



Real Servers



August 2021

Contents/Agenda

Goals:

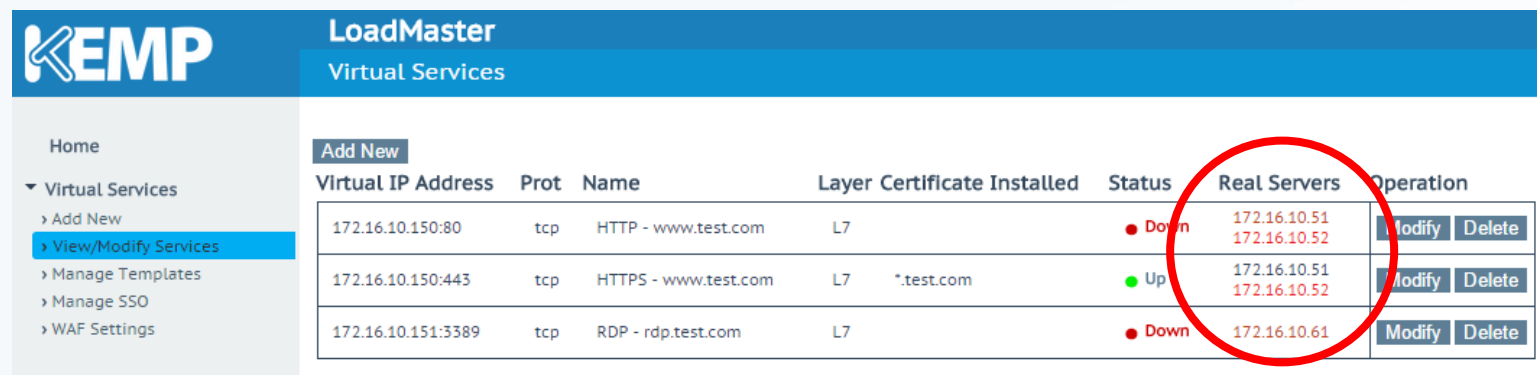
Understand what health checks the LoadMaster can provide.

Identify what a server failing health checks looks like and how to obtain diagnostics to help remedy the issue.

Real Servers

Real Server is the term for one of the destinations applied to a virtual service. Often these are your application servers but can be VS IP's.

- Real Servers are added via IP address to a virtual service or sub virtual service.
- A single Real Server can be added to multiple virtual services.
- View/Modify Services page will give you a high level overview of the status of each virtual service and server.
 - Red == Down
 - Black == Up
 - Orange == Disabled

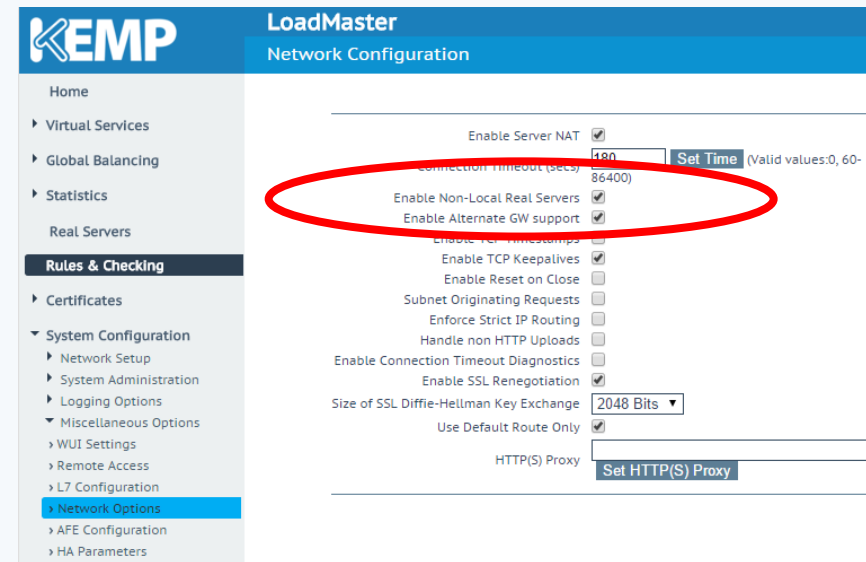


KEMP LoadMaster Virtual Services									
Add New									
Virtual IP Address	Prot	Name	Layer	Certificate Installed	Status	Real Servers	Operation		
172.16.10.150:80	tcp	HTTP - www.test.com	L7		Down	172.16.10.51 172.16.10.52	Modify	Delete	
172.16.10.150:443	tcp	HTTPS - www.test.com	L7	*.test.com	Up	172.16.10.51 172.16.10.52	Modify	Delete	
172.16.10.151:3389	tcp	RDP - rdp.test.com	L7		Down	172.16.10.61	Modify	Delete	

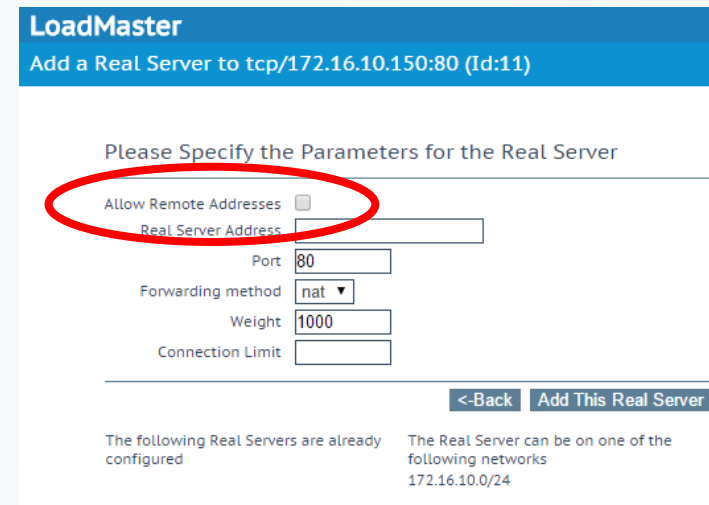
Non-Local Real Servers

Real Servers can be located on the same subnet as the LoadMaster or considered “Non-local”.

- Any IP address can be added as a Real Server, local or non-local.
 - “Enable Non-Local Real Server” located within “Network Options”.
 - When adding a non-local server, ensure that the LoadMaster has proper routing configured to reach the server in question.
 - Transparency must be disabled for the virtual service for the “Allow Remote Addresses” box to appear.



The screenshot shows the 'Network Configuration' page in the Kemp LoadMaster interface. The left sidebar contains a navigation menu with options like Home, Virtual Services, Global Balancing, Statistics, Real Servers, Rules & Checking, Certificates, System Configuration, Network Setup, System Administration, Logging Options, Miscellaneous Options, WUI Settings, Remote Access, L7 Configuration, Network Options (highlighted), AFE Configuration, and HA Parameters. The main content area is titled 'Network Configuration' and contains various settings. A red circle highlights the 'Enable Non-Local Real Servers' checkbox, which is checked. Other visible settings include 'Enable Server NAT' (checked), 'Connection Timeout (secs)' (120), 'Enable Alternate GW support' (checked), 'Enable TCP Keepalives' (checked), 'Enable Reset on Close' (unchecked), 'Subnet Originating Requests' (unchecked), 'Enforce Strict IP Routing' (unchecked), 'Handle non HTTP Uploads' (unchecked), 'Enable Connection Timeout Diagnostics' (unchecked), 'Enable SSL Renegotiation' (checked), 'Size of SSL Diffie-Hellman Key Exchange' (2048 Bits), 'Use Default Route Only' (checked), and 'HTTP(S) Proxy' (Set HTTP(S) Proxy).



The screenshot shows the 'Add a Real Server to tcp/172.16.10.150:80 (Id:11)' page in the Kemp LoadMaster interface. The page title is 'Add a Real Server to tcp/172.16.10.150:80 (Id:11)'. The main content area is titled 'Please Specify the Parameters for the Real Server'. A red circle highlights the 'Allow Remote Addresses' checkbox, which is unchecked. Other visible settings include 'Real Server Address' (empty text box), 'Port' (80), 'Forwarding method' (nat), 'Weight' (1000), and 'Connection Limit' (empty text box). At the bottom, there are two buttons: '<-Back' and 'Add This Real Server'. Below the buttons, there is a note: 'The following Real Servers are already configured' and 'The Real Server can be on one of the following networks 172.16.10.0/24'.

Server Health Checking

Application Specific Health Checks

- Commonly referred to as Layer 7 checks.
- Application health checks are more accurate than ICMP Ping or TCP check.
- Configured on a per virtual service or sub virtual service basis.
- HTTP/HTTPS checks are highly configurable.
- Layer 7 checks also include various mail related protocols.
- Layer 7 Health checks can be applied to Layer 4 TCP services.
- UDP services can use ICMP Ping check or DNS request if applicable.

Application Health Checks

▼ Real Servers

Add New ...

Real Server Check Parameters

Id	IP Address	Port	Forwarding	Check Type	Status	Operation
9	172.16.10.51	80	nat	ICMP Ping	Enabled	<button>Disable</button> <button>Modify</button> <button>Delete</button>
8	172.16.10.52	80	nat	ICMP Ping	Enabled	<button>Disable</button> <button>Modify</button> <button>Delete</button>

ICMP Ping
HTTP Protocol
HTTPS Protocol
TCP Connection Only
Mail (SMTP) Protocol
Network News (NNTP) Protocol
File Transfer (FTP) Protocol
Telnet Protocol
Mailbox (POP3) Protocol
Mailbox (IMAP) Protocol
Binary Data
None

UDP Health Checks

▼ Real Servers

Add New ...

Real Server Check Parameters

Id	IP Address	Port	Weight	Status	Operation

ICMP Ping
Name Service (DNS) Protocol
None

HTTP/HTTPS Health Checks

HTTP/HTTPS Application Checks

- Granular request, specify:
 - Hostname
 - URL
- Supports HTTP Methods:
 - HEAD
 - GET
 - POST
- Pattern matching available with GET and POST requests.
- Ability to add custom headers if required by the server.

▼ Real Servers

Add New ...

Real Server Check Parameters

HTTP Protocol

Checked Port

Set Check Port

URL:

Set URL

Use HTTP/1.1:

☒

HTTP/1.1 Host:

Set Host

HTTP Method:

GET

Reply 200 Pattern:

Set Pattern

Custom Headers:

Show Headers

Enhanced Options:

☐

Id	IP Address	Port	Forwarding method	Weight	Limit	Status	Operation
12	172.16.10.51	80	nat	1000	0	Enabled	<div>Disable</div> <div>Modify</div> <div>Delete</div>
13	172.16.10.52	80	nat	1000	0	Enabled	<div>Disable</div> <div>Modify</div> <div>Delete</div>

Advanced Health Checking

Enhanced Options

- Allows you to set the minimum amount of servers that are required to pass health checks for the virtual service to be considered 'Up'.
- By default, without Enhanced Options enabled, the minimum value is 1.

Critical Servers

- Checking the Critical box for a server indicates that the server must be up for the virtual service to be up as a whole.
- If a critical server fails the entire virtual service will be marked as down.

Real Servers

Add New ...

Real Server Check Parameters

HTTP Protocol

Checked Port

Set Check Port

URL:

Set URL

Use HTTP/1.1:

Set Host

HTTP/1.1 Host:

Set Host

HTTP Method:

GET

Set Pattern

Reply 200 Pattern:

Set Pattern

Custom Headers:

Show Headers

Enhanced Options:

Minimum number of RS required for VS to be considered up

1

Id	IP Address	Port	Forwarding method	Weight	Limit	Critical	Status	Operation
12	172.16.10.51	80	nat	1000	0	<input type="checkbox"/>	Enabled	<div>Disable</div> <div>Modify</div> <div>Delete</div>
13	172.16.10.52	80	nat	1000	0	<input type="checkbox"/>	Enabled	<div>Disable</div> <div>Modify</div> <div>Delete</div>

Advanced Health Checking

Applications with multiple health check requirements.

- Some applications require/suggest that multiple ports or URL's be checked, ensuring that the application will work correctly when requested.
- This configuration can be accomplished by using Sub Services.
 - Product Sub service will have the "Default" Content rule applied to it.
 - Other sub services are configured for health checking purposes only.
 - All 3 sub services will be marked as critical.
 - If a server fails in one sub service, it will fail in all other sub services in the same virtual service.

Virtual IP Address	Prot Name	Layer	Certificate Installed	Status	Real Servers	Operation
172.16.10.150:80	tcp	L7		⇒ Redirect	Production Traffic TCP Check 8000 URL Check 1	Modify Delete
#1	tcp	Production Traffic	L7	● Down	172.16.10.51 172.16.10.52	Modify
#2	tcp	TCP Check 8000	L7	● Down	172.16.10.51:8000 172.16.10.52:8000	Modify
#3	tcp	URL Check 1	L7	● Down	172.16.10.51 172.16.10.52	Modify

▼ Real Servers [Add New ...](#)

Real Server Check Parameters

HTTP Protocol Checked Port [Set Check Port](#)

URL: [Set URL](#)

Use HTTP/1.1: ☐

HTTP Method: [Show Headers](#)

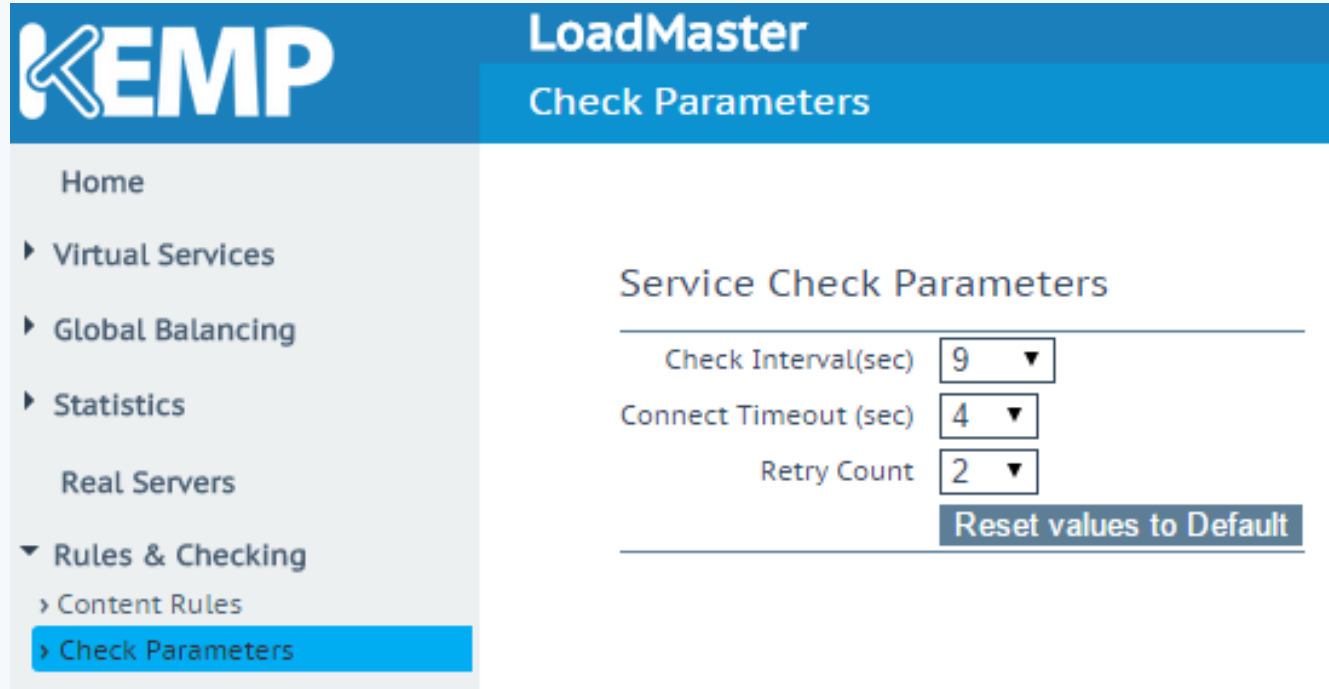
Enhanced Options: ☒ Minimum number of RS required for VS to be considered up

Id	IP Address	Port	Forwarding method	Weight	Limit	Critical	Status	Operation
19	172.16.10.51	80	nat	1000	0	<input checked="" type="checkbox"/>	Enabled	Disable Modify Delete
20	172.16.10.52	80	nat	1000	0	<input checked="" type="checkbox"/>	Enabled	Disable Modify Delete

Global Health Check Settings

Check Parameters

- Initially set as aggressive as possible to detect server failures.
- Failing health checks will ignore Interval for subsequent checks.
- Server failures will be logged.
- Servers will automatically be reinstated once a passing health check is received.
- Verbose server failure logging found within the LoadMaster's System Message File.



The screenshot displays the Kemp LoadMaster web interface. The top navigation bar is blue with the 'KEMP' logo on the left and 'LoadMaster' on the right. Below the navigation bar, the page title 'Check Parameters' is visible. On the left side, there is a sidebar menu with the following items: 'Home', 'Virtual Services', 'Global Balancing', 'Statistics', 'Real Servers', 'Rules & Checking' (expanded), 'Content Rules', and 'Check Parameters' (highlighted in blue). The main content area is titled 'Service Check Parameters' and contains three configuration fields: 'Check Interval(sec)' set to 9, 'Connect Timeout (sec)' set to 4, and 'Retry Count' set to 2. Each field has a dropdown arrow. At the bottom right of the configuration area, there is a button labeled 'Reset values to Default'.

Service Check Parameters	
Check Interval(sec)	9 ▼
Connect Timeout (sec)	4 ▼
Retry Count	2 ▼
Reset values to Default	

Administrating Servers

- Real Servers can be disabled globally, for all instances in which that server is used, or on a per virtual service basis.
- L7 services will apply a drain timer when server is disabled.
 - Once disable the server will be taken out of the scheduling algorithm.
 - Persistent users are permitted to open new connections before timer expires.
 - Once the timer expires, no new connections will be created, leaving active connections only.
 - “Drop at Drain Time End” will sever active connections when the drain timer expires.
 - Located within Misc. Options -> L7 Configuration

Disabling Real Servers

Virtual Services			
Global Balancing			
Statistics			
Real Servers			
Rules & Checking			

Real Server	Status	Operation
172.16.10.51	Partially Enabled	<button>Enable</button> <button>Disable</button>
172.16.10.52	Enabled	<button>Enable</button> <button>Disable</button>
172.16.10.61	Disabled	<button>Enable</button> <button>Disable</button>

Enable Disable

Real Servers							<button>Add New ...</button>
Real Server Check Parameters							<div>ICMP Ping</div>
Id	IP Address	Port	Forwarding method	Weight	Limit	Status	Operation
3	172.16.10.51	80	nat	1000	0	Disabled	<button>Enable</button> <button>Modify</button> <button>Delete</button>
4	172.16.10.52	80	nat	1000	0	Enabled	<button>Disable</button> <button>Modify</button> <button>Delete</button>

LoadMaster

L7 Configuration

Drop at Drain Time End ☒

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



Thank You

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