
nBalance

Contents

1. Introduction

nBalance is a load-balancer/WAF that efficiently distributes application traffic across multiple servers and secures the system. Its primary purpose is to ensure that no single server bears too much load, preventing performance bottlenecks and improving the overall reliability and availability of a system. The key features are:

1. Bot Protection
2. IP Persistence
3. SSL Offloading
4. Session control.
5. Content Caching
6. Web acceleration
7. Cookie Persistence.
8. Connection Control
9. Session Persistence
10. DDOS attack protection.
11. L7 & L4 Load balancing
12. Open Relay Protection (SMTP).
13. GEO-Restrict (Geo based traffic control).
14. Block admin URLs exposed to the internet.
15. Block unused URLs exposed to the internet.
16. Block PowerShell scripts (remote execution)

1.1. Document Purpose

This document provides a comprehensive overview of the nBalance website user interface (WUI), offering detailed guidance on configuring the diverse functionalities of the nBalance system. Within these pages, you will find comprehensive instructions on how to optimize and tailor the nBalance settings through the intuitive Web User Interface. This resource serves as an invaluable reference for users seeking a thorough understanding of the configuration options available, empowering them to harness the full potential of the nBalance platform efficiently.

1.2. Intended Audience

This document is designed to assist individuals seeking guidance on configuring the nBalance system through the Web User Interface (WUI). Whether you are a novice or an experienced user, the information provided here serves as a helpful resource for anyone looking to customize and fine-tune the settings of the nBalance platform using the intuitive WUI.

2. Default Management IP Addresses

Please see the list of default IP addresses for nBalance ADC models.

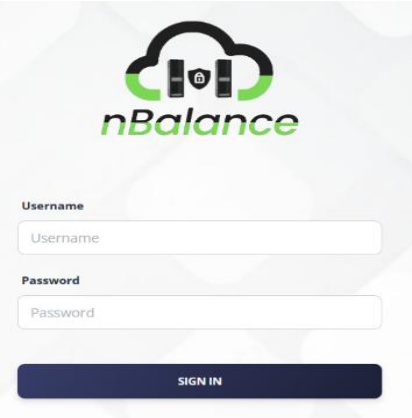
Model	Default IP
ADC Smart	192.168.100.100
ADC Smart Plus	192.168.100.100
ADC Enterprise	192.168.100.100
ADC Cloud	NA

3. Default nBalance Login Information

Model	Default Username	Default Password
ADC Smart	admin	admin
ADC Smart Plus	admin	admin
ADC Enterprise	admin	Admin
ADC Cloud	Admin	Admin

4. Login

Login page nBalance.



Steps To Follow:

1. Click > Login button will display the login page.
2. Enter the username **admin**.
3. Enter the password **admin.**
4. Click the "Sign In" button. It will navigate user to nBalance Home page.

5. Top Bar Information

1. **System Uptime**: This is a period system continuously working and available since it is booted up. Which is displayed in the right side of the navigation bar.
2. **Light/Dark mode**: In nBalance the user can change the colour mode into dark mode or light mode.
3. **Full screen icon:** clicking on the icon will help you to make full screen.

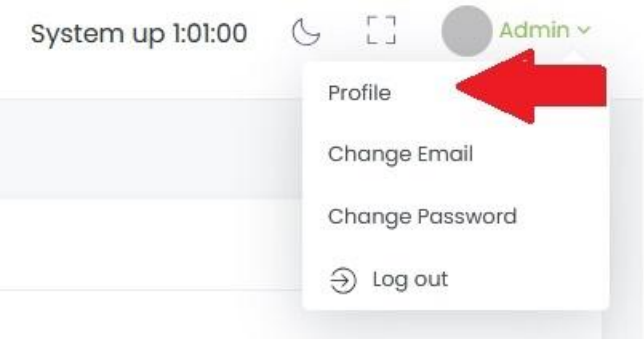
4. **Admin** : Clicking on it will list a dropdown with 4 options. They are,
   4.1. **Profile**: Clicking on this link will open a web page with change profile name and Activate MFA.

Change Profile Display Name, Enable and Disable MFA.

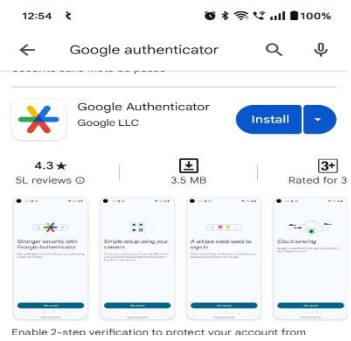
Steps To Follow:

- **Change Profile Display Name**

1. From the Admin list you will find Profile.
2. Click **> Profile** menu.
3. Profile page will show Chane profile name option and Enable or Disable MFA .



- **Enable MFA**

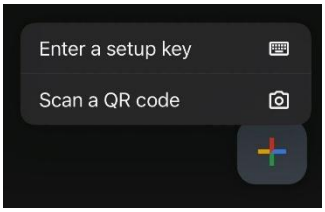


Steps To Follow:

1. Install Google Authenticator app
2. Open the app and log in to a Gmail account.
3. Scan the QR code.
4. It will show an OTP.

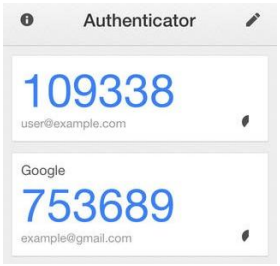
Steps To Follow:

1. Activate a Gmail account and login.



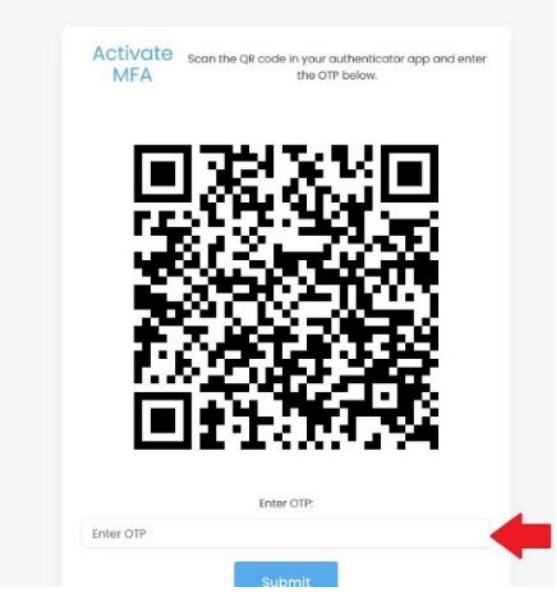
Steps To Follow

1. Scan the QR code



Steps to Follow

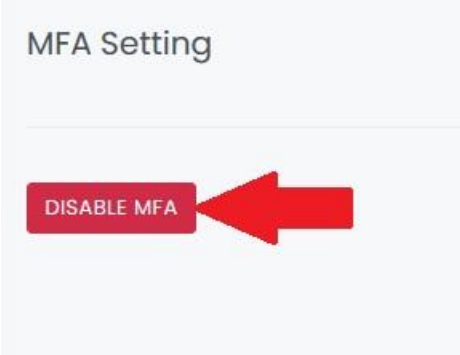
1. OTP will show like this



Steps To Follow:

1. Enter OTP inside the textbox
2. Click **> submit** button.
3. MFA will activate.

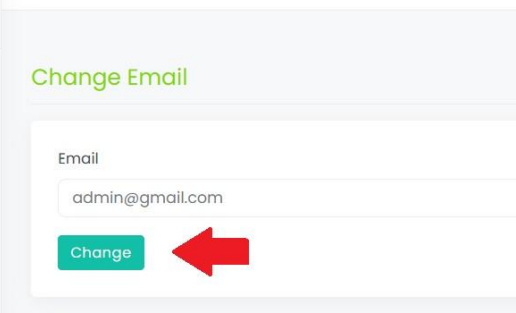
- **How to disable MFA**



Steps To Follow:

1. Click **> Disable MFA** button.
2. Confirm Disable MFA
3. MFA deactivated.

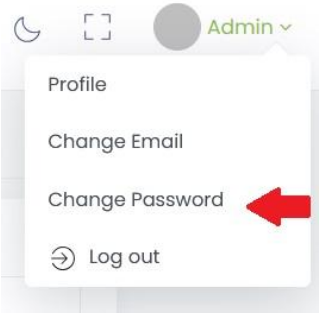
4.2. **Change Email**: Clicking on the link will navigate to change the Email address page.



Steps To Follow

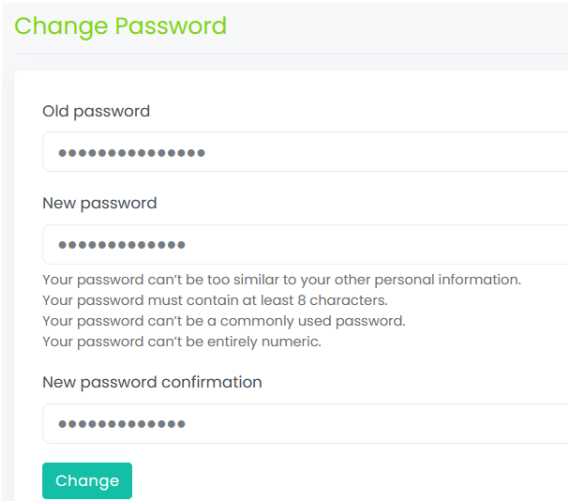
1. Enter email address
2. Click > **Change** will change the email address.

4.3. **Change Password**: Navigate to the page to change your password.



Steps To Follow

1. Click > on **change** password

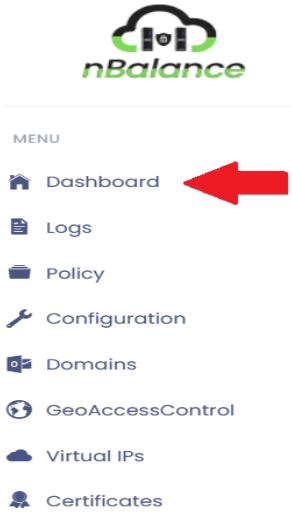


Steps To Follow

1. Enter old password
2. Enter a new password and follow the password rules.
3. Enter the new confirmed password
4. Click > on will change the password

6. Dashboard

Selecting the "Dashboard" menu option reveals the home page, which presents the basic information about the nBalance.



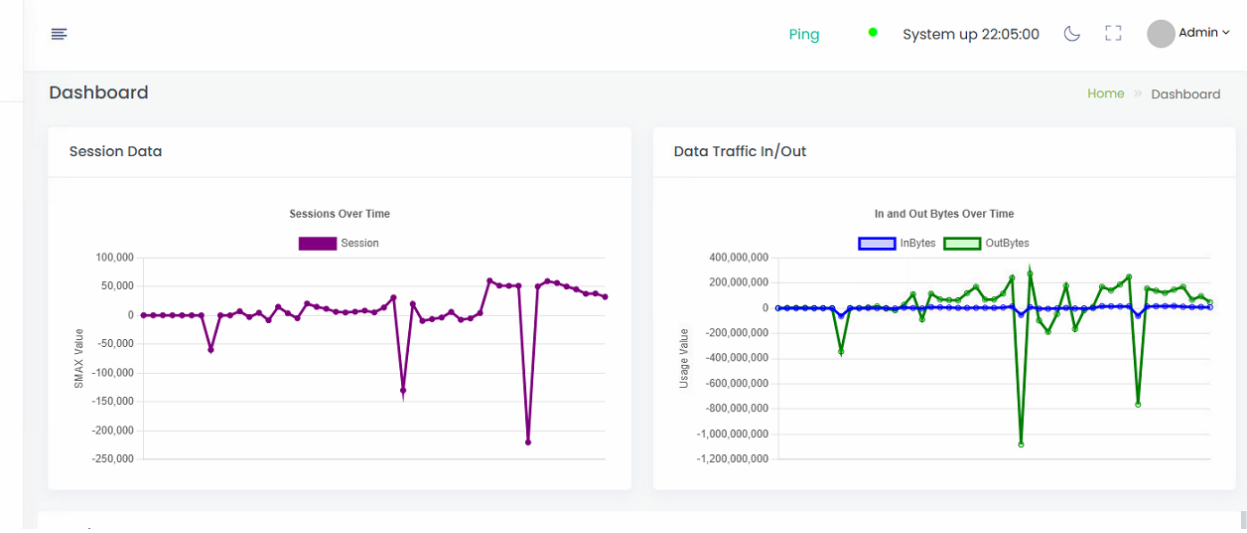
Steps To Follow: Check the numbering below

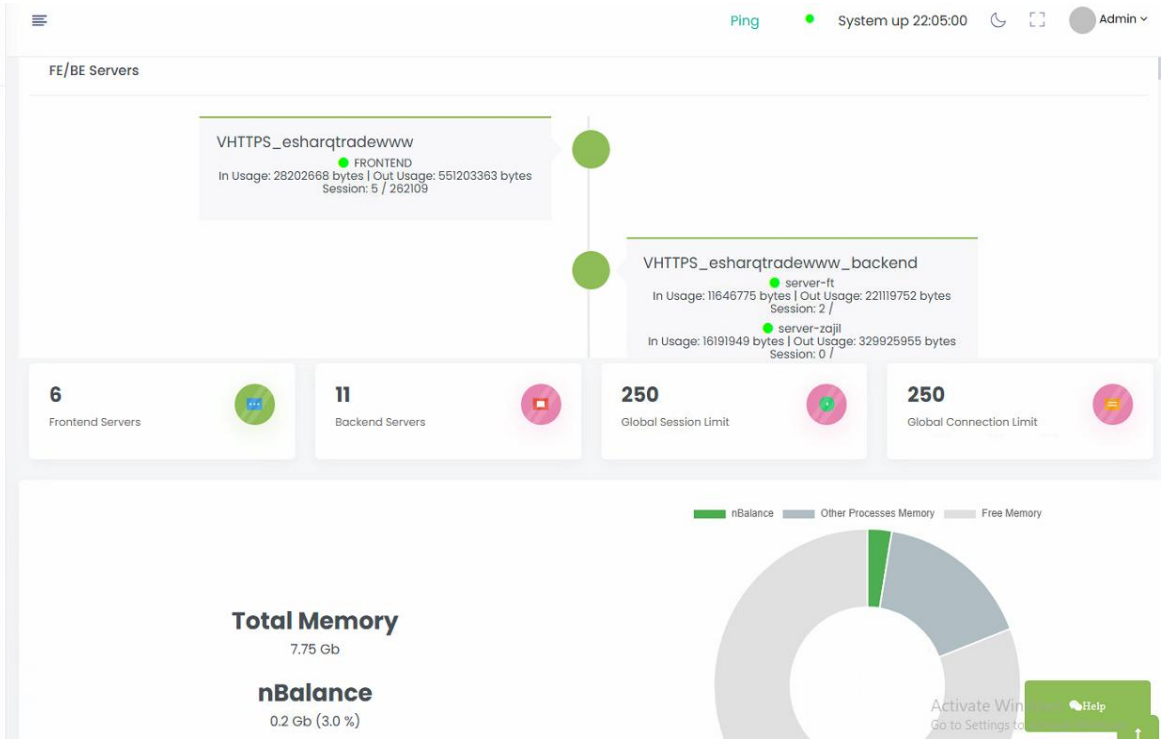
2. From the menu list you will find Dashboard.
3. Click **> dashboard** menu. It will navigate dashboard page.
4. Dashboard page will list out some important information about the nBlance.

- **Total memory installed**: 7.79 Gb.
- **nBalance used memory**: 0.12 Gb.
- **Geo Access:** Geo Access is a feature that allows you to control access to your services based on the geographic location of the users accessing the application configured in the appliance.

- **FE/BE Servers:** This is the entry point for incoming traffic. The frontend is responsible for accepting client connections and passing them on to the appropriate backend server based on certain criteria, such as the requested domain or IP address, protocol, etc. In other words, it's the part that faces the clients.

Dashboard page





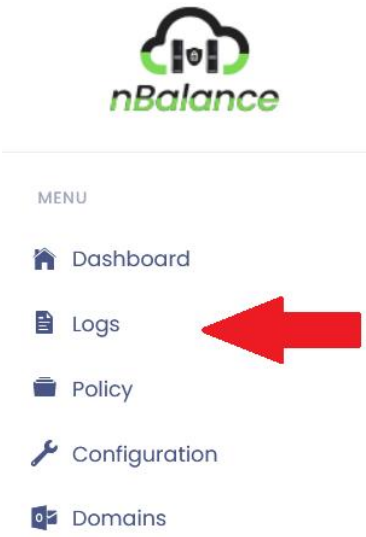
7. Logs

Logs provide valuable insights into the performance and behavior of your load balancing setup. These logs are essential for monitoring, troubleshooting, and ensuring the optimal functioning of your system.

Logs are key to maintaining a healthy and efficient load balancing environment and leverage logs for effective troubleshooting.

We provide three logs.

1. **Traffic logs**
2. **Smtp logs**
3. **Health check logs**
4. **User activity logs**



Steps To Follow:

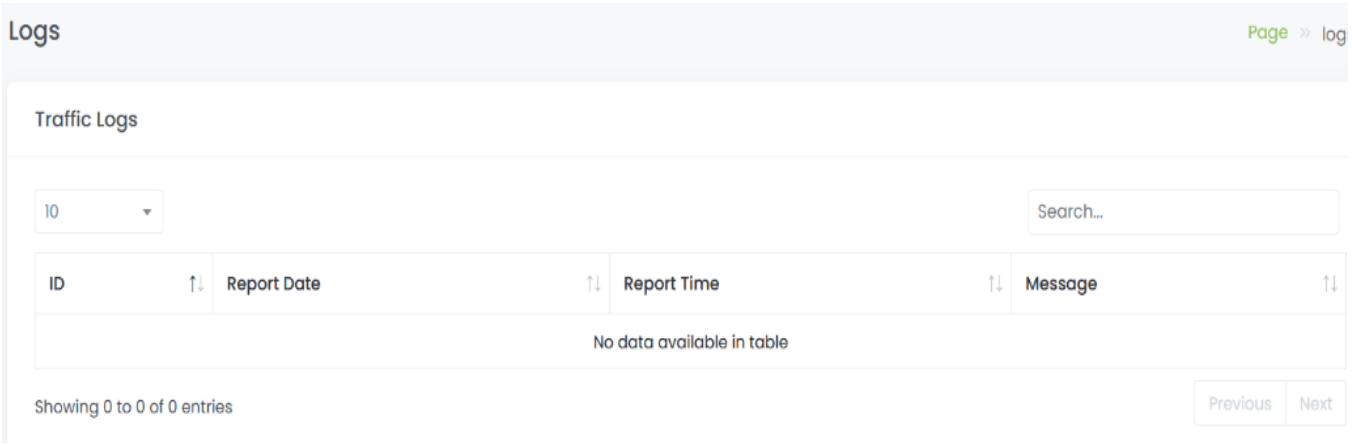
1. Click on "**Logs**" menu from the list. It will navigate you to the logs page.
2. Logs page will display different logs. i.e., Traffic logs, SMTP logs

7.1. Traffic Logs

Traffic logs refer to records or data that capture information about the flow of network traffic through nBalance. These logs are crucial for monitoring, troubleshooting, and analyzing the performance and health of the load balancing infrastructure.

Purpose

1. **Monitoring:** Track incoming requests, response times, and server health.
2. **Troubleshooting:** Identify and resolve issues related to load balancing and server communication.
3. **Analysis:** Analyze traffic patterns and user behavior for optimization.

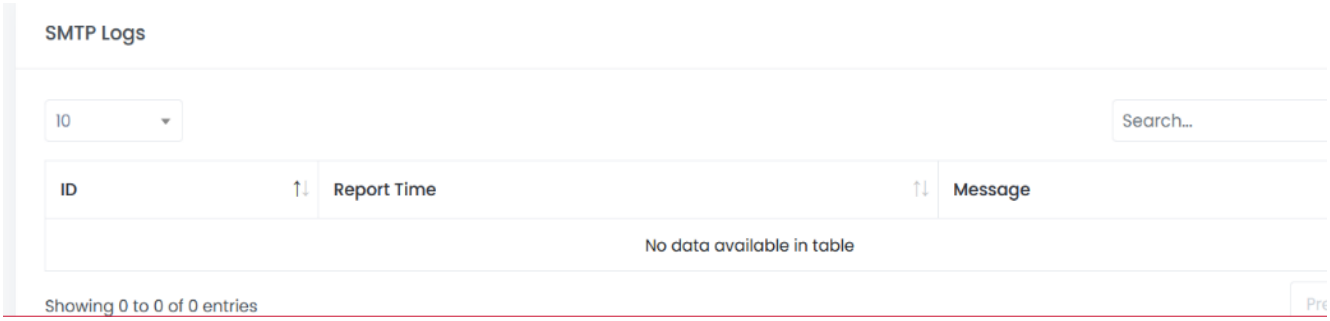


7.2. SMTP Logs

SMTP (Simple Mail Transfer Protocol) logs are records of the transactions and activities that occur during the transmission of email messages using SMTP. SMTP is a protocol used for sending emails between servers. SMTP logs provide detailed information about the email communication process, and they are crucial for monitoring, troubleshooting, and maintaining email server security. Key functionalities are,

Reliable Delivery of Emails:

Benefits: Optimizes resource utilization, ensures even distribution of email traffic, and prevents server overloads.

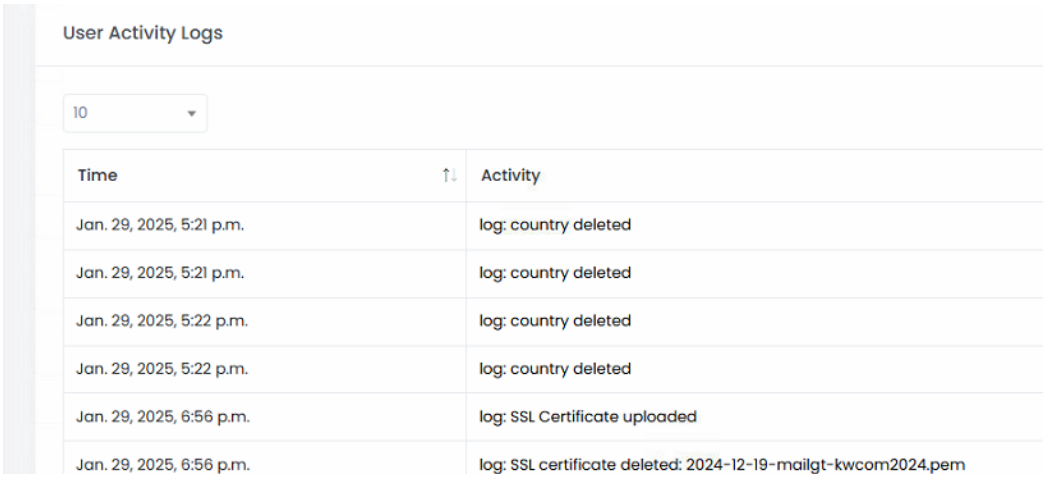


7.3. Health check Logs

Health check logs in nBalance are records or entries that provide information about the status and results of health checks performed by the load balancer. These logs help monitor the health and availability of backend servers or services.

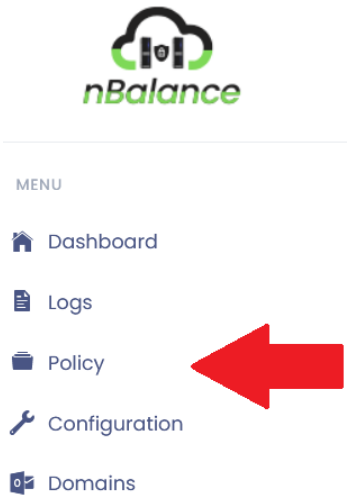
7.4. User Activity logs

User activity logs are records that track and store information about actions performed by users within the nBalance.



8. Policy

Policy will help you block and restrict URLs.



Steps to follow:

1. Click on> **Policy** from the menu bar. It will navigate you to the policy page.

Policy page

BLOCK URL: This will help the user to restrict or Block the URL.

REDIRECT: This will help the user to redirect. e.g HTTP to HTTPS, Redirect to a particular URL.

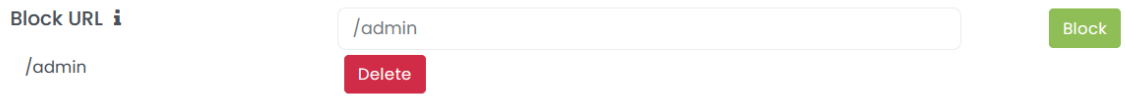
BLOCK URL Except Few IPs: This blocks the URL for everyone except the Ips explicitly allowed access.

EXPLICIT ALLOW: This will allow the particular IP and block others.

Steps to follow:

1. To **BLOCK URL**, we need to add frontend server first.
2. Then add the pages or URL that you want to block inside the text box.
3. Click on> **Block** button will block that page or URL.

After blocking the URL

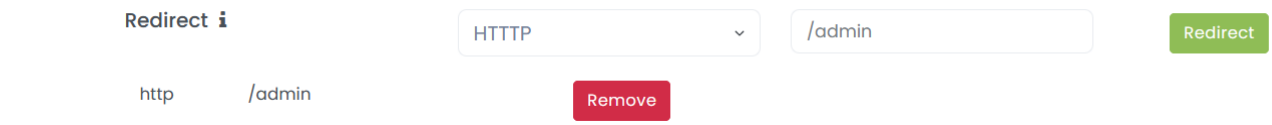


It will show the blocked URL.

DELETE button will delete the blocked URL.

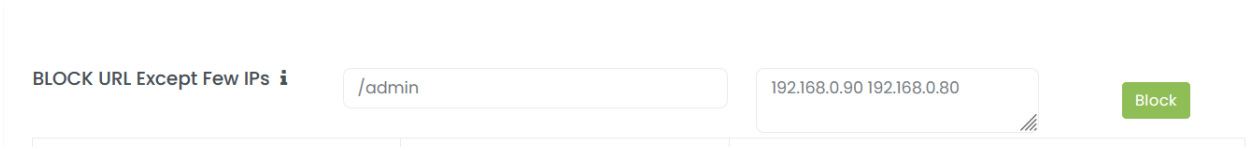
In **Redirect**

1. select http/https from the drop-down menu and add URL name and Click on **Redirect** will redirect the URL.
2. **Remove Redirect** will remove the URL.



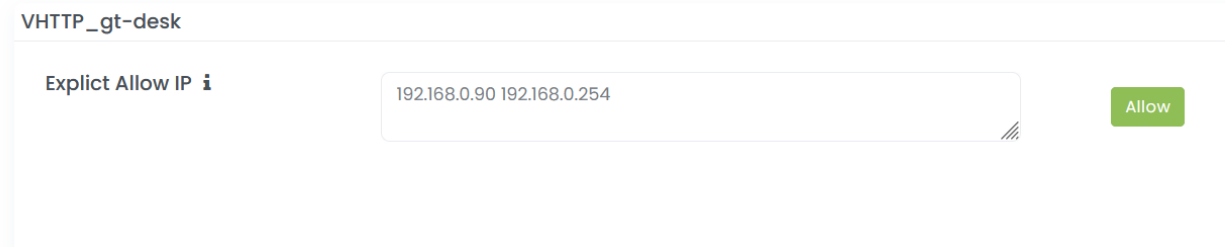
In **BLOCK URL Except Few IPs**

1. Enter the URL and add IP address inside the box.
2. Then click on **BLOCK** will all the URL except specific IPs.



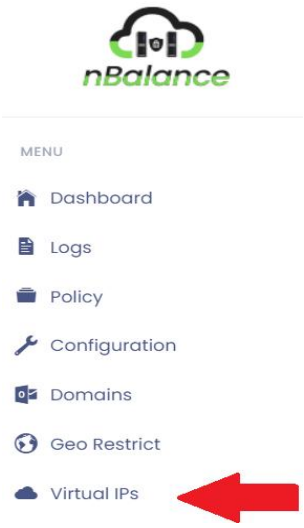
In **Explicit Allow**

1. Enter the the IP address inside the box separated by space which want to allow.
2. Then click on **ALLOW** will allow specific IPs.



9. Virtual IP

This is the IP address that is presented to clients. Any packet arriving at the nBalance with that IP address and port number will be forwarded to the Real Servers associated with the Virtual Service. It is a virtual representation of a service or application distributed across multiple backend servers.



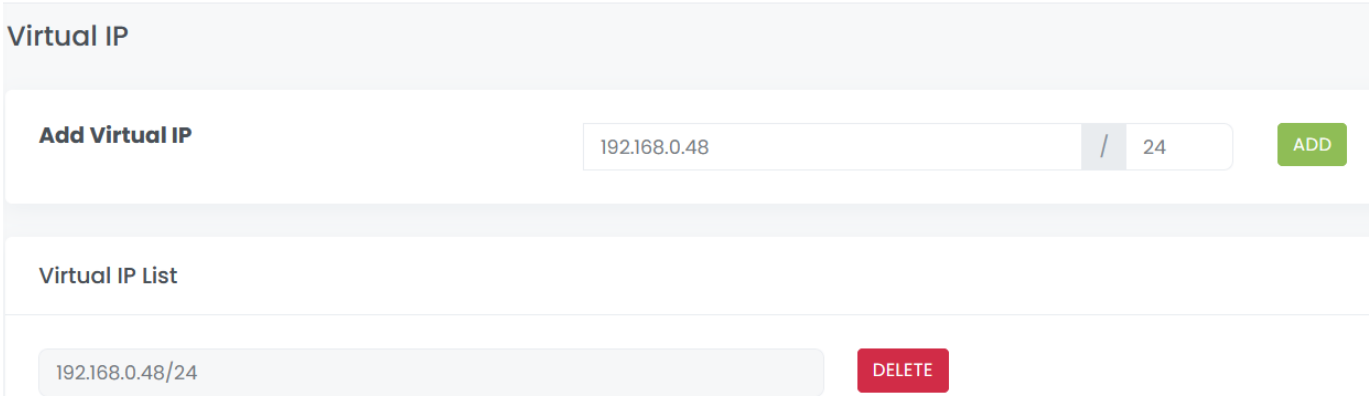
Steps to follow:

Click > Virtual IP will navigate you to Virtual IP page.

9.1. Add Virtual IP

Steps to follow:

1. Enter the IP address in to the add virtual IP text box. Click on the **ADD** button.
2. It will display the IP address That you entered.



10. Configuration

Configuring a front-end server and a backend server in a load balancing environment involves setting up the necessary components to distribute incoming traffic among multiple servers to improve performance, scalability, and reliability.

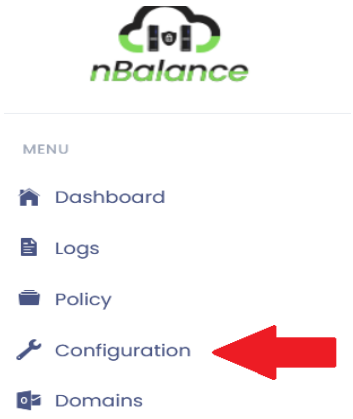
In configuration page we must configure two types of servers.

- **Frontend server**

Frontend server typically refers to the component that handles incoming network traffic from clients (such as web browsers) and manages the initial processing of requests before distributing them to backend servers. The front-end server plays a crucial role in load balancing by acting as the entry point for client requests and optimizing the distribution of traffic to multiple backend servers.

- **Backend server**

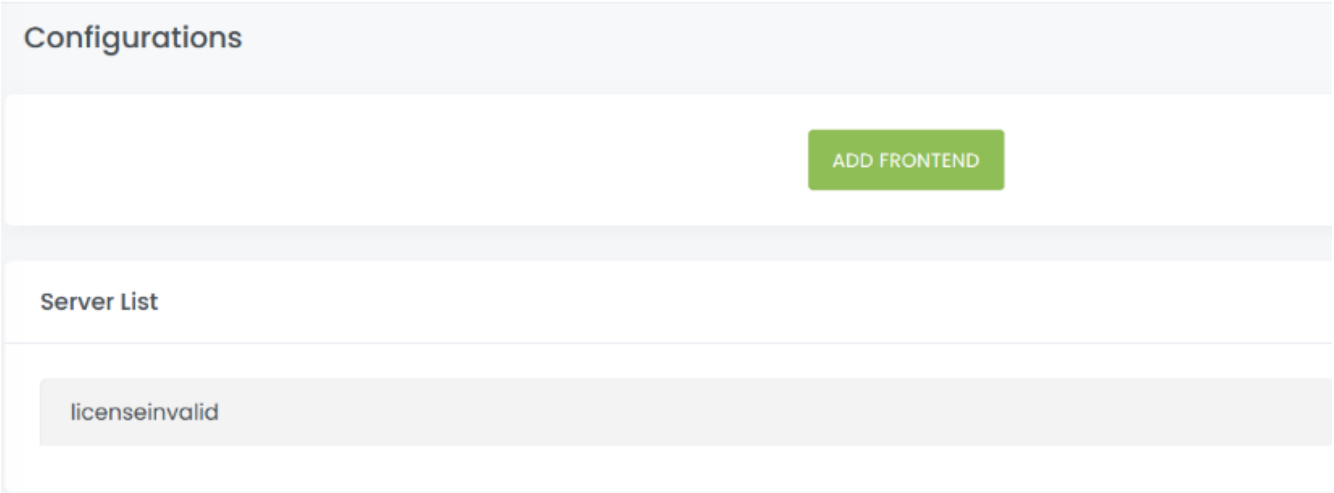
The backend servers/real servers typically host the application logic, process database queries, and handle other tasks necessary to fulfill client requests. When a client makes a request to a web application, the nBalance forwards that request to one of the backend servers in a way that balances the load across all available servers. This ensures that each server shares the load, optimizing resource utilization and preventing any single server from becoming a bottleneck.



Steps To Follow:

1. Click > Configuration to navigate to Configuration page.

10.1. Frontend Server



Before setting up the front end of nBalance, the first step is to add a Virtual IP (VIP). This VIP serves as the special address that clients use to connect to our servers. It's like the entry point for clients.

After adding Virtual IP follow the below steps:

Click on > FRONTEND button.

When frontend is added, it will display under the corresponding tab under the same page.

The tab contains following fields:

Service/Frontend Server: Give a name to your frontend server (Ex: - EXCHANGE)

Protocol: click here to select a protocol/service of the real/backend servers (e.g. – http, https)

Bind: Select the Virtual IP Address you added to the Frontend Server.

Balance Method: Here you can select the balancing method. e.g. DNS Round Robin, Least Connection.

If you select *Round Robin*, it will give the IP Address from the group separately from one by one. In Least Connection, it directs incoming network traffic to the server with the fewest active connections at any given time.

Interval: Load Balancer sends a heartbeat to the server in every specific interval. By default, it is 5 sec.

Fall: Specifies the number of failed counts that a heartbeat check failed to send a failure report that the server is down.

Rise: No. of success counts that a heartbeat check occurred to activate the server and send an active message.

Advanced http check (optional): active frontend and real/backend servers added by the user.

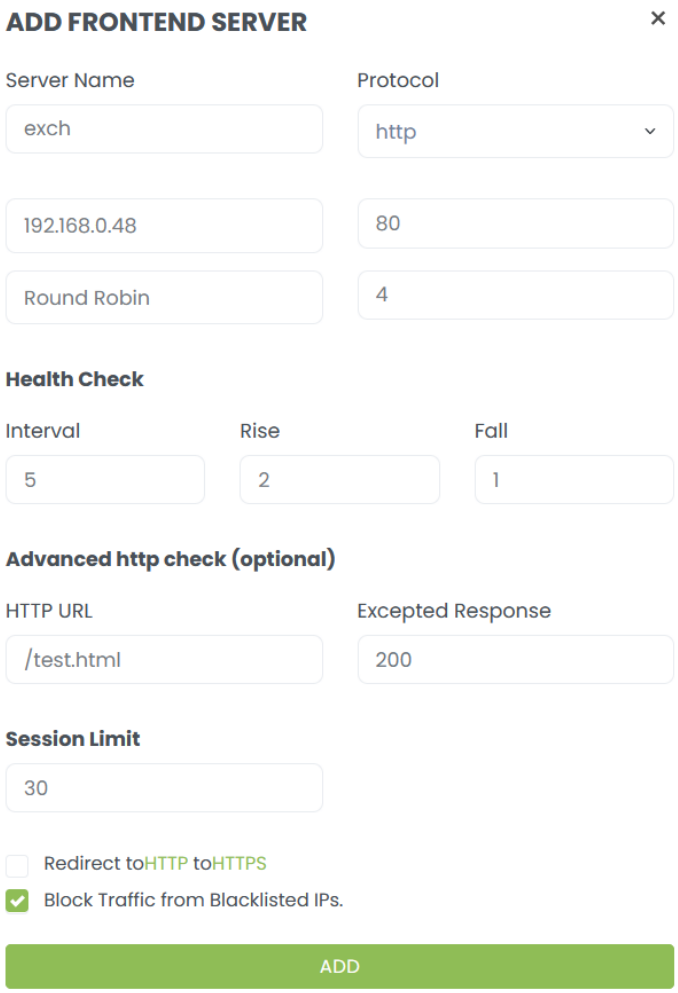
Active health checks: You can proactively check the health of your backend servers and remove them from the load balancer rotation until they're up and running again. ALOHA provides a way to monitor the health of your servers using the HTTP protocol.

HTTP URL: It will help the user to send and receive a code request.

Expected Response: The option advance health check sends an HTTP request to the server and expects to get a successful response. The response status code should be in the 2xx/3xx/4xx to consider it as successful.

Session Limit: It restricts the number of concurrent or active sessions that can be maintained on a particular server.

Screenshot for add frontend server.

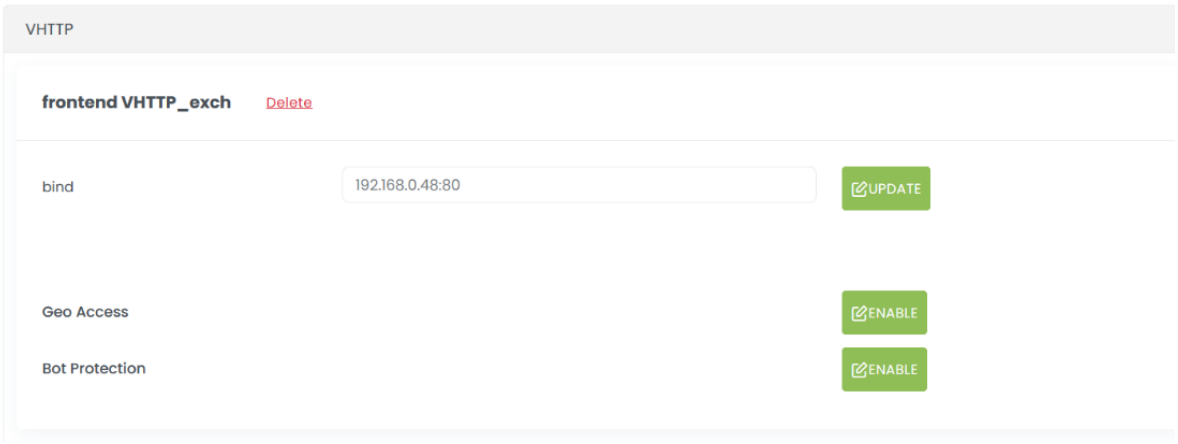


Frontend Added

Below shows the added frontend server. The page also provides an **UPDATE** button.

to update any changes in the added frontend.

DELETE button provided to delete the added server.



The Geo Access **ENABLE** button will enable the location for the specific Frontend.

Bot Protection will **ENABLE** the bot protection for the specific Frontend.

10.2. Backend Server

Backend server contains the following fields:

Balance: Specify which load balancing method can be used in this Backend Server.

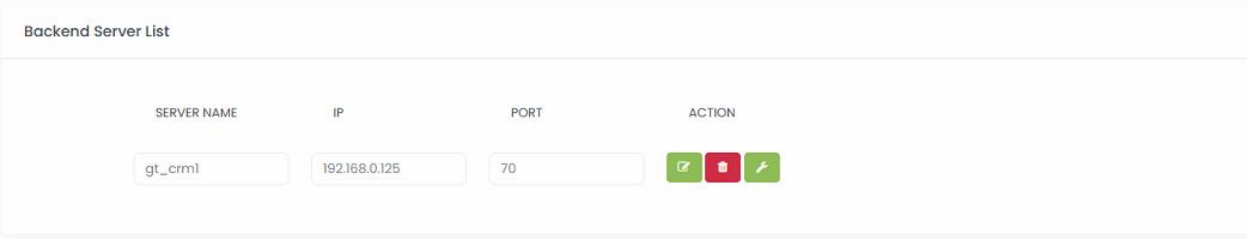
Timeout: To specify the Session timeout between the nBalance and the Backend Server.

IP Persistence: IP persistence, also known as session persistence or sticky sessions, is a feature in nBalance that ensures that a user's requests are consistently directed to the same backend server during a session. This is important for applications that store session data on the server side and need to maintain continuity for a specific user throughout their interaction.

Cookie Persistence: Cookie persistence ensures that a user's requests are consistently directed to the same backend server during a session. We use these applications to store session information in cookies and need to maintain continuity for a specific user throughout their interaction.

Server name: server name is the FQDN of the real/backend servers and the IP address is the real/backend servers. The port which is active on the real server.

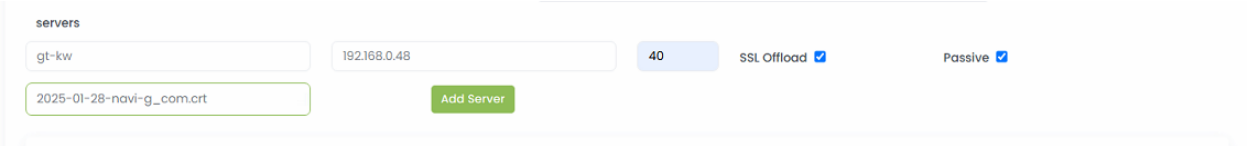
HTTP Check: "https check" refers to a health check mechanism where HAProxy actively attempts to establish a secure (HTTPS) connection to a backend server to verify its availability and responsiveness



Steps to follow:

1. Add server name.
2. Give IP address.
3. Click on ADD SERVER

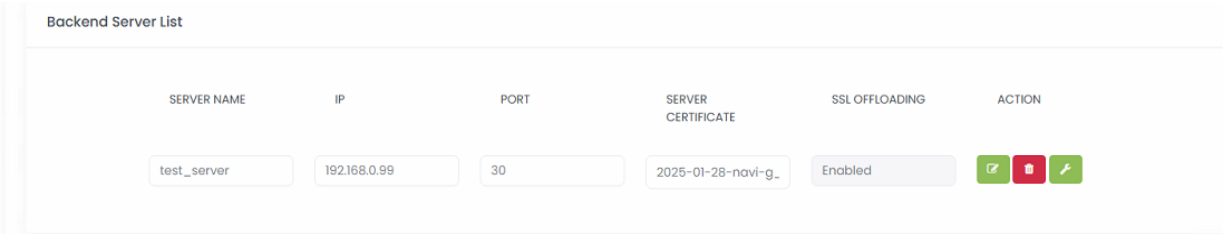
Add Server with SSL offload enabled and server certificate



Steps to follow:

1. Add server name.
2. Give IP address.
3. Give port
4. If you need to Enable SSL offload tick the check box.
5. If need to make it Passive tick the check box.
6. If need to add Server certificate select it from the list.
7. Click on ADD SERVER

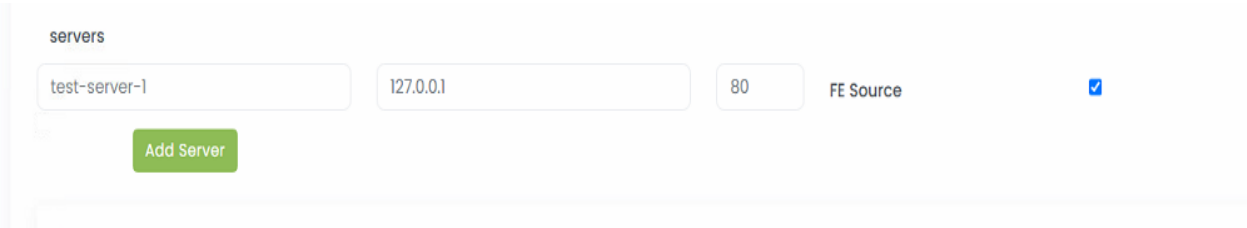
Added Backend Server List



Click on> **UPDATE** button will provide to change each field with new or changed content.

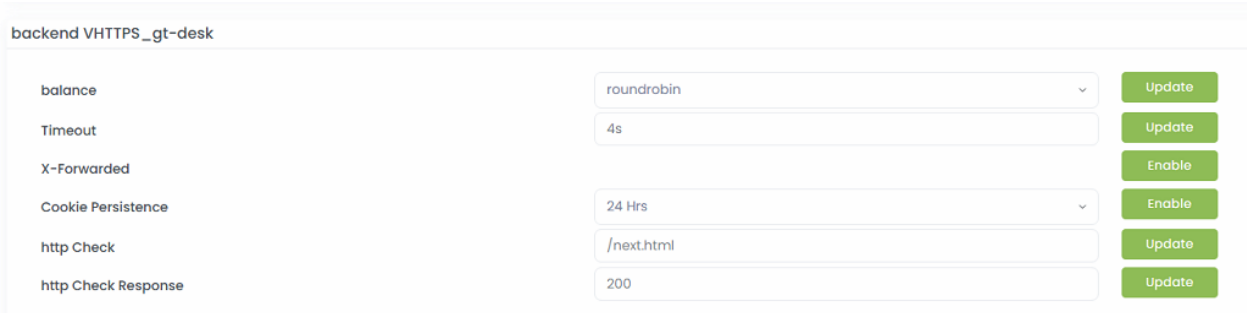
Click on> **DELETE** will delete the backend server

Add Server with FE Source for SMTP



Steps to follow:

1. Add server name.
2. Give IP address.
3. Give port
4. If you need to Enable FE Source tick on the check box
5. Click on ADD SERVER.



HTTP Check

Add the page eg: /home.html and click on Update button

HTTP Check Response

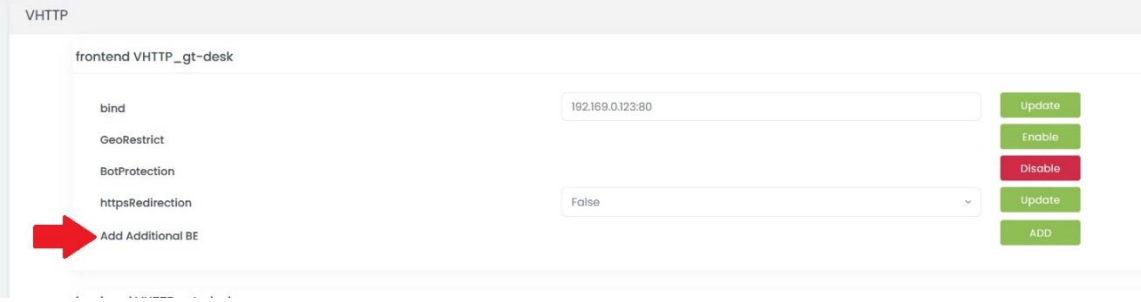
Add the value to the textbox and click on update.

Click on the **ENABLE** button will enable **IP Persistence**

Cookie Persistence

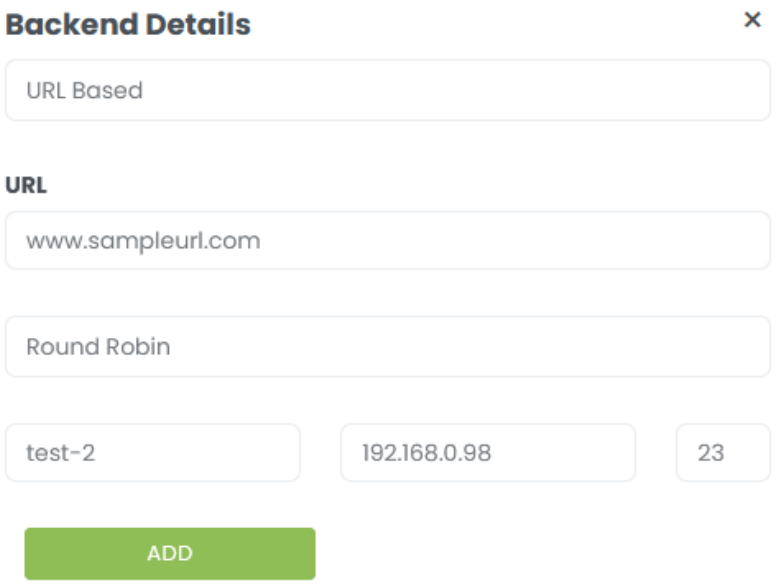
Add Expire time on the text box and click on **ENABLE** button will enable Cookie Persistence.

Add Additional Backend Server



Steps to follow:

1. Click on > ADD button.
2. That will open Backend Details.
3. The first list will give two options. Select any as per your requirement.
4. Enter all other details, as shown in the image below.
5. Click on > ADD button will create an additional backend.



Output for after adding Additional Backend Server

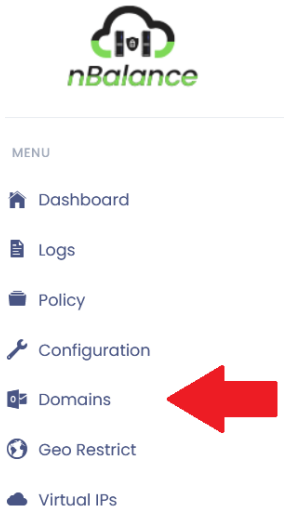
Enable or Disable X-Forwarded

Steps to follow:

1. Click on > Enable button.
2. Activate X-Forwarded for.
3. Click on > Disable deactivate X-Forwarded for.

11. Domain

Domain in nBalance plays a crucial role in routing, configuration, and ensuring that incoming requests are directed to the appropriate backend servers.



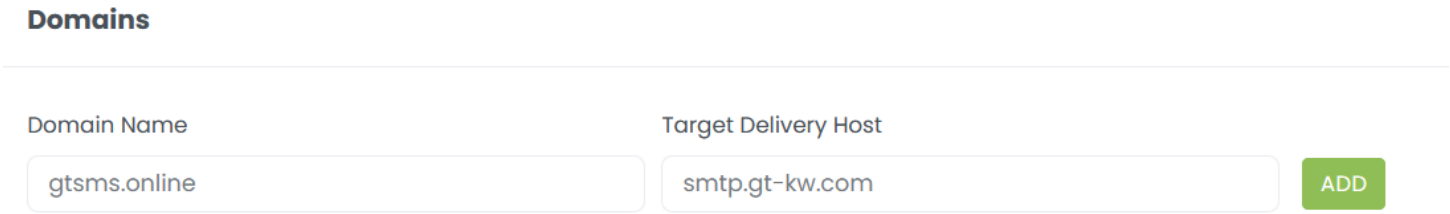
Steps to follow:

1. Click on > Domain will navigate to Domain page.

Add Domain

Steps to follow:

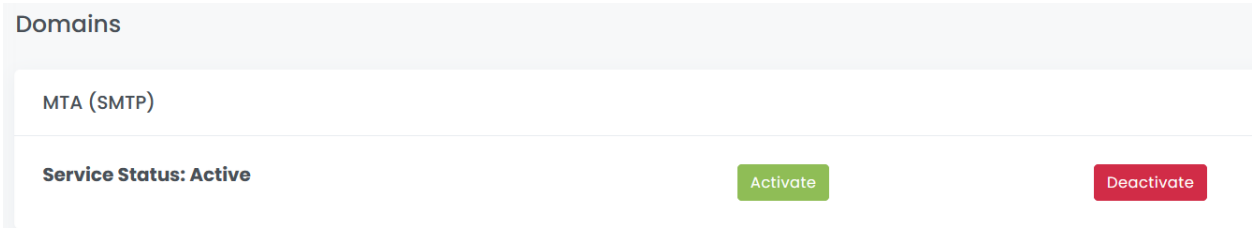
1. Add Domain name on the field.
2. Add Target Delivery Host name on the specific field.
3. Click on> ADD button.



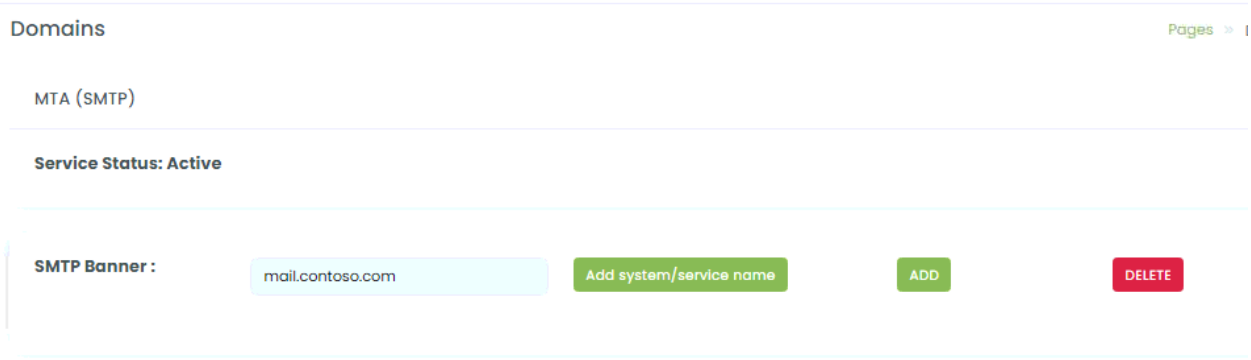
Service Status Activate

Steps to follow:

1. Click on > **Activate** button will activate the Service Status.
2. Click on > **Deactivate** button will deactivate the Service Status.



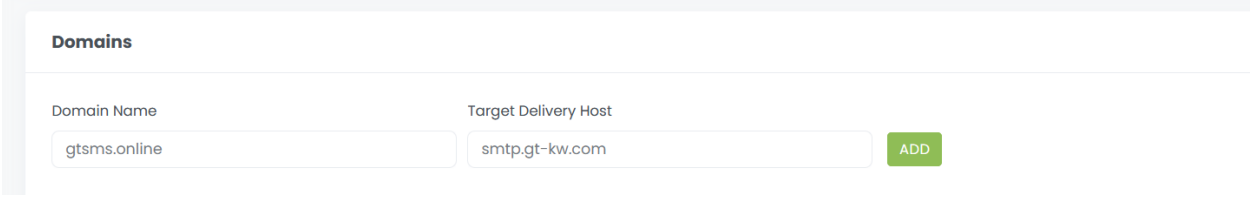
SMTP Banner



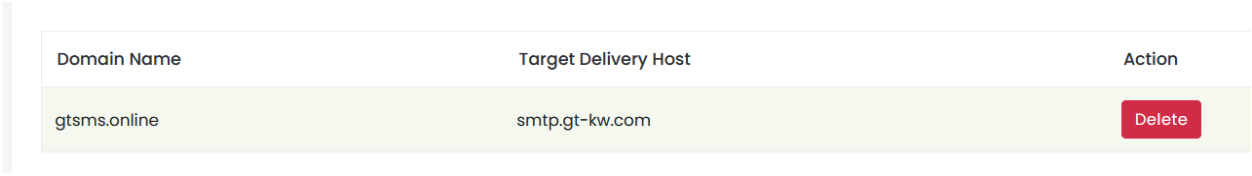
Add system/service name into the text box. Click on **ADD** will add banner. DELETE button will delete banner.

Add Domain

Add Domain name into the text box and add Target delivery host name into the text box. Clicking on **ADD** button will add the domain name.

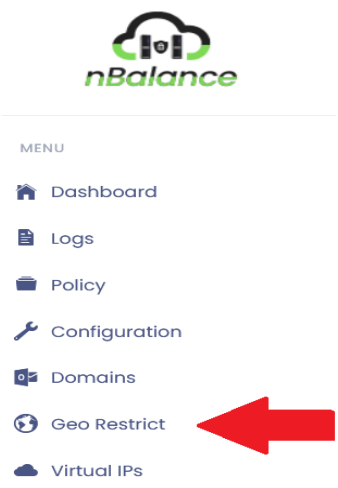


After Adding Domain



12. Geo Restrict

Geo-restriction is controlling or restricting access to a service or content based on the geographical location of the client or user. This functionality is often employed to comply with legal requirements, licensing agreements, or to optimize the user experience based on regional considerations. nBalance can analyse the IP address of incoming requests to determine the geographical location of the client.



Steps to follow:

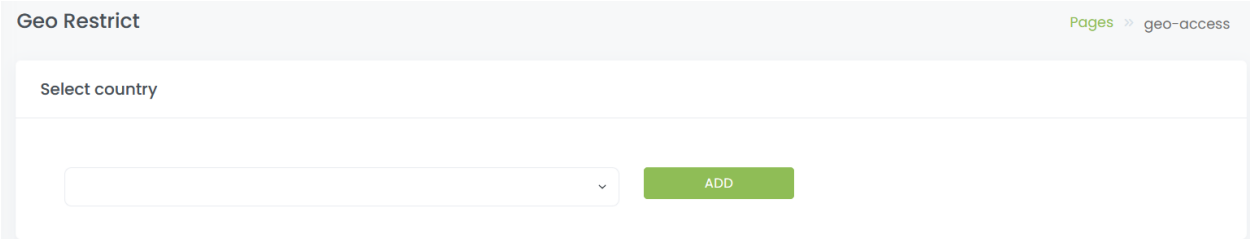
1. Click on > Geo Restrict link. It will navigate to the Geo Restrict page.

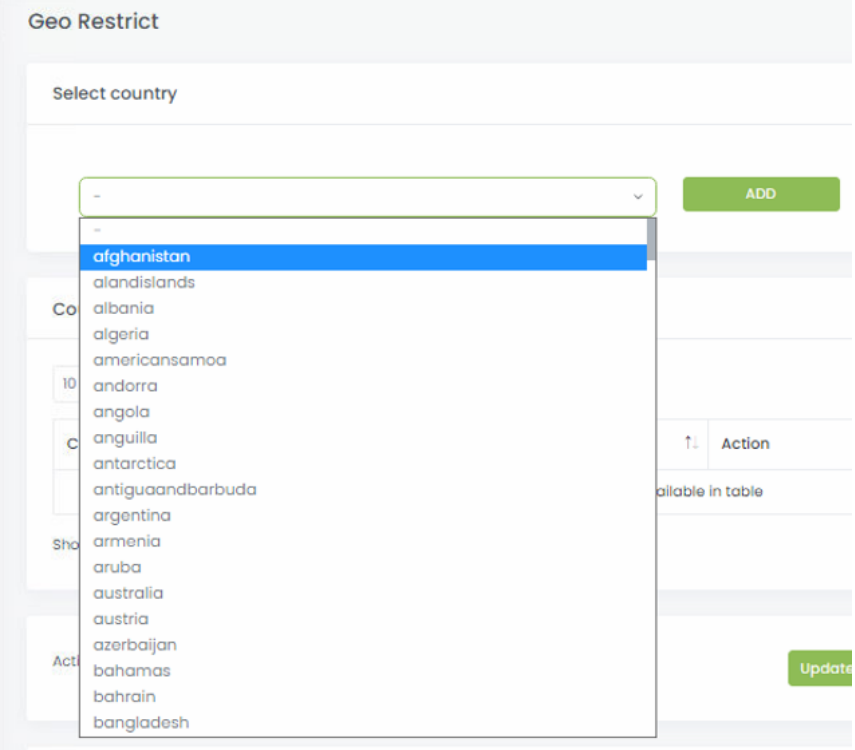
Geo Restrict Page

Steps to follow:

Select country from the dropdown menu.

Click on> ADD button will add the location into restricted location.

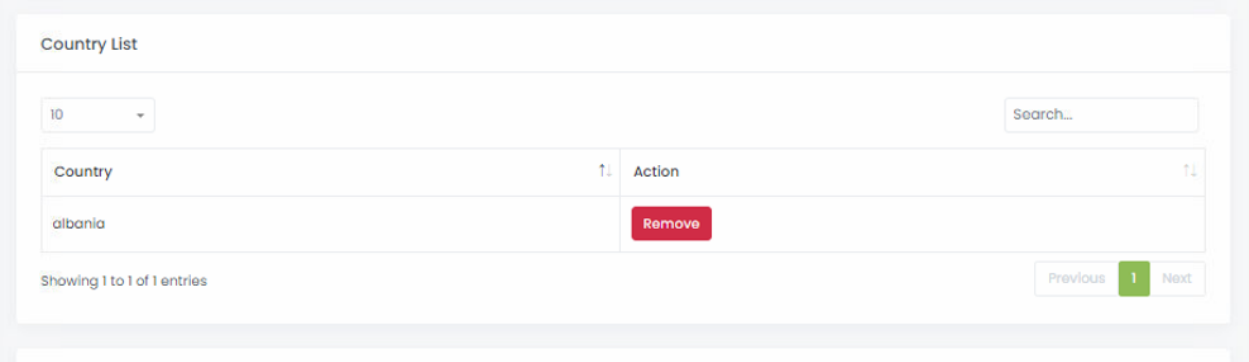




After adding the country in to Geo Restrict

Steps to follow:

1. **Remove** button will remove the country added.

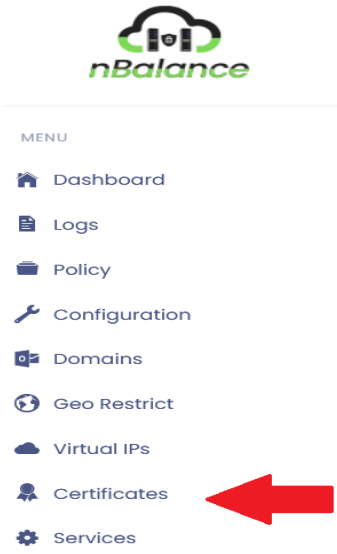


Clicking on **Update GEO IP DB** will update the Database.

Internal Subnets: It is used to add internal networks in your organization.

13. Certificates

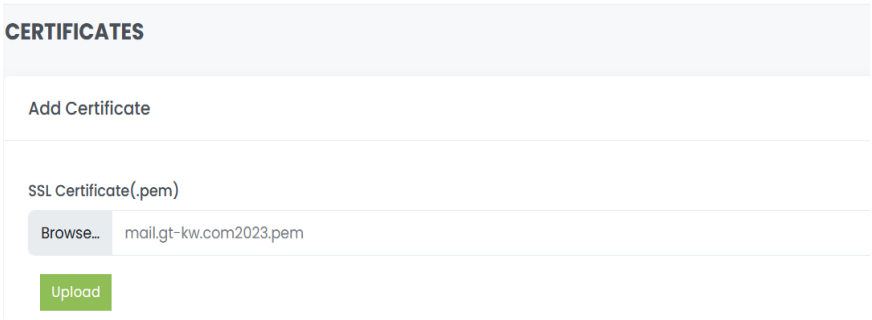
Certificate Management in nBalance provide tools for managing SSL certificates. This includes the ability to upload, renew, or replace certificates. Our nBalance also support automated certificate renewal through integration with certificate authorities.



Steps to follow:

Click on> Certificate will navigate you to certificate page.

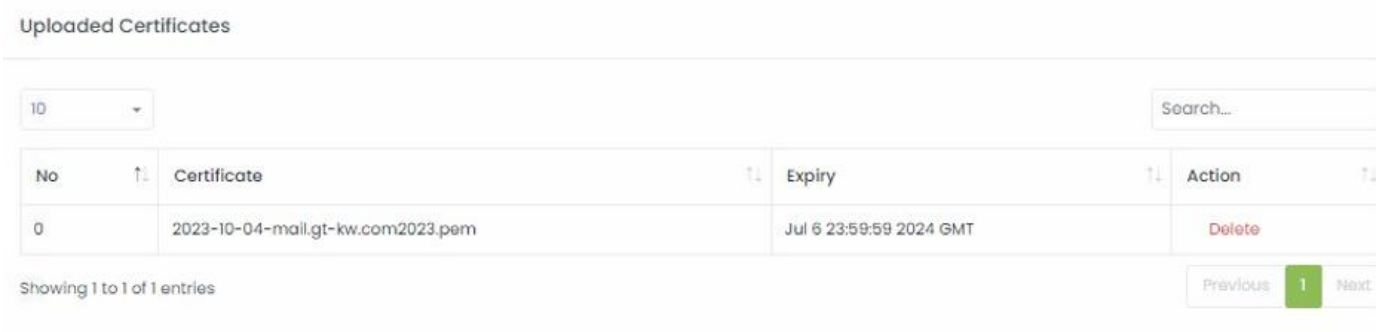
Add SSL Certificate



Steps to follow:

1. Browse SSL certificate from the system.
2. Click on > Upload

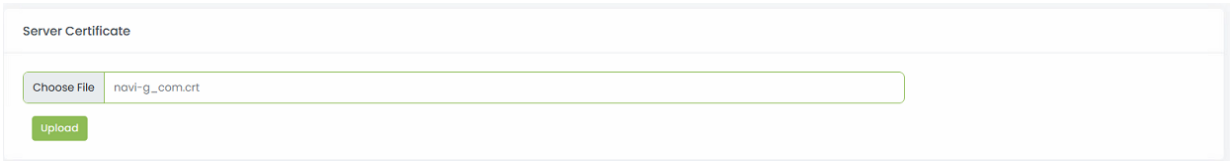
After Adding the SSL Certificate



This image shows the added certificate. The **Delete** button will help you to delete the certificate.

Note: You cannot delete a certificate if it is used by any front-end server.

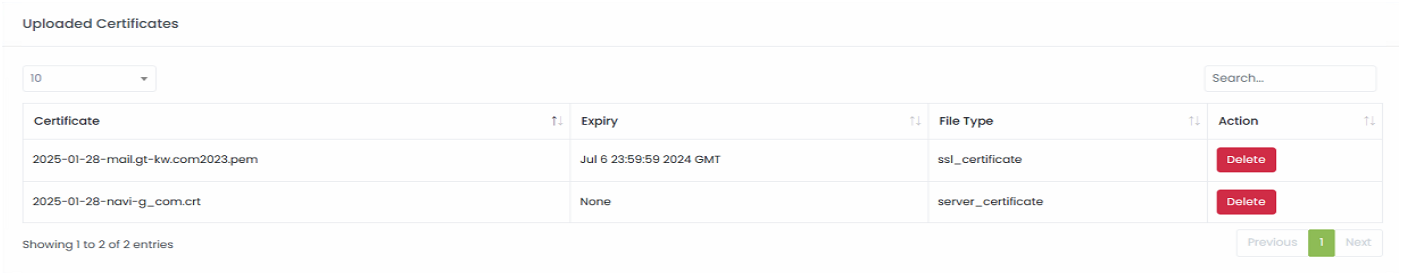
Add Server Certificate



Steps to follow:

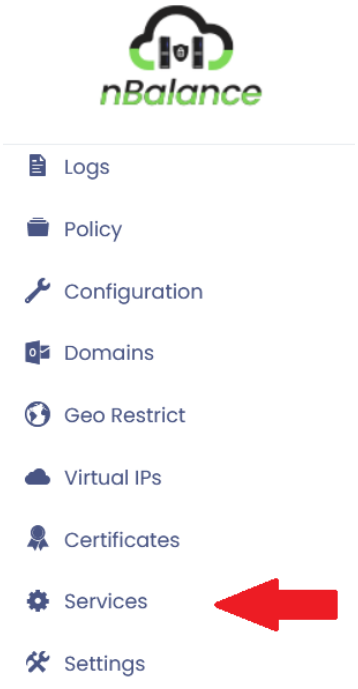
1. Browse the Server certificate from the system.
2. Click on >Upload

After Adding the Server Certificate



14. Services

This section provides information on the status of the Load Balancer, MTA (Mail Transfer Agent), logging and DNS services. You can use this interface to initiate actions such as starting, stopping, or restarting these services as needed.



Steps To Follow:

Click on>Services will navigate to Service page.

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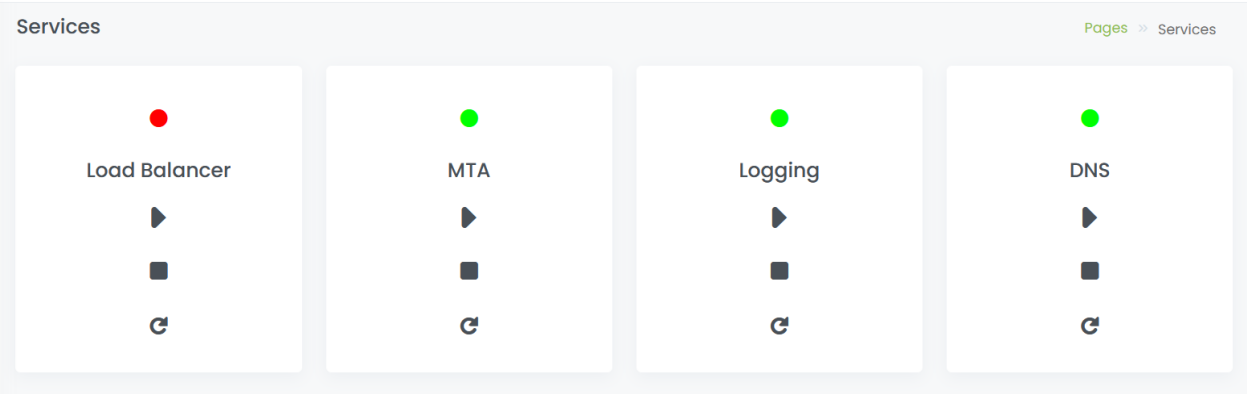
Service Page



In service page we have

1. **Load Balancer**: Load balancer is a software tool that distributes incoming network traffic across multiple servers or resources to ensure efficient utilization, high availability, and optimal performance. It acts as an intermediary between clients and backend servers, forwarding client requests to the most appropriate server based on predefined algorithms and policies.
2. **MTA**: MTA stands for Mail Transfer Agent. It is a software application or component responsible for the reliable transmission of email messages over a computer network.
3. **Logging**: Is a tool used in nBalance to be auditing monitoring etc.
4. **DNS**: DNS stands for Domain Name System. It will allow users to access memorable names instead of IP addresses.

The user can **START**, **STOP** and **RESTART** using the buttons given inside the tab.

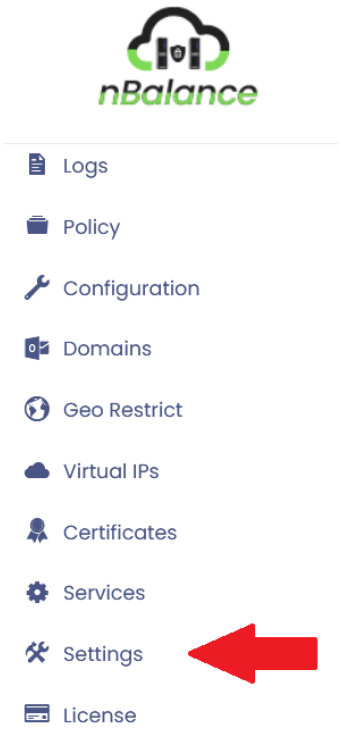
START button will start the process.

STOP button will stop the process. It will change the green color to red.

RESTART button will restart the process.

15. Settings

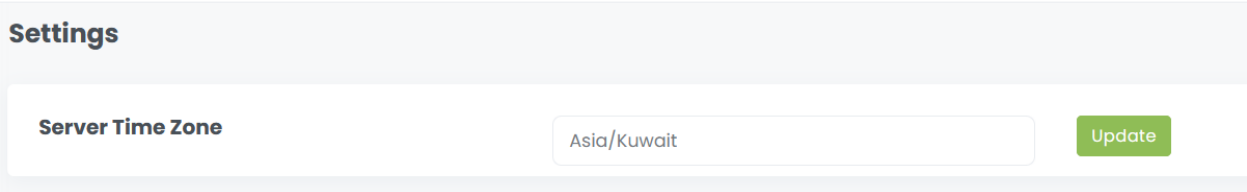
Settings will help you to set or update Server Time Zone, Global Max Session Limit, Global Max Connection Limit and Management IP



Steps to follow:

Click on > Setting button will navigate to settings page.

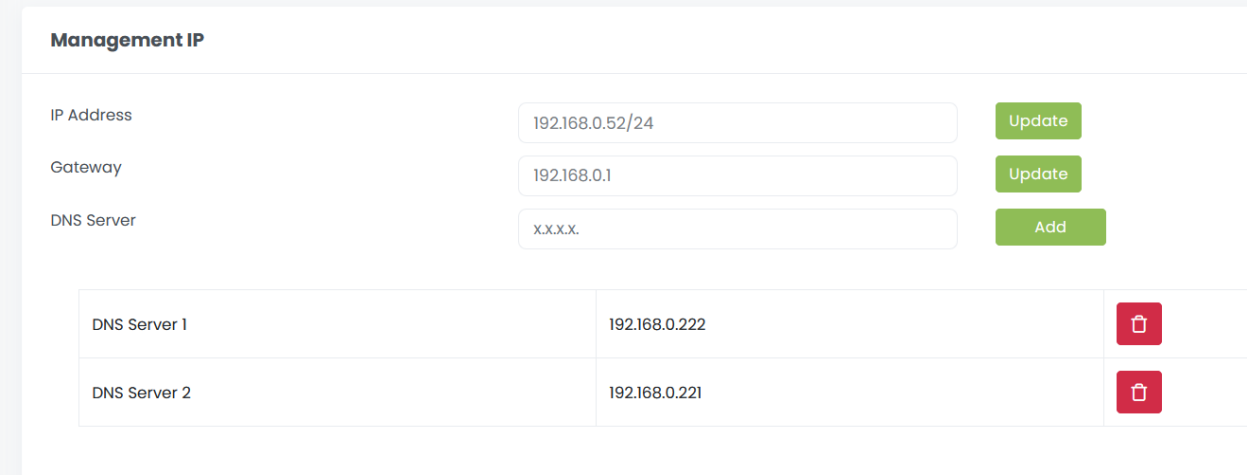
Setting Page



The form contains following fields:

1. **Server Time Zone**:
2. **Management IP:**

Click on> **UPDATE** button will update or change the content in the specific field.



Management IP

- **IP Address**: IP addresses serve the purpose of identifying and locating devices on a network.
- **Gateway:** It will help to connect different networks
- **DNS Server**: It will help to convert the domain name into IP address.

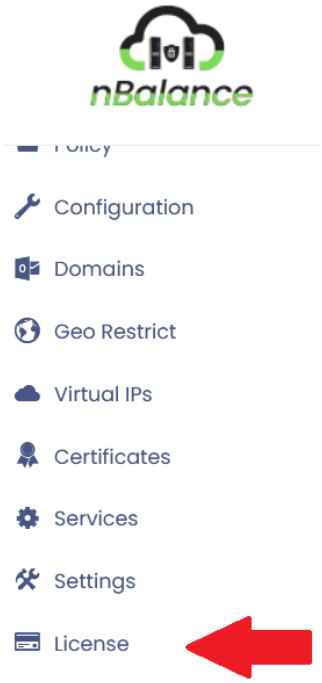
Click on> **Update** button will update the specific field.

Click on> Add button will add the DNS server.

Click on> **Delete** icon Button will delete the DNS server.

16. License

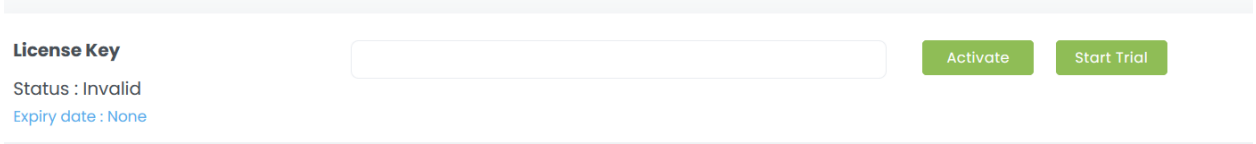
In nBalance, we provide 30-days of trial. A license key is required after the trial period for the nBalance to work.



Steps To Follow:

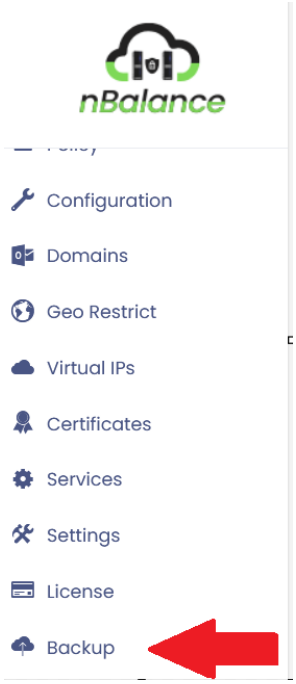
Click on>License will navigate you to the License page

1. Enter the license key and click on > **Activate**
2. To start the trial click on > **Start Trial**



17. Backup

Backups in nBlance involve creating and storing copies of the configuration settings and, potentially, other critical data associated with the nBalance system. Backups are essential for several reasons, including disaster recovery, system upgrades, and ensuring that a previous, known-good configuration can be restored in case of issues. Here's how backups are typically managed in nBalance:



Steps To Follow:

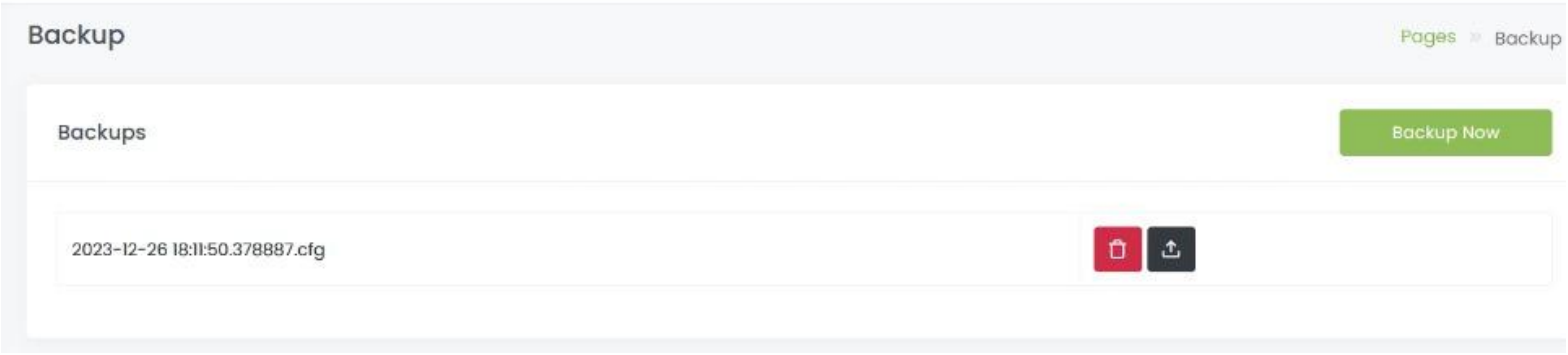
1. Click on>Backup will navigate you to Backup page.

How to Backup

Steps to follow:

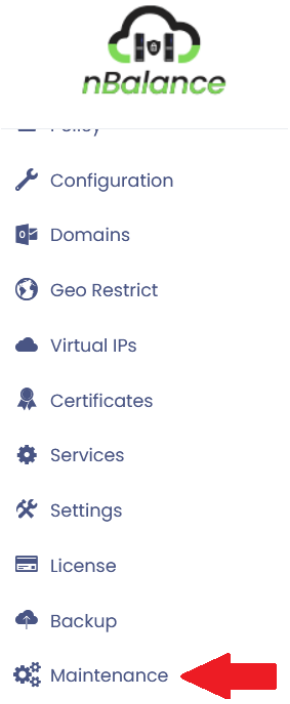
1. Click on> Backup Now button will back up the data.

2. It will also display the backup file with the date and time as a cfg file.



18. Maintenance

Maintenance in nBalance involves a series of tasks and activities aimed at keeping the load balancing system running smoothly, efficiently, and securely. Regular maintenance helps prevent issues, ensures optimal performance, and allows for the implementation of updates and improvements. Here are common maintenance tasks associated with nBalance:



Steps To Follow:

Click on> Maintenance will navigate you to Maintenance page.

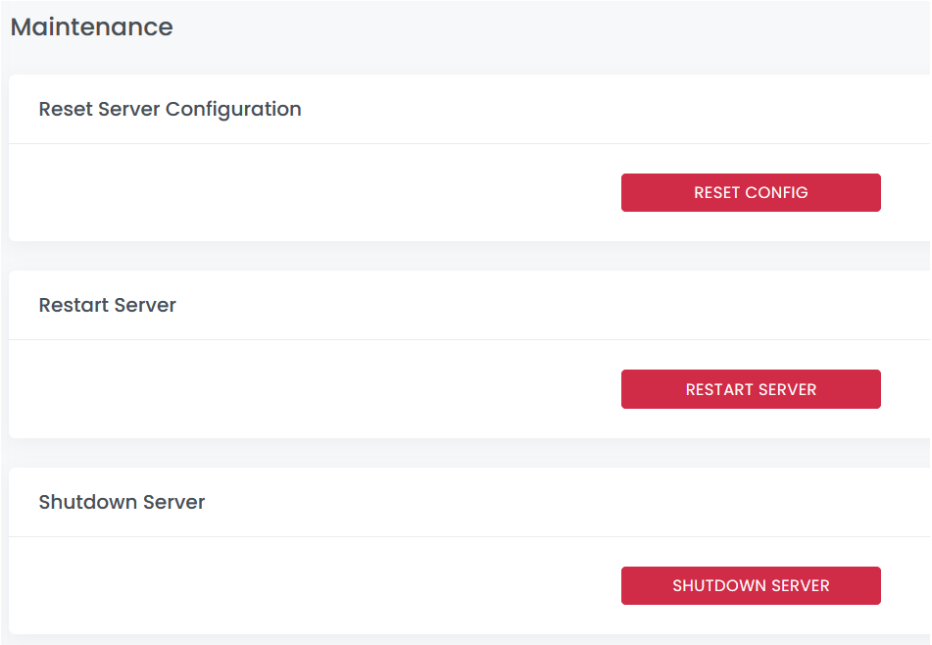
Maintenance will provide the following:

Reset: Reset the server completely.

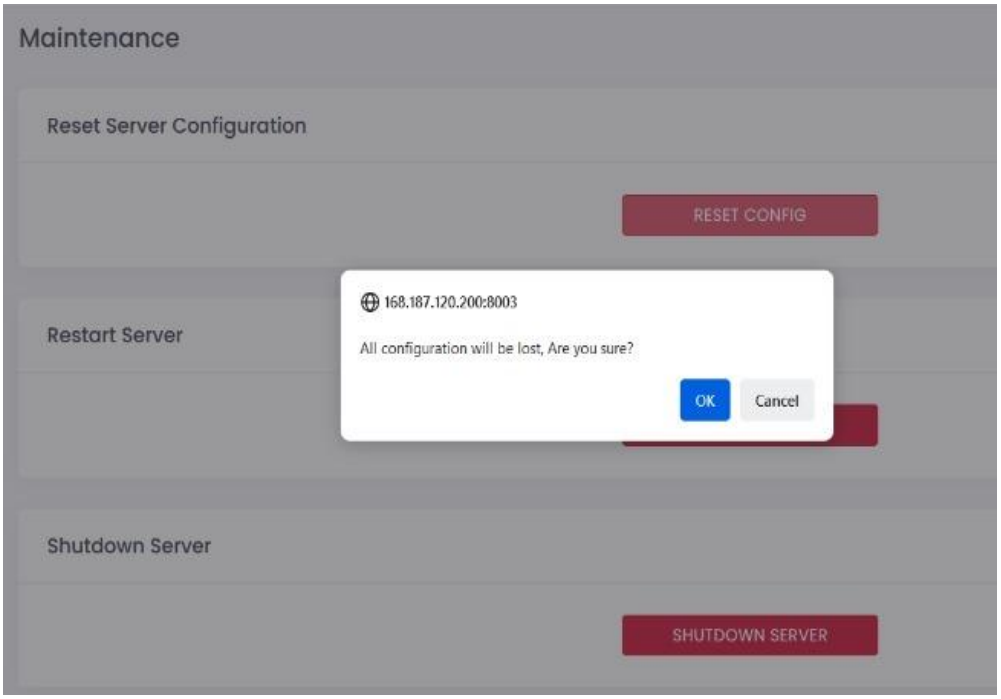
Restart: Helps to restart the server.

Shutdown: Completely shut down the server.

1. Reset server configuration: Click on the>**RESET CONFIG** button will reset the configuration.
2. Restart Server: Click on > **RESTART SERVER** will restart the server.
3. Shut Down Server: Click on> **SHUT DOWN SERVER** will shut down the server.



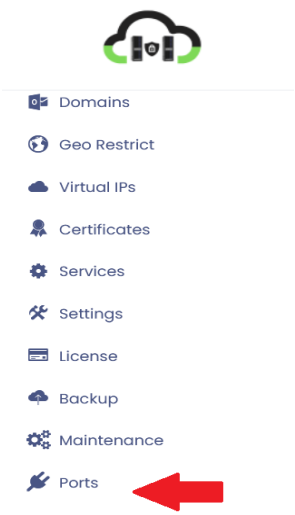
Following figure will show a message box while clicking on RESET CONFIG



19. Ports

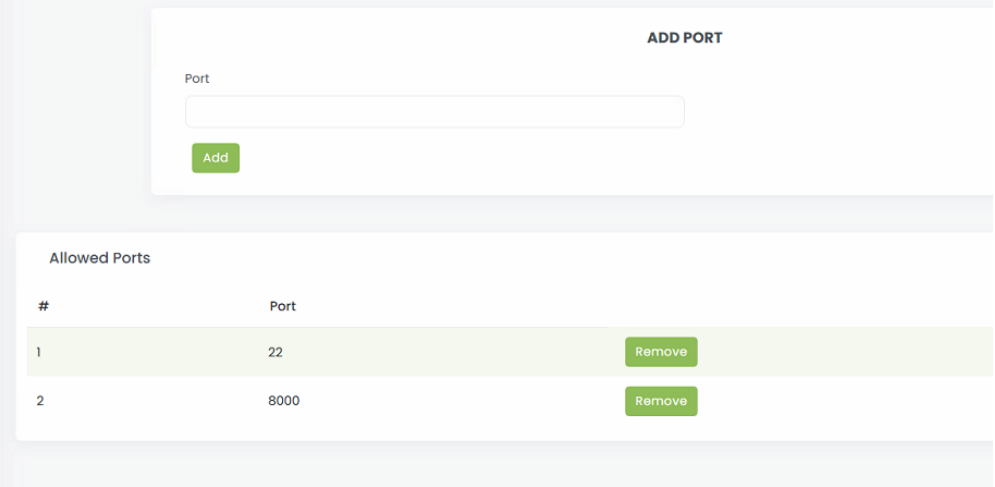
The Port page contains the following fields:

1. Add Port:
2. Server Time Zone:
3. Global Max Session Limit:
4. Global Max Connection Limit:



Steps To Follow:

1. Click on>Port will open Port page
2. Enter port number and click on > Add will add port like below.
3. click on>Remove will remove port from the list

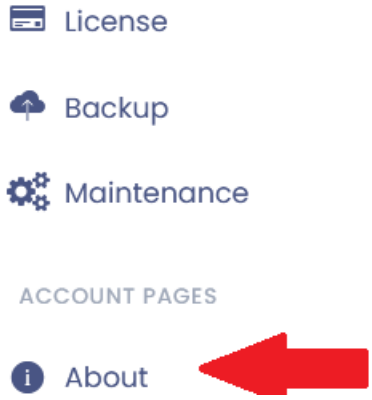


Steps To Follow:

1. Enter the Global max session limit and click on >Update
2. Enter Global Max connection limit and click on > Update
3. Click on >Update for Blacklist check

Global Max Session Limit	5000	Update
Global Max Connection Limit	9000	Update
Blacklist Check		Update

20. About



Steps To Follow:

1. Click on About will navigate to About tab.

About page will display the following:

Current Version of nBalance installed.