# Apache HTTP

## Deployment Guide

UPDATED: 23 March 2021

## Copyright Notices

# Table of Contents



# 1 Introduction

The Apache HTTP Server is the world's most used web server software. Apache development began in 1995 and played a key role in the initial growth of the World Wide Web and quickly became the dominant HTTP server. It has remained most popular since 1996 and in 2009 it became the first web server software to serve more than 100 million websites.

The Kemp LoadMaster is used to load balance the Apache HTTP workload. The LoadMaster offers advanced Layer 4 and Layer 7 server load balancing, SSL Acceleration and a multitude of other advanced Application Delivery Controller (ADC) features. The LoadMaster intelligently and efficiently distributes user traffic among the application servers so that users get the best experience possible.

## 1.1 Document Purpose

This document provides the recommended LoadMaster settings used when load balancing the Apache HTTP workload. The Kemp Support Team is available to provide solutions for scenarios not explicitly defined. The Kemp support site can be found at: https://support.kemptechnologies.com

## 1.2 Intended Audience

This document is intended to be read by anyone who is interested in configuring the LoadMaster to optimize the Apache HTTP server.

## 1.3 Related Firmware Version

Published with LMOS version 7.2.48.4 LTS. This document has not required substantial changes since 7.2.48.4 LTS. However, the content is in sync with the latest LoadMaster LTS firmware.

# 2 Apache HTTP Template

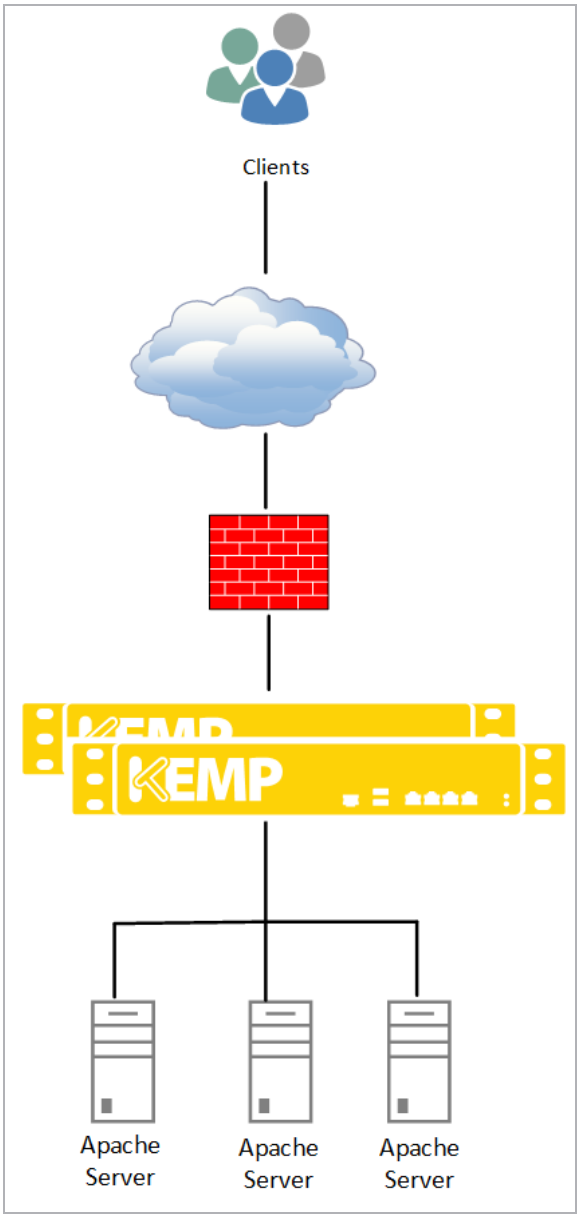
Kemp has developed a template containing our recommended settings for Apache HTTP. You can install this template on the LoadMaster and use it when creating Virtual Services. Using a template automatically populates the settings in the Virtual Services, which is quicker and easier than manually configuring each Virtual Service. If needed, you can make changes to any of the Virtual Service settings after using the template.

Download released templates from the **Templates** section on the Kemp documentation page: http://kemptechnologies.com/documentation/.

For more information and steps on how to import and use templates, refer to the **Virtual Services and Templates, Feature Description**.

For steps on how to manually add and configure each of the Virtual Services, refer to the **Configure the LoadMaster** section of this document**.**

# 3 Architecture



# 4 Configure the LoadMaster

The deployed Apache HTTP environment determines which of the following setups is used.

## 4.1 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:

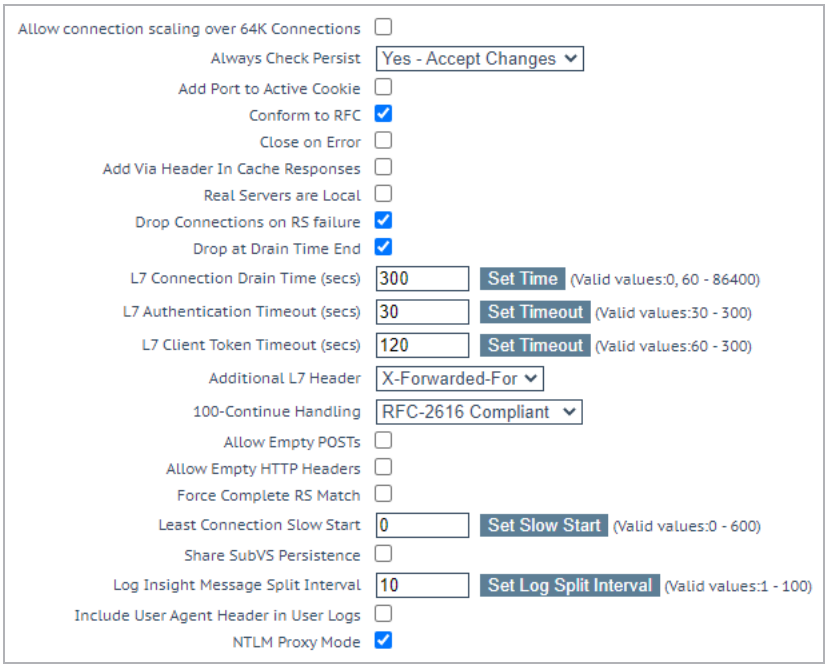
1. In the main menu of the LoadMaster User Interface (UI), go to **System Configuration > Miscellaneous Options > Network Options**.
2. Select the **Subnet Originating Requests** check box.

## 4.2 Enable Check Persist Globally

It is recommended that you change the **Always Check Persist** option to **Yes – Accept Changes**. Use the following steps:

1. Go to **System Configuration > Miscellaneous Options > L7 Configuration**.




2. Click the **Always Check Persist** drop-down arrow and select **Yes – Accept Changes**.

## 4.3 Create the Apache HTTP Virtual Services

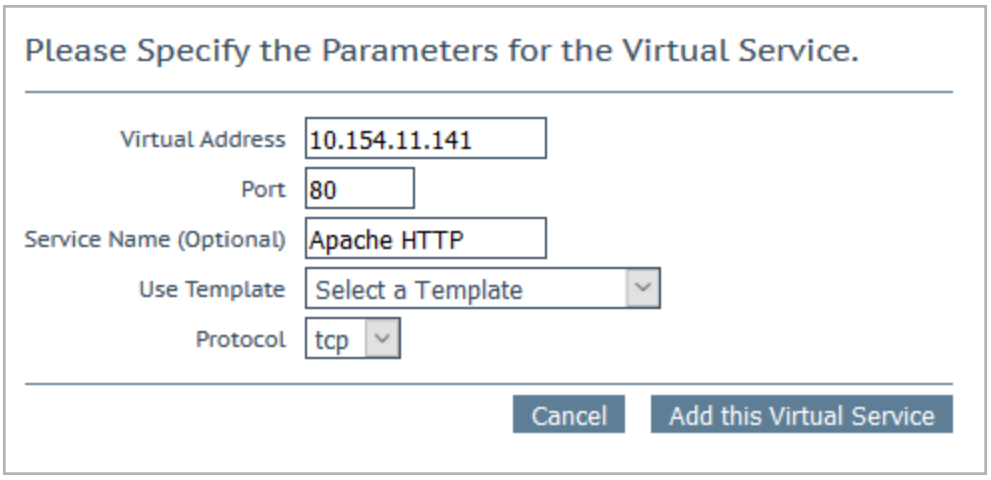
The following sections describe the recommended settings for the Apache HTTP Virtual Services.

### 4.3.1 Create an Apache HTTP Virtual Service

The following are the steps involved and the recommended settings to configure the Apache HTTP Virtual Service:

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




2. Type a valid **Virtual Address**.
3. Type **80** as the **Port**.
4. Enter a recognizable **Service Name**, such as Apache HTTP Virtual Service.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

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

7. Add the Real Servers:
   a) Expand the **Real Servers** section.
   b) Click **Add New**.
   c) Enter the address of the relevant Real Server.
   d) Complete the other fields as required.
   e) Click **Add this Real Server** then click **OK** to the pop-up message.

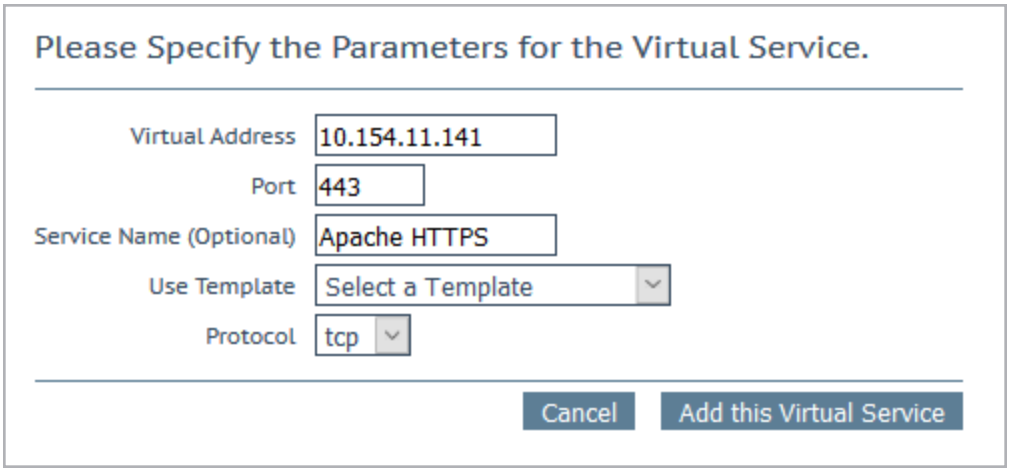
 

f) Repeat the steps above to add more Real Servers as needed, based on your environment.

### 4.3.2 Create an Apache HTTPS Virtual Service

The following are the steps involved and the recommended settings to configure the Apache HTTPS Virtual Service:

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




2. Type a valid **Virtual Address**.
3. Type **443** as the **Port**.
4. Enter a recognizable **Service Name**, such as Apache HTTPS Virtual Service.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

| Section | Option | Value | Comment |
|---|---|---|---|
| Standard Options | Persistence Mode | Source IP Address | |
| | Timeout | 1 Hour | |
| | Scheduling Method | least connection | |
| | Idle Connection Timeout | 900 | |

| Section | Option | Value | Comment |
|---|---|---|---|
| Advanced Properties | Add a Port 80 Redirector VS | https://%h%s | Click **Add HTTP Redirector**. This automatically creates a redirect on port 80. |

7. Add the Real Servers:

   a) Expand the **Real Servers** section.

   b) Click **Add New**.

   c) Enter the address of the relevant Real Server.

   d) Complete the other fields as required.

   e) Click **Add this Real Server** then click **OK** to the pop-up message.

   f) Repeat the steps above to add more Real Servers as needed, based on your environment.

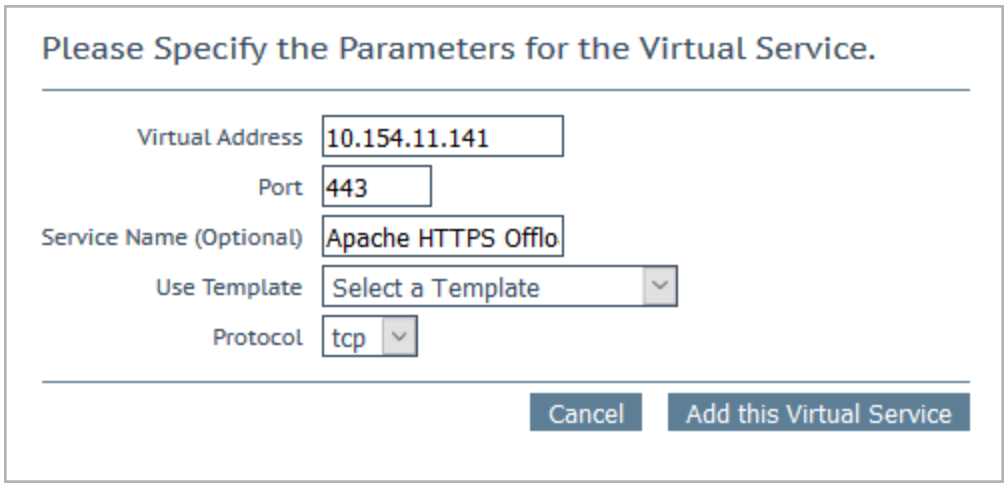
**Create an Apache HTTPS Redirect Virtual Service**

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. Kemp also recommends changing the **Real Server Check Method** and **Persistence Mode** to **None**.

### 4.3.3 Create an Apache HTTPS Offloaded Virtual Service

The following are the steps involved and the recommended settings to configure the Apache HTTPS Offloaded Virtual Service:

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




2. Type a valid **Virtual Address**.
3. Type **443** as the **Port**.
4. Enter a recognizable Service Name, such as **Apache HTTPS Offloaded** Virtual Service.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

| Section | Option | Value | Comments |
|---|---|---|---|
| Standard Options | Persistence Mode | Active Cookie | |
| | Timeout | 1 Hour | |
| | Cookie name | JSESSSIONID | |
| | Scheduling Method | least connection | |
| | Idle Connection Timeout | 900 | |
| SSL Properties | SSL Acceleration | Enabled | |
| | Cipher Set | BestPractices | |
| Advanced Properties | Add a Port 80 Redirector VS | https://%h%s | Click **Add HTTP Redirector**. This automatically creates a redirect on port 80. |

7. Add the Real Servers:

    a) Expand the **Real Servers** section.

    b) Click **Add New**.

    c) Enter the address of the relevant Real Server.

    d) Complete the other fields as required.

    e) Click **Add this Real Server** then click **OK** to the pop-up message.

    f) Repeat the steps above to add more Real Servers as needed, based on your environment.

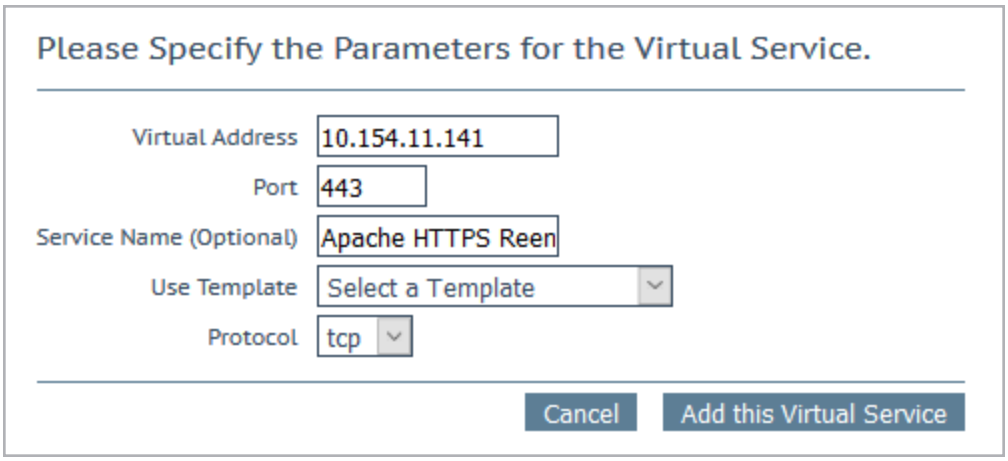
**Create an Apache HTTPS Offloaded Redirect Virtual Service**

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. Kemp also recommends changing the **Persistence Mode** to **None**.

### 4.3.4 Create an Apache HTTPS Re-encrypt Virtual Service

The following are the steps involved and the recommended settings to configure the Apache HTTPS Re-encrypt Virtual Service:

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




2. Type a valid **Virtual Address**.

3. Type **443** as the **Port**.

4. Enter a recognizable **Service Name**, such as Apache HTTPS Re-encrypt Virtual Service.

5. Click **Add this Virtual Service**.

6. Configure the settings as recommended in the following table:

| Section | Option | Value | Comments |
|---|---|---|---|
| Standard Options | Persistence Mode | Active Cookie | |
| | Timeout | 1 Hour | |
| | Cookie name | JSESSSIONID | |
| | Scheduling Method | least connection | |
| | Idle Connection Timeout | 900 | |
| SSL Properties | SSL Acceleration | Enabled | |
| | Cipher Set | Best Practices | |
| Advanced Properties | Add a Port 80 Redirector VS | https://%h%s | Click **Add HTTP Redirector**. This automatically creates a redirect on port 80. |

7. Add the Real Servers:

   a) Expand the **Real Servers** section.

   b) Click **Add New**.

   c) Enter the address of the relevant Real Server.

   d) Complete the other fields as required.

   e) Click **Add this Real Server** then click **OK** to the pop-up message.

   f) Repeat the steps above to add more Real Servers as needed, based on your environment.

**Create an Apache HTTPS Re-encrypt 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. Kemp also recommends changing the **Real Server Check Method** and **Persistence Mode** to **None**.

# References

Unless otherwise specified, the following documents can be found at http://kemptechnologies.com/documentation.

**Virtual Services and Templates, Feature Description**

# Last Updated Date

This document was last updated on 23 March 2021.