



# **Deployment Guide NGINX**

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# Table of Contents

|  |              |
|--|--------------|
| <b>Chapter 1: Introduction.</b>                      | <b>4</b>     |
| <br><b>Chapter 2: Configure the LoadMaster.</b>      | <br><b>6</b> |
| Enable Subnet Originating Requests Globally.         | 6            |
| Create the HTTP/HTTPS Virtual Services.              | 7            |
| Create the NGINX HTTP Virtual Service.               | 8            |
| Create the NGINX HTTPS Virtual Service.              | 9            |
| Create the NGINX HTTPS Offloaded Virtual Service.    | 11           |
| Create the NGINX HTTPS Re-encrypt Virtual Service.   | 12           |
| Create the Mail Virtual Services.                    | 14           |
| Create the NGINX IMAP Virtual Service.               | 15           |
| Create the NGINX IMAP with STARTTLS Virtual Service. | 16           |
| Create the NGINX IMAPS Virtual Service.              | 17           |
| Create the NGINX IMAPS Offloaded Virtual Service.    | 19           |
| Create the NGINX POP Virtual Service.                | 20           |
| Create the NGINX POP with STARTTLS Virtual Service.  | 21           |
| Create the NGINX POPS Virtual Service.               | 21           |
| Create the NGINX POPS Offloaded Virtual Service.     | 22           |
| Create the NGINX SMTP Virtual Service.               | 23           |
| Create the NGINX SMTP with STARTTLS Virtual Service. | 24           |
| Create the NGINX SMTPS Virtual Service.              | 25           |
| Create the NGINX SMTPS Offloaded Virtual Service.    | 26           |

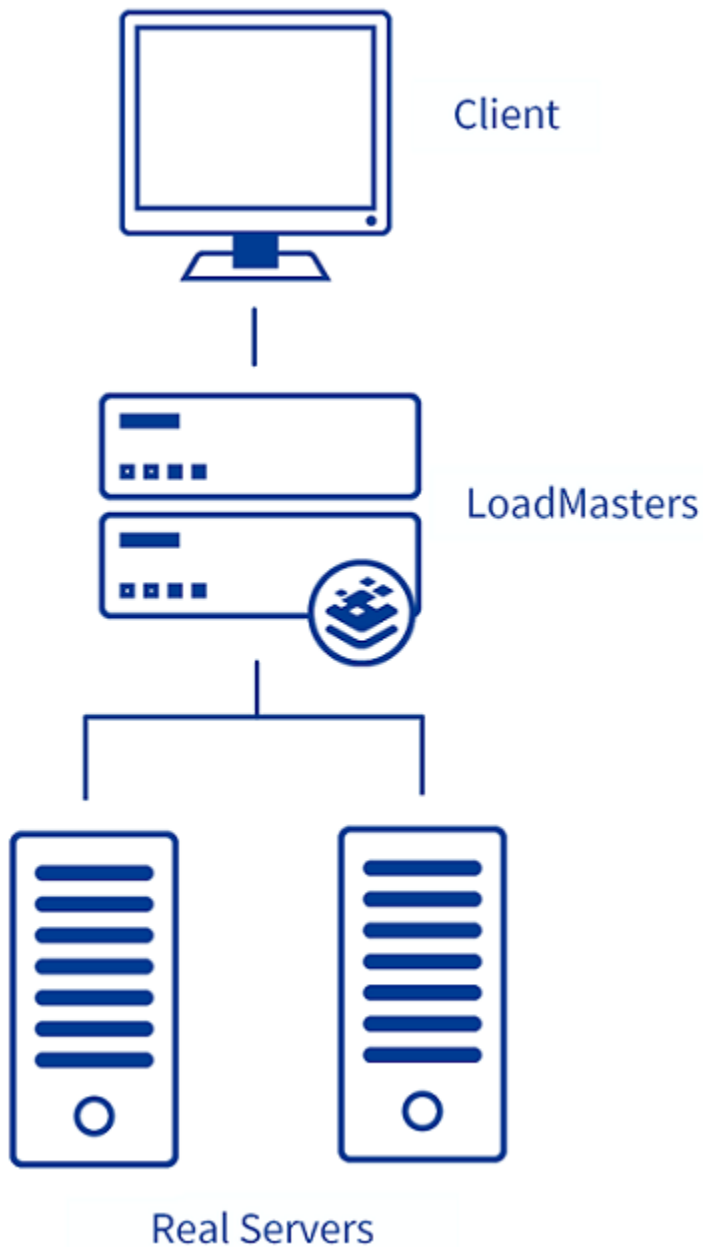
# Introduction

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## Introduction

NGINX is a free, open-source, high-performance HTTP server and reverse proxy, as well as an IMAP/POP3 proxy server. NGINX is known for its high performance, stability, rich feature set, simple configuration, and low resource consumption.

NGINX is one of a handful of servers written to address the C10K problem. Unlike traditional servers, NGINX does not rely on threads to handle requests. Instead it uses a much more scalable event-driven (asynchronous) architecture. This architecture uses small, but more importantly, predictable amounts of memory under load. Even if you do not expect to handle thousands of simultaneous requests, you can still benefit from NGINX's high-performance and small memory footprint. NGINX scales in all directions: from the smallest Virtual Private Server (VPS) all the way up to large clusters of servers.



The LoadMaster offers advanced Layer 4 and Layer 7 server load balancing, SSL Acceleration and a multitude of other advanced Application Delivery and Optimization (ADC) features. The LoadMaster can load balance the NGINX workload. The LoadMaster intelligently and efficiently distributes user traffic among the servers so that users get the best experience possible.

This document provides guidance and recommended settings on how to load balance NGINX with a LoadMaster. The Progress Kemp Support Team is available to provide solutions for scenarios not explicitly defined.

The Progress Kemp support site can be found at: <https://support.kemptechnologies.com>.

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## Configure the LoadMaster

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### Configure the LoadMaster

Follow the steps in the sections below to configure the LoadMaster with the recommended settings to load balance the NGINX workload.

#### Related Links

- [Enable Subnet Originating Requests Globally](#)
- [Create the HTTP/HTTPS Virtual Services](#)
- [Create the Mail Virtual Services](#)

## Enable Subnet Originating Requests Globally

### Enable Subnet Originating Requests Globally

It is best practice to enable the **Subnet Originating Requests** option globally.

In a one-armed setup (where the Virtual Service and Real Servers are on the same network/subnet) **Subnet Originating Requests** is usually not needed. However, enabling **Subnet Originating Requests** should not affect the routing in a one-armed setup.

In a two-armed setup where the Virtual Service is on network/subnet A, for example, and the Real Servers are on network B, **Subnet Originating Requests** should be enabled on LoadMasters with firmware version 7.1-16 and above.



When **Subnet Originating Requests** is enabled, the Real Server sees traffic originating from 10.20.20.21 (LoadMaster eth1 address) and responds correctly in most scenarios.

With **Subnet Originating Requests** disabled, the Real Server sees traffic originating from 10.0.0.15 (LoadMaster Virtual Service address on **eth0**) and responds to **eth0** which could cause asymmetric routing.

When **Subnet Originating Requests** is enabled globally, it is automatically enabled on all Virtual Services. If the **Subnet Originating Requests** option is disabled globally, you can choose whether to enable **Subnet Originating Requests** on a per-Virtual Service basis.

To enable **Subnet Originating Requests** globally, follow the steps below:

1. In the main menu of the LoadMaster User Interface (UI), go to **System Configuration > Miscellaneous Options > Network Options**.
2. Select the **Subnet Originating Requests** check box.

## Create the HTTP/HTTPS Virtual Services

Refer to the sections below for recommended settings for the HTTP/HTTPS Virtual Services.

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**Note:** It is not possible to load balance HTTP and HTTPS traffic on the same Virtual Service. Using additional ports is not a solution because these are different protocols. To load balance HTTP and HTTPS traffic, you must create two Virtual Services:

- One for HTTP traffic (normally port 80)
- One for HTTPS traffic (normally port 443)

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### Related Links

- [Create the NGINX HTTP Virtual Service](#)
- [Create the NGINX HTTPS Virtual Service](#)
- [Create the NGINX HTTPS Offloaded Virtual Service](#)
- [Create the NGINX HTTPS Re-encrypt Virtual Service](#)

## Create the NGINX HTTP Virtual Service

### Create the NGINX HTTP Virtual Service

Follow the steps below to create and configure the recommended settings for the NGINX HTTP Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.181"/>     |
| Port                    | <input type="text" value="80"/>                |
| Service Name (Optional) | <input type="text" value="Nginx HTTP"/>        |
| Use Template            | <input type="text" value="Select a Template"/> |
| Protocol                | <input type="text" value="tcp"/>               |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **80** in the **Port** text box.
4. Enter a recognizable **Service Name**, for example **Nginx HTTP**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section          | Option                  | Value            |
|------------------|-------------------------|------------------|
| Standard Options | Persistence Mode        | Active Cookie    |
|                  | Cookie name             | JSESSIONID       |
|                  | Timeout                 | 1 Hour           |
|                  | Scheduling Method       | least connection |
|                  | Idle Connection Timeout | 900              |



| Section      | Option | Value |
|--------------|--------|-------|
| Real Servers | URL    | /     |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **80** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX HTTPS Virtual Service

### Create the NGINX HTTPS Virtual Service

Follow the steps below to create and configure the recommended settings for the NGINX HTTPS Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.183"/>     |
| Port                    | <input type="text" value="443"/>               |
| Service Name (Optional) | <input type="text" value="Nginx HTTPS"/>       |
| Use Template            | <input type="text" value="Select a Template"/> |
| Protocol                | <input type="text" value="tcp"/>               |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **443** in the **Port** text box.
4. Enter a recognizable **Service Name**, for example **Nginx HTTPS**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section             | Option                      | Value             | Comments  |
|---------------------|-----------------------------|-------------------|---|
| Standard Options    | Persistence Mode            | Source IP Address |   |
|                     | Timeout                     | 1 Hour            |   |
|                     | Scheduling Method           | least connection  |   |
|                     | Idle Connection Timeout     | 900               |   |
| Advanced Properties | Add a Port 80 Redirector VS | https://%h%s      | <p>Click <b>Add HTTP Redirector</b>. This automatically creates a redirect on port 80.</p> <p><b>Note:</b> This field disappears after it is clicked.</p> |
| Real Servers        | URL                         | /                 |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **443** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Configure the NGINX HTTPS HTTP Redirect Virtual Service

Clicking the **Add HTTP Redirector** button automatically creates a port 80 redirect Virtual Service. This is optional, but the purpose of this Virtual Service is to redirect any clients who have connected using HTTP to the HTTPS Virtual Service. We also recommend changing the **Real Server Check Method** and **Persistence Mode** to **None**.

## Create the NGINX HTTPS Offloaded Virtual Service

### Create the NGINX HTTPS Offloaded Virtual Service

Follow the steps below to create and configure the recommended settings for the NGINX HTTPS Offloaded Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.186"/>         |
| Port                    | <input type="text" value="443"/>                   |
| Service Name (Optional) | <input type="text" value="Nginx HTTPS Offloaded"/> |
| Use Template            | <input type="text" value="Select a Template"/>     |
| Protocol                | <input type="text" value="tcp"/>                   |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **443** in the **Port** text box.
4. Enter a recognizable **Service Name**, for example **Nginx HTTPS Offloaded**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section          | Option            | Value            | Comments   |
|------------------|-------------------|------------------|--|
| Standard Options | Persistence Mode  | Active Cookie    | You need to enable <b>SSL Acceleration</b> before you can select <b>Active Cookie</b> as the <b>Persistence Mode</b> . |
|                  | Timeout           | 1 Hour           |  |
|                  | Cookie name       | JSESSIONID       |  |
|                  | Scheduling Method | least connection |  |

| Section                    | Option                      | Value                          | Comments  |
|----------------------------|-----------------------------|--------------------------------|---|
|                            | Idle Connection Timeout     | 900                            |   |
| SSL Properties             | SSL Acceleration            | Enabled                        |   |
|                            | Supported Protocols         | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing.   |
|                            | Cipher Set                  | BestPractices                  |   |
| <b>Advanced Properties</b> | Add a Port 80 Redirector VS | https://%h%s                   | Click <b>Add HTTP Redirector</b> . This automatically creates a redirect on port 80.<br><br><b>Note:</b> This field disappears after it is clicked. |
| <b>Real Servers</b>        | URL                         | /                              |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **443** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Configure the NGINX HTTPS Offloaded HTTP Redirect Virtual Service

Clicking the **Add HTTP Redirector** button automatically creates a port 80 redirect Virtual Service. This is optional, but the purpose of this Virtual Service is to redirect any clients who have connected using HTTP to the HTTPS Virtual Service. We also recommend changing the **Real Server Check Method** and **Persistence Mode** to **None**.

## Create the NGINX HTTPS Re-encrypt Virtual Service

### Create the NGINX HTTPS Re-encrypt Virtual Service

Follow the steps below to create and configure the recommended settings for the NGINX HTTPS Re-encrypt Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.

## Please Specify the Parameters for the Virtual Service.

---

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.190"/>       |
| Port                    | <input type="text" value="443"/>                 |
| Service Name (Optional) | <input type="text" value="Nginx HTTPS Re-encr"/> |
| Use Template            | <input type="text" value="Select a Template"/>   |
| Protocol                | <input type="text" value="tcp"/>                 |

---

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **443** in the **Port** text box.
4. Enter a recognizable **Service Name**, for example **Nginx HTTPS Re-encrypt**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section          | Option                  | Value                          | Comments   |
|------------------|-------------------------|--------------------------------|--|
| Standard Options | Persistence Mode        | Active Cookie                  | You need to enable <b>SSL Acceleration</b> before you can select <b>Active Cookie</b> as the <b>Persistence Mode</b> . |
|                  | Timeout                 | 1 Hour                         |  |
|                  | Cookie name             | JSESSIONID                     |  |
|                  | Scheduling Method       | least connection               |  |
|                  | Idle Connection Timeout | 900                            |  |
| SSL Properties   | SSL Acceleration        | Enabled                        | While this workload may not support TLS1.3 yet, we   |
|                  | Reencrypt               | Enabled                        |  |
|                  | Supported Protocols     | TLS1.0, TLS1.1, TLS1.2, TLS1.3 |  |

| Section                    | Option                      | Value         | Comments  |
|----------------------------|-----------------------------|---------------|---|
|                            |                             |               | recommend enabling it for future proofing.  |
|                            | Cipher Set                  | BestPractices |   |
| <b>Advanced Properties</b> | Add a Port 80 Redirector VS | https://%h%s  | <p>Click <b>Add HTTP Redirector</b>. This automatically creates a redirect on port 80.</p> <p><b>Note:</b> This field disappears after it is clicked.</p> |
| <b>Real Servers</b>        | URL                         | /             |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **443** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Configure the NGINX HTTPS Re-encrypt HTTP Redirect Virtual Service

Clicking the **Add HTTP Redirector** button automatically creates a port 80 redirect Virtual Service. This is optional, but the purpose of this Virtual Service is to redirect any clients who have connected using HTTP to the HTTPS Virtual Service. We also recommend changing the **Real Server Check Method** and **Persistence Mode** to **None**.

## Create the Mail Virtual Services

### Create the Mail Virtual Services

Refer to the sections below for recommended settings for the mail Virtual Services.

#### Related Links

- [Create the NGINX IMAP Virtual Service](#)
- [Create the NGINX IMAP with STARTTLS Virtual Service](#)

- [Create the NGINX IMAPS Virtual Service](#)
- [Create the NGINX IMAPS Offloaded Virtual Service](#)
- [Create the NGINX POP Virtual Service](#)
- [Create the NGINX POP with STARTTLS Virtual Service](#)
- [Create the NGINX POPS Virtual Service](#)
- [Create the NGINX POPS Offloaded Virtual Service](#)
- [Create the NGINX SMTP Virtual Service](#)
- [Create the NGINX SMTP with STARTTLS Virtual Service](#)
- [Create the NGINX SMTPS Virtual Service](#)
- [Create the NGINX SMTPS Offloaded Virtual Service](#)

## Create the NGINX IMAP Virtual Service

### Create the NGINX IMAP Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.200"/>     |
| Port                    | <input type="text" value="143"/>               |
| Service Name (Optional) | <input type="text" value="Nginx IMAP"/>        |
| Use Template            | <input type="text" value="Select a Template"/> |
| Protocol                | <input type="text" value="tcp"/>               |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **143** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                  | Value |
|-------------------------|-------------------------|-------|
| <b>Standard Options</b> | Idle Connection Timeout | 3600  |
| <b>Real Servers</b>     | Checked Port            | 143   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **143** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX IMAP with STARTTLS Virtual Service

### Create the NGINX IMAP with STARTTLS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |   |
|-------------------------|---|
| Virtual Address         | <input type="text" value="10.154.11.202"/>        |
| Port                    | <input type="text" value="143"/>                  |
| Service Name (Optional) | <input type="text" value="Nginx IMAP with STAR"/> |
| Use Template            | <input type="text" value="Select a Template"/>    |
| Protocol                | <input type="text" value="tcp"/>                  |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **143** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.



7. Configure the settings as shown in the following table:

| Section                 | Option                  | Value                          | Comments  |
|-------------------------|-------------------------|--------------------------------|---|
| Basic Properties        | Service Type            | STARTTLS protocols             |   |
| <b>Standard Options</b> | Idle Connection Timeout | 3600                           |   |
| <b>SSL Properties</b>   | Supported Protocols     | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing. |
|                         | Cipher Set              | BestPractices                  |   |
| <b>Real Servers</b>     | Checked Port            | 143                            |   |

8. Add the Real Servers:

1. Expand the **Real Servers** section.
2. Click **Add New**.
3. Type the address of the Real Server.
4. Type **143** as the **Port**.
5. Click **Add This Real Server**.
6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX IMAPS Virtual Service

### Create the NGINX IMAPS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Add New**.

## Please Specify the Parameters for the Virtual Service.

---

|                         |  |
|-------------------------|--|
| Virtual Address         | <input type="text" value="10.154.11.210"/>     |
| Port                    | <input type="text" value="993"/>               |
| Service Name (Optional) | <input type="text" value="Nginx IMAPS"/>       |
| Use Template            | <input type="text" value="Select a Template"/> |
| Protocol                | <input type="text" value="tcp"/>               |

---

2. Type a valid IP address in the **Virtual Address** text box.
  1. Type **993** as the **Port**.
3. Enter a recognizable **Service Name**.
4. Ensure **tcp** is selected as the **Protocol**.
5. Click **Add this Virtual Service**.
6. Configure the settings as shown in the following table:

| Section                 | Option                     | Value |
|-------------------------|----------------------------|-------|
| <b>Standard Options</b> | Server Initiating Protocol | IMAP4 |
|                         | Idle Connection Timeout    | 3600  |
| <b>Real Servers</b>     | Checked Port               | 993   |

7. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **993** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX IMAPS Offloaded Virtual Service

### Create the NGINX IMAPS Offloaded Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Add New**.

Please Specify the Parameters for the Virtual Service.

|                         |   |
|-------------------------|---|
| Virtual Address         | <input type="text" value="10.154.11.220"/>        |
| Port                    | <input type="text" value="993"/>                  |
| Service Name (Optional) | <input type="text" value="Nginx IMAPS Offloade"/> |
| Use Template            | <input type="text" value="Select a Template"/>    |
| Protocol                | <input type="text" value="tcp"/>                  |

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **993** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section          | Option                     | Value                          | Comments  |
|------------------|----------------------------|--------------------------------|---|
| Standard Options | Server Initiating Protocol | IMAP4                          |   |
|                  | Idle Connection Timeout    | 3600                           |   |
| SSL Properties   | SSL Acceleration           | Enabled                        |   |
|                  | Supported Protocols        | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing. |
|                  | Cipher Set                 | BestPractices                  |   |

| Section             | Option       | Value | Comments |
|---------------------|--------------|-------|----------|
| <b>Real Servers</b> | Checked Port | 143   |          |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **993** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX POP Virtual Service

### Create the NGINX POP Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **110** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                  | Value |
|-------------------------|-------------------------|-------|
| <b>Standard Options</b> | Idle Connection Timeout | 3600  |
| <b>Real Servers</b>     | Checked Port            | 110   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **110** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX POP with STARTTLS Virtual Service

### Create the NGINX POP with STARTTLS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **110** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                  | Value                          | Comments  |
|-------------------------|-------------------------|--------------------------------|---|
| <b>Basic Properties</b> | Service Type            | STARTTLS protocols             |   |
| <b>Standard Options</b> | Idle Connection Timeout | 3600                           |   |
| <b>SSL Properties</b>   | Supported Protocols     | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing. |
|                         | Cipher Cet              | BestPractices                  |   |
| <b>Real Servers</b>     | Checked Port            | 110                            |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **110** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX POPS Virtual Service

### Create the NGINX POPS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.

2. Type a valid IP address in the **Virtual Address** text box.
3. Type **995** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                      | Value |
|-------------------------|-----------------------------|-------|
| <b>Standard Options</b> | Server Initiating Protocols | POP3  |
|                         | Idle Connection Timeout     | 3600  |
| <b>Real Servers</b>     | Checked Port                | 995   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **995** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX POPS Offloaded Virtual Service

### Create the NGINX POPS Offloaded Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **995** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                      | Value | Comments |
|-------------------------|-----------------------------|-------|----------|
| <b>Standard Options</b> | Server Initiating Protocols | POP3  |          |
|                         |                             |       |          |

| Section        | Option                   | Value                          | Comments  |
|----------------|--------------------------|--------------------------------|---|
|                | Idle Connection Timeout  | 3600                           |   |
| SSL Properties | SSL Acceleration         | Enabled                        |   |
|                | Supported Protocols      | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing. |
|                | Cipher Set               | BestPractices                  |   |
| Real Servers   | Real Server Check Method | Mailbox (POP3) Protocol        |   |
|                | Checked Port             | 110                            |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **995** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX SMTP Virtual Service

### Create the NGINX SMTP Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **587** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                      | Value             |
|-------------------------|-----------------------------|-------------------|
| <b>Standard Options</b> | Server Initiating Protocols | SMTP              |
|                         | Persistence Mode            | Source IP Address |
|                         | Persistence Timeout         | 1 Hour            |
|                         | Idle Connection Timeout     | 120               |
| <b>Real Servers</b>     | Checked Port                | 587               |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **587** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX SMTP with STARTTLS Virtual Service

### Create the NGINX SMTP with STARTTLS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **25** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option              | Value              | Comments |
|-------------------------|---------------------|--------------------|----------|
| <b>Basic Properties</b> | Service Type        | STARTTLS protocols |          |
| <b>Standard Options</b> | Persistence Mode    | Source IP Address  |          |
|                         | Persistence Timeout | 1 Hour             |          |



| Section             | Option                  | Value                           | Comments  |
|---------------------|-------------------------|---------------------------------|---|
|                     | Idle Connection Timeout | 120                             |   |
| SSL Properties      | Supported Protocols     | TLS1.0, TLS 1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we recommend enabling it for future proofing. |
|                     | Cipher Set              | BestPractices                   |   |
| <b>Real Servers</b> | Checked Port            | 25                              |   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **25** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX SMTPS Virtual Service

### Create the NGINX SMTPS Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **587** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                      | Value             |
|-------------------------|-----------------------------|-------------------|
| <b>Standard Options</b> | Server Initiating Protocols | SMTP              |
|                         | Persistence Mode            | Source IP Address |
|                         | Persistence Timeout         | 1 Hour            |

| Section             | Option                  | Value |
|---------------------|-------------------------|-------|
|                     | Idle Connection Timeout | 120   |
| <b>Real Servers</b> | TCP Connection Only     | 587   |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **587** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.

## Create the NGINX SMTPS Offloaded Virtual Service

### Create the NGINX SMTPS Offloaded Virtual Service

Follow the steps below to create and configure the recommended settings for the Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.
2. Type a valid IP address in the **Virtual Address** text box.
3. Type **587** in the **Port** text box.
4. Enter a recognizable **Service Name**.
5. Ensure **tcp** is selected as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section                 | Option                      | Value                          | Comments   |
|-------------------------|-----------------------------|--------------------------------|--|
| <b>Standard Options</b> | Server Initiating Protocols | SMTP                           |  |
|                         | Persistence Mode            | Source IP Address              |  |
|                         | Persistence Timeout         | 1 Hour                         |  |
|                         | Idle Connection Timeout     | 120                            |  |
| SSL Properties          | SSL Acceleration            | Enabled                        |  |
|                         | Supported Protocols         | TLS1.0, TLS1.1, TLS1.2, TLS1.3 | While this workload may not support TLS1.3 yet, we |

| Section             | Option                   | Value                | Comments                                   |
|---------------------|--------------------------|----------------------|--|
|                     |                          |                      | recommend enabling it for future proofing. |
|                     | Cipher Set               | BestPractices        |  |
| <b>Real Servers</b> | Real Server Check Method | Mail (SMTP) Protocol |  |
|                     | Checked Port             | 25                   |  |

8. Add the Real Servers:
  1. Expand the **Real Servers** section.
  2. Click **Add New**.
  3. Type the address of the Real Server.
  4. Type **587** as the **Port**.
  5. Click **Add This Real Server**.
  6. Repeat the steps above to add more Real Servers as needed, based on the environment.