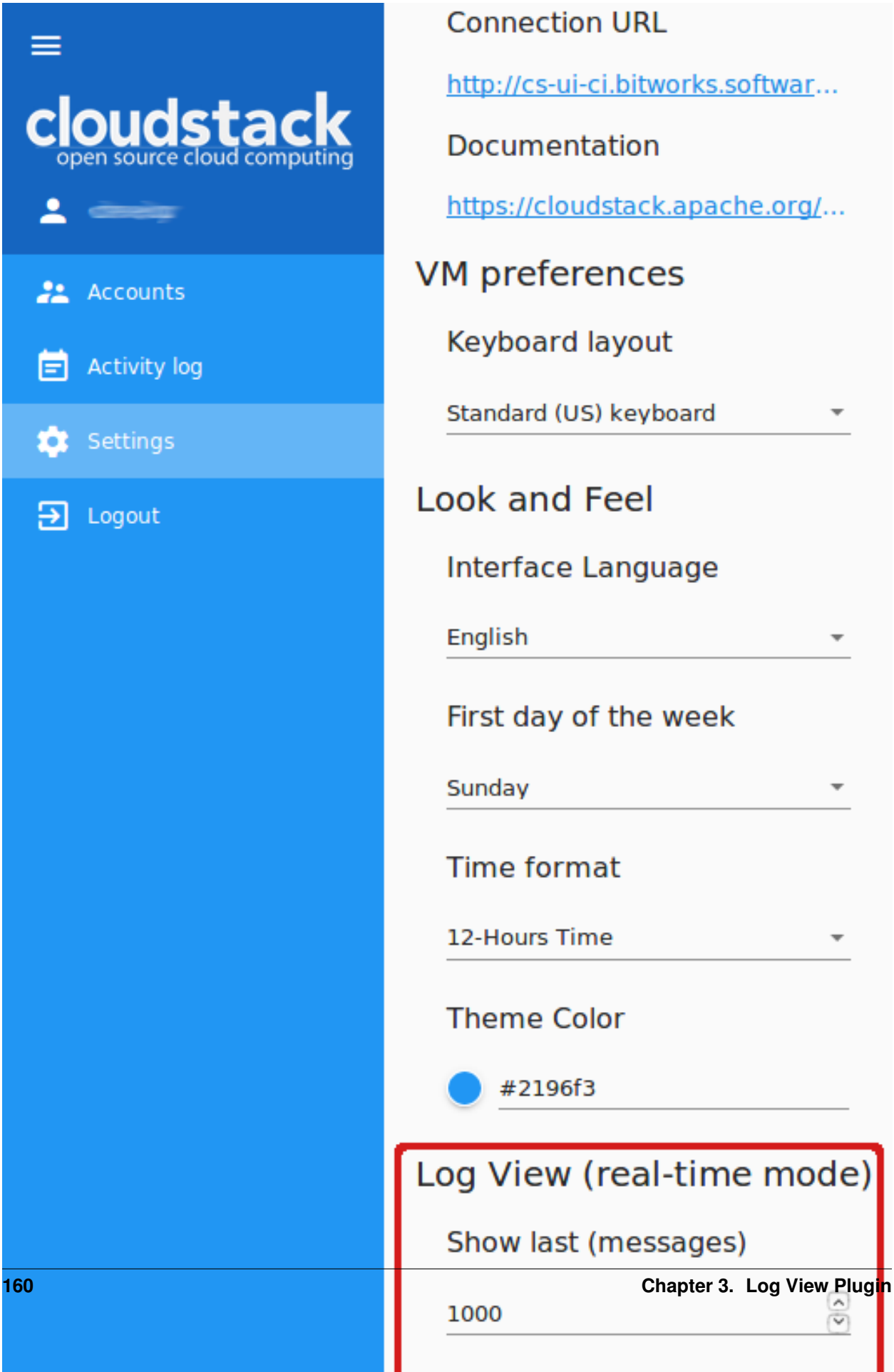
By default, the list contains up to 1000 log records showing logs for the last minute.

If too many entries are to be displayed in the list, the system loads them by parts when a user scrolls the list down.

You can set up parameters of log following in the “Log View Plugin Settings” section:

- **Show last (minutes)** - allows viewing logs for the last set period. You can set the number of minutes from 1 (default) to 10.
- **Show last (messages)** - allows setting a maximum amount of logs to display. You can set from 1 to any number of log records. By default, 1000 messages are shown.

Click “Update” to apply the settings.


cloudstack
open source cloud computing
Accounts
Activity log
Settings
Logout
Connection URL
http://cs-ui-ci.bitworks.softwar...
Documentation
https://cloudstack.apache.org/...
VM preferences
Keyboard layout
Standard (US) keyboard
Look and Feel
Interface Language
English
First day of the week
Sunday
Time format
12-Hours Time
Theme Color
#2196f3
Log View (real-time mode)
Show last (messages)
1000

To stop following logs click on .

CHAPTER 4

Pulse Plugin

Contents

- *Pulse Plugin*
  - *Overview*
  - *Deployment Instructions*
  - *Pulse configuration*
  - *Running cloudstack-ui docker container*

4.1 Overview

The Pulse plugin is designed for visualization of virtual machines performance statistics. Currently, this CloudStack-UI extension is only compatible with ACS clusters that use the KVM hypervisor. With help of sensors that collect virtual machines performance statistics via the Libvirt API and store them in an InfluxDB datastore and RESTful statistics server, CloudStack-UI is able to display CPU, RAM, disk IO and network traffic utilization in the form of convenient visual charts.

Pulse allows users of Apache CloudStack to monitor current and previous operational states of virtual machines. The plugin supports various view scales like minutes, hours, days and enables data overlays to monitor peak and average values.

We consider this plugin very important for the CloudStack ecosystem as currently there is no built-in functionality to track VM operational states, although it is vital for system administrators to successfully operate virtual servers.

Plugin deployment and configuration Instructions can be found below.

4.2 Deployment Instructions

Note: The Pulse plugin works only for KVM hypervisor right now.

Please, make sure that you have cs-pulse-server and cs-pulse-sensor to be able to work with the Pulse plugin.

To enable the Pulse plugin you need:

1. Configure plugin in `config.json`.
2. Run docker container with a correctly specified `cs-pulse-server` endpoint.

4.3 Pulse configuration

Please, enable `pulse` in the extensions section of the `config.json`:

```
"extensions": {
  ...,
  "pulse": true
}
```

4.4 Running cloudstack-ui docker container

```
docker run -d -p 80:80 --name cloudstack-ui \
           ...
           -e PULSE_PLUGIN_ENDPOINT=http://url/to/cs-pulse-server \
           ...
           -v /path/to/config.json:/static/config/config.json \
           bwsw/cloudstack-ui
```

CHAPTER 5

WebShell Plugin

Contents

- *WebShell Plugin*
  - *Overview*
  - *Deployment Instructions*
  - *Starting WebShell Backend*
  - *WebShell configuration*
  - *Running `cloudstack-ui` docker container with WebShell*

In clouds the most commonly used operating systems nowadays are Unix or Linux based operating systems. To control Linux system administrators use standard SSH interface. Most system administrators or cloud users have SSH client installed on their machines.

First of all, it is more interactive, because it allows performing copy&paste operations. It is more performant if you need to work with text.

In addition to the UI inactivity interval, SSH plugin supports its own inactivity timeout so you should not worry leaving SSH opened when you go out for a cup of coffee. In comparison to a VNC console, if you open it in your browser, it will be opened forever.

This plugin is not required, but it is very helpful and easy to install and configure it. There is a docker webshell container that should be deployed. This container is a standalone shell proxy and can be used outside of the CloudStack UI, but there is an option to integrate them, Just specify the WebShell endpoint when you run the UI container. You can also disable the plugin in the UI configuration anytime you want.

Read more about it below.

5.1 Overview

WebShell is a CloudStack-UI extension designed to perform a clientless SSH connection to a virtual machine. The extension is activated in the CloudStack-UI configuration file and is supported by an additional Docker container. As for the way of WebShell usage, the plugin is similar to NoVNC interface provided by CloudStack. However, WebShell uses the SSH protocol and does not allow VM emergency management.

The need for this extension is determined by the shortcomings of the NoVNC interface, that obstructs its usage for everyday administrative purposes:

- Low interactivity and slow throughput of the terminal interface;
- Lack of possibility to copy/paste text from the user's local machine;
- Missing feature to complete the session by timeout;
- Access to the virtual machine in out-of-band mode, which allows performing a number of insecure operations.

WebShell plugin solves these problems:

- Provides high interactivity, which is especially useful when working with information that contains large amounts of text;
- Allows copying and pasting text from the workstation;
- Enables configuration of the session completion timeout, thereby improving the security of the system;
- Does not provide an access to the VM in out-of-band mode.

In future releases, this plugin will be extended with additional features such as integration with the VM access key store and dashboard for efficient work with many open SSH sessions.

This feature is not available in basic CloudStack UI and API.

Plugin deployment and configuration instructions can be found below.

5.2 Deployment Instructions

To enable WebShell CloudStack-UI Plugin it is required to:

1. Run WebShell container in the backend.
2. Enable and configure WebShell plugin in `config.json`.

5.3 Starting WebShell Backend

Please check Usage section in the WebShell repository.

5.4 WebShell configuration

Please configure `webShell` in the `extensions` section of the `config.json`:

```
"extensions": {
  ...,
  "webShell": true
}
```

`webShell.address` is the address of a WebShell backend. WebShell will not be available unless an address is specified.

5.5 Running `cloudstack-ui` docker container with WebShell

```
docker run -d -p 80:80 --name cloudstack-ui \
           ...
           -e WEBSHELL_PLUGIN_ENDPOINT=http://url/to/webshell-server \
           ...
           -v /path/to/config.json:/static/config/config.json \
           bwsw/cloudstack-ui
```

CHAPTER 6

Indices and tables

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