



TFTP

Deployment Guide

UPDATED: 27 July 2023

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1 Introduction

TFTP is a free, open source IPv6 ready application that includes DHCP, TFTP, DNS, SNTP and Syslog servers as well as a TFTP client.

The Kemp LoadMaster is used to load balance the TFTP Server 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.

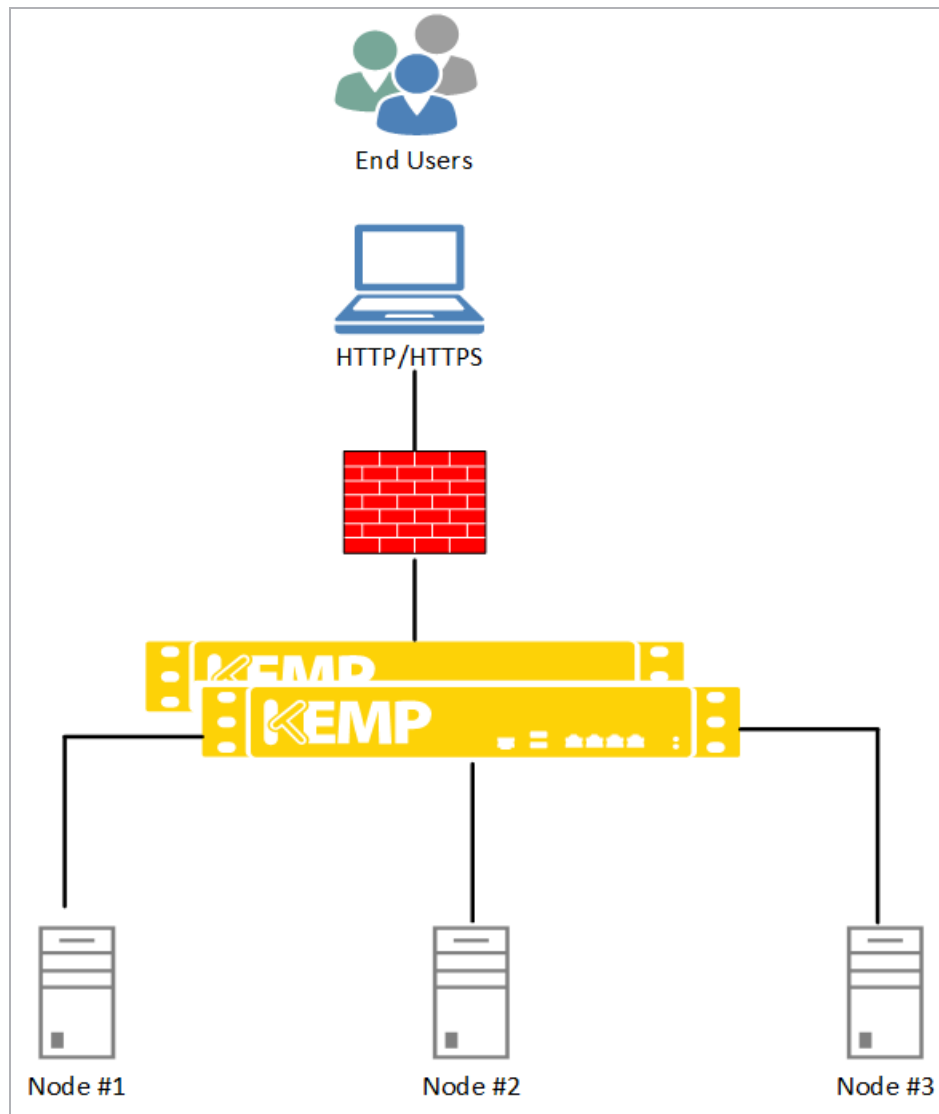
1.1 Document Purpose

This document provides the recommended LoadMaster settings used when load balancing the TFTP Server 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 TFTP Server.

2 Architecture



3 Configure the LoadMaster

The deployed TFTP Server environment determines which of the following setups is used.

3.1 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.

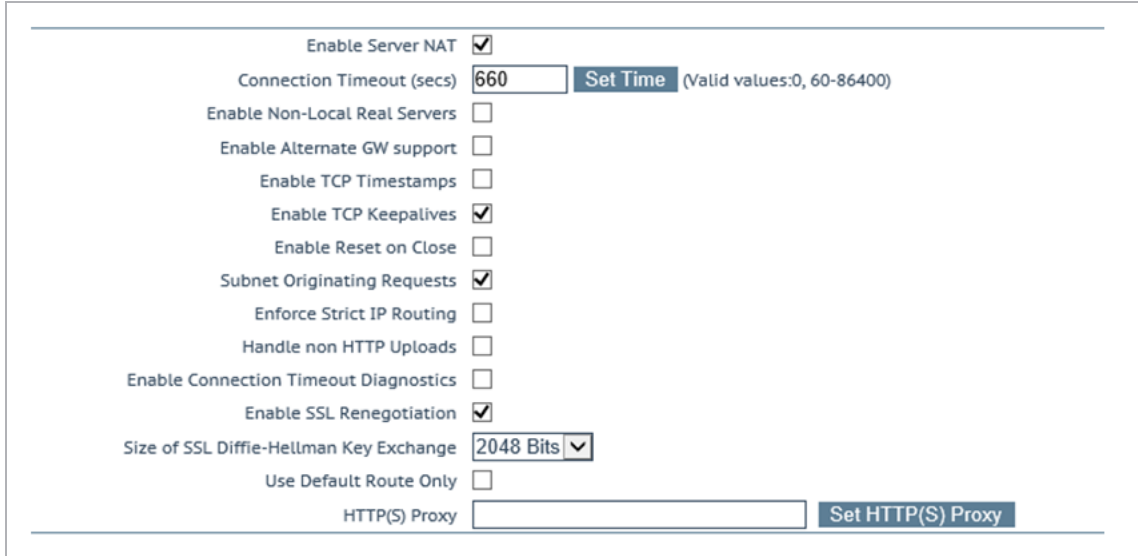
When **Subnet Originating Requests** is enabled, the LoadMaster routes traffic so that the Real Server sees traffic arriving from the LoadMaster interface that is in that network/subnet.

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 Web User Interface (WUI), go to **System Configuration > Miscellaneous Options > Network Options**.

3 Configure the LoadMaster



Enable Server NAT ☒

Connection Timeout (secs) [Set Time](#) (Valid values:0, 60-86400)

Enable Non-Local Real Servers ☐

Enable Alternate GW support ☐

Enable TCP Timestamps ☐

Enable TCP Keepalives ☒

Enable Reset on Close ☐

Subnet Originating Requests ☒

Enforce Strict IP Routing ☐

Handle non HTTP Uploads ☐

Enable Connection Timeout Diagnostics ☐

Enable SSL Renegotiation ☒

Size of SSL Diffie-Hellman Key Exchange

Use Default Route Only ☐

HTTP(S) Proxy [Set HTTP\(S\) Proxy](#)

2. Select the **Subnet Originating Requests** check box.

3.2 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**.



Allow connection scaling over 64K Connections ☐

Always Check Persist

Add Port to Active Cookie ☐

Conform to RFC ☒

Close on Error ☐

Add Via Header In Cache Responses ☐

Real Servers are Local ☐

Drop Connections on RS failure ☒

Drop at Drain Time End ☒

L7 Connection Drain Time (secs) [Set Time](#) (Valid values:0, 60 - 86400)

L7 Authentication Timeout (secs) [Set Timeout](#) (Valid values:30 - 300)

L7 Client Token Timeout (secs) [Set Timeout](#) (Valid values:60 - 300)

Additional L7 Header

100-Continue Handling

Allow Empty POSTs ☐

Allow Empty HTTP Headers ☐

Force Complete RS Match ☐

Least Connection Slow Start [Set Slow Start](#) (Valid values:0 - 600)

Share SubVS Persistence ☐

Log Insight Message Split Interval [Set Log Split Interval](#) (Valid values:1 - 100)

Include User Agent Header in User Logs ☐

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

4 Create a TFTP Virtual Service

The following are the steps involved and the recommended settings to configure the TFTP 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="10.154.11.181"/> |
| Port | <input type="text" value="69"/> |
| Service Name (Optional) | <input type="text" value="TFTP"/> |
| Use Template | <input type="text" value="TFTP"/> |
| Protocol | <input type="text" value="udp"/> |

2. Type a valid **Virtual Address**.
3. Type **69** as the **Port**.
4. Enter a recognizable **Service Name**, such as **TFTP Virtual Service**.
5. Select **udp** as the **Protocol**.
6. Click **Add this Virtual Service**.
7. Configure the settings as shown in the following table:

| Section | Option | Value |
|------------------|--------------------------|------------------|
| Standard Options | Force L4 | Enabled |
| | Scheduling Method | least connection |
| Real Servers | Real Server Check Method | ICMP Ping |

8. 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.

4 Create a TFTP Virtual Service

- 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.

Last Updated Date

This document was last updated on 27 July 2023.