Meghna Cloud All Services User Manual

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1. What is Meghna Cloud?

1.1 Getting to Know Meghna Cloud

In today's digital age, cloud computing stands at the forefront of technological evolution, shaping the way businesses and individuals operate and interact. Amidst a landscape dotted with numerous cloud service providers, Meghna Cloud emerges as a beacon of innovation and reliability. A prestigious joint venture between, GenNext Technologies and BDCCL, Meghna Cloud is more than just a service – it's a commitment to technological excellence, a step into the future.

1.2 Diverse Service Offerings for Varied Needs

Recognizing the diverse demands of modern-day computing, Meghna Cloud offers an extensive range of services tailored to cater to both budding startups and established enterprises. From high-performance CPU and expansive storage solutions to Virtual Machines (VMs) designed for seamless operations, Meghna Cloud ensures that every digital need is addressed with precision.

1.3 State-of-the-Art Datacenter at Gazipur

Meghna Cloud's commitment to ensuring uninterrupted, high-quality service is further emphasized by its state-of-the-art datacenter located in Gazipur. Not just any datacenter, but a Tier 4 datacenter – the pinnacle of datacenter tiers, offering the highest level of redundancy and reliability. This ensures that Meghna Cloud's services are not just efficient but also consistently available, minimizing downtime and ensuring businesses run smoothly.

1.4 A Center of Excellence

Meghna Cloud houses a Center of Excellence, specially designed for cutting-edge research in areas like cloud computing, data science, AI, neural networks, and more. We collaborate with both local and international academics to drive innovation and push the boundaries of knowledge.

1.5 Forging a Brighter Technological Future

Meghna Cloud represents the promise of a brighter tomorrow, powered by technology, data, AI, and machine learning. We're dedicated to propelling Bangladesh beyond its current technological boundaries, paving the way for a future where innovation knows no bounds.

2. Meghna Cloud Modules

Within the framework of Meghna Cloud, we have three essential modules to empower your cloud computing journey. The 'Authorization Module' serves as the guardian of data security, ensuring that only authorized users access the platform. In the 'Dashboard Module,' you gain centralized control and real-time insights into your cloud resources, simplifying management. However, the heart of Meghna Cloud lies in our comprehensive 'Cloud Services.' This suite offers a wide range of advanced tools and resources, from scalable infrastructure to cutting-edge data processing, machine learning, and AI capabilities. Our Cloud Services rival global industry leaders, all while safeguarding your data within the borders of Bangladesh. With Meghna Cloud Services, you can embrace innovation, agility, and efficiency in pursuit of your cloud computing goals.

2.1 Authorization

The Authorization Module is the gatekeeper to your Meghna Cloud experience. It ensures that only authorized users gain access to the platform, guaranteeing the security and privacy of your data. With state-of-the-art security protocols and user management features, you can control who can interact with your cloud resources, maintaining the highest level of data protection.

2.1.1 What are the Authorization Process?

2.1.1.1 Registration

This guide provides instructions for setting up Meghna Cloud accounts within your organization. It's essential to have **two key** pieces of **information** on hand for creating your Meghna Cloud account.

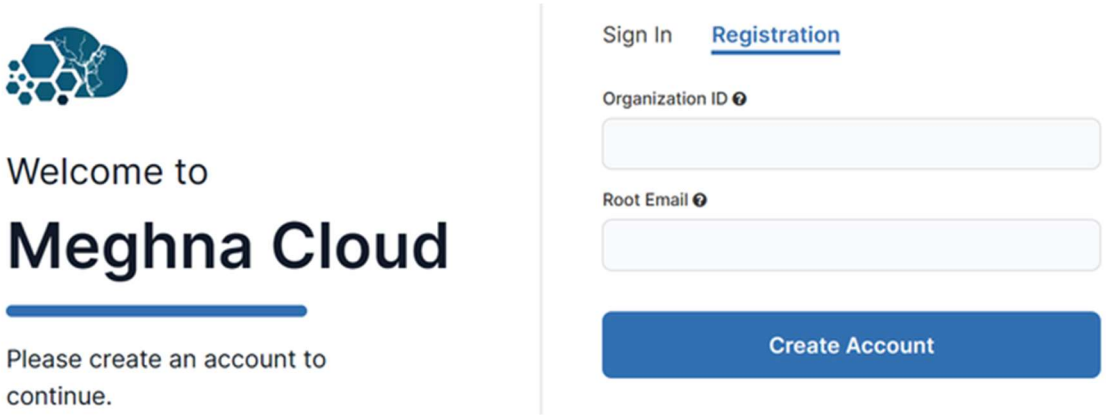
1. **Organization ID:** Organization ID is high-level container for projects, users and groups. As such, they can be used to centrally manage all identity components. With the introduction of account domains, server, storage and other resources can now be logically grouped into multiple projects which can themselves be grouped under a master account-like container. In addition, multiple users can be managed within an account domain and assigned roles that vary for each project.

   Users of different Organization ID may be represented in different authentication back ends and even have different attributes that must be mapped to a single set of roles and privileges, that are used in the policy definitions to access the various service resources.

2. **Root Email Address:** A root email is the email address under which your Meghna Cloud is created. While multiple users can be associated with the same root email, it's important to note that having two accounts with the same Organization ID and Root Email Address is not allowed.

Step 1: Sign Up for Meghna Cloud

1. Visit Registration - Meghna Cloud.



2. Insert your "**Organization ID**".

IMPORTANT: Please make sure that your Organization ID follows these few rules:

- ID must not contain any type of white spaces.
- No special characters, only "-" (dash) and "_" (underscore) are allowed.
- Numeric characters are allowed (must not start with a numeric character).
- ID must not exceed 64-character limit.

3. Please input the "**Root Email**" address. For example: xyz@company.com.

WARNING:

1. Remember your Organization ID for future authorization.
2. Your Meghna Cloud account depends on your registered email; losing access to it means losing account access.

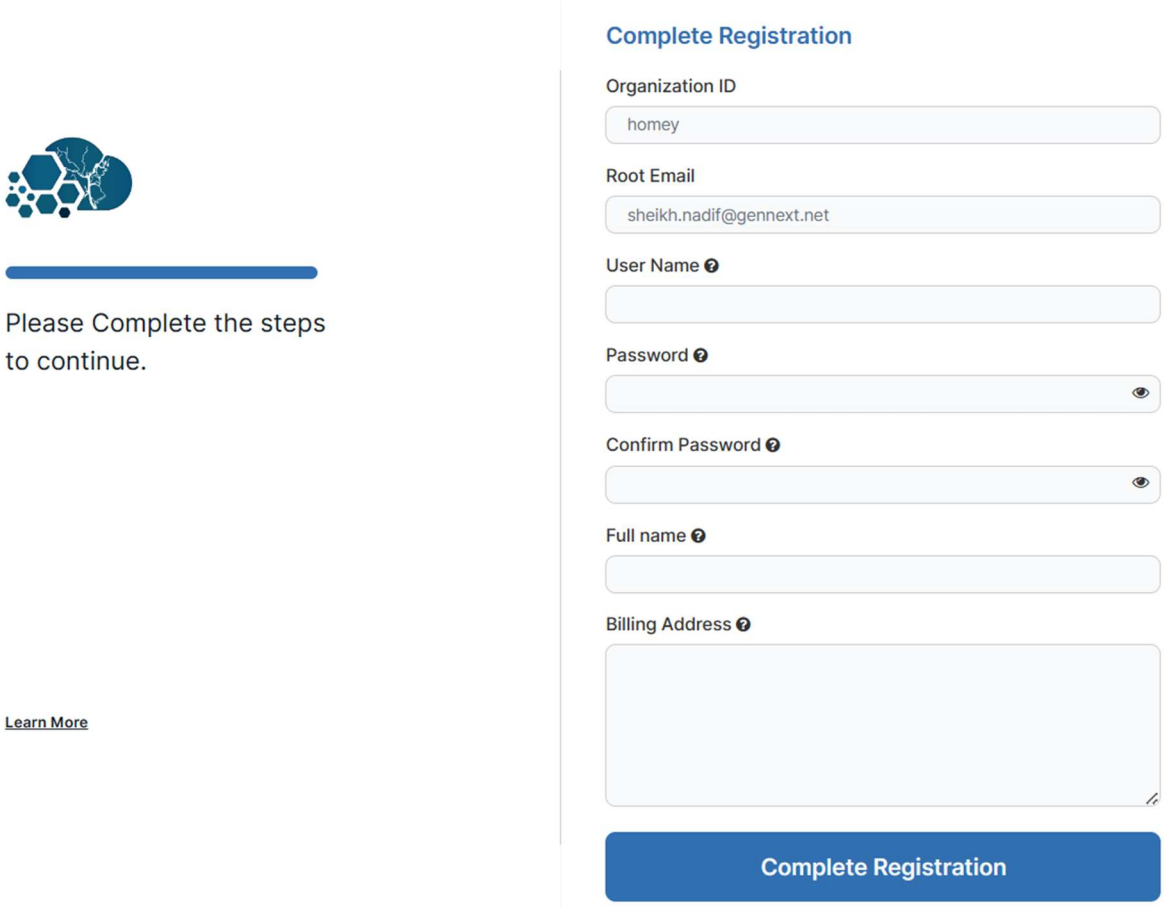
4. After filling up all the information click "**Create**".

NOTE: Upon clicking "**Create**," existing users will be prompted to log in. However, new users will receive a **verification link** at their 'Root Email' address for authentication. By clicking this link, you'll be directed to a new tab to complete the remaining steps of your account registration.

IMPORTANT:

1. The verification link expires after some time. If you don't receive an email within the next five minutes, check your Spam folder.
2. If the link doesn't work when you click it, you can manually copy and paste the link from the email into your web browser.

Step 2: Continue Registration



1. Once you open the link your "Organization ID" and "Root Email" will be pre-filled. Please go through the rest of the form and fill up the information.
2. Select a username for your account.

WARNING: Usernames are restricted to lowercase letters, digits, underscores, and hyphens, with a character length requirement ranging from 3 to 32 characters *(i.e., user 456).*

3. Please enter a password.

IMPORTANT: Please make sure that your password follows these few rules:

- Must contain at-least 8 characters.
- At least 1 special character (i.e. @ # $ …)
- At least 1 numeric character.
- At least 1 Block (Capital) letter.
- Example: Abc@1234

4. Please input the same password again for confirmation.

5. Please enter your full name.

WARNING: Your name must not contain any symbols and numeric characters *(i.e., John Doe).*

6. Enter your valid billing address.

IMPORTANT: You might need to wait for us to verify your billing address in order to complete registration.

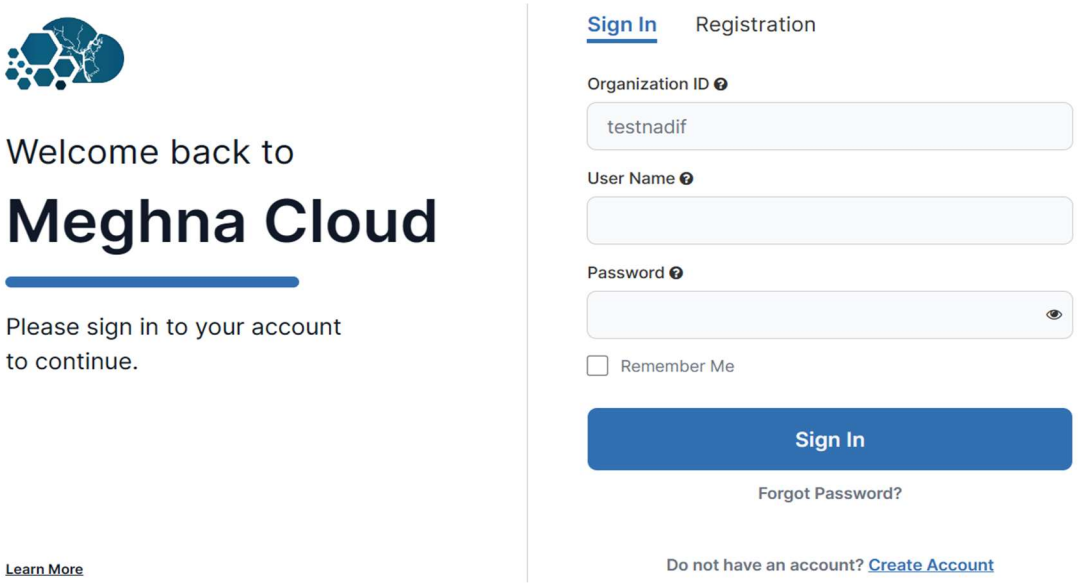
7. Click Complete Registration.

NOTE: If your information is valid, it will redirect you to the login page.

2.1.1.3 Login

1. Visit Meghna Cloud first, in order to sign in.
2. Only registered users can sign in. If you haven't signed up yet, please sign up first, from Registration - Meghna Cloud.
3. In the sign form you need to input 3 information:

   - Enter the registered **Organization ID** for Meghna Cloud account.
   - Enter the registered **Username** of your account.
   - Enter your **Password**.



4. Click the **Sign In** button.

If everything is okay, you will be redirected to the **Meghna Cloud Dashboard**.

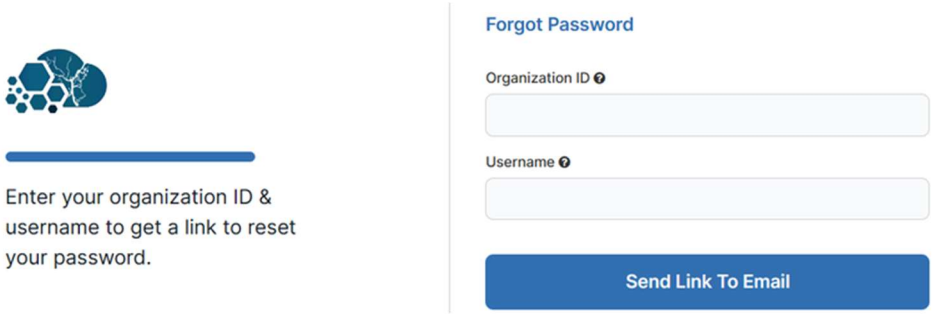
WARNING: If the system does not find any match for the provided Organization ID, username, or password in our database, you will receive an error message. This indicates that either you haven't registered with Meghna Cloud or the information you provided is incorrect. In such a situation, you will receive a notification advising you to sign up before proceeding.

5. If you are already signed up but forgot your password, please click here.

2.1.1.5 Forgot Password?

Step 1: Get a Verification Email using Organization ID and Username

1. Click on Forgot Password? under the **Sign In** button or click here.
2. Once clicked, it will redirect you to the forgot password module. From here it is simple:
    - Enter the Organization ID associated with your Meghna Cloud account.
    - Enter the username.



WARNING: If either the **username** or the **organization ID** is not found in the database, you will receive an error message. This signifies that you either haven't registered with Meghna Cloud or the information you provided is incorrect.

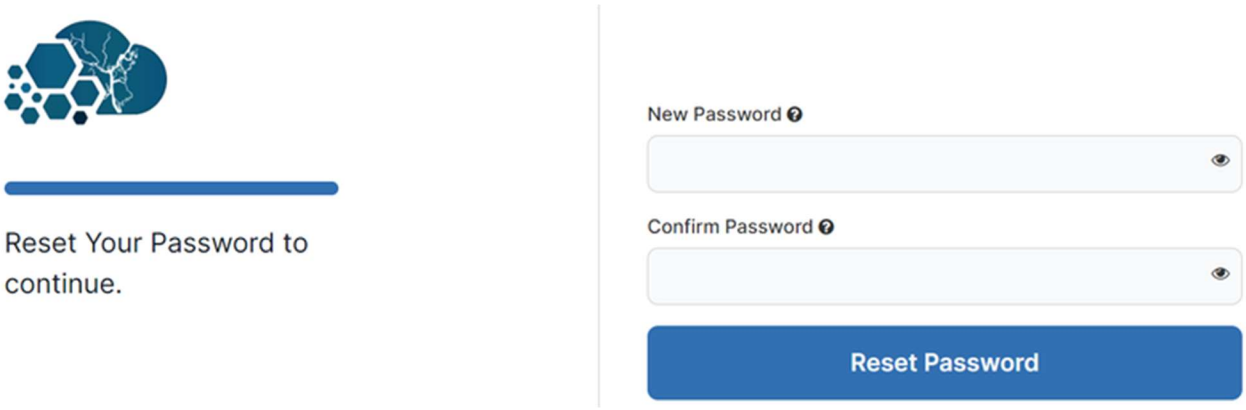
4. Click "**Send Link To Email**" button.

NOTE: A verification link will be sent to the root email address associated with your Meghna Cloud account, make sure to verify your account within 1 hour. After an hour has passed the verification link will become invalid and you will have to start again from the beginning.

Step 2: Verify and Reset Password

1. Check your root email inbox, open the email from Meghna Cloud, and click the **verification link**.

NOTE: Clicking the verification link opens a new tab, allowing the user to proceed with the second step of the password reset process.



2. Input a new password.
3. Enter your password once more to confirm the new password.
4. Click "**Reset Password**".

IMPORTANT: Please follow our password creation guidelines for account security. Your new password should meet our criteria and not match your old password. If you encounter any issues, an error message will be displayed. For more information, consult the Sign-Up Guide.

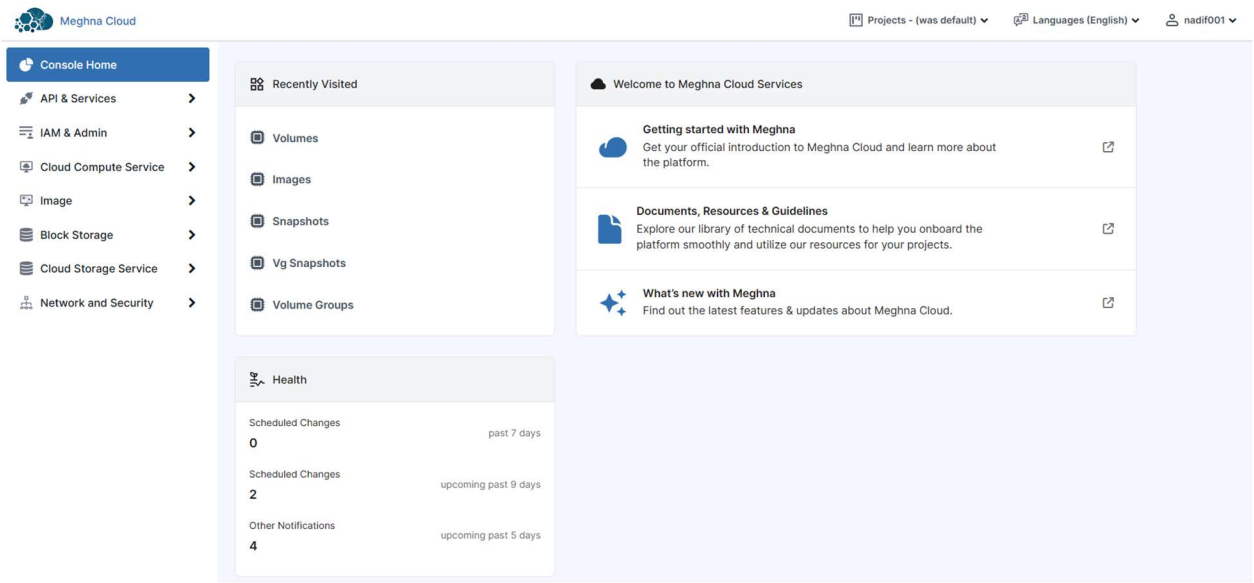
NOTE: If everything is done successfully then after clicking submit you will receive a successful notification and also be redirected to the login page.

2.2 Dashboard

Upon a successful login, the user will be redirected to the dashboard, which serves as a gateway to a range of tasks within Meghna Cloud. This dashboard is designed to be straightforward, offering a user-friendly interface where users can access various features with ease.

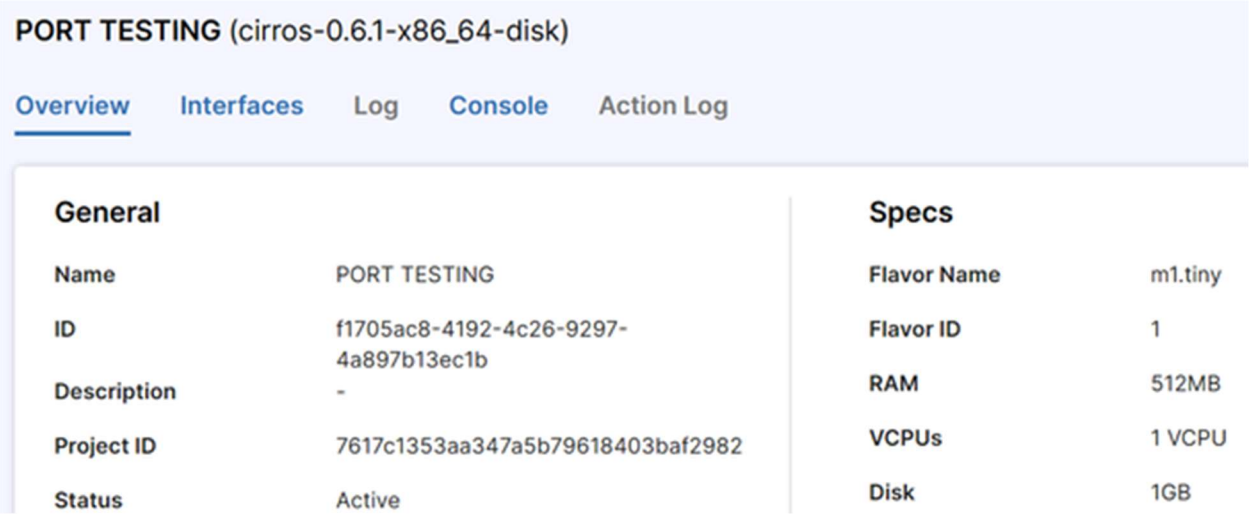
On the left-hand side, a navigation panel allows users to explore API & Services, Cloud Computing Services, Image details, Block Storage details, and Network & Security. Meanwhile, the right-hand side of the dashboard provides users with quick access to recently visited areas, the status of their account, special offers from Meghna Cloud, and a helpful getting started guide.

The overarching aim in designing this interface is to simplify the user experience for a wide audience, making the graphical user interface as intuitive as possible.



IMPORTANT: Moving forward, in multiple sections, users will come across lists with highlighted list-items (e.g., Name, Flavor, Group, etc.) in blue. Clicking on these titles will take users to dedicated overview pages for each item. Here, users can find comprehensive details about the item. Depending on the item type, users may also navigate to additional tabs for direct access to information and updates. For example, users can check if a "Volume" has snapshots and modify snapshot details by clicking on the "Volume Name" and navigating to the "Snapshots" tab.

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone
PORT TESTING	-	**testnetwork** 192.168.233.91, fd70:614b:38b0:1::e1 **shared** 192.168.233.173	m1.tiny	Test	Active	nova



2.3 Project

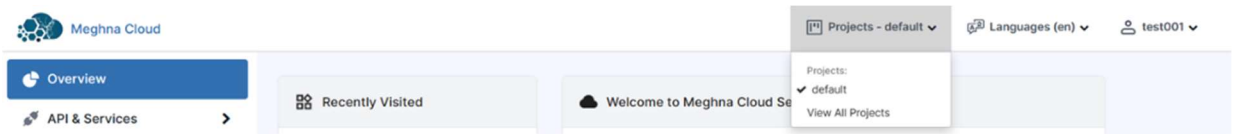
In cloud computing, "projects" are organizational units that group and manage related resources like instances, storage, and networking components. They provide a systematic way to allocate resources, manage permissions, and control configurations. Projects enhance resource efficiency, access control, and collaboration in cloud environments, streamlining their operation.

When a user clicks on "**View All Projects**" from the "Projects" dropdown or upon creating a new project, they will be redirected to the project page. Here, the user can access and manage all the available and newly created projects. Users have a range of options for interacting with these projects, including filtering, deleting, and exercising individual control over each project through “Actions”.

2.3.1. Create Project

Step 1: Go to Projects Page

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. From the navbar at top, click on the “Projects-default” dropdown.
3. Click “**View All Projects**”.

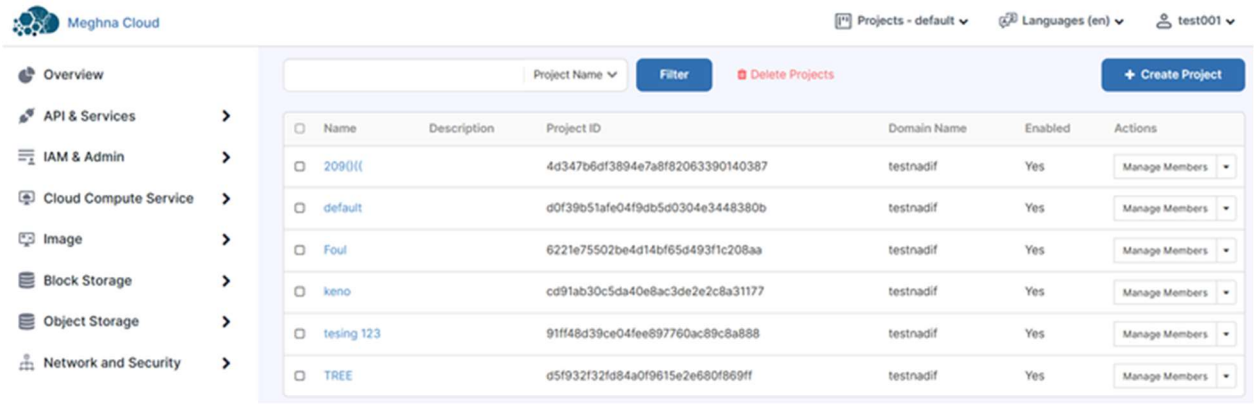


Step 2: Create a Project

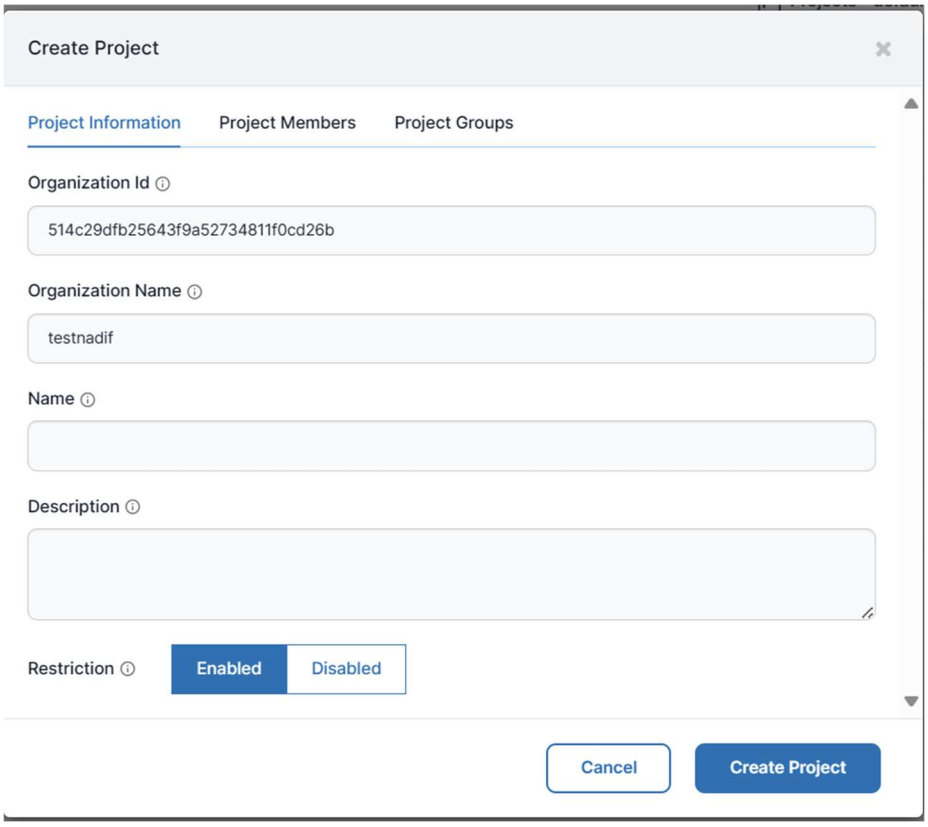
1. Click “**Create Project**”.

NOTE: Clicking “Create Project” will pop up a new module. Her user can see three tabs in this module.

1. **Project Information:** In this tab user will update information such as “name” and “details”.
2. **Project Members:** In this tab user can add or remove any members form the project.
3. **Project Groups:** In this tab user can add or remove any associated group form the project.



Step 3: Update Project Information



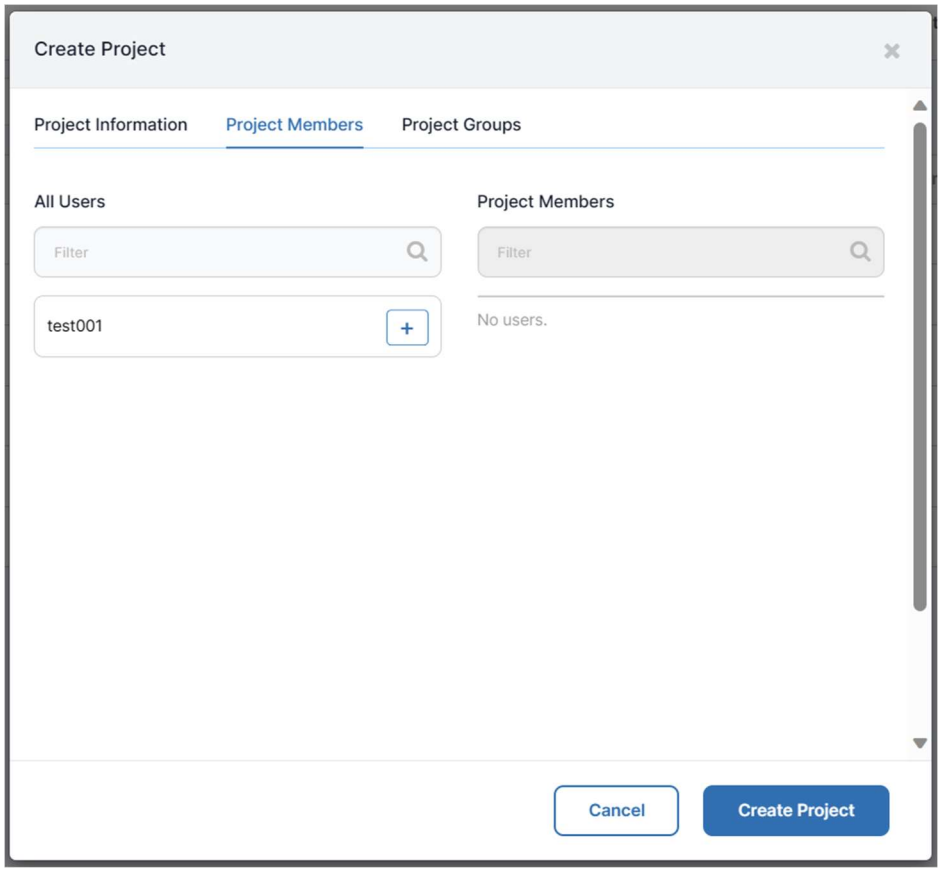
1. Insert a name for the new project.

WARNING: User must provide a name in order to create a project. A project name must be unique, as this name is used to uniquely identify the project across the cloud service, for each user.

2. Provide a “Description” for the new project inside the description box.
3. Click “**Create Project**”.

NOTE: Users can create a new project instantly with a unique name. It's not mandatory to fill in the description box or edit member and group details during project creation. However, it's recommended that users go through steps 3 to 5 before clicking "Create Project."

Step 4: Update Members and their Roles



Within the "**Project Members**" tab, you will find two distinct sections:

1. **All Users:** In this section, users can view a list of all available users that can be assigned to the project.
2. **Project Members:** This section displays a list of members that are presently assigned to this project.

Step 4.1: Assign or Remove a Member

1. Click on the "**Plus**" icon to assign a member to this project.
2. Click on the "**Minus**" icon to remove a member from the project.

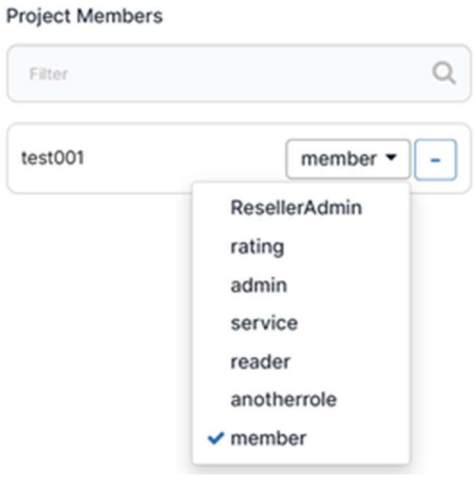
NOTE: Members assigned to the project, will be relocated to the "Project Members" section. Upon their removal, they will be transferred back to the "All Users" category.

3. Enter the username in the filter field to isolate a specific user from the list.

NOTE: The filter function operates automatically, responding to the keywords entered by the user.

(For example, if a user inputs "john," all usernames containing "john" will be displayed in the list.)

Step 4.2: Selecting Role for a Member



1. Click on the dropdown menu for a member.

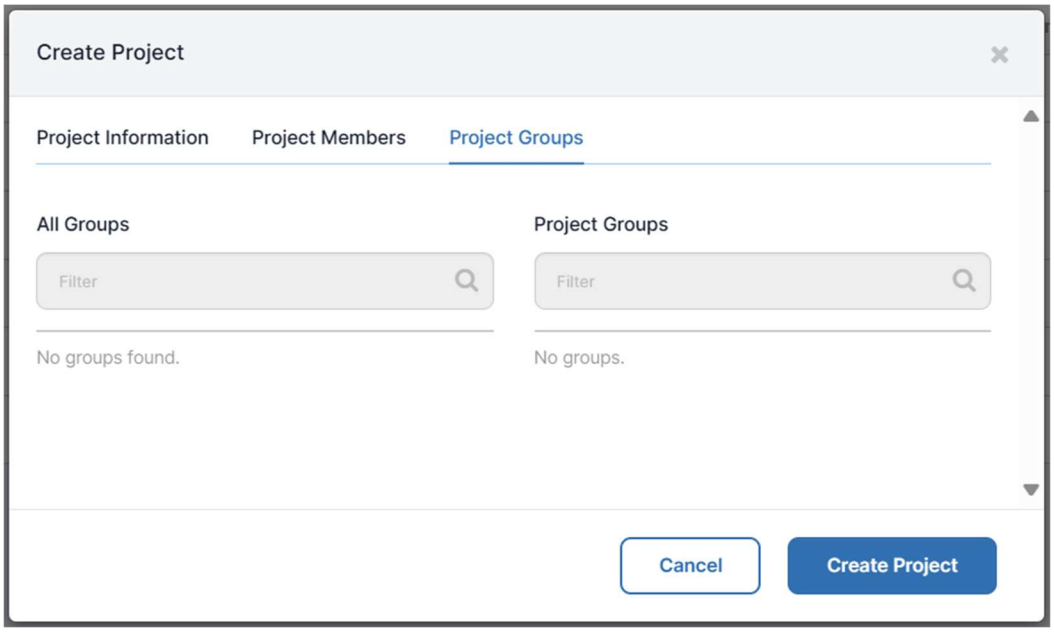
NOTE: Roles may only be assigned to users who have been allocated to a project. By default, all allocated users will be designated as members, unless a specific role is selected for individual users.

2. Select any role from the dropdown list.

IMPORTANT: A user can be assigned to a project with the following options:

1. **Multi-Roles:** To assign multiple roles to a user, simply select the desired roles from the dropdown.
2. **No-Roles:** To remove a user from any and all roles, ensure that you uncheck all roles from the dropdown.

Step 5: Update Groups and their Roles



Within the "**Project Groups**" tab, you will find two distinct sections:

1. **All Groups:** In this section, users can view a list of all available groups that can be assigned to the project.
2. **Project Groups:** This section displays a list of groups that are presently assigned to this project.

IMPORTANT: Groups can only be seen in the list, if they are created previously from “Groups - Meghna Cloud”.

Step 5.1: Assign or Remove a Group

1. Click on the “**Plus**” icon to assign a group to this project.
2. Click on the “**Minus**” icon to remove a group from the project.

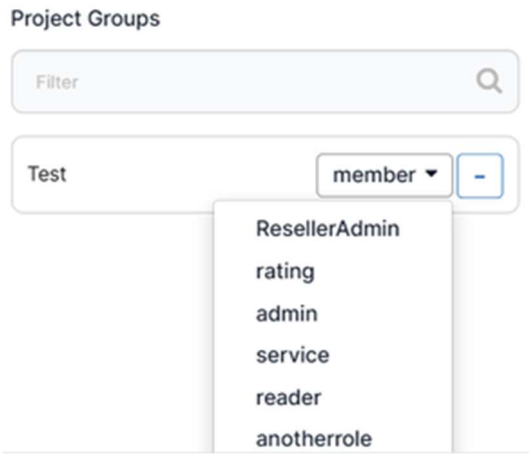
NOTE: Groups assigned to the project, will be relocated to the "Project Groups" section. Upon their removal, they will be transferred back to the "All Groups" category.

3. Enter the group name in the filter field to isolate a specific group from the list.

NOTE: The filter function operates automatically, responding to the keywords entered by the user.

(For example, if a user inputs "john," all usernames containing "john" will be displayed in the list.)

Step 5.2: Selecting Role for a Group



1. Click on the dropdown menu for the group.

NOTE: Roles may only be assigned to users who have been allocated to a project. By default, all allocated users will be designated as members, unless a specific role is selected for individual users.

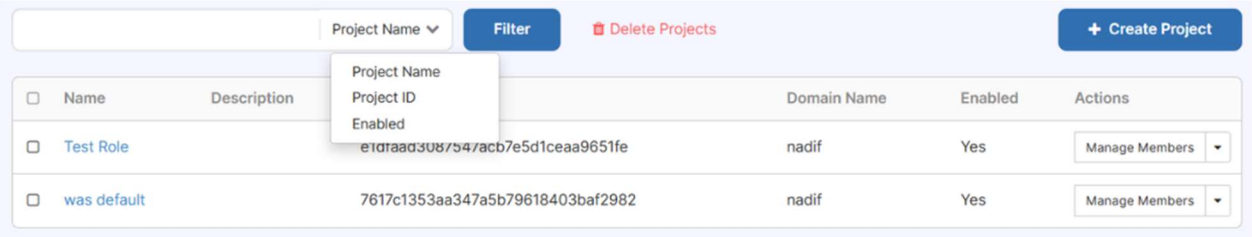
2. Select any role from the dropdown list.

IMPORTANT: A group of users can be assigned to a project with the following options:

1. **Multi-Roles:** To assign multiple roles to a group, simply select the desired roles from the dropdown.
2. **No-Roles:** To remove a group from any and all roles, ensure that you uncheck all roles from the dropdown.

2.3.2. Filter or Delete Projects

2.3.2.1 Filter Projects



1. Select filtering category from the dropdown.

NOTE: Users can choose a specific filtering category from "Name," "ID," and "Enabled." This feature empowers users to distinctly identify, and filter projects based on their preferred criteria:

- **Name:** This category corresponds to the name of the project used during its creation.
- **ID:** The Project ID is a unique identifier assigned to each project.
- **Enabled:** Users can apply this filter to see which projects are currently enabled.

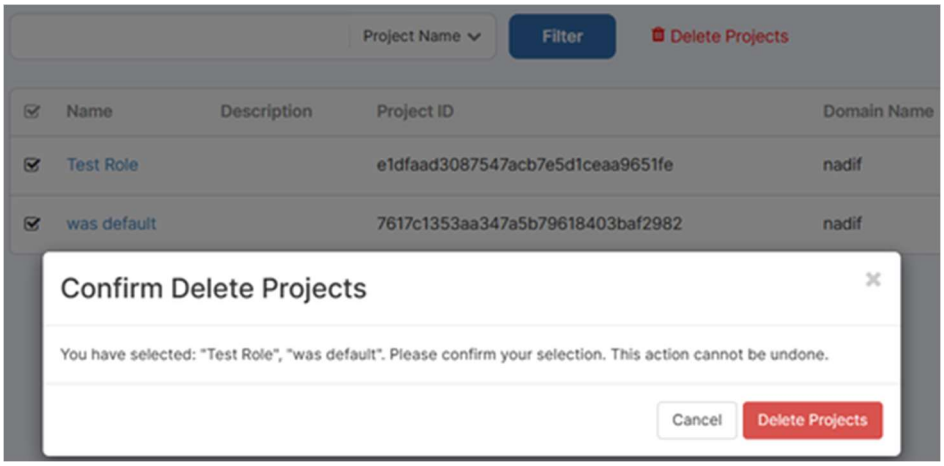
2. Enter your filtering keywords in the input field and then click "**Filter**".
3. To view the full list again, clear the filter field and click "Filter" once more.

2.3.2.2 Delete Projects

1. Mark the checkboxes next to the projects you wish to delete.
2. Click on "**Delete Projects**" located at the top.

IMPORTANT: Users can delete multiple projects simultaneously by using the "Delete Projects" button. However, the button will remain inactive until a user clicks the checkbox for at least one project.

NOTE: When a user selects "Delete Projects" from the dropdown list, a pop-up will appear. This pop-up module is designed to ensure that the user is making a conscious decision to delete a project. The project will only be deleted after the user confirms their intent. This process minimizes the risk of accidental project deletion.



3. In the confirmation pop-up module, choose "**Delete Projects**" to confirm the deletion of the project.
4. Click "**Cancel**" to terminate the deletion process.

2.3.3. Project Actions

If a user initially created a project with just a name and later wants to update information, view usage data, set quotas, or delete the project, they can use the options available under the "**Actions**" column for each project in the list. In the "Actions" section, there's a direct button for managing members, and the user can find other options to update project details, check usage summaries, and more in a user-friendly dropdown menu. This "Actions" section gives users full control over their projects.

2.3.3.1 Manage Members Involved in a Project

To update members, and their roles for a specific project:

1. Select the "**Manage Members**" button under the "Actions" column.
2. Once the "**Project Members**" tab pops up, **go to step 4 of "Create Project"** and follow the instructions.
3. Click "**Save**".

2.3.3.2 Modify Groups Involved in a Project

To update the groups, and their roles for a specific project:

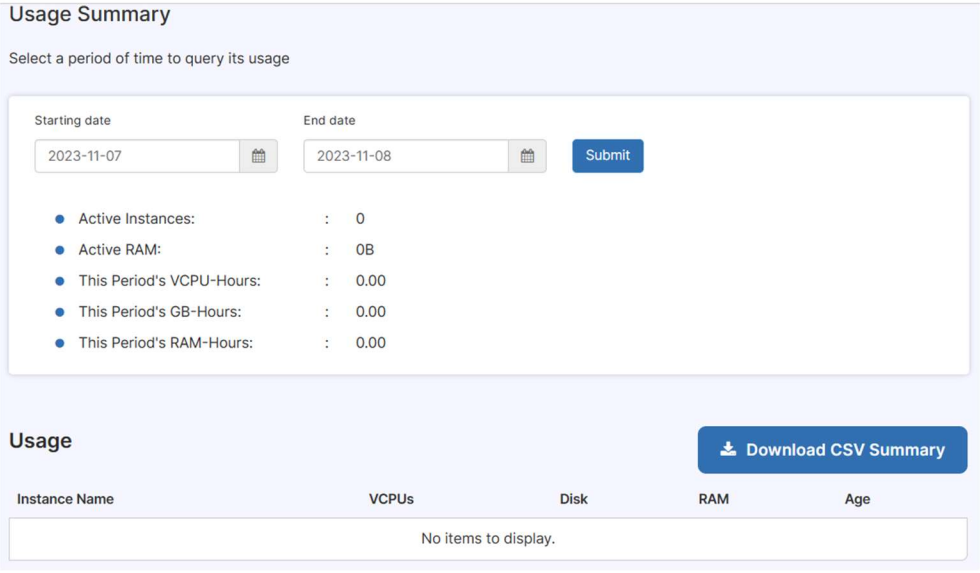
1. Select the "**Modify Groups**" under the "Actions" dropdown.
2. Once the "**Project Groups**" tab pops up, **go to step 5 of "Create Project"** and follow the instructions.
3. Click "**Save**".

2.3.3.3 Update Project Information

To update basic info of any project:

1. Select the "**Edit Projects**" under the "Actions" dropdown.
2. Once the "**Project Information**" tab pops up, **go to step 3 of "Create Project"** and follow the instructions.
3. Click "**Save**".

2.3.3.4 See and Download Project Usage Summary



1. Select "**View Usage**" under the "Actions" dropdown to open the "Usage Summary" page.
2. Select the "**Starting Date**" and "**End Date**" and click "**Submit**".

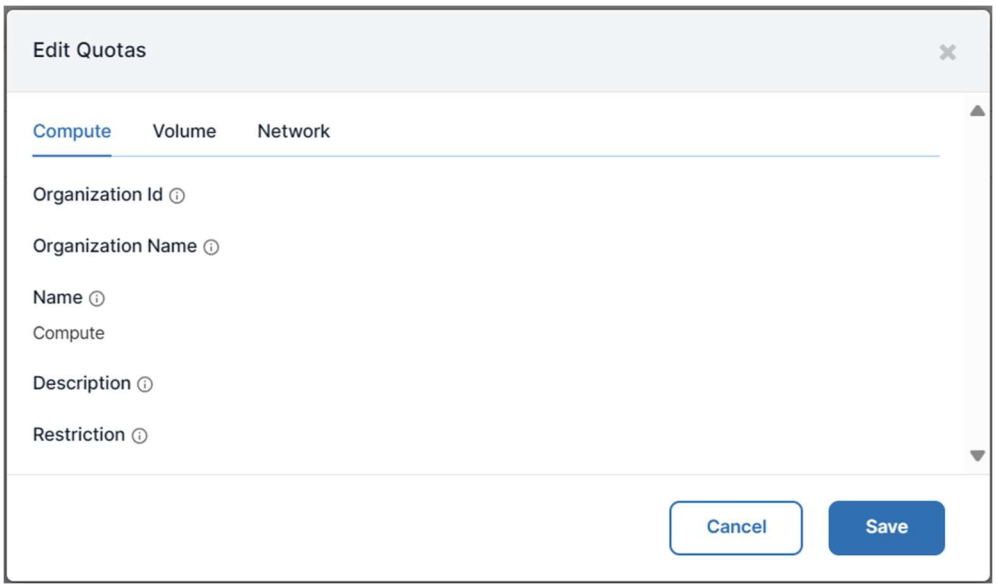
NOTE: To view the summary for a specific timeframe, users will need to select a starting and ending date. This allows users to specify the exact period for which they want to access the summary, ensuring that the information presented is tailored to their specific needs.

3. Click the "**Download CSV Summary**" under the "Actions" dropdown to obtain the summary as a downloadable CSV file.

IMPORTANT: After clicking the "Download CSV Summary" button, the local device's file system will appear. Users have the option to modify the file name before saving, and they must click "Save" to store the CSV file on their local device.

2.3.3.5 Modify Project Quotas

IMPORTANT: Project quotas are currently being maintained by Admin.

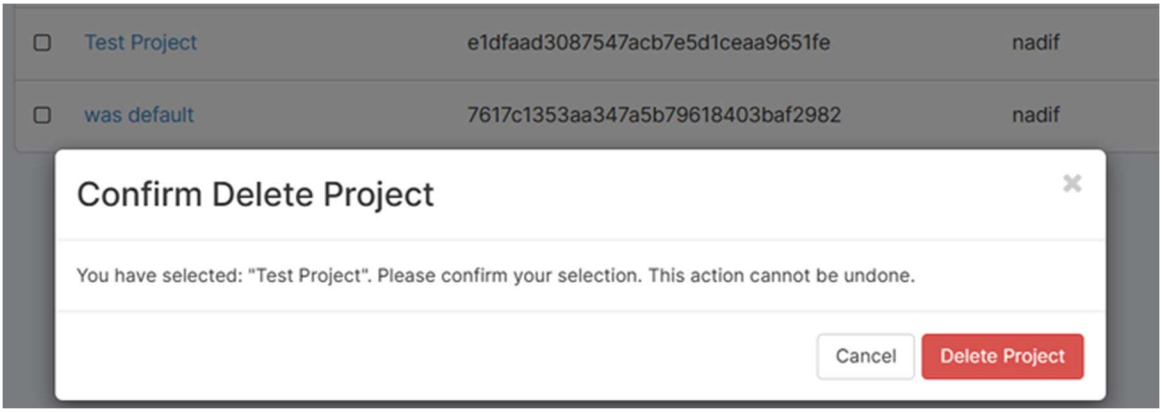


2.3.3.6 Delete a Project

If a user chooses to delete a project, they can do so directly from the project list.

1. Select "**Delete Project**" under the "Actions" dropdown.

NOTE: When a user selects "**Delete Project**" from the dropdown list, a pop-up will appear. This pop-up module is designed to ensure that the user is making a conscious decision to delete a project. The project will only be deleted after the user confirms their intent. This process minimizes the risk of accidental project deletion.



2. In the confirmation pop-up module, choose "**Delete Project**" to confirm the deletion of the project.
3. Click "**Cancel**" to terminate the deletion process.

2.4 Services:

2.4.1 Compute Service

2.4.1.1 Overview

Step 1: Visit the Overview Page

Creating a Linux-based instance on Meghna Cloud is easy. Follow these simple steps which includes a few dropdown menus and clicks.

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Cloud Compute Service**" for its dropdown menu.
3. Select "**Overview**" from the menu to be redirected to the instance overview page.

NOTE: Upon entering the overview page, users can view a comprehensive usage status of all the components they are utilizing, including Compute, Volume, and Network. This encompasses details such as the number of Instances, VCPUs, and RAM for **Compute**; Volume, Volume Snapshots, and Volume Storage for **Volume**; and Floating IPs, Security Groups, Security Group Rules, Networks, Ports, and Routers for **Network**. This information is presented in both numerical and pie-chart formats (excluding Network). Additionally, users have access to a usage summary for a quick overview.

Step 2: See Usage Summary of a Specific Time

1. Input **Starting** and **Ending** date.

NOTE: Users have the flexibility to input dates manually or choose dates from the pop-up calendar. To define a specific timeline, it is necessary for the user to provide both the starting and ending dates.

2. Click "**Submit**".

Step 3: Download Usage Summary as a CSV File

1. Click "**Download CSV Summary**".

NOTE: Upon clicking the button, users can seamlessly download the overall summary in a CSV file. The download process initiates automatically for user convenience.

A CSV (Comma-Separated Values) file is a plain text file format that uses commas to separate values. It represents tabular data, where each line corresponds to a row, and the values within each row are separated by commas. CSV files are commonly used for storing and exchanging structured data between different programs. A common use case for CSV files is in data interchange between spreadsheet software (like Microsoft Excel or Google Sheets) and databases.

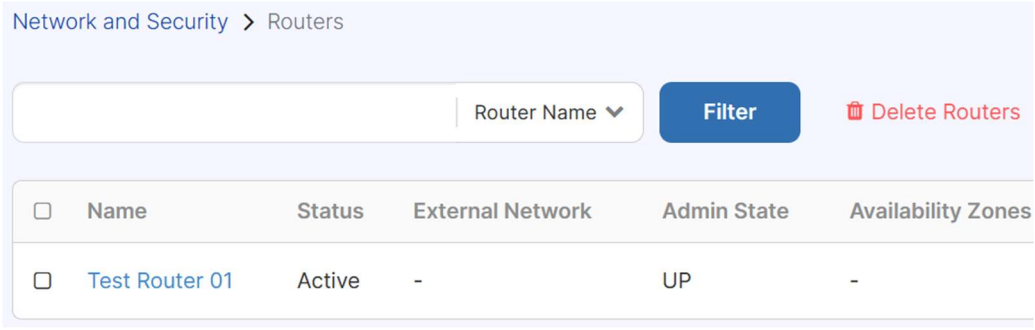
2.4.1.2 Instance → Launch an Instance

"Instance" typically refers to a virtual computing environment created from a predefined template, often known as an image. In cloud computing, an instance represents a virtual machine or server running in the cloud infrastructure, providing computational resources for various applications and services.

Step 1: Setup a Network and Add Interface to a Router

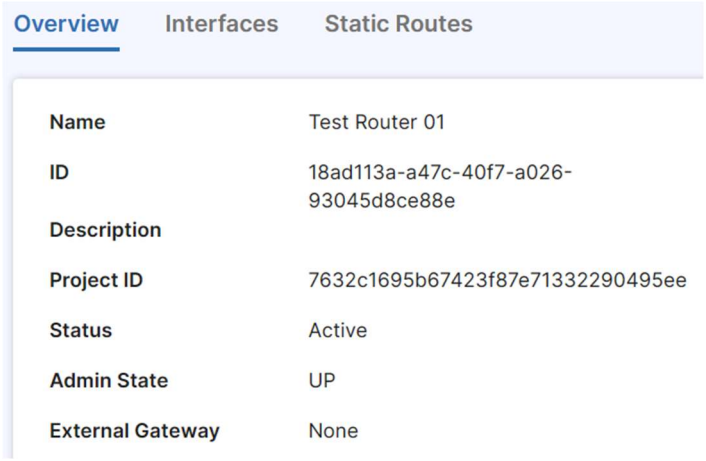
1. Create a **Router** if there are no available routers.
   (Go to section **2.8.17 Routers → Create Router** for specific instructions)

2. Create a **Network** if there are no available networks.
   (Go to section **2.8.1 Network Interface → Create Network** for specific instructions)



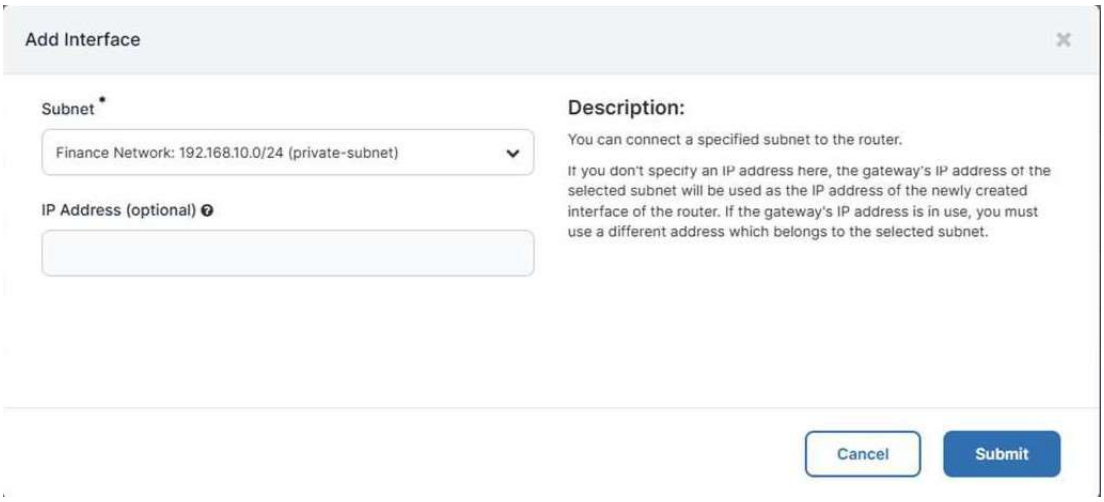
3. Visit **Routers** under **Network and Security** again, and click on the name of any specific "Router" on which the network will be attached.

Upon clicking the name, the "**Overview**" tab will be opened for that specific router.



4. From the top, click on **Interface** in order to open the "Interface**"** tab.

5. Click on **Add Interface** in order to attach a new "Network Interface" to the router.



6. Once the Add Interface tab pops up, select a **Subnet** from the dropdown.

NOTE: Available **Subnets** for a **Network Interface** will be shown in the **Subnet** dropdown.

7. Provide an **IP Address** if needed.

NOTE: If no specific IP address is provided, the gateway IP address from the chosen subnet will be automatically assigned to the newly created router interface. In case the designated gateway IP is already in use, the user must select an alternative address within the same subnet for the new interface.

8. Click **Submit** in order to add interface to the router.
9. Click **Cancel** in order to cancel the process.

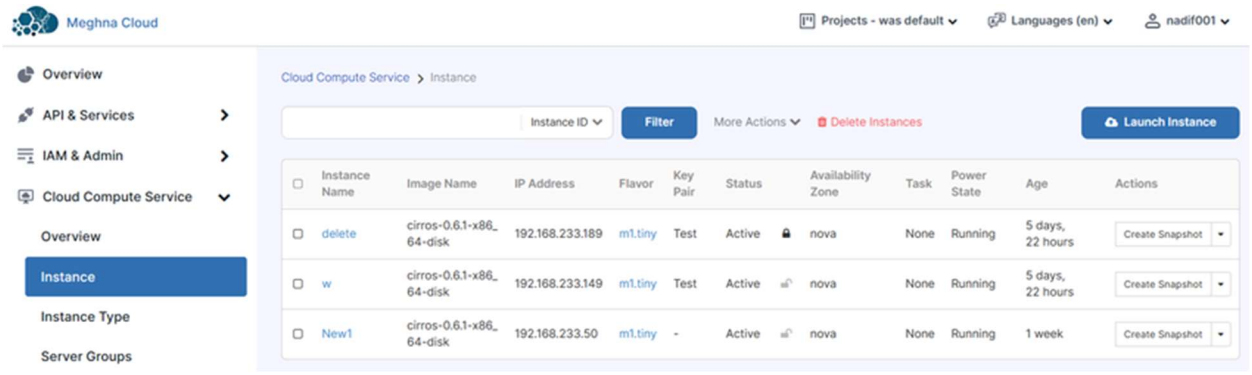
IMPORTANT: Newly added interfaces will be shown in a list in the **Interface** tab. Users can delete any added interfaces any time they want. A confirmation will be required from the user side in order to proceed with the deleting process.

Step 2: Visit Launch an Instance Page

Creating a Linux-based instance on Meghna Cloud is easy. Follow these simple steps which includes a few dropdown menus and clicks.

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Cloud Compute Service**" for its dropdown menu.
3. Select "**Instance**" from the menu to be redirected to the instance page.

NOTE: Users can view details of previously created instances from the Instances page.



4. Click the "**Launch an Instance**" button at the top-right of the page to create new instances.

Successful click will automatically redirect you to the "**Launch an Instance**" page.

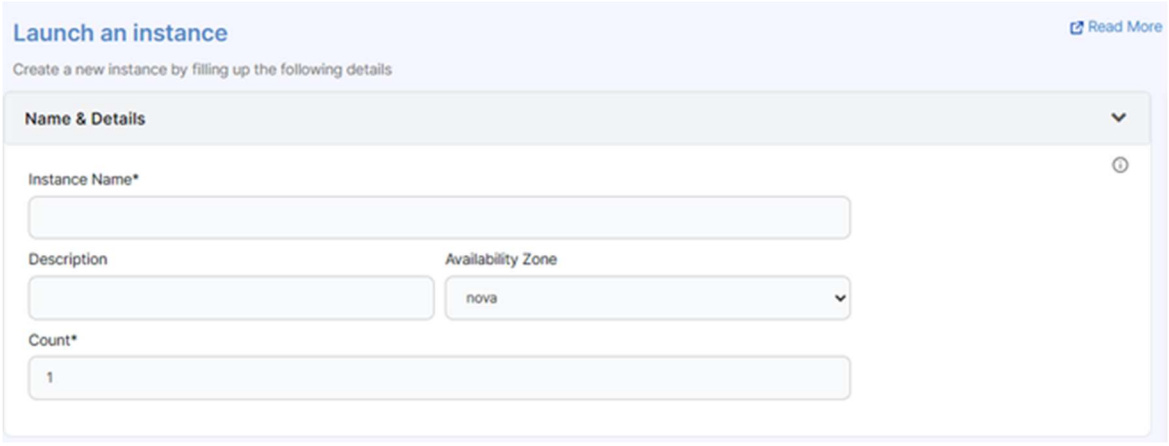
Within the "**Project Members**" tab, you will find two distinct sections:

3. **All Users:** In this section, users can view a list of all available users that can be assigned to the project.
4. **Project Members:** This section displays a list of members that are presently assigned to this project.

Step 3: Input Name and Details

Enter the initial host name for the instance, choose the deployment availability zone, and specify the instance count. If creating multiple instances with the same settings, increase the count accordingly. Follow these steps:

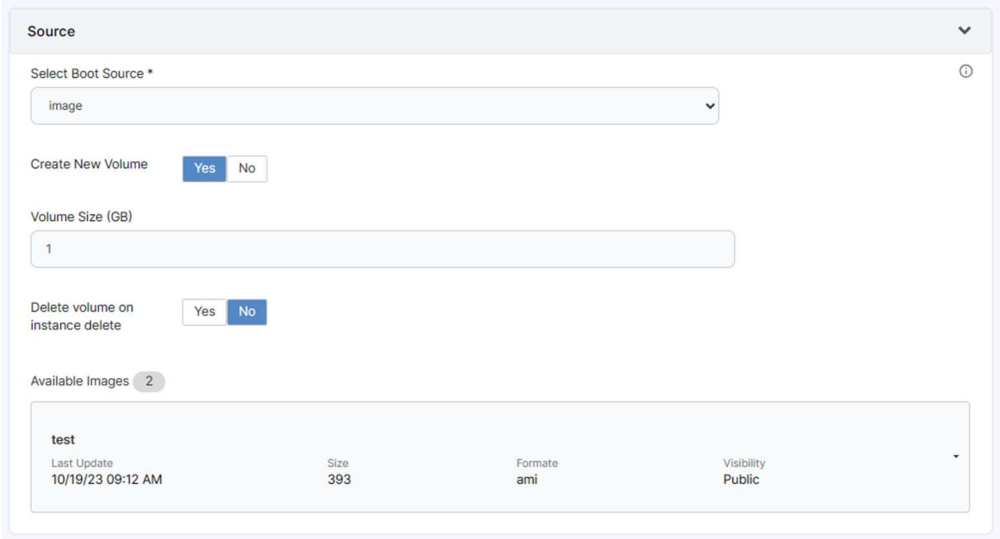
1. Input the name of your new instance.
2. A description to convey what would be this instance for *(specifications, use-case, purpose etc.)*.
3. Select the **Availability Zone** *(default will be Nova)*.
4. If you want multiple instances under similar name then, increase the count. You can do it either by typing manually or adjust the quantity using the **increment / decrement** button.



IMPORTANT: You must provide a unique instance name for identification in the dashboard. If you are choosing an availability zone and planning to 'boot from volume' in the Source step, ensure the selected availability zone matches the one where your bootable volume resides.

Step 4: Select Boot Source

Instance source is the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.



1. In the dropdown menu **Image** will be selected by default.
2. Prior to selecting your preferred image, configure whether to create a **New Volume** by selecting either "**Yes**" or "**No**".
3. For new volume, include **Volume Size** (in Gigabytes).

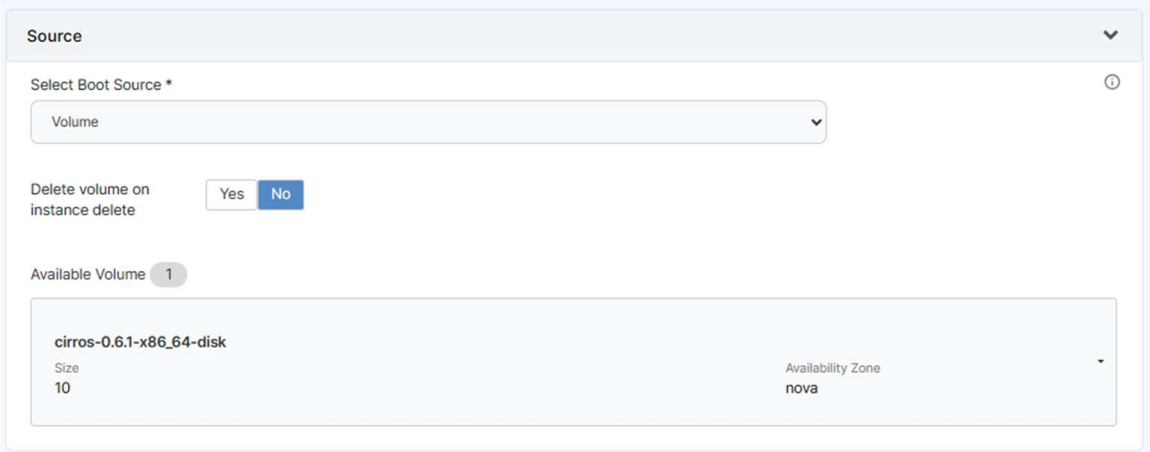
IMPORTANT: By default, the option will be selected for **Yes** and **1GB** of volume will be automatically selected unless the user select **No**. Size can be adjusted, either by **typing manually** or through the **increment / decrement** button.

4. Select ***(Yes/No)***, whether the created volume should be retained or deleted upon instance deletion.

IMPORTANT: By default, the option will be selected for **No** as it is very crucial that the user data is backed-up even if the instances remain discontinued. Unless the user does not wish to keep a backup, they can select **Yes**.

5. Select the **Image** *(OS)* of your choice from **Available Images** *(i.e., Ubuntu 18, Ubuntu 20, CentOS etc.)*.

Step 4.1: Select Volume as Boot Source



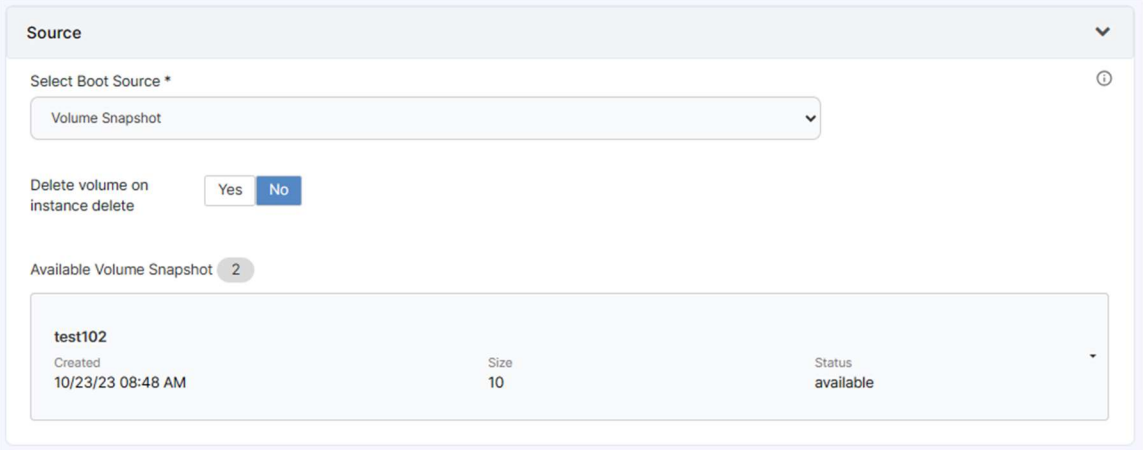
1. Select boot source as **Volume** from the dropdown.
2. Select ***(Yes/No)***, whether the created volume should be retained or deleted upon instance deletion.

IMPORTANT: The initial option provides the choice to safeguard the volume in case of instance deletion. By default, it is set to **NO**, indicating that the volume won't be deleted unless you manually select **YES**.

3. Select a **Volume** from the dropdown.

NOTE: In the dropdown menu, you'll find a list of your saved volumes.

Step 4.2: Select Volume Snapshot as Boot Source



1. Select **Volume Snapshot** to launch an instance from a pre-saved Volume Snapshot.
2. Select ***(Yes/No)***, whether the created volume should be retained or deleted upon instance deletion.

IMPORTANT: The initial option provides the choice to safeguard the volume in case of instance deletion. By default, it is set to **NO**, indicating that the volume won't be deleted unless you manually select **YES**.

3. Select a **Volume Snapshot** from the dropdown.

NOTE: In the dropdown menu, you'll find a list of your saved volumes-snapshots. Volume snapshots are used to create consistent backups, preserving data integrity, and are especially useful for critical workloads like large databases or file systems spanning multiple Elastic Block Store (EBS) volumes.

IMPORTANT: When creating an instance, you have the flexibility to select a boot source that suits your storage needs. Consider the following options:

For Ephemeral Storage (Data Lost on Instance Deletion):

1. **Image:** Use an image to boot the instance.
2. **Instance Snapshot:** Use an instance snapshot to boot the instance.

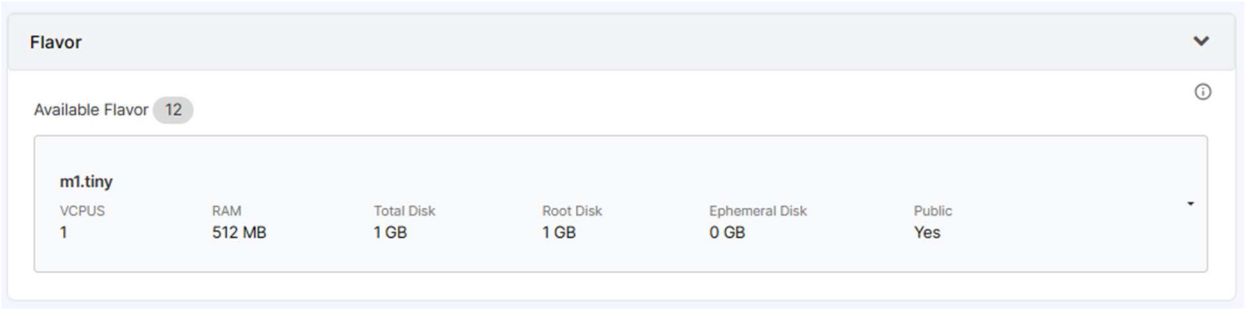
For Persistent Storage (Data Saved on Instance Deletion):

4. **Image (with 'Create New Volume' checked):** Utilize an image to boot the instance and create a new volume to store instance data. You can specify the volume size and whether to delete the volume when the instance is deleted.
5. **Volume:** Select an existing volume for instance storage. You can choose whether to delete the volume upon instance deletion.
   (**Note:** Only one instance can be launched with this option)
6. **Volume Snapshot:** Use a volume snapshot to boot the instance, while also creating a new volume to preserve instance data. You can choose whether to delete the volume when the instance is deleted.

Choose the option that best aligns with your storage and data preservation requirements when setting up your instance.

Step 5: Choose a Flavor

1. Select a **Flavor** from the dropdown.

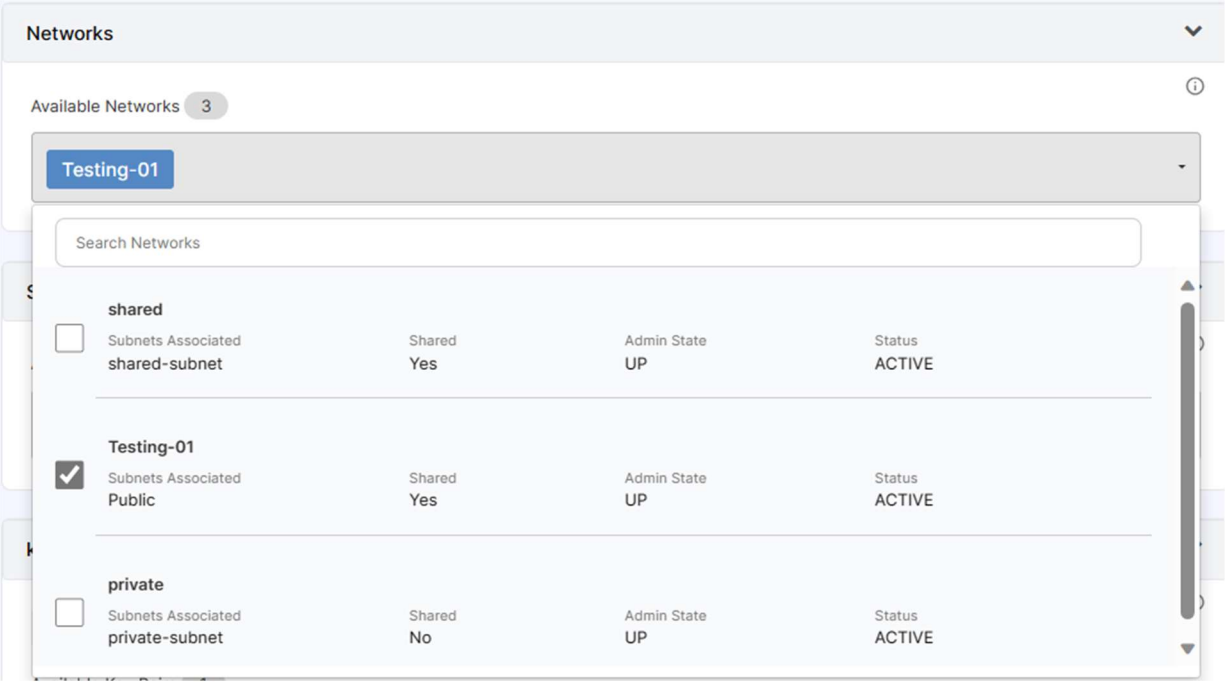


NOTE: Flavors determine the size of your instance, including compute, memory, and storage capacity. In this section, choose specific hardware features for your instance, such as VCPUs, RAM, and Disk Size. Ensure the selected flavor meets your workload requirements. Flavors with insufficient resources are marked with a warning icon. Contact your administrator for custom flavors tailored to your project.

Step 6: Choose a Network

1. Select a **Network** from the dropdown.

NOTE: In the initial step ***(Step 1: Network Setup and Interface Attachment)***, users need to establish a network interface and link it to a router. To ensure a successful instance launch, users should choose the designated network interface, such as "Testing-01," from the dropdown menu or opt for any previously created interface. This decision is crucial for the seamless execution of the instance.



Network Types and Key Features

Networks provide the communication channels for instances in the cloud. You can select ports instead of networks or a mix of both. In the network section user can select whether they want to launch their instance via **public / private network** or both. In our cloud environment, these are network types to consider:

Public Networks:

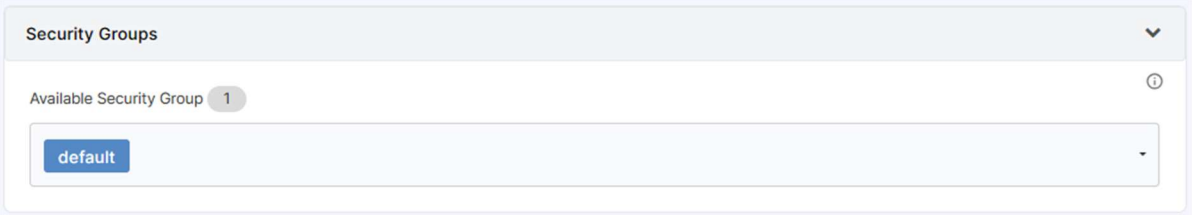
- **Provider Networks:** Admin-created networks tied to physical data center resources.
- **External Networks:** Admins set up networks for external communication with the data center.
- **Floating IPs:** Allow instances to be accessible from external networks.

Shared Networks:

- **Project Networks:** User-created, isolated networks for individual projects.
- **Subnet:** Defines sub-sections within a network.
- **Shared Networks:** Offer network access to all project users.
- **Admin State:** Set to Up for network availability, down to restrict access.
- **Status:** Reflects the network's active connection for assessing availability.

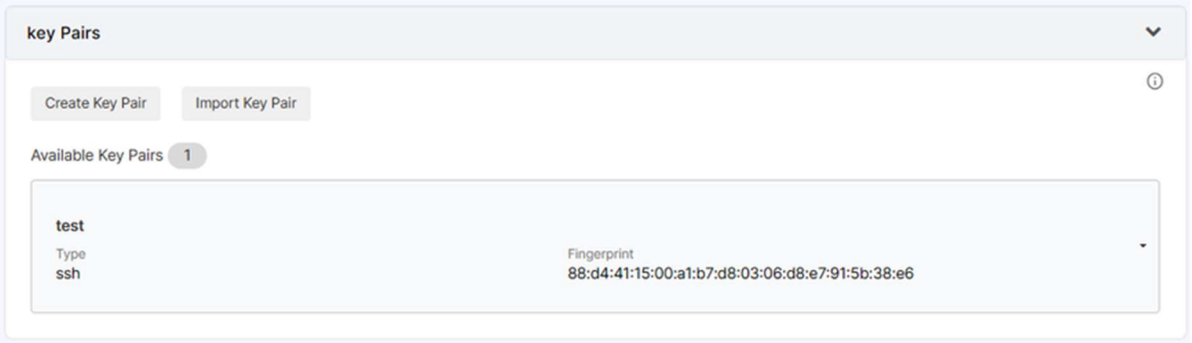
Step 7: Choose a Security Group

1. Select a **Security Group** from the dropdown.

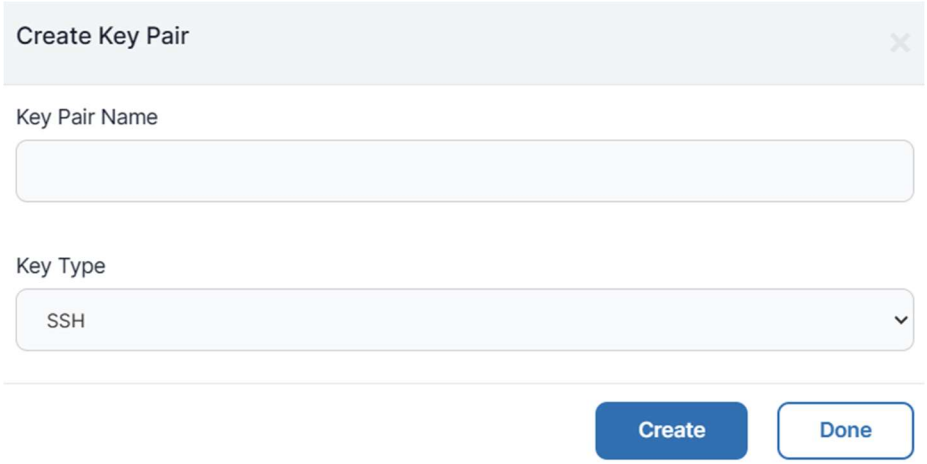


NOTE: Choose the security groups for launching the instance. Select your desired group from the dropdown menu. Security groups manage network traffic and consist of IP filter rules. Additional rules can be added in the Network | Security Groups view. Each project has specific security groups, not shareable across projects. Associate a security group before launch for full post-deployment access, otherwise, access may be limited to a VNC console.

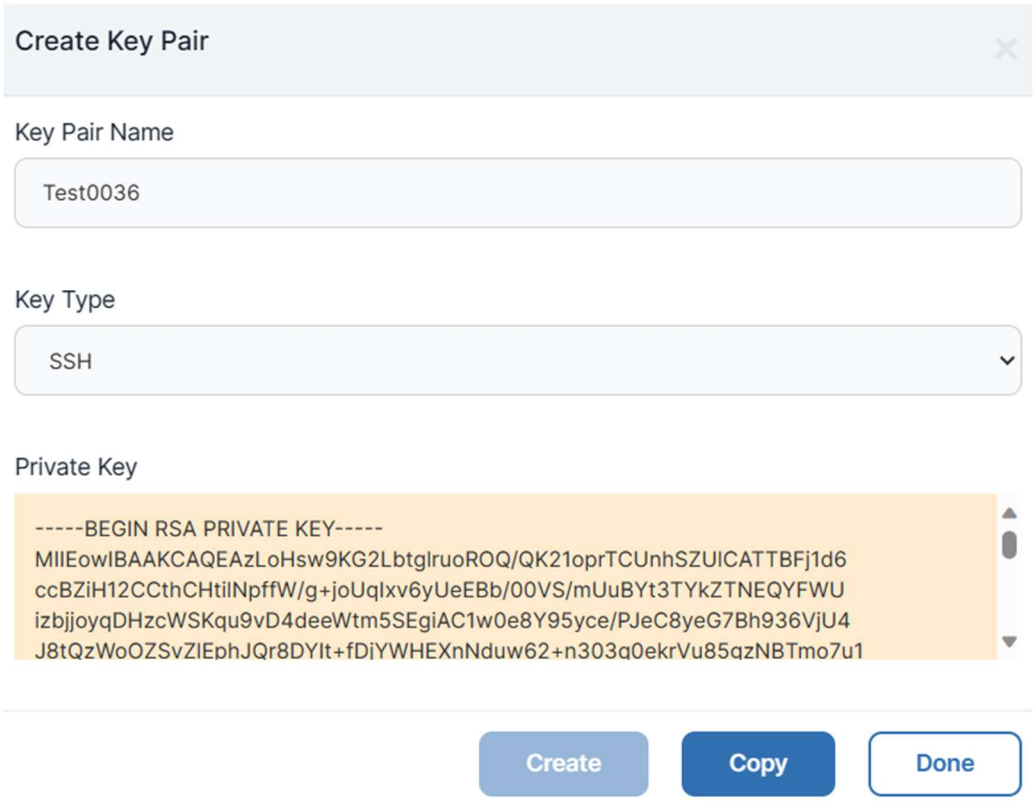
Step 8: Choose Key Pairs



Step 8.1: Create Key Pair



1. Input **Key Pair Name**.
2. Select **Key Type** from the dropdown.
3. Click **Create** button in order to proceed.



IMPORTANT: Once user clicks on **Create**, a "Private Key" will be given to the user. User must keep a copy of this key as this key is deeply associated with the created **Key Pair**.

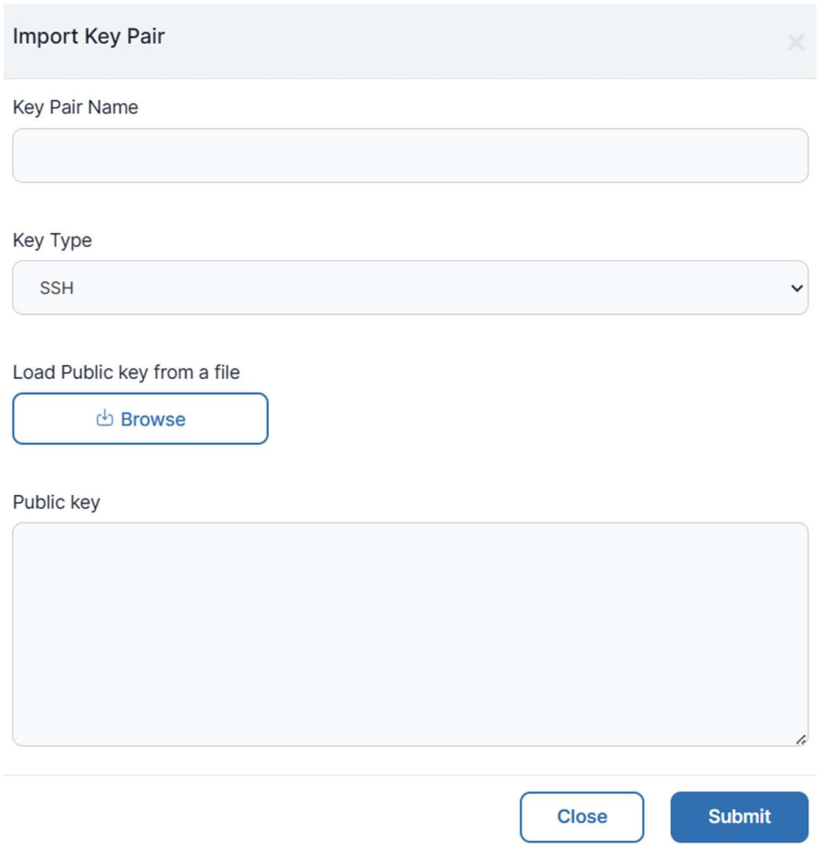
4. Click **Copy** in order to copy the "Private Key".
5. Click **Done** to close the module, once everything is done.

WARNING: Once the module is closed user will not be able to access the "Private Key" again. User must copy the public key and store it somewhere safe.

Step 8.2: Import Key Pair

1. Input **Key Pair Name**.
2. Select the **Key Type** from the dropdown.
3. Click on the **Browse** icon in order to **select** and **load** the public key from the local device.

4. **Copy** and **Paste** the "Public Key" in the description box below.
5. Click **Submit** in order to import the "Key Pair".
6. Click **Close** in order to cancel the importing process.



Step 8.3: Select an Existing Key Pair

NOTE: Users can see the available "Key Pairs" in the dropdown menu. For "Create" and "Import" action the specific key pair will automatically be added on the dropdown and remain selected.

1. Click on the dropdown to select any available "Key Pairs" from the list.

Generating Key Pairs

To create key pairs, you have two options:

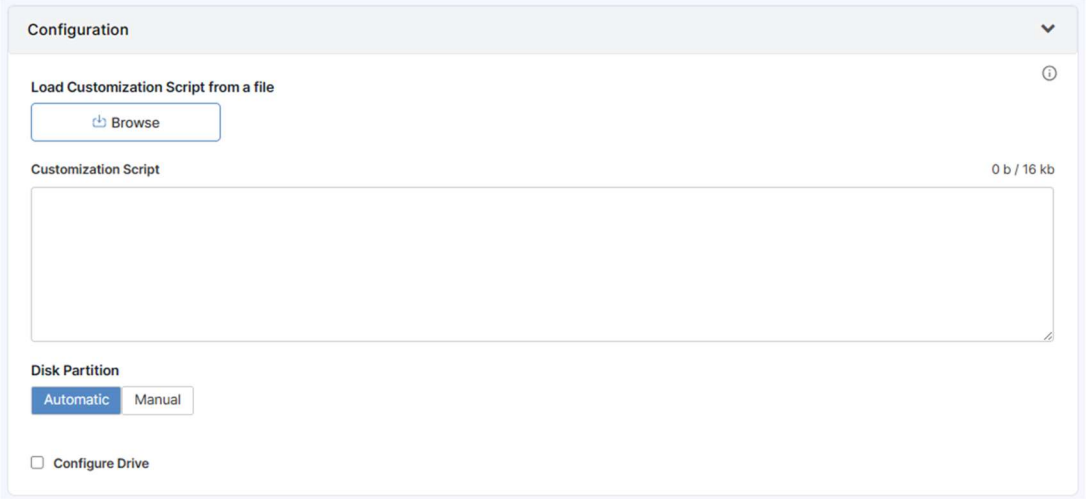
Linux System: Generate a key pair using the ssh-keygen command, like this: **ssh-keygen -t rsa -f cloud.key**. This command produces a private key (cloud.key) and its corresponding public key (cloud.key.pub).

Windows System: If you're using Windows, use **PuTTYGen** to create private/public keys. Launch the PuTTY Key Generator, save the keys, and copy the public key from the red-highlighted box into your **.ssh/authorized_keys** file.

Step 9: Configuration

You can customize your instance after it has launched using a **Customized Script**.

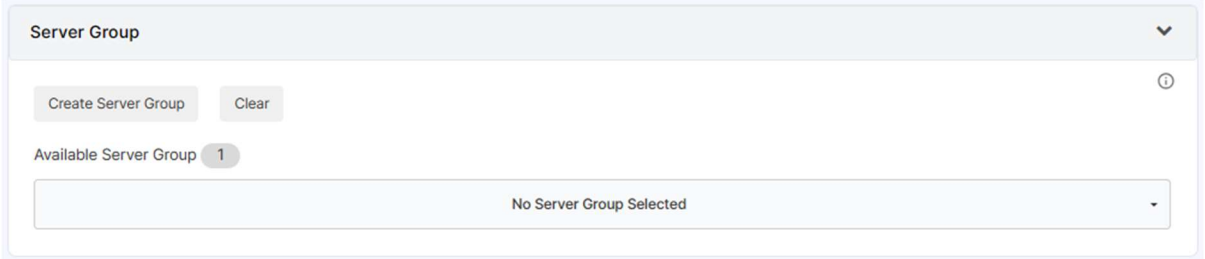
1. You can either upload a script manually or type a customized script in the description box *(under 16 kb)*.
2. You can select if you want the **Disk Partition** to be done either automatically or you want to don it manually. By default, it will be selected as automatic.
3. Click on the checkbox below to **configure drive**.



NOTE: Custom scripts can be attached to instances for specific actions upon launch, such as adding a public key to a user account. You can type your script directly or load it from a file if your browser supports the HTML5 File API, with a file size limit of 16 KB. Additionally, when launching an instance, choose between "Automatic" for a single partition on the resized disk or "Manual" to create multiple partitions. To write metadata to a special configuration drive, simply check the "Configuration Drive" box; the instance will access the metadata upon boot.

Step 10: Server Group

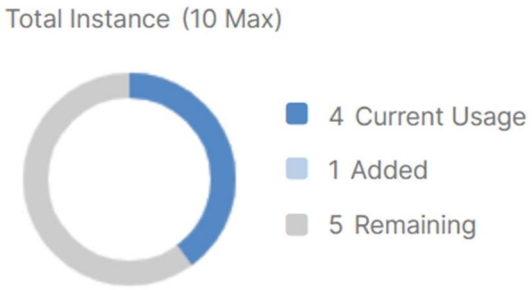
1. Choose the **server group** to launch the instance.
2. Select an existing group from the "**dropdown**" menu.
3. Create a new server group with the "**Create Server Group**" button.
4. To clear a group, select an existing one, and click "**Clear**".



NOTE: Server groups define collections of VM's so that the entire collection can be given specific properties. For example, the policy of a server group may specify that VM's in this group should not be placed on the same physical hardware due to availability requirements. Server groups are project-specific and cannot be shared across projects.

Step 11: Launch the Instance

Once you are okay with everything click on the **Launch Instance** button in order to create your new instance. Once everything is okay it will redirect you to the **Instances** page. Here you can see a new instance being created.



IMPORTANT: Make sure you are going through all the options with **asterisk** (*) marking. Server groups, Configuration, key Pairs are optional for instance creation as user can update them later. Once you are done with all these steps, make sure to look for the creation summary at the right-hand side of the screen.

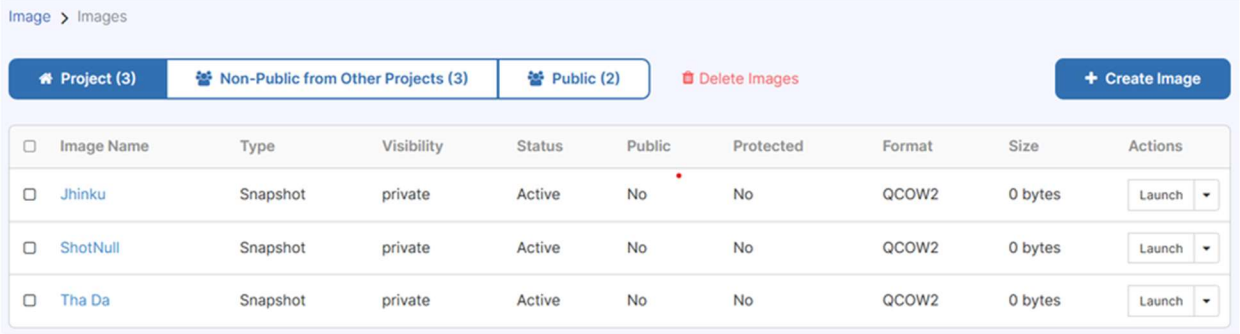
IMPORTANT: Users have the ability to generate a maximum of **10** instances, and the available slots are visually displayed through a doughnut chart for easy comprehension.

2.4.1.3 Instance → Actions → Create Snapshot

"Create Snapshot" refers to capturing a point-in-time copy of a system, such as a virtual machine or storage volume, for backup and replication purposes.

1. Go to **Instance** page.
2. Click on the "**Create Snapshot**" button associated with each instance available on the list.

After successful creation user will be redirected to the **Image** page.



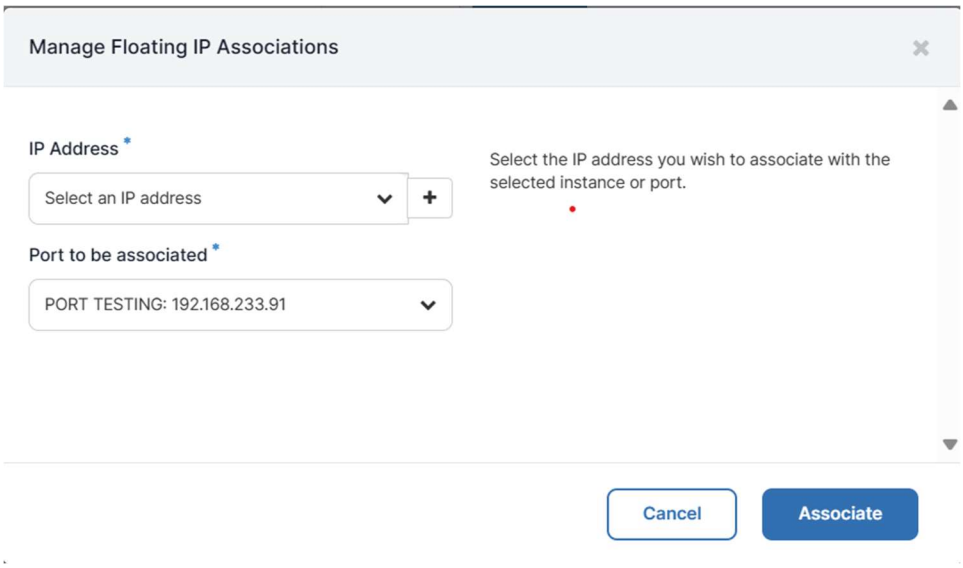
NOTE: If there are no item available on the list, then **"Launch an Instance"** first.

2.4.1.4 Instance → Actions (Dropdown) → Associate Floating IP

"Associate Floating IP" refers to the process of connecting a floating IP address with a specific computing instance in a network. This action enables the instance to be accessed externally, providing a way for users to connect to the instance from the internet. It is commonly used in cloud computing environments to enhance accessibility and communication with instances.

Step 1: Open the "Manage Floating IP" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Associate Floating IP**".

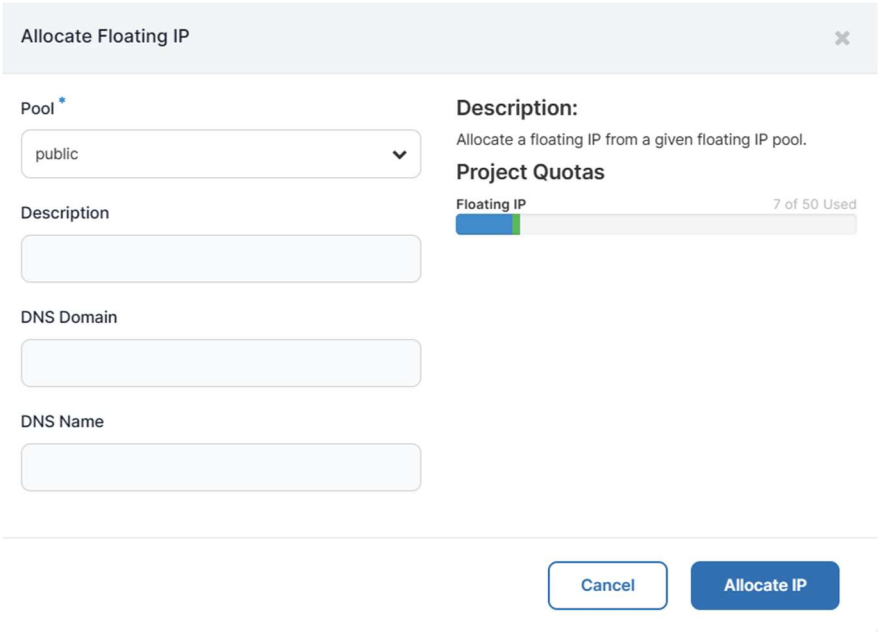


Step 2: Create or Select New IP

1. Click on the **"Plus"** icon.

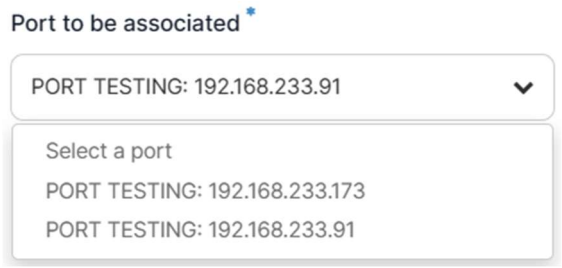
NOTE: If there no IP to choose from the **dropdown**, click on the "**plus**" icon and it pop-up the "**Allocate Floating IP**" tab.

2. Select a **Pool** from the dropdown menu.
3. Input "**Description**, **DNS Domain** & **DNS Name**".
4. Click "**Allocate IP**".



NOTE: IP can be created with only "**Pool**" selection and it will redirect user back to the "**Manage Floating IP**" tab. Click "**Cancel**" if you don't want to allocate IP.

5. Select an IP address from the "**IP Address**" dropdown.
6. Select a port from "**Port to be Associated**" dropdown.
7. Click "**Associate**".
8. Click "**Cancel**" if you don't want to associate IP.

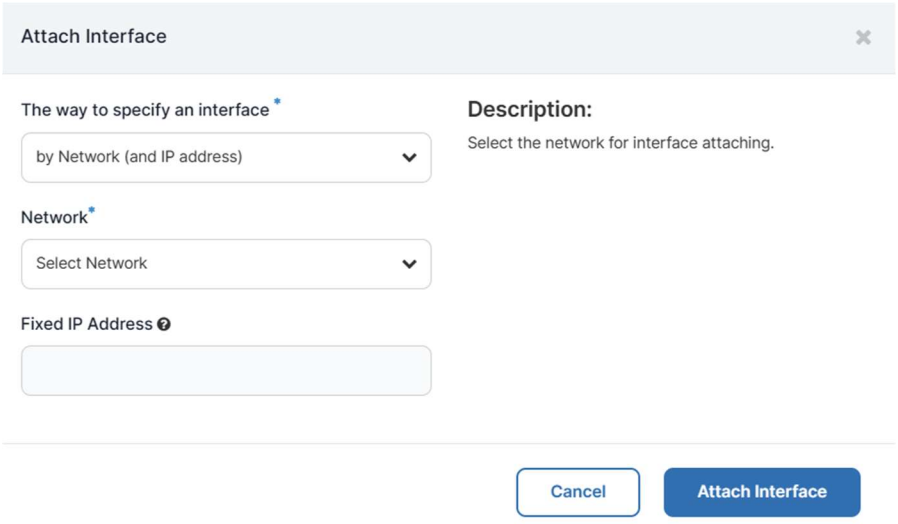


2.4.1.5 Instance → Actions (Dropdown) → Attach Interface

"Attach Interface" involves connecting or associating a network interface with a computing instance. This action is typically performed to enable communication, manage network configurations, or enhance connectivity for the instance within a cloud computing environment.

Step 1: Open the "Attach Interface" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Attach Interface**".



Step 2: Attach a New Interface

1. Select "**The Way to Specify an Interface**" from the dropdown.
2. Select a "**Network**" from the dropdown.
3. Input "**Fixed IP Address**" in the input field.
4. Click "**Attach Interface**".
5. Click "**Cancel**" if you don't want to attach any interface.

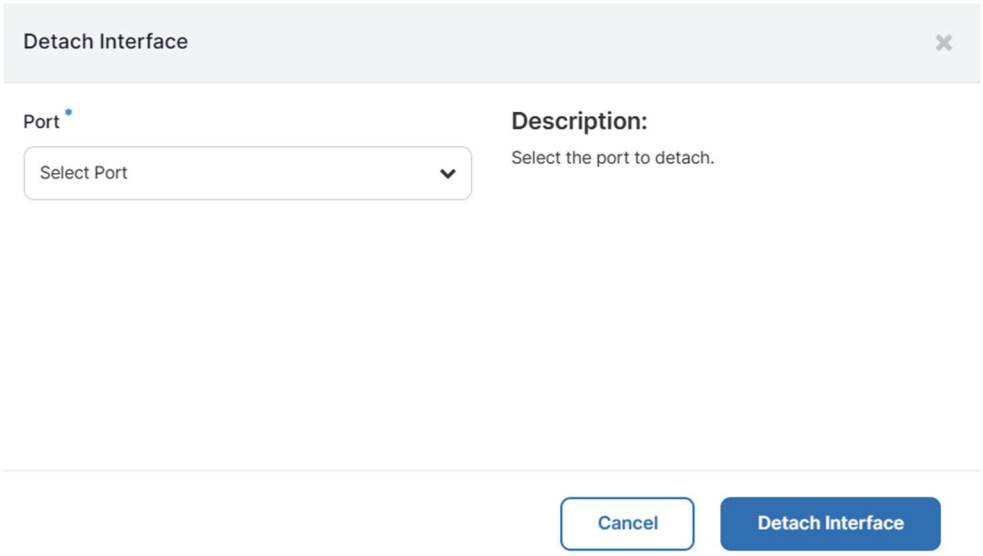
IMPORTANT: Only networks created from the "**Network Interface**" page under "**Network and Security**" will appear in the dropdown.

2.4.1.6 Instance → Actions (Dropdown) → Detach Interface

"Detach Interface" refers to the action of disconnecting or disassociating a network interface from a computing instance. This is often done to modify network configurations, update settings, or manage network resources efficiently.

Step 1: Open the "Detach Interface" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Detach Interface**".



Step 2: Detach an Interface

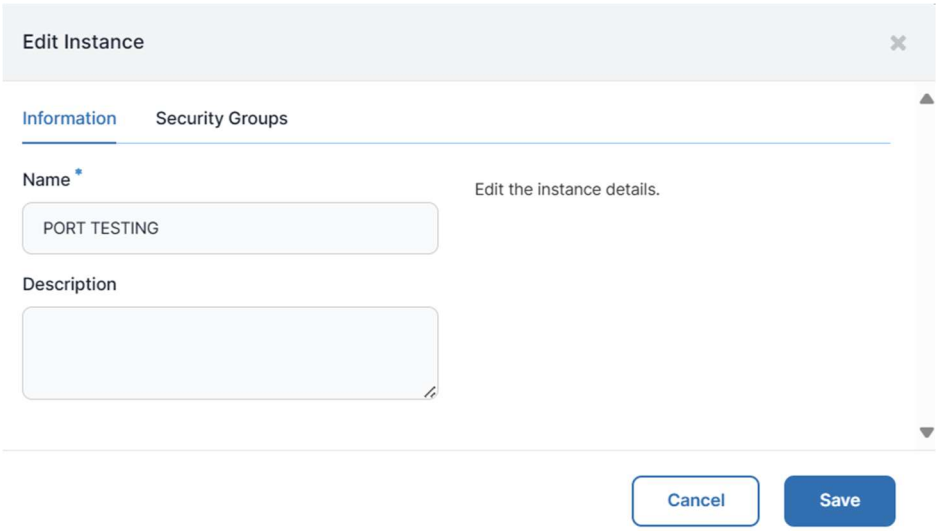
1. Select a "**Port**" to detach, from the dropdown.
2. Click "**Detach Interface**".
3. Click "**Cancel**" if you don't want to attach any interface.

2.4.1.7 Instance → Actions (Dropdown) → Edit Instance

To change details for an instance, like its "**Name**" and "**Description**", use this module. Make sure to give correct information, especially in the "Name" field, as it's essential for properly identifying the instance.

Step 1: Open “Information” under Edit Instance Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, “**Edit Instance**”.



Step 2: Edit Information

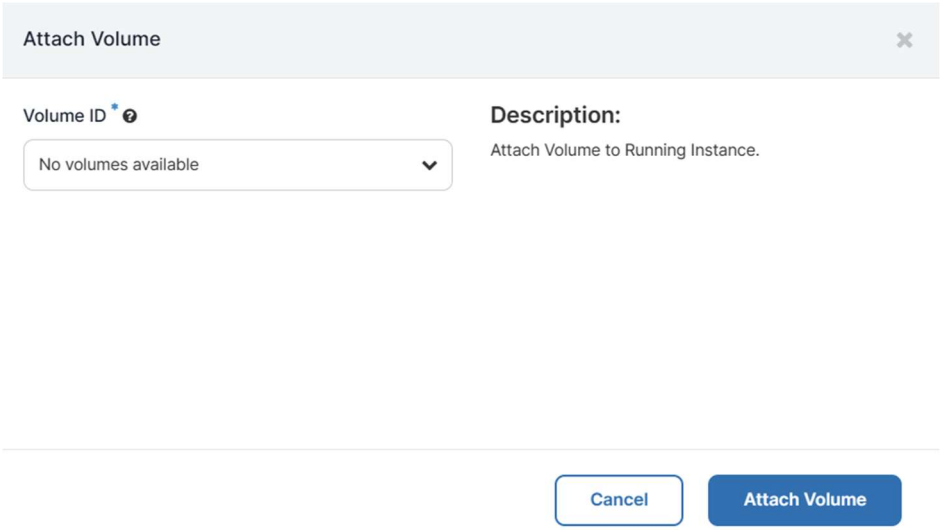
1. Input a new “**Name**”.
2. Update the “**Description**”.
3. Click “**Save**”.
4. Click “**Cancel**” if you don’t want to edit information.

2.4.1.8 Instance → Actions (Dropdown) → Attach Volume

"Attach Volume" refers to the process of connecting or associating a storage volume with a specific instance in a cloud computing environment. This action allows the instance to access and use the attached volume for additional storage capacity or data management.

Step 1: Open the “Attach Volume” Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, “**Attach Volume**”.



Step 2: Attach a Volume

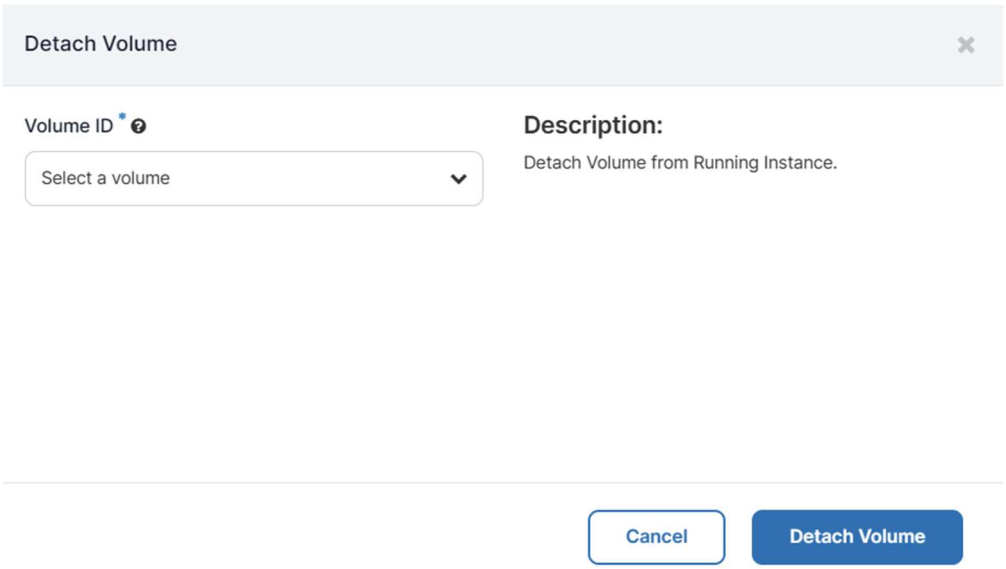
1. Select “**Volume ID**” from the dropdown.
2. Click “**Attach Volume**”.
3. Click “**Cancel**” if you don’t want to attach volume.

2.4.1.9 Instance → Actions (Dropdown) → Detach Volume

"Detach Volume" refers to the action of disconnecting or disassociating a storage volume from a computing instance. This is commonly done to make the volume available for use with other instances or to perform maintenance tasks. After detaching, the volume is no longer connected to the specific instance and can be attached to another if needed.

Step 1: Open the “Detach Volume” Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, “**Detach Volume**”.



Step 2: Attach a Volume

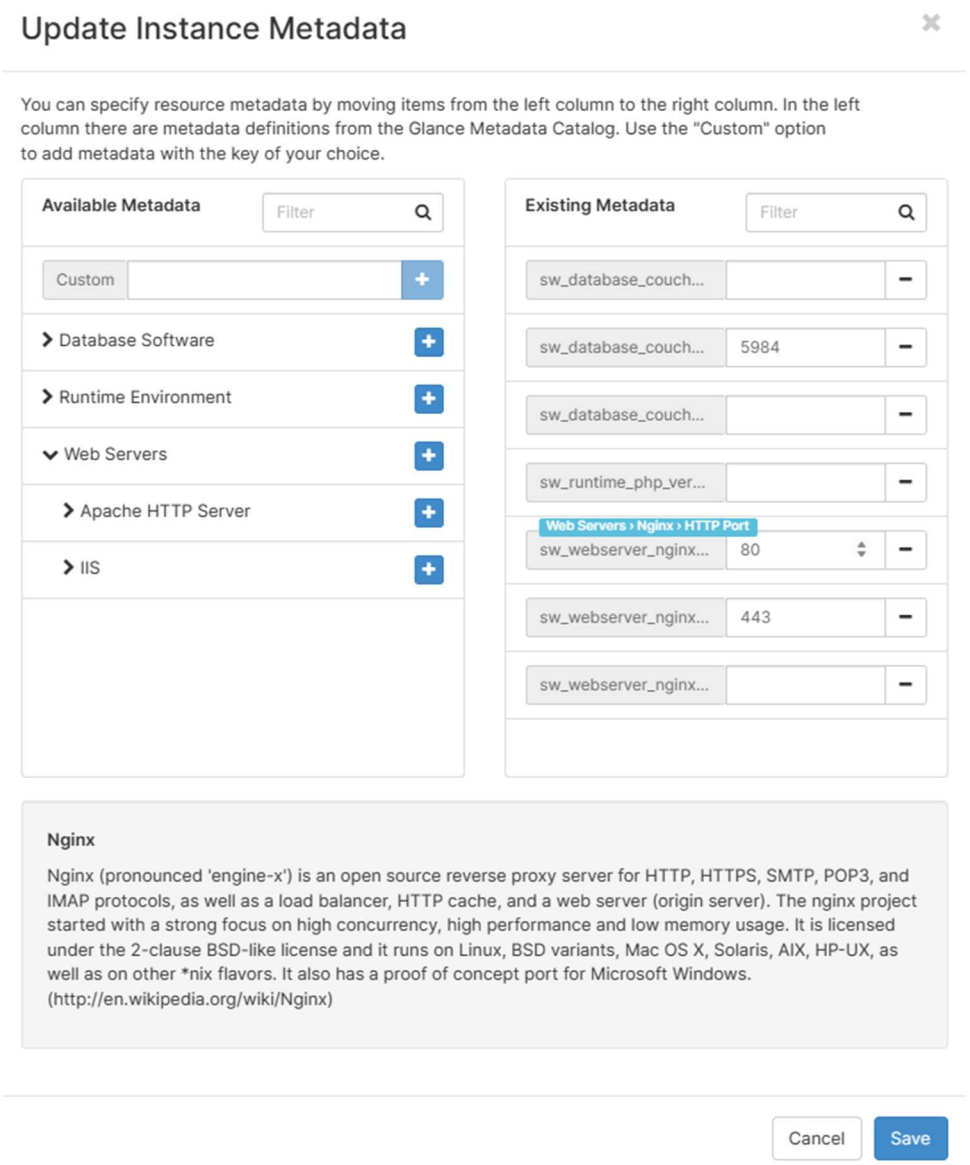
1. Select "**Volume ID**" from the dropdown.
2. Click "**Detach Volume**".
3. Click "**Cancel"** if you don't want to attach volume.

2.4.1.10 Instance → Actions (Dropdown) → Update Metadata

"Metadata" in the context of computing typically refers to additional information or data about data. In cloud computing, metadata can include details about instances, resources, or objects, providing essential context and configuration information. It plays a crucial role in managing and organizing various elements within a cloud environment.

Step 1: Open the "Update Instance Metadata" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Update Metadata**".



Step 2: Select from Available Metadata or Create a Custom

All available metadata is displayed in the "Available Metadata" section. Users can also create custom metadata from this section. Any selected/custom metadata will move to the "Existing Metadata" section.

1. Click on the "**Plus**" icon to select any metadata.

NOTE: In each dropdown, there are nested lists. Browse through the dropdown to select specific metadata. To choose all metadata from a particular dropdown, select the parent item from the list *(e.g., Database Software, Runtime Environment & Web Servers)*.

2. For **custom metadata**, input a title for the metadata in the input field and click "**Plus**".

3. Enter specific keywords in the filter field to precisely identify any metadata.

Step 3: Update or Remove Existing Metadata

Selected or custom metadata can be viewed in the "Existing Metadata" section. Upon removal, they will return to the available section. In this section, users can also update metadata information.

1. Hover over each item on the list to identify each metadata.
2. Click on the "**Minus**" icon to remove any selected metadata.
3. For, **Database Software**:

    - Place an admin-user title in the input field for "**Admin User**".
    - Use increment/decrement button or type manually to update "**Listen Port**".
    - Include "**Version**" number, in the input field.

4. For, **Runtime Environment:**
    - Include "**Version**" number, in the input field.

5. For, **Web Servers:**

    - Use increment/decrement button or type manually to update "**HTTP Port**".
    - Use increment/decrement button or type manually to update "**HTTPS Port**".
    - Include "**Version**" number, in the input field.

6. Enter specific keywords in the filter field to precisely identify any metadata.

Step 4: Confirm Update

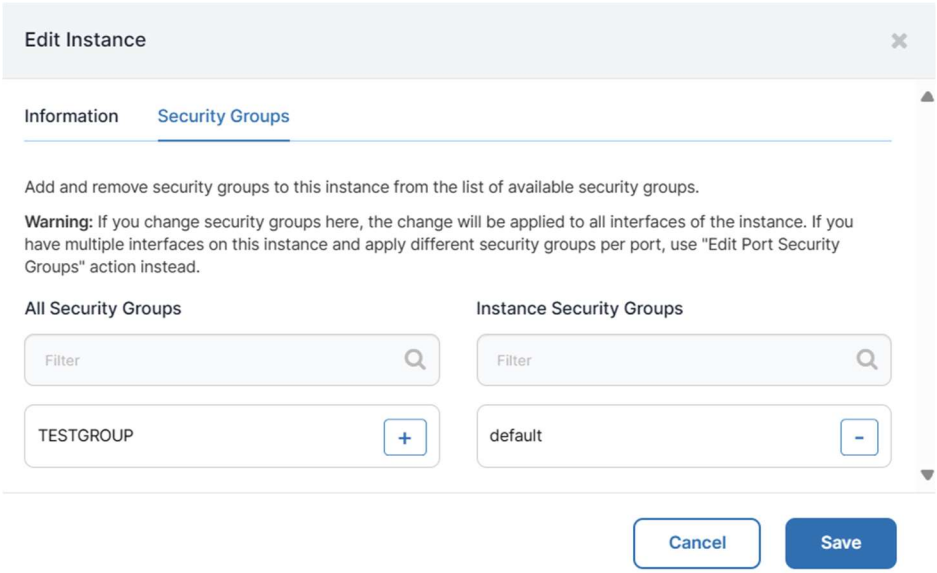
1. Click "**Save**".
2. Click "**Cancel"** if you don't want to update metadata.

2.4.1.11 Instance → Actions (Dropdown) → Edit Security Groups

"Security Groups" are sets of IP filter rules that manage inbound and outbound network traffic to and from instances. They serve as a key component in network security, defining the allowed communication and ensuring a secure environment for instances within a project.

Step 1: Open “Security Groups” under Edit Instance Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, “**Edit Security Groups**”.



Step 2: Select of Remove a Security Group

1. Use proper keywords to automatically **Filter** any security groups.
2. Click on the “**Plus**” icon to select a security group.
3. Click on the “**Minus**” icon to remove a security group.
4. Click “**Save**”.
5. Click “**Cancel”** if you don’t want to add/remove any security groups.

IMPORTANT: Only security groups created from the "**Security Groups**" page under "**Network and Security**" will appear in the dropdown. Security Groups can’t be selected unless an interface is attached.

NOTE: Available security groups are shown under "**All Security Groups**" and move to "**Instance Security Groups**" upon selection. Conversely, for removing a security group, it moves back to the available section.

2.4.1.12 Instance → Actions (Dropdown) → Edit Port Security Groups

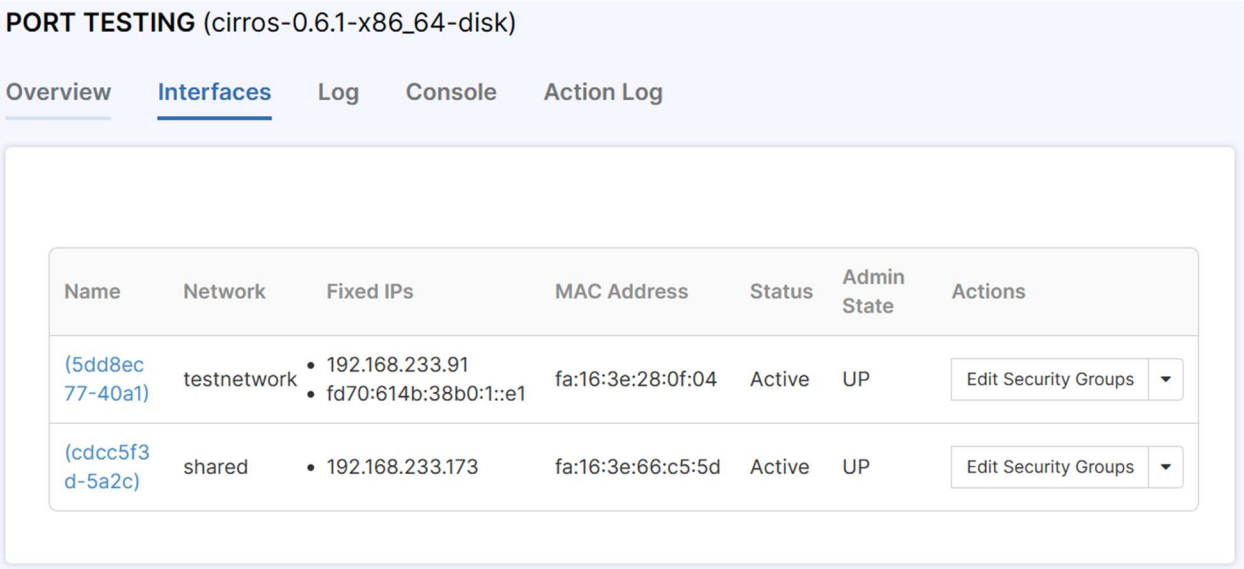
"Port Security Groups" typically refer to a set of rules and configurations applied to network ports to control the flow of traffic and enhance security. In cloud computing or networking, port security groups are commonly used to manage and restrict communication between different instances or services.

Step 1: Open the "Interface" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Edit Port Security Groups**".
3. Click "Name" to open the "Overview" tab for each item in the list.

IMPORTANT: Interface list will be empty unless an interface is attached.

NOTE: "**Allocated Address Pairs**" tab can be accessed once user is in the Overview tab.

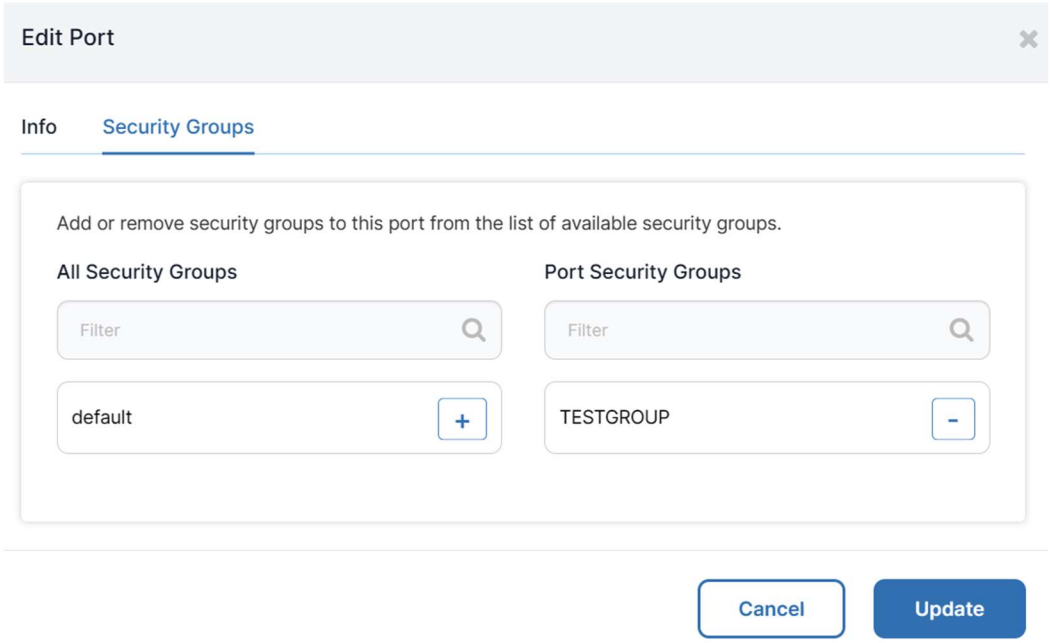


Step 2: Add/Remove Security Groups for Port

1. Click on "**Edit Security Groups**".
2. Use proper keywords to automatically **Filter** any security groups.
3. Click on the "**Plus**" icon to select a security group.
4. Click on the "**Minus**" icon to remove a security group.
5. Click "**Save**".
6. Click "**Cancel**" if you don't want to add/remove any security groups.

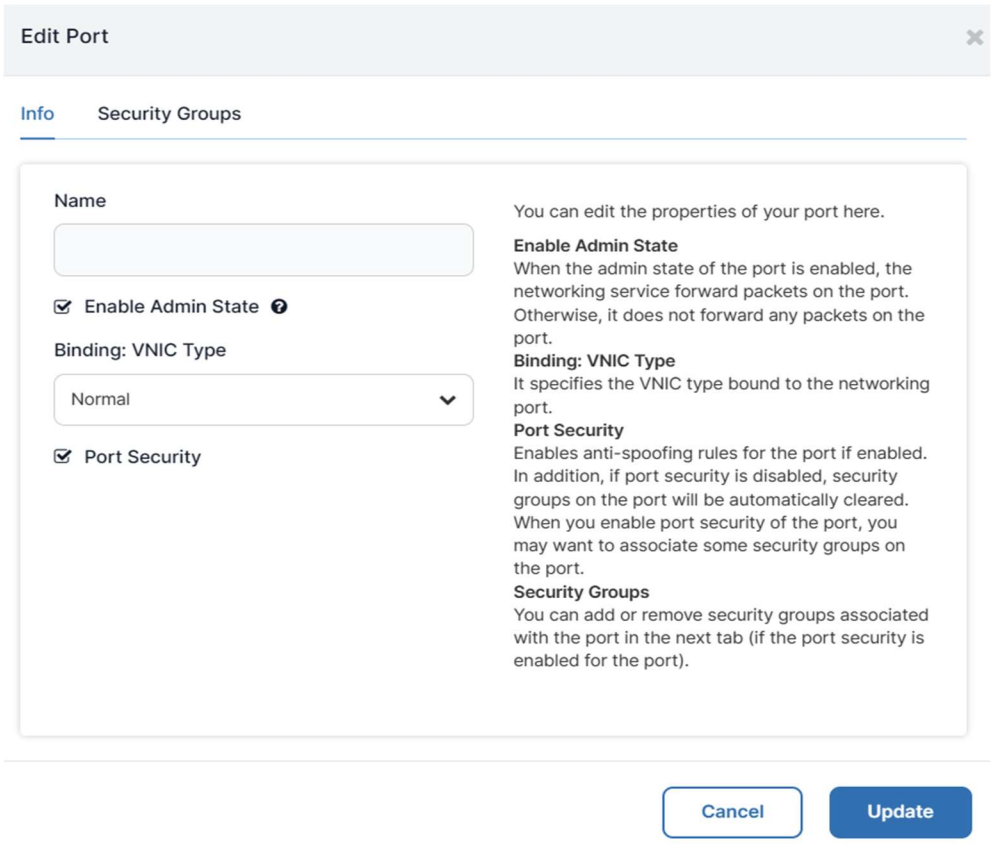
IMPORTANT: Only security groups created from the "**Security Groups**" page under "**Network and Security**" will appear in the dropdown.

NOTE: Available security groups are shown under "**All Security Groups**" and move to "**Port Security Groups**" upon selection. Conversely, for removing a security group, it moves back to the available section.



Step 3: Update Port Information

1. Click on "**Edit Port**".
2. Input port "**Name**" in the input field.
3. Check or uncheck "**Enable Admin State**" to permit or block the networking service from forwarding packets on the port.
4. Select **"Binding: VNIC Type**" *(bound to the networking port)* from the dropdown.
5. Check or uncheck "**Port Security**" to enable or disable anti-spoofing rules for the port.
6. Click "**Update**".
7. Click "**Cancel"** if you don't want to add/remove any security groups.

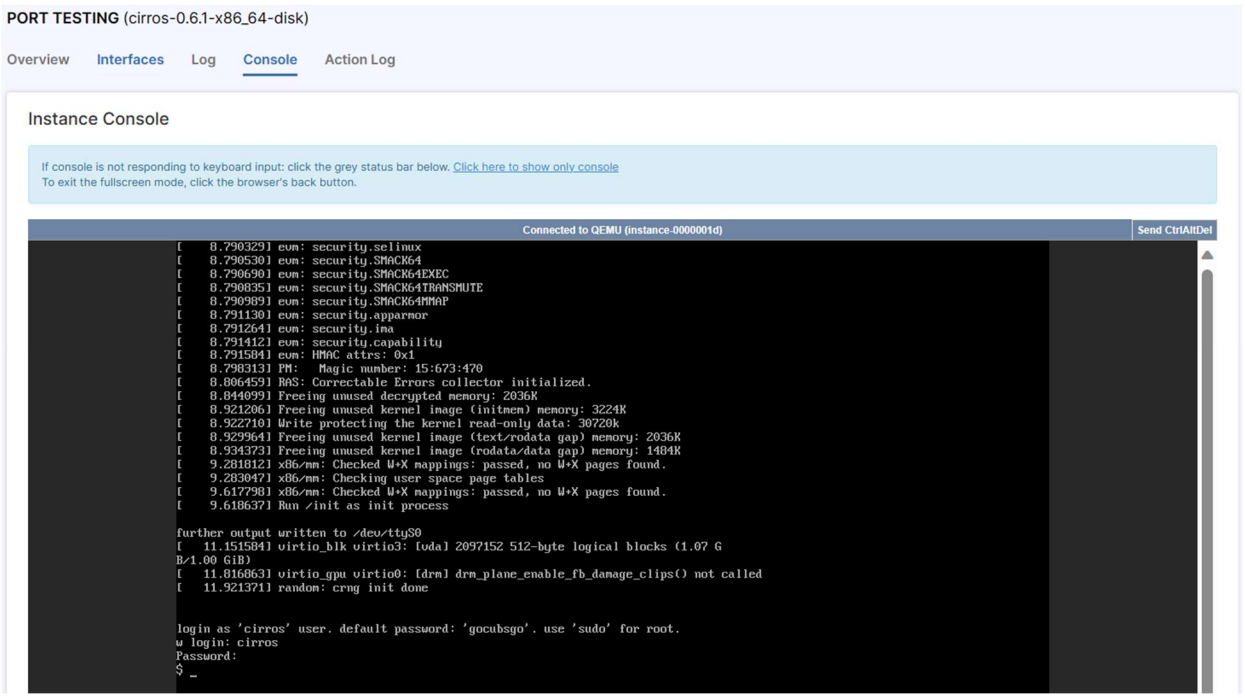


2.4.1.13 Instance → Actions (Dropdown) → Console

The "Console" tab provides direct access to an online console linked to the instance. It serves as a command shell for controlling the instance. However, the user needs to log in with a username and password to utilize this functionality.

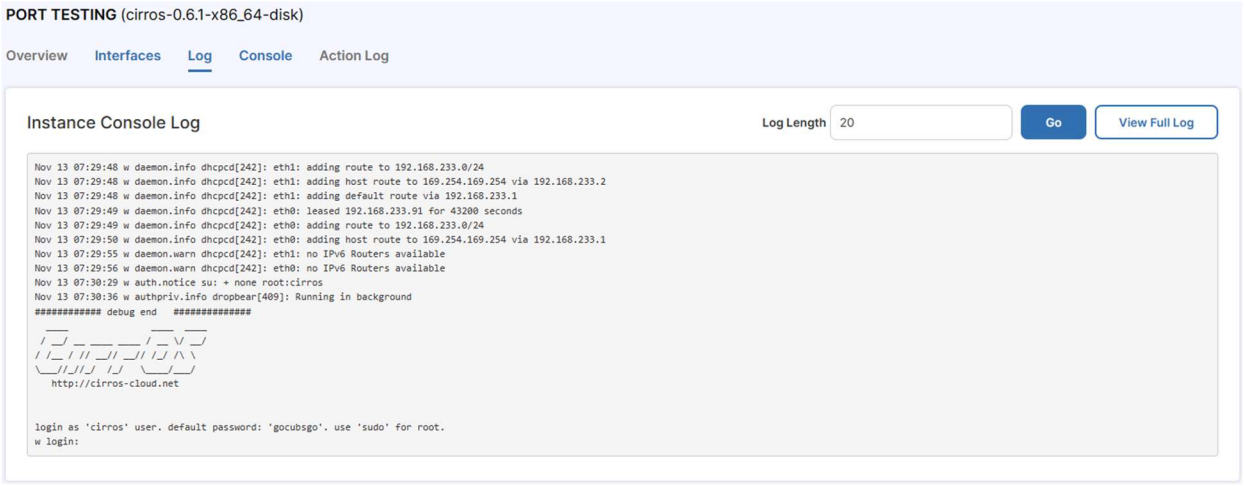
1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Console**".
3. Click on the "**Console**" itself, to access it.
4. Input **Username** and press enter.
5. Input **Password** and press enter.
6. Continue using console for your instance.

IMPORTANT: The password field will stay empty for security purposes, even when inputting information.



2.4.1.14 Instance → Actions (Dropdown) → View Log

"View Log" refers to accessing and reviewing the log file associated with an instance. This log provides information about the instance's activities, errors, and events, aiding in troubleshooting and monitoring.



1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**View Log**".

3. Input "**Log Length**".
4. Click "**Go**".

NOTE: The **Log Length** accepts numerical values and based on that, displays the specified number of lines from bottom to top. For reference, if the log length is set to 3, it will show the last three lines of the log.

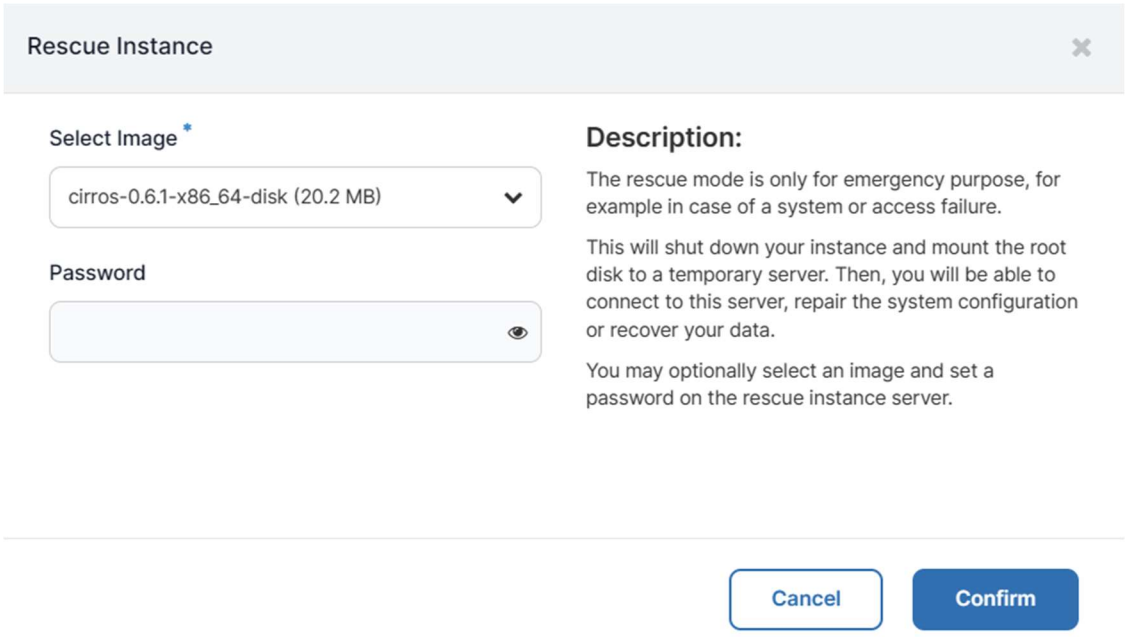
5. Click "**View Full Log**" to see the complete log.

2.4.1.15 Instance → Actions (Dropdown) → Rescue Instance

The rescue mode is only for emergency purpose, for example in case of a system or access failure. This will shut down your instance and mount the root disk to a temporary server. Then, you will be able to connect to this server, repair the system configuration or recover your data. You may optionally select an image and set a password on the rescue instance server.

Step 1: Open the "Rescue Instance" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Rescue Instance**".



Step 2: Rescue an Instance

1. Select "**Instance**" from the dropdown.
2. Input **Password**.
3. Click "**Confirm**".
4. Click "**Cancel"** if you don't want to rescue any instance.

2.4.1.16 Instance → Actions (Dropdown) → Pause Instance

"Pausing an instance" involves temporarily halting its operation and freezing its current state. This allows for resource optimization and is reversible, allowing the instance to be later resumed from where it was paused.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Pause Instance**".

IMPORTANT: Click on **Resume Instance** to run a paused instance.

2.4.1.17 Instance → Actions (Dropdown) → Suspend Instance

"Suspending an instance" involves pausing its current state, temporarily halting its operation, and freeing up resources. This action is reversible, allowing the instance to be later resumed from where it was suspended.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Suspend Instance**".

IMPORTANT: Click on **Resume Instance** to start the instance.

2.4.1.18 Instance → Actions (Dropdown) → Shelve Instance

"Shelving an instance" typically refers to a process where the current state of the instance is saved, and it is then taken offline, releasing resources. This allows for cost savings or resource optimization, and the instance can be later unshelved to resume its previous state.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Shelve Instance**".

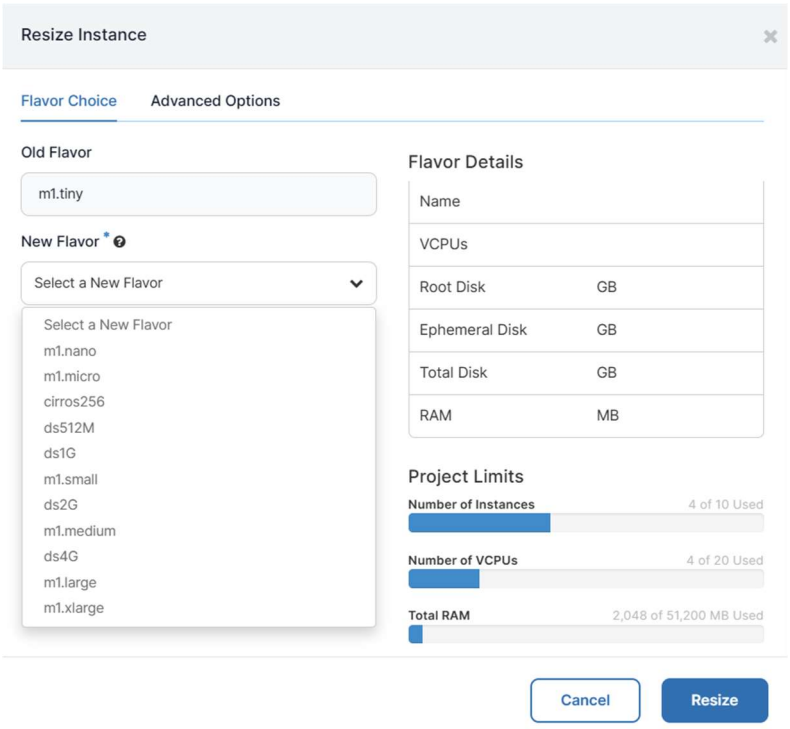
IMPORTANT: Click on **Unshelve Instance** to unshelve the instance.

2.4.1.19 Instance → Actions (Dropdown) → Resize Instance

In this module, users can easily update the flavor size and opt for a new disk partition. This flexibility allows for adjustments to better suit evolving needs or changing requirements.

Step 1: Open the "Resize Instance" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Resize Instance**".

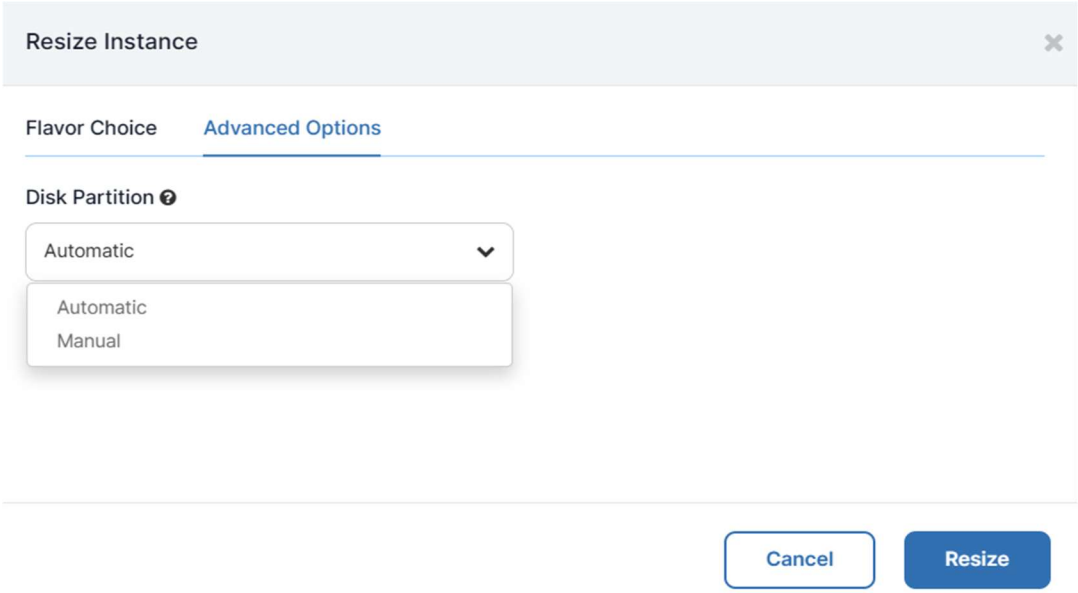


Step 2: Update "Flavor Choice" and "Disk Partition" option.

1. Select a "**New Flavor**" from the dropdown in "**Flavor Choice**" tab.

NOTE: User can see the **Flavor Details** and **Project Limits** *(includes "Number of Instances", "Number of VCPU's" and "Total RAM" that are being used)* in progress bars.

2. Select "Disk Partition" type from the dropdown in "**Advanced Options**" tab.



NOTE: Disk Partition has two options:

- **Automatic:** The entire disk is a single partition and automatically resizes.
- **Manual:** Results in faster build times but requires manual partitioning.

3. Click "**Resize**".
4. Click "**Cancel"** if you don't want to rescue any instance.

2.4.1.20 Instance → Actions (Dropdown) → Lock Instance

"Lock Instance" typically refers to restricting access or making an instance temporarily inaccessible for security or administrative reasons. This action prevents any modifications or changes to the instance configuration during the locked state. It is often used to ensure the stability and security of the instance during critical periods.

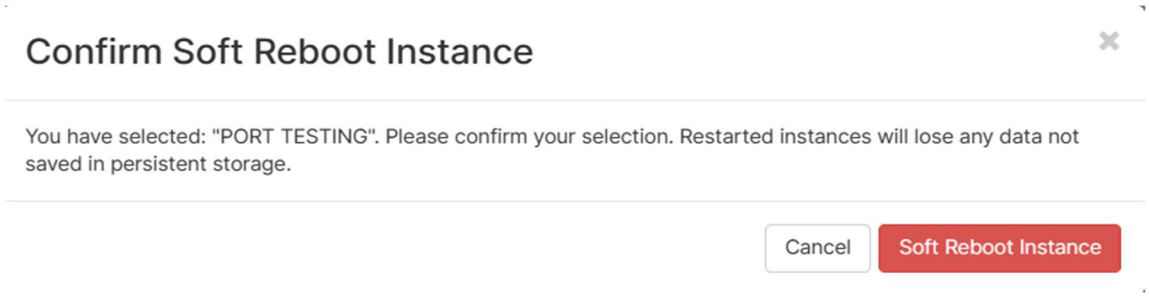
1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Lock Instance**".

IMPORTANT: Click on **Unlock Instance** to unlock a locked instance.

2.4.1.21 Instance → Actions (Dropdown) → Soft Reboot Instance

A "Soft Reboot Instance" involves restarting the instance in a controlled manner without power-cycling the underlying hardware. This action is performed through software commands, allowing the operating system to gracefully shut down and restart. It is a gentler method compared to a hard reboot, as it aims to minimize disruptions and potential data loss.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Soft Reboot Instance**".



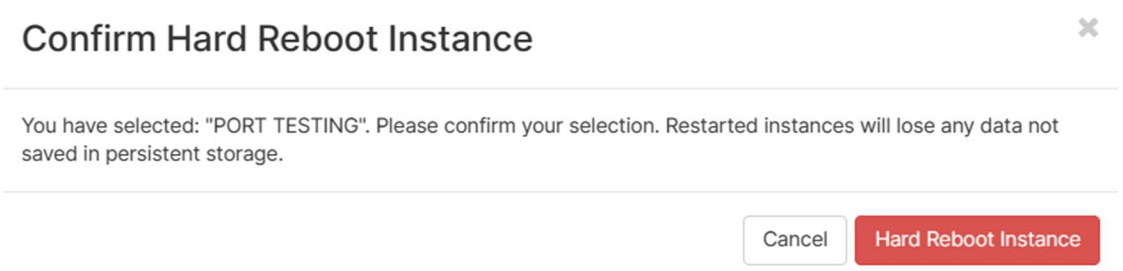
NOTE: A confirmation module will pop-up, user must confirm to "**Soft Reboot**" any instance.

3. Click "**Soft Reboot Instance**".
4. Click "**Cancel**" if you don't want to soft reboot.

2.4.1.22 Instance → Actions (Dropdown) → Hard Reboot Instance

A "Hard Reboot Instance" involves forcefully restarting the instance by power-cycling the underlying hardware. Unlike a soft reboot, a hard reboot does not rely on the operating system's shutdown procedures. It is a more abrupt method, and while it ensures a restart, it may lead to a less controlled shutdown of the operating system, potentially resulting in data loss or other issues.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Hard Reboot Instance**".



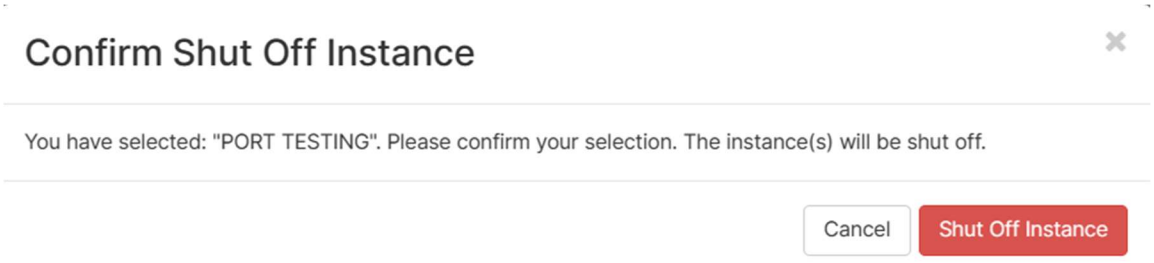
NOTE: A confirmation module will pop-up, user must confirm to "**Hard Reboot**" any instance.

3. Click "**Hard Reboot Instance**".
4. Click "**Cancel**" if you don't want to hard reboot.

2.4.1.23 Instance → Actions (Dropdown) → Shut Off Instance

"Shut Off Instance" refers to the deliberate action of turning off or powering down a computing instance in a controlled manner. This is not a forceful termination like a hard power-off but involves a graceful shutdown, allowing the instance's operating system to complete necessary processes before the shutdown.

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Shut Off Instance**".



NOTE: A confirmation module will pop-up, user must confirm to "**Shut Off**" any instance.

3. Click "**Shut Off Instance**".

IMPORTANT: Click "**Start Instance**" to power up any shut-off instance.

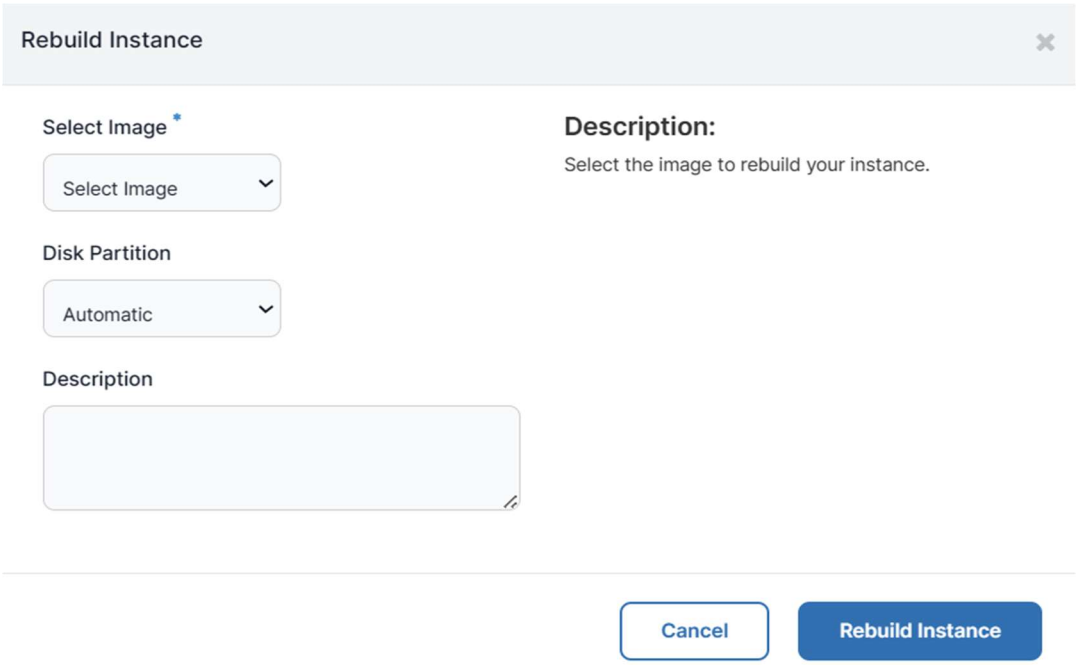
4. Click "**Cancel**" if you don't want to shut-off any instance.

2.4.1.24 Instance → Actions (Dropdown) → Rebuild Instance

"Rebuild Instance" involves recreating or re-provisioning a computing instance, typically from a predefined image or snapshot. This action results in a fresh instance with the specified configurations, discarding any previous changes or modifications made to the original instance. It is useful for restoring an instance to a known and stable state.

Step 1: Open the "Rebuild Instance" Tab

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Rebuild Instance**".

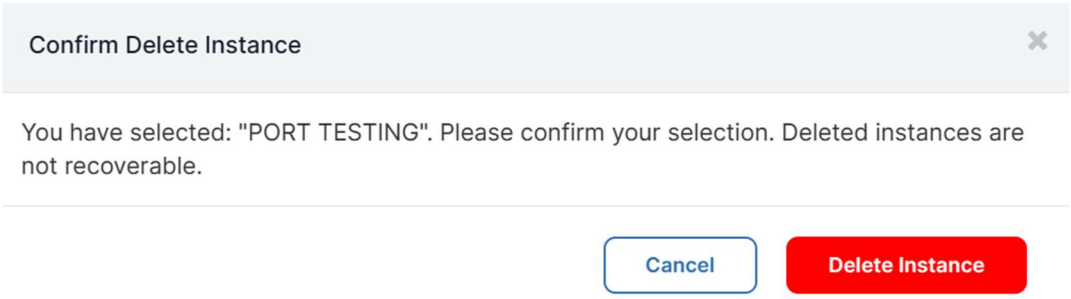


Step 2: Rebuild an Instance

1. Select a "**Image**" from the dropdown.
2. Select "**Disk Partition**" option from the dropdown.
3. Add a **Description** in the description box.
4. Click "**Rebuild Instance**".
5. Click "**Cancel"** if you don't want to rescue any instance.

2.4.1.25 Instance → Actions (Dropdown) → Delete Instance

1. Go to **Instance** page.
2. Click on the **dropdown** associated with each instance available on the list and select, "**Delete Instance**".

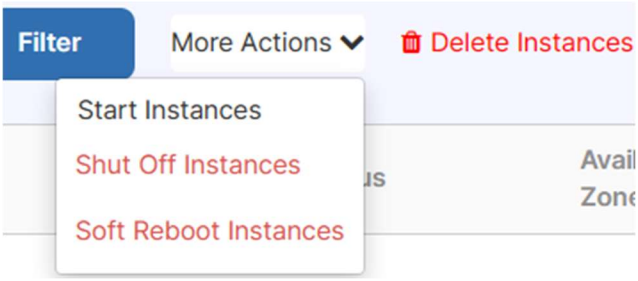


NOTE: A confirmation module will pop-up, user must confirm to "**Delete**" any instance.

3. Click "**Delete Instance**".
4. Click "**Cancel**" if you don't want to delete any instance.

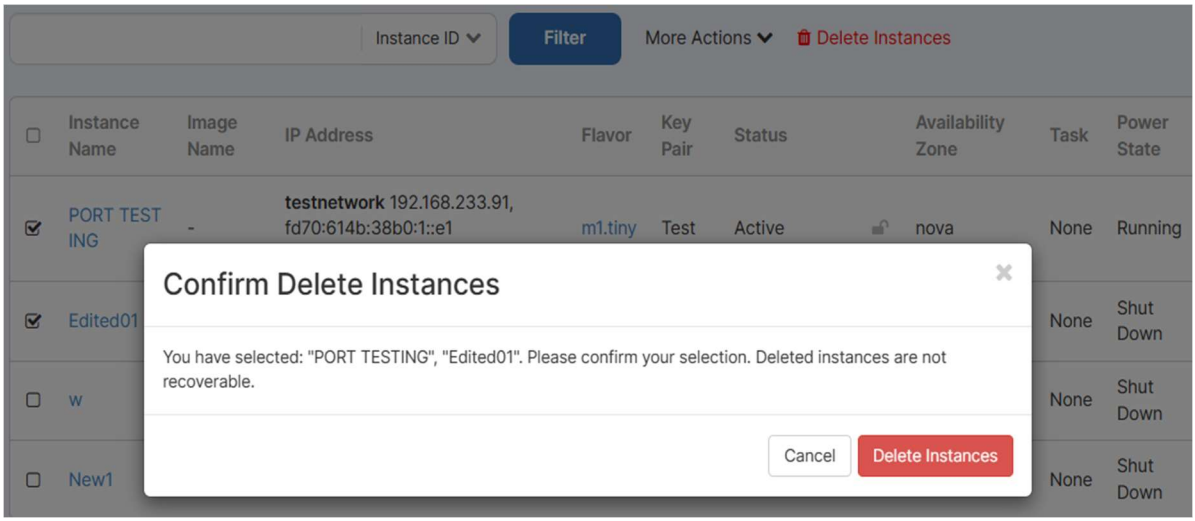
2.4.1.26 Instance → Delete Instances / More Actions

Users can also apply **Start Instances, Shut Off Instance** and **Soft Reboot Instance** on multiple instances by from the **More Actions** dropdown. The overall process is similar to **Delete Instances**.



Step 1: Delete Instances

1. Mark **Checkbox** for any/multiple instances that needs to be deleted.
2. Click on "**Delete Instances**" from the top.



NOTE: A confirmation module will pop-up, user must confirm to "**Delete**" any instance.

3. Click "**Delete Instances**".
4. Click "**Cancel**" if you don't want to delete any instance.

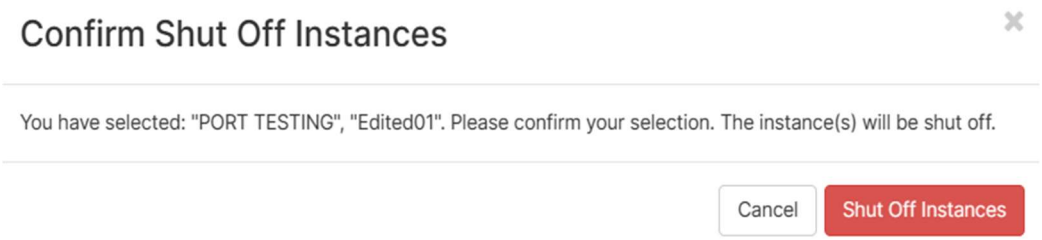
Step 2: More Actions → Start Instances

1. Mark **Checkbox** for any/multiple instances *(shut off)* that needs to be started again.
2. Click on "**More Actions**" dropdown and select **Start Instances**.

NOTE: Upon clicking **Start Instances**, instances that were shut off will initiate the startup process. Users can observe a loading animation for each starting instance within the list.

Step 3: More Actions → Shut Off Instances

1. Mark **Checkbox** for any/multiple instances that needs to be **Shut Off**.
2. Click on "**More Actions**" dropdown and select **Shut Off Instances**.

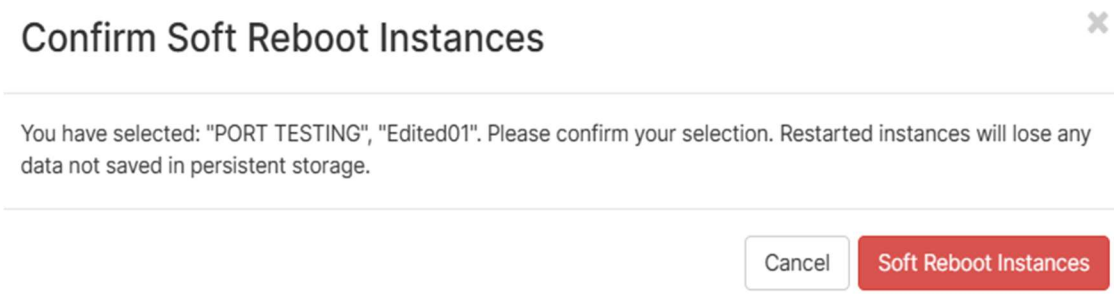


NOTE: A confirmation module will pop-up, user must confirm to "**Shut Off**" any instance.

3. Click "**Shut Off Instances**".
4. Click "**Cancel**" if you don't want to shut off any instance.

Step 4: More Actions → Soft Reboot Instances

1. Mark **Checkbox** for any/multiple instances to **Soft Reboot**.
2. Click on "**More Actions**" dropdown and select **Soft Reboot Instances**.



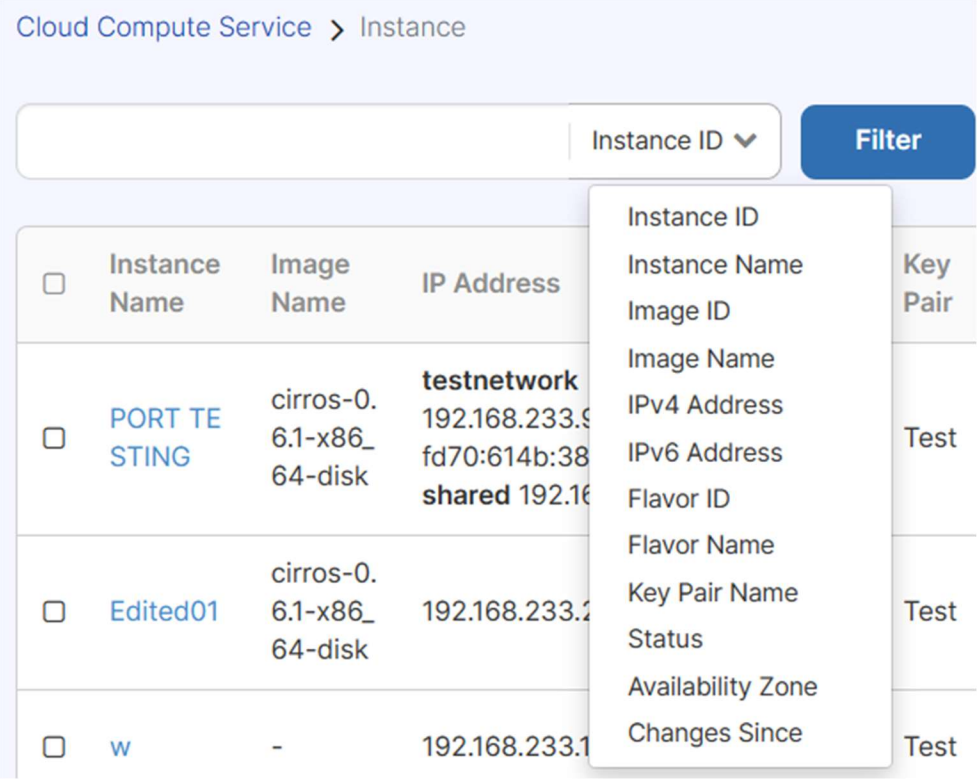
NOTE: A confirmation module will pop-up, user must confirm to "**Soft Reboot**" any instance.

3. Click "**Soft Reboot Instances**".
4. Click "**Cancel**" if you don't want to soft reboot any instance.

2.4.1.27 Instance → Filter

1. Go to **Instance** page.
2. Select filtering criteria from the dropdown.
3. Input keywords in the input-field.

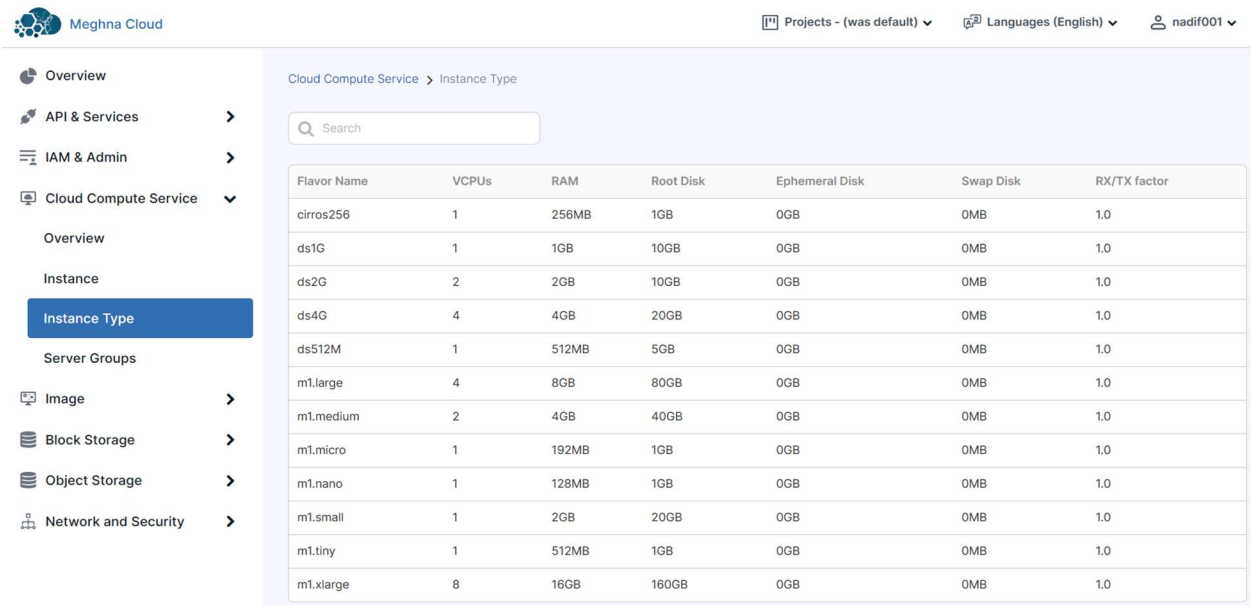
NOTE: Ensure that the keywords you use align with the selected filtering criteria. For instance, input the Instance ID when the chosen "**Filtering Criteria**" is set to "**Instance ID**".



2.4.1.28 Instance Type

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Cloud Compute Service**" for its dropdown menu.
3. Select "**Instance Type**" from the menu to be redirected to the instance page.

NOTE: On this page, users can access a comprehensive list of available instance types, each offering various sizes and specifications. These instances are categorized by Flavor and include details such as VCPUs, RAM, Root Disk, Ephemeral Disk, Swap Disk, and RX/TX Factor.

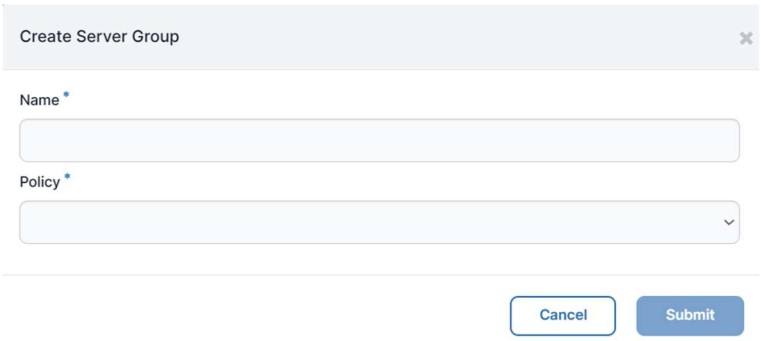


2.4.1.29 Server Groups → Create Server Group

During instance creation selecting or creating server groups is not mandatory. Therefore, if the user wants to create new server groups later or see the list of server groups currently available for use, they can navigate in this page. Here user can search through the list using the search option and also delete any pre-existing groups. You can access this page conveniently through the navigation panel under "Cloud Compute Service."

Step 1: Open “Create Server Group” Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Cloud Compute Service**" for its dropdown menu.
3. Select "**Server Groups**" from the menu to be redirected to the instance page.
4. Click “**Create Server Group**”.



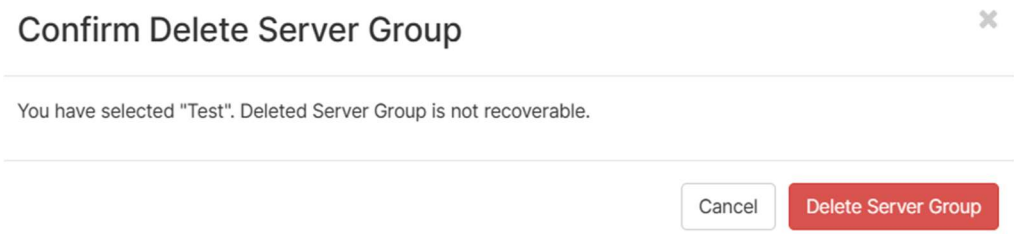
Step 2: Create New Server Group

1. Input **Name** of the Server Group
2. Select **Policy** from the dropdown.
3. Click "**Submit**".
4. Click "**Cancel**" if you don't want to create Server Group.

2.4.1.30 Server Groups → Delete Server Group

Step 1: Delete Individual Server Group

1. Go to the **Server Group** page.
2. Click "**Delete Server Group**" associated with each item on the list.

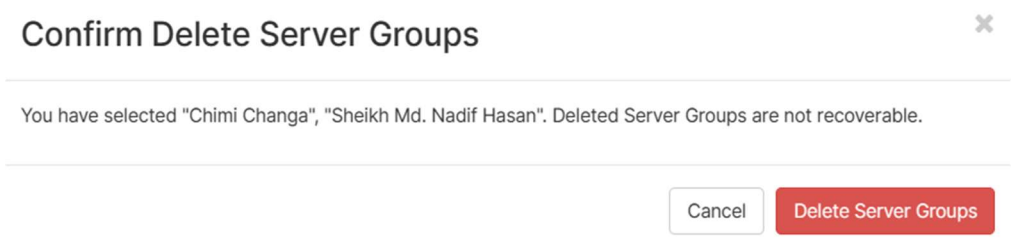


NOTE: A confirmation module will pop-up, user must confirm to "**Delete**" any server group.

3. Click "**Delete Server Group**".
4. Click "**Cancel**" if you don't want to delete any server group.

Step 2: Delete Multiple Server Group

1. Mark **Checkbox** for any/multiple server group that needs to be deleted.
2. Click on "**Delete Server Groups**" from the top.



NOTE: A confirmation module will pop-up, user must confirm to "**Delete**" any server group.

3. Click "**Delete Server Groups**".
4. Click "**Cancel**" if you don't want to delete any server group.

2.4.1.31 Server Groups → Filter

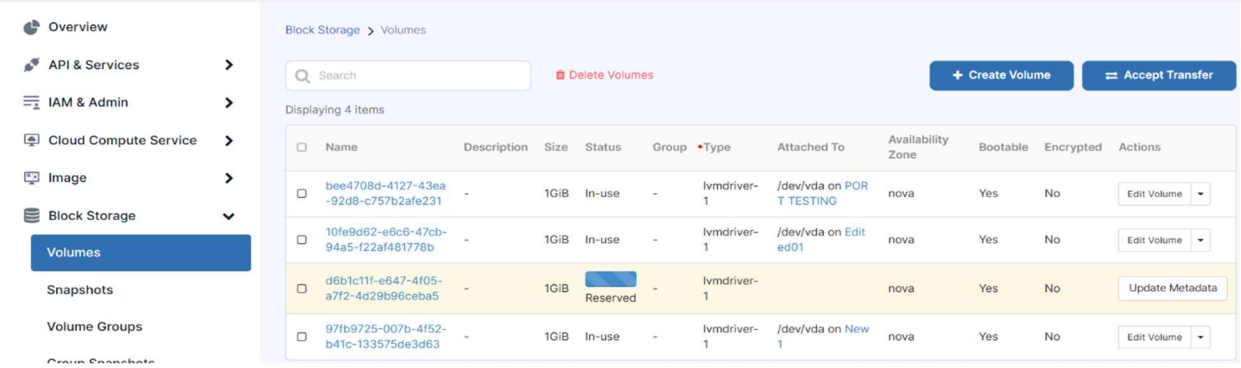
1. Go to **Server Group** page.
2. Input keywords in the input-field.

NOTE: The filtering function operates automatically in response to the input provided. It is essential for the user to input accurate keywords to observe the desired filtering effect.

2.4.2 Block Storage Service

In cloud computing, block storage functions as a storage framework that handles data in fixed-size blocks. Each block is managed as an independent hard drive, governed by distinct input/output instructions. In contrast to file storage, which arranges data hierarchically, block storage supplies unprocessed storage volumes accessible to an operating system. Think of it as a virtual hard drive in the cloud—swift and ideal for applications requiring immediate and efficient data access, such as databases.

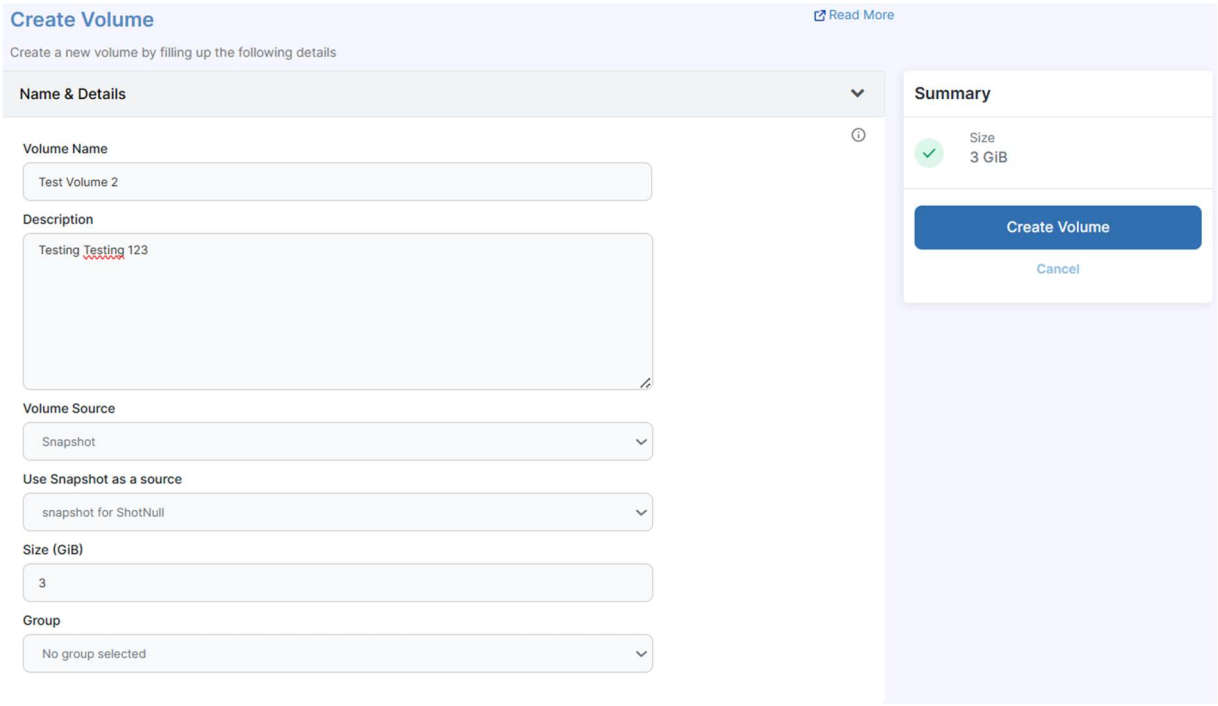
2.4.2.1 Volume → Create Volume



Step 1: Open “Create Volume” Page

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
3. Select "**Volume**" from the menu to be redirected to the Volume page.
4. Click “**Create Volume.**

Note: Clicking on the button will redirect the user to the "Create Volume" page, where the **Name and Details** sections become accessible. To create a volume, the user is required to input specific information. If the user wishes to return to the previous dashboard, they can simply click the "**back**" button in the browser.



Step 2: Create a New Volume

1. Input volume **Name** and **Description** in the respective field.
2. Select **Volume Source** from the dropdown.

NOTE: Choose the type of source you want to use for your volume; the options include image, volume, and snapshot.

3. Select a specific **Source File** from the dropdown**,** based on the type selected.

IMPORTANT: When a user selects a **Volume Source** from the dropdown, an additional dropdown appears for source file selection based on the chosen source type (**Image**, **Volume**, and **Snapshot**). It's important to note that if a user changes the source type after selecting a source file, the entire process must be restarted from source type selection to source file selection. This is designed to prevent accidental selections.

4. Select the volume **Type** from the dropdown.
5. Input **Volume Size**.

NOTE: The size can be entered manually or adjusted using the increment and decrement buttons.

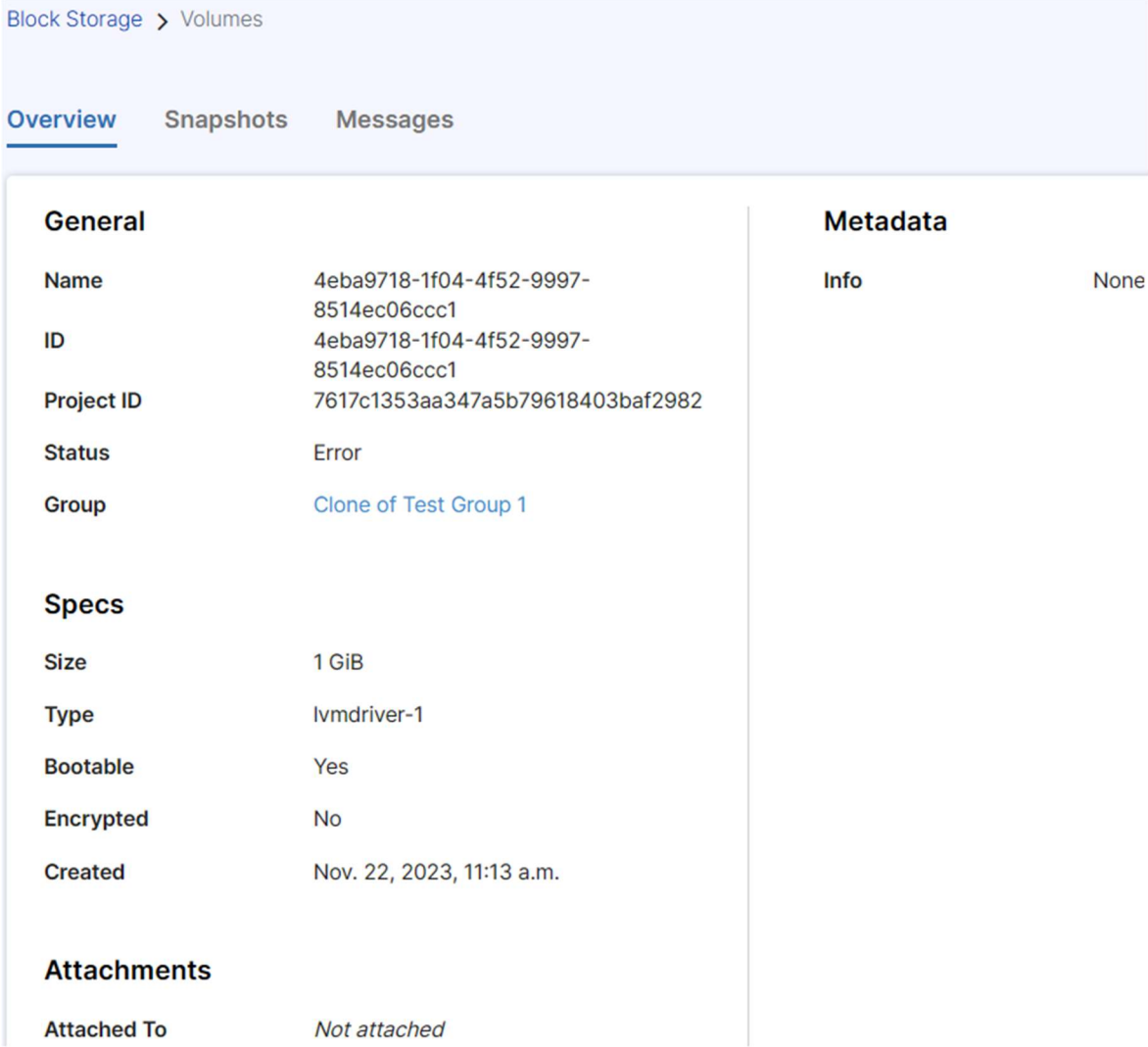
6. Select **Availability Zone** from the dropdown, by default it will be **Nova**.
7. Choose a **Group** for the volume from the dropdown if you wish to assign it to a specific group.

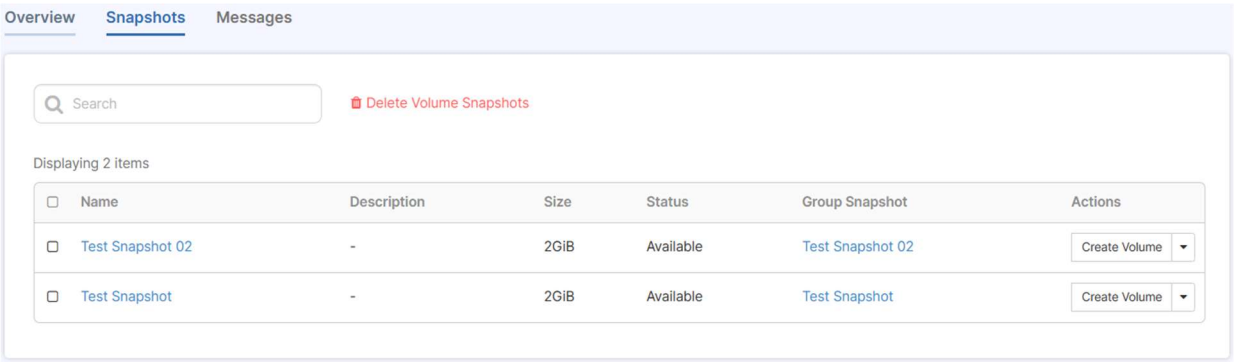
NOTE: Once everything is selected make sure to check out the summary in order to confirm everything.

8. Click **Create Volume**.
9. Click **Cancel** if you do not want to create volume.

Upon successful volume creation user will be redirected back to the volume page. User can see the new volume in the list.

NOTE: Upon clicking the volume **Name** from the list in volume page, user will be redirected to the **Overview** page for the specific file. From here user can see all the details in one glance, user can also control some of the features like mange **Snapshot** options for the volume.





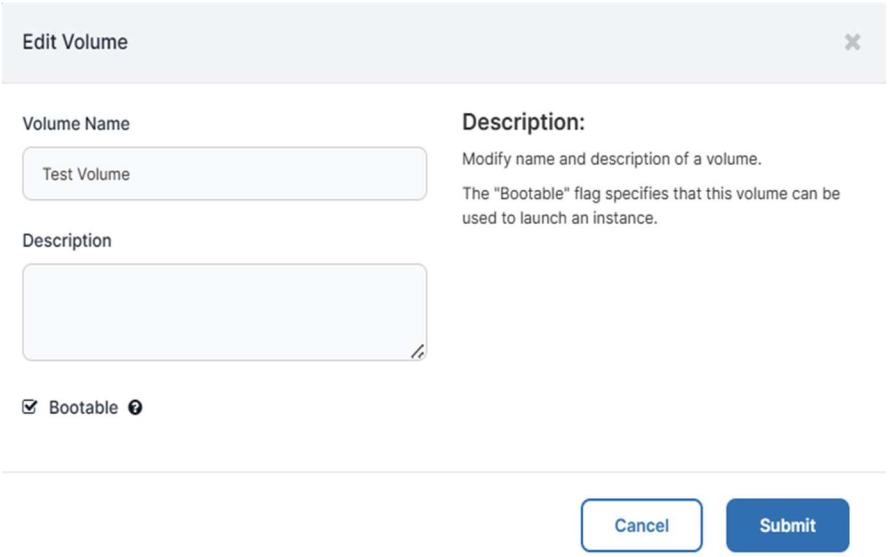
NOTE: For snapshot related Actions please check out from section **2.4.2.22 Snapshots → Actions → Create Volume** to **2.4.2.27 Snapshots → Actions(Dropdown) → Update Metadata**.

2.4.2.2 Volume → Actions → Edit Volume

Edit Volume tab allows user to update basic information such as Name and Description along with bootability.

Step 1: Open Edit Volume Tab

1. Go to **Volume** page.
2. Click on the "**Edit Volume**" button associated with each volume available on the list.



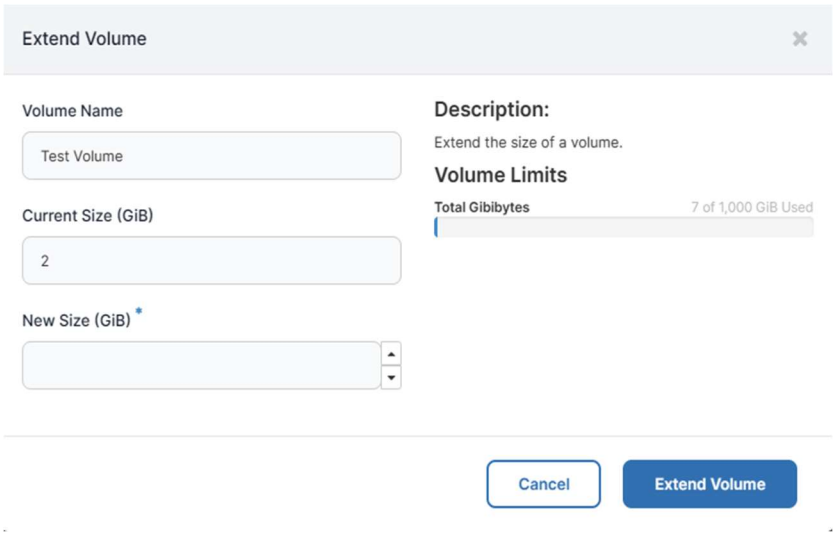
Step 2: Open Edit a Volume

1. Update **Volume Name**.
2. Update **Description**.
3. Mark the **Checkbox** to ensure it is bootable.
4. Click **Submit**.
5. Click **Cancel** if you don't want to edit a volume.

2.4.2.3 Volume → Actions(Dropdown) → Extend Volume

"Extend Volume" allows users to increase the storage capacity of an existing volume, providing flexibility to accommodate growing data needs without creating a new volume. This feature streamlines storage management within the cloud environment.

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Extend Volume**".



3. Input **New Size.**

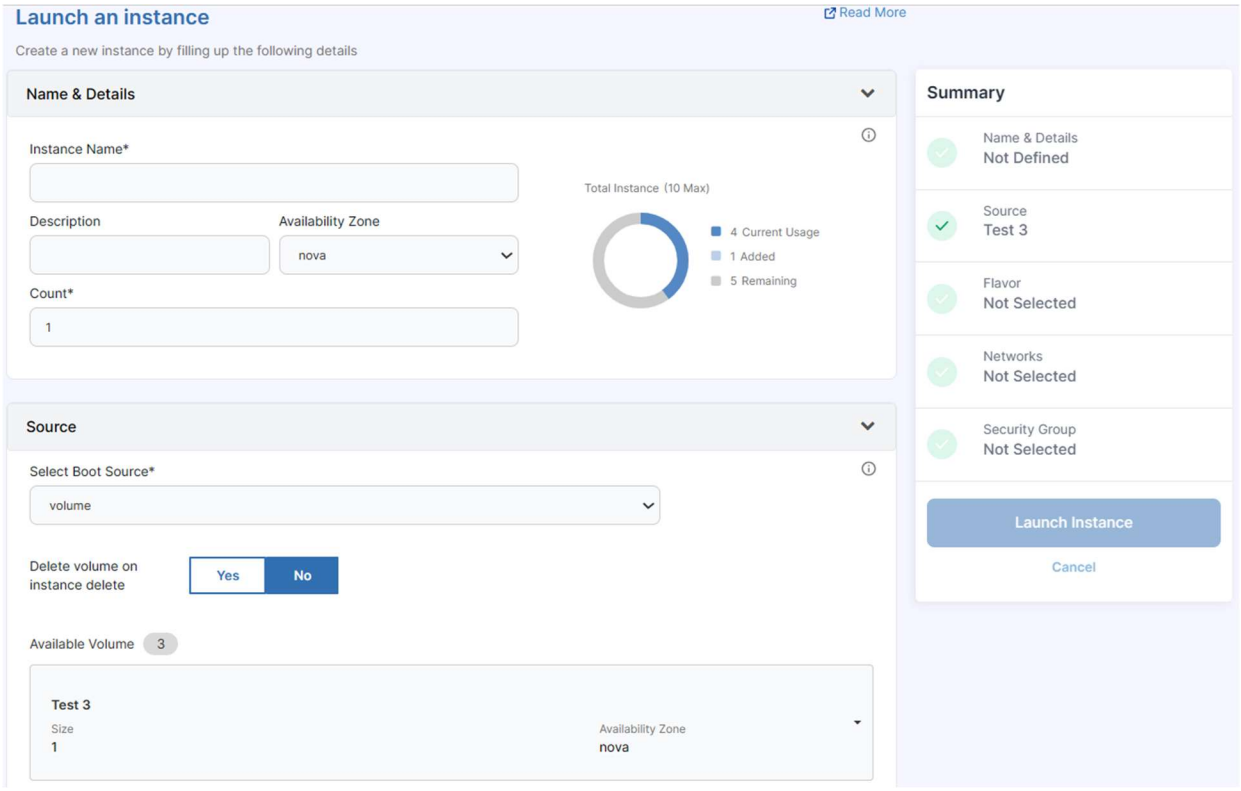
NOTE: Users have the option to input the size manually or use the increment/decrement buttons for adjustments.

4. Click **Extend Volume**.
5. Click **Cancel** if you don't want to extend volume size.

2.4.2.4 Volume → Actions(Dropdown) → Launch as Instance

Creating an instance from a volume involves generating a new virtual machine using a designated volume as the source. This approach facilitates the rapid and efficient deployment of instances, leveraging existing volumes for the seamless creation of new computing resources.

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Launch an Instance**".



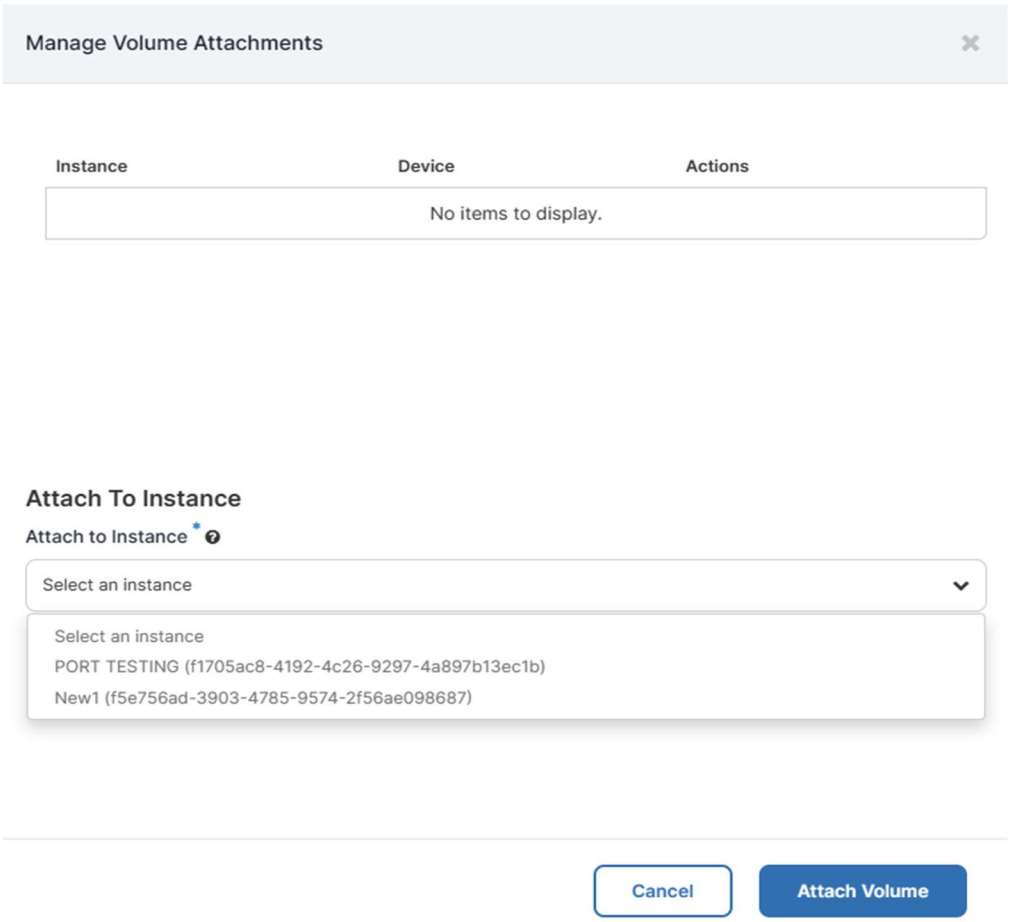
NOTE: Once the user clicks on the “Launch an Instance” button, they will be redirected to the "Launch an Instance" page, where the boot source will be automatically set to the volume selected by the user. The instance launching process remains the same from this point. Refer to section **2.4.1.2 "Instance → Launch an Instance"** for specific instructions.

2.4.2.5 Volume → Actions(Dropdown) → Manage Attachments

"Manage Volume Attachments" enables users to control and configure the attachment of a volume to instances. This feature provides a centralized hub for efficiently handling the association and detachment of volumes from compute instances within the cloud infrastructure.

Step 1: Attach Volume to Instance

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, “**Manage Volume Attachments**”.
3. Select an Instance from the dropdown under **Attach an Instance**.
4. Click **Attach Volume**.
5. Click **Cancel** if you don’t want to attach volume.



NOTE: Once the **Volume** is attached to an instance, upon next visit to the **Manage Volume Attachments** tab the **Detach** option will appear.

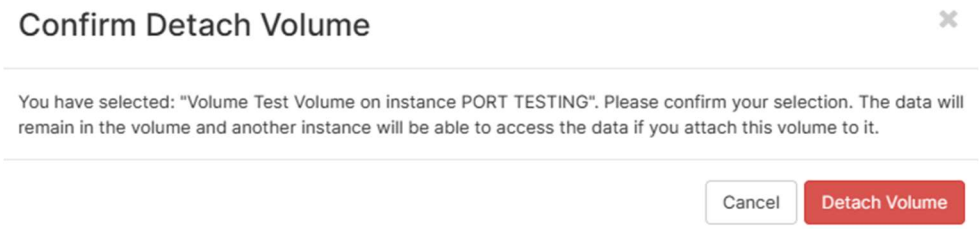
Step 2: Detach Volume

"Detach Volume" allows users to disconnect a volume from an instance, providing flexibility in managing storage resources within the cloud environment.

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Manage Volume Attachments**".
3. Click **Detach Volume**.

IMPORTANT: Upon clicking "**Detach Volume**", a confirmation module will appear, requiring user confirmation to proceed with detaching the volume from the instance. This additional step ensures deliberate and accurate actions in the detachment process.

4. Click **Detach Volume** from the confirmation module.
5. Click **Cancel** if you don't want to detach volume.

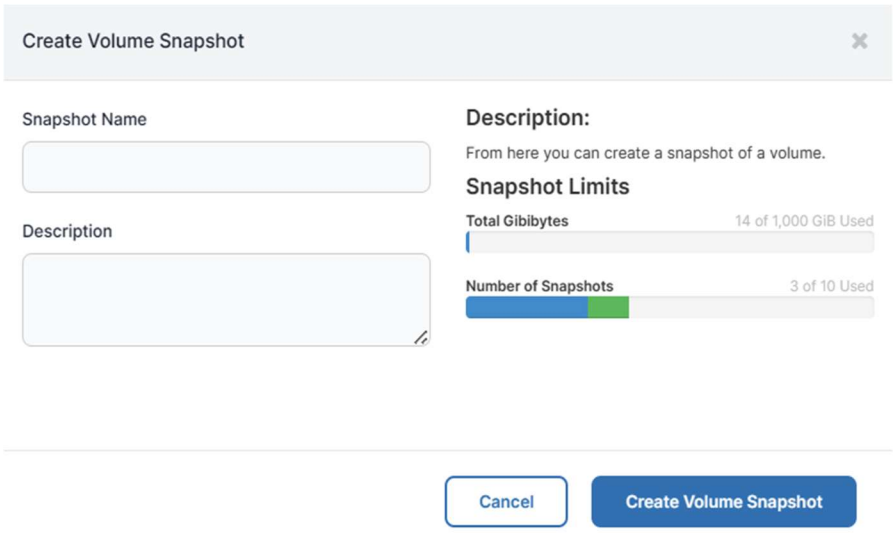


2.4.2.6 Volume → Actions(Dropdown) → Create Volume Snapshots

"Create Volume Snapshots" enables users to capture point-in-time copies of volumes, providing data backup and recovery options within the cloud infrastructure. This feature enhances data protection and facilitates the creation of consistent snapshots for various use cases.

Step 1: Open the Create Volume Snapshot Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Create Volume Snapshots**".



Step 2: Create a Snapshot from Volume

1. Input snapshot **Name**.
2. Provide a **Description**.

NOTE: Users can view the limits for both the number and size of creatable snapshots. Additionally, there is a visual progress bar providing a graphical representation of the snapshot creation process.

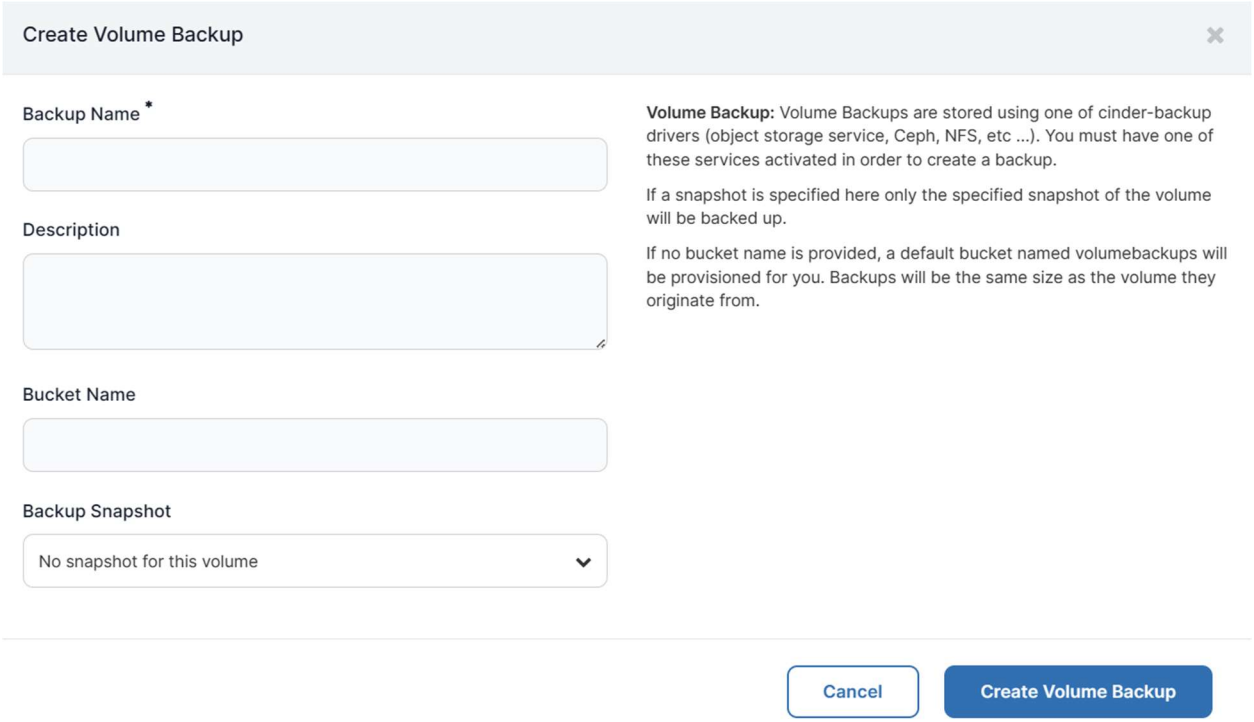
3. Click **Create Volume Snapshot**.
4. Click **Cancel** if you don't want create a snapshot.

2.4.2.7 Volume → Actions(Dropdown) → Create Backup

In cloud computing, a backup refers to the process of creating and maintaining copies of data or applications stored in the cloud. This practice is crucial for ensuring data resilience, availability, and recovery in case of accidental deletion, data corruption, system failures, or other unforeseen events.

Step 1: Open the Create Volume Backup Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Create Backup**".



Step 2: Create Backup for a Volume

1. Input a name for the backup in the "**Backup Name**" field.
2. Provide a suitable description in the "**Description**" field.
3. Input a "**Bucket Name**", to store the backup in a custom bucket.
4. Select "**Backup Snapshot**", if user also wants to backup the snapshot associated with the volume.

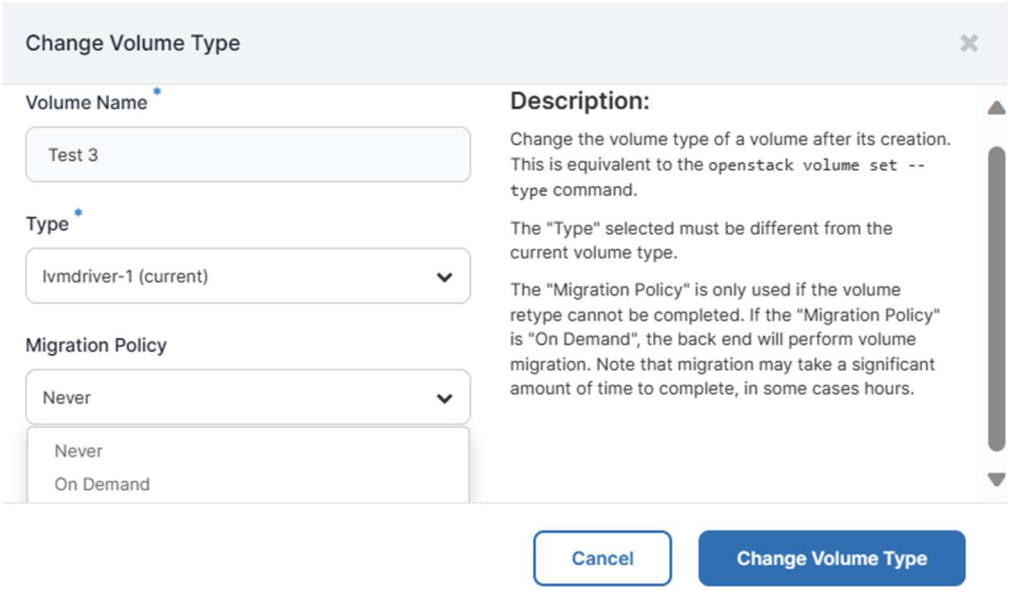
NOTE: Backups are initially stored in a designated bucket. The creation of a customized bucket offers users the convenience of effectively isolating their data. This storage preference is attributed to the bucket serving as a dedicated space within cloud storage, ensuring both secure storage and facile retrieval as needed. Within the custom bucket structure, users can locate a volume folder, and within that, a backup folder identified by a specific date and time. The navigation into the backup folder facilitates the viewing and separate downloading of individual files. The backup process not only ensures the safeguarding of data but also establishes a distinct copy of valuable information. In the event of data failure, users can seamlessly initiate the restart of their virtual machine (VM) using the backup.

2.4.2.8 Volume → Actions(Dropdown) → Change Volume Type

"Change Volume Type" allows users to modify the storage characteristics of a volume, offering flexibility in adapting to different performance and capacity requirements within the cloud environment.

Step 1: Open the Change Volume Type Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Change Volume Type**".



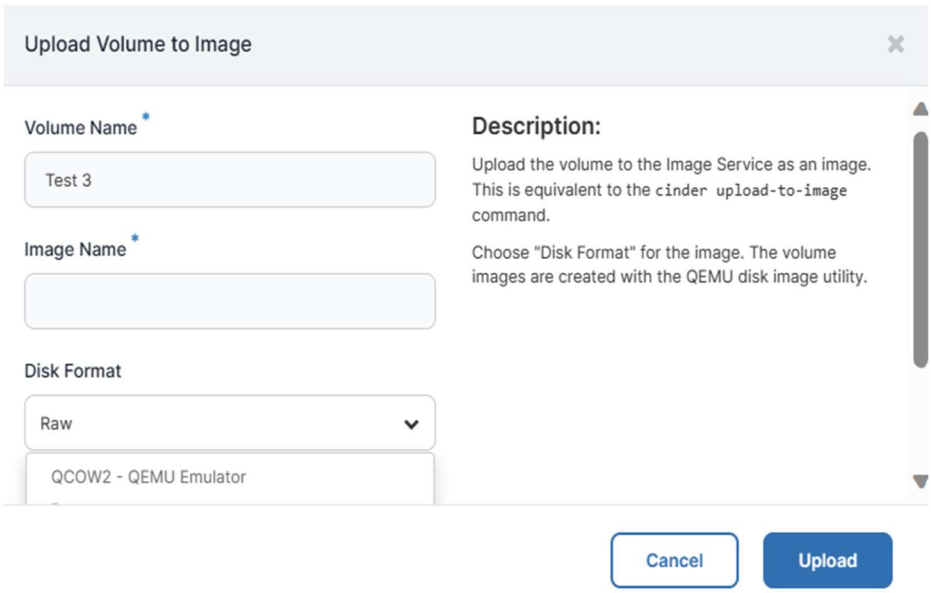
Step 2: Change Type for Volume

1. Select a new **Type** from the dropdown.
2. Select the **Migration Policy** from the dropdown.
3. Click **Change Volume Type**.
4. Click **Cancel** if you don't want to change the volume type.

2.4.2.9 Volume → Actions(Dropdown) → Upload Volume to Image

Step 1: Open the Upload Volume to Image Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Upload to Image**".



Step 2: Upload a Volume

1. Input an **Image Name** in the input field.
2. Select **Disk Format** from the dropdown.
3. Click **Upload**.
4. Click **Cancel** if you don't want to upload a volume.

NOTE: User can see the list of images in the **Images** page under **Image**, located in the side-navbar.

2.4.2.10 Volume → Actions(Dropdown) → Create Transfer

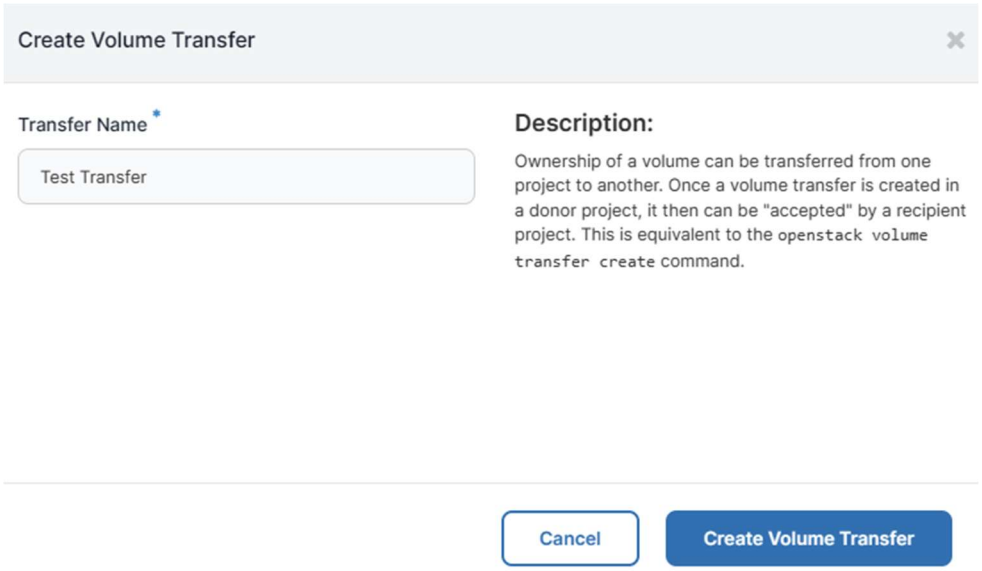
"Create Transfer" facilitates the initiation of a volume transfer process. By generating a unique ID and Key, users can seamlessly initiate the transfer and provide the necessary credentials for the recipient to accept the volume transfer. This feature streamlines the transfer workflow within the cloud environment.

Step 1: Open the Create Volume Transfer Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Create Transfer**".
3. Once the floating tab is opened, input **Transfer Name**.

4. Click **Create Volume Transfer**.
5. Click **Cancel** if you don't want to Transfer Volume.

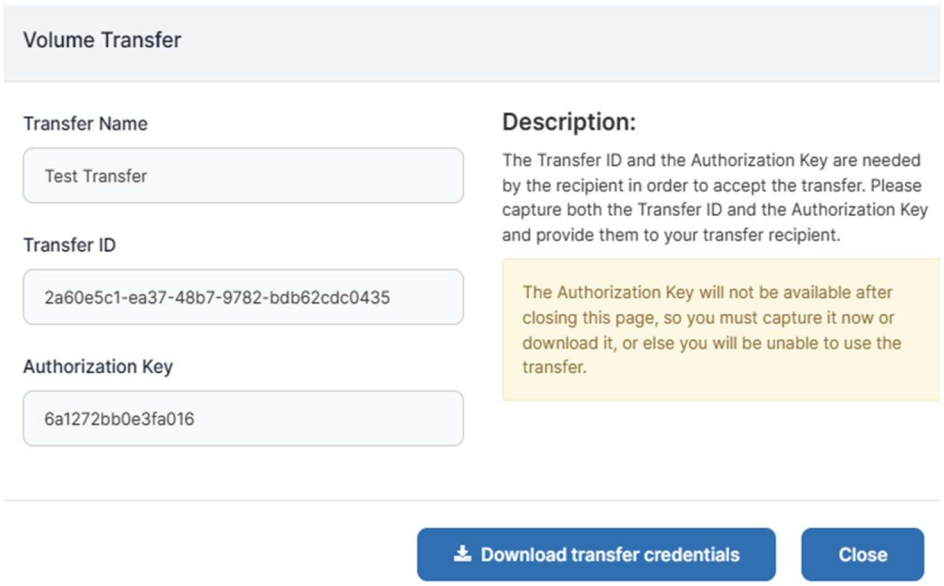
NOTE: Clicking "**Create Volume Transfer**" redirects the user to the next tab, where they can obtain a unique ID and Key necessary for accepting the volume transfer.



Step 2: Collect Transfer ID and Key

1. Click **Download Transfer Credentials**.
2. Click **Cancel** after the credentials are collected safely.

IMPORTANT: Upon clicking "**Create Volume Transfer**," the volume transfer process is initiated, and the user is provided with a **Transfer ID** and **Authorization Key**. It is crucial for the user to copy or download these credentials as they are essential for the **Accept Transfer** process. Losing the "Transfer ID" and "Authorization Key" will result in a halted transfer process, requiring the user to cancel and restart the transfer.



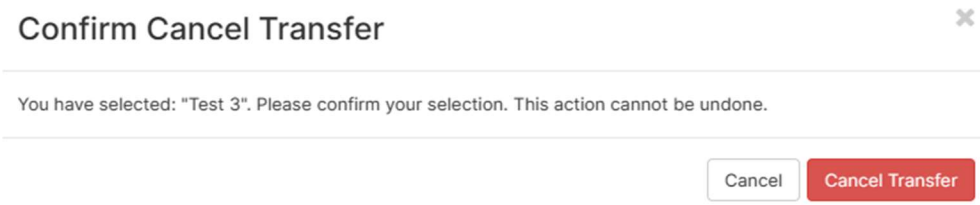
Step 3: Cancel Transfer

1. Click on the "**Cancel Transfer**" button under **Actions** column from the volume page.

Or click on the **dropdown** associated with each volume available on the list and select, "**Cancel Transfer**".

NOTE: Upon clicking, a confirmation module will appear, requesting user consent for the cancellation process. User confirmation is required to proceed with the cancellation of the transfer process.

2. Click **Cancel Transfer**.
3. Click **Cancel** if you don't want to cancel the transferring process.

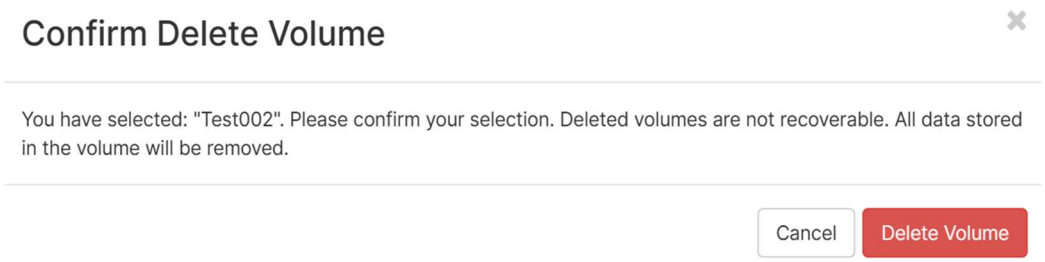


NOTE: To find more about the **Accept Transfer** process please go to "**2.4.2.13 Volume → Accept Transfer"**.

2.4.2.11 Volume → Actions(Dropdown) → Delete Volume

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Delete Volume**".

NOTE: The "**Delete**" option may not be visible in the dropdown if the volume is currently attached to an interface or if a snapshot has been created using the selected volume.



IMPORTANT: Upon clicking "**Delete Volume**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

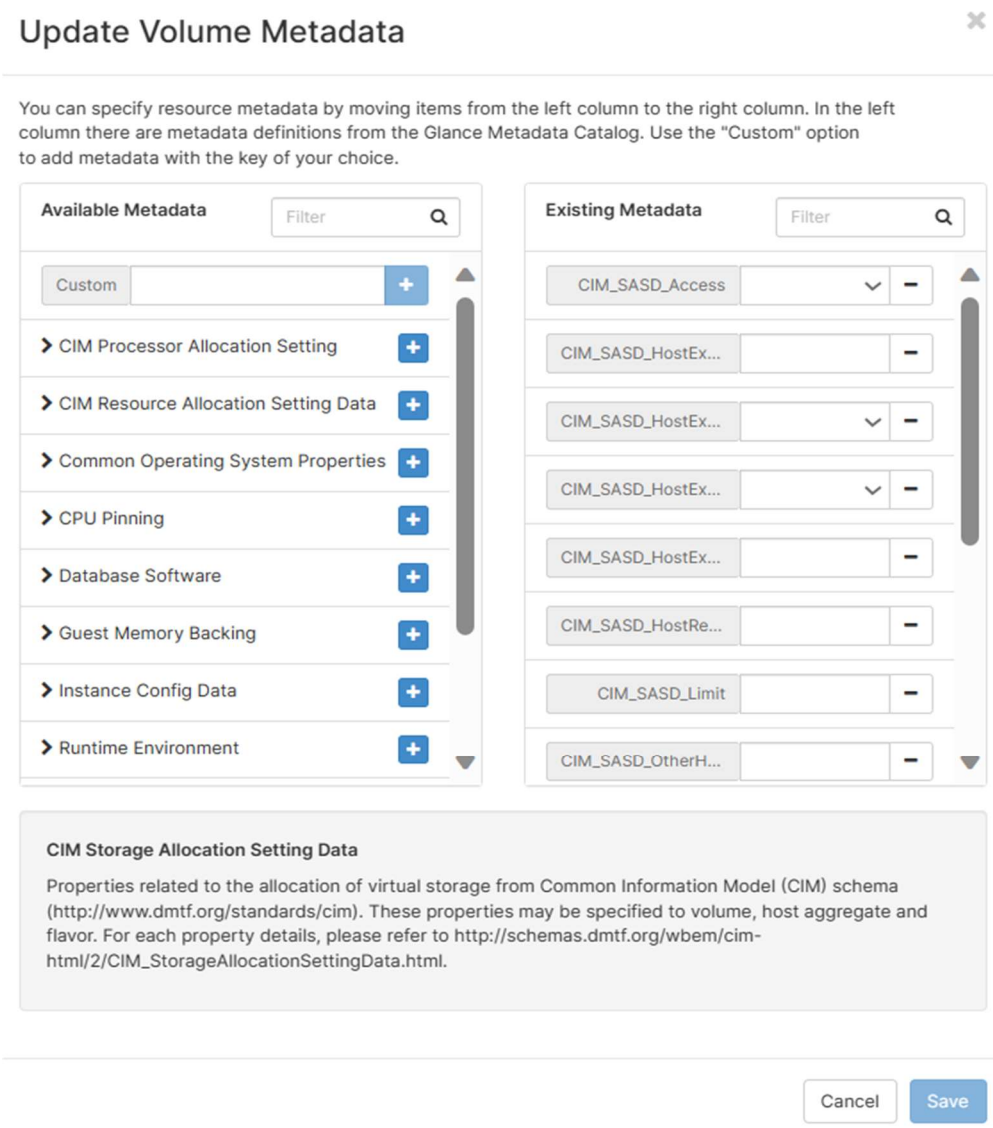
3. Click **Delete Volume**.
4. Click **Cancel** if you don't want to delete volume.

2.4.2.12 Volume → Actions(Dropdown) → Update Metadata

"Update Metadata" allows users to modify or enhance metadata associated with a volume, providing flexibility in managing additional information for organizational and categorization purposes within the cloud environment.

Step 1: Open the Update Metadata Tab

1. Go to **Volume** page.
2. Click on the **dropdown** associated with each volume available on the list and select, "**Update Metadata**".



Step 2: Add or Remove Metadata

1. Open “Update Metadata” tab.
2. Add metadata; click on the "**Plus**" icon next to an item in the **Available Metadata** section.

NOTE: Upon clicking “Plus”, the item will move from the “Available Metadata” section to “Existing Metadata” section.

IMPORTANT: To generate **Custom Metadata**, users need to input the metadata title in the designated field under "Available Metadata" and then click the "Plus" icon to include the custom metadata in the "Existing Metadata" section.

3. Remove metadata; click on the "**Minus**" icon next to an item in the **Existing Metadata** section.

NOTE: Upon clicking “Minus”, the item will move from the “Existing Metadata” section to “Available Metadata” section.

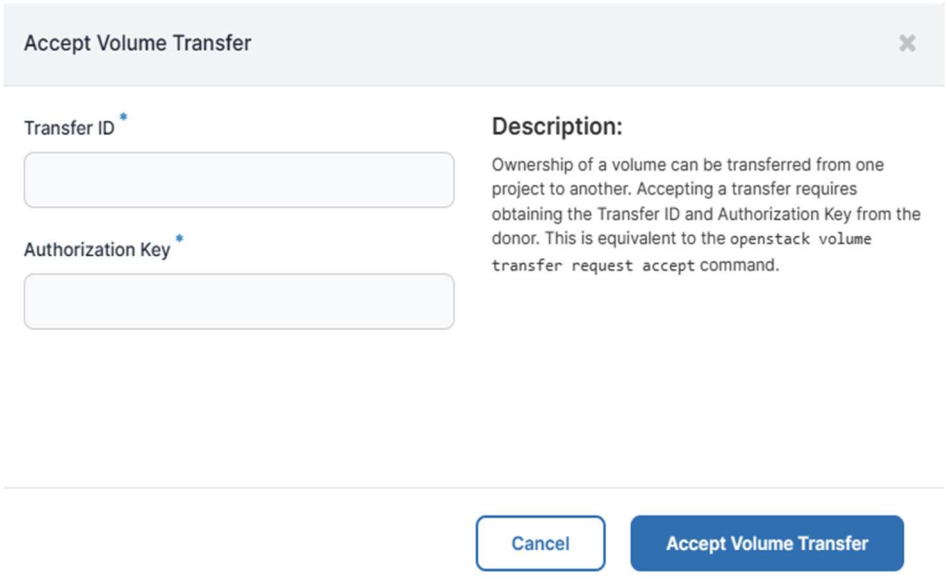
4. Click **Save**.
5. Click **Cancel** if you don’t want to update metadata.

IMPORTANT: To utilize the Filter function, enter keywords in the input field, and the filter will automatically identify metadata that matches the provided keywords.

2.4.2.13 Volume → Accept Transfer

Step 1: Open the Accept Volume Transfer Tab

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Volume**" from the menu to be redirected to the Volume page.
3. Click on **Accept Transfer** located at the top-right of the volume page.



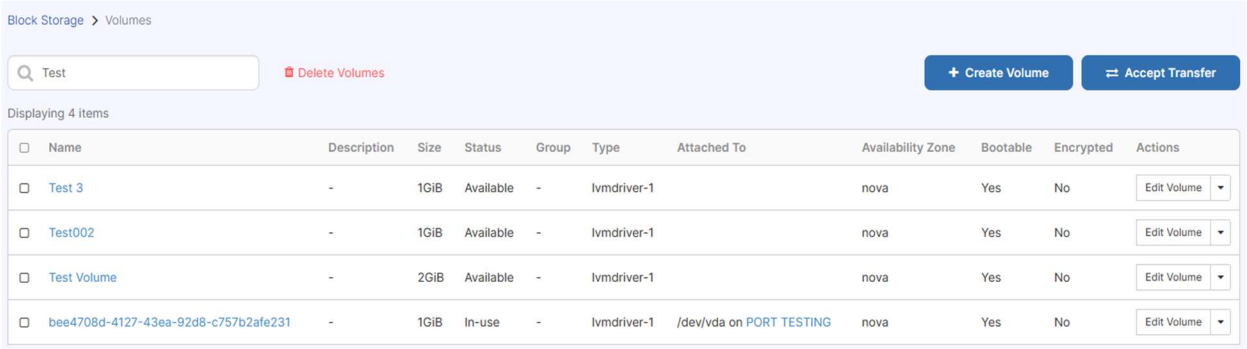
Step 2: Accept Volume Transfer with Credentials

1. Input **Transfer ID** in the input field.
2. Input **Authorization ID** in the input field.

3. Click **Accept Volume Transfer**.
4. Click **Cancel** if you don't want to accept the transfer.

IMPORTANT: Valid credentials must be provided by the user for the transfer process to be successful. These credentials are obtained during the transfer creation process.

2.4.2.14 Volume → Search



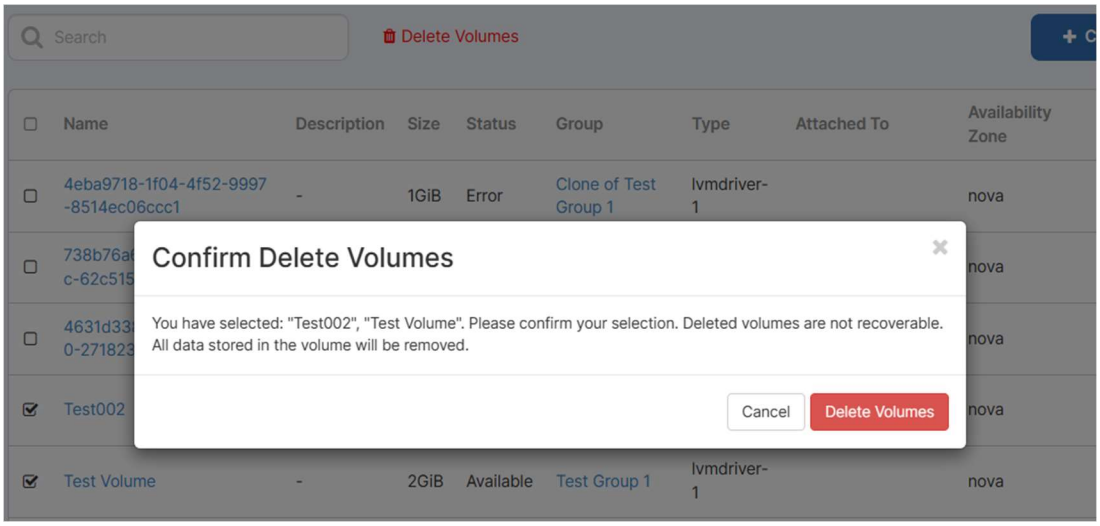
1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Volume**" from the menu to be redirected to the Volume page.
3. Input searching keywords in the search field.

NOTE: The search function operates automatically when inputting keywords that match list items. This feature streamlines the identification and retrieval of specific items, enhancing the user's experience by providing a quick and efficient way to locate relevant information within

2.4.2.15 Volume → Delete Volumes

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Volume**" from the menu to be redirected to the Volume page.
3. Choose the volumes you wish to delete from the list, ensuring that the checkboxes are selected.
4. Click **Delete Volumes** located at the top.

IMPORTANT: Upon clicking "**Delete Volumes**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.



5. Click **Delete Volumes**.
6. Click **Cancel** if you don't want to delete volume.

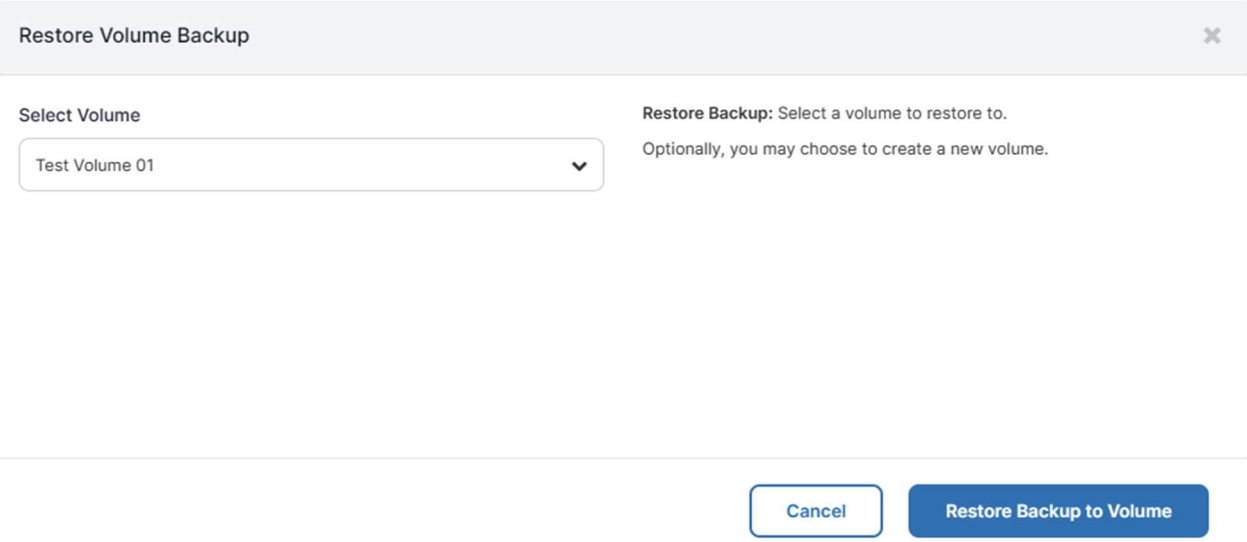
NOTE: "Snapshots" typically refer to point-in-time copies or backups of data in a computing environment. In cloud computing, snapshots are often used to capture the state of a virtual machine or storage volume at a specific moment, allowing for data recovery, backup, or migration. Snapshots provide a convenient and efficient way to preserve the state of computing resources, aiding in system management and data protection.

2.4.2.16 Backup → Actions → Restore Backup

In the realm of cloud computing, a backup is the fundamental process of generating and managing duplicates of data or applications that reside in the cloud. This practice is paramount for guaranteeing the resilience, accessibility, and recoverability of data in instances of inadvertent deletion, data corruption, system failures, or unexpected events. Backups play a pivotal role in safeguarding against potential loss, enabling businesses to uphold data integrity and adhere to regulatory compliance standards.

Step 1: Open the Restore Volume Backup Tab

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Backup**" from the menu to be redirected to the backup page.
3. Click on the "**Restore Backup**" button under "Actions" column associated with each backup available on the list.



Step 2: Restore a Backup

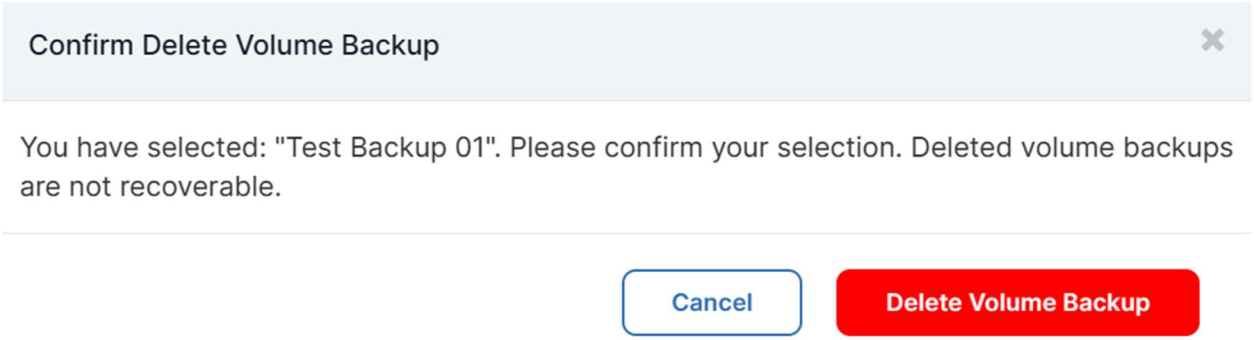
1. Select in which volume to restore the backup from the dropdown.

NOTE: By default, the volume will be preselected based on which the backup was created, but users can restore the backup to any existing volume using the dropdown. Users also have the option to create a new volume during the restoring process.

2. Click "**Restore Backup to Volume**" in order proceed with restoration.
3. Click "**Cancel**" to cancel the restoring process.

2.4.2.17 Backup → Actions(Dropdown) → Delete Volume Backup

1. Go to **Backups** page.
2. Click on the **dropdown** associated with each backup available on the list and select, "**Delete Volume Backup**".

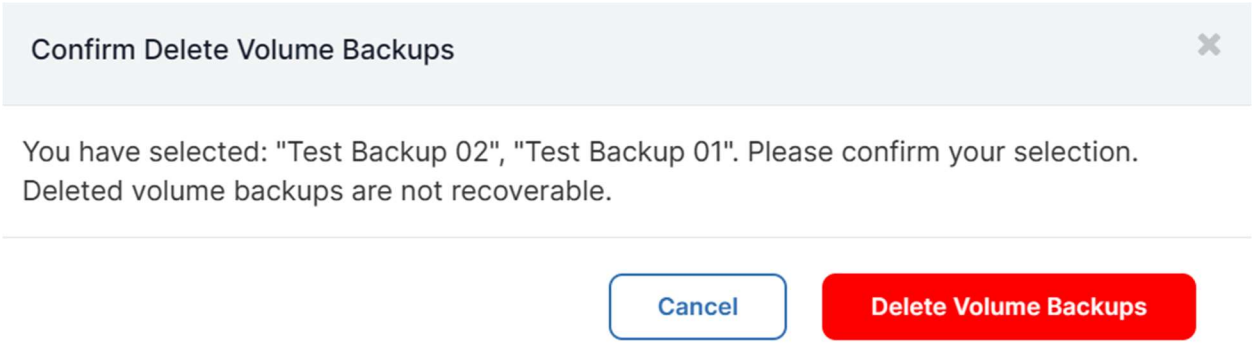


IMPORTANT: Upon clicking "**Delete Volume Backup**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

5. Click **Delete Volume Backup** to proceed with deletion.
6. Click **Cancel** if you don't want to delete backup.

2.4.2.18 Backup → Delete Volume Backups

1. Go to **Backups** page.
2. Mark all the backups that needs to be deleted.
3. Click on the "**Delete Volume Backups**" button located at the top of the page.

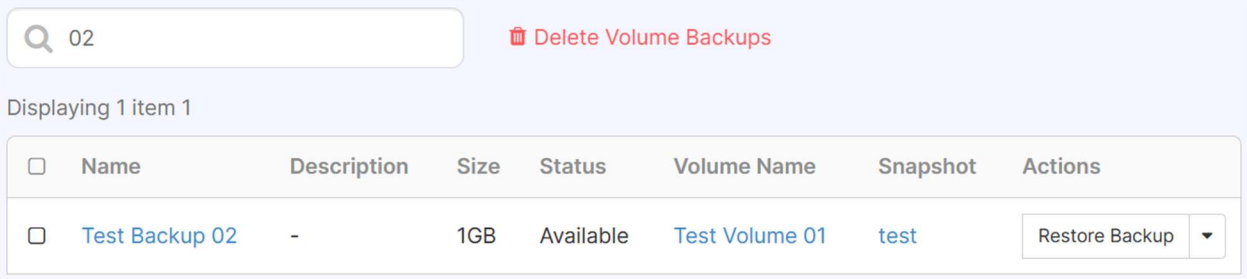


IMPORTANT: Upon clicking "**Delete Volume Backup**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

4. Click **Delete Volume Backups** to proceed with deletion.
5. Click **Cancel** if you don't want to delete backup.

2.4.2.19 Backup → Search

1. Go to **Backups** page.
2. Input searching keywords in the search field.

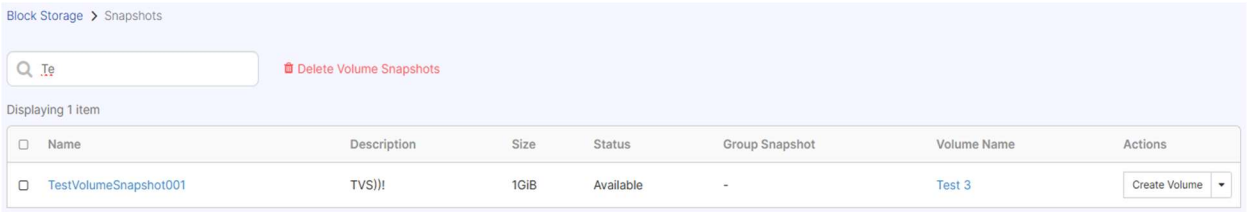


NOTE: The search function operates automatically when inputting keywords that match list items. This feature streamlines the identification and retrieval of specific items, enhancing the user's experience by providing a quick and efficient way to locate relevant information within the list.

2.4.2.20 Snapshots → Search

NOTE: "Snapshots" typically refer to point-in-time copies or backups of data in a computing environment. In cloud computing, snapshots are often used to capture the state of a virtual machine or storage volume at a specific moment, allowing for data recovery, backup, or migration. Snapshots provide a convenient and efficient way to preserve the state of computing resources, aiding in system management and data protection.

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Snapshot**" from the menu to be redirected to the snapshots page.
3. Input searching keywords in the search field.



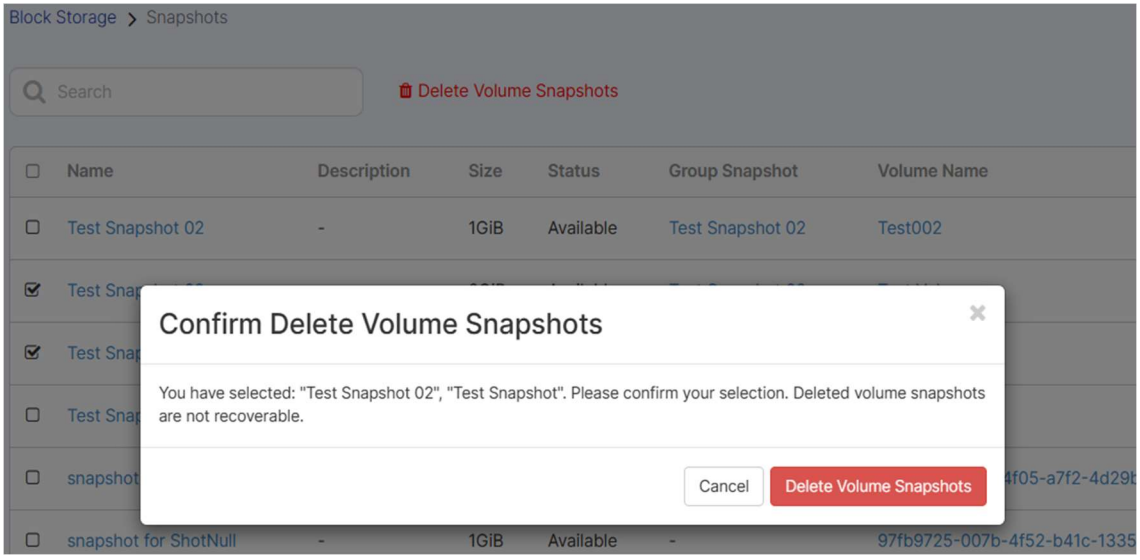
NOTE: The search function operates automatically when inputting keywords that match list items. This feature streamlines the identification and retrieval of specific items, enhancing the user's experience by providing a quick and efficient way to locate relevant information within the list.

2.4.2.21 Snapshots → Delete Volume Snapshots

NOTE: User can delete multiple snapshots together.

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Snapshot**" from the menu to be redirected to the snapshots page.
3. Choose the snapshots you wish to delete from the list, ensuring that the checkboxes are selected.
4. Click **Delete Volume Snapshots** located at the top.

IMPORTANT: Upon clicking "**Delete Volume Snapshots**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.



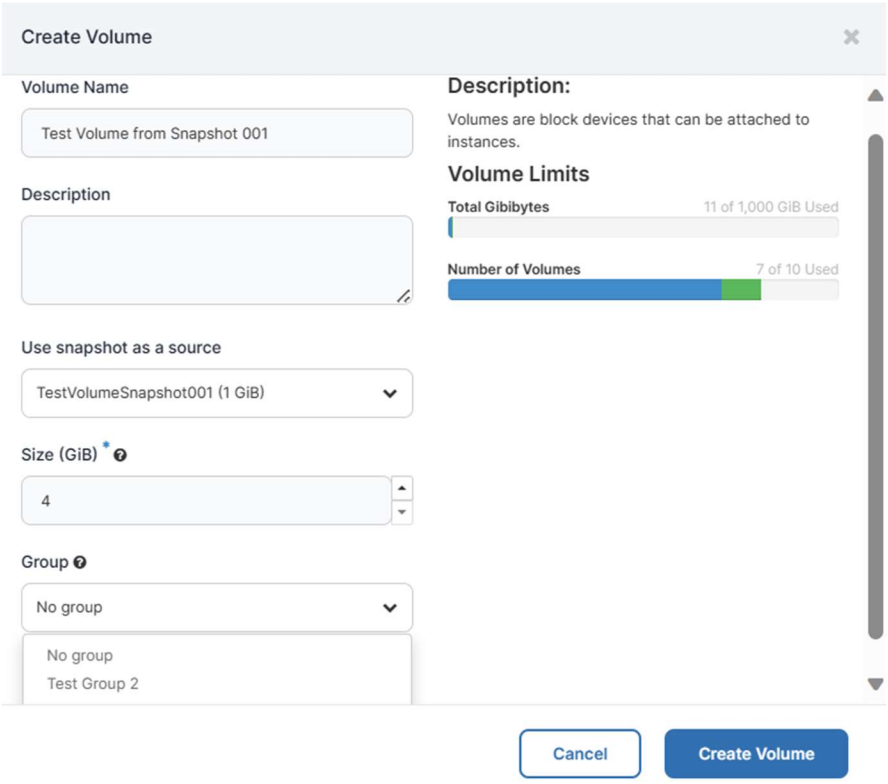
5. Click **Delete Volume Snapshot**.
6. Click **Cancel** if you don't want to delete any snapshot.

2.4.2.22 Snapshots → Actions → Create Volume

In computing, a "volume" typically refers to a storage unit or logical partition where data is stored. In the context of cloud computing, a volume could be associated with additional features such as scalability, snapshots, and backup capabilities. Volumes provide a flexible way to manage and allocate storage resources within a cloud environment.

Step 1: Open the Create Volume Tab

1. Go to **Snapshots** page.
2. Click on the **Create Volume** button, associated with each snapshot available on the list.



Step 2: Create Volume from a Snapshot

1. Update the **Volume Name** field.
2. Provide a supporting **Description** in the description box.
3. Specify the size of the volume.

NOTE: You can input the size directly in the field by typing, or you can adjust it using the increment/decrement buttons.

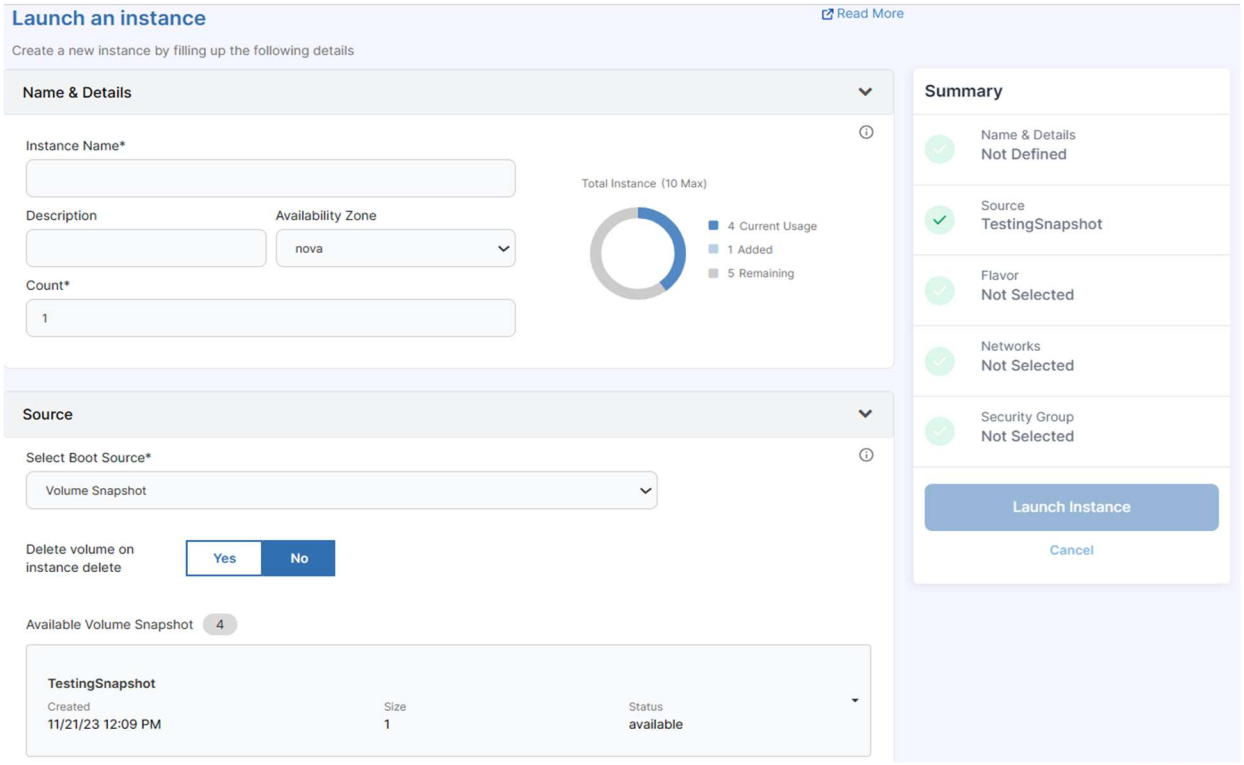
NOTE: The user can observe the number of volumes that can be created and the allocated storage in both a progress bar and numerical values.

4. Click **Create Volume**.
5. Click **Cancel** if you don't want to create volume.

2.4.2.23 Snapshots → Actions(Dropdown) → Launch an Instance

Launching an instance from a snapshot allows you to create a new virtual machine using a saved snapshot as the source. This enables quick and efficient deployment of instances based on existing snapshots, streamlining the process of creating new computing resources.

4. Go to **Snapshots** page.
5. Click on the **dropdown** associated with each snapshot available on the list and select, "**Launch an Instance**".

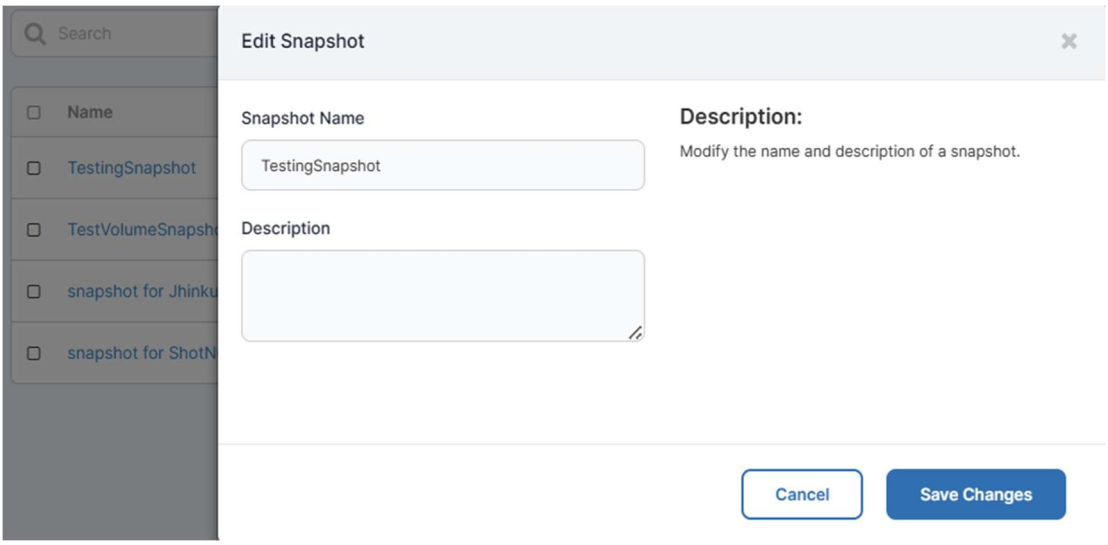


NOTE: Once the user clicks on the "Launch an Instance" button, they will be redirected to the "Launch an Instance" page, where the boot source will be automatically set to the snapshot selected by the user. The instance launching process remains the same from this point. Refer to section **2.4.1.2 "Instance → Launch an Instance"** for specific instructions.

2.4.2.24 Snapshots → Actions(Dropdown) → Edit Snapshot

Step 1: Open the Create Volume Tab

1. Go to **Snapshots** page.
2. Click on the **dropdown** associated with each snapshot available on the list and select, "**Edit Snapshot**".

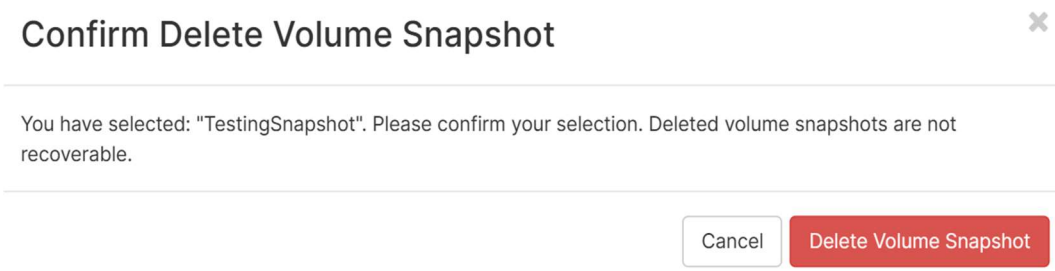


Step 2: Edit Snapshot Information

1. Update the **Snapshot Name** in the name field.
2. Update description.
3. Click **Save Changes**.
4. Click **Cancel** if you don't want to edit snapshot information.

2.4.2.25 Snapshots → Actions(Dropdown) → Delete Volume Snapshot

1. Go to **Snapshots** page.
2. Click on the **dropdown** associated with each snapshot available on the list and select, "**Delete Volume Snapshot**".

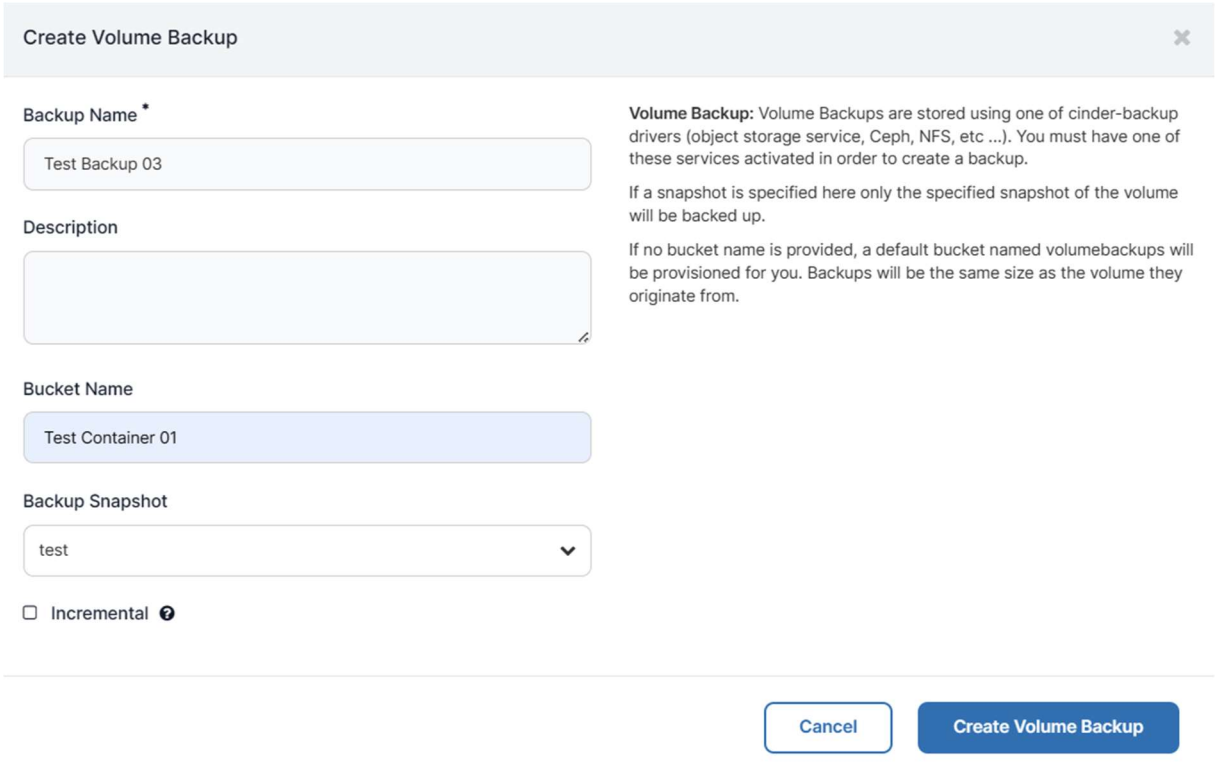


IMPORTANT: Upon clicking "**Delete Volume Snapshot**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

3. Click **Delete Volume Snapshot**.
4. Click **Cancel** if you don't want to delete the volume snapshot.

2.4.2.26 Snapshots → Actions(Dropdown) → Create Backup

1. Go to **Snapshots** page.
2. Click on the **dropdown** associated with each snapshot available on the list and select, "**Create Backup**".



Step 2: Create a Backup from Snapshot

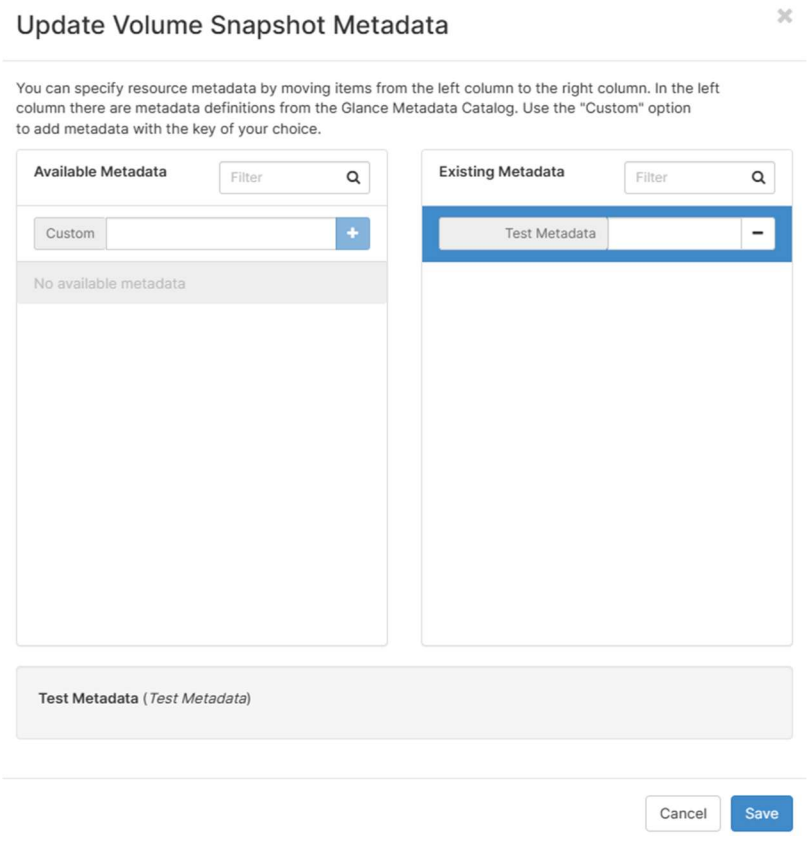
1. Input "**Backup Name**" in the name field.
2. Provide a suitable "Description" in the description box.
3. Input a "**Bucket Name**" in order to create a custom bucket to store the backup.
4. Click "**Create Volume Backup**" in order to proceed with the backup creation.
5. Click "**Cancel**" in order to cancel the backup creation process.

2.4.2.27 Snapshots → Actions(Dropdown) → Update Metadata

"Update Metadata" allows users to modify or enhance metadata associated with a volume snapshot, providing flexibility in managing additional information for organizational and categorization purposes within the cloud environment.

Step 1: Open the Update Volume Snapshot Metadata Tab

1. Go to **Snapshots** page.
2. Click on the **dropdown** associated with each snapshot available on the list and select, "**Update Metadata**".



Step 2: Add or Remove Metadata

1. Open “Update Metadata” tab.
2. Add metadata; click on the "**Plus**" icon next to an item in the **Available Metadata** section.

NOTE: Upon clicking “Plus”, the item will move from the “Available Metadata” section to “Existing Metadata” section.

IMPORTANT: To generate **Custom Metadata**, users need to input the metadata title in the designated field under "Available Metadata" and then click the "Plus" icon to include the custom metadata in the "Existing Metadata" section.

3. Remove metadata; click on the "**Minus**" icon next to an item in the **Existing Metadata** section.

NOTE: Upon clicking “Minus”, the item will move from the “Existing Metadata” section to “Available Metadata” section.

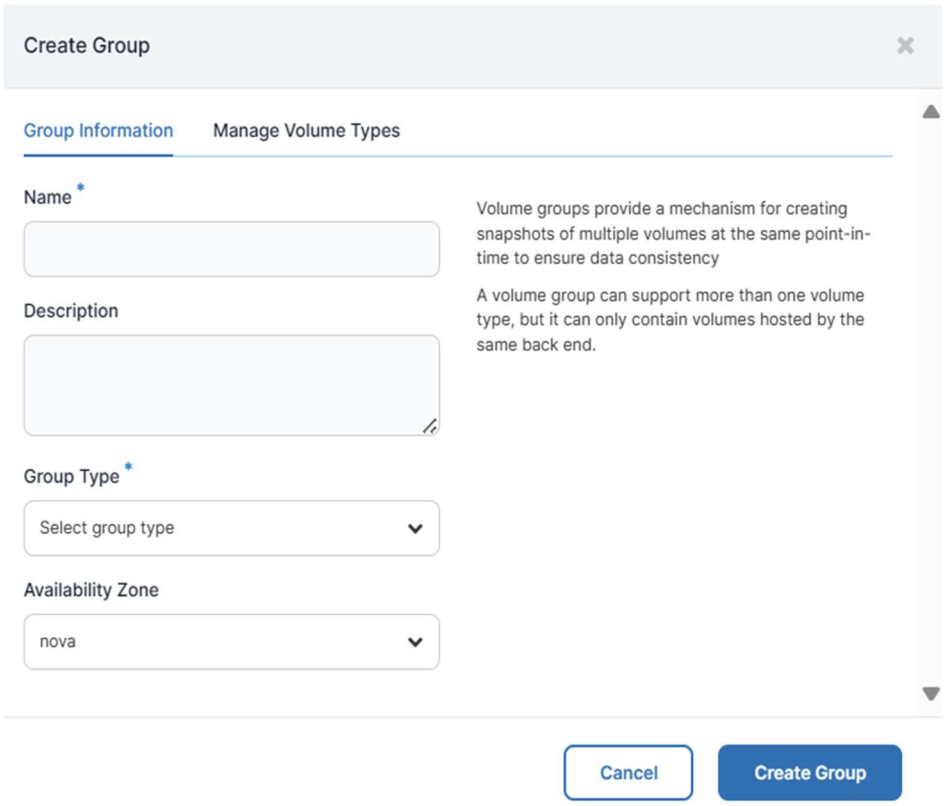
4. Click **Save**.
5. Click **Cancel** if you don’t want to update metadata.

2.4.2.28 Volume Groups → Create Group

Volume Groups provide a way to organize and manage related volumes within a cloud computing environment. By grouping volumes together, users can streamline administration tasks, implement consistent configurations, and facilitate efficient resource management. This organizational structure enhances the overall management and control of storage resources in the cloud.

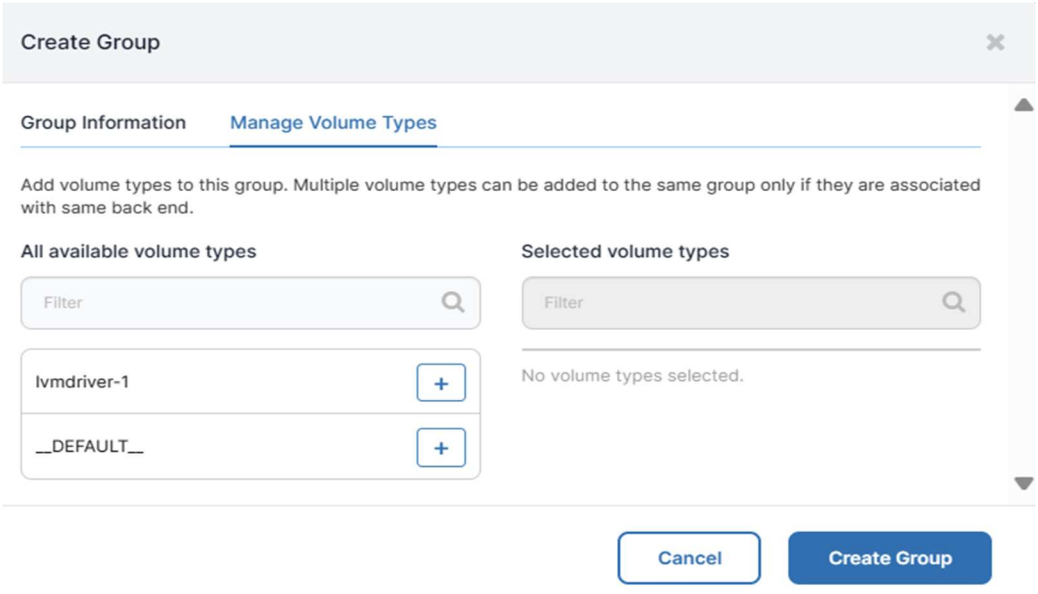
Step 1: Open the Create Group Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
3. Select "**Volume Groups**" from the menu to be redirected to the Volume Groups page.
4. Click **Create Groups**.



Step 2: Insert Group Information

1. Input “Group Name” in the **Name** field.
2. Provide a suitable **Description** in the description field.
3. Select a **Group Type** from the dropdown.
4. Select the **Availability Zone** from the dropdown.



Step 3: Manage Volume Types

1. Select a volume type; click on the "**Plus**" icon next to an item in the **All Available Volume Types** section.

NOTE: Upon clicking “Plus”, the item will move from the “All Available Volume Types” section to “Selected Volume Types” section.

2. Remove a volume type; click on the "**Minus**" icon next to an item in the **Selected Volume Types** section.

NOTE: Upon clicking “Minus”, the item will move from the “Selected Volume Types” section to “All Available Volume Types” section.

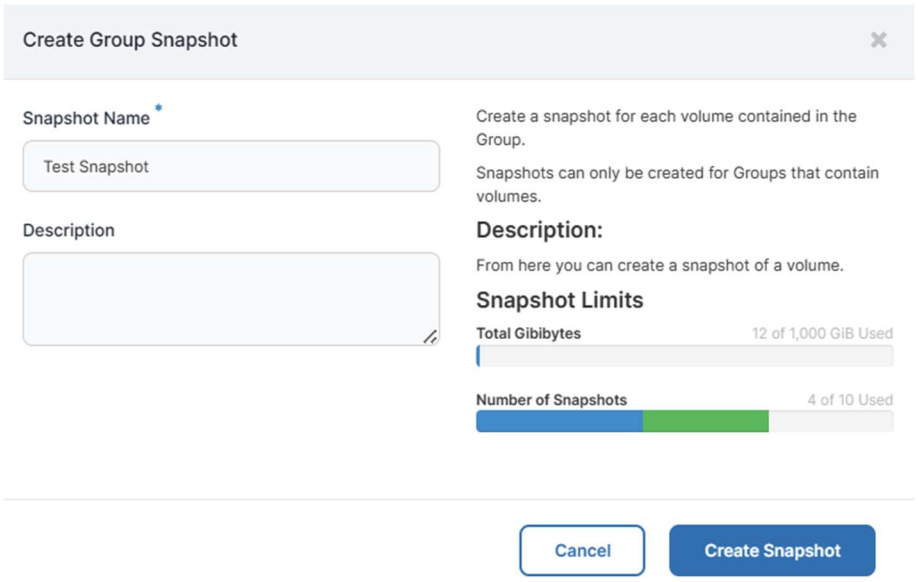
3. Click **Create Group**.
4. Click **Cancel** if you don’t want to create volume groups.

IMPORTANT: User must provide **Name**, **Group Type** and also select **Volume Type** in order to create “Volume Groups”.

2.4.2.29 Volume Groups → Actions → Create Snapshot

Step 1: Open the Create Group Snapshot Tab

1. Go to the **Volume Groups** page.
2. Click on **Create Snapshot** from the dropdown under “**Actions**”, associated with each item in the list.



Step 2: Create Group Snapshot

1. Input **Snapshot Name** in the name field.
2. Provide a suitable **Description** in the description box.
3. Click **Create Snapshot**.
4. Click **Cancel** if you don't want to create any snapshot.

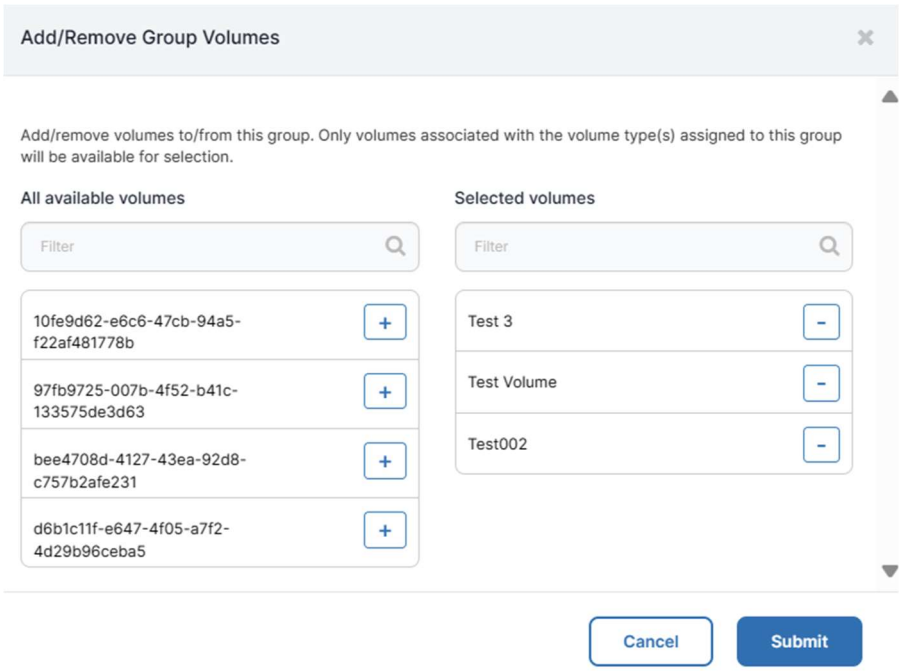
IMPORTANT: Creating group snapshots is only possible when volumes are assigned to the group.

NOTE: Users can generate a maximum of 10 snapshots, and the creation limit is visually represented through a progress bar and numerical display.

2.4.2.30 Volume Groups → Actions(Dropdown) → Manage Volumes

Step 1: Open the Add/Remove Group Volumes Tab

1. Go to the **Volume Groups** page.
2. Click on **Manage Volumes** from the dropdown under "**Actions**", associated with each item in the list.



Step 2: Add or Remove Volumes from the Group

1. Add a volume; click on the "**Plus**" icon next to an item in the **All Available Volumes** section.

NOTE: Upon clicking “Plus”, the item will move from the “All Available Volumes” section to “Selected Volumes” section.

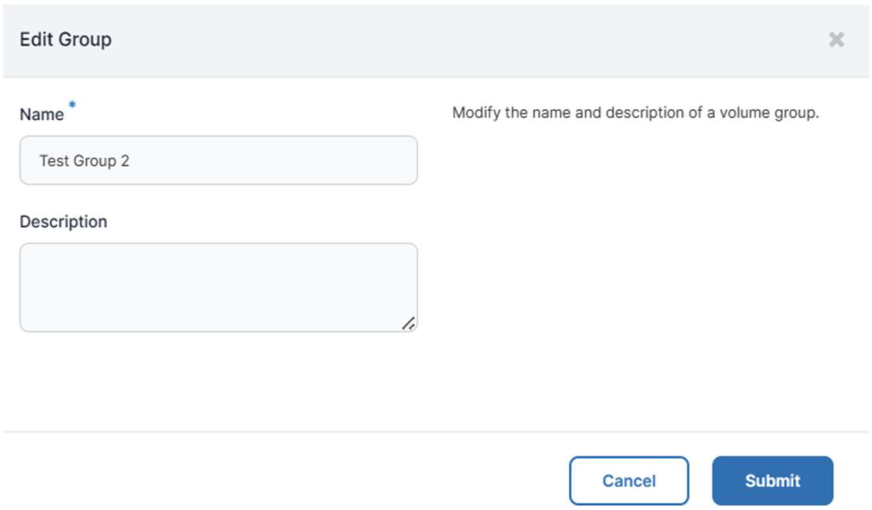
3. Remove a volume; click on the "**Minus**" icon next to an item in the **Selected Volumes** section.

NOTE: Upon clicking “Minus”, the item will move from the “Selected Volumes” section to “All Available Volumes” section.

2.4.2.31 Volume Groups → Actions(Dropdown) → Edit Group

Step 1: Open the Edit Group Tab

1. Go to the **Volume Groups** page.
2. Click on **Edit Group** from the dropdown under “**Actions**”, associated with each item in the list.



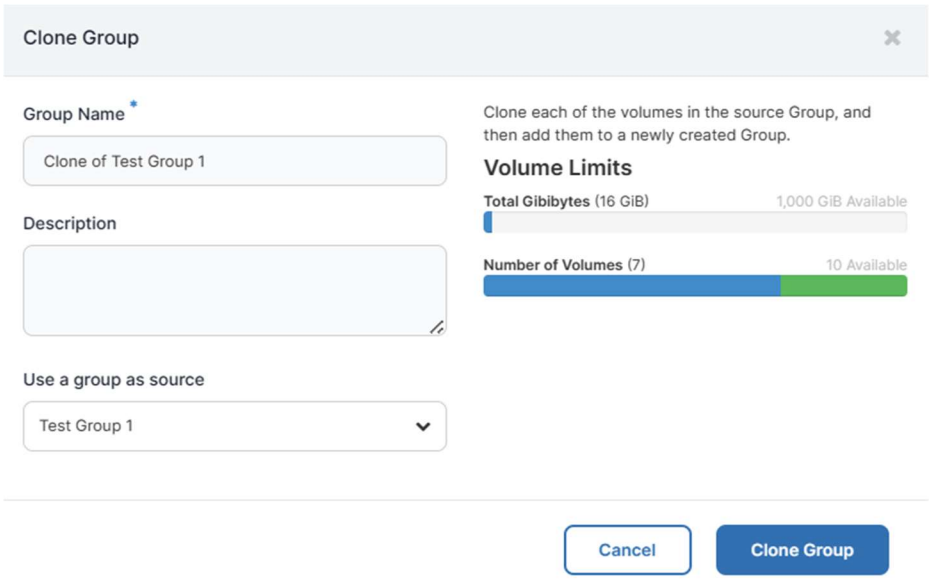
Step 2: Update Group Information

1. Update group **Name**.
2. Update group **Description**.
3. Click **Submit**.
4. Click **Cancel** if you don't want to edit group information.

2.4.2.32 Volume Groups → Actions(Dropdown) → Clone Group

Step 1: Open the Edit Group Tab

1. Go to the **Volume Groups** page.
2. Click on **Clone Group** from the dropdown under "**Actions**", associated with each item in the list.



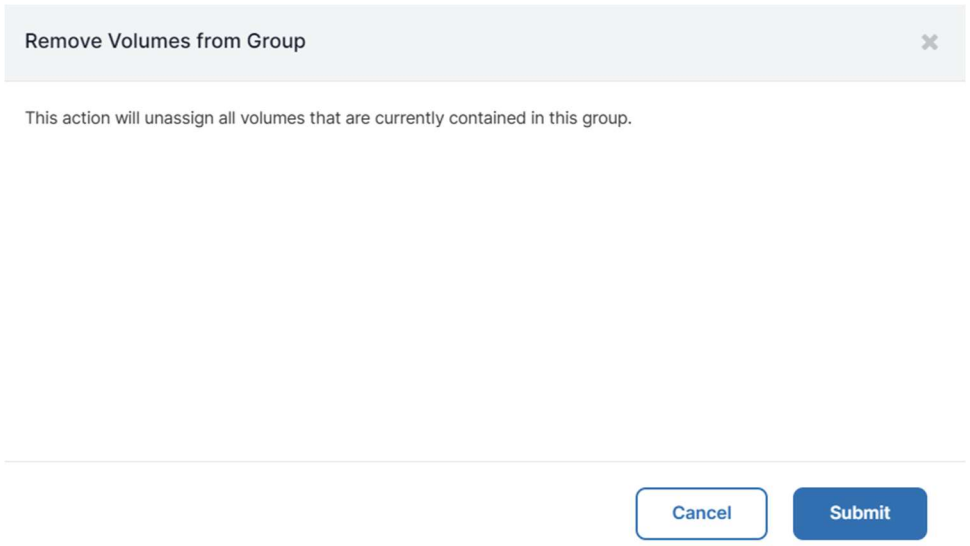
Step 2: Create a Clone

1. Provide a name of cloned group in the **Group Name** input-field.
2. Provide a suitable description in the **Description** box.
3. Click **Clone Group**.
4. Click **Cancel** if you don't want to clone a group.

NOTE: Users can generate a maximum of 10 volume, and the creation limit is visually represented through a progress bar and numerical display.

2.4.2.33 Volume Groups → Actions(Dropdown) → Remove Volume from Groups

1. Go to the **Volume Groups** page.
2. Click on **Remove Volume from Groups** from the dropdown under "**Actions**", associated with each item in the list.
3. Click **Submit**.
4. Click **Cancel** if you don't want to remove volumes.

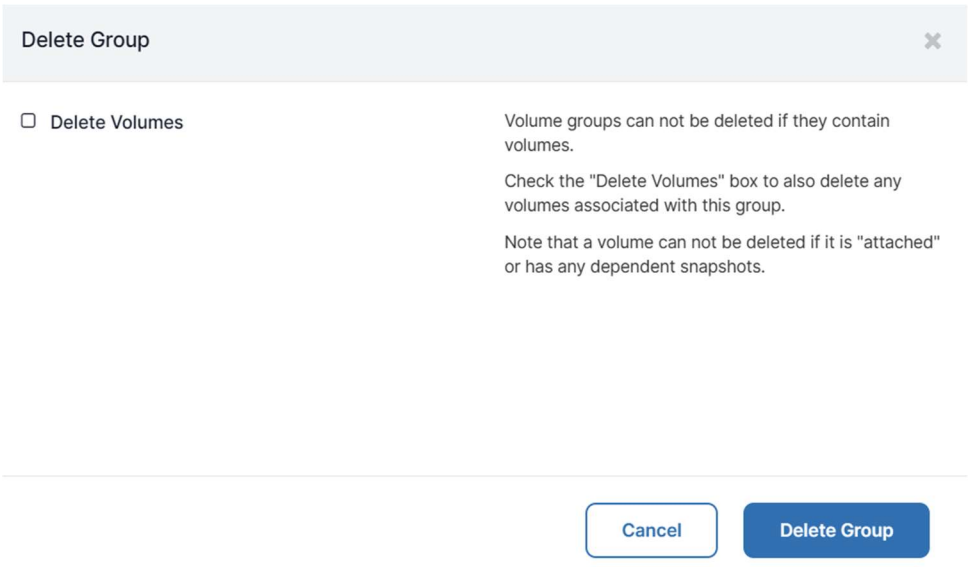


WARNING: Clicking "**Remove Volume from Groups**" will detach all volumes currently associated with this group.

2.4.2.34 Volume Groups → Actions(Dropdown) → Delete Group

Step 1: Open the Delete Group Tab

1. Go to the **Volume Groups** page.
2. Click on **Delete Group** from the dropdown under "**Actions**", associated with each item in the list.



Step 2: Delete a Group

3. Click **Delete Group**.
4. Click **Cancel** if you don't want to delete the group.

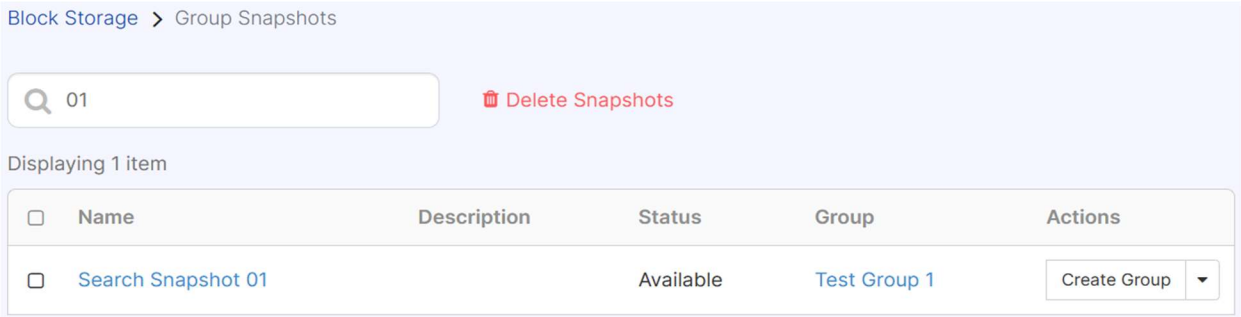
NOTE: The "**Delete**" option may not be visible in the dropdown if a **Group Snapshot** has been created using the selected **Volume Group**.

IMPORTANT: To delete all associated volumes during group deletion, mark the "**Delete Volumes**" checkbox.

WARNING: Volume groups cannot be deleted if they still contain volumes. Also, keep in mind that a volume cannot be deleted if it is currently "attached" or has associated snapshots.

2.4.2.35 Group Snapshots → Search

NOTE: "Snapshots" typically refer to point-in-time copies or backups of data in a computing environment. Group Snapshots enable users to capture the collective state of multiple volumes at a specific point in time. This facilitates efficient data management and backup strategies for multiple volumes within a designated group.



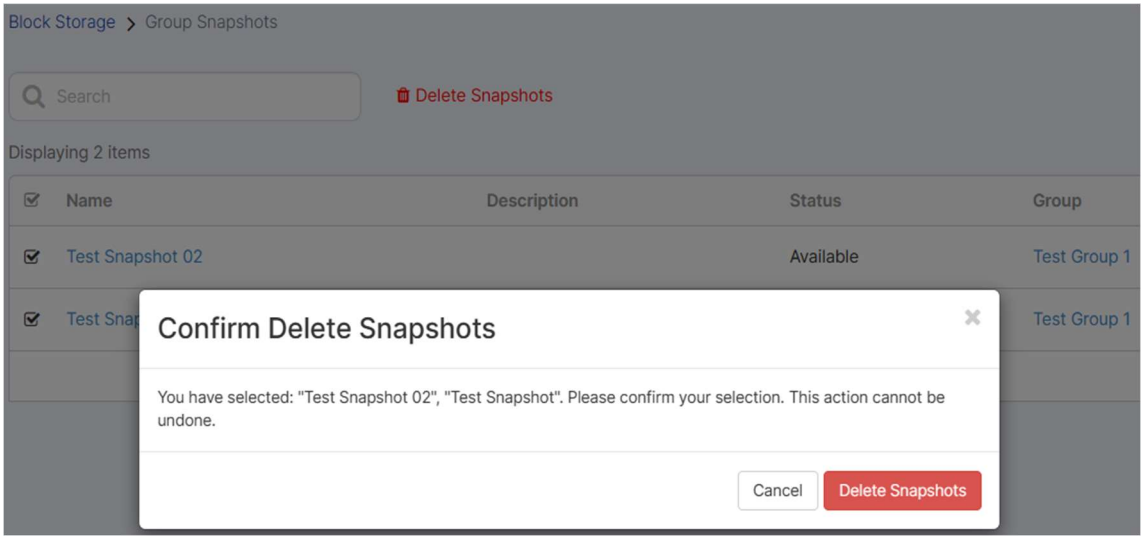
1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Group Snapshot**" from the menu to be redirected to the group snapshots page.
3. Input searching keywords in the search field.

NOTE: The search function operates automatically when inputting keywords that match list items. This feature streamlines the identification and retrieval of specific items, enhancing the user's experience by providing a quick and efficient way to locate relevant information within the list.

2.4.2.36 Group Snapshots → Delete Snapshots

1. Locate the left-side Navigation Bar from the dashboard; click "**Block Storage**" for its dropdown menu.
2. Select "**Group Snapshot**" from the menu to be redirected to the group snapshots page.
3. Choose the snapshot groups you wish to delete from the list, ensuring that the checkboxes are selected.
4. Click **Delete Snapshots** located at the top.

IMPORTANT: Upon clicking "**Delete Snapshots**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

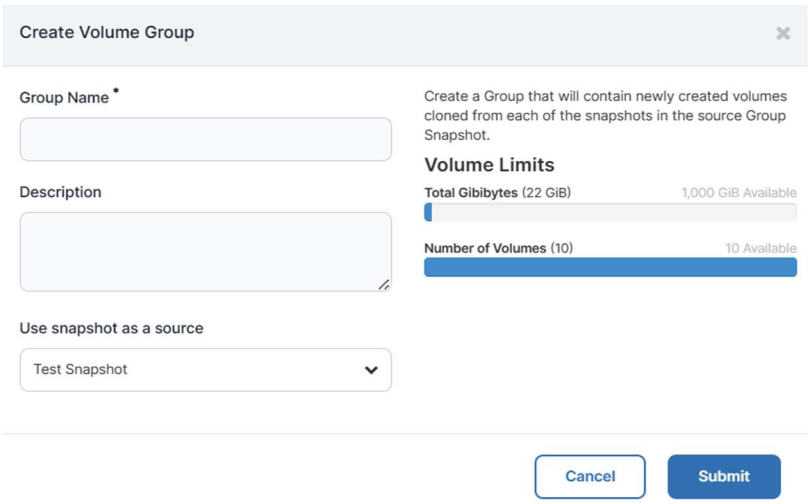


5. Click **Delete Snapshot**.
6. Click **Cancel** if you don't want to delete any group snapshot.

2.4.2.37 Group Snapshots → Actions → Create Group

Step 1: Open the Create Volume Group Tab

1. Go to the **Group Snapshots** page.
2. Click on **Create Group** under "**Actions**", associated with each item in the list.



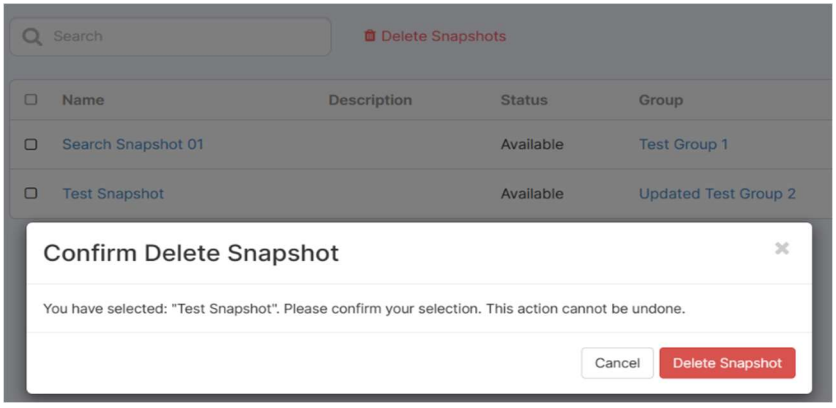
Step 2: Create Group from Group Snapshot

1. Input Group Name in the name field.
2. Provide a suitable **Description** in the description field.
3. Click **Submit**.
4. Click **Cancel** if you don't want to create any volume group.

NOTE: Users can generate a maximum of 10 volume, and the creation limit is visually represented through a progress bar and numerical display.

2.4.2.38 Group Snapshots → Actions(Dropdown) → Delete Snapshot

1. Go to **Group Snapshots** page.
2. Click on the **dropdown** associated with each snapshot available on the list and select, "**Delete Snapshot**".



IMPORTANT: Upon clicking "**Delete Snapshot**", a confirmation module will appear, seeking user confirmation to proceed with the deletion process. This additional step ensures deliberate and accurate actions in the deletion process.

3. Click **Delete Snapshot**.
4. Click **Cancel** if you don't want to delete the group snapshot.

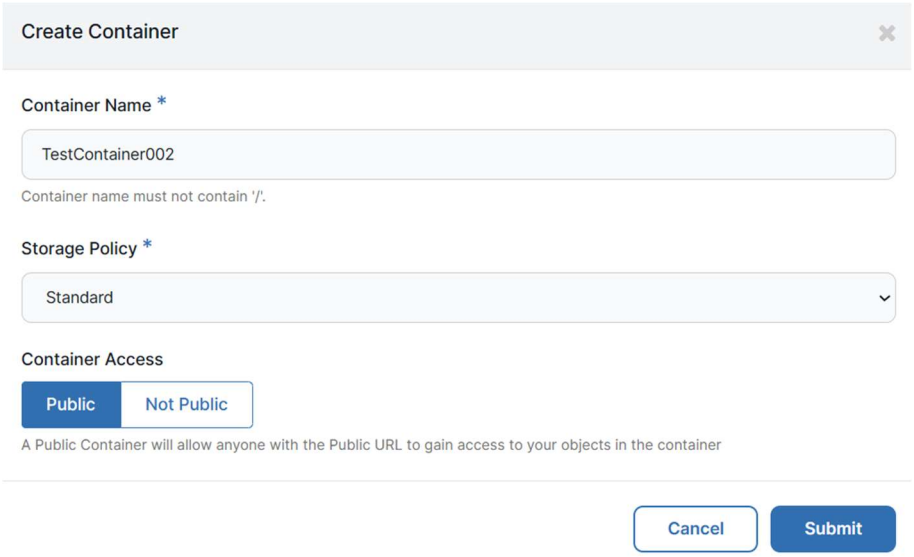
2.4.3 Cloud Storage Service

Cloud storage refers to a digital storage solution that allows users to store and access data over the internet. It provides scalable and flexible storage space, enabling users to save and retrieve files, documents, and other digital assets from anywhere with an internet connection. Cloud storage eliminates the need for physical storage devices, offering convenience, accessibility, and the ability to scale storage resources based on specific needs.

2.4.3.1 Buckets → Create Container

Step 1: Open "Create Container" Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Cloud Storage Service**" for its dropdown menu.
3. Select "**Buckets**" from the menu to be redirected to the Volume page.
4. Click "**Create Container.**



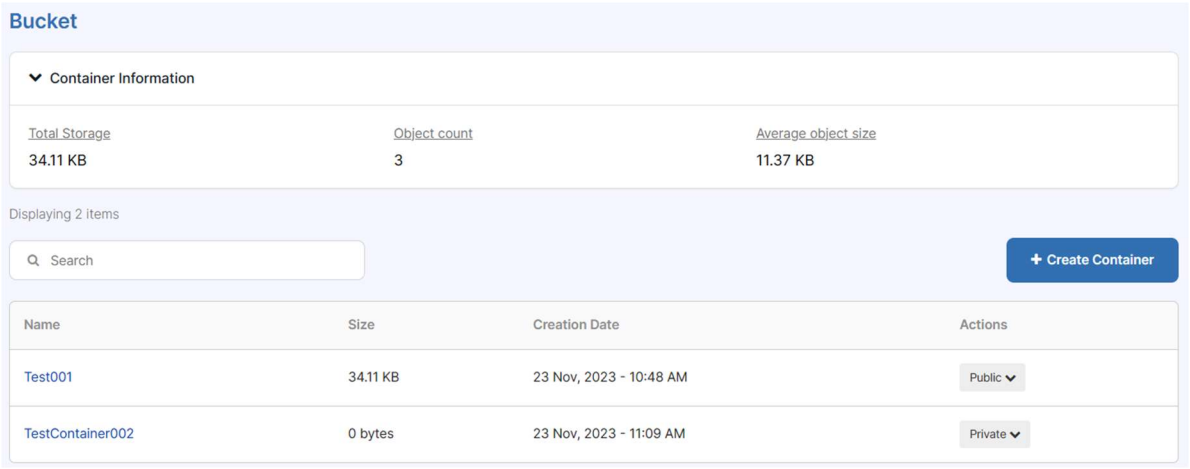
Step 2: Create a Container

1. Input a **Container Name** in the name field.
2. Select **Standard Policy** from the dropdown.
3. Select **Container Access**.

NOTE: Choose the access permissions as either public or not-public. A public container grants access to anyone with the public URL, allowing them to retrieve objects stored in the container.

4. Click **Submit**.
5. Click **Cancel** if you don't want to create a container.

2.4.3.2 Buckets → Container → Create Folder / Folder Options



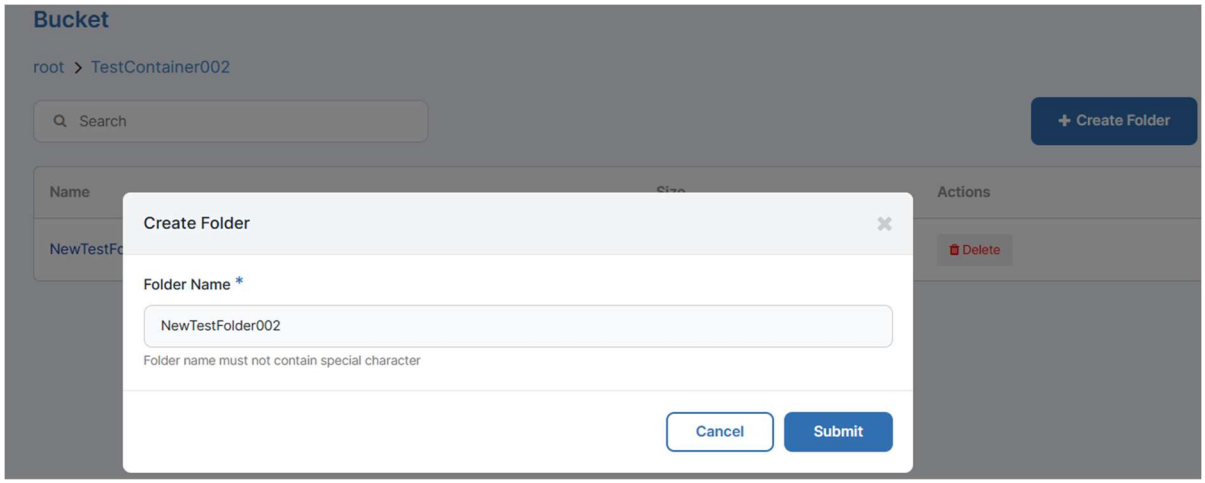
Step 1: Create New Folder

1. Click on the container's **Name** where you wish to create a folder.
2. Once you are inside the container, click on **Create Folder**.
3. Input **Folder Name** in the name field.

IMPORTANT: Folder names should not contain any whitespaces, and the use of symbols or special characters is also prohibited.

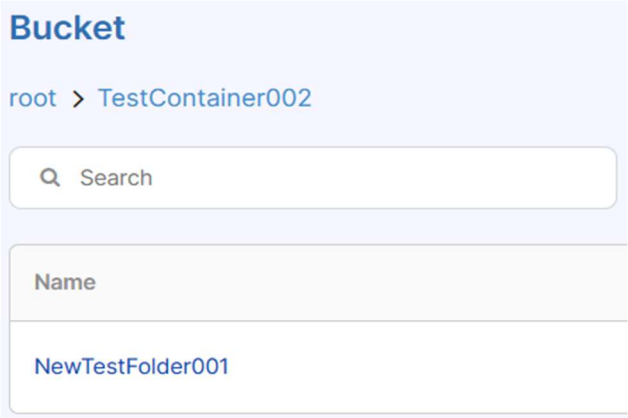
4. Click on **Submit**.
5. Click **Cancel** if you don't want to create new folder.

NOTE: Users have the flexibility to create nested folders within their storage space. This allows for a hierarchical organization of data, facilitating a structured and systematic arrangement of files and subfolders.



Upon successful creation, the new folder will be visible in the list inside the container/parent-folder.

Step 2: Navigate to Different Folders



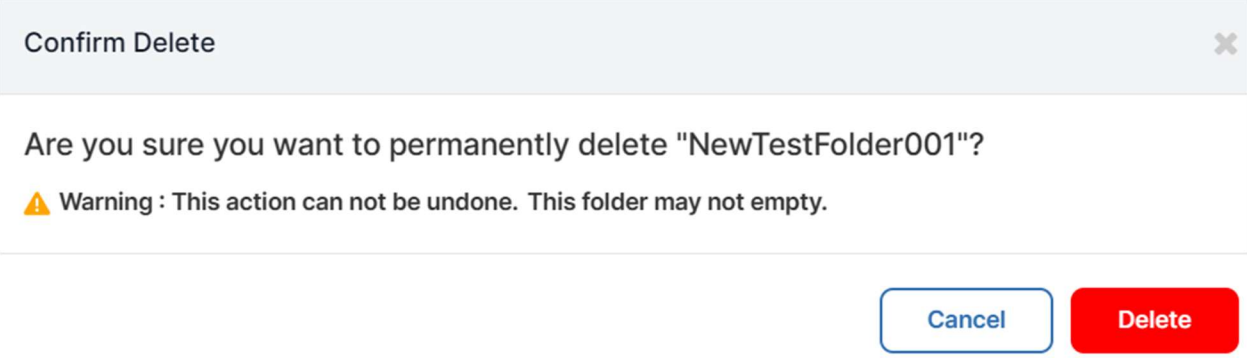
1. **Navigate back to parent folder**; form the directory above, click on respective parent folder *(i.e., TestContainer002 is the parent folder of NewTestFolder001)*.

2. **Go to Container Page**; form the directory above, click on **root**.

Step 3: Delete a Folder

1. Click on the **Delete** icon next to the folder you wish to remove from the container list.

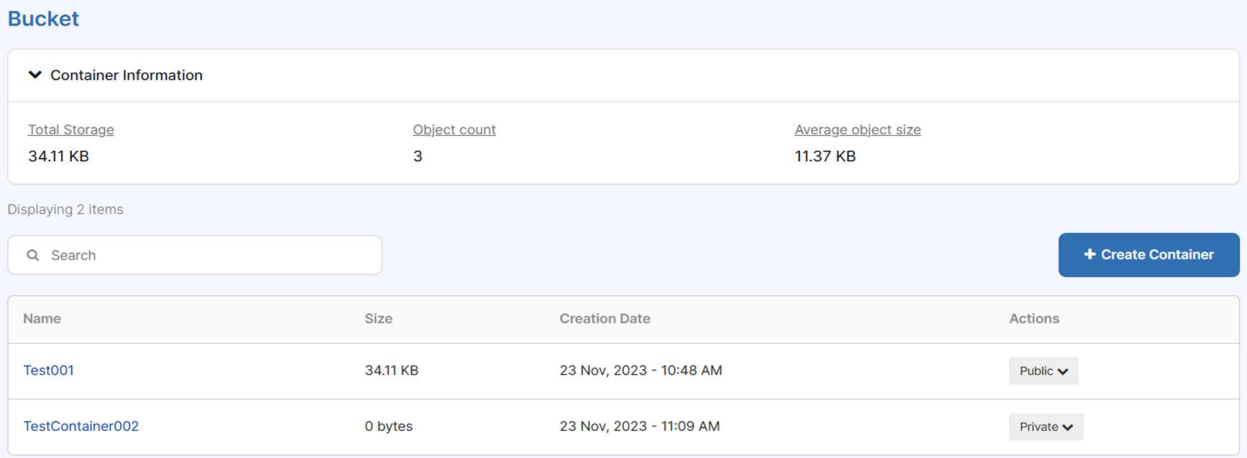
IMPORTANT: Empty folders will be promptly deleted; however, if the parent folder contains files or subfolders, direct deletion is not possible. In such cases, it is necessary to clear the parent folder before proceeding with deletion.



IMPORTANT: A confirmation module will popup, user must confirm in order to proceed with folder deletion. This method is designed to prevent accidental deletion without user consent.

2. Click **Delete Folder**.
3. Click **Cancel** if you don't want to delete a folder.

2.4.3.3 Buckets → Container → Upload/ Uploaded File Options

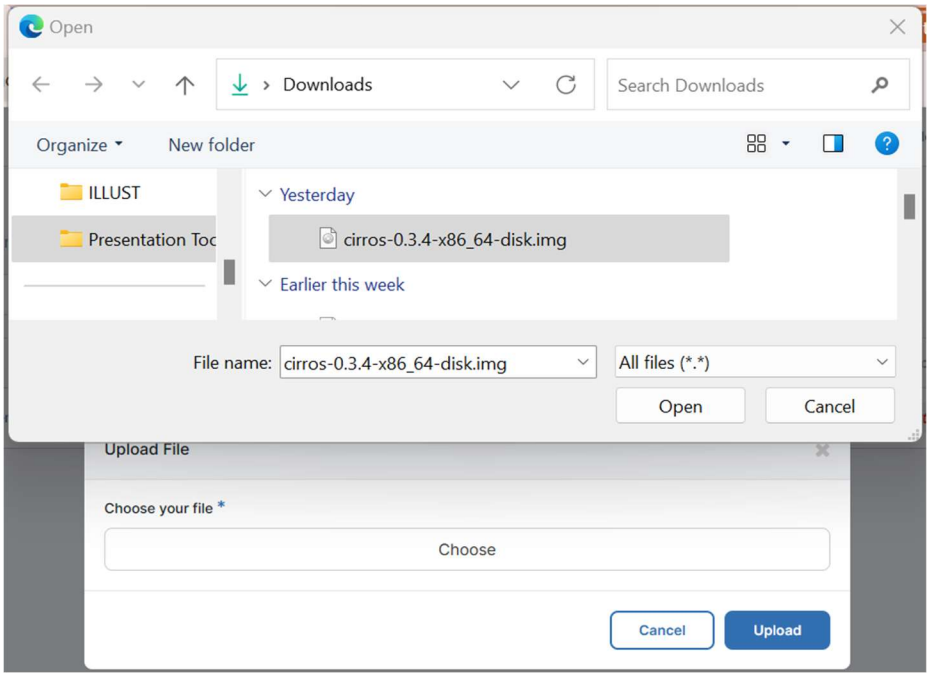


Step 1: Upload a File

1. Click on the container's **Name** where you wish to create a folder.
2. Once you are inside the container, click on **Upload**.
3. Click on **Choose**.

NOTE: When the user clicks "**Choose**," a local file system tab will appear. Select a specific file and click "**Open**" to choose the file for uploading. Clicking "**Cancel**" will close the local file system tab.

4. Once the file is selected, click "**Upload**" to initiate the upload process.
5. Click **Cancel** if user don't want to upload a file.



Upon successful upload, the new file will be visible in the list inside the parent folder.

Step 2: Actions → Download a File

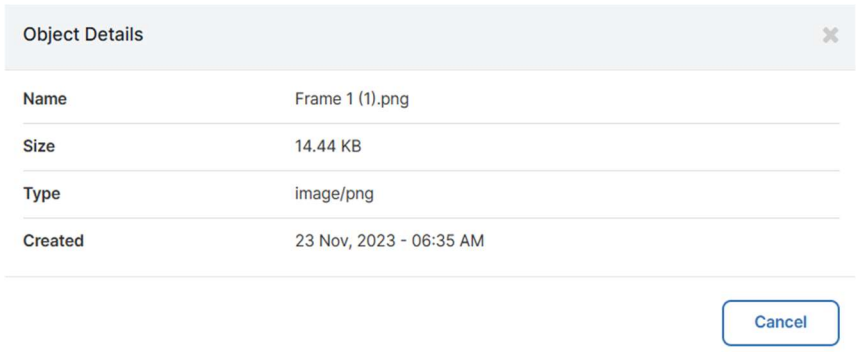
1. Go inside the parent folder where the file you want to delete is located.
2. From the dropdown under **Actions** select **Download**.

NOTE: After clicking "**Download**", the download will commence automatically in the background. Depending on the browser settings, user may see a download notification.

Step 3: Actions → View Details of a File

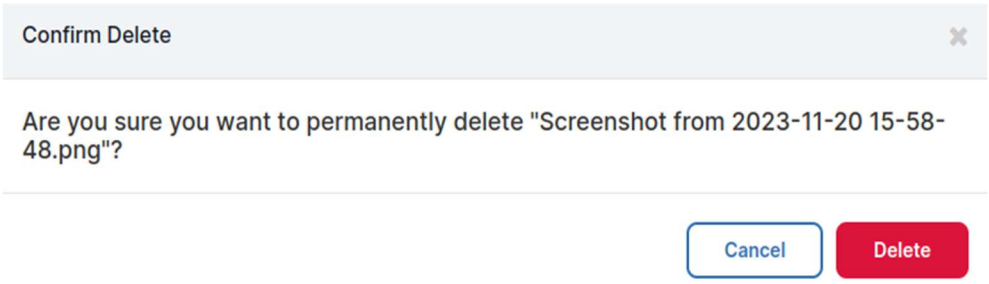
1. Go inside the parent folder where the file you want to delete is located.
2. From the dropdown under **Actions** select **View Details**.
3. Click **Cancel** if user wants to close the popup.

NOTE: Upon clicking, a details tab will appear, displaying information such as Name, Size, Type, and Creation Time.



Step 4: Actions → Delete a File

1. Go inside the parent folder where the file you want to delete is located.
2. From the dropdown under **Actions** select **Delete**.



IMPORTANT: A confirmation module will popup, user must confirm in order to proceed with file deletion. This method is designed to prevent accidental deletion without user consent.

2. Click **Delete**.
3. Click **Cancel** if you don't want to delete a file.

2.5 API and Services

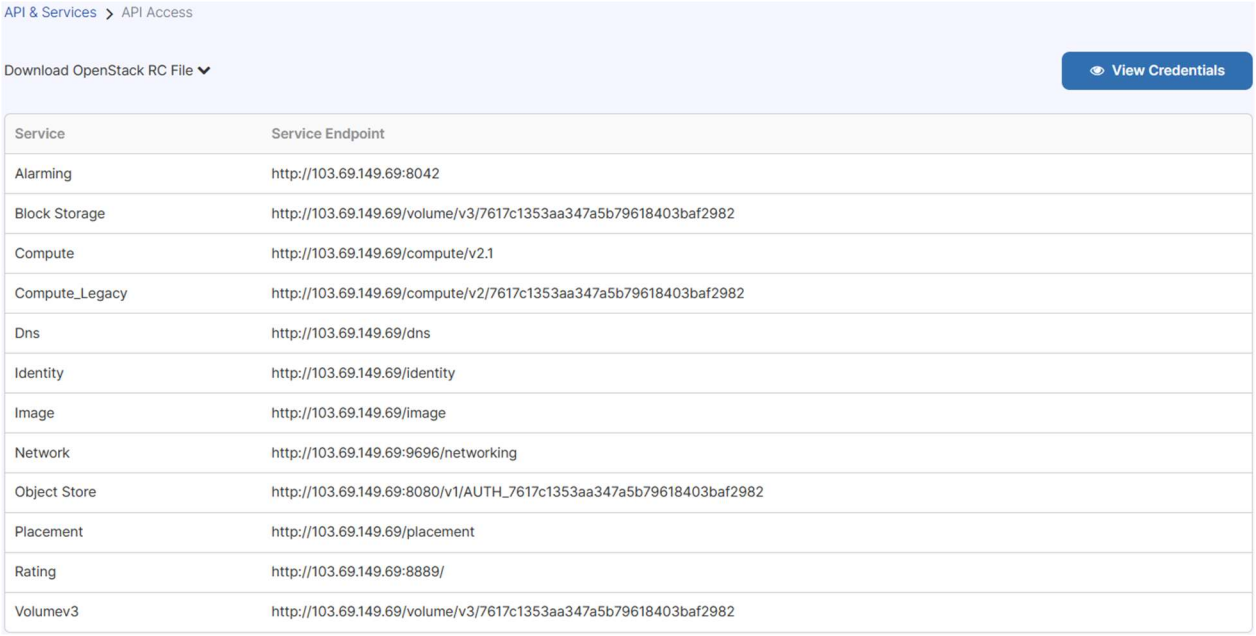
2.5.1 API Access

Step 1: Visit the API Access Page

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**API and Services**" for its dropdown menu.
3. Select "**API Access**" from the menu to be redirected to the following page.

NOTE: Upon visiting, users can access a comprehensive list of available "Services" and corresponding "Service Endpoints." This overview also includes details on credentials and offers a convenient download function for various "OpenStack" files. This platform streamlines user access, providing essential information and facilitating seamless file retrieval for an enhanced experience.

In cloud computing, API Services delineate specific functionalities or resources accessible through an API, dictating communication rules. Acting as access points, Service Endpoints offer URLs for connecting to these services, enabling seamless integration and configuration through the Command Line Interface (CLI). Leveraging Service Endpoints empowers users to efficiently interact with diverse cloud services, directly initiating commands and operations for effective system management.



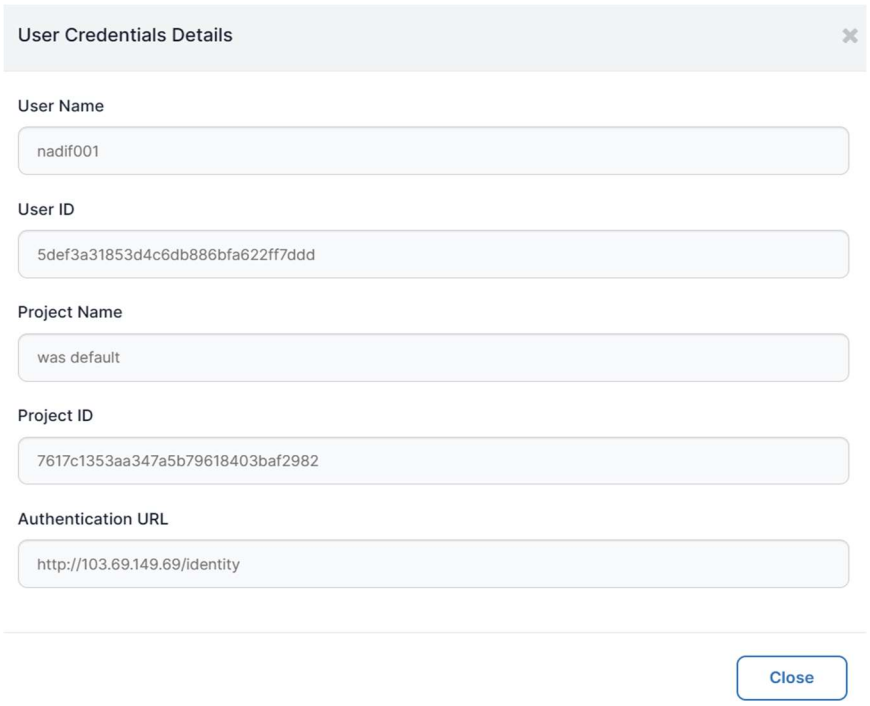
Service	Service Endpoint
Alarming	http://103.69.149.69:8042
Block Storage	http://103.69.149.69/volume/v3/7617c1353aa347a5b79618403baf2982
Compute	http://103.69.149.69/compute/v2.1
Compute_Legacy	http://103.69.149.69/compute/v2/7617c1353aa347a5b79618403baf2982
Dns	http://103.69.149.69/dns
Identity	http://103.69.149.69/identity
Image	http://103.69.149.69/image
Network	http://103.69.149.69:9696/networking
Object Store	http://103.69.149.69:8080/v1/AUTH_7617c1353aa347a5b79618403baf2982
Placement	http://103.69.149.69/placement
Rating	http://103.69.149.69:8889/
Volumev3	http://103.69.149.69/volume/v3/7617c1353aa347a5b79618403baf2982

Step 2: Open the View Credential Tab

1. Go to the **API Access** page.
2. Click on **View Credentials**.

NOTE: Upon clicking "View Credentials," a tab will appear, displaying credential details including User Name, User ID, Project Name, Project ID, and Authentication URL.

3. Click **Close** to close the tab.

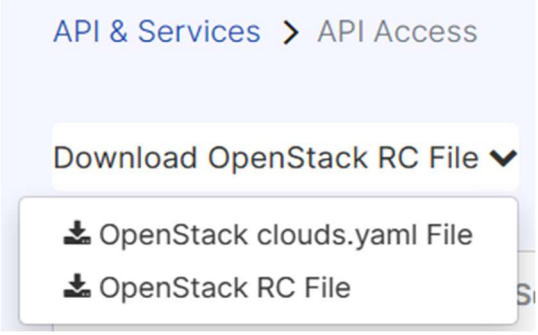


Step 3: Download OpenStack Files

1. Go to the **API Access** page.
2. Click on the **Download** dropdown on the top-left to access different items from the dropdown list.
3. Click on the specific **OpenStack** file to download.

NOTE: Upon clicking, the download will commence promptly, and users may observe a download notification based on their browser settings. User can download between two types of files:

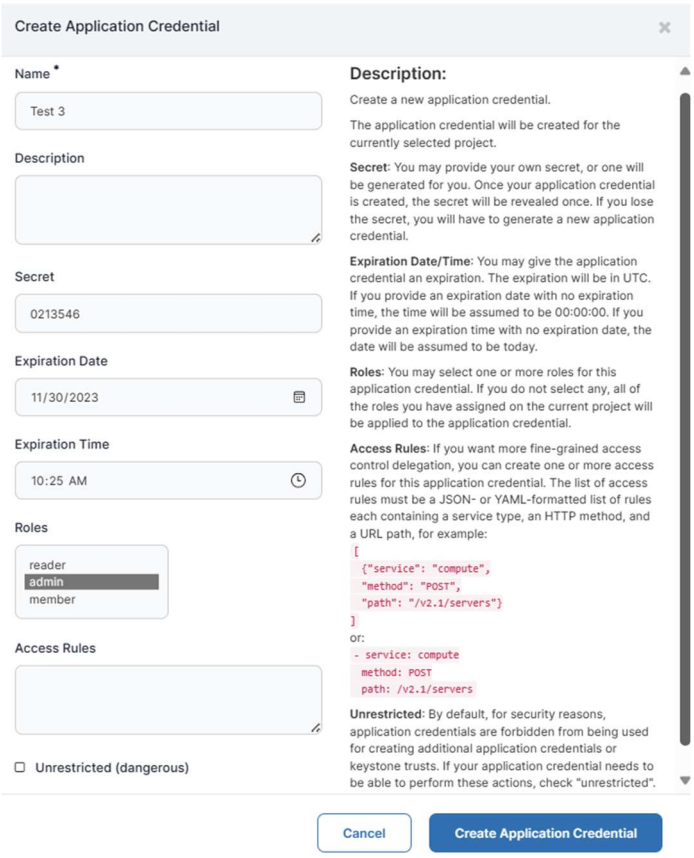
1. **OpenStack clouds.yaml File:** A YAML file is a human-readable data serialization format commonly used for configuration files. The clouds.yaml file, in the context of OpenStack, typically contains information about cloud resources, such as authentication details, endpoints, and other settings. It plays a crucial role in configuring OpenStack environments, providing a structured and readable format for defining cloud-related parameters.
2. **OpenStack RC File:** An OpenStack RC (Run Commands) file is a shell script containing environment variables that allow users to interact with OpenStack services using the command-line interface (CLI). When sourced, it sets the necessary environment variables like authentication credentials, project details, and endpoint URLs, enabling users to execute OpenStack commands seamlessly from the terminal.



2.5.2 Application Credentials → Create Application Credentials

Step 1: Open Create Application Credentials Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**API and Services**" for its dropdown menu.
3. Select "**Application Credentials**" from the menu to be redirected to the following page.
4. Click **Create Application Credentials** to open the popup tab.



Step 2: Create new Application Credential

1. Input **Name** to identify new credential.
2. Provide a suitable **Description** of the credential.
3. Input a **Secret** for the credential.

IMPORTANT: A "secret" in the context of an application credential is a confidential piece of information used for authentication. Users can either provide their own secret during the creation of an application credential, or a system-generated one will be assigned. Once an application credential is generated, its secret will be disclosed only once. If the secret is lost, users will need to create a new application credential to obtain a new secret.

4. Input **Expiration Date** and **Expiration Time**.

NOTE: Users have the option to manually input the date and time or utilize the convenient popup calendar and time-selector. By clicking on the respective "Calendar" icon for the date and "Clock" icon for the time, a user-friendly interface will appear, facilitating easy selection

5. Specify **Roles** for the application credentials.

NOTE: Roles in the context of application credentials represent specific sets of permissions or access levels granted to the associated credentials. Choose one or more roles for this application credential. If no roles are selected, all the roles assigned to your current project will be applied to the application credential.

6. Provide **Access Rules**.

NOTE: For more precise control over access delegation, you can establish one or more access rules for this application credential. The access rules should be presented as a JSON- or YAML-formatted list, each containing details such as service type, HTTP method, and URL path. For example:

json:

```
[
  {"service": "compute",
  "method": "POST",
  "path": "/v2.1/servers"}
]
```

yaml:

```
- service: compute
  method: POST
  path: /v2.1/servers
```

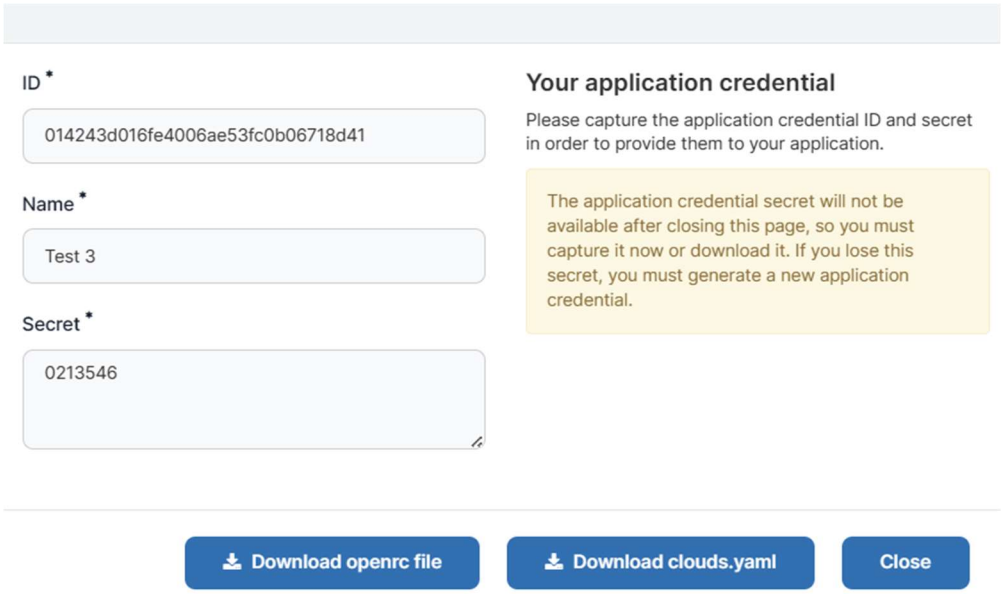
IMPORTANT: There is also an option to enable the "Unrestricted" checkbox. By default, for security reasons, application credentials are restricted from being used to create additional application credentials or Keystone trusts. If your application credential requires the ability to perform these actions, select "Unrestricted."

7. Click **Create Application Credential**.

After entering all the required information and clicking "Create Application Credential," user will be redirected to a new tab where user can download the credential file in either RC or YAML format.

8. Click **Cancel** if user doesn't want to create application credentials.

Step 3: Download Application Credential File



1. Click on **Download OpenRC File** or **Download clouds.yaml**.

NOTE: Upon clicking, the download will commence automatically. Users may receive a notification based on their browser settings.

OpenStack clouds.yaml File:

A YAML file is a human-readable data serialization format widely used for configuration files. In the context of OpenStack, **clouds.yaml** contains vital information about cloud resources, including authentication details, endpoints, and other settings. It serves as a key configuration file for OpenStack environments, offering a structured and readable format for defining essential parameters.

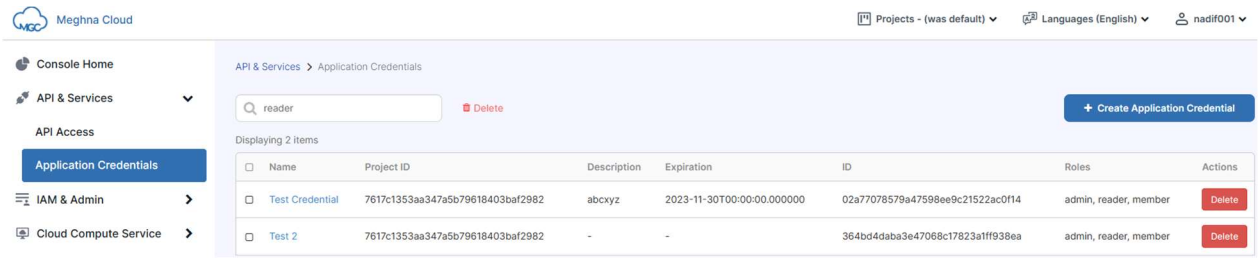
OpenStack RC File:

The **OpenStack RC** (Run Commands) file is a shell script featuring environment variables that empower users to interact with OpenStack services via the command-line interface (CLI). When sourced, it configures crucial environment variables such as authentication credentials, project details, and endpoint URLs. This enables users to seamlessly execute OpenStack commands directly from the terminal.

IMPORTANT: The application credential ID and secret will not be available after closing this page, so be sure to capture a screenshot and download the information in respective RC or YAML file. Losing the secret will require generating new credentials.

2. Click **Close** in order to close the tab.

After user successfully creates a new credentials, they will be moved back to the “Application Credential” page.

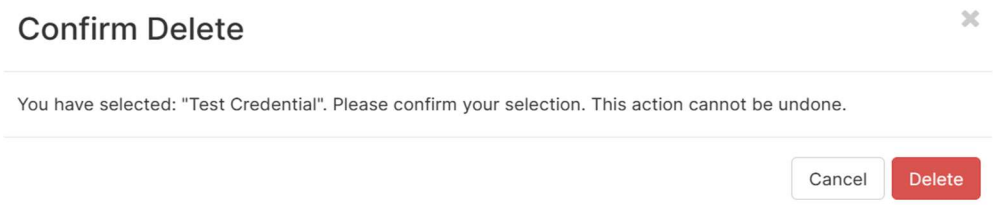


NOTE: Newly created Application Credentials will be displayed in a list on the "Application Credentials" page along with the old ones. Users will also encounter options to create new application credentials, delete or bulk delete credentials, and perform searches.

2.5.3 Application Credentials → Actions → Delete

1. Go to the **Application Credentials** page.
2. Click **Delete** under the **Actions** column, for each individual list item.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

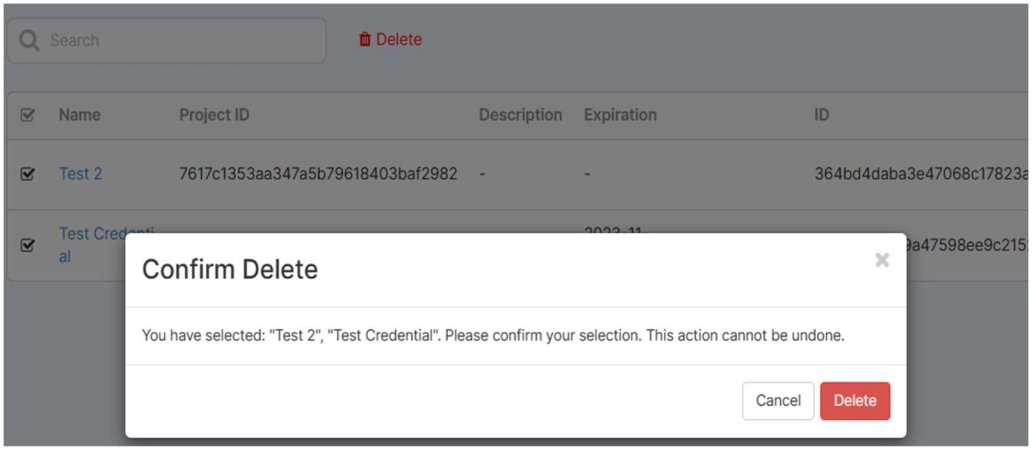


3. Click **Delete** from the confirmation module.
4. Click **Cancel** if user does not wish to proceed with the deletion process.

2.5.4 Application Credentials → Delete

1. Go to the **Application Credentials** page.
2. Mark all the credentials that needs to be deleted.
3. Click **Delete** located at top of the page.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

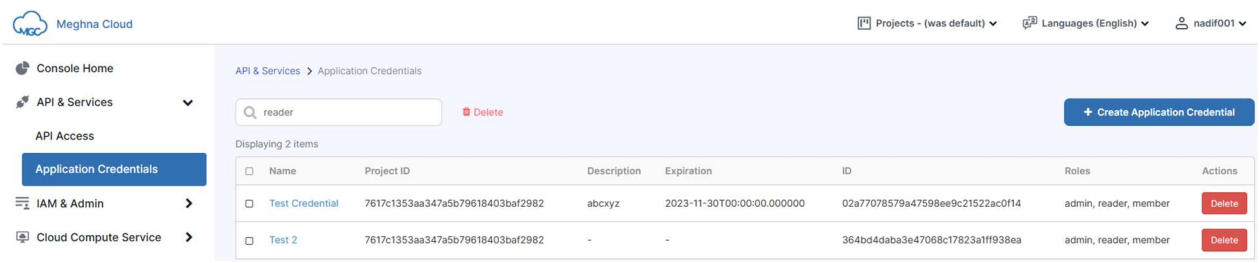


4. Click **Delete** from the confirmation module.
5. Click **Cancel** if user does not wish to proceed with the deletion process.

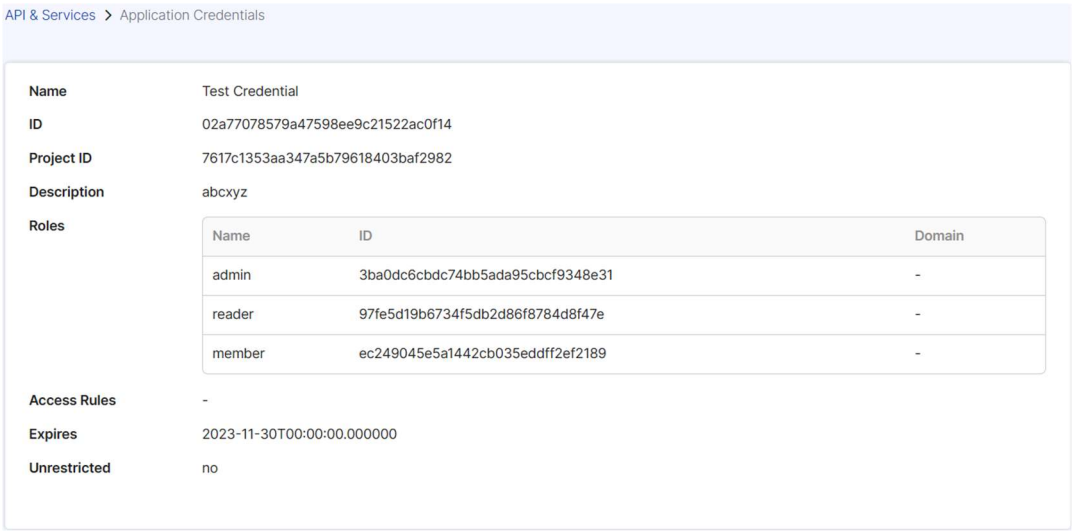
2.5.5 Application Credentials → Application Credentials Overview

1. Go to the **Application Credentials** page.

NOTE: If users have previously created Application Credentials, they will be displayed in a list on the "Application Credentials" page.



2. Click on the **Name** to open the Overview page.

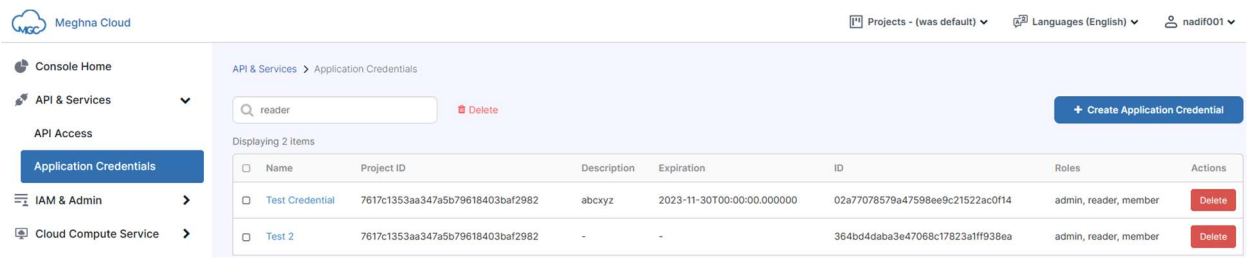


3. Click on the **Back** button of the **Browser** to go back to the “Application Credentials” page.

2.5.6 Application Credentials → Search Application Credentials

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**API and Services**" for its dropdown menu.
3. Select "**Application Credentials**" from the menu to be redirected to the following page.
4. Input search keywords in the **Search** field.

NOTE: The search function operates automatically, isolating items from the list based on what the user types, ensuring a dynamic filtering based on the input.



2.6 IAM and Admin

IAM (Identity and Access Management) and Admin functionalities encompass the management of users, roles, and groups within the cloud environment. Users are individual entities granted access to resources, roles define permissions and responsibilities, while groups provide a collective framework for organizing and applying access policies. This suite of tools ensures streamlined control over user authentication, authorization, and group-based access management, fostering efficient administration and security in the cloud infrastructure.

2.6.1 Users → Create User

Step 1: Open the Create Users Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**IAM and Admin**" for its dropdown menu.
3. Select "**Users**" from the menu to be redirected to the following page.
4. Click on **Create User.**

Step 2: Create a New User

1. Input **User Name**.

WARNING: Usernames must adhere to the following restrictions: they can only include lowercase letters, digits, underscores, and hyphens, with a character length requirement ranging from 3 to 32 characters (e.g., user_456). Additionally, ensure that there are no whitespaces in the username.

2. Provide **Full Name** of the user.
3. Provide a valid **Billing Address** of the user.
4. Provide a suitable “Description” about the user.
5. Input a valid **Email** address for the user.

6. Input a **Password** for the user to authenticate.
7. Confirm the password, by inputting the same password in the **Confirm Password** field.

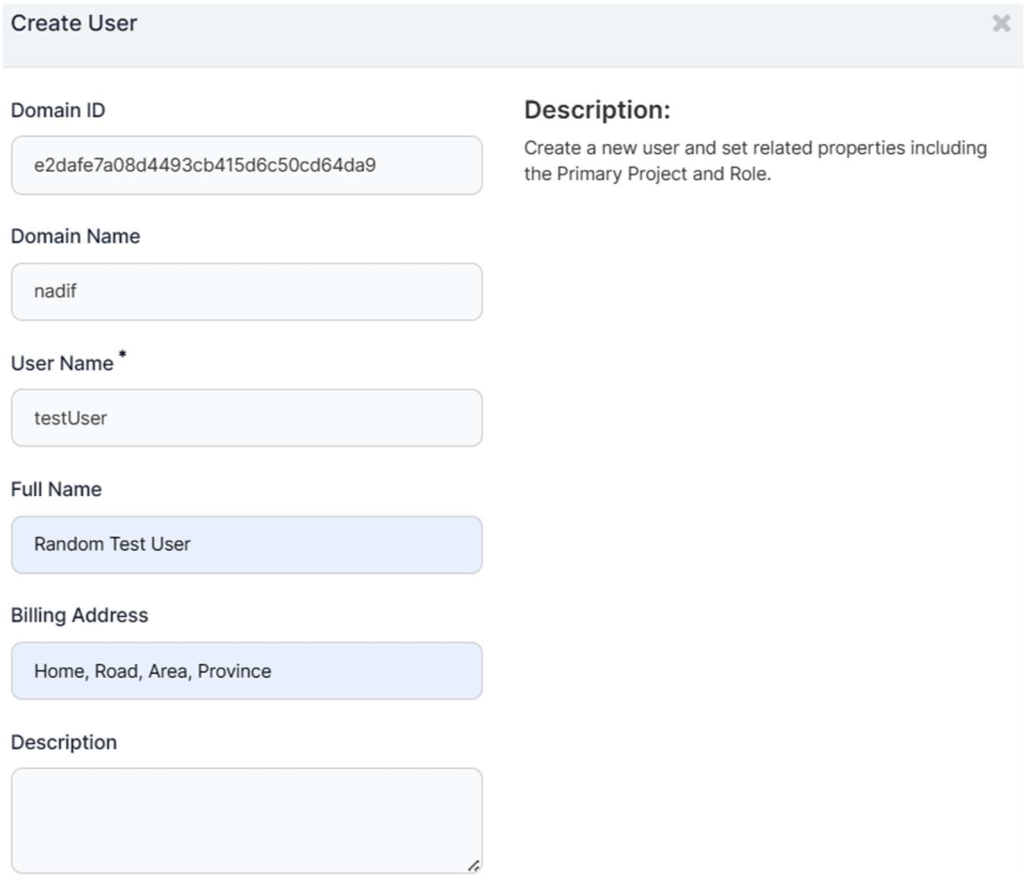
NOTE: Click on the “Eye” icon to make the password visible.

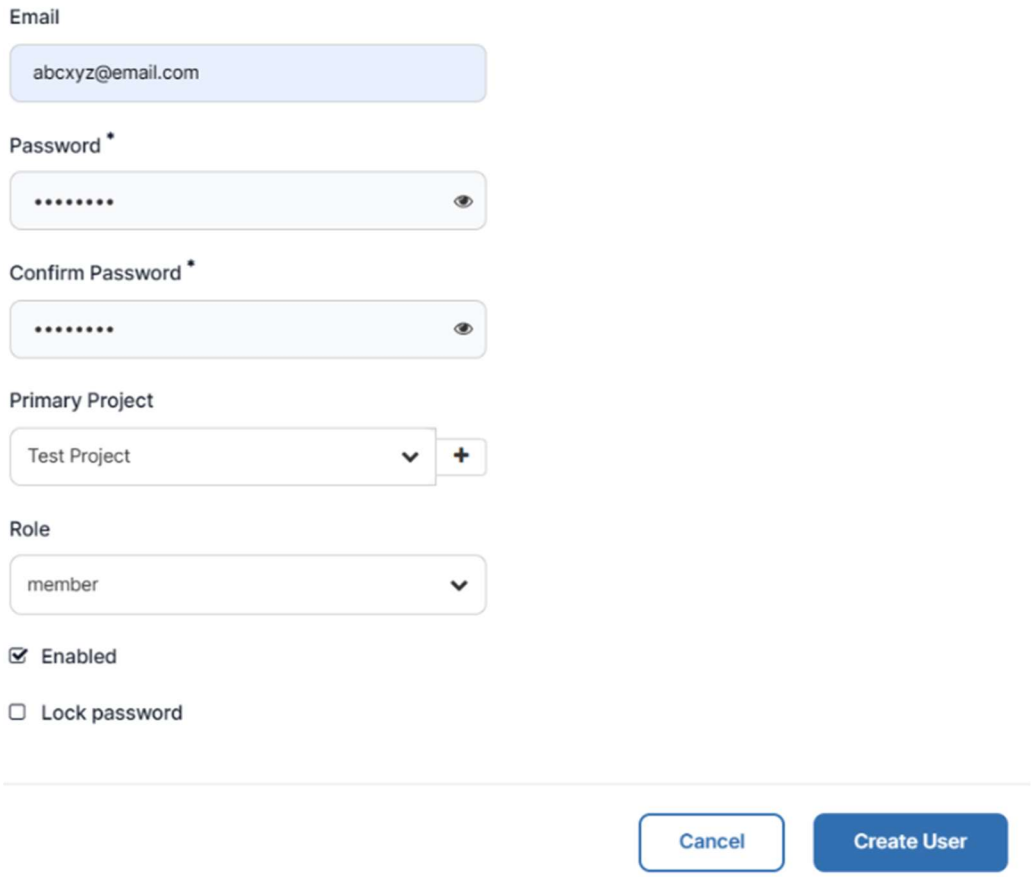
8. Assign the new user to a **Project**.

IMPORTANT: Assigning a new user to a project is crucial. To assign a user to a **New Project**, simply click on the "**Plus**" icon linked with the project field to create a new project. Follow **2.3.1. Create Project** for project creation guidelines.

9. Select the **Role** for the new user from the dropdown menu.

IMPORTANT: The "**Enabled**" checkbox is marked by default, indicating that the new user is enabled for the specific project. To disable the new user from the project, simply uncheck "Enable." Likewise, to revoke authentication access for the new user, mark the "**Lock Password**" checkbox.



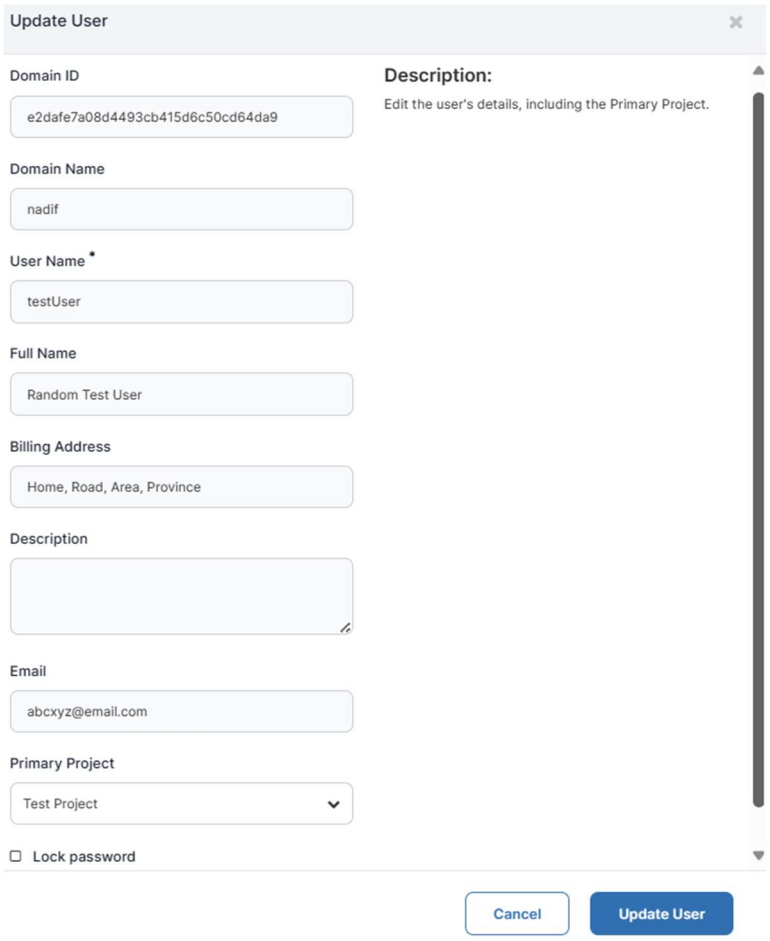


10. Click **Create User**.
11. Click **Cancel** in order to cancel the user creation process.

2.6.2 Users → Actions→ Edit

Step 1: Open the Edit Tab

1. Go to the **Users** page.
2. Click on **Edit** under **Actions** column associated with each list item**.**



Step 2: Update User Information

IMPORTANT: Only re-input data into the fields that need to be updated.

1. Update the **User Name**.

WARNING: Usernames must adhere to the following restrictions: they can only include lowercase letters, digits, underscores, and hyphens, with a character length requirement ranging from 3 to 32 characters (e.g., user_456). Additionally, ensure that there are no whitespaces in the username.

2. Update the **Full Name** of user.
3. Update the **Billing Address** of user.
4. Update user **Description**.
5. Change the **Email** address associated with the user.
6. Assign user to a new **Project**.

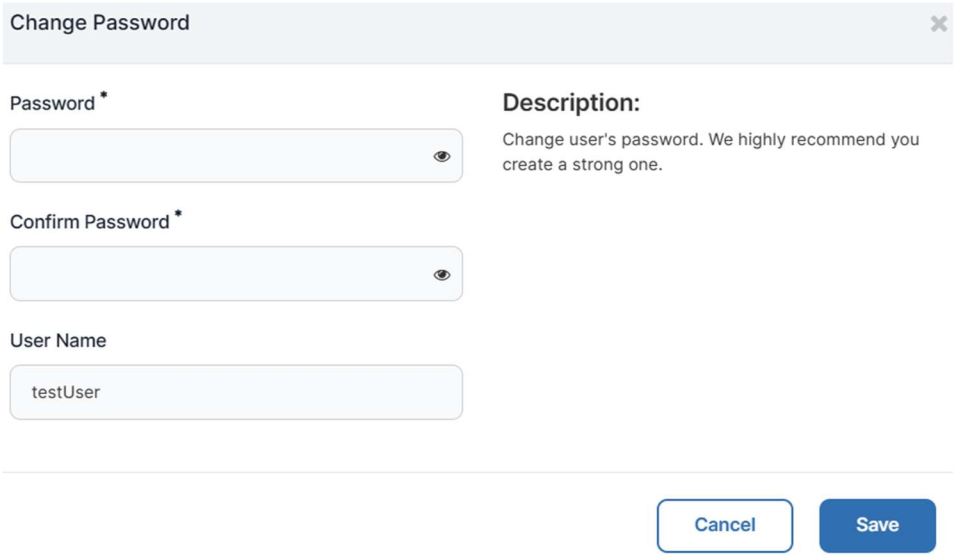
IMPORTANT: Assigning a new user to a project is crucial. To assign a user to a new project, simply click on the "Plus" icon linked with the project field to create a new project. Follow **2.3.1. Create Project** for project creation guidelines.

7. To revoke authentication access of the user, mark the **Lock Password** checkbox.
8. Click **Update User** to confirm update.
9. Click **Cancel** to cancel the updating process.

2.6.3 Users → Actions(Dropdown)→ Change Password

Step 1: Open the Change Password Tab

1. Go to the **Users** page.
2. Click on **Change Password** from the associated dropdown under **Actions** column.



Step 2: Create a New Password

1. Input a new **Password** in the password field.
2. Confirm the password, by inputting the same password in the **Confirm Password** field.

NOTE: Click on the **Eye** icon to make the password visible.

3. Click **Save** to ensure the new password is associated with the user account.
4. Click **Cancel** to cancel the password changing process.

IMPORTANT: Newly created users will have additional options in the dropdown, allowing administrators to "Enable/Disable" users within a project and "Delete" users as needed. This provides flexibility in managing user access and maintaining an organized user base within the cloud environment.

2.6.4 Users → Actions(Dropdown) → Disable/Enable User

Enabling or disabling a user indicates whether the user is currently allocated to or removed from a specific project. This feature provides a quick and direct way to manage user access and participation within projects. Users can easily toggle between enabled and disabled states to control their involvement in various projects.

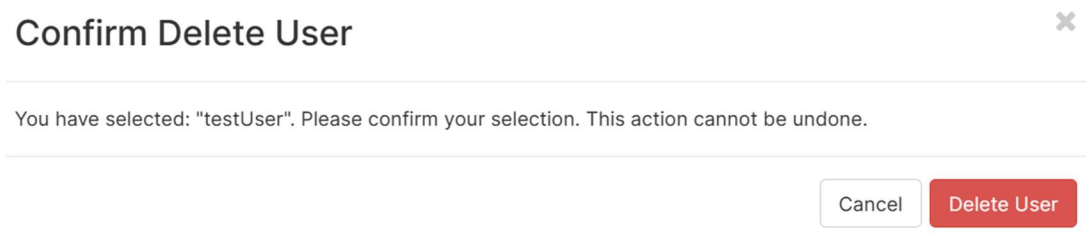
1. Go to the **Users** page.
2. Click on **Disable/Enable User** from the associated dropdown under **Actions** column**.**

NOTE: If the user is currently enabled, "**Disable User**" will be shown in the dropdown; similarly, "**Enable User**" will be shown for disabled users.

2.6.5 Users → Actions(Dropdown) → Delete User

1. Go to the **Users** page.
2. Click on **Delete User** from the associated dropdown under **Actions** column, for the "User" that needs to be deleted**.**

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



3. Click **Delete User** from the confirmation module.
4. Click **Cancel** if user does not wish to proceed with the deletion process.

2.6.6 Users → Delete Users

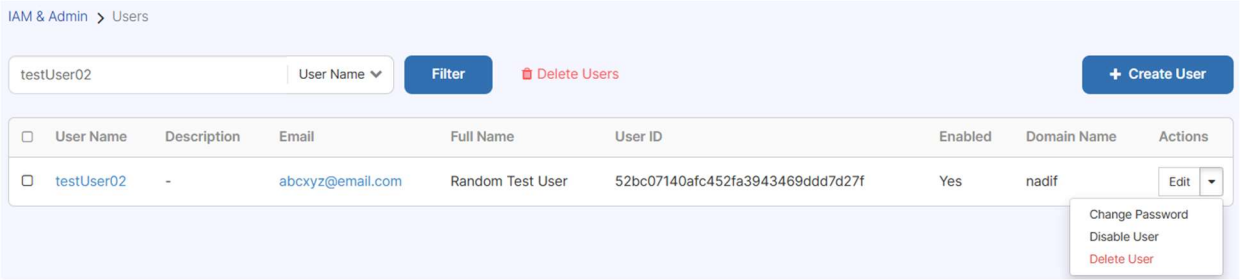
1. Go to the **Users** page.
2. Mark all the users that need to be deleted.
3. Click on **Delete Users**.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

4. Click **Delete Users** from the confirmation module.
5. Click **Cancel** if user does not wish to proceed with the deletion process.

2.6.7 Users → Filter

1. Go to the **Users** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.
4. Click **Filter** button.
5. Clear the "filter field" and click **Filter** again to go back to the original list.

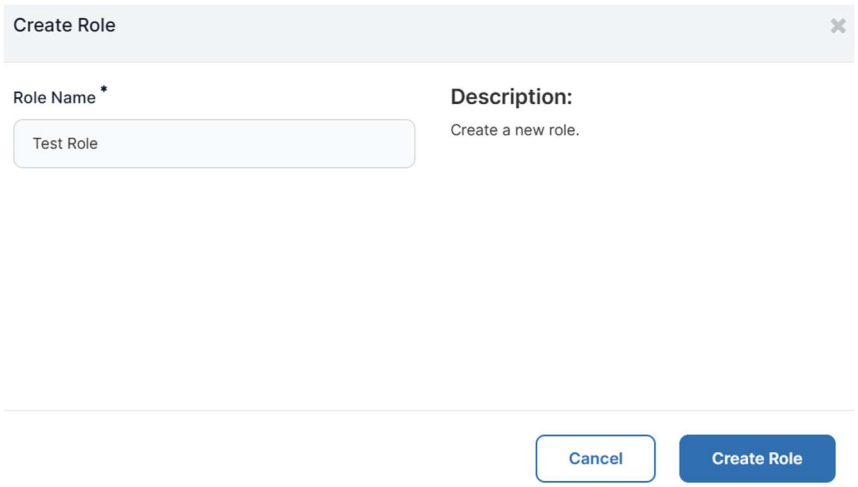


2.6.8 Role → Create Role

Step 1: Open the Create Role Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**IAM and Admin**" for its dropdown menu.
3. Select "**Role**" from the menu to be redirected to the following page.

4. Click on **Create Role**.



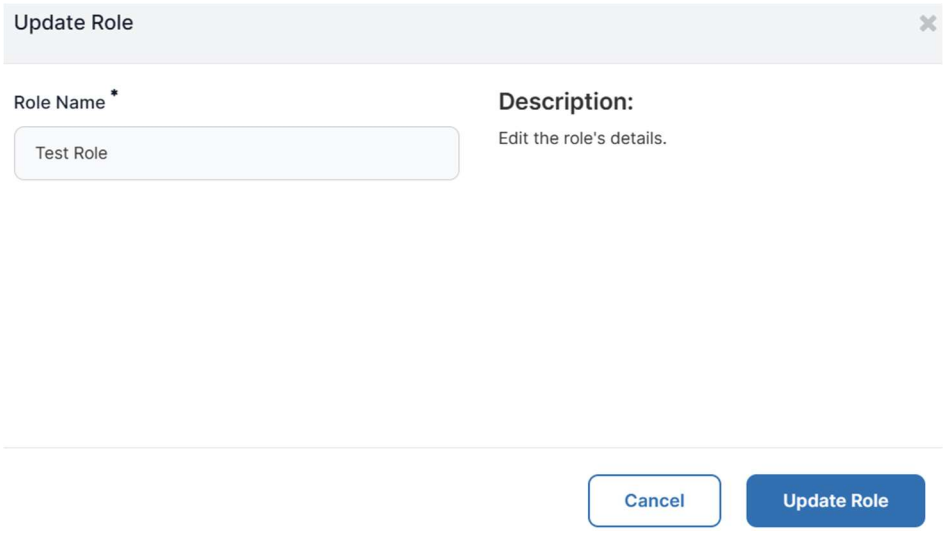
Step 2: Create a New Role

1. Input a new role title, in the **Role Name** field.
2. Click **Create Role** to proceed with new role creation.
3. Click **Cancel** in order to cancel the role creation process.

2.6.9 Role → Actions → Edit

Step 1: Open the Update Role Tab

1. Go to the **Role** page.
2. Click on **Edit** under **Actions** column, for individual list item that needs to be edited**.**



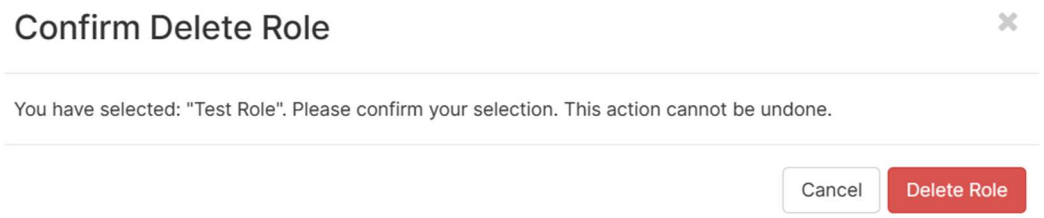
Step 2: Create a New Role

1. Update or input role title, in the **Role Name** field.
2. Click **Update Role** to proceed with updating role.
3. Click **Cancel** in order to cancel the role updating process.

2.6.10 Role → Actions(Dropdown) → Delete Role

1. Go to the **Role** page.
2. Click on **Delete Role** from the associated dropdown under **Actions** column, for the "Role" that needs to be deleted**.**

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

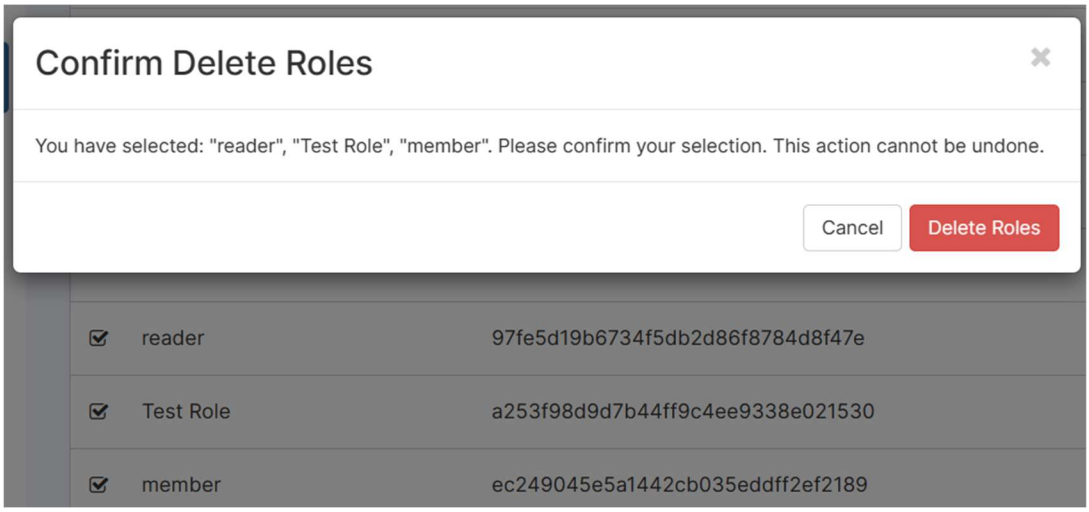


3. Click **Delete Role** from the confirmation module.
4. Click **Cancel** if user does not wish to proceed with the deletion process.

2.6.11 Role → Delete Roles

1. Go to the **Role** page.
2. **Mark** all the roles that need to be deleted.
3. Click on **Delete Roles** located at the top of the page.

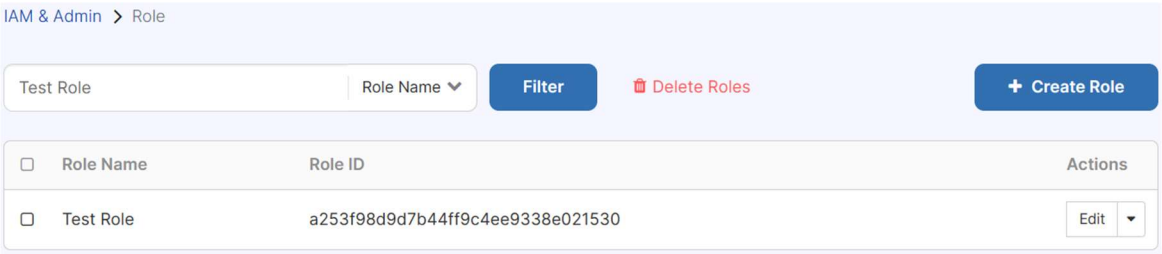
IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



4. Click **Delete Roles** from the confirmation module.
5. Click **Cancel** if user does not wish to proceed with the deletion process.

2.6.12 Role → Filter

1. Go to the **Role** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.
4. Click **Filter** button.
5. Clear the "filter field" and click **Filter** again to go back to the original list.



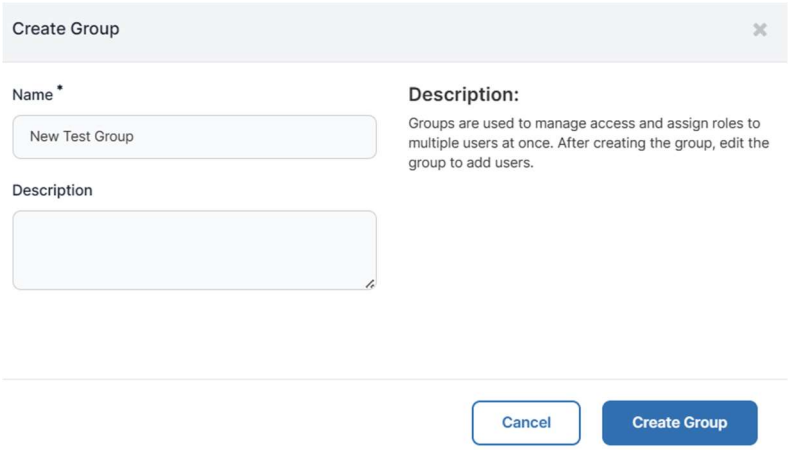
2.6.13 Groups → Create Groups

In cloud computing, a user group refers to a collection or association of users who share common attributes, roles, or permissions within the cloud platform. These groups are created to simplify user management and access control by allowing administrators to assign permissions or policies

to an entire group rather than individual users. User groups help streamline the process of granting or revoking access rights, ensuring efficient management of resources and security protocols.

Step 1: Open the Create Group Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**IAM and Admin**" for its dropdown menu.
3. Select "**Groups**" from the menu to be redirected to the following page.
4. Click **Create Groups** located at the top.



Step 2: Create a New Group

1. Input name for the new group in the **Name** field.
2. Provide a suitable description for the group.
3. Click **Create Group** to proceed with group creation process.
4. Click **Cancel** in order to cancel the group creation process.

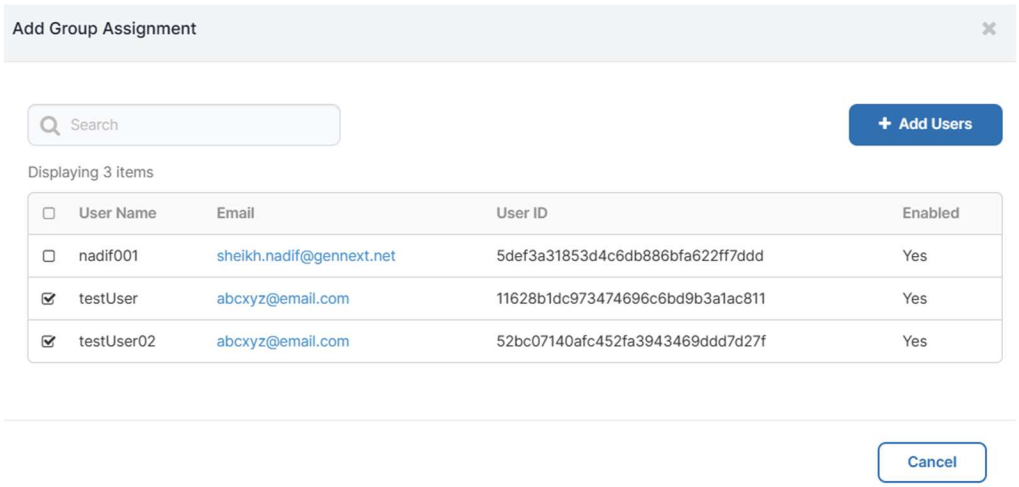
2.6.14 Groups → Actions → Manage Members

Step 1: Visit the Manage Members Page

1. Go to the **Groups** page.
2. Click on "**Manage Members**" under **Actions** column, to manage members for any individual “Group”.

NOTE: After clicking "Manage Members," you will be directed to a new page where you can allocate users to the group as members. This page provides a convenient interface for managing the group's membership and ensuring that users are appropriately associated with the group.

Step 2: Add Users to a Group



1. **Mark** all the users that need to be allocated to the group.
2. Click **Add Users** in order to add users to the group.

Newly added members will be shown in a list.

NOTE: Utilize the automatic search function to efficiently navigate through an extensive list of users. This feature operates seamlessly, responding dynamically to user input and ensuring a smooth and effective search experience.

3. Click **Cancel** in order to cancel the member adding process.

Step 3: Remove Users from a Group

1. **Mark** all the users that need to be removed from the Group.
2. Click **Remove Users** in order to proceed with removal operation.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the removing process. User must confirm the removal action to avoid accidental removing of any user.

3. Click **Remove Users** form the confirmation module to confirm removal action.

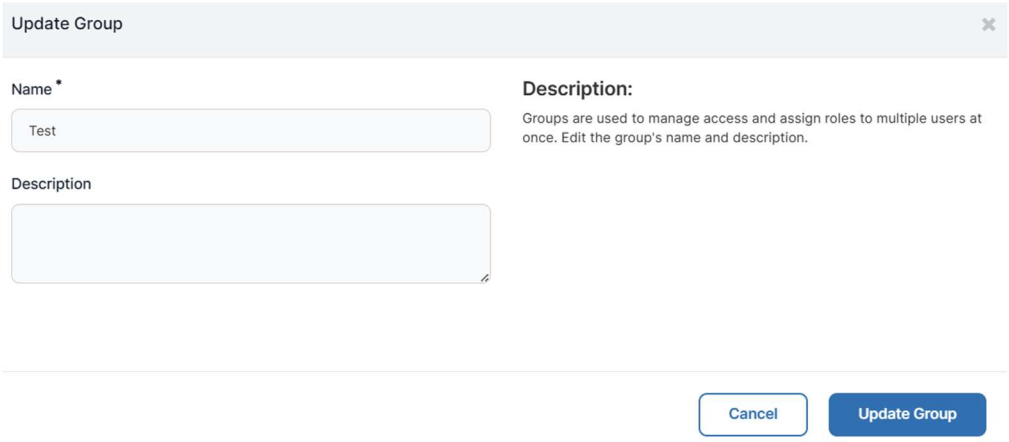
4. Click **Cancel** in order to cancel the member removal operation.

NOTE: User can also utilize the automatic search function located at the top, to efficiently navigate through an extensive list of users. This feature operates seamlessly, responding dynamically to user input and ensuring a smooth and effective search experience.

2.6.15 Groups → Actions(Dropdown) → Edit Groups

Step 1: Open the Update Group Tab

1. Go to the **Groups** page.
2. Select "**Edit Groups**" from the associated dropdown under **Actions** column.



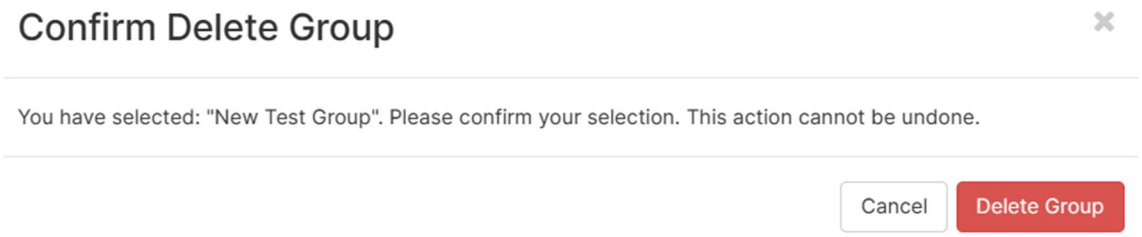
Step 2: Update Group Information

1. Update or input a new **Name** for the Group.
2. Update Group “Description”.
3. Click **Update Group** in order to confirm update.
4. Click **Cancel** in order to cancel the updating process.

2.6.16 Groups → Actions(Dropdown) → Delete Group

1. Go to the **Groups** page.
2. Select "**Delete Group**" from the associated dropdown under **Actions** column.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

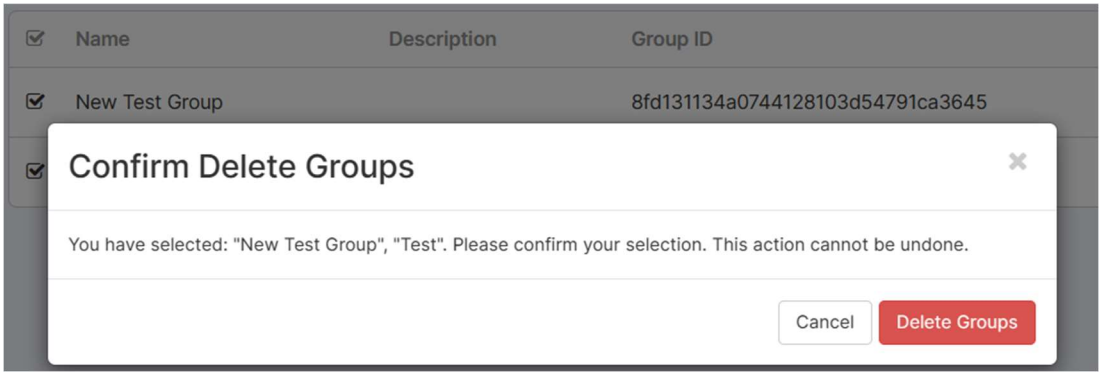


3. Click **Delete Group** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.6.17 Groups → Delete Groups

1. Go to the **Groups** page.
2. **Mark** all the groups that need to be deleted.
3. Select "**Delete Groups**" located at the top of page.

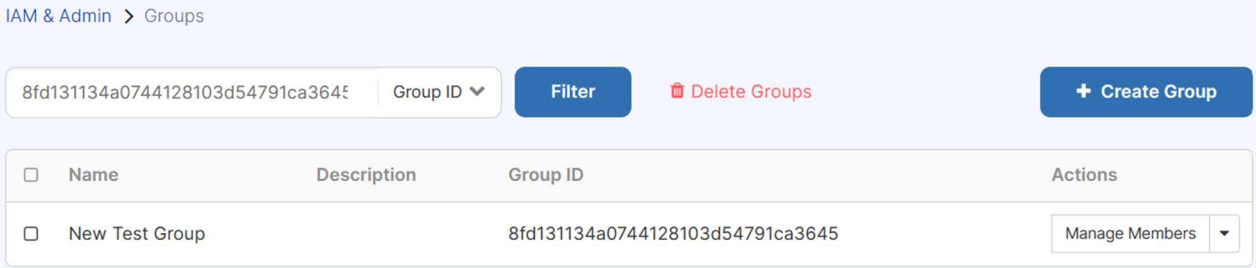
IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



4. Click **Delete Groups** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

2.6.18 Groups → Filter

1. Go to the **Groups** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.
4. Click **Filter** button.
5. Clear the “filter field” and click **Filter** again to go back to the original list.



2.7 Image

2.7.1 Images → Create Image

In cloud computing, an "image" refers to a pre-configured and encapsulated snapshot or template of a virtual machine (VM) or server. This image contains the operating system, software, configurations, and data necessary for the VM's functionality. Images serve as a foundation for creating multiple instances of identical virtual machines, streamlining the deployment and scaling processes. They provide a consistent environment for applications and facilitate rapid provisioning, ensuring efficiency and consistency in cloud infrastructure management.

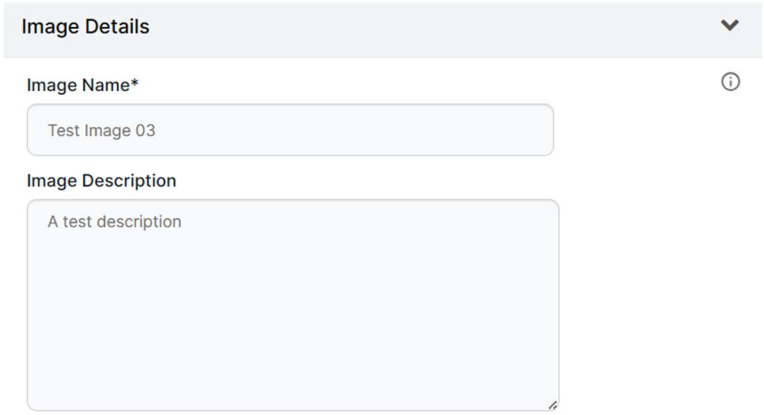
Step 1: Visit the Images Page

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Image**" for its dropdown menu.
3. Select "**Images**" from the menu to be redirected to the following page.
4. Click **Create Image** from the top right of the “Images” page.

NOTE: The images created by a user will be displayed in both the "**Project**" and "**Public**" sections, unless the user specifies the image as "Private" during the project creation. In the "Public" section, all public images and default public images that are accessible to every user can be found. Images that are associated with a different project will be listed in the "**Non-Public from Other Project**" section.

Step 2: Input Image Details

1. Input name for the new image in the **Image Name** field.
2. Provide a suitable description in the **Description Box** that matches with the image specification.

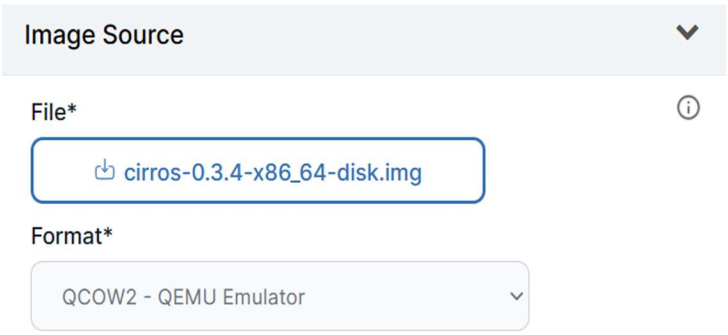


Step 3: Select Image Source and Format Type

1. Click on the **Browse** button to select the **Source File** from the local file system.

NOTE: Clicking "Browse" opens the local file system, enabling users to navigate and select a specific file as the image source. The selected source filename will be displayed on the browse button.

2. Click on the dropdown and select a file **Format** from the dropdown menu.



Step 4: Provide Image Requirements

1. Choose a ***Kernel*** from the dropdown menu.

The kernel is the core of an operating system, managing system resources and facilitating communication between software and hardware. It handles critical tasks like process scheduling and memory management, ensuring the overall functionality and stability of the system.

2. Select an Image for ***RAM Disk*** from the dropdown menu.

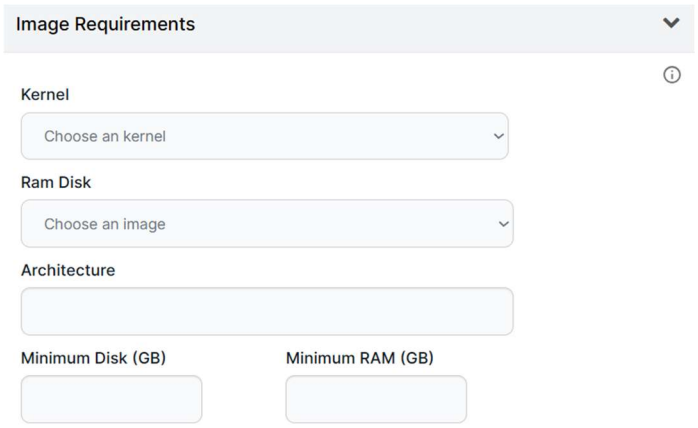
NOTE: An image can function as a RAM disk by utilizing a virtual disk drive created within the computer's random-access memory (RAM). This configuration allows for swift data storage and retrieval in the high-speed RAM, enhancing performance for certain applications. However, it's crucial to note that data stored in a RAM disk is volatile and may be lost when the system is powered off or restarted, as RAM is a form of temporary storage.

3. Provide ***Architecture*** details in the input field.

In the context of computing, "architecture" refers to the overall structure and design of a system or network. It encompasses the arrangement of components, the relationships between them, and the principles guiding their interactions. In cloud computing, architecture often involves the design of distributed systems, data storage, networking, and the allocation of computing resources to meet specific goals. The architecture of a cloud system influences its performance, scalability, security, and overall functionality.

4. Input **Minimum Disk** size for the image.
5. Input **Minimum RAM** size for the image.

IMPORTANT: Users have to input numerical values for both “**Disk**” and “**RAM**” size during image creation. For example, entering "**1**" in the "Minimum Disk" field signifies a requirement of **1 Gigabyte** of minimum disk space for the image.



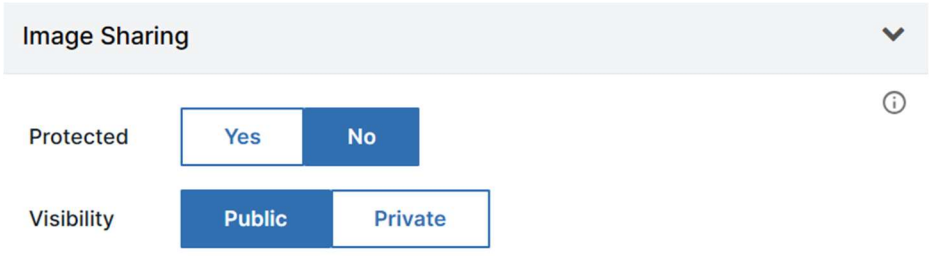
Step 5: Select Image Sharing Options

1. Select if the image will be protected or not by clicking **Yes** or **No**.

IMPORTANT: A protected image in cloud computing refers to an image that is safeguarded against accidental deletion. Marking an image as protected helps prevent critical data loss and ensures the preservation of the specified image configuration and contents. This protective measure is particularly valuable for important or frequently used images, minimizing the risk of unintentional removal and maintaining system stability.

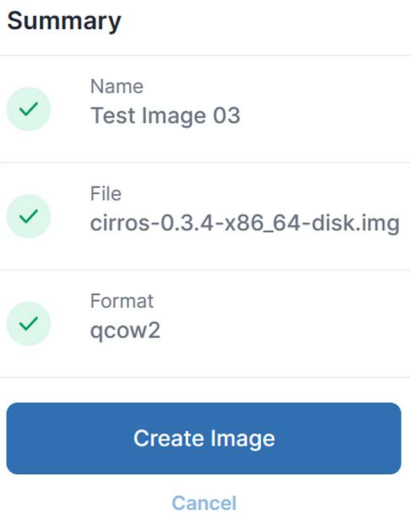
2. Select if the visibility of the image will be **Public** or **Private**.

IMPORTANT: In cloud computing, a "**Public Image"** is one that is accessible and visible to all users within the cloud platform. It can be shared openly across different projects and users. On the other hand, a "**Private Image**" is restricted in access and visibility, typically limited to the user or project that created it. Private images offer a more controlled and secure environment, ensuring that sensitive configurations and data are only available to authorized users or projects.



Step 6: View Summary and Confirm Image Creation

1. Ensure to review the summary displayed on the right-hand side to verify and confirm essential features of the image.
2. Click **Create Image** in order to proceed with image creation.
3. Click **Cancel** in order to cancel the image creation process.



Upon successful image creation, the user will be redirected to the "Images" page, where the newly created image will be displayed in the list. Public and Private images will be visible in their respective sections.

2.7.2 Images → Actions → Launch

1. Go to **Images** page.
2. Click **Launch** under the **Actions** column to “Launch an Instance” from any specific Image.

NOTE: Clicking "**Launch**" will redirect the user to the "**Launch an Instance**" page, where the source will be automatically set to the chosen image. The user needs to complete the required sections to successfully launch an instance from the selected image. For a detailed guide on launching an instance, please refer to section "**2.4.1.2 Instance → Launch an Instance**".

2.7.3 Images → Actions(Dropdown) → Create Volume

1. Go to **Images** page.
2. Select **Create Volume** from the associated dropdown under Actions column for any specific image.

NOTE: Clicking "**Create Volume**" will redirect the user to the "**Create Volume**" page, where the volume source will be automatically set to the chosen image. The user needs to complete the required sections to successfully create volume from the selected image. For a detailed guide on volume creation, please refer to section "**2.4.2.1 Volume → Create Volume**".

2.7.4 Images → Actions(Dropdown) → Update Image

1. Go to **Images** page.
2. Select **Update Image** from the associated dropdown under Actions column, to update any specific image information.

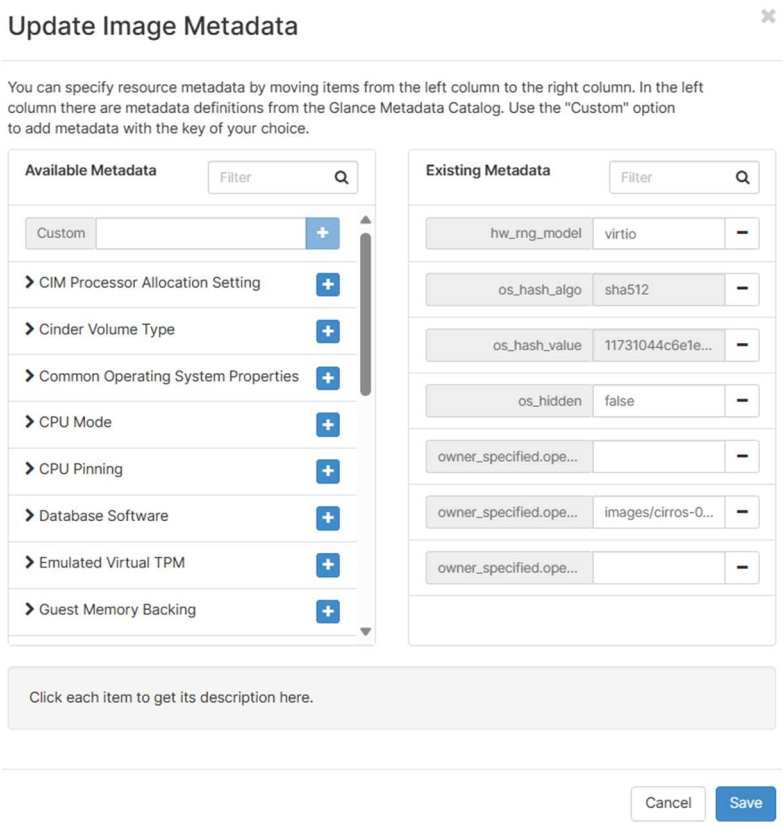
IMPORTANT: Updating an image follows a process similar to image creation. Users need to navigate through the same flow, updating only the necessary information from their perspective. To update an image, please refer to the image creation process outlined in section "**2.7.1 Images → Create Image**".

3. Click **Update Image** in order to update images information.
4. Click **Cancel** to cancel the updating process.

2.7.5 Images → Actions(Dropdown) → Update Metadata

Step 1: Open the Update Metadata Page

1. Go to **Images** page.
2. Select **Update Metadata** from the associated dropdown under Actions column, for the specific image that needs to be updated.



Step 2: Add Metadata/Custom Metadata to the Image

1. Click on the "**Plus**" icon next to any metadata listed under the "**Available Metadata**" section to add that metadata to the image.

IMPORTANT: Within the "Available Metadata" section, every list item is a nested dropdown itself. Clicking the "**Plus**" icon for a parent item, will automatically select all the child items under it. To choose a specific child item as metadata, users must navigate through the parent dropdown menu.

Custom Metadata:

2. To add custom metadata, enter a title in the input field corresponding to the custom option and click on the "**Plus**" icon.

NOTE: Selected metadata will be displayed as individual items in the "Existing Metadata" section

NOTE: Users can efficiently locate metadata using the automatic **Search** function positioned at the top. This function dynamically responds to user input, instantly isolating metadata items that match the provided input.

Step 3: Remove Metadata from the Image

1. Click on the "**Minus**" icon next to any metadata listed under the "**Existing Metadata**" section to remove that metadata from the image.

NOTE: Hover over the metadata in the “Existing Metadata” section in order to see basic details about the metadata.

NOTE: Users can efficiently locate metadata using the automatic **Search** function positioned at the top. This function dynamically responds to user input, instantly isolating metadata items that match the provided input.

Step 4: Confirm Update

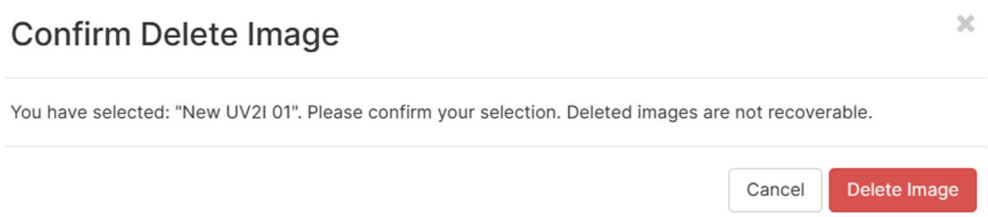
1. Click **Save** in order to save the current selection of metadata for the Image.
2. Click **Cancel** in order to cancel the metadata updating process.

MPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

2.7.6 Images → Actions(Dropdown) → Delete Image

1. Go to **Images** page.
2. Select **Delete** from the associated dropdown under Actions column, for the specific image that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

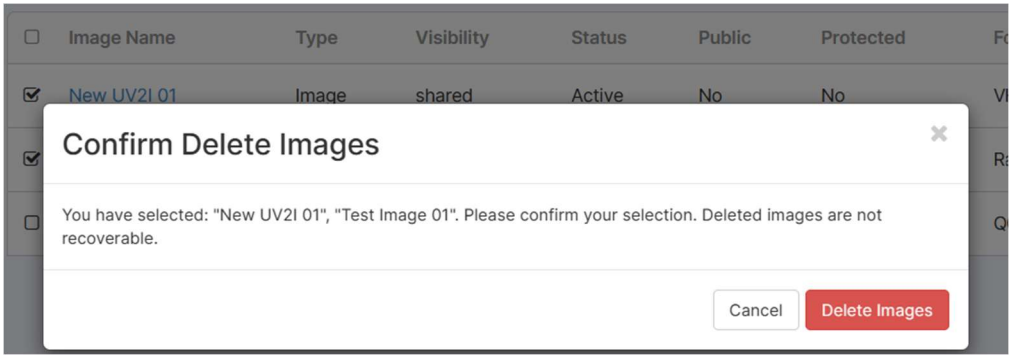


3. Click **Delete Image** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.7.7 Images → Delete Images

1. Go to **Images** page.
2. **Mark** all the images that need to be deleted.
3. Click **Delete Images** in order to proceed with the deletion process.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



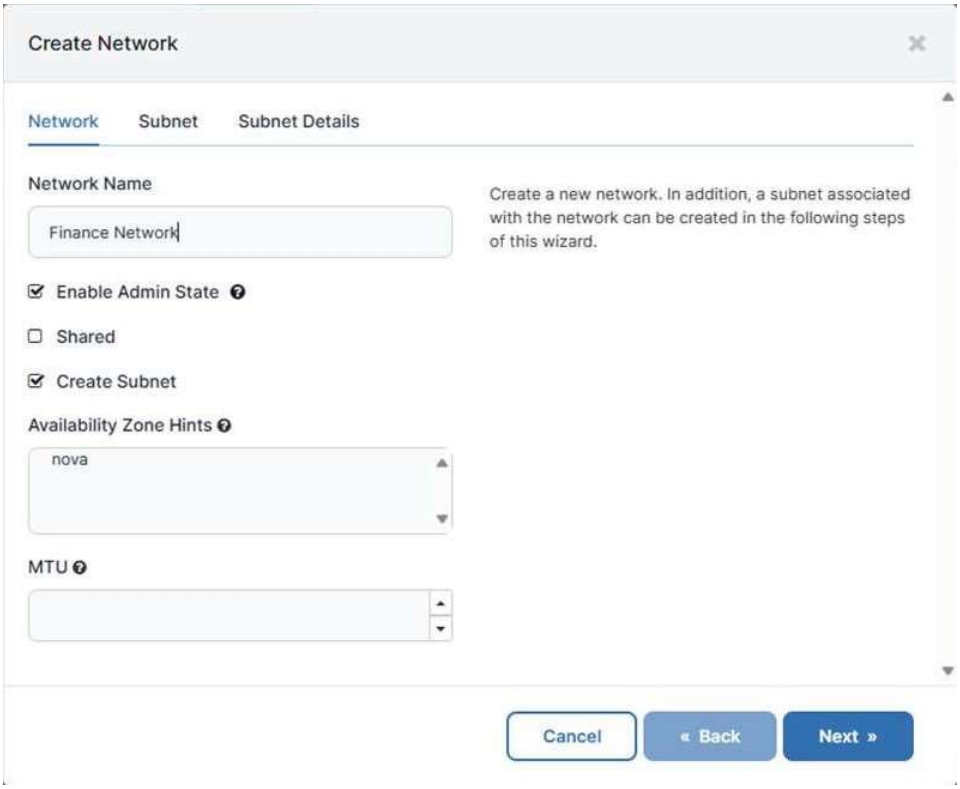
4. Click **Delete Images** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

2.8 Network and Security

2.8.1 Network Interface → Create Network

Step 1: Open the Create Network Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**Network Interface**" from the menu to be redirected to the following page.
4. Click on **Create Network** located at the top right of the page.



Step 2: Input Network Information

1. Input **Network Name**.
2. Mark checkbox to **Enable Admin State**.

In the context of a network, "Enable Admin State" typically refers to the ability to activate or deactivate the administrative status of the network. When the admin state is enabled, the network is active and operational, allowing data transmission. Conversely, when the admin state is disabled, the network is inactive, and data transmission is halted. This feature provides administrators with control over the network's operational status for maintenance or other purposes.

3. Mark checkbox to select if the network is **Shared**.

A "shared network" in the context of cloud computing or networking refers to a network that is accessible and usable by multiple users or tenants within a cloud environment. Unlike a network that is dedicated to a specific user or project, a shared network allows for the pooling of network resources, enabling multiple users or projects to utilize the same network infrastructure. This promotes resource efficiency and collaboration within a shared computing environment.

4. Mark checkbox to **Create Subnet** for the network.

A "subnet," short for subnetwork, is a division of an IP network. It allows a larger network to be logically segmented into smaller, more manageable parts. Subnets are defined by a range of IP

addresses and can include multiple devices or hosts. Each subnet has its own unique subset of IP addresses and typically represents a smaller section of a larger network. Subnetting is commonly used for network organization, security, and resource optimization in computer networks.

5. Input **Availability Zone Hints**.

NOTE: Availability zones are where the DHCP agents may be scheduled. Leaving this unset is equivalent to selecting all availability zones.

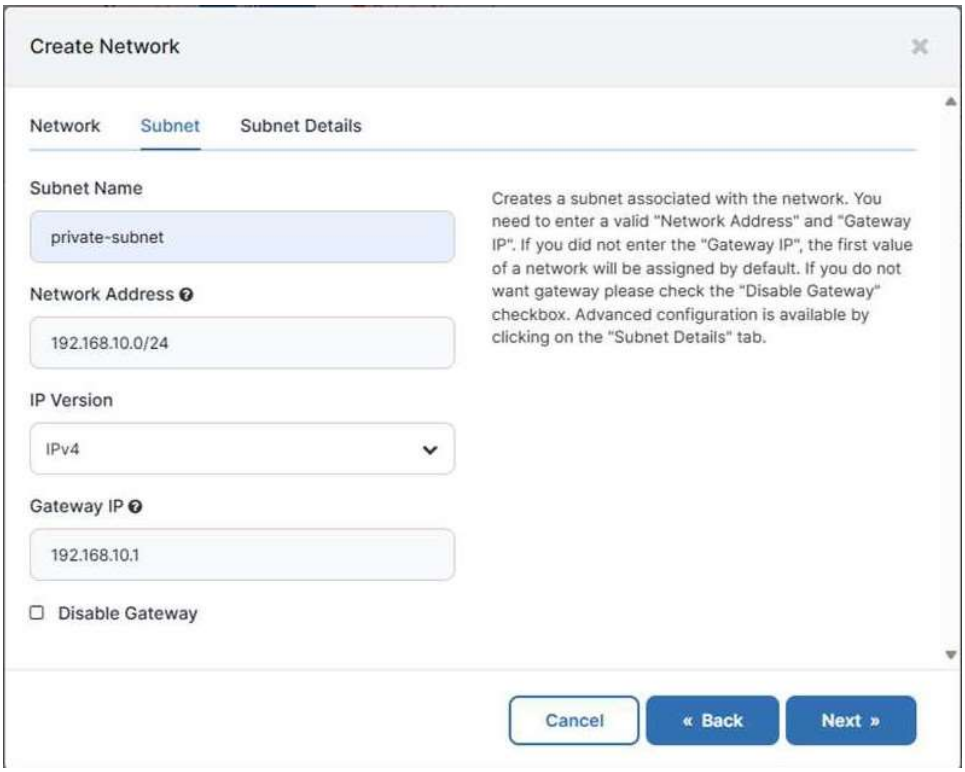
6. Input **MTU** for the network, adjust the quantity by typing manually or using the increment/decrement buttons.

NOTE: MTU stands for **Maximum Transmission Unit**. Minimum requirement is 68 bytes for the IPv4 subnet and 1280 bytes for the IPv6 subnet.

7. Click **Next** to proceed to the next step.
8. Click **Cancel** if you don't want to create a network.

Step 3: Input Subnet Information

Creates a subnet associated with the network. You need to enter a valid "Network Address" and "Gateway IP". If you did not enter the "Gateway IP", the first value of a network will be assigned by default. If you do not want gateway, please check the "Disable Gateway" checkbox. Advanced configuration is available by clicking on the "Subnet Details" tab.



1. Input the **Subnet Name**.
2. Provide a **Network Address** *(for example: 192.168.10.0/24).*

NOTE: The "/24" in a network address specifies the subnet size, indicating that the first 24 bits are for the network, and the remaining 8 bits are for host addresses. Other common notations include "/8" (network: 24 bits, host: 8 bits), "/16" (network: 16 bits, host: 16 bits), and "/32" for a single host. The choice depends on the network size and requirements.

3. Select **IP Version** from the dropdown.

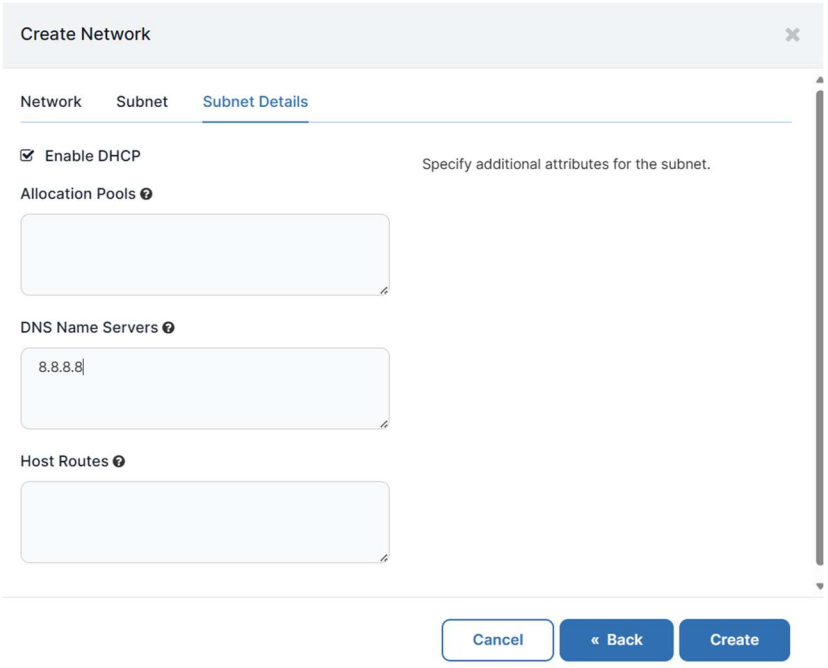
NOTE: IPv4 and IPv6 are internet protocol standards for addressing and routing data on the Internet. IPv4 uses 32-bit addresses, expressed as four sets of numbers separated by periods (e.g., 192.168.1.1). IPv6 uses 128-bit addresses, represented in hexadecimal format (e.g., 2001:0db8:85a3:0000:0000:8a2e:0370:7334). IPv6 was introduced to address the exhaustion of IPv4 addresses and provide a larger address space.

4. Provide a **Gateway IP** for the network.

NOTE: Default Gateway IP Address is automatically set as the initial IP address within the network. For instance, in a network with the address 192.168.10.0/24, the default gateway will be 192.168.10.1. If you decide not to utilize a gateway, please check the 'Disable Gateway' option below.

6. Click **Next** to proceed to the next step of network creation process.

Step 4: Input Subnet Details Information for the Network



1. Mark the checkbox to **Enable DHCP**.

Enabling DHCP (Dynamic Host Configuration Protocol) allows the network to automatically assign and manage IP addresses for devices within the specified range. When DHCP is enabled, devices connecting to the network receive IP addresses, subnet masks, and other configuration parameters dynamically, simplifying network setup and management.

3. Input **Allocation Pool** details.

NOTE: This section is for defining IP address allocation pools. Each entry should be in the format: start_ip_address, end_ip_address (e.g., 192.168.1.100,192.168.1.120), with one entry per line.

4. Input **DNS (Domain Name Servers)** for the network *(for example: 8.8.8.8)*.

DNS Name Servers translate human-readable domain names into IP addresses for computers on a network. They are vital in the DNS, ensuring seamless communication online. Servers like 8.8.8.8 (Google DNS) and 1.1.1.1 (Cloudflare DNS) offer public domain resolution services, converting domain names to IP addresses quickly and reliably. Users prefer them for speed, reliability, and enhanced security, often configuring their devices to use these servers over default ISP DNS servers.

5. Input **Host Router** information.

A "Host Router" typically refers to a router that serves as the primary networking device within a local area network (LAN) or home network. It acts as a gateway, directing data traffic between devices within the network and facilitating communication with external networks, such as the internet. The host router manages the routing of data packets, assigns local IP addresses to devices, and often includes additional features like firewall capabilities and wireless connectivity. In essence, the host router plays a central role in network management and connectivity for devices within a specific environment.

Step 4: Confirm Creation

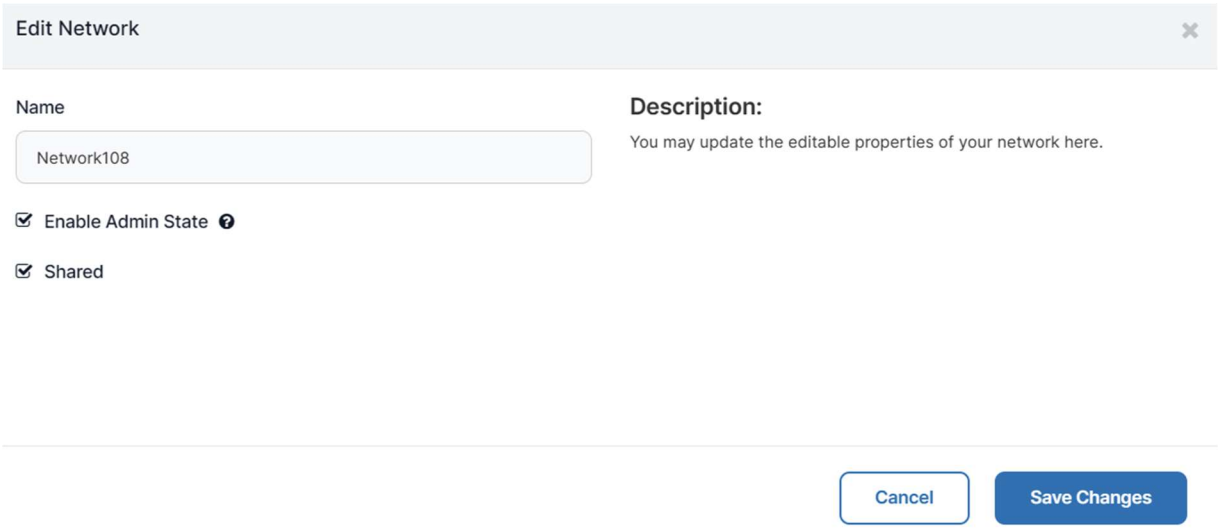
1. After step 1,2 and 3 is completed, click **Create** in order to confirm network creation.
2. Click **Cancel** to cancel the network creation process.

2.8.2 Network Interface → Actions → Edit Network

Step 1: Open the Edit Network Tab

1. Go to the "**Network Interface**" page.

2. Click on **Edit Network** under "**Actions**" column, for the specific network from the list that needs to be edited.

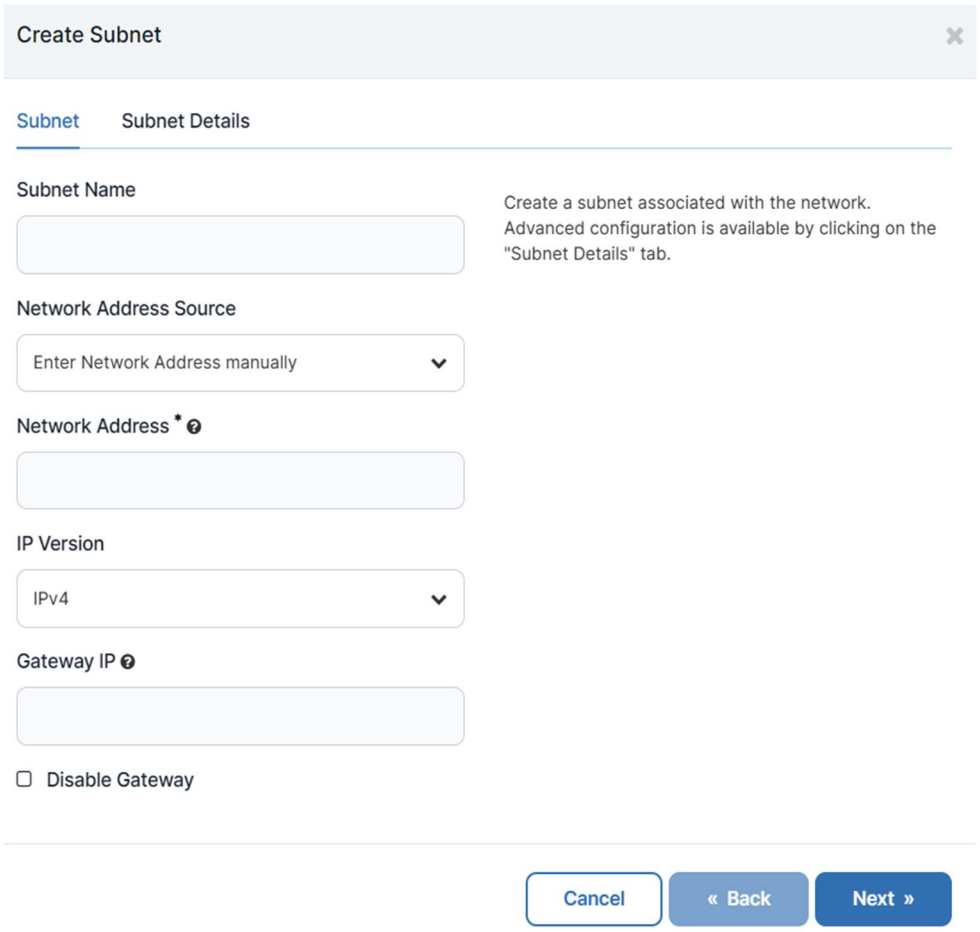


Step 2: Edit Network Information

1. Update network **Name** in the name field.
2. Click to check or uncheck **Enable Admin State** to activate or deactivate the network.
3. Click to check or uncheck **Shared**, to make sure if the network is shareable or non-shareable.
4. Click **Save Changes** in order to save updated information.
5. Click **Cancel** in order to cancel the information updating process.

2.8.3 Network Interface → Actions(Dropdown) → Create Subnet

1. Go to the "**Network Interface**" page.
2. Select **Create Subnet** for a network from the dropdown under "**Actions**" column.



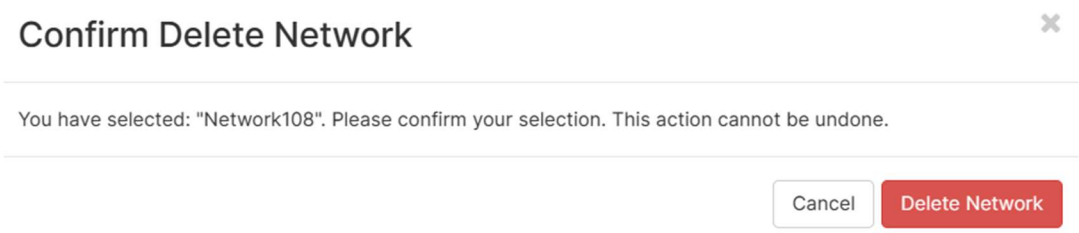
IMPORTANT: The process of creating a subnet is similar to the subnet creation in "Create Network" process. Please follow **Step 3** and **Step 4** of section "**2.8.1 Network Interface → Create Network**" for specific guidelines.

3. Click **Create** in order to create subnet.
4. Click **Cancel** to cancel the process of subnet creation.

2.8.4 Network Interface → Actions(Dropdown) → Delete Network

1. Go to the "**Network Interface**" page.
2. Select **Delete Network** from the dropdown under "**Actions**" column, for the specific network that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

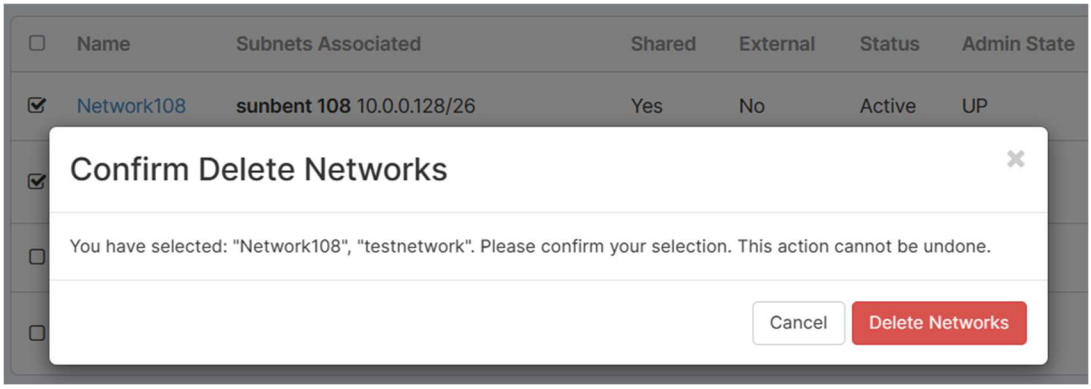


3. Click **Delete Network** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.8.5 Network Interface → Delete Networks

1. Go to the "**Network Interface**" page.
2. **Mark** all the networks that need to be deleted.
3. Select **Delete Networks** located at the top of the page.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

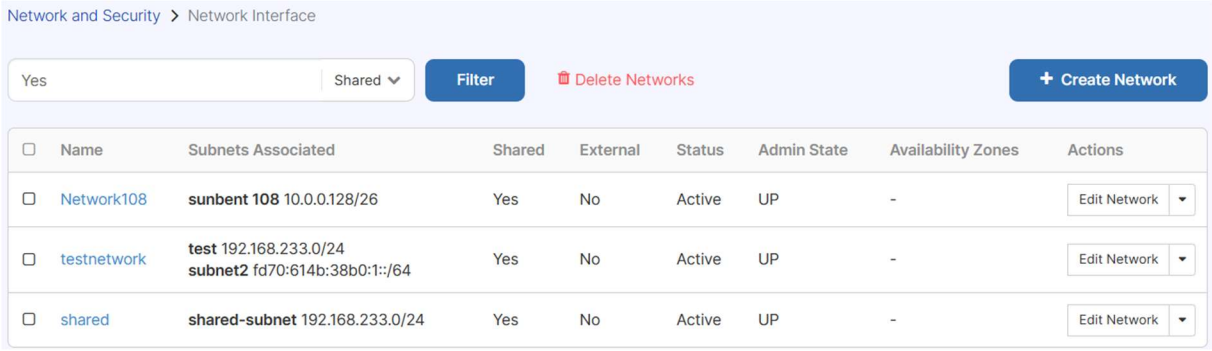


4. Click **Delete Networks** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

2.8.6 Network Interface → Filter

1. Go to the **Network Interface** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.

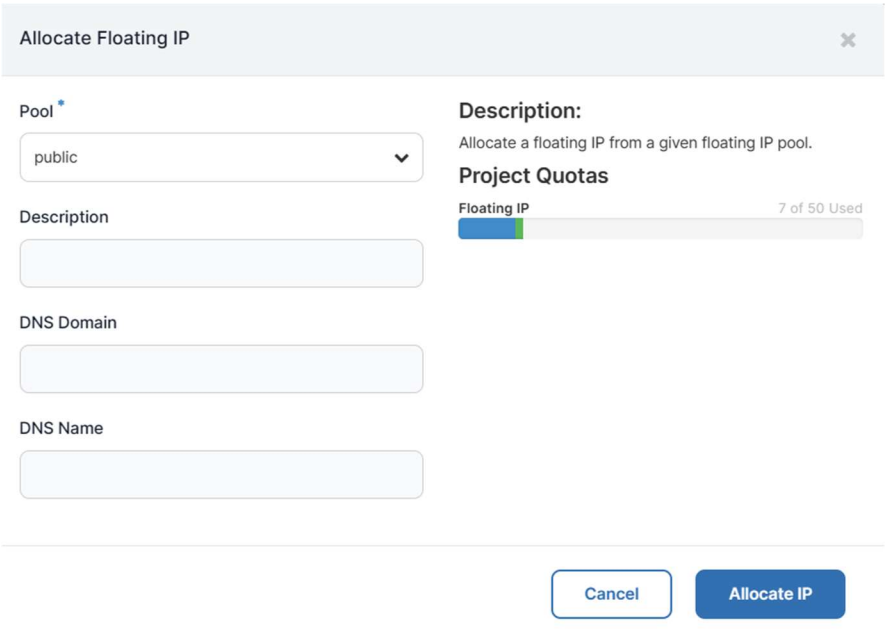
4. Click **Filter** button.
5. Clear the “filter field” and click **Filter** again to go back to the original list.



2.8.7 IP Address Management → Allocate IP to Project

Step 1: Open the Allocate Floating IP Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**IP Address Management**" from the menu to be redirected to the following page.
4. Click **Allocate IP to Project** in order to proceed with IP allocation.



Step 2: Allocate Floating IP

1. *Select **Pool** between "Public" or "Shared".*
2. *Provide a suitable description.*
3. *Input a **Domain Name** that is **FQDN** approved.*

A Fully Qualified Domain Name (FQDN) is a domain name that specifies its exact position in the DNS (Domain Name System) hierarchy. It includes both the host name and the top-level domain (TLD), providing the complete path to a specific location on the internet.

4. Input a **DNS Name**.
5. Click **Allocate IP** in order to allocate new floating IP.

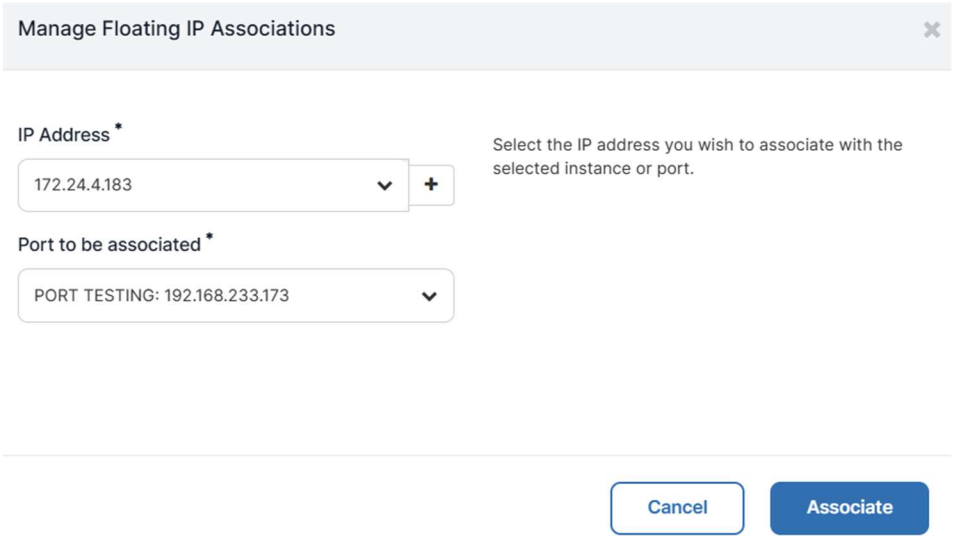
NOTE: Newly created IPs will be shown in the list in the "**IP Address Management**" page. Users have the flexibility to allocate up to 50 floating IPs per project. The graphical visualization in the "Allocate Floating IP" tab provides a clear representation of the available quota, ensuring easy monitoring and management of floating IP resources.

6. Click **Cancel** in order to cancel the IP creation process.

2.8.8 IP Address Management → Actions→ Associate

Step 1: Open the Manage Floating IP Associations Tab

1. Go to the "**IP Address Management**" page.
2. Select **Associate** for an IP under "**Actions**" column, in order to associate the floating IP.



Step 2: Associate a Floating IP

1. Make sure the specific IP is selected in the **IP Address** field.

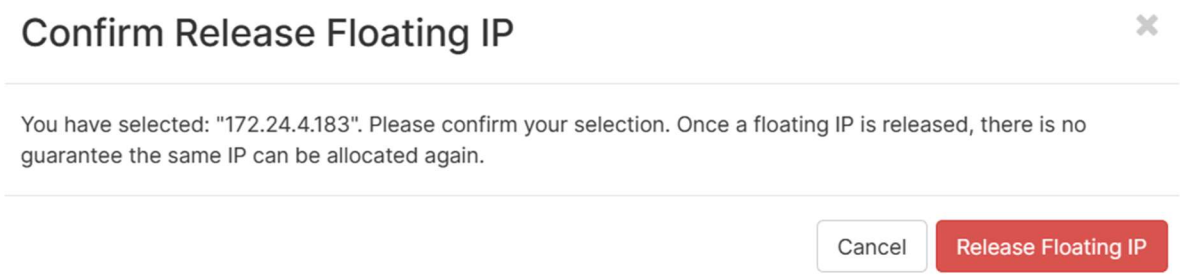
NOTE: Clicking "Associate" for a specific IP automatically selects it as the default IP address for the association process. However, users have the flexibility to choose a different IP address from the dropdown if needed. Additionally, users can allocate a new floating IP address by clicking on the "Plus" icon, which opens the Allocate Floating IP tab. For detailed instructions on allocating a new floating IP, please refer to section "**2.8.7 IP Address Management → Allocate IP to Project**".

2. Select a **Port** from the dropdown to associate with the IP.
3. Click **Associate** in order to proceed with the IP association.
4. Click **Cancel** in order to cancel the IP association process.

2.8.9 IP Address Management → Actions(Dropdown) → Release Floating IP

1. Go to the "**IP Address Management**" page.
2. Select **Release Floating IP** from the dropdown under "**Actions**" column, for the specific IP that needs to be released from the project.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the releasing process. User must confirm the release action to avoid accidental release.

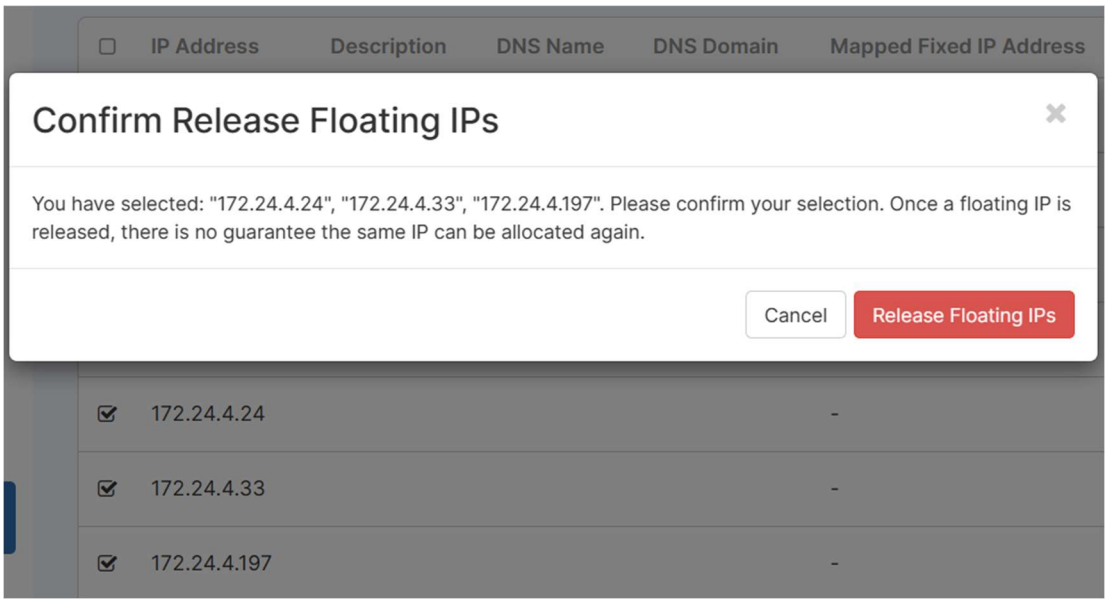


3. Click **Release Floating IP** from the confirmation module to confirm release.
4. Click **Cancel** in order to cancel the IP release process.

2.8.10 IP Address Management → Release Floating IPs

1. Go to the "**IP Address Management**" page.
2. **Mark** all the IPs that need to be released from the project.
3. Select **Release Floating IPs** located at the top of the page.

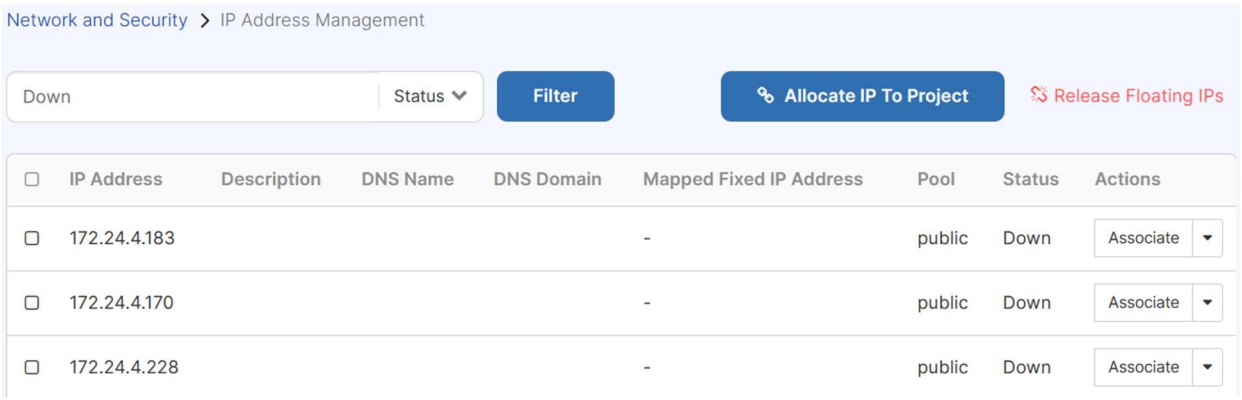
IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the releasing process. User must confirm the release action to avoid accidental release.



4. Click **Release Floating IPs** from the confirmation module to confirm release.
5. Click **Cancel** in order to cancel the IP release process.

2.8.11 IP Address Management → Filter

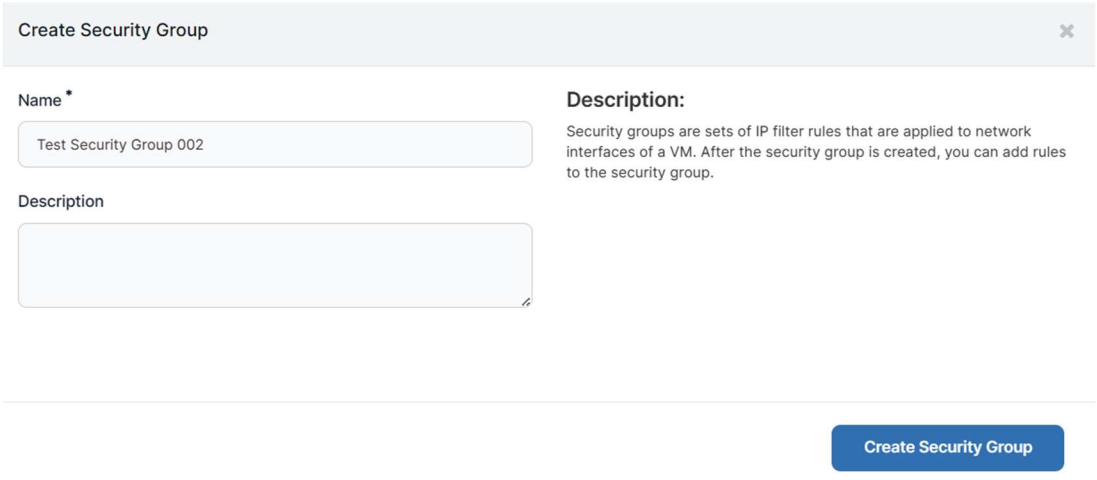
1. Go to the **IP Address Management** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.
4. Click **Filter** button.
5. Clear the “filter field” and click **Filter** again to go back to the original list.



2.8.12 Security Groups → Create Security Group

Step 1: Open the Create Security Group Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**Security Groups**" from the menu to be redirected to the following page.
4. Click **Create Security Group**.



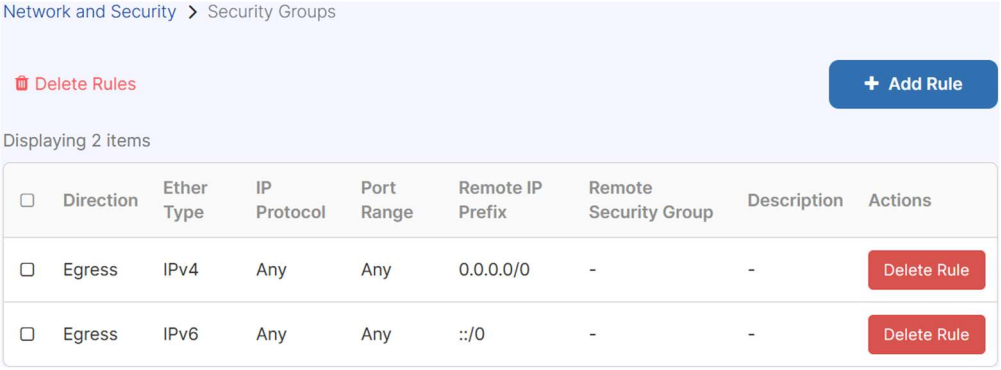
Step 2: Provide Security Group Information

1. Input name of the security group in the **Name** field.
2. Provide a suitable for the security group.
3. Click **Create Security Group** button in order to proceed with the group creation.
4. Click **Cancel** to cancel the group creation process.

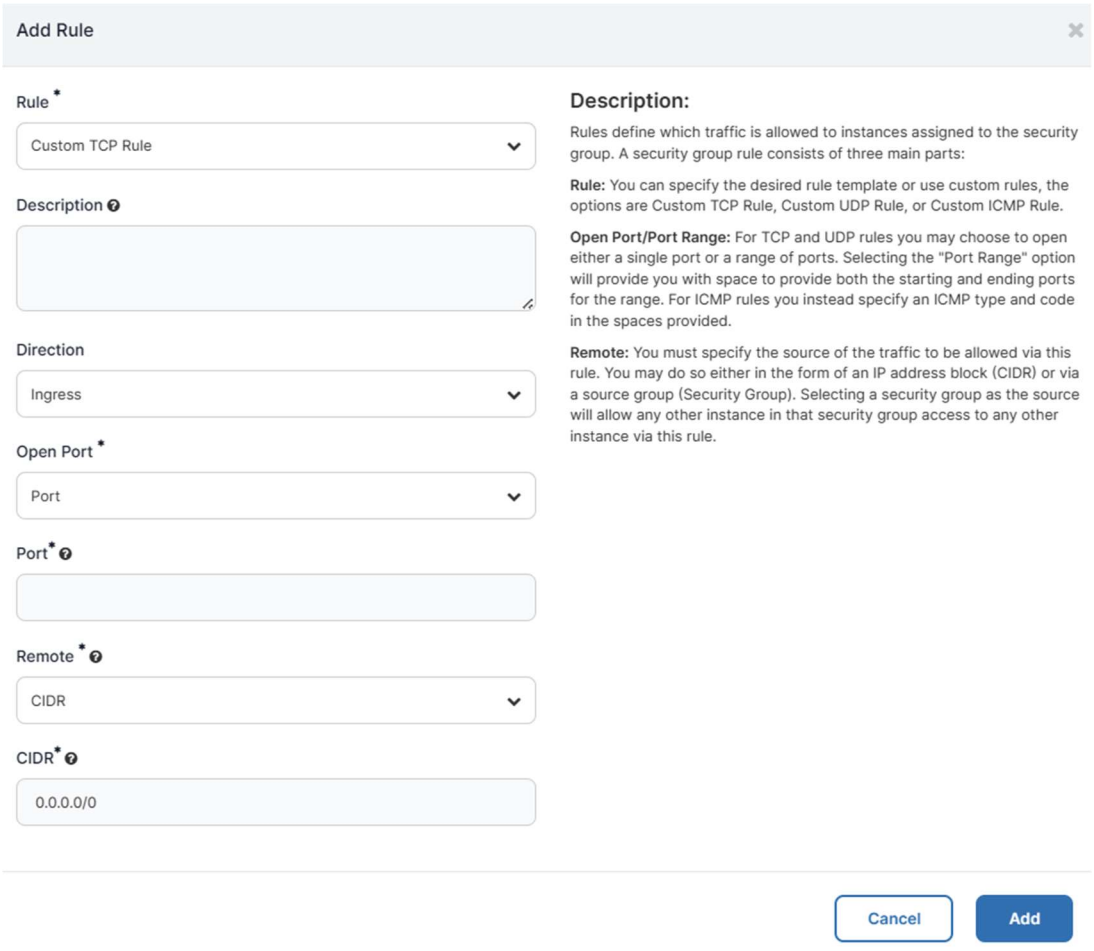
2.8.13 Security Groups → Actions → Manage Rules

Step 1: Visit the Manage Rules Page

1. Go to the "**Security Groups**" page.
2. Click **Manage Rules** under "**Actions**" column, to manage rule for a specific group.



Step 2: Add a New Rule



1. Click on "**Add Rule**" to add custom rules.
2. Select a new "**Rule**" from the dropdown.

NOTE: These are the rules that can be selected from the dropdown:

1. **Custom TCP Rule:** User-defined rule for allowing or blocking Transmission Control Protocol (TCP) traffic based on specified criteria.

2. **Custom UDP Rule:** User-defined rule for allowing or blocking User Datagram Protocol (UDP) traffic based on specified criteria.

3. **Custom ICMP Rule:** User-defined rule for allowing or blocking Internet Control Message Protocol (ICMP) traffic, commonly used for network diagnostics.

4. **Other Protocol:** Rule for a specific protocol not covered by predefined categories, allowing customization for various network protocols.

5. **All ICMP:** Permits or blocks all types of ICMP traffic, including ping requests and error messages.

6. **All TCP:** Allows or blocks all Transmission Control Protocol (TCP) traffic, providing broad control over TCP-based communication.

7. **All UDP:** Allows or blocks all User Datagram Protocol (UDP) traffic, offering comprehensive control over UDP-based communication.

8. **DNS:** Permits Domain Name System (DNS) traffic, facilitating domain resolution and name-to-IP address mapping.

9. **HTTP:** Enables Hypertext Transfer Protocol (HTTP) traffic, allowing web browsing and communication with web servers.

10. **HTTPS:** Permits secure Hypertext Transfer Protocol Secure (HTTPS) traffic, ensuring encrypted communication for secure web transactions.

11. **IMAP:** Allows Internet Message Access Protocol (IMAP) traffic, facilitating retrieval of emails from a mail server.

12. **IMAPS:** Permits secure IMAP traffic, ensuring encrypted communication for secure email retrieval.

13. **LDAP:** Enables Lightweight Directory Access Protocol (LDAP) traffic, commonly used for accessing and managing directory information.

14. **MS SQL:** Permits traffic for Microsoft SQL Server, facilitating communication with SQL databases.

15. **MYSQL:** Allows traffic for MySQL databases, supporting communication with MySQL server instances.

16. **POP3:** Permits Post Office Protocol version 3 (POP3) traffic, facilitating the retrieval of emails from a mail server.

17. **POP3S:** Allows secure POP3 traffic, ensuring encrypted communication for secure email retrieval.

18. **RDP:** Enables Remote Desktop Protocol (RDP) traffic, allowing remote access to desktop environments.

19. **SMTP:** Permits Simple Mail Transfer Protocol (SMTP) traffic, facilitating the sending of emails.

20. **SMTPS:** Allows secure SMTP traffic, ensuring encrypted communication for secure email transmission.

21. **SSH:** Permits Secure Shell (SSH) traffic, providing secure access to remote systems.

3. Provide a suitable "**Description**" (if needed).
4. Select the "**Direction**" (flow or orientation of data traffic within a network) from the dropdown.

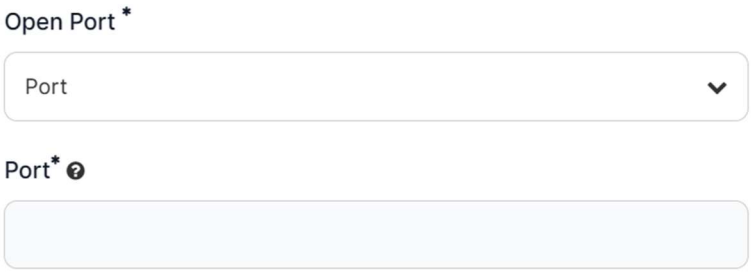
NOTE: In network security, "direction" typically refers to the flow or orientation of data traffic within a network. There are two main directions relevant to network security: Ingress and Egress:

1. **Ingress:** In networking and security, "Ingress" refers to the incoming data traffic entering a network or a specific computing device. It involves rules and configurations that control and manage the flow of data from external sources into the network or system.

2. **Egress:** "Egress" pertains to outgoing data traffic leaving a network or a specific computing device. It involves rules and settings that regulate the flow of data from the internal network or system to external destinations. Egress controls are crucial for enforcing security policies and preventing unauthorized data exfiltration.

5. Select a "**Port**" option from the dropdown

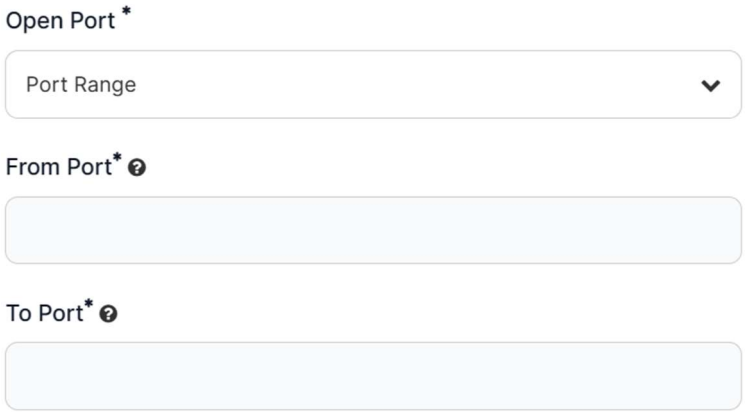
5.1 Open Port: For "Open Port", input the "**Port**" in the input field.



5.2 Port Range: "Port Range" allows user to select a range of ports.

a) Input from which port the range will start in the "**From Port**".

b) Input "**To Port**" to in order to specify the end of the range.

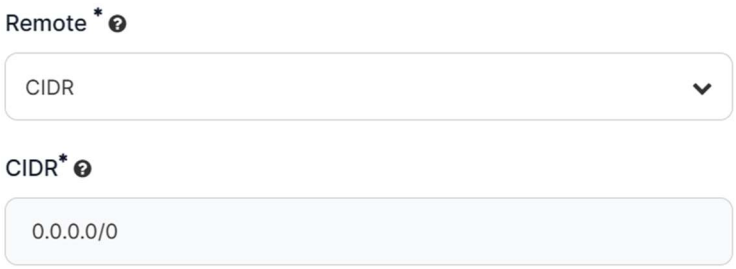


5.3 All Ports: Select "**All Ports**" if user wants to incorporate all available ports.

6. Specify the source of the traffic, select "**Remote**" (between **CDR** and **Security Groups**) from the dropdown.

NOTE: To enable traffic through this rule, you must indicate the source. This can be achieved by specifying an IP address block using CIDR notation or by selecting a source group, which is a Security Group. Opting for a security group as the source means that any instance within that security group will have access to any other instance through this rule.

6.1 CIDR: If the "**Remote**" is selected as **CIDR**, input an IP address block in the input field.



6.2 Security Groups: If "**Security Groups**" is selected, user must:

a) Select the "**Security Group**" from the dropdown.

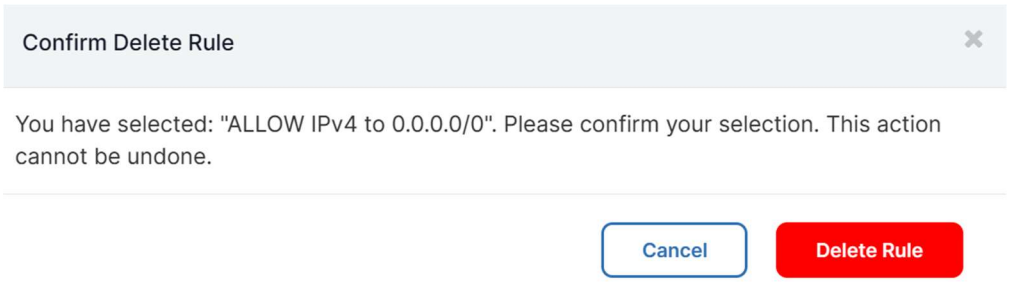
b) Select "**Ether Type**" from the dropdown.

7. Click "**Add Rule**" to proceed with adding the new rule (after all important fields are selected).
8. Click "**Cancel**" in order to cancel the rule adding process.

Step 3: Delete a Rule

1. Click on **Delete Rule** for a specific rule that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

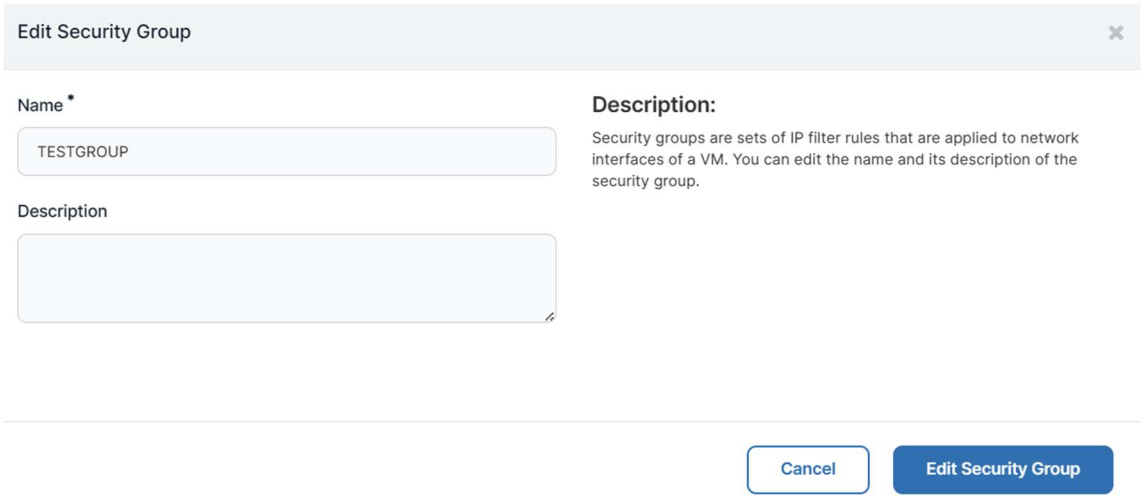


2. Click **Delete Rule** from the confirmation module to proceed with deletion.
3. Click **Cancel** to cancel the deletion process.

2.8.14 Security Groups → Actions(Dropdown) → Edit Security Group

Step 1: Open the Edit Security Group Tab

1. Go to the "**Security Groups**" page.
2. Click **Edit Security Groups** from the dropdown under "**Actions**" column, to edit a specific group information.



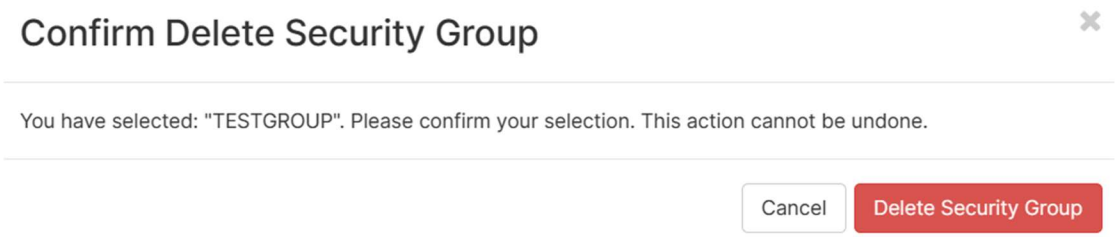
Step 2: Update Security Group Information

1. Update **Name** of the security group in the "Name" field.
2. Update **Description** for the security group in the "Description Box".
3. Click **Edit Security Group** to proceed with editing.
4. Click **Cancel** in order to cancel the editing process.

2.8.15 Security Groups → Actions(Dropdown) → Delete Security Group

1. Go to the "**Security Groups**" page.
2. Select **Delete Security Group** from the dropdown under "**Actions**" column, for the specific security group that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

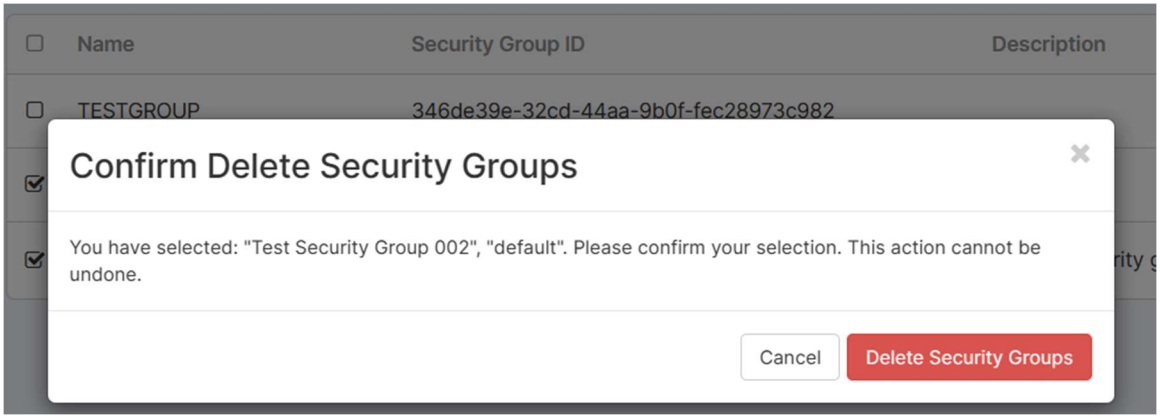


3. Click **Delete Security Group** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.8.16 Security Groups → Delete Security Groups

1. Go to the "**Security Groups**" page.
2. **Mark** all the security groups that need to be deleted.
3. Select **Delete Security Groups** located at the top of the page.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



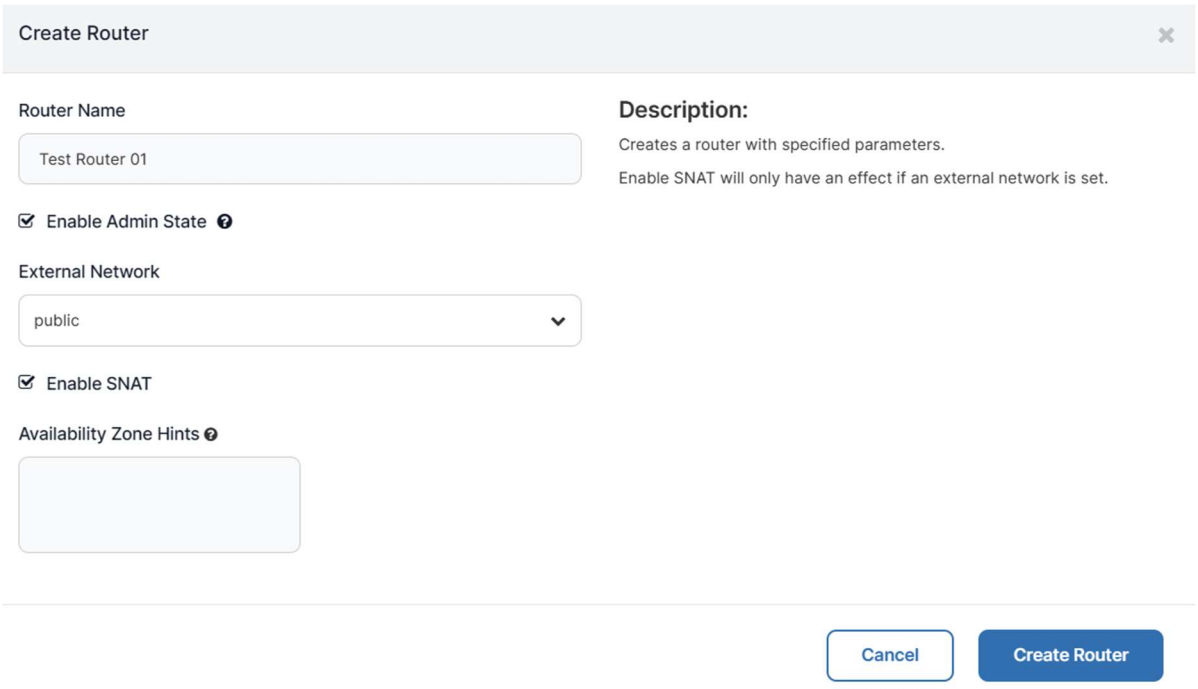
4. Click **Delete Security Groups** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

NOTE: Users can efficiently locate security groups using the automatic **Search** function positioned at the top. This function dynamically responds to user input, instantly isolating groups items that match with the provided input.

2.8.17 Routers → Create Router

Step 1: Open the Routers Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**Routers**" from the menu to be redirected to the following page.
4. Click on the **Create Router** button located at the top right of the page.



Step 2: Create a New Router

1. Input a **Router Name**.
2. Mark **Enable Admin State** to enable the router.

"Admin State" refers to the operational status of a network device or component. When set to "Up," it is active and can send/receive traffic; when set to "Down," it is intentionally disabled, not participating in network communication. This parameter is crucial for managing connectivity and troubleshooting network issues.

3. Select a gateway for the router from the **External Network** dropdown.
4. Mark **Enable SNAT** if an external network is set.

SNAT, or Source Network Address Translation, is a networking technique that modifies the source IP address of outgoing packets. This process helps overcome limitations in the availability of public IP addresses by allowing multiple devices within a private network to share a single public IP address when accessing external resources. SNAT is commonly used in network address translation (NAT) scenarios to enhance connectivity and optimize resource utilization.

5. *Select **Availability Zone Hints**.*

NOTE: Availability Zones are where the router may be scheduled. Leaving this unset is equivalent to selecting all Availability Zones.

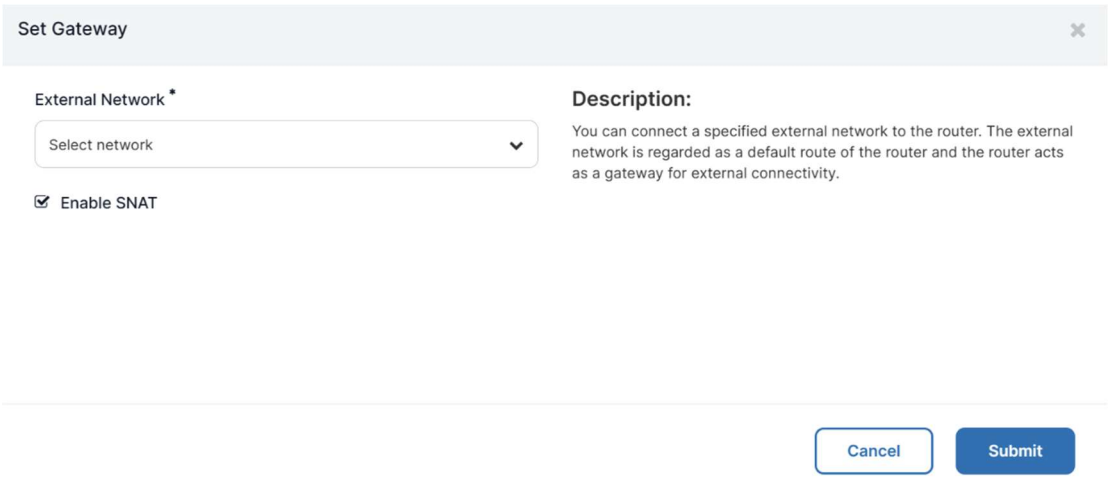
6. Click **Create Router** button to proceed with router creation process.
7. Click **Cancel** to cancel the router creation process.

2.8.18 Routers → Actions(Dropdown) → Set/Clear Gateway

NOTE: Depending on whether the user selected any "External Network" during the router creation process, one of two buttons will appear under the action column: "Clear Gateway" if an external network is selected and "Set Gateway" in case of no selection.

Step 1: Set Gateway

1. Go to the "**Routers**" page.
2. Click **Set Gateway** from the dropdown under "**Actions**" column, for a specific router.



3. Select a gateway for the router from the **External Network** dropdown.
4. Mark **Enable SNAT** if an external network is set.

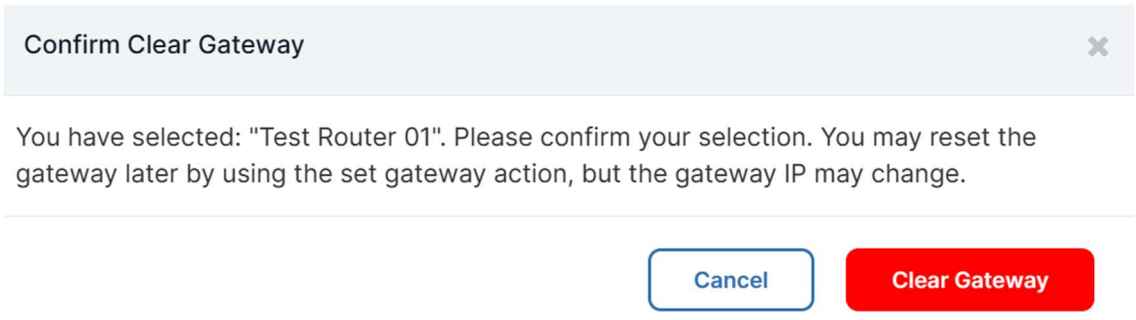
SNAT, or Source Network Address Translation, is a networking technique that modifies the source IP address of outgoing packets. This process helps overcome limitations in the availability of public IP addresses by allowing multiple devices within a private network to share a single public IP address when accessing external resources. SNAT is commonly used in network address translation (NAT) scenarios to enhance connectivity and optimize resource utilization.

5. Click **Submit** in order to set gateway for the router.
6. Click **Cancel** to cancel the gateway setup process.

Step 2: Clear Gateway

1. Go to the "**Routers**" page.
2. Select **Clear Gateway** for a specific router under "**Actions**" column, to clear gateway information.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the gateway clearing process. User must confirm the clearing action to avoid accidental removing action.

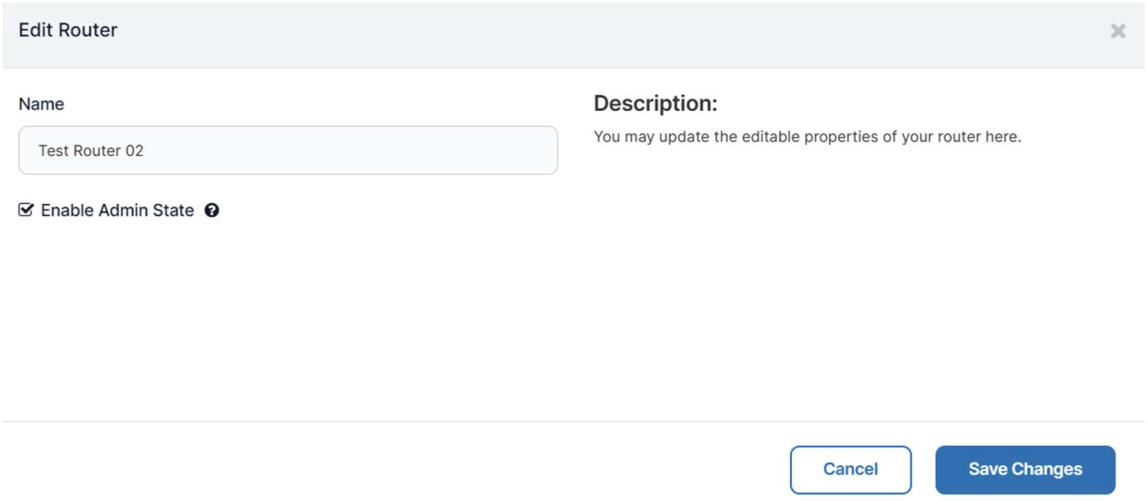


3. Click **Clear Gateway** from the confirmation module to confirm clearing action.
4. Click **Cancel** in order to cancel the clearing process.

2.8.19 Routers → Actions → Edit Router

Step 1: Open the Edit Router Tab

1. Go to the "**Routers**" page.
2. Click **Edit Router** from the dropdown under "**Actions**" column, to edit a specific router information.



Step 2: Edit Router Information

1. Update **Name** of the router in the "Name" field.
2. Click to check or uncheck "**Enable Admin State**" to activate or deactivate the router.

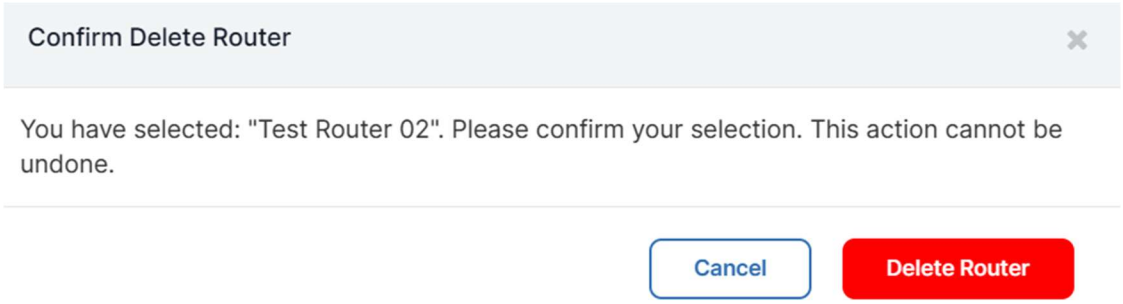
"Admin State" refers to the operational status of a network device or component. When set to "Up," it is active and can send/receive traffic; when set to "Down," it is intentionally disabled, not participating in network communication. This parameter is crucial for managing connectivity and troubleshooting network issues.

3. Click **Save Changes** to save the updated information.
4. Click **Cancel** in order to cancel the editing process.

2.8.20 Routers → Actions(Dropdown) → Delete Router

1. Go to the "**Routers**" page.
2. Select **Delete Router** from the dropdown under "**Actions**" column, for the specific router that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

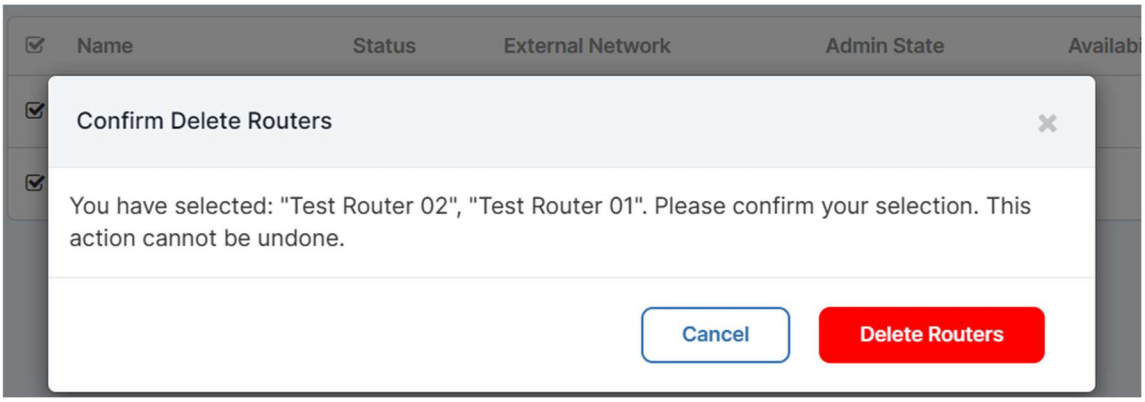


3. Click **Delete Router** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.8.21 Routers → Delete Routers

1. Go to the "**Routers**" page.
2. **Mark** all the routers that need to be deleted.
3. Select **Delete Routers** located at the top of the page.

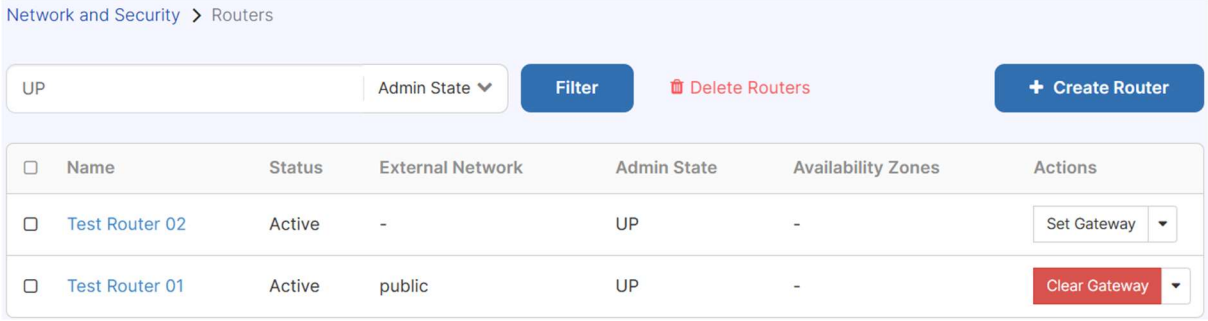
IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



4. Click **Delete Routers** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

2.8.22 Routers → Filter

1. Go to the **Routers** page.
2. Select **Filtering Criteria** from the associated **Dropdown**.
3. Input specific **Keywords** based on the selected filtering criteria.
4. Click **Filter** button.
5. Clear the "filter field" and click **Filter** again to go back to the original list.



2.8.23 Key Pairs → Create Key Pair

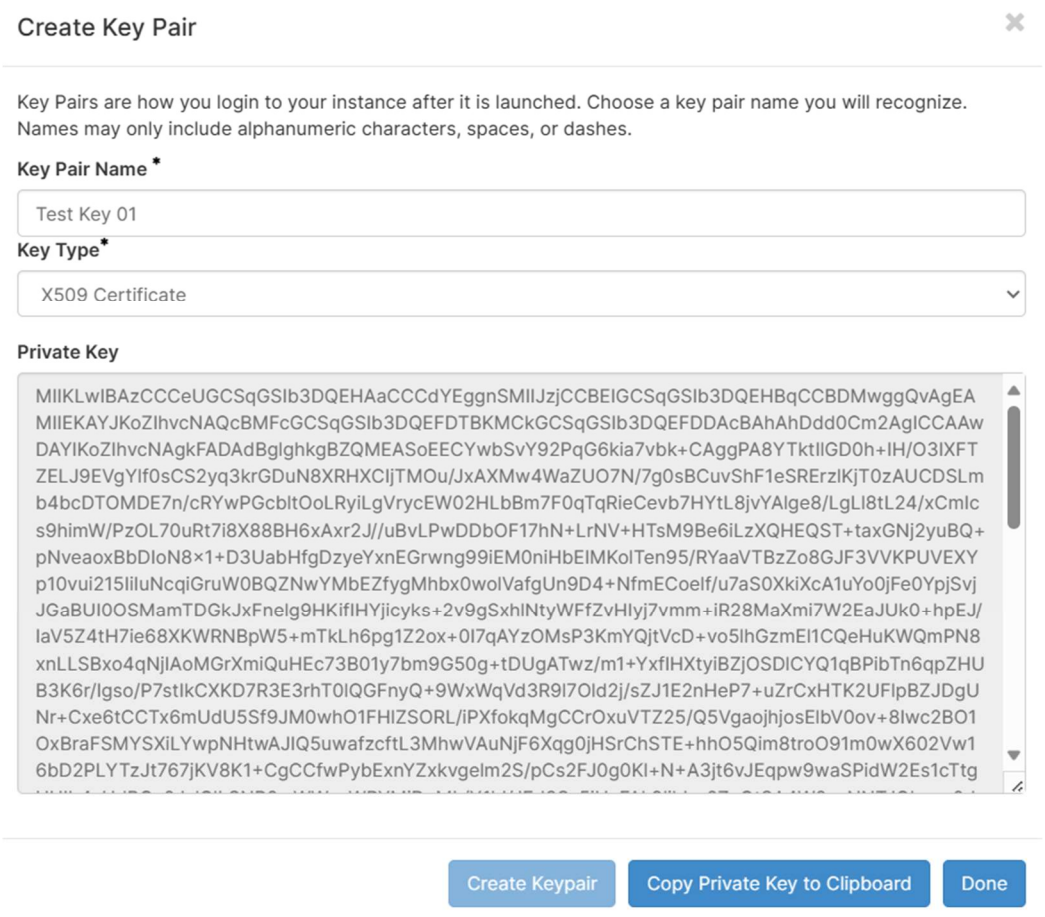
Step 1: Open the Create Key Pair Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**Key Pairs**" from the menu to be redirected to the following page.
4. Click **Create Key Pair** to open the “Create Key Pair” tab.

Step 2: Create a Key Pair

1. Input **Key Pair Name**.
2. Select **Key Type** from the dropdown.
3. Click **Create Keypair**.

IMPORTANT: Upon clicking **Create Keypair** the tab will expand, and user will be provided with the **Private Key**. User must copy and save the “Private Key” somewhere safe.



4. Click **Copy Private Key to Clipboard** in order copy the “Private Key” effortlessly.
5. Click **Done** to close the tab, once the private key is stored safely.

Newly created “Keypair” will be visible on the list in “Key Pairs” page.

2.8.24 Key Pairs → Import Key Pair

Key Pairs are how you login to your instance after it is launched.

Choose a key pair name you will recognize and paste your SSH public key into the space provided.

SSH key pairs can be generated with the ssh-keygen command:

- ssh-keygen -t rsa -f cloud.key

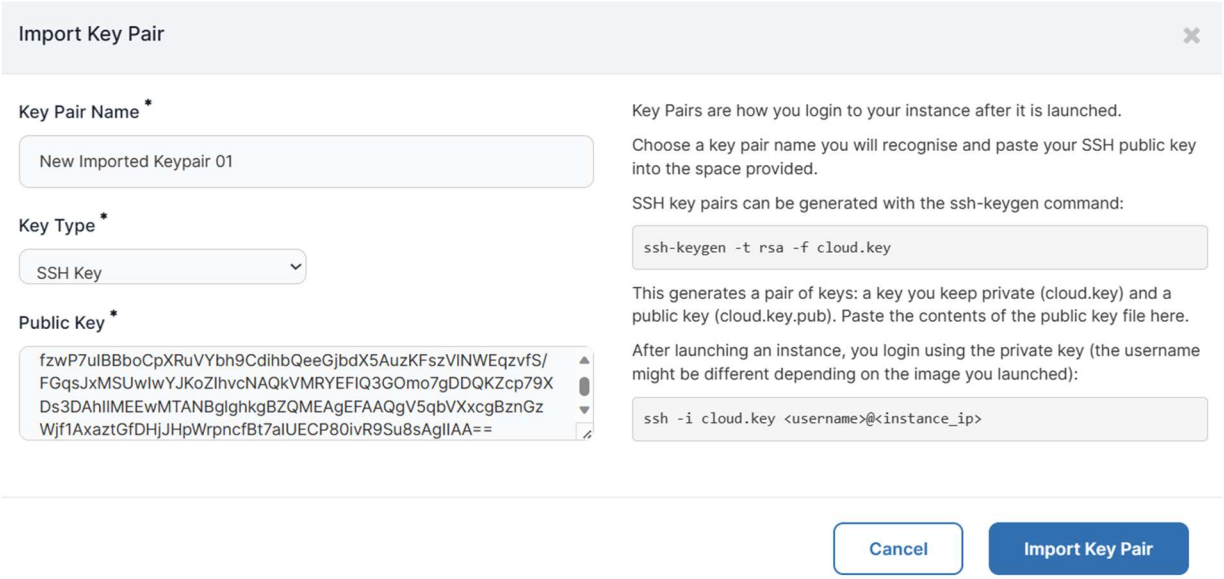
This generates a pair of keys: a key you keep private (cloud.key) and a public key (cloud.key.pub). Paste the contents of the public key file here.

After launching an instance, you login using the private key (the username might be different depending on the image you launched):

- ssh -i cloud.key <username>@<instance_ip>

Step 1: Open Import Key Pair Tab

1. Sign in via Sign In - Meghna Cloud or sign up first from Registration - Meghna Cloud.
2. Locate the left-side Navigation Bar from the dashboard; click "**Network and Security**" for its dropdown menu.
3. Select "**Key Pairs**" from the menu to be redirected to the following page.
4. Click **Create Key Pair** to open the “Create Key Pair” tab.



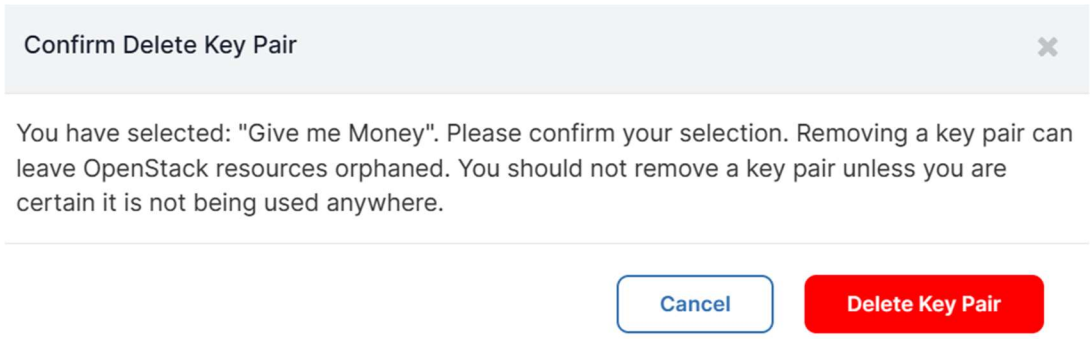
Step 2: Import a Key Pair

1. Input **Key Pair Name**.
2. Select the specific **Key Type**.
3. Copy-Paste the **Public Key** for the imported key pair, into the “Public Key” description box.
4. Click **Import Key Pair** button in order to import the keypair.
5. Click **Cancel** to cancel the importing process.

2.8.25 Key Pairs → Actions → Delete Key Pair

1. Go to the "**Key Pairs**" page.
2. Select **Delete Key Pair** from the dropdown under “**Actions**” column, for the specific Keypair that needs to be deleted.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.

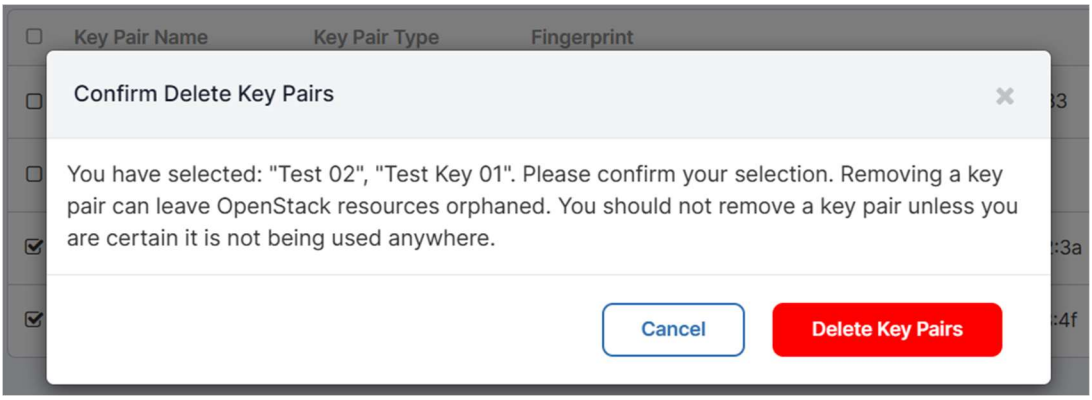


3. Click **Delete Key Pair** from the confirmation module to confirm deletion.
4. Click **Cancel** in order to cancel the deletion process.

2.8.26 Key Pairs → Delete Key Pairs

1. Go to the "**Key Pairs**" page.
2. **Mark** all the Keypairs that need to be deleted.
3. Select **Delete Key Pairs** located at the top of the page.

IMPORTANT: A confirmation module will pop up, requiring user consent to proceed with the deletion process. User must confirm the delete action to avoid accidental deletion.



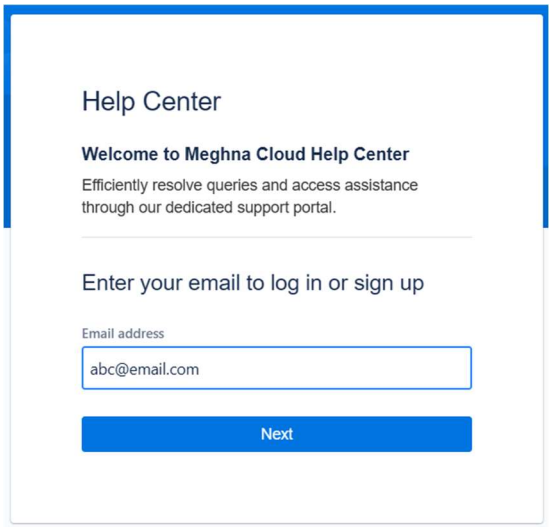
4. Click **Delete Key Pairs** from the confirmation module to confirm deletion.
5. Click **Cancel** in order to cancel the deletion process.

NOTE: Users can efficiently locate Keypairs using the automatic **Search** function positioned at the top. This function dynamically responds to user input, instantly isolating Keypair items that match with the provided input.

3. Support and Solutions (Meghna Cloud Help Center)

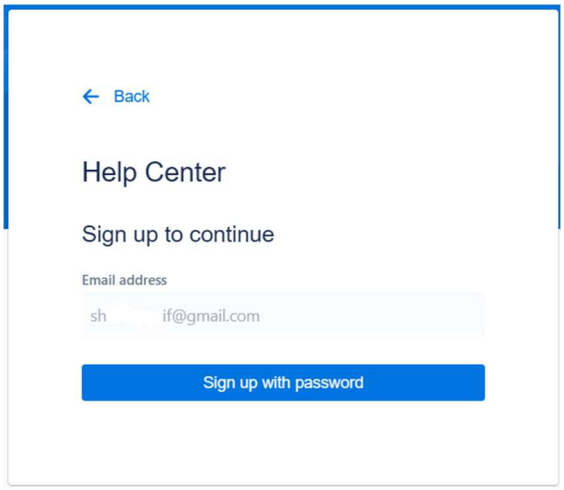
3.1 Sign Up to the Meghna Cloud Help Center

Step 1: Open the Help Center Sign Up Page



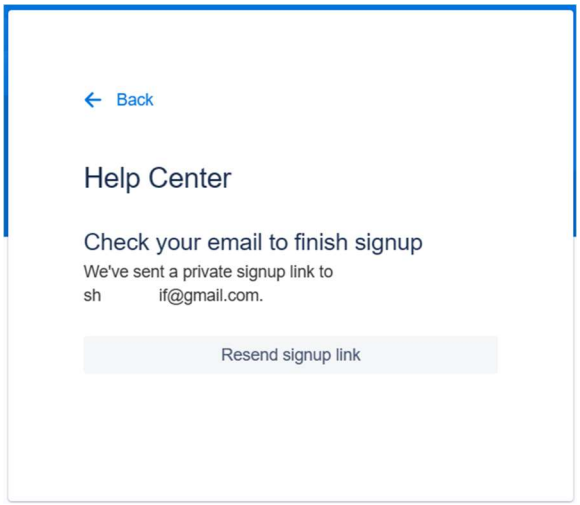
1. Go to the Sign-Up page through https://gennexttech.atlassian.net/servicedesk.
2. Enter a valid **Email Address** in the input field.
3. Click **Next** in order to proceed with sign-up.

Step 2: Email Verification and the Next Step of the Registration



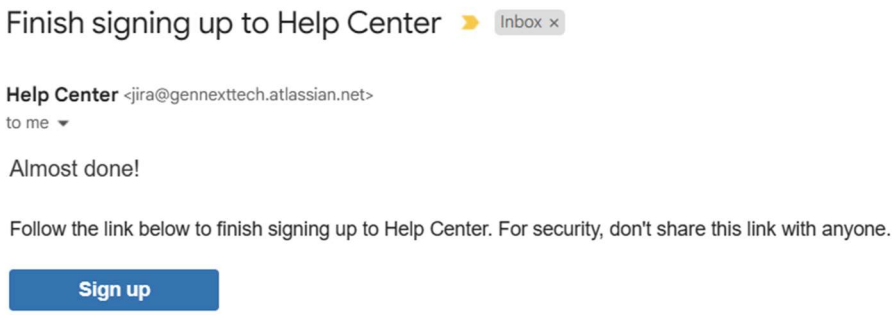
1. Click **Sign up with password** in order to proceed to the next step.

NOTE: Once user clicks **Sign up with password**, they should receive an **Email** to continue with the second step of the registration process. If for some reason the mail failed to reach user in the first place, click **Resend signup link**.



2. Open the email and click on the **Sign up** button associated with the email.

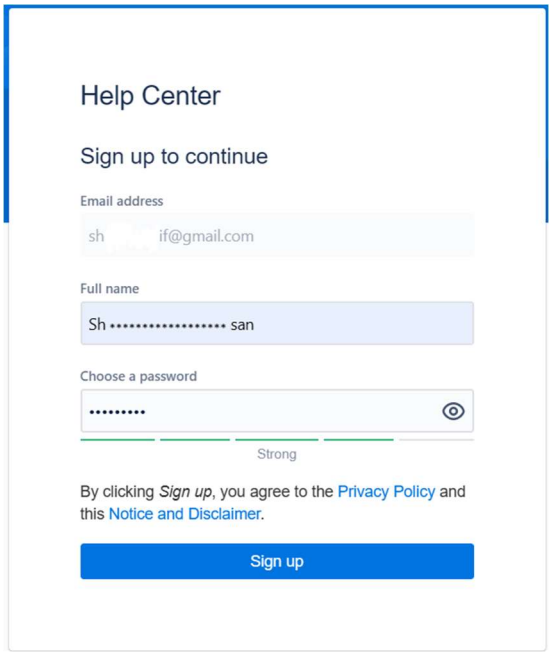
NOTE: Upon clicking the **Sign up** button, user will be redirected to a new tab where user can continue with setting up password and input other details.



3. Input **Full Name** of the user.
4. Input a strong **Password** for secure authentication.

IMPORTANT: User must provide a strong password. The password must be 8 characters long with a combination of uppercase and lowercase letters along with numbers and symbols/special characters. *(For example: Abc@123#)*

NOTE: Click on the “eye” icon in order to make the password visible.

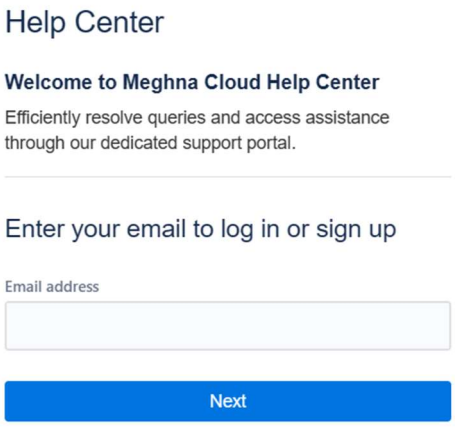


5. Click **Sign up** to confirm and finish the process.

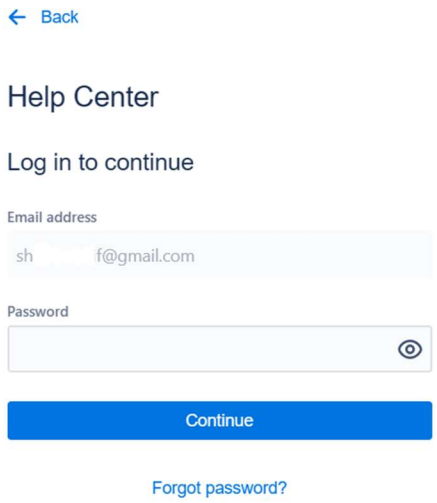
Upon completing the sign-up process successfully, users will be directed to the "Help Center" page, where they can choose specific options to seek the support and solutions they need.

3.2 Login to Help Center

1. Click on Login - Jira Service Management (atlassian.net) in order to go to the login page.



2. Enter **Email** that is associated with Help Center account.
3. Click **Next** to proceed to the next step.

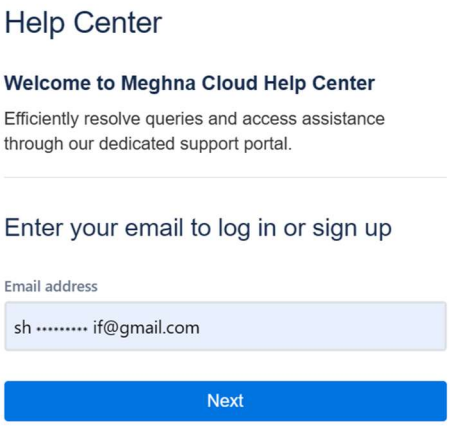


4. Input **Password** in the password field. *(Click the "eye" icon to make password visible)*
5. Click **Continue** to proceed with the login process.

3.3 Forgot Password

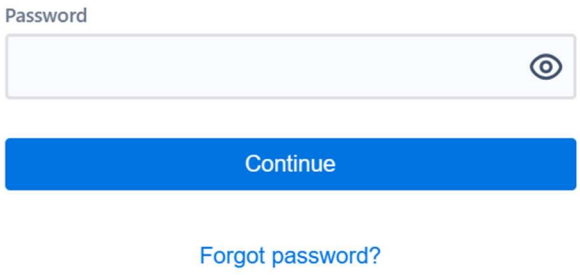
Step 1: Enter Email Address to Continue

1. Sign up or Login to the help center using Help Center - Jira Service Management (atlassian.net).



2. Enter the **Email Address** associated with the account.
3. Click **Next** in order to proceed to the next step.

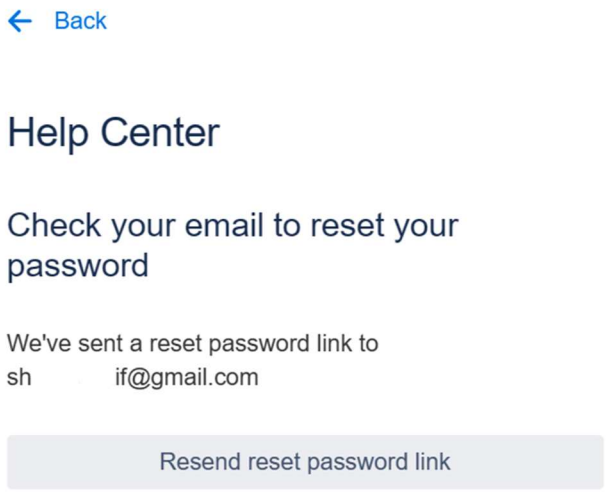
Step 2: Get a Verification Email to Change Password



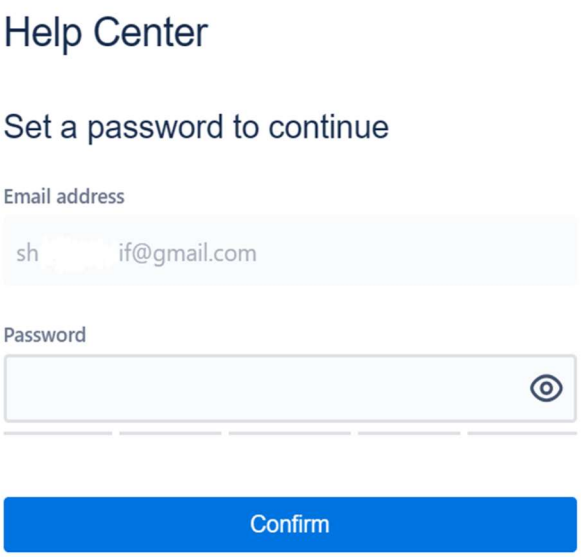
1. Click on **Forgot Password** in order to receive an email with verification link.

NOTE: Upon clicking "Forgot Password," users will receive an email at the registered email address used to open the account in the "Help Center." This email will contain a link to initiate the password recovery process, providing a secure and user-friendly method for resetting passwords.

2. Click "**Resend reset password link**" if the user didn't receive an email or if the link has expired.



Step 3: Change Password



1. Input a new **Password**.

IMPORTANT: The password must be 8 characters long with a combination of uppercase and lowercase letters along with numbers and symbols/special characters. *(For example: Abc@123#)*

NOTE: Click on the "eye" icon in order to make the password visible.

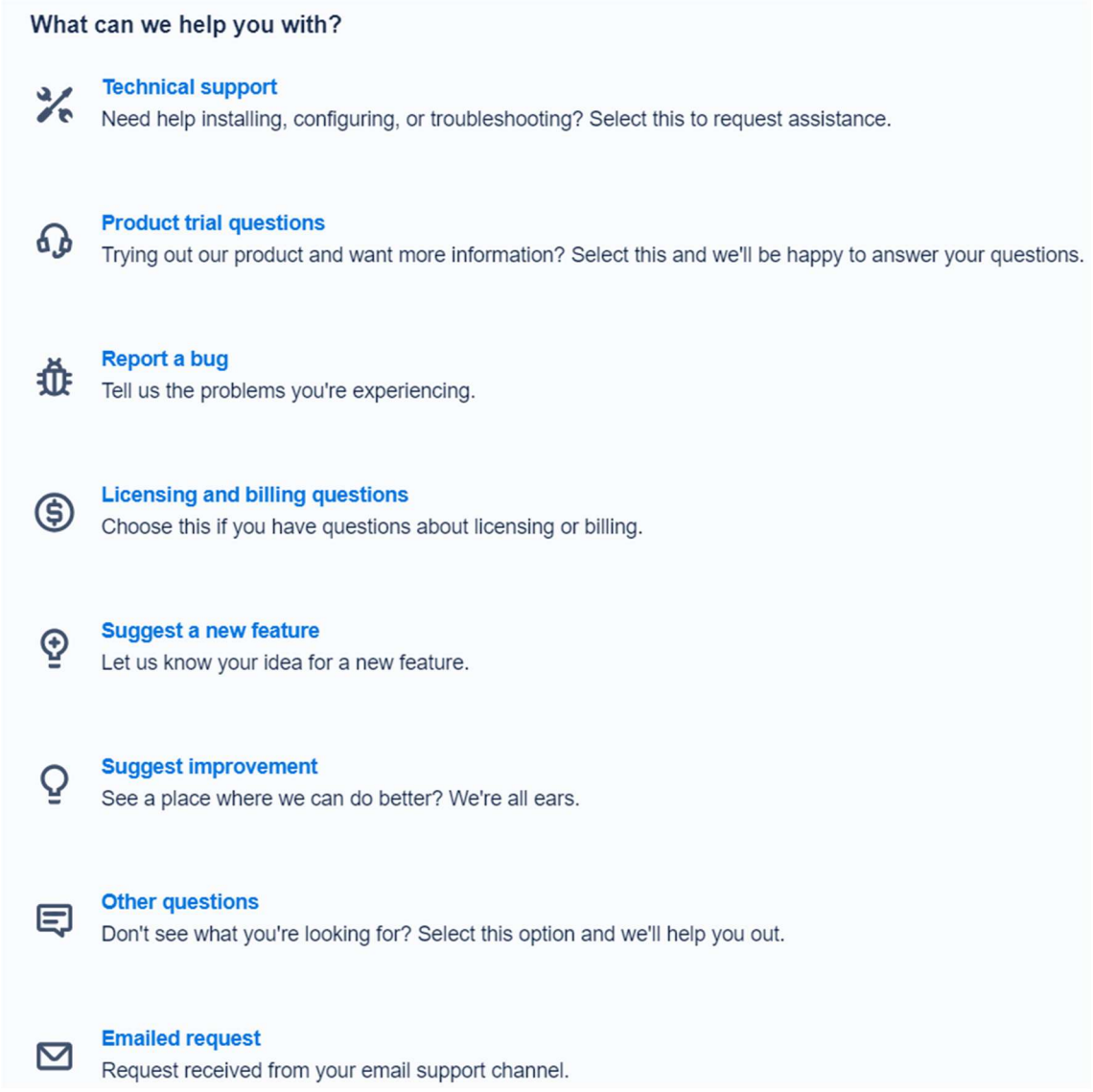
2. Click **Confirm** in order to change the password.

After changing the password successfully, user will be automatically logged in to the "Help Center".

3.4 Create a New Help Request

Step 1: Select a Category and Open the Issue Creation Tab

1. Sign up or Login to the help center using Help Center - Jira Service Management (atlassian.net).
2. Click on a specific category in order to open that specific "Request Creation" Tab.



NOTE: To ensure user-friendly navigation, all categories open up to a uniform layout, maintaining a consistent and straightforward user interface. This approach aims to keep the user experience simple and minimize errors in most cases.

Step 2: Issue a Request

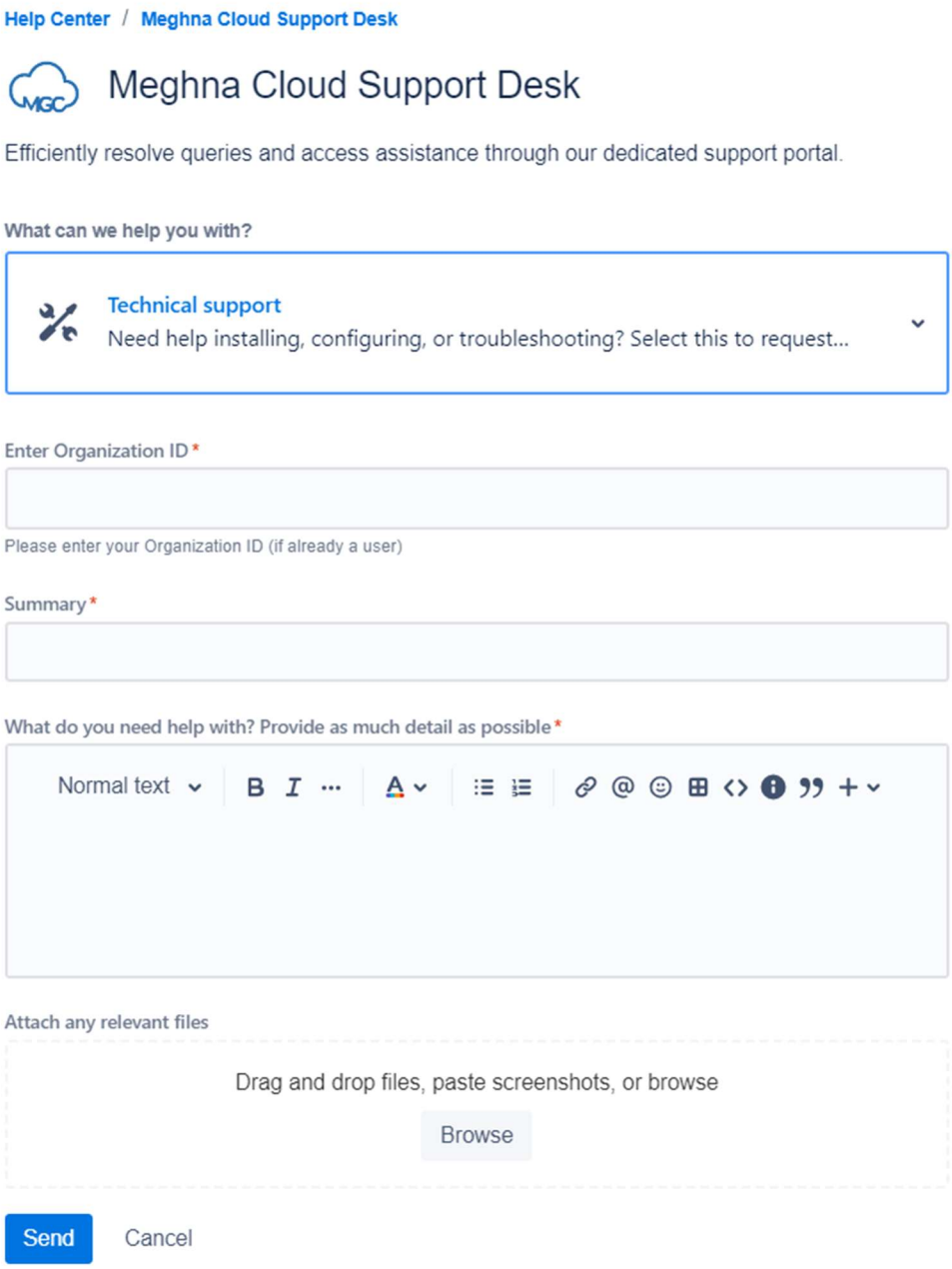
1. Make sure under "What can we help you with?" dropdown the chosen category is preselected.

NOTE: The category chosen by the user will automatically be preselected in the dropdown menu under "What can we help you with?" But user can change the category as per need from the dropdown menu.

2. Input **Organization ID** in order to prevent “Spam” issue requests.

NOTE: An Organization ID is a unique identifier provided to the user by the organization currently associated with the 'Meghna Cloud' platform. This ID helps in isolating genuine issues from spam requests, allowing responders to provide quick solutions based on urgency.

3. Provide a **Summary** of the issue based on the selected category.
4. Provide clear **Detail** about the issue in the description box.
5. Provide **Attachments** *(such as: Screenshots or Files)* related to the issue.
6. Click **Send** in order to submit the issue.



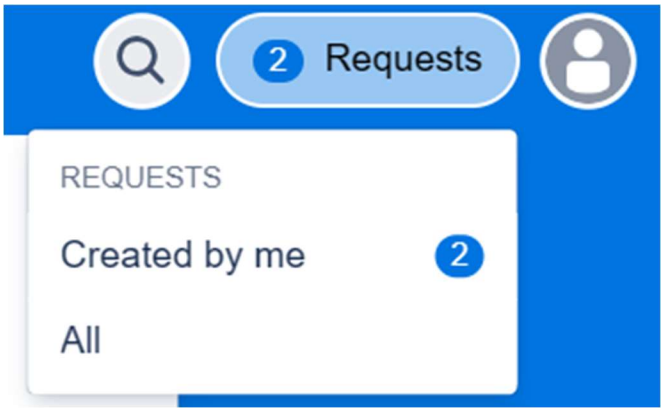
IMPORTANT: Users are required to complete all input fields marked with '*' (**asterisks**). The presence of these asterisks signifies the importance of the corresponding fields, ensuring that all necessary information is provided for the successful submission of a request.

NOTE: Upon successfully creating an issue, users will be able to view the newly generated issue in a new tab. Empowering user with the ability to take action, they can choose to cancel, resolve, or escalate the issue according to their preferences. This functionality provides users with greater control over the management of their submitted concerns.

6. Click **Cancel** to cancel the issue creation procedure.

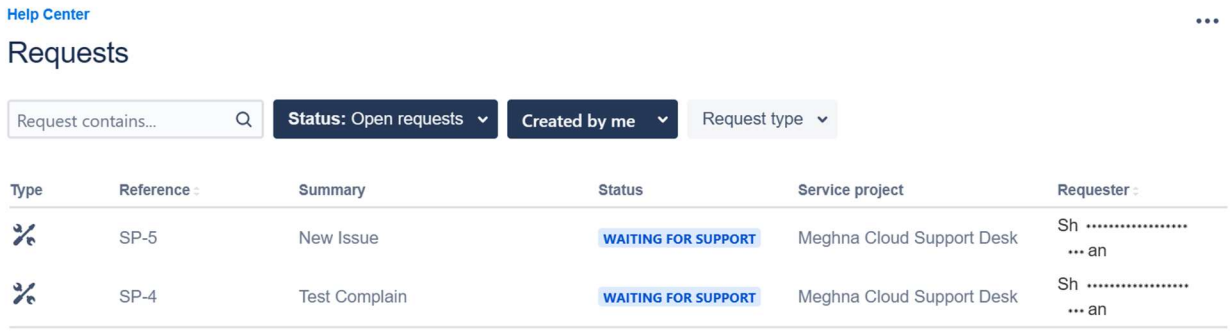
3.5 View Issued Requests

Step 1: Open an Issue Request Tab



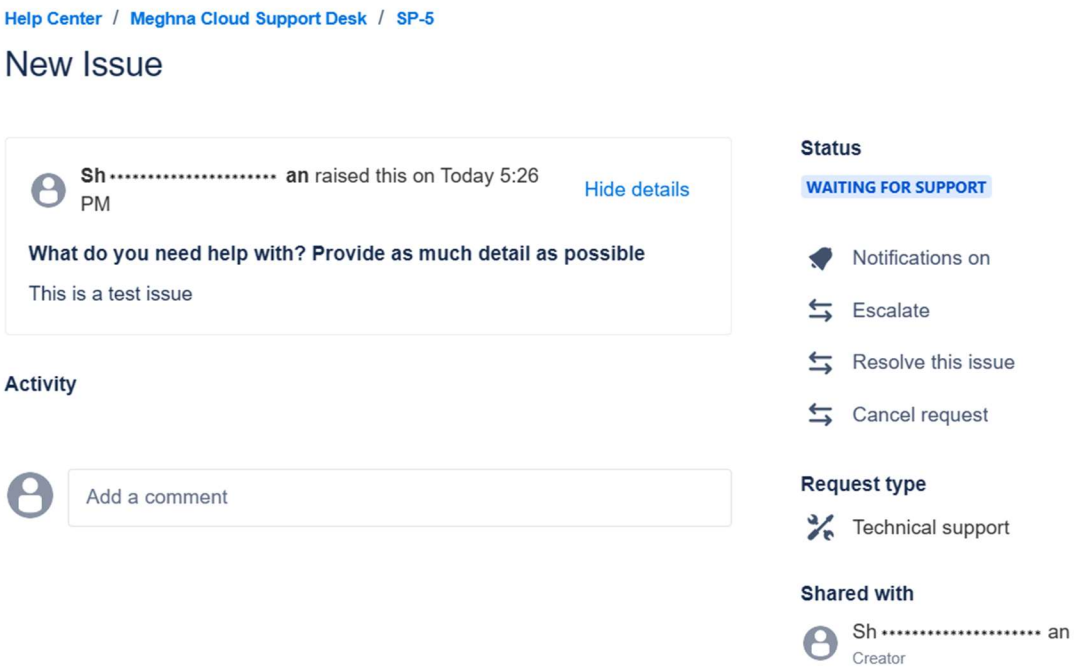
1. From the top-right corner of the page click on the **Request** button.
2. From the dropdown menu:
   2.1. Click **Created by me** in order to see all the request created by the user.
   2.2. Click **All** to see all the request that users have access to.

NOTE: Upon click user will be redirected to a new page where user can see the list of all the created issues based on the selected category.

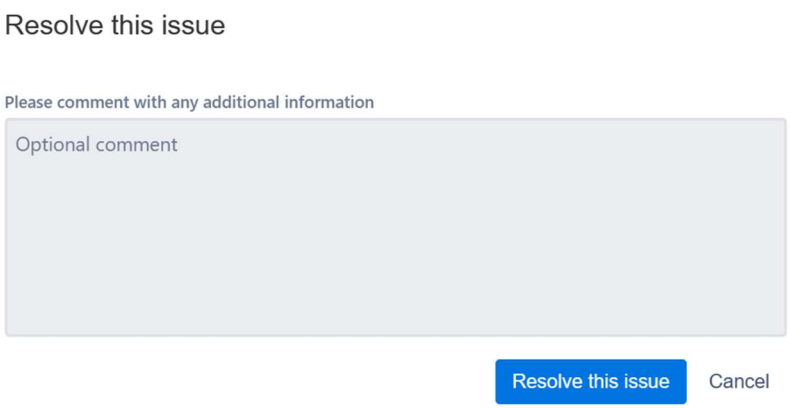


3. Click on a specific issue to open it.

Step 2: Issue Controls

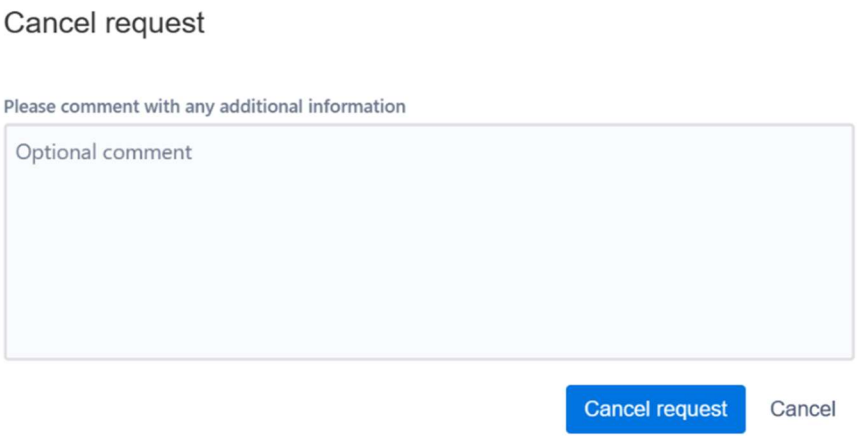


1. **Resolve this Issue:**



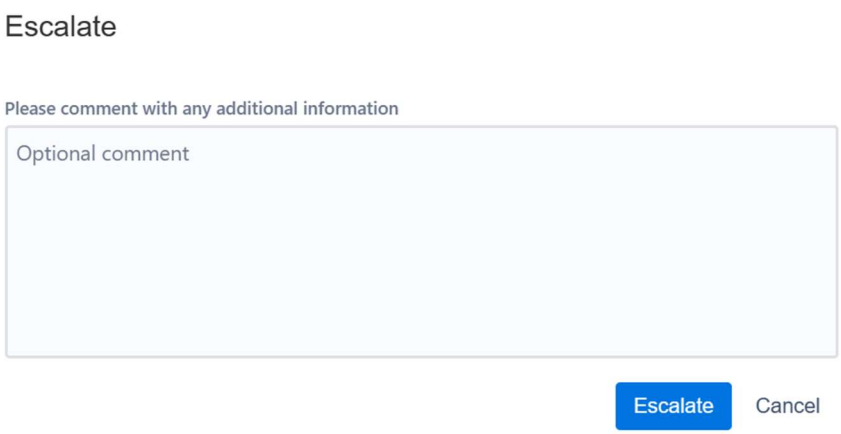
1. Write a **Comment** regarding how this issue is resolved.
2. Click **Resolve this issue** in order to proceed with the resolving process.
3. Click **Cancel** in order to cancel the process.

2. **Cancel Request:**



1. Write a **Comment** regarding why the issue is being canceled.
2. Click **Cancel Request** in order to cancel the issue.
3. Click **Cancel** in order to cancel the process.

3. **Escalate:**



1. Write a **Comment** regarding why they should be escalated.
2. Click **Escalate** in order to escalate the issue.
3. Click **Cancel** in order to cancel the process.

NOTE: Once an issue is escalated, it indicates an immediate need for remediation. Following escalation, users will no longer have the option to resolve or cancel the issue from their end. This restriction ensures that escalated issues receive prompt attention and appropriate action is taken to address the urgency of the situation.

NOTE: Users can see a comment that the issue is escalated, in the comment section.

4. Click on the **Notifications On/Notifications Off** in order to enable or disable notifications for the issue.
5. Write a comment about the issue in the comment box.
6. Click on the **Help Center** above to go back to the Help Center page.