

Endurance Quick Start Guide

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1. About this Guide

This quick start guide provides an introduction to Endurance and information on how to deploy the appliance, configure initial network settings and configure and verify a simple layer 7 test environment.

2. About Endurance

Endurance is Loadbalancer.org's next-gen ADC. Built on a modern OS architecture, its rich feature set and robust architecture incorporates advanced automation, API integration, and powerful security features to provide a comprehensive solution for managing application delivery across distributed environments.

3. Appliance Configuration Overview

Initial network configuration can be performed at the console or via a browser using the [Network Setup Wizard](#). Once the wizard has been run, load balanced services can be configured using the WebUI or using the API. When using the WebUI, API calls are used in the background to configure the appliance.

Note

This guide shows how load balanced services can be configured using the WebUI. For an introduction to configuring the appliance using API calls from Bruno, please refer to [Configuring Endurance using Bruno](#).

By default, the WebUI is accessible on HTTPS port **443**, this can be changed if required.

We recommend that where possible two appliances are deployed for high availability and resilience, this avoids introducing a single point of failure to your network. For more information, see [High Availability Configuration](#)

4. Appliance Access & Security

4.1. WebUI

The first WebUI user account is added when the [Network Setup Wizard](#) is run. The user is automatically added to the System Admin role which grants full system rights. Additional user accounts can be added if required, permissions granted to each user are based on the role(s) allocated either directly to the user or via group membership and the permissions configured for those role(s).

4.2. Console & SSH

4.2.1. "loadbalancer" User

If required, console and SSH access for the "loadbalancer" CLI user account can be enabled. This allows both Linux OS and Endurance specific commands to be run.

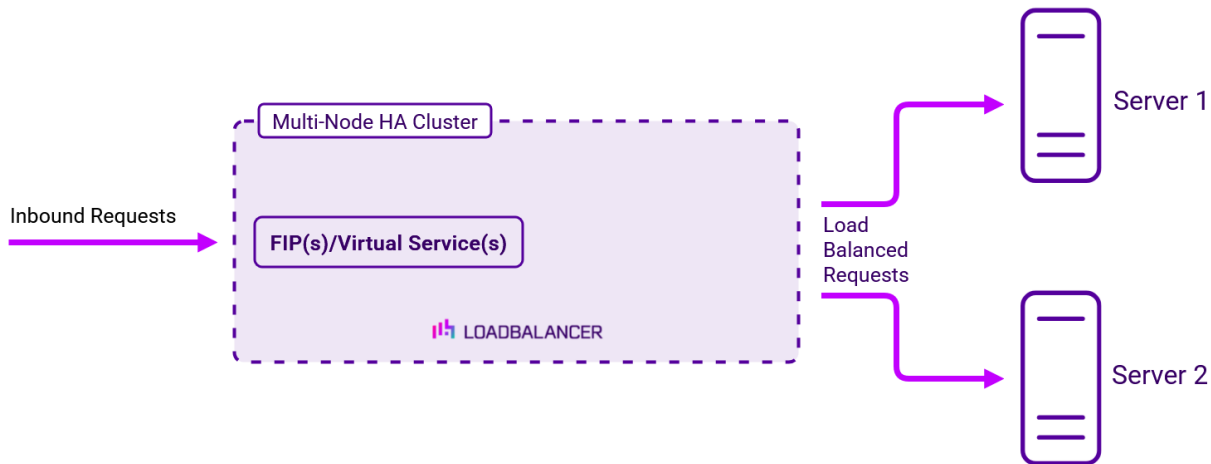
4.2.2. "lbsystem" User (Console only)

The "lbsystem" CLI user account provides access to a limited range of commands such as appliance restart and shutdown.



5. Appliance Deployment Concept

Once the load balancer is deployed, clients connect to the FIP(s) (Floating IP) / Virtual Service(s) on the load balancer rather than connecting directly to one of the Real Servers. Requests are then distributed across the Real Servers according to the load balancing algorithm selected.

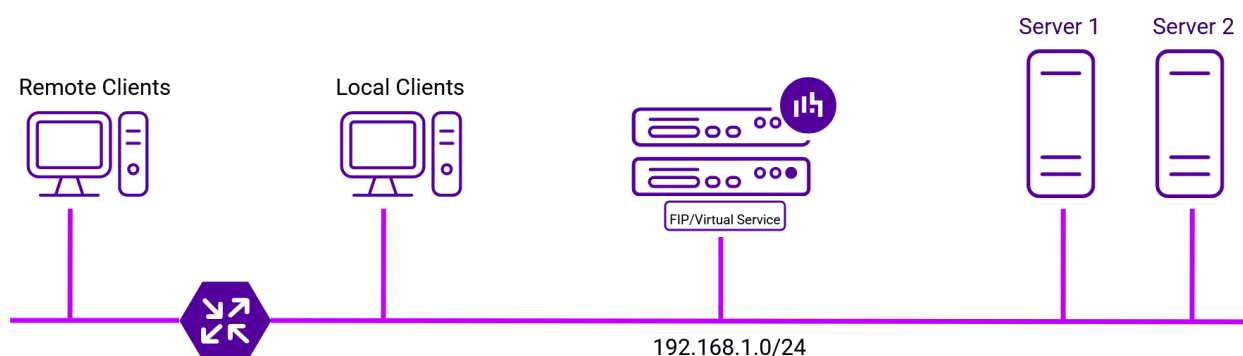


6. One-Arm and Two-Arm Topologies

The number of "arms" is a descriptive term for how many interfaces are used to connect a device to a network. It's common for a load balancer that uses a routing method (NAT) to have a two-arm configuration although one-arm is also supported. Proxy based load balancers commonly use a one-arm configuration although two-arm is also supported.

6.1. One-Arm

The FIP/Virtual Service and the load balanced servers are located in a single subnet. The load balancer requires a single network interface.



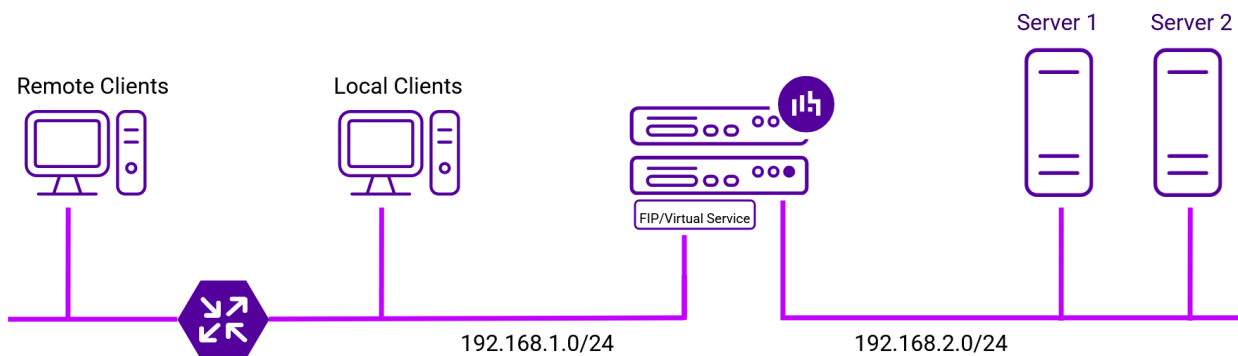
6.2. Two-Arm

Here, 2 subnets are used. The FIP/Virtual Service is located in one subnet and the load balanced Real Servers are located in the other. The load balancer requires 2 interfaces, one in each subnet as shown in the diagram below.

Note

This can be achieved by using two network adapters, or by creating VLANs on a single adapter.





7. Supported Load Balancing Methods

The Loadbalancer.org appliance supports multiple load balancing methods/modes. These can be used at the same time or in combination with each other and are described in the table below.

Layer	Method/Mode	Comments	Topology	Note
4	DR Mode (<i>Direct Routing</i>)	Ultra-fast layer 4 load balancing Requires the "ARP problem" to be solved on each Real Server - for details see DR Mode Considerations	One-Arm (*)	1
4	DNAT Mode (<i>Destination Network Address Translation</i>)	Fast Layer 4 load balancing The appliance must be the default gateway for the Real Servers	One-Arm or Two-Arm	1
4	TUN Mode (<i>Tunneling</i>)	Similar to DR mode but works across IP encapsulated tunnels Requires the "ARP problem" to be solved on each Real Server - for details see DR Mode Considerations	One-Arm	2
4	SNAT Mode (<i>Source Network Address Translation</i>)	Fast layer 4 load balancing Requires no Real Server configuration changes	One-Arm or Two-Arm	3
7	SNAT Mode (<i>Source Network Address Translation</i>)	Not as fast as layer 4 methods, but offers greater flexibility, supports remote server load balancing and advanced functionality such as multiple persistence methods, header manipulation and URL rewriting - Based on HAProxy - Requires no Real Server configuration changes	One-Arm or Two-Arm	4
7	SSL/TLS Termination	Typically required to enable cookie persistence, header manipulation and URL rewriting in HTTPS streams HAProxy is used as the terminator	One-Arm or Two-Arm	5

(*) DR mode can also be used in a multi-homed configuration where Real Servers are located in different subnets. In this case, the load balancer must have an interface in each subnet to enable layer 2 connectivity which is required for DR mode to operate.

Notes

1. Recommended for high performance fully transparent and scalable solutions.
2. Only required for DR mode implementations across routed networks (rarely used).
3. Useful when you want to load balance both TCP and UDP, but you're unable to use DR mode or NAT mode due to network topology or Real Server related reasons.
4. Used across multiple environments including object storage, healthcare and various Microsoft application such as Exchange, IIS and RDS.
5. SSL/TLS termination is processor intensive - where possible, for a scalable solution terminating on the Real Servers is recommended.

Note

Full details of each mode can be found [here](#).

8. Ports Used by the Appliance

By default, the appliance uses the following TCP & UDP ports:

Protocol	Port	Purpose
TCP	22	SSH
TCP & UDP	53	GSLB
TCP & UDP	161	SNMP
TCP	443	WebUI & API
TCP	9083	Pulse between nodes in HA mode
TCP	7778	HAProxy persistence table replication
TCP	9090	Prometheus layer 7 exporter
TCP	9100	Prometheus node exporter

Note

The ports used for SSH, the WebUI & API, Pulse, HAProxy persistence table replication and the Prometheus exporter can be changed if required.

9. Virtual Appliance Deployment

Currently, Endurance is available in ISO format with full support for VMware. Additional platforms and deployment formats are coming soon.

The latest ISO file can be downloaded from the [Endurance download page](#) if not done so already.



Note

There are 2 **Platform** options on the download page: **ISO** and **VMware**. Selecting "VMware" provides an image that includes VMware Tools, selecting "ISO" provides an image without VMware Tools which can be used with other hypervisors but with limited hypervisor integration.

To create a VA using vSphere:

1. Login to vSphere client and upload the ISO file to an appropriate datastore.
2. Create a 64bit Rocky Linux VA, customize the Hardware as shown below:

The screenshot shows the 'New Virtual Machine' wizard in vSphere, specifically the 'Customize hardware' step. On the left, a sidebar lists 8 steps: 1. Select a creation type, 2. Select a name and folder, 3. Select a compute resource, 4. Select storage, 5. Select compatibility, 6. Select a guest OS, 7. Customize hardware (selected), and 8. Ready to complete. The main panel is titled 'Customize hardware' and has a close button (X) in the top right. Below the title is a subtitle 'Configure the virtual machine hardware' and three tabs: 'Virtual Hardware' (selected), 'VM Options', and 'Advanced Parameters'. An 'ADD NEW DEVICE' link is in the top right of the main panel. The hardware configuration is shown in a table-like list:

> CPU *	2	↓	ⓘ
> Memory *	4	↓	GB ↓
> New Hard disk *	50	↓	GB ↓
> New SCSI controller	VMware Paravirtual		⋮
> New Network *	VLAN1140	↓	☒ Connected
> New CD/DVD Drive *	Datastore ISO File	↓	☒ Connect At Power On
> Video card	Specify custom settings	↓	
> New SATA Controller	New SATA Controller		⋮
> Security Devices	Not Configured		
> Other	Additional Hardware		

At the bottom right of the main panel are three buttons: 'CANCEL', 'BACK', and 'NEXT'.

3. Configure the following vCPU, RAM, hard disk and network resources:

- 2 vCPUs
- 4 GB RAM
- 50 GB drive
- Use the **ADD NEW DEVICE** option to add additional network adapters if needed

Note

In a production environment, separate interfaces are normally used for management and workload traffic. In a test environment a single interface can be used for both if preferred.

4. Connect the network adapter(s) to an appropriate network.
5. Set the appliance's virtual CD/DVD drive to **Datastore ISO File** and browse to & select the ISO file download previously. Ensure that **Connect At Power On** is enabled.
6. Click **Next** then **Finish** to create the VA.

7. Power up to the appliance.
8. At the console, select **Test this media & install LBOS 3.2.0-BETA** and hit **Enter** to start the installation.
9. Once complete, hit **Enter** to quit the installer and start Endurance.

10. Configure Initial Network Settings

After power up, the following startup message is displayed on the appliance console:

```
LOADBALANCER
Copyright (c) 2025

Welcome to the Loadbalancer.org appliance.

To perform initial configuration.

Log in to the console as
Username: setup

Or visit address below in your browser.
https://10.11.40.100/

lbnode login: _
```

As mentioned in the text, initial network configuration can be performed at the console or via a browser. This will enable you to configure the management IP address and other network settings for the appliance.

Note

An IP address will be displayed if the appliance can obtain an address from a DHCP server. If not, no address will be shown and a static IP will first need to be assigned before the web based setup can be used. This can be done by logging in at the console as the "setup" user and selecting **Set Static IP**.

10.1. At the Console

To start the console based setup process, login as the "setup" user. Once logged in, the Network Setup Wizard will start automatically.

Username: setup <Enter>

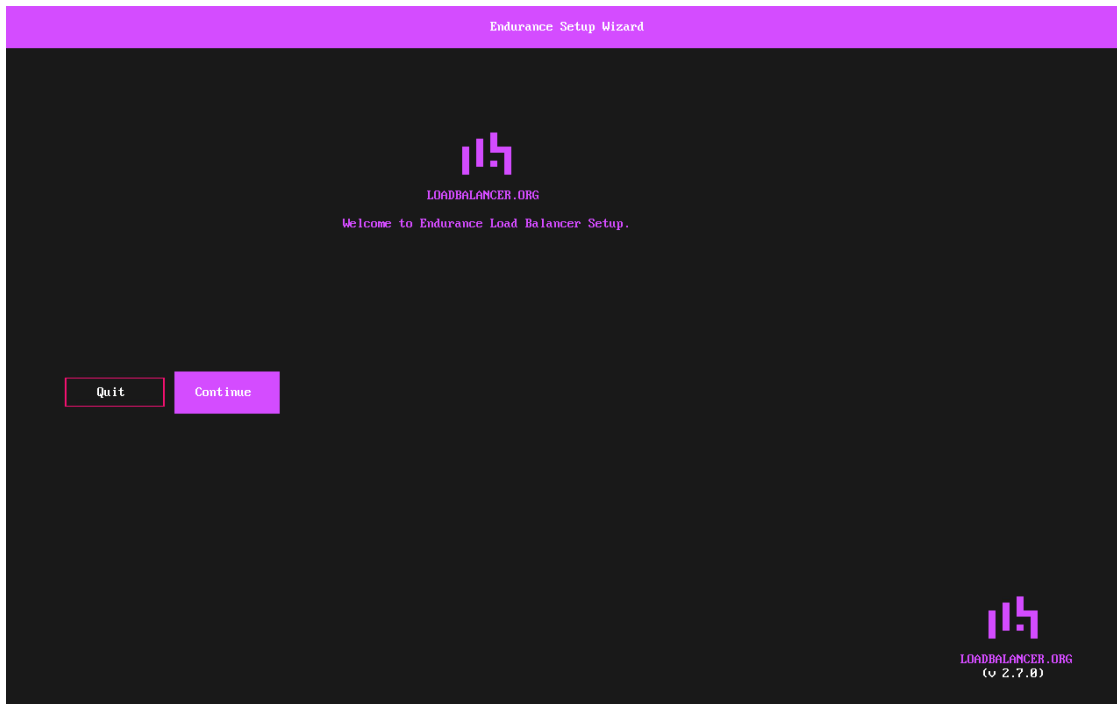
Note

A password is not required.

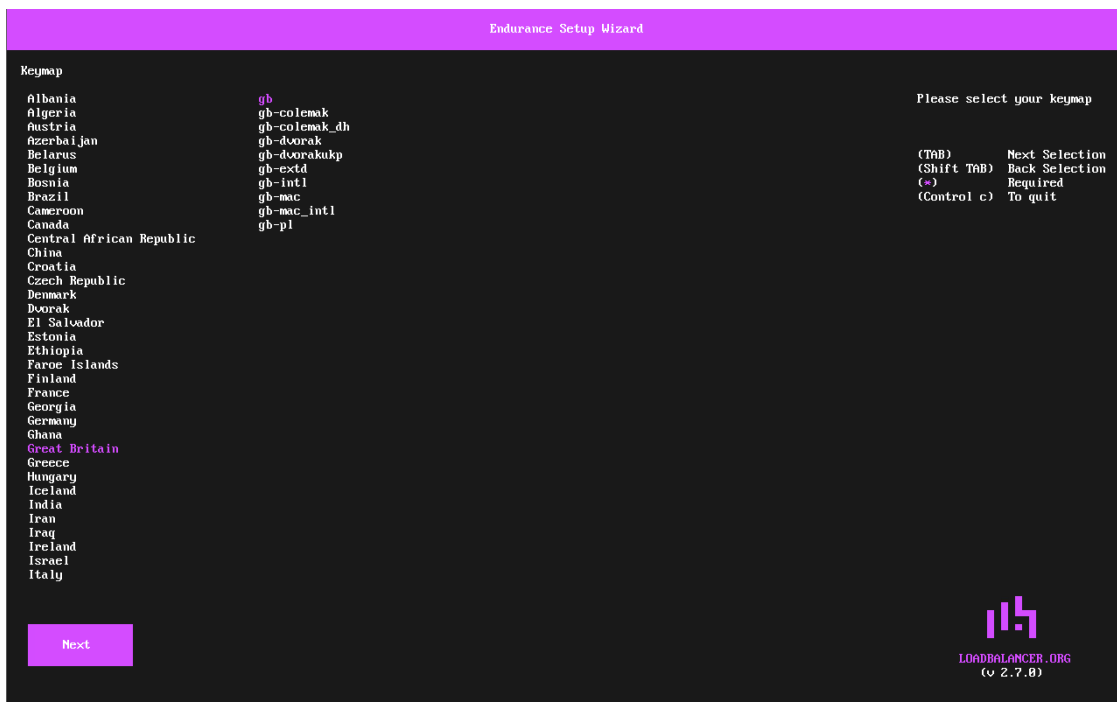
A series of screens will be displayed that allow network settings to be configured:

In the **Welcome to Endurance** screen, ensure **Continue** is selected and hit **Enter** to continue.





In the **keymap** screen, select the required keymap settings and hit **Enter** to continue.



The **Next** button will be selected, hit **Enter** to continue.

In the **Client Credentials** screen, enter your *Email* and *Password*. These will be used to login to the appliance's WebUI. Hit **Enter** to continue.



Endurance Setup Wizard

Client Credentials

Email*
harry.smith@example.com

Password*
[REDACTED]

Confirm Password*
[REDACTED]

Please enter your credentials

Password must be at least 8 characters long,
Contain at least
1 uppercase,
1 numeric,
1 lowercase
1 special character
Special characters include
!@#\$%^&*~

(TAB) Next Selection
(Shift TAB) Back Selection
(*) Required
(Control c) To quit

Back

Next

LOADBALANCER.ORG
(v 2.7.0)

The **Next** button will be selected, hit **Enter** to continue.

In the **Timezone** screen, select the required timezone settings, and hit **Enter** to continue.

Endurance Setup Wizard

Timezone

Africa ->
America ->
Antarctica ->
Arctic ->
Asia ->
Atlantic ->
Australia ->
Brazil ->
Canada ->
Chile ->
Etc ->
Europe ->
Indian ->
Mexico ->
Pacific ->
US ->
UTC

Amsterdam
Andorra
Astrakhan
Athens
Belfast
Belgrade
Berlin
Bratislava
Brussels
Bucharest
Budapest
Busingen
Chisinau
Copenhagen
Dublin
Gibraltar
Guernsey
Helsinki
Isle of Man
Istanbul
Jersey
Kaliningrad
Kiev
Kirov
Kyiv
Lisbon
Ljubljana
London
Luxembourg
Madrid
Malta
Mariehamn
Minsk
Monaco
Moscow

Please select your timezone

(TAB) Next Selection
(Shift TAB) Back Selection
(Control c) To quit

Back

Next

LOADBALANCER.ORG
(v 2.7.0)

The **Next** button will be selected, hit **Enter** to continue.

The **Network Setting** screen will be displayed.

Note

This screen is used to configure the management interface. Additional interfaces must be configured using the WebUI.



Endurance Setup Wizard

Network Setting

Interfaces* ens33

Bond Mode N/A
Balance Round Robin
Active Backup
802.3adr

IP Address* 10.11.40.60

CIDR Suffix* 24

VLAN (0-4094)

Gateway* 10.11.40.254

DNS Server* 10.11.40.250

DNS Server

DNS Server

Hostname* lb1

NTP Server

Please enter your Network Setting

Interface: Press (Enter) or (Space) to select the desired network interface and selecting multiple interfaces will create a bond

(Up/Down) Navigate lists
(TAB) Next Selection
(Shift TAB) Back Selection
(*) Required
(Control c) To quit

Back
Next



LOADBALANCER.ORG
(v 2.7.0)

- Using the **Spacebar**, ensure that the *Interface* is selected.
- If additional adapters were added to the VA, additional interfaces will be displayed as shown below:

Network Setting

Interfaces* ens33
 ens34
 ens35
 ens36

Bond Mode N/A
Balance Round Robin
Active Backup
802.3adr

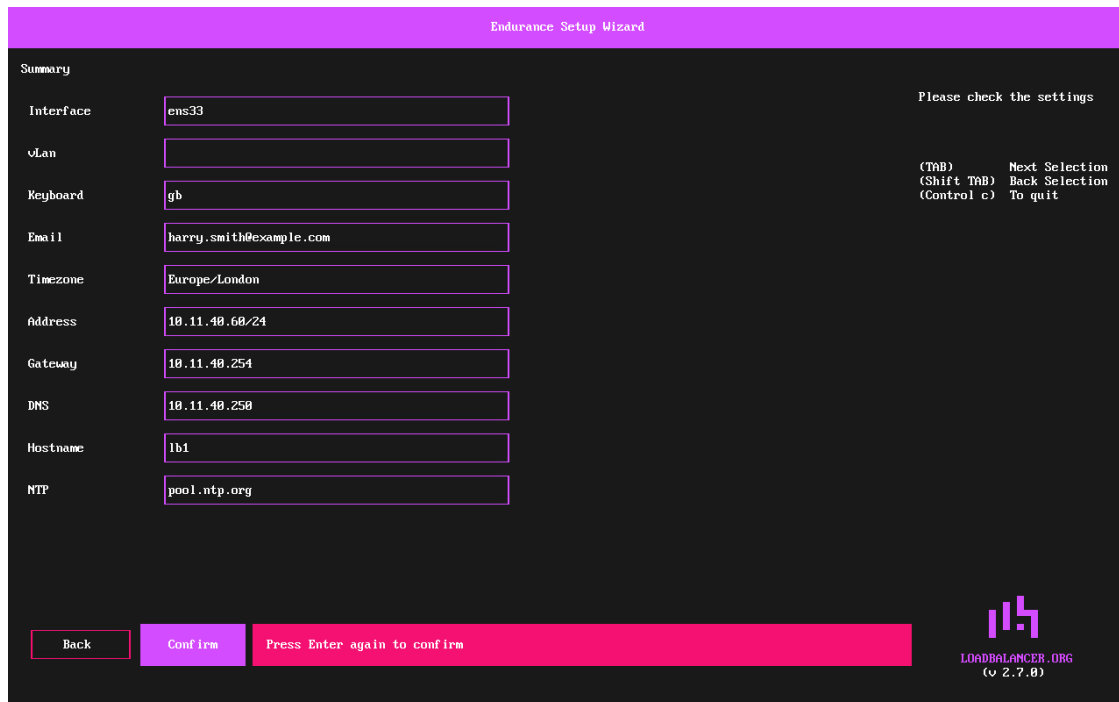
- Select the required Interface(s). Multiple interfaces can be selected and bonded - in this case, select the required Bond Mode - the following options are available:
 - **Balance Round Robin** - This mode distributes network traffic across multiple network interfaces in a sequential, cyclic manner.
 - **Active Backup** - This mode places one of the adapters in a backup state and will only become active if the link is lost to the active adapter. This mode provides fault tolerance.
 - **802.3ad** - Dynamic link aggregation mode. This mode requires a switch that supports IEEE 802.3ad.
- Set the required *IP Address* and *CIDR Suffix*.

 **Note** A subnet mask such as 255.255.255.0 is not valid, in this case set the *CIDR Suffix* to **24**.

- If required, set a *VLAN ID*.
- Configure an appropriate Default *Gateway*, *DNS Server* and *Hostname*.
- Hit **Enter** to continue.

The **Next** button will be selected, hit **Enter** to continue.

In the **Summary** screen, check all settings. If you need to change anything, use the **Back** button. If everything is correct, ensure that **Confirm** selected and hit **Enter** to continue.



The image shows the 'Summary' screen of the 'Endurance Setup Wizard'. It features a list of configuration fields on the left and a summary of the settings on the right. The fields are: Interface (ens33), Vlan (empty), Keyboard (gb), Email (harry.smith@example.com), Timezone (Europe/London), Address (10.11.40.60/24), Gateway (10.11.40.254), DNS (10.11.40.250), Hostname (lb1), and NTP (pool.ntp.org). On the right, there is a 'Please check the settings' message and navigation instructions: (TAB) Next Selection, (Shift TAB) Back Selection, and (Control c) To quit. At the bottom, there are three buttons: 'Back', 'Confirm', and a large red button that says 'Press Enter again to confirm'. The Loadbalancer.org logo and version (v 2.7.0) are in the bottom right corner.

Field	Value
Interface	ens33
Vlan	
Keyboard	gb
Email	harry.smith@example.com
Timezone	Europe/London
Address	10.11.40.60/24
Gateway	10.11.40.254
DNS	10.11.40.250
Hostname	lb1
NTP	pool.ntp.org

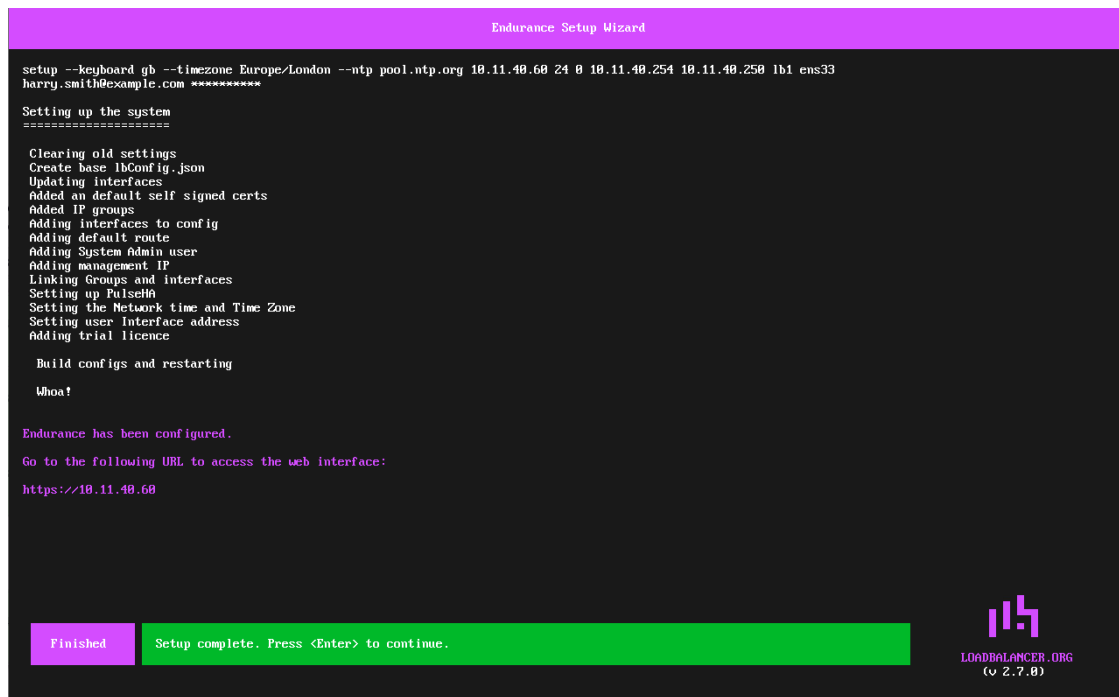
Navigation: (TAB) Next Selection, (Shift TAB) Back Selection, (Control c) To quit

Buttons: Back, Confirm, Press Enter again to confirm

LOADBALANCER.ORG (v 2.7.0)

Hit **Enter** again to confirm. All settings will be applied.

Once the configuration has been written, the **Setup Complete** screen will be displayed.



The image shows the 'Setup Complete' screen of the 'Endurance Setup Wizard'. It displays the command used for setup: 'setup --keyboard gb --timezone Europe/London --ntp pool.ntp.org 10.11.40.60 24 0 10.11.40.254 10.11.40.250 lb1 ens33 harry.smith@example.com *****'. Below this, it lists the steps taken: 'Setting up the system', 'Cleaning old settings', 'Create base lbConfig.json', 'Updating interfaces', 'Added an default self signed certs', 'Added IP groups', 'Adding interfaces to config', 'Adding default route', 'Adding System Admin user', 'Adding management IP', 'Linking Groups and interfaces', 'Setting up Pulse8', 'Setting the Network time and Time Zone', 'Setting user Interface address', 'Adding trial licence', 'Build configs and restarting', and 'Whoa!'. It then states 'Endurance has been configured.' and provides the URL 'https://10.11.40.60'. At the bottom, there is a green bar with the text 'Setup complete. Press <Enter> to continue.' and a 'Finished' button. The Loadbalancer.org logo and version (v 2.7.0) are in the bottom right corner.

```
setup --keyboard gb --timezone Europe/London --ntp pool.ntp.org 10.11.40.60 24 0 10.11.40.254 10.11.40.250 lb1 ens33 harry.smith@example.com *****
```

Setting up the system

- Cleaning old settings
- Create base lbConfig.json
- Updating interfaces
- Added an default self signed certs
- Added IP groups
- Adding interfaces to config
- Adding default route
- Adding System Admin user
- Adding management IP
- Linking Groups and interfaces
- Setting up Pulse8
- Setting the Network time and Time Zone
- Setting user Interface address
- Adding trial licence

Build configs and restarting

Whoa!

Endurance has been configured.

Go to the following URL to access the web interface:

<https://10.11.40.60>

Buttons: Finished, Setup complete. Press <Enter> to continue.

LOADBALANCER.ORG (v 2.7.0)

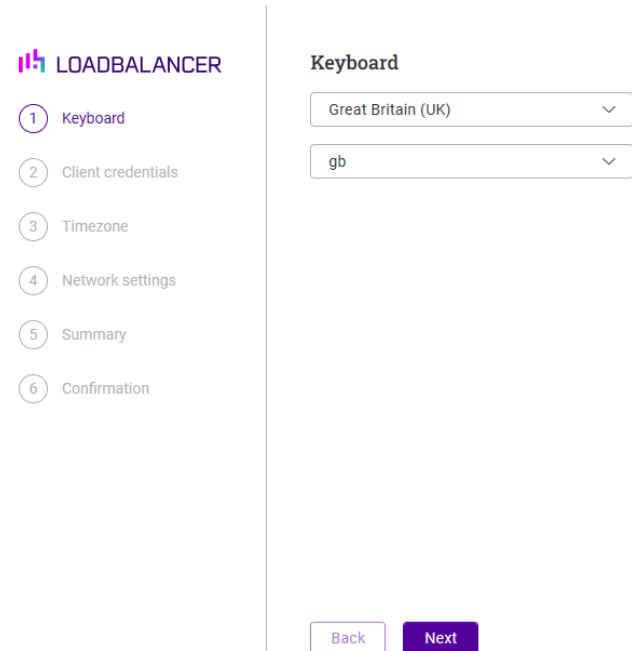
Hit **Enter** to exit the wizard and return to the command prompt.



10.2. Using a Browser

To start the web based setup process, browse to the IP address mentioned on the startup screen - if an IP address is not shown, login at the console as the "setup" user and select **Set Static IP** as mentioned previously.

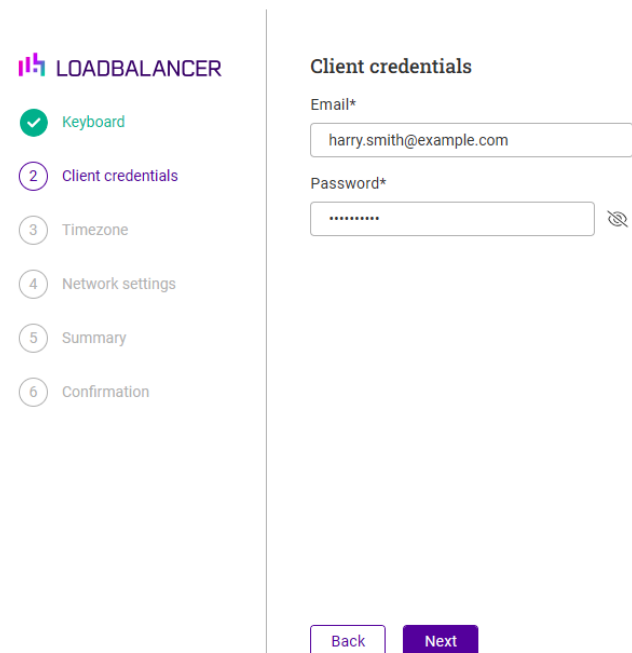
In the **keyboard** screen, select the required keyboard settings.



The screenshot shows the 'LOADBALANCER' setup interface. On the left, a sidebar lists six steps: 1 Keyboard (highlighted with a red circle), 2 Client credentials, 3 Timezone, 4 Network settings, 5 Summary, and 6 Confirmation. The main area is titled 'Keyboard' and contains two dropdown menus. The first dropdown is labeled 'Great Britain (UK)' and the second is labeled 'gb'. At the bottom, there are two buttons: 'Back' and 'Next'.

Click **Next** to continue.

In the **Client Credentials** screen, enter your *Email* and *Password*. These will be used to login to the appliance's WebUI.

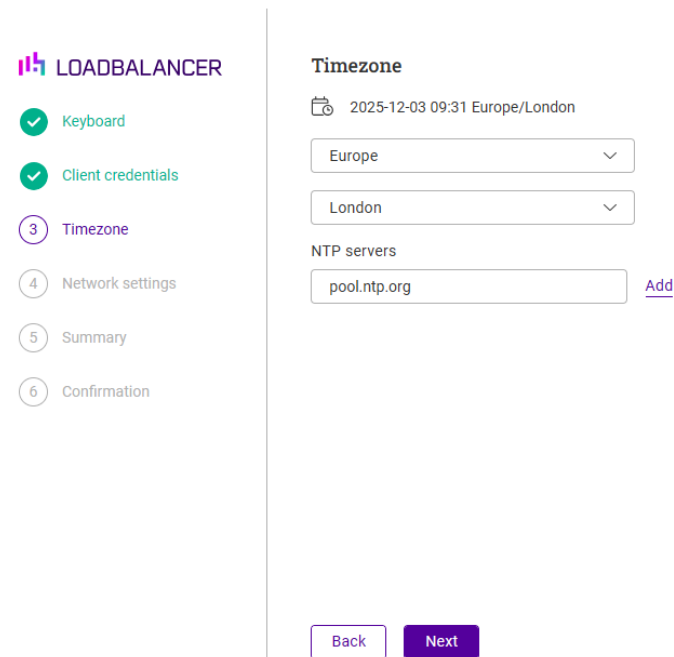


The screenshot shows the 'LOADBALANCER' setup interface. On the left, a sidebar lists six steps: 1 Keyboard (marked with a green checkmark), 2 Client credentials (highlighted with a red circle), 3 Timezone, 4 Network settings, 5 Summary, and 6 Confirmation. The main area is titled 'Client credentials' and contains two input fields. The first field is labeled 'Email*' and contains the text 'harry.smith@example.com'. The second field is labeled 'Password*' and contains a series of dots, with a toggle icon to its right. At the bottom, there are two buttons: 'Back' and 'Next'.

Click **Next** to continue.



In the **Timezone** screen, select the required timezone settings.



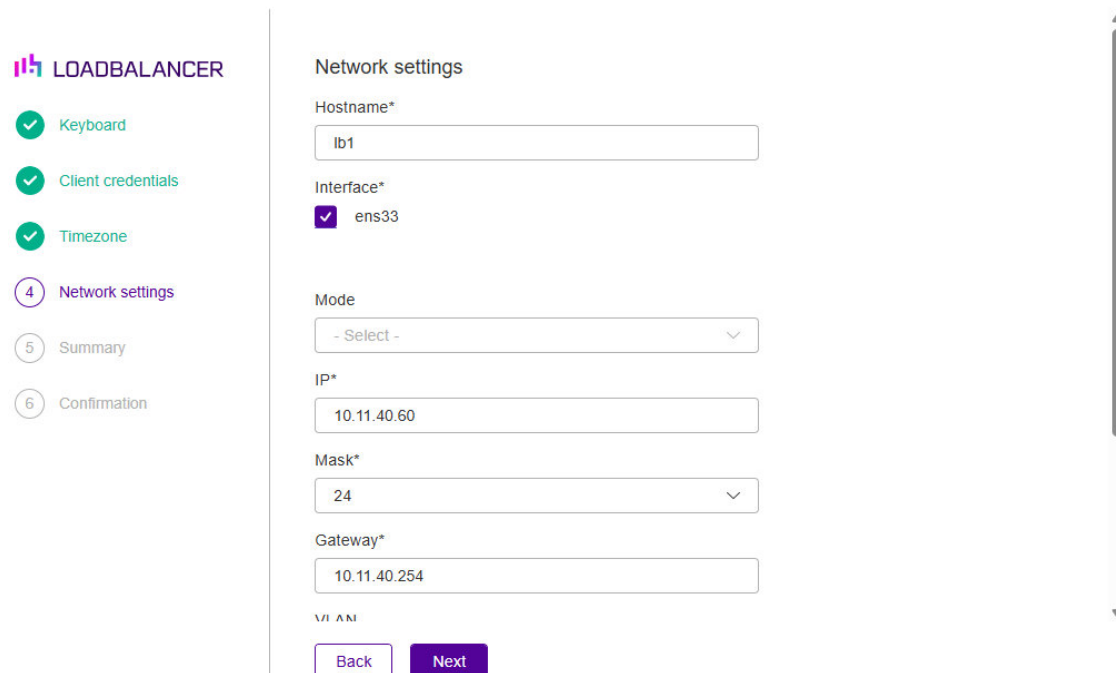
The screenshot shows the 'Timezone' configuration screen. On the left is a sidebar with the 'LOADBALANCER' logo and a list of steps: Keyboard (checked), Client credentials (checked), Timezone (active), Network settings, Summary, and Confirmation. The main area is titled 'Timezone' and shows a calendar icon with the date '2025-12-03 09:31 Europe/London'. Below this are two dropdown menus: the first is set to 'Europe' and the second to 'London'. There is an 'NTP servers' section with a text input containing 'pool.ntp.org' and an 'Add' link. At the bottom are 'Back' and 'Next' buttons.

Click **Next** to continue.

In the **Network Settings** screen, configure the required network settings.

 Note

This screen is used to configure the management interface. Additional interfaces must be configured using the WebUI.



The screenshot shows the 'Network settings' configuration screen. The sidebar on the left is identical to the previous screen, with 'Network settings' now active. The main area is titled 'Network settings' and contains several fields: 'Hostname*' with input 'lb1', 'Interface*' with a checked checkbox and 'ens33', 'Mode' with a dropdown set to '- Select -', 'IP*' with input '10.11.40.60', 'Mask*' with a dropdown set to '24', and 'Gateway*' with input '10.11.40.254'. At the bottom are 'Back' and 'Next' buttons. A vertical scrollbar is visible on the right side of the main content area.

- Specify an appropriate *Hostname*.
- If additional adapters were added to the VA, additional interfaces will be displayed as shown below:

Network settings

Hostname*

lb1



Interface*

☒ ens33

☐ ens34

☐ ens35

☐ ens36

- Select the required Interface(s). Multiple interfaces can be selected and bonded - in this case, select the required Bond **Mode** - the following options are available:
 - **Balance Round Robin** - This mode distributes network traffic across multiple network interfaces in a sequential, cyclic manner.
 - **Active Backup** - This mode places one of the adapters in a backup state and will only become active if the link is lost to the active adapter. This mode provides fault tolerance.
 - **802.3ad** - Dynamic link aggregation mode. This mode requires a switch that supports IEEE 802.3ad.
- Set the required **IP** Address and select the required subnet **Mask**.
- Configure an appropriate Default **Gateway**.
- Scroll down to display the remaining fields.

LOADBALANCER

- Keyboard
- Client credentials
- Timezone
- 4 Network settings**
- 5 Summary
- 6 Confirmation

☒ ens33

Mode
- Select -

IP*
10.11.40.60

Mask*
24

Gateway*
10.11.40.254

VLAN
0-4095

Domain name servers*
10.11.40.250 [Add](#)

[Back](#) [Next](#)

- If required, set a **VLAN** ID.
- Configure the required **Domain name servers**.

Click **Next** to continue.

In the **Summary** screen, check all settings. If you need to change anything, use the **Back** button.



LOADBALANCER

✓ Keyboard

✓ Client credentials

✓ Timezone

✓ Network settings

5 Summary

6 Confirmation

Summary

Please verify the information below is correct before proceeding.

Keymap	gb
Email	harry.smith@example.com
Timezone	Europe/London
NTP servers	pool.ntp.org
Interfaces	ens33
Bond mode	
IP	10.11.40.60
Mask	24
VLAN	
Gateway	10.11.40.254
Domain name servers	10.11.40.250
Hostname	lb1

Back

Submit

If everything is correct, click **Submit**.

Once the configuration has been written, the **Confirmation** screen will be displayed.

LOADBALANCER

✓ Keyboard

✓ Client credentials

✓ Timezone

✓ Network settings

✓ Summary

✓ Confirmation

Confirmation

Endurance has been successfully configured.

Click login to access your Endurance interface

Login

Click **Login** to open the WebUI login page for the appliance.

11. Accessing the Appliance WebUI

1. Using a browser, navigate to the following URL:

`https://<IP-address-configured-during-the-network-setup-wizard>`





Note

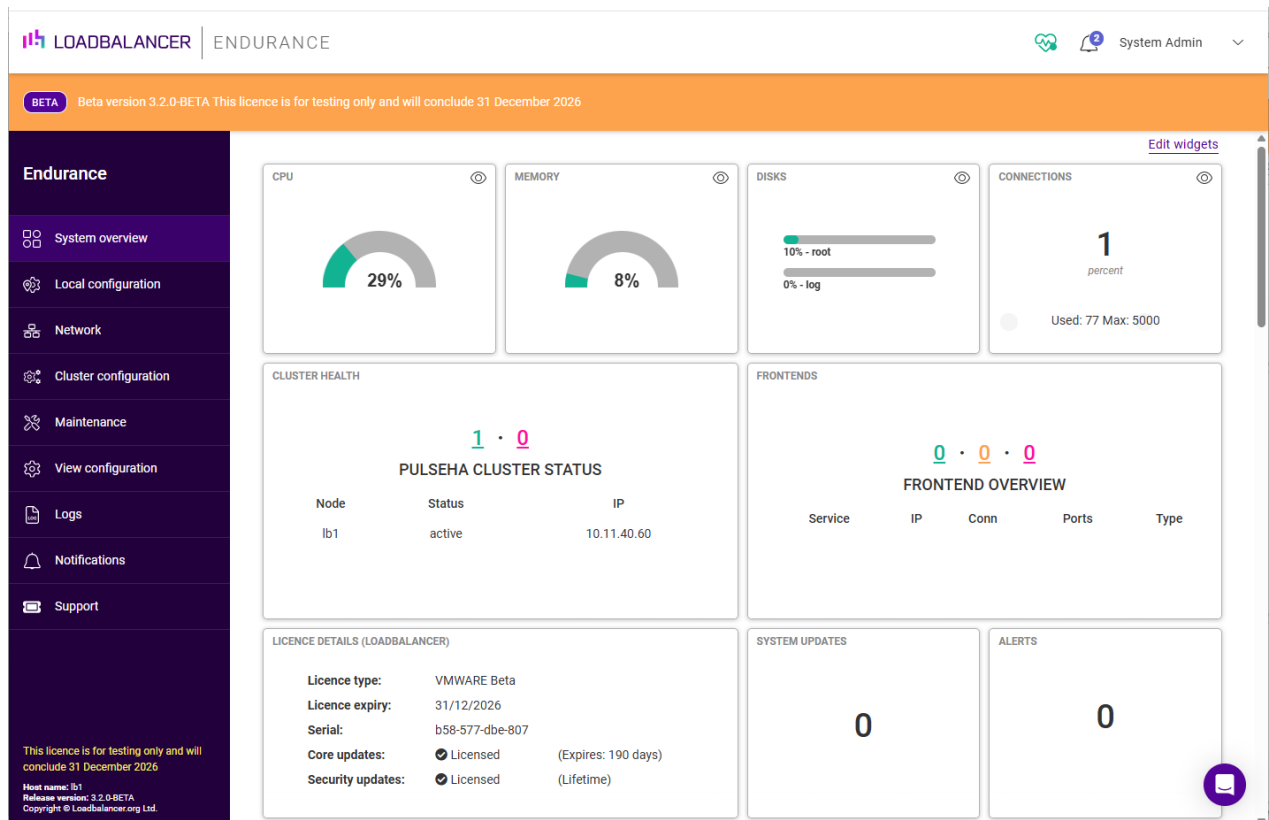
You'll receive a warning about the WebUI's SSL certificate. This is due to the default self signed certificate that is used. If preferred, you can upload your own certificate.

2. Log in to the WebUI using the following credentials:

Email: <configured-during-network-setup-wizard>

Password: <configured-during-network-setup-wizard>

Once logged in, the WebUI will be displayed as shown below:



11.1. Menu Options

The main menu is comprised of a primary and secondary menu. By default, the primary menu is always open. This can be customised to suit your preferences under **Maintenance > Account Settings**.

The primary menu options are:

- **System Overview** - Main system dashboard - includes key system information and summary of all load balanced services
- **Local Configuration** - Configure local host settings such as data & time, WebUI settings and SNMP
- **Network** - Configure network settings such as IP address, IP groups (subnets) DNS server(s)
- **Cluster Configuration** - Configure load balanced services, SSL certificates, HA and health checks
- **Maintenance** - Perform maintenance tasks such as backup and restore, service restarts and software updates



- **View Configuration** - Display the on-disk configuration for all settings configured
- **Logs** - View all system logs
- **Notifications** - View all system notifications
- **Support** - Create a support download, contact the support team & access useful resources

12. Appliance Software Update

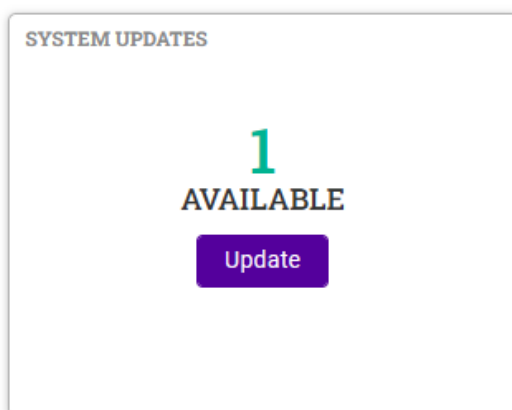
We recommend that the appliance is kept up to date to ensure that you benefit from the latest bug fixes, security updates and feature improvements. Both online and offline update are supported.

Note

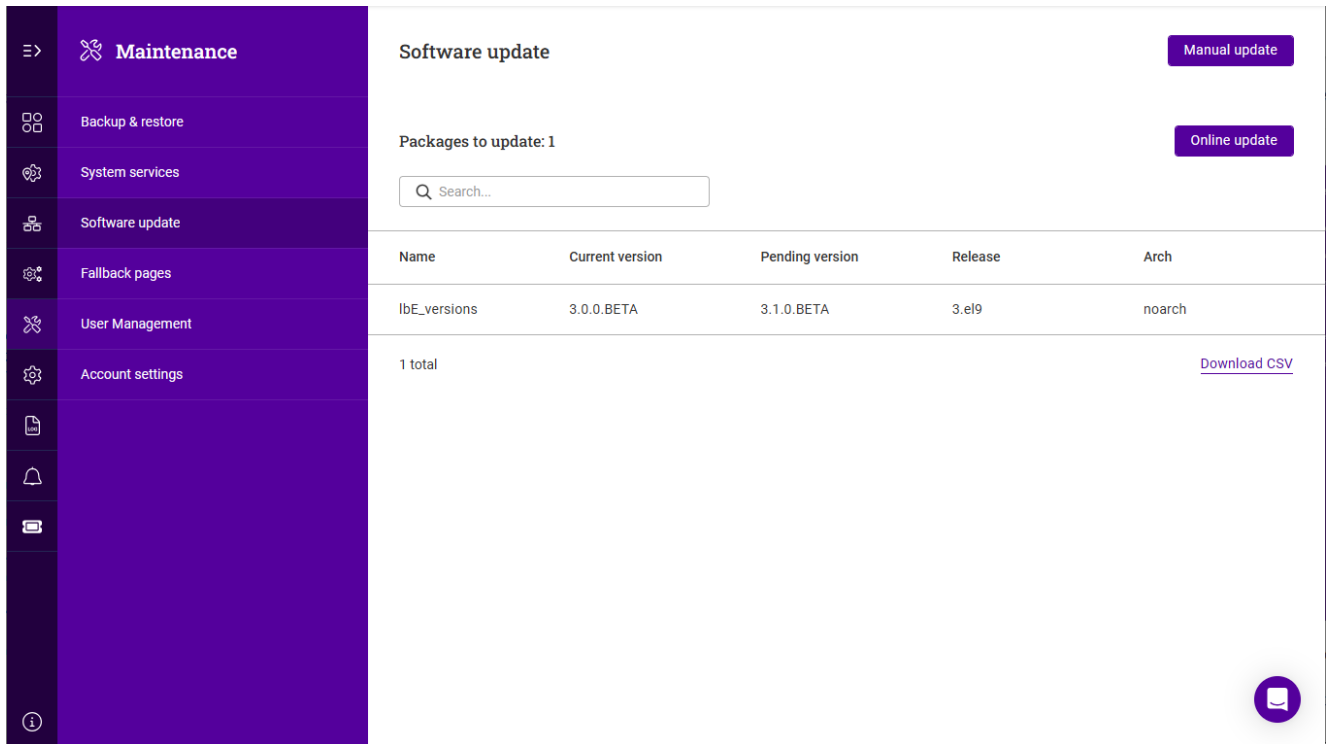
Services may need to be restarted/reloaded after the update process completes or in some cases a full appliance restart may be required.

12.1. Online Update

The appliance periodically contacts the Loadbalancer.org update server (**update.loadbalancer.org**) and checks for updates. If an update is found, a notification will be displayed on the main dashboard in the **SYSTEM UPDATES** widget as shown in the example below:



Click **Update**. Details of the update package(s) available will be displayed as shown in the example below:



Click **Online Update**, then click **Confirm** in the popup to start the update process.

The update process can take several minutes depending on download speed and the number of updates.

If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

12.2. Offline Update

If the appliance does not have access to the Internet, offline update can be used. To check if updates are available, please [contact our support team](#).

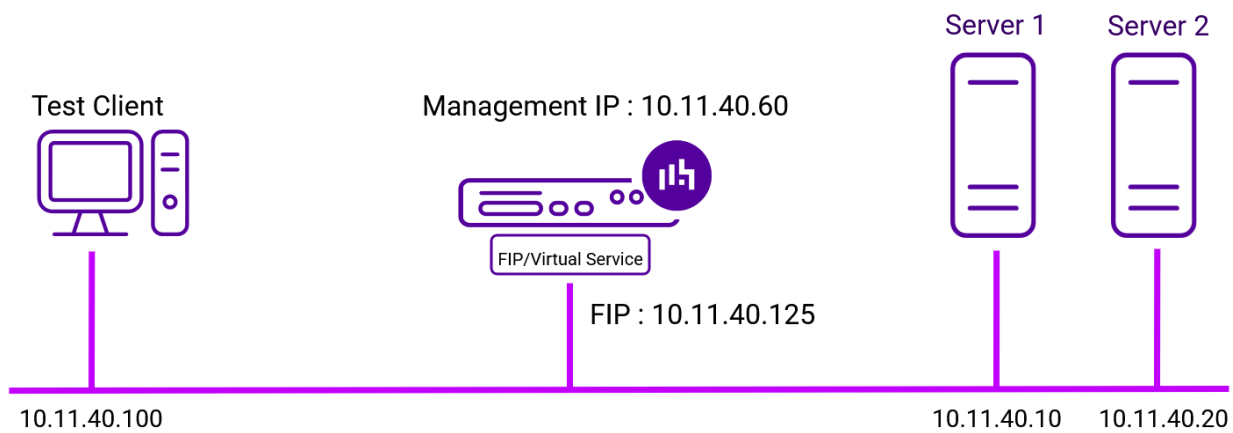
To perform an offline update:

1. Using the WebUI, navigate to: **Maintenance > Software update**.
2. Click **Manual update**.
3. Click **Choose File**, then browse to and select the update file.
4. If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

13. Configuring & Testing a Simple Load Balanced Test Environment

This configuration example illustrates how to configure a simple layer 7 load balanced test environment using the WebUI.

The following diagram and table describe the environment:



IP Address	Device	Notes
10.11.40.100	Test Client	
10.11.40.60	Load Balancer	the load balancer's management IP address
10.11.40.125	Load Balancer	the FIP/Service address (floating IP) - the address clients connect to
10.11.40.10	Web Server 1	the first Real Server
10.11.40.20	Web Server 2	the second Real Server

13.1. Deploy the Appliance

For details on deploying the appliance, please refer to [Virtual Appliance Deployment](#).

13.2. Run the Network Setup Wizard

For details on configuring network settings, please refer to [Configure Initial Network Settings](#).

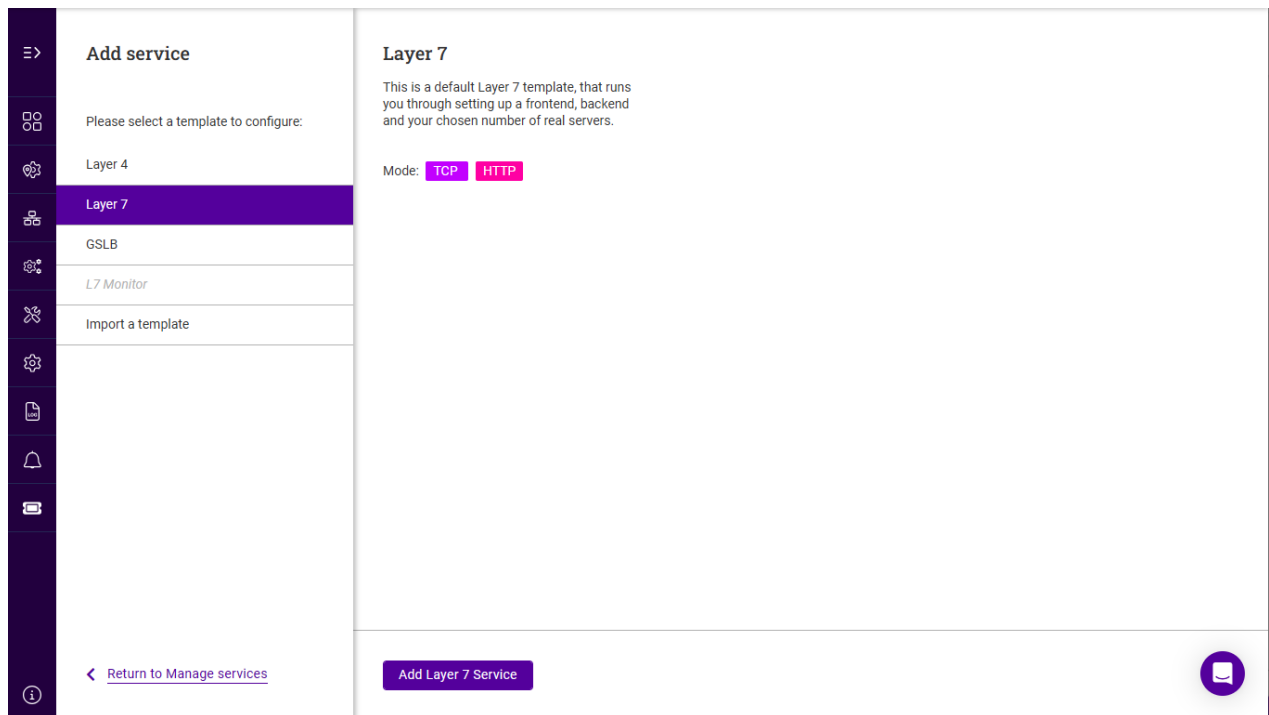
13.3. Configure Load Balanced Services

For details on accessing the WebUI, please refer to [Accessing the Appliance WebUI](#).

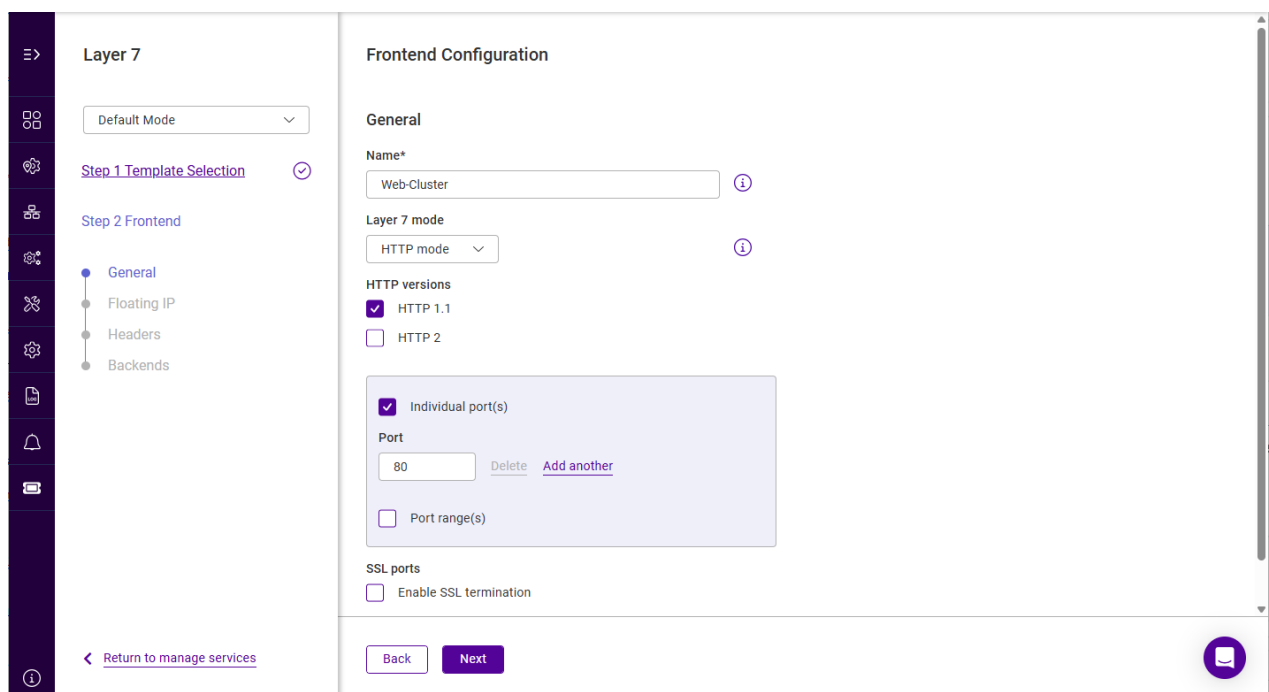
When using the WebUI, a template based wizard system is used to configure the service.

To add a new service:

1. Using the WebUI, navigate to **Cluster Configuration > Manage Services** and click **Add Service**.



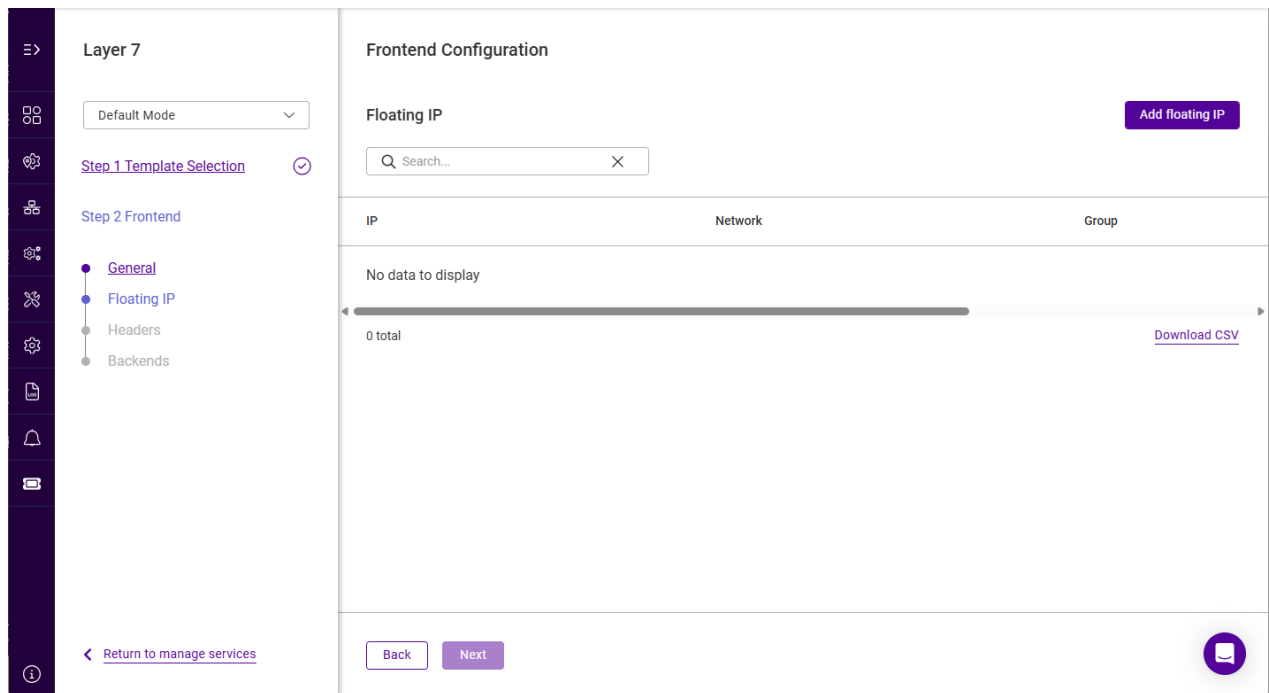
2. Click **Add Layer 7 Service**.



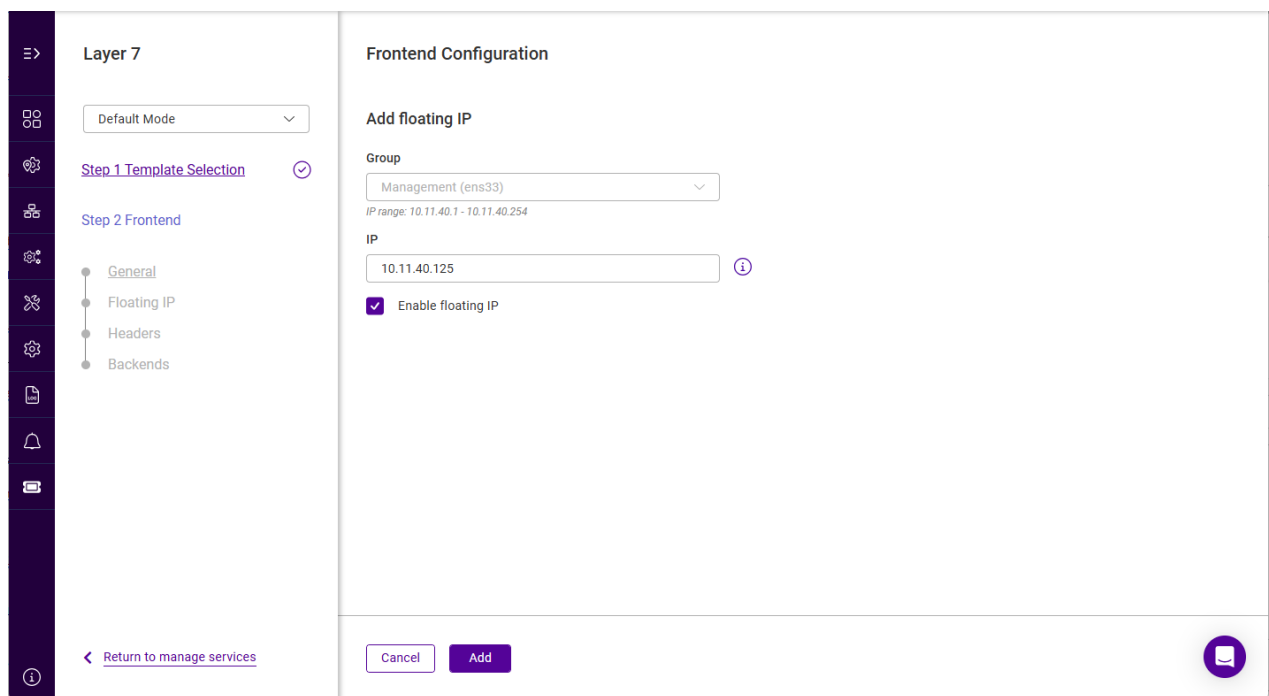
3. Specify a suitable name for the service, e.g. **Web-Cluster**.

4. Leave all other settings at their default value.

5. Click **Next**.



6. Click **Add floating IP**.



7. Specify a suitable *IP* address for the service, e.g. **10.11.40.125**.

8. Click **Add**.

The screenshot shows the 'Layer 7' configuration page. On the left sidebar, 'Step 2 Frontend' is selected, with 'Floating IP' highlighted in the sub-menu. The main panel is titled 'Frontend Configuration'. It features a 'Floating IP' section with a search bar and an 'Add floating IP' button. Below this is a table with columns 'IP', 'Network', and 'Group'. The table contains one entry: IP '10.11.40.125', Network 'IPv4 - 10.11.40.0/24', and Group 'Management (ens33)'. A 'Download CSV' link is present. At the bottom, there are 'Back' and 'Next' buttons, and a 'Return to manage services' link.

IP	Network	Group
10.11.40.125	IPv4 - 10.11.40.0/24	Management (ens33)

9. Ensure that the Floating IP is selected and click **Next** until the *Backends* screen is displayed.

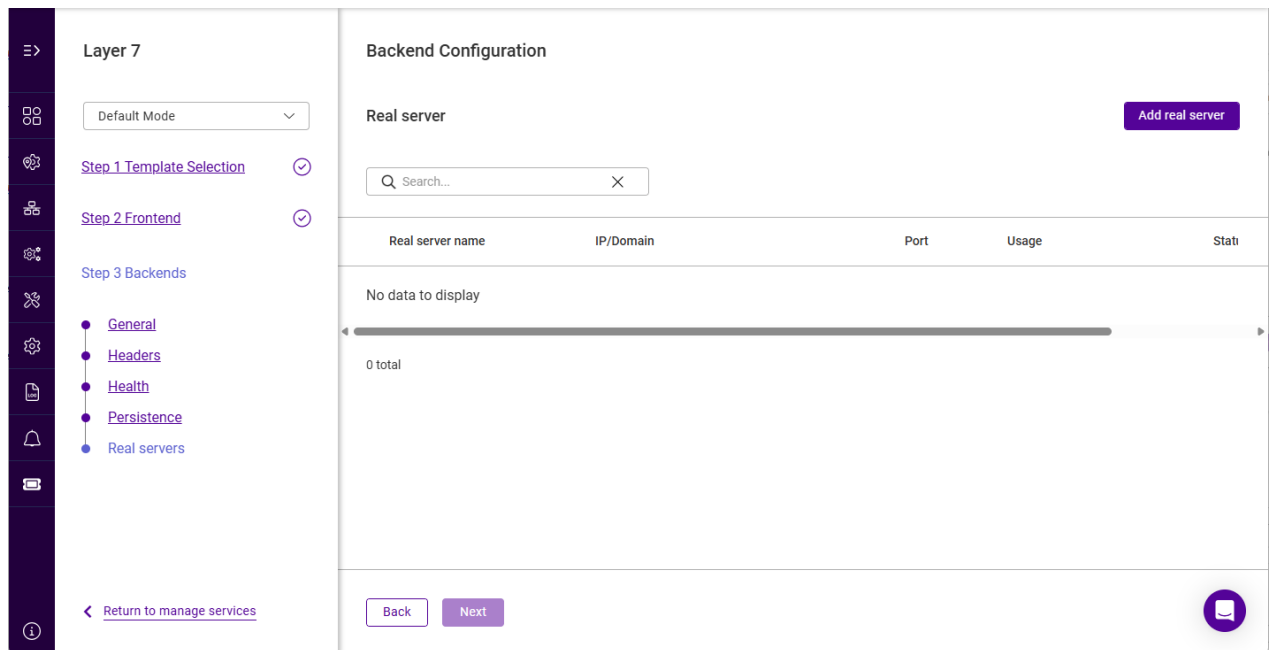
10. Click **Add backend**.

The screenshot shows the 'Layer 7' configuration page. On the left sidebar, 'Step 3 Backends' is selected, with 'General' highlighted in the sub-menu. The main panel is titled 'Backend Configuration'. It features a 'General' section with a 'Name' field containing 'Web-Cluster-Backend'. Below this is a 'Layer 7 mode' dropdown set to 'HTTP mode'. A note states: 'The backend mode is disabled as the linked frontend(s) is HTTP.' Under 'Connection distribution method', the 'Balance mode' dropdown is set to 'Weighted Least Connected'. In the 'SSL' section, the 'Encrypt to real server' checkbox is unchecked. At the bottom, there are 'Back' and 'Next' buttons, and a 'Return to manage services' link.

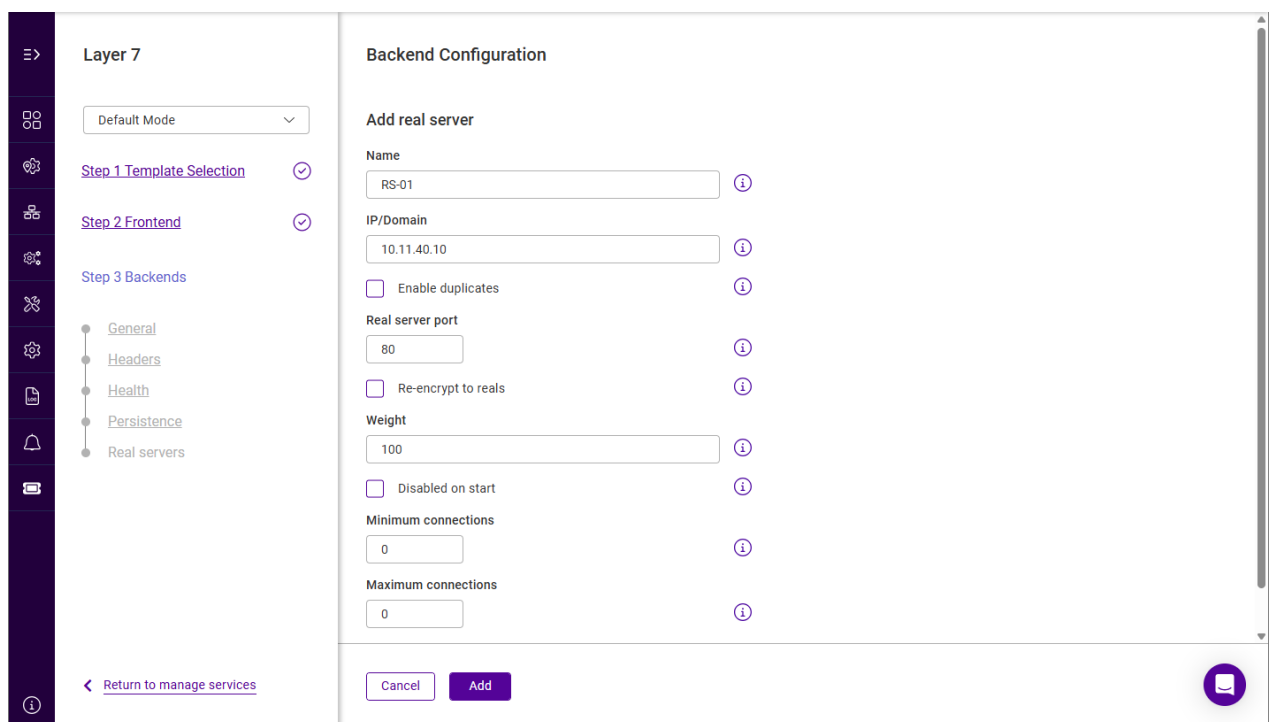
11. Specify a suitable *Name*, e.g. **Web-Cluster-Backend**.

12. Leave all other settings at their default value.

13. Click **Next** until the *Backend Configuration / Real server* screen is displayed.



14. Click **Add real server**.



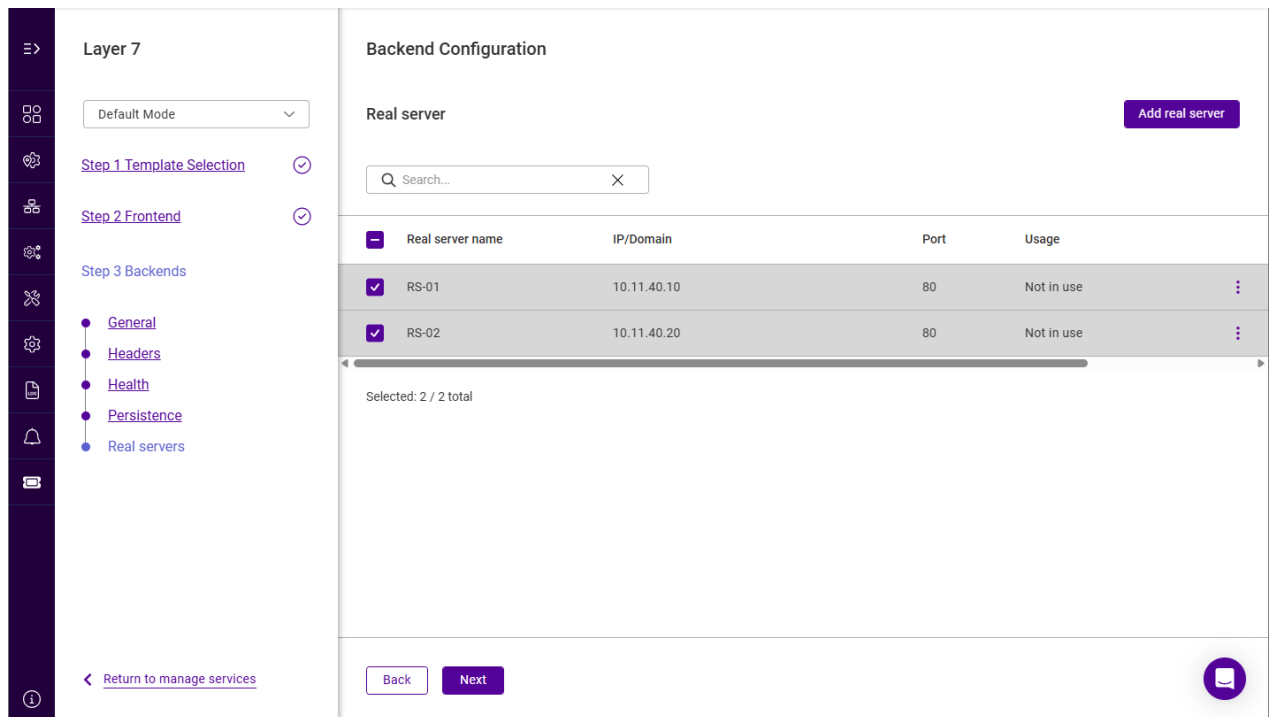
15. Specify a suitable **Name**, e.g. **RS-01**.

16. Specify the **IP address** of the first Real Server, e.g. **10.11.40.10**.

17. Leave all other settings at their default value.

18. Click **Add**.

19. Repeat these steps to add the second Real Server, e.g. **10.11.40.20**.



20. Click **Next**, then click **Submit** to create the service.

13.4. Apply New Settings

To finalize the new configuration, NF Tables must be updated. This can be done using the link in the blue notification slide out or by using the System services menu option:

1. Using the WebUI, navigate to: **Maintenance > System services**.
2. Click **Update** for NF Tables.

Note

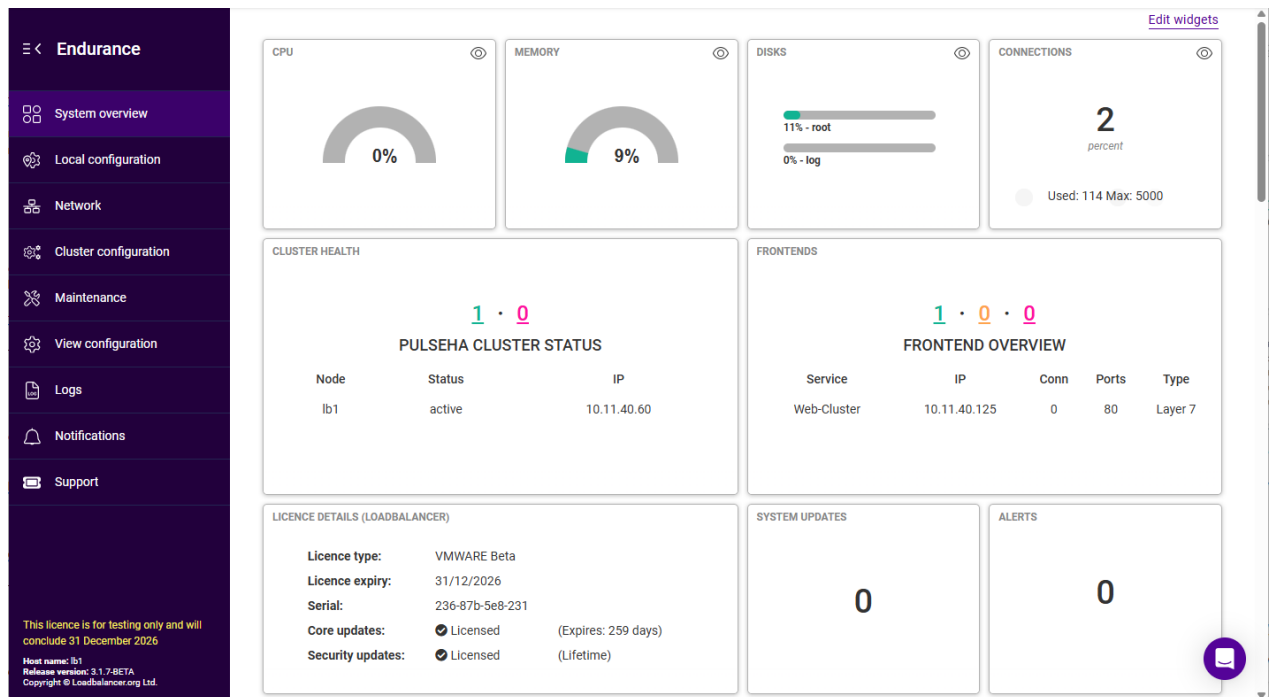
When additional services are added, NF Tables (the firewall service) will again require updating. In addition, HAProxy (the underlying service used for layer 7 Virtual Services) must also be reloaded.

14. Viewing & Modifying the Configuration

Once created, the service can be viewed and edited using the WebUI.

14.1. Viewing the Service Using the System Overview

1. In the WebUI, click **System Overview**.



- The **FRONTENDS** widget shows the **Web-Cluster** service.
- The colors indicate the status of all services, in this case only **Web-Cluster** has been added, it's healthy so "1" (i.e. one service) is displayed green.

14.2. Modifying the Service

14.2.1. Frontend

1. Navigate to *Cluster Configuration > Manage services*.
2. Click the three dots menu next to the service to be modified and select **Edit**.

The screenshot shows the 'Edit Layer 7 Service' configuration page. The sidebar on the left has a 'Frontend' section with sub-items: General, Floating IP, Headers, and Backends. The main content area is titled 'Frontend Configuration' and includes the following fields:

- General:**
 - Name*:** Web-Cluster
 - Layer 7 mode:** HTTP mode
 - HTTP versions:**
 - ☒ HTTP 1.1
 - ☐ HTTP 2
 - Port configuration:**
 - ☒ Individual port(s): Port 80 (with Delete and Add another buttons)
 - ☐ Port range(s)
 - SSL ports:**
 - ☐ Enable SSL termination

At the bottom, there are 'Back' and 'Next' buttons, and a 'Return to manage services' link in the sidebar.

3. Select the section to be modified In the area to the left, make the changes required, click **Next** to step through the remaining sections, then click **Submit** to save the changes.

14.2.2. Backend

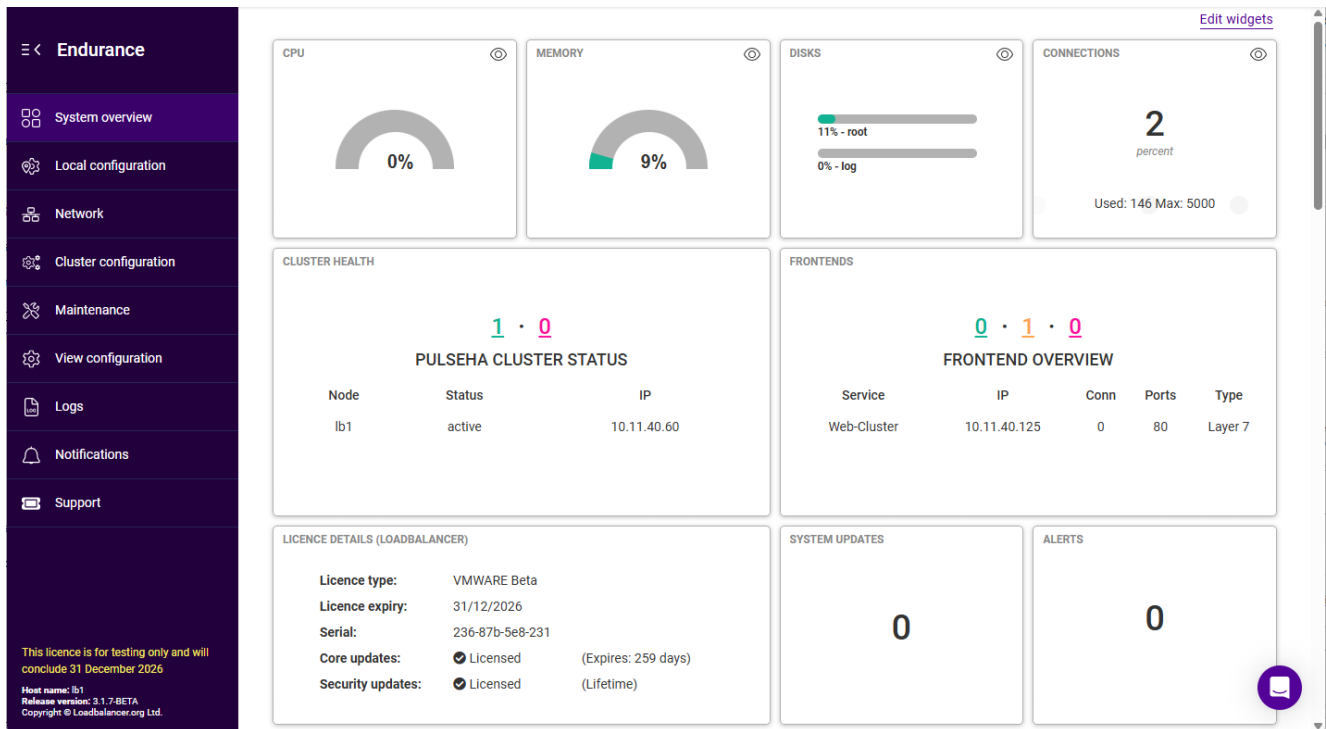
1. Navigate to *Cluster Configuration > Manage services*.
2. Click on the service to be modified.

3. Click **Edit backend**.

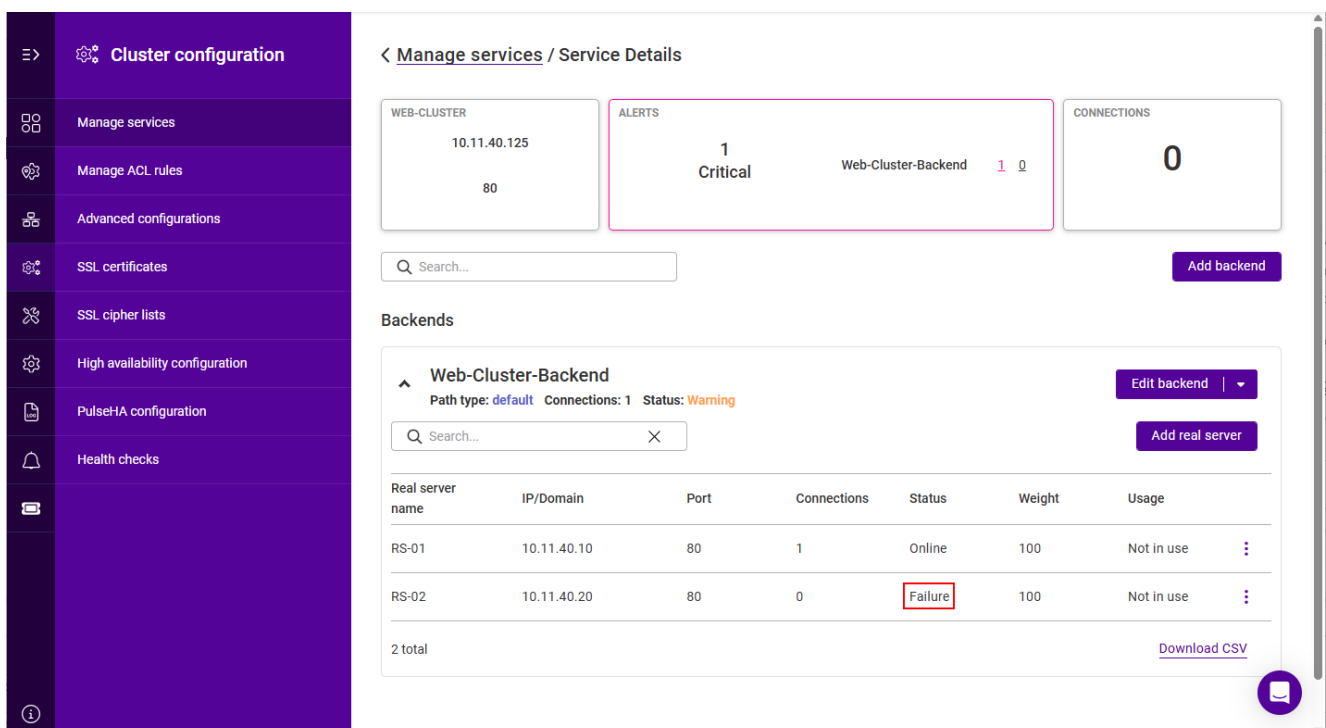
4. Select the section to be modified In the area to the left, make the changes required, click **Next** to step through the remaining sections, then click **Submit** to save the changes.

14.3. Verification & Testing

Verify that both Real Servers are up. In the example below, the orange "1" indicates that one of the Real Servers associated with *Web-Cluster* has failed its health check.



- Click into the *Web-Cluster* service.



The image above shows that RS-02 is failing its health check, this should be investigated and corrected - possible steps include:

1. Verify that the application/service is running on RS-02.
2. Make sure you can ping the Real Server from the load balancer - either from the console, via an SSH session or using the WebUI menu option: **Local Configuration > Execute shell command**.

If you run ping from the WebUI, use the form:

 **Note**

```
ping -c 4 10.11.40.20
```

The **-c 3** means ping 3 times then stop.

3. Verify that the application/service is up and available when accessed from the load balancer - various methods can be used:

- Using **nmap** at the console, via an SSH session or using the WebUI option: **Local Configuration > Execute Shell Command**:

```
nmap 10.11.40.20
```

The following is displayed for a working server:

```
Starting Nmap 7.92 ( https://nmap.org ) at 2025-08-08 08:20 UTC
Nmap scan report for 10.11.40.20
Host is up (0.00030s latency).
Not shown: 995 filtered tcp ports (no-response)
PORT      STATE SERVICE
80/tcp    open  http
135/tcp   open  msrpc
443/tcp   open  https
445/tcp   open  microsoft-ds
3389/tcp  open  ms-wbt-server
MAC Address: 00:50:56:82:0B:D3 (VMware)

Nmap done: 1 IP address (1 host up) scanned in 4.90 seconds
```

This shows that the server is listening on port 80.

- Using **curl** at the console, via an SSH session or using the WebUI option: **Local Configuration > Execute Shell Command**:

```
curl http://10.11.40.20
or
curl http://host.mydomain.com
```

For a working web server listening on port 80, the default page is returned.

4. Ensure that access to the Real Server is not blocked by a firewall.

Once both servers are up, browse to the FIP/Service address and verify that you see the web page from each Real Server:

- Halt RS-01 using the three dots menu next to the Real Server and verify that content is served by RS-02 on a browser refresh.
- Bring RS-01 back online, then halt RS-02 and verify that content is served by RS-01 on a browser refresh.

15. High Availability Configuration

We recommend that 2 appliances are deployed in an HA configuration to provide a highly available and resilient load balancing solution. Once configured, the nodes operate in an active / passive manner. Each node in the cluster uses **Pulse** to determine the state of the peer node. Should the active node suffer a failure, the passive device will take over.

Once a second node has been added, load balanced services and other settings can be configured and modified on either node, the peer node will automatically be kept in sync.

15.1. Non-Replicated Settings/Actions

Some settings/actions are not replicated to the peer, these are listed by WebUI menu option in the table below:

WebUI Main Menu Option	Sub Menu Option	Description
Local Configuration	All sub menu options	Date & time settings, WebUI settings, various physical advanced settings, SNMP, licensing, Prometheus collector setting and ADC Portal related settings
Network	Interfaces	Network interface settings
Network	IP Groups (Subnets)	Network subnet settings
Network	Static IP	Static IPs
Maintenance	Backup & Restore	Creation of backups
Maintenance	Software Update	Appliance software updates

 **Important** Make sure that the items listed above are configured/actioned on each node.

15.2. Configuring HA

1. Deploy a second appliance and [Configure Initial Network Settings](#).
2. Using the WebUI on the first appliance, navigate to: **Cluster Configuration > High-availability configuration**.
3. Click **Add node**.

Cluster configuration

Add node

Peer IP address*
10.11.40.61

Peer port*
443

Administrator email*
harry.smith@example.com

Administrator password*
.....

Cancel Confirm

- Specify the *Peer IP address*, *Administrator email* and *Administrator password* for the second node.
- Click **Confirm** and **Confirm** again in the popup to start the clustering process.

15.3. Viewing the HA Configuration & Status

Once complete, the HA configuration and the status of each node is displayed:

High availability configuration Add node

Search...

Hostname	Bind address	Latency	Services	Status	State	Last health check
ADC1	10.11.40.60		● Services	● Active	● Online	
ADC2	10.11.40.61	6ms	● Services	● Passive	● Online	Thu, 14 Aug 2025 12:00:54 UTC

In the image above:

- ADC1 is currently the active node.
- ADC2 could be made active and ADC1 passive by selecting the three dots menu next to ADC2 and clicking **Promote**.

16. Technical Support

If you need assistance or have any questions, please don't hesitate to contact our highly experienced Support Engineers. They are on hand to help 24 hours a day, 365 days a year.

Unlimited support is available for Loadbalancer.org products as follows:



- During any Beta product testing program.
- During the cover period of any active appliance support agreement. To purchase a support package, please contact: sales@loadbalancer.org.
- During the Enterprise VA free trial period. To download a trial, please go to [Virtual Appliance Trial](#).
- As specified in the relevant ADC Portal subscription level. For details, please refer to the [Loadbalancer Portal Product Datasheet](#).

16.1. Accessing Support

If you need assistance or have any questions, don't hesitate to contact us.

16.1.1. Using Online Chat from Endurance

Click the Intercom icon in the bottom right-hand corner to use the online chat function to communicate with our support team.

16.1.2. Create a Support Ticket from Endurance

To create a support ticket:

1. Navigate to **Support > Contact us**.
2. Click the raise support ticket option.
3. Enter the required details and click **Open Ticket**.

16.1.3. Email Us

To raise a support ticket via email, send a message to the support team : support@loadbalancer.org.

16.2. Technical Support Download (TSD)

The TSD is a compressed archive containing all log files and configuration files for the appliance. This can be attached with your email when first requesting support - this will help to minimize the time it takes to resolve your issue.

To create a TSD:

1. Navigate to **Support > Technical support download**.
2. Click **Download**.
3. Download the TSD from your browser.



Note

If the TSD is too large to send via email, our Support Engineers can supply details of our upload server.

16.3. Remote Support

When required, a remote session can be arranged to assist with trouble shooting. **Zoom** is the preferred tool and is used where possible.





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About Loadbalancer.org

Loadbalancer.org's mission is to ensure that its clients' businesses are never interrupted. The load balancer experts ask the right questions to get to the heart of what matters, bringing a depth of understanding to each deployment. Experience enables Loadbalancer.org engineers to design less complex, unbreakable solutions - and to provide exceptional personalized support.

