Progress®
Kemp® LoadMaster®

Deployment Guide TFTP

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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 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.

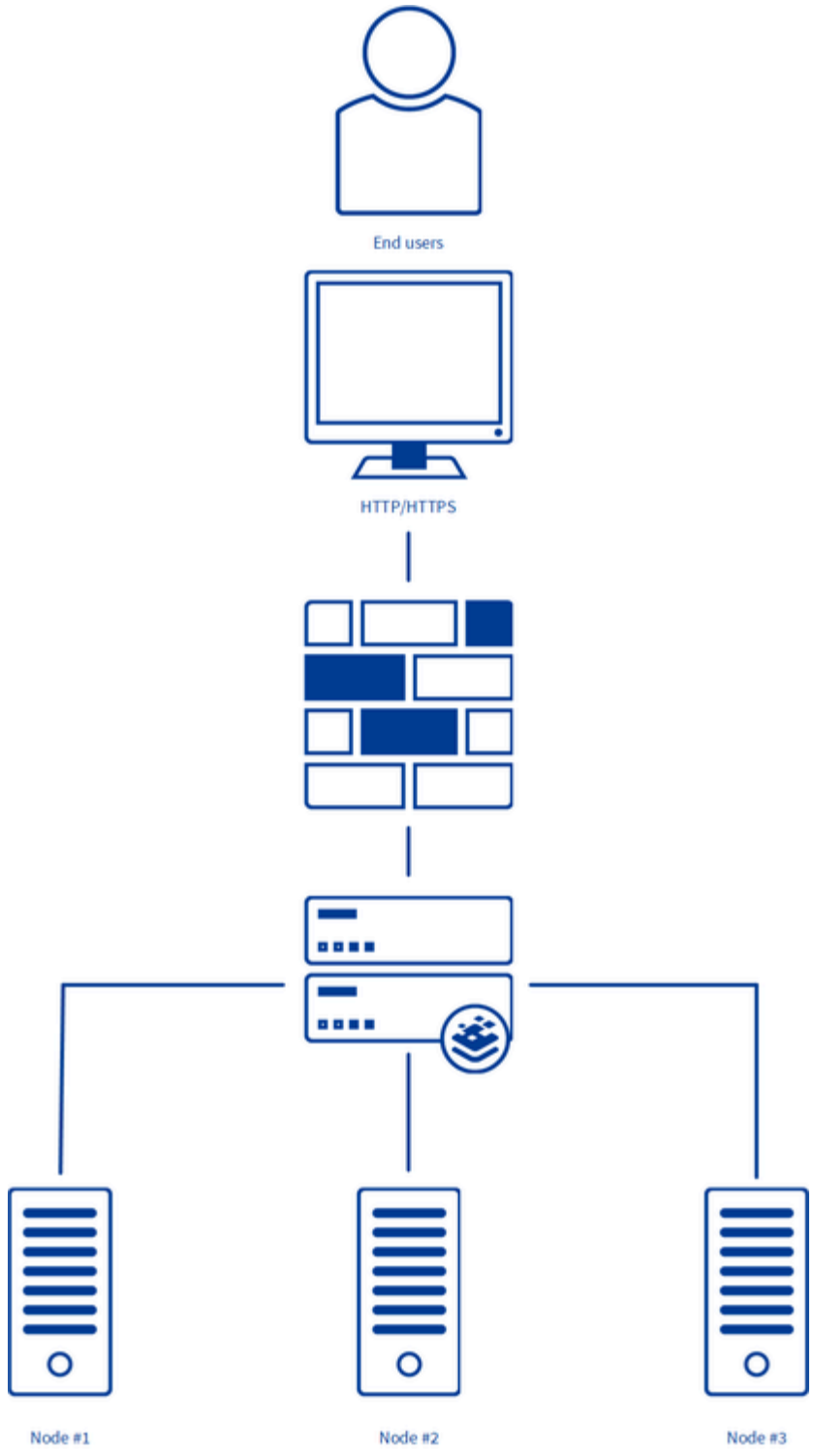
Document Purpose

This document provides the recommended LoadMaster settings used when load balancing the TFTP Server workload. The Progress Kemp Support Team is available to provide solutions for scenarios not explicitly defined. For further details, refer to the: LoadMaster Support and Learning Hub.

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Architecture

TFTP deployments consist of multiple nodes behind a LoadMaster.


End users
HTTP/HTTPS
Node #1
Node #2
Node #3

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Configure the LoadMaster

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

Contents

- Enable Subnet Originating Requests Globally
- Enable Check Persist 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.

Enable Check Persist Globally

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

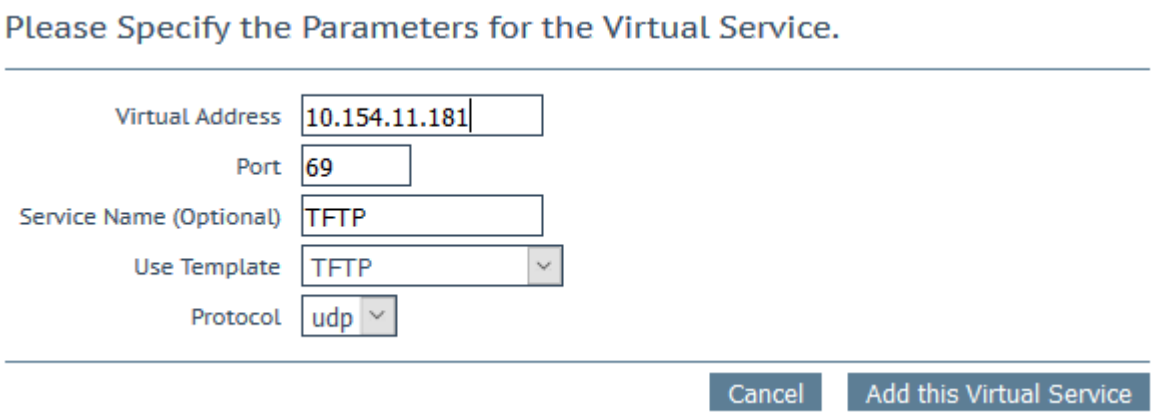
1. Go to **System Configuration > Miscellaneous Options > L7 Configuration**.
2. Click the **Always Check Persist** drop-down arrow and select **Yes – Accept Changes**.

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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**.



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:
   1. Expand the **Real Servers** section.
   2. Click **Add New**.
   3. Enter the address of the relevant Real Server.
   4. Complete the other fields as required.
   5. Click **Add this Real Server** then click **OK** to the pop-up message.
   6. Repeat the steps above to add more Real Servers as needed, based on your environment.

Note: If using automated LoadMaster backups through FTP in a High Availability (HA) environment, adding an FTP Virtual Service causes the FTP control connection to be initiated from the admin IP address but the data connection is initiated from the shared IP address. You must configure the target FTP server in 'promiscuous mode' (as is usually recommended for use with an FTP Virtual Service) to mitigate an 'IP Security' failure returned by some FTP servers.