



DNS

Deployment Guide

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1 Introduction

Domain name system (DNS) servers match domain names like Kemptechnologies.com to their associated IP addresses, for example, 107.22.236.183. When you type kemptechnologies.com into your web browser's address bar, your computer contacts your current DNS server and asks what IP address is associated with kemptechnologies.com.

The Kemp LoadMaster is used to load balance the DNS 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.

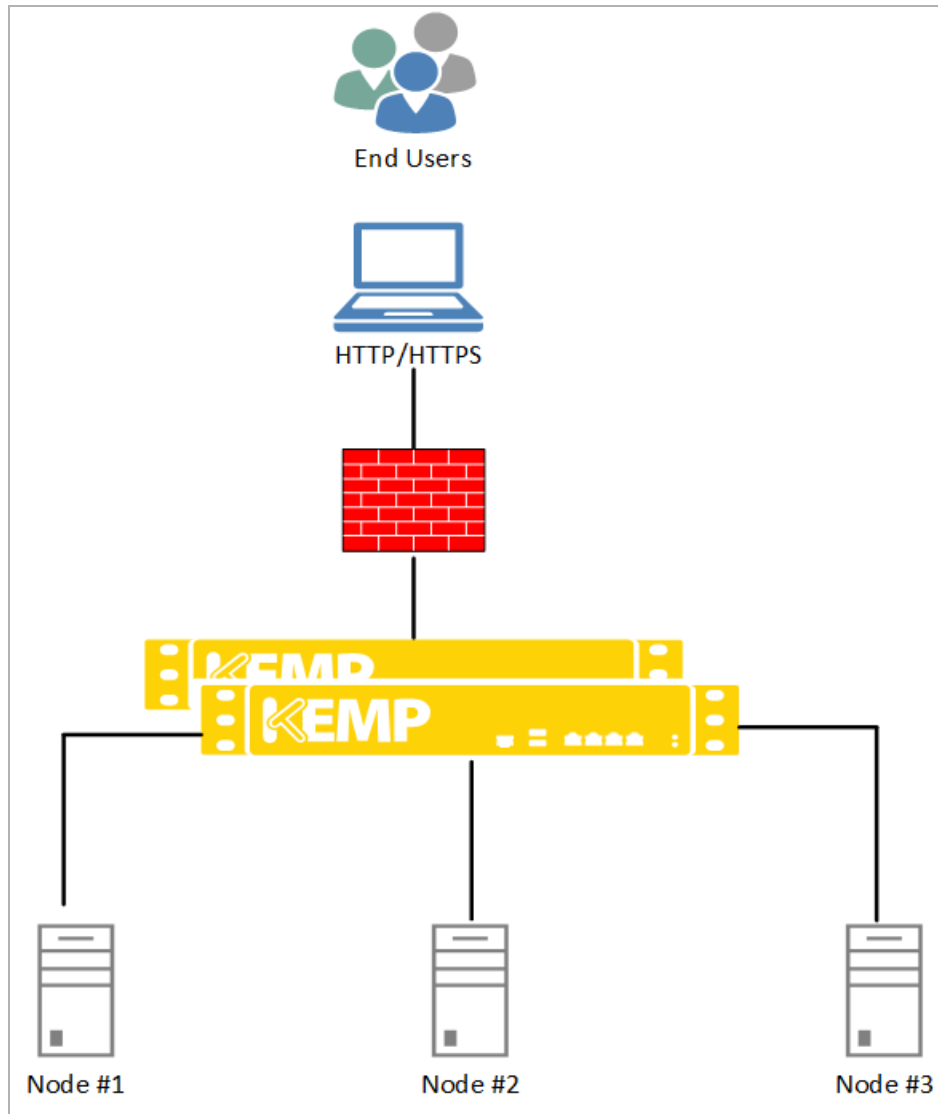
1.1 Document Purpose

This document provides the recommended LoadMaster settings used when load balancing the DNS 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 DNS server.

2 Architecture



3 Configure the LoadMaster

The deployed DNS 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.

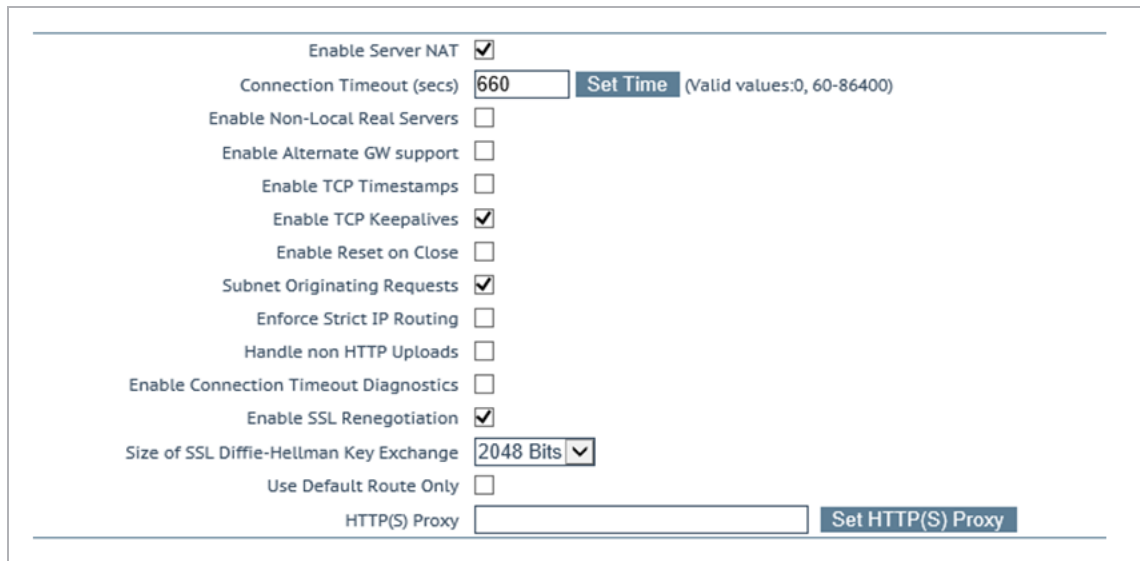
When **Subnet Originating Requests** is enabled, the LoadMaster routes traffic so that the Real Server sees traffic arriving from the LoadMaster interface that is in that network/subnet.

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): [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**.

3 Configure the LoadMaster

Enable Server NAT	<input checked="" type="checkbox"/>
Connection Timeout (secs)	<input type="text" value="660"/> <input type="button" value="Set Time"/> <small>(Valid values:0, 60-86400)</small>
Enable Non-Local Real Servers	<input type="checkbox"/>
Enable Alternate GW support	<input type="checkbox"/>
Enable TCP Timestamps	<input type="checkbox"/>
Enable TCP Keepalives	<input checked="" type="checkbox"/>
Enable Reset on Close	<input type="checkbox"/>
Subnet Originating Requests	<input checked="" type="checkbox"/>
Enforce Strict IP Routing	<input type="checkbox"/>
Handle non HTTP Uploads	<input type="checkbox"/>
Enable Connection Timeout Diagnostics	<input type="checkbox"/>
Legacy TCP Timewait handling	<input type="checkbox"/>
Enable SSL Renegotiation	<input checked="" type="checkbox"/>
Force Real Server Certificate Checking	<input type="checkbox"/>
Size of SSL Diffie-Hellman Key Exchange	<input type="text" value="2048 Bits"/>
Log SSL errors	<input type="text" value="Fatal errors only"/>
Use Default Route Only	<input type="checkbox"/>
HTTP(S) Proxy	<input type="text"/> <input type="button" value="Set HTTP(S) Proxy"/>

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

3.3 Create the DNS Virtual Services

The following sections describe the recommended settings for the DNS Virtual Services.

3.3.1 Create a DNS Virtual Service

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

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

3 Configure the LoadMaster

Please Specify the Parameters for the Virtual Service.

Virtual Address	<input type="text" value="10.154.11.144"/>
Port	<input type="text" value="53"/>
Service Name (Optional)	<input type="text" value="DNS Virtual Service"/>
Use Template	<input type="text" value="Select a Template"/>
Protocol	<input type="text" value="udp"/>

2. Type a valid **Virtual Address**.
3. Type **53** as the **Port**.
4. Enter a recognizable **Service Name**, such as **DNS Virtual Service**.
5. Select **udp** as the protocol.
6. Click **Add this Virtual Service**.
7. Configure the settings as recommended in the following table:

Section	Option	Value
Standard Options	Force L4	Disabled
	Subnet Originating Requests	Enabled
	Idle Connection Timeout	180

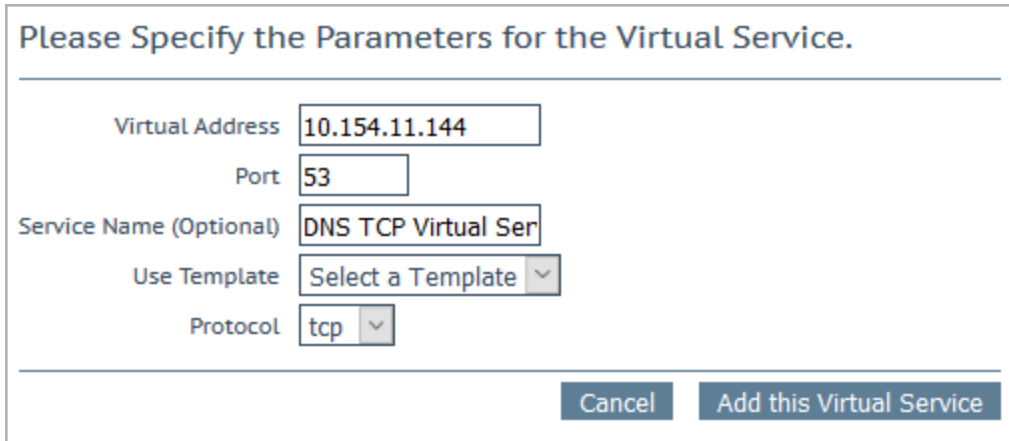
8. Add the Real Servers:
 - a) Expand the **Real Servers** section.
 - b) Click **Add New**.
 - c) Enter the address of the relevant Real Server.
 - d) Complete the other fields as required.
 - e) Click **Add this Real Server** then click **OK** to the pop-up message.
 - f) Repeat the steps above to add more Real Servers as needed, based on your environment.

3 Configure the LoadMaster

3.3.2 Create a DNS TCP Virtual Service

The following are the steps involved and the recommended settings to configure the DNS TCP 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="10.154.11.144"/>
Port	<input type="text" value="53"/>
Service Name (Optional)	<input type="text" value="DNS TCP Virtual Ser"/>
Use Template	<input type="text" value="Select a Template"/>
Protocol	<input type="text" value="tcp"/>

2. Type a valid **Virtual Address**.
3. Type **53** as the **Port**.
4. Enter a recognizable **Service Name**, such as **DNS TCP Virtual Service**.
5. Click **Add this Virtual Service**.
6. Set the **Idle Connection Timeout** to **180**.
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.

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 27 July 2023.