



CloVER VTL Administrator's Guide



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Introduction to the CloVER VTL Platform

CLOVER VTL is a SaaS product that offers cloud based virtual training labs seamlessly integrated into learning platforms. It enables learners and instructors to access virtual lab environments anywhere including virtual desktops and servers (Linux and Windows), Docker-based applications and virtual networks hosted by cloud infrastructures (OpenStack) and platforms (Kubernetes).

Getting Started

CloVER Gateway users

There are three types of users in CloVER: Administrator, Teacher and Student.

Administrator:

- Sets the Cloud platform parameters
- Creates users, images and groups
- Desktop monitoring
- Sets the LTI parameters

Teacher:

- Creates images
- Manages its course's groups
- Manages the desktops of its course's groups

Student:

- Manages its desktops

Entering your credentials

First sign into CloVER (as Administrator). The CloVER database contains one pre-configured user called Administrator (Username:admin, Password:admin).



Configuring CloVER Settings

CloVER hosts and manages your desktops on external cloud infrastructures (OpenStack) and platforms (Kubernetes) via their platform's APIs.

Cloud settings

Once you are logged in, you should firstly configure CloVER to use your Cloud platform. Actually, CloVER supports the OpenStack platform (settings in the **Settings > OpenStack settings** option).

The process to set the OpenStack parameters is:

1. Define the User/project parameters

- **Username** : The OpenStack username used to log in to the Horizon dashboard (recommended to be the username for a non-Admin OpenStack user).
- **Password**: The related password.
- **Tenant ID** : find the tenant ID by logging into the Horizon dashboard (in the OpenStack RC File, OS_TENANT_ID field) under Access & Security > Identity > Download OpenStack RC File.

2. Define the endpoints configuration (Keystone, Nova, Glance, Cinder)

3. Define the access configuration (availability zone)

The screenshot displays the CloVER web interface. On the left is a 'Management' sidebar with a 'Settings' menu. The 'Settings' menu is expanded, showing 'OpenStack settings', 'Kubernetes settings', and 'Clover gateway settings'. The 'OpenStack settings' option is selected. The main content area is titled 'Enter OpenStack Credentials'. It contains a section for 'Upload the OpenStack RC file' with buttons for 'Choose', 'Upload', and 'Cancel'. Below this is the 'OpenStack settings' section, which has three tabs: 'User/Project Configuration', 'Endpoint Configuration', and 'Access Configuration'. The 'User/Project Configuration' tab is active, showing fields for 'Username' (filled with 'xbmp6mf7GtV3'), 'User password', and 'Tenant name' (filled with '0111297258209985'). At the bottom of this section are 'Save' and 'Verify Cloud Connectivity' buttons. The top right of the interface shows the user 'admin' is logged in, with a 'Logout' button.

The screenshot shows the CloVER Gateway web interface. The top header includes the CloVER logo, a user profile icon labeled 'admin', and a 'Logout' button. The left sidebar is titled 'Management' and contains a 'Settings' menu with sub-items: 'OpenStack settings', 'Kubernetes settings', and 'Clover gateway settings'. Below these are links for 'Images', 'Courses', 'Users', 'Desktops', 'Monitoring', and 'LTI administration'. The main content area is titled 'Enter OpenStack Credentials' and features a section for 'Upload the OpenStack RC file' with 'Choose', 'Upload', and 'Cancel' buttons. Below this is the 'OpenStack settings' section, which has three tabs: 'User/Project Configuration', 'Endpoint Configuration' (which is active), and 'Access Configuration'. The 'Endpoint Configuration' tab contains four input fields: 'Keystone Endpoint' (https://auth.cloud.ovh.net/v2.0), 'Nova Endpoint' (https://compute.sbg1.cloud.ovh.net/v2), 'Glance Endpoint' (https://image.compute.sbg1.cloud.ovh.net/v1), and 'Cinder Endpoint' (https://volume.compute.sbg1.cloud.ovh.net/v1). At the bottom of this section are 'Save' and 'Verify Cloud Connectivity' buttons.

The CloVER Gateway can also be connected to a Kubernetes platform.

The screenshot shows the CloVER Gateway web interface with the 'Kubernetes settings' section active. The top header and left sidebar are identical to the previous screenshot. The 'Kubernetes settings' section has two tabs: 'Kubernetes cluster Connexion' (which is active) and 'Docker Connexion'. The 'Kubernetes cluster Connexion' tab contains four input fields: 'Master URL', 'Certificate' (with a large text area), 'Username', and 'Password'. A 'Save' button is located at the bottom left of this section.

CloVER Gateway settings

The CloVER Gateway supports Guacamole 0.9.14 that offers HTML5 based display protocols like VNC and RDP. A dedicated Guacamole gateway is already installed, configured and associated to your CloVER Gateway for free. You can just start use it to access your desktops.

admin

Management

Settings

OpenStack settings
Kubernetes settings
Clover gateway settings

Images
Courses
Users
Desktops
Monitoring
LTI administration

Clover gateway settings

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DNS	Number of virtual machines	Actions
https://guacamole-mysql.procan-group.com	0	

If you want to use your own Guacamole gateway, Click the 'Edit' button to modify the DNS of Guacamole. For more information about the Clover and Guacamole compatibility and interfaces, visit the Clover-Guacamole GitHub project: <https://github.com/procangroup/clover-guacamole>

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OpenStack settings
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Clover gateway settings

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Edit Guacamole VM

Edit Guacamole VM

Guacamole DNS : https://guacamole-mysql.procan-group.com

Yes Sure
Not Yet

CLOVER-VTL Administrator's Guide



Managing the Images

To manage the Images, choose the Images option.

Once you go to create a new Image (Create Image option), you can see all existing Images. The opened form includes the following fields:

- **Image name:** the name of your new image
- **Image source:**
 - From CloVER: Your images that you have already created
 - From Cloud: The Images in the Cloud having the RDP feature (including the word "RDP" in their names)
- **Flavor:** the resource flavor for the Virtual Machine (VM) that will be created from the selected Image. The flavor's resources are displayed when a flavor is selected.

The screenshot shows the 'Create Image' form in the CLOVER-VTL Administrator's Guide. The form is located in the main content area, and the 'Images' option in the sidebar is selected. The form includes the following fields: 'Image name' (text input), 'Description' (text area), 'Image source' (radio buttons for 'From CloVER' and 'From Cloud'), 'Image's os' (dropdown menu), and 'Flavor' (dropdown menu). Below these fields, the resources for the selected flavor are displayed: 'VCPUs: 32 | RAM(MB): 120000 | Disque(Go): 800'. A 'Create' button is located at the bottom of the form.

To display the characteristics of the images, choose the List Images option. You can also:

- Reconfigure an Image parameters (if it is not yet confirmed)
- Confirm an Image
- Display the Image information
- Remove Images

Management

- Settings
- Images**
 - Create Image
 - Image list
- Courses
- Users
- Desktops
- Monitoring
- LTI administration

Image list

Actions for multiple selection

	Name	Description	Status	Flavor	Actions
<input type="checkbox"/>	ubuntu-16.04-RDP	ubuntu-16.04	Active	vps-ssd-1	i X
<input type="checkbox"/>	Windows-Server-2012-r2-RDP	win7	Active	win-hg-7-ssd	i X

(1 of 1) In total there are 2 images.

Managing the Courses

A Course's group is a set of users sharing one or several Images. For example, this feature allows a teacher to set up student groups within a class and to assign Images (virtual labs).

To create a Course, choose the **Courses > Create Course** option, then select a name for the new course.

Management

- Settings
- Images
- Courses**
 - Create Course
 - Manage Courses
- Users
- Desktops
- Monitoring
- LTI administration

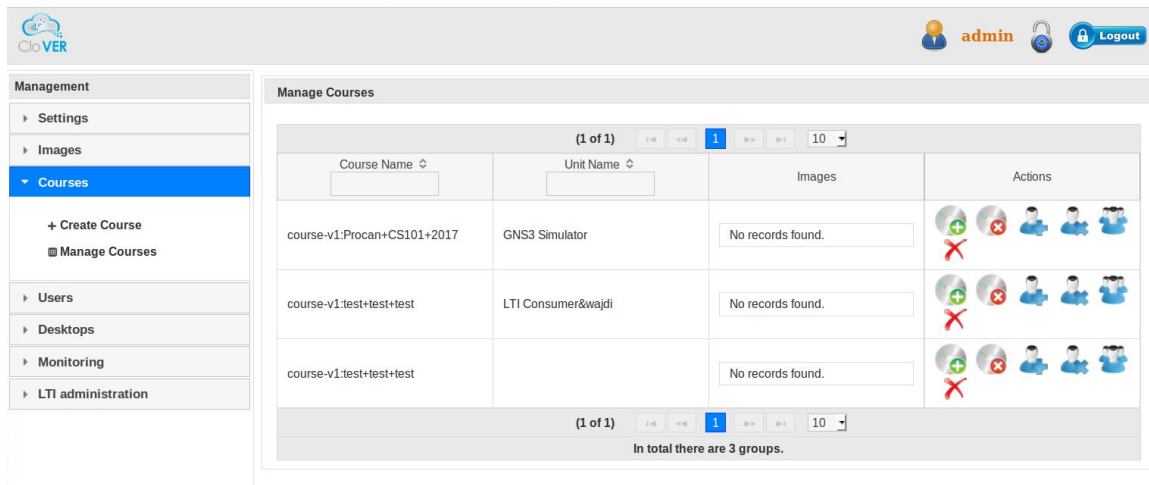
Create group

Course Name:

Create

To manage course group membership and images, choose the **Image list** option. You can:

- Join/disjoin members to a course group
- Add/delete Images to/from a course group
- Display the course group members
- Delete a course group (but not the associated users and images)



Managing the Users

Users are added in the CloVER gateway:

1. **Manually:** Users manually entered into the database (see Manually authenticated users).
2. **Automatically:** The CloVER gateway automatically enters users into the database the first time they access the gateway from an LTI-linked learning platform (see Automatically authenticated users).

Manually authenticated users

To manually enter a new user in the database, click the **Users > Create User** link to open the Create User dialog.

The opened form includes the following fields:

- **Login:** a Login name for the user.
- **Password and Confirm Password:** Note that the user can also choose to generate a random password.
- **First/Last names**
- **Email, Address, Phone**
- **Role** of the user (Admin, Teacher, Student).

Management

- Settings
- Images
- Courses
- Users**
 - + Create User
 - User list
- Desktops
- Monitoring
- LTI administration

Create User

Login: *

Generate random password: ☐

Password: *

Confirm Password: *

First name: *

Last name: *

E-mail: *

Address:

Phone:

Role : ☐ Admin ☐ Teacher ☒ Student

Automatically authenticated users

When a user accesses the CloVER Gateway through a learning platform (as LTI consumer for CloVER), the user is added automatically the the CloVER database.

Displaying User information

Management

- Settings
- Images
- Courses
- Users**
 - + Create User
 - User list
- Desktops
- Monitoring
- LTI administration

User list

Actions for multiple selection

	Login	Username	Role	Actions
<input type="checkbox"/>	clover	admin	Admin	
<input type="checkbox"/>	user_877df31725d77dc76b5f19b6e	John	Teacher	
<input type="checkbox"/>	user_56255f3807599c377bf0e5bf07		Student	
<input type="checkbox"/>	user_student		Teacher	

(1 of 1) 1 15

In total there are 4 users.

The **Users > Users list** page lists all users entered into the CloVER gateway database.

The user information include:

Login : The login for user authentication.

Username : The user's name as entered in the First Name field on the Create User page, or the name received from a related learning platform.

Email : The user's email address.

Actions: Actions that can be performed on a user:

- **View:** display all user's information
- **Delete:** Delete the user (and the associated desktops)
- **Enable/disable:** Enable or disable the user account

Managing the Desktops

To manage desktops, choose the **Desktops > Desktop list** option.

You can display and manage the list of Desktops (created and not created yet).

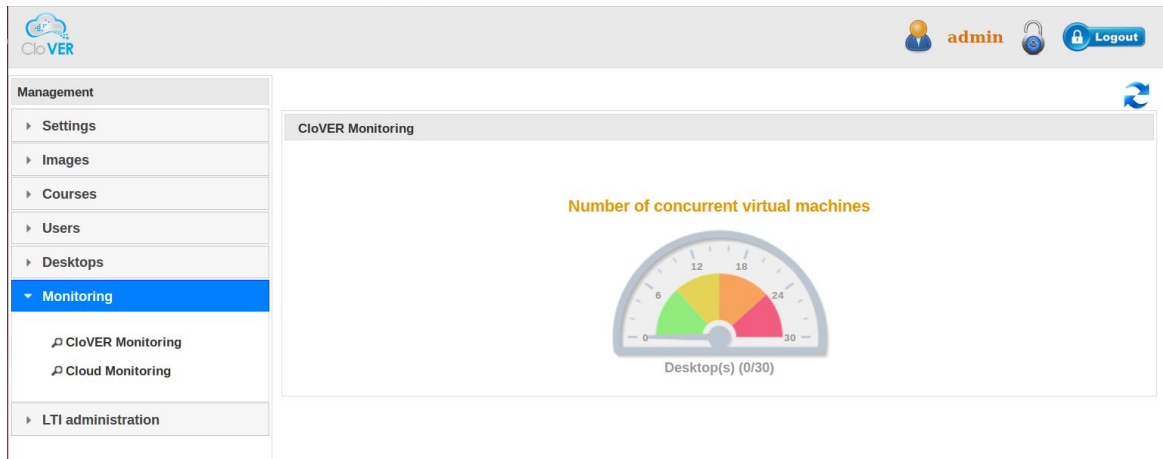
The screenshot shows the CloVER interface with the 'Desktops' menu selected. The 'Desktop list' table displays one entry for user 'John' with image 'ubuntu-16.04-RDP' and status 'building'. A context menu is open over the 'building' status, showing 'Reset-state Desktop' and 'Delete Desktop' options.

	User login	Username	Image name	IP address	Status	Actions
<input type="checkbox"/>	user_877df31725d77	John	ubuntu-16.04-RDP		building	<div>Reset-state Desktop Delete Desktop</div>

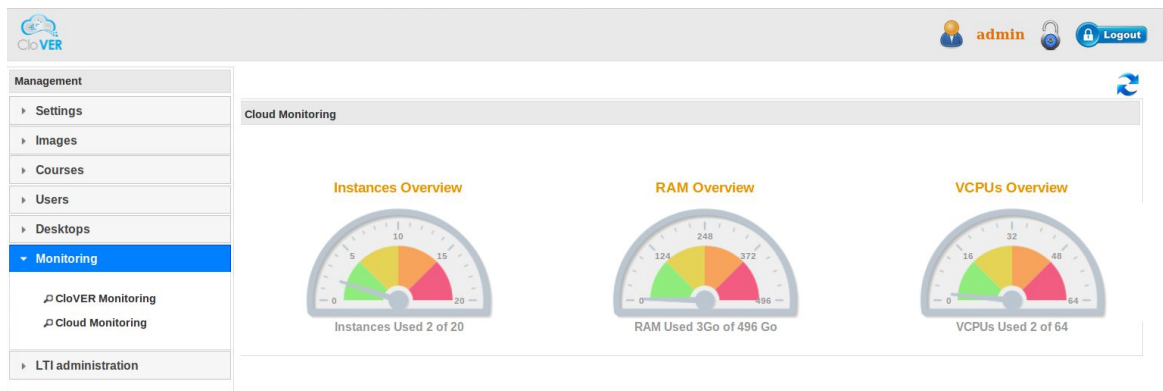
The screenshot shows the CloVER interface with the 'Desktops' menu selected. The 'Desktop list' table displays one entry for user 'John' with image 'ubuntu-16.04-RDP' and status 'active'. A context menu is open over the 'active' status, showing a full set of management options.

	User login	Username	Image name	IP address	Status	Actions
<input type="checkbox"/>	user_877df31725d	John	ubuntu-16.04-RDP	167.114.239.78	active	<div>Stop Desktop Rebuild Desktop Reboot Desktop Reset-state Desktop Delete Desktop Display Desktop</div>

The **Monitoring > CloVER Monitoring** option allows administrators to know the number of active virtual machines compared to its quota.



The same, the **Monitoring > Cloud Monitoring** option allows administrators to the number of running instances, RAM and VCPUs compared compared to its quota.



CLOVER-VTL Instructors's Guide

Once a teacher is logged in, the following dashboard is displayed.



A teacher can manage:

- the images
- the course's groups in which the teacher is a member
- Its Desktops and those of the users that are members in its course's groups

CLOVER-VTL Students's Guide

Once a student is logged in, the following dashboard is displayed. A student can manage only its Desktops.

