



TFTP

Deployment Guide

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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.

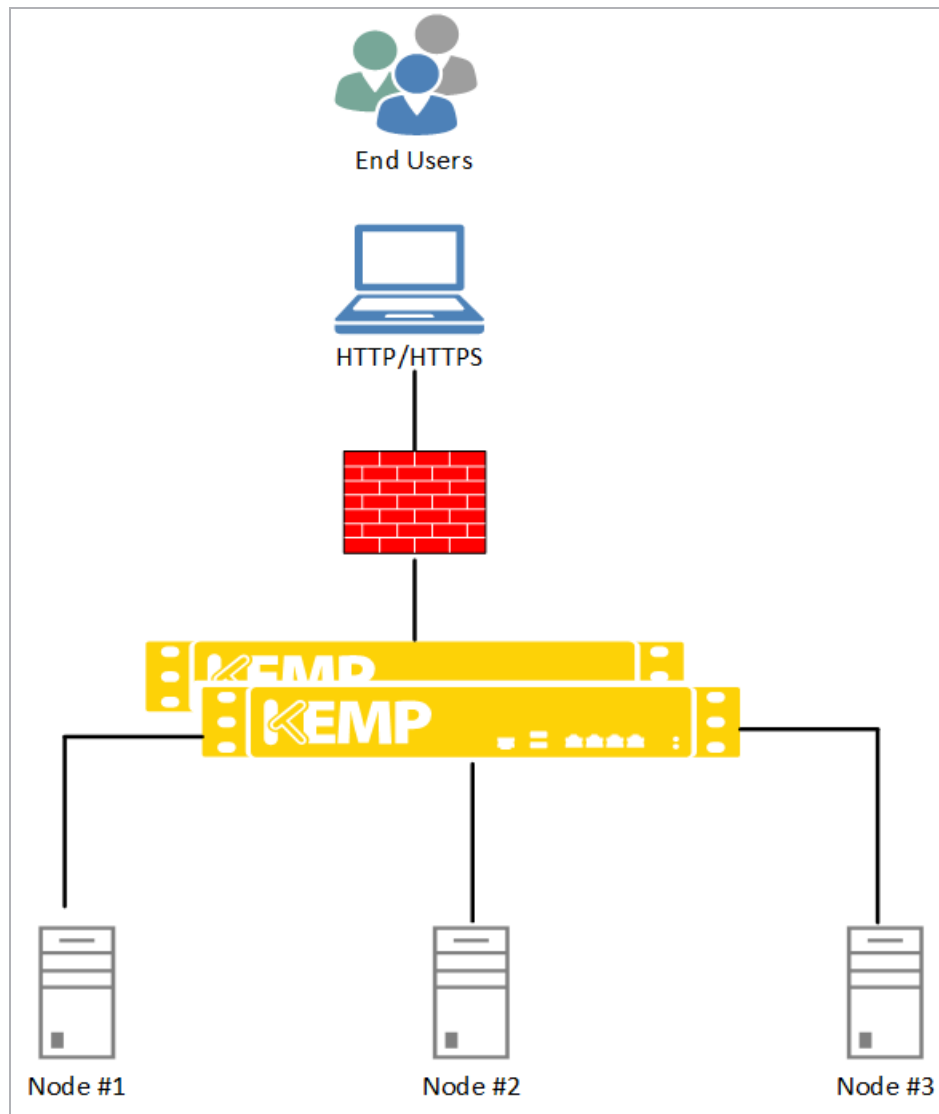
1.1 Document Purpose

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.

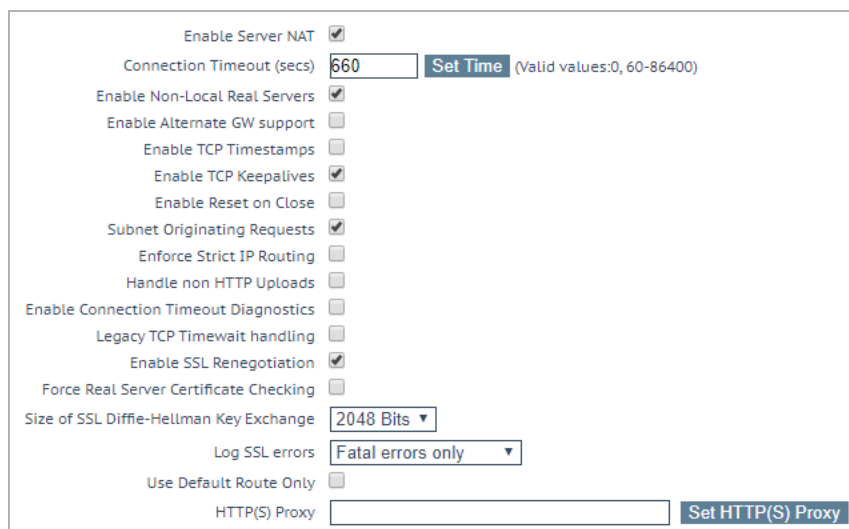
When **Subnet Originating Requests** is enabled, the LoadMaster routes traffic so that the Real Server sees traffic arriving from the LoadMaster interface that is in that network/subnet.

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



The screenshot shows a configuration window with the following settings:

- Enable Server NAT: ☒
- Connection Timeout (secs): 660 [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: ☐
- Legacy TCP Timewait handling: ☐
- Enable SSL Renegotiation: ☒
- Force Real Server Certificate Checking: ☐
- Size of SSL Diffie-Hellman Key Exchange: 2048 Bits ▼
- Log SSL errors: Fatal errors only ▼
- 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**.

3 Configure the LoadMaster

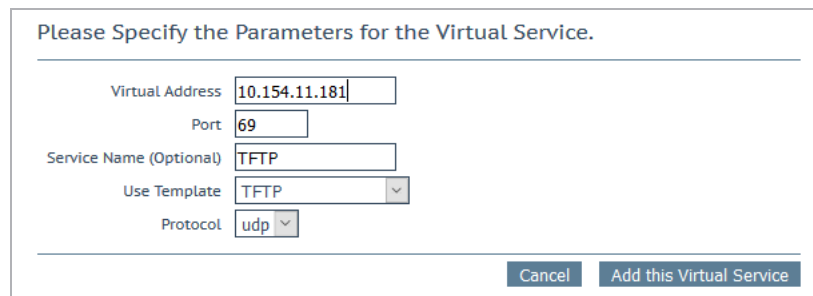
Allow connection scaling over 64K Connections	<input type="checkbox"/>
Always Check Persist	Yes - Accept Changes ▼
Add Port to Active Cookie	<input type="checkbox"/>
Conform to RFC	<input checked="" type="checkbox"/>
Close on Error	<input type="checkbox"/>
Add Via Header In Cache Responses	<input type="checkbox"/>
Real Servers are Local	<input type="checkbox"/>
Drop Connections on RS failure	<input checked="" type="checkbox"/>
Drop at Drain Time End	<input checked="" type="checkbox"/>
L7 Connection Drain Time (secs)	300 Set Time (Valid values:0, 60 - 86400)
L7 Authentication Timeout (secs)	30 Set Timeout (Valid values:30 - 300)
L7 Client Token Timeout (secs)	120 Set Timeout (Valid values:60 - 300)
Additional L7 Header	X-Forwarded-For ▼
100-Continue Handling	RFC-7231 Compliant ▼
Allow Empty POSTs	<input type="checkbox"/>
Allow Empty HTTP Headers	<input type="checkbox"/>
Force Complete RS Match	<input type="checkbox"/>
Least Connection Slow Start	0 Set Slow Start (Valid values:0 - 600)
Share SubVS Persistence	<input type="checkbox"/>
Log Insight Message Split Interval	10 Set Log Split Interval (Valid values:1 - 100)
Include User Agent Header in User Logs	<input type="checkbox"/>
Use CEF Log Format	<input type="checkbox"/>

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	10.154.11.181
Port	69
Service Name (Optional)	TFTP
Use Template	TFTP
Protocol	udp

Cancel Add this Virtual Service

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.