



# 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

### Sign into CloVER

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



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## Configuring CloVER Settings

CloVER hosts and manages your desktops on external cloud infrastructures (OpenStack) and platforms (Kubernetes) via their 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 shows the CloVER Gateway interface. On the left is a 'Management' sidebar with a 'Settings' menu. The main content area is titled 'Enter OpenStack Credentials'. It includes a section for uploading an OpenStack RC file with 'Choose', 'Upload', and 'Cancel' buttons. Below this is the 'OpenStack settings' section with three tabs: 'User/Project Configuration' (selected), 'Endpoint Configuration', and 'Access Configuration'. The 'User/Project Configuration' tab contains fields for 'Username' (xbmp6mf7GtV3), 'User password', and 'Tenant name' (0111297258209985). At the bottom are 'Save' and 'Verify Cloud Connectivity' buttons.

This screenshot shows the same CloVER Gateway interface, but with the 'Endpoint Configuration' tab selected under 'OpenStack settings'. The 'User/Project Configuration' tab is now inactive. The 'Endpoint Configuration' tab contains fields for '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). The 'Save' and 'Verify Cloud Connectivity' buttons remain at the bottom.

## Kubernetes settings

The CloVER Gateway can use a Kubernetes platform.

The Kubernetes parameters to set are:

- **Master URL** : the Kubernetes's Master URL
- **Certificate**: the certificate to access the Kubernetes cluster
- **Username** : the login of the cluster's administrator
- **Password**: the password of cluster's administrator

The CloVER Gateway can also use a Docker plateform.

The Docker parameters to set are:

- **Master URL** : the Docker host URL
- **Certificate**: the certificate to access the Docker host
- **Username** : the login of the Docker Hub account
- **Password**: the password of the Docker Hub account

## 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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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 interface. The left sidebar is the same as in the previous image, with 'Images' highlighted. The main content area is the 'Create Image' form, which includes the following fields:

- Image name:** A text input field.
- Description:** A large text area.
- Image source:** Two radio buttons: 'From CloVER' (selected) and 'From Cloud'.
- Image's os:** A dropdown menu with 'ubuntu-16.04-RDP' selected.
- Flavor:** A dropdown menu with 'eg-120-ssd' selected.

Below these fields, the resources for the selected flavor are displayed: 'VCPUs: 32 | RAM(MB): 120000 | Disque(Go): 800'. At the bottom of the form is a 'Create' button. The top header is the same as in the previous image.

To display the characteristics of the images, choose the **Image list** option. You can also:

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

The screenshot shows the CloVER management interface. On the left is a 'Management' sidebar with a tree view containing 'Settings', 'Images' (selected), 'Courses', 'Users', 'Desktops', 'Monitoring', and 'LTI administration'. Under 'Images', there are links for 'Create Image' and 'Image list'. The main content area is titled 'Image list' and features a table with columns: Name, Description, Status, Flavor, and Actions. The table contains two rows of image data. Below the table, it indicates '(1 of 1)' and 'In total there are 2 images.'

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

## Managing the Courses

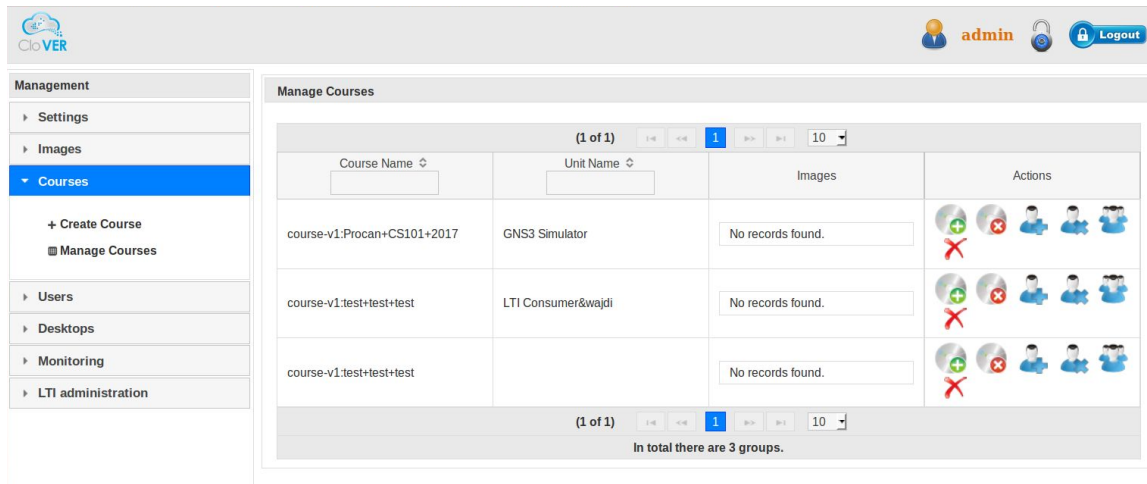
A Course's group is a set of users sharing one or several Images.

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

The screenshot shows the 'Create Course' form in the CloVER management interface. The 'Management' sidebar on the left has 'Courses' selected, with sub-links for 'Create Course' and 'Manage Courses'. The main content area is titled 'Create Course' and contains a 'Course Name:' label followed by a text input field and a 'Create' button.

To manage course group membership and images, choose the **Courses > Manage Courses** 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:** see “Manually entered users” subsection.
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 entered 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_56255f3807599c377bf0e5b107		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) for a given Unit.

The screenshot shows the cloVER interface with the 'Desktops' menu selected. The 'Desktop list' section displays a table with columns: User login, Username, Image name, IP address, Status, and Actions. A single entry is shown for user 'user\_877df31725d77c' with username 'John' and image 'ubuntu-16.04-RDP'. The status is 'not created'. A '+ Create Desktop' button is visible in the Actions column. The interface also shows a sidebar with 'Management' options and a top bar with user 'admin' and a 'Logout' button.

You can delete a created Desktop or reset its state while its is not yet active.

The screenshot shows the cloVER interface with the 'Desktop list' section. The table now shows the desktop status as 'building'. A context menu is open over the 'Actions' column, showing options: 'Reset-state Desktop' and 'Delete Desktop'. The interface elements (sidebar, top bar) are consistent with the previous screenshot.

You can manage an active Desktop (stop, rebuild, reboot, reset-state, delete) or display it in a new window in order to work in.

admin

Logout

Management

Settings

Images

Courses

Users

Desktops

Monitoring

LTI administration

Desktop list

Actions for multiple selection

Choose Unit : GNS3 Simulator

Desktop list

(1 of 1)

1

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	User login	Username	Image name	IP address	Status	Actions
<input type="checkbox"/>	user_877df31725d77c	John	ubuntu-16.04-RDP	167.114.242.110	active	<div> <div>Stop Desktop</div> <div>Rebuild Desktop</div> <div>Reboot Desktop</div> <div>Reset-state Desktop</div> <div>Delete Desktop</div> <div>Share Desktop</div> <div>Display Desktop</div> </div>

(1 of 1)

1

15

In total there are 1 services.

## Monitoring

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

admin

Logout

Management

Settings

Images

Courses

Users

Desktops

Monitoring

LTI administration

CloVER Monitoring

Number of concurrent virtual machines

Desktop(s) 0/30

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

admin

Logout

Management

Settings

Images

Courses

Users

Desktops

Monitoring

LTI administration

Cloud Monitoring

Instances Overview

Instances Used 2 of 20

RAM Overview

RAM Used 3Go of 496 Go

VCPUs Overview

VCPUs Used 2 of 64

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