

Software Release Notes

Compatible Products: **LoadMaster Products:**
LM-2000, LM-Exchange, LM-2200,
LM-2500, LM-2600, LM-3500, LM-3600,
LM-5500, VLM-100, VLM-1000
VLM-Exchange

Introduction

The current software is a maintenance release of the KEMP Technologies LoadMaster series and this document describes the features supported in the current and previous releases.



We *recommend* back up your LoadMaster configuration *before* upgrading the software. Instructions for backing up the LoadMaster are described in the [LoadMaster Configuration Guide](#). Installation of this software and reloading of the configuration may take up to five (5) minutes, or possibly more, during which time the LoadMaster being upgraded will be *unavailable to carry traffic*.

Pre-requisites

The following are recommendations for upgrading the software:

- The person undertaking the upgrade should be a network administrator or someone with equivalent knowledge.
- In case of issues restoring backup configurations, configuring LoadMasters or other maintenance issues, we recommend you have on hand one or more of the following documents, depending upon your application(s):
 - [LoadMaster QuickStart Guide](#)
 - [LoadMaster Configuration Guide](#)
 - [LoadMaster SSL QuickStart Guide](#)
 - [Exchange 2010 Deployment Guide](#)
- Full LoadMaster documentation is found [HERE](#).

Support

Should you experience problems loading the software release, you may contact KEMP support staff via our automated trouble ticket system at: <http://www.kemptechnologies.com/us/load-balancing-support/kemp-support.html> and a KEMP support Engineer will call you promptly.

Release Versions:

[5.1.74](#)

[5.1.71](#)

[5.1.55](#)

[5.1.45](#)

[5.1.28](#)

[5.0.70 - 100](#)

[4.3](#)

Release 5.1.74

New Features

Drop Connection on RS Failure

Closes the connection immediately upon detection that a Real Server has failed. Also default Idle Connection Timeout to 86400 seconds.

Statistics

Option to view statistics by 'bits' now available. 336

Issues Resolved

328 - *Packet Filtering*

Now works correctly.

329 - *VLANs*

Change in VLANs is now immediately reflected in menu.

334 - *Administrative Default Gateway*

Now works correctly and can be entered.

338 - *Wildcard Services*

Include destination port in connection timeout messages for wildcard services.

341 - *LoadMaster DR*

Removed 'Location' field in clusters screen. It was not applicable.

343 - *SNMP*

Backport problem resolved.

Known Issues

None

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Release 5.1.71

New Features

HTTP Header Size

Increased to 16K –the same as in IIS

Caching & Compression

Cached and compressed responses from the LoadMaster can now contain a VIA header and the address in it will be that of the Virtual Service.

L7 Diagnostics

Improved diagnostics with respect to Always Persist and connection tracking in a multi-VS situation.

VS Redirect

Option to add an 80 redirector VS on a non-SSL accelerated port 443 VS.

RS Enable/Re-enable

The LoadMaster sends out traps when an RS is disabled or re-enabled.

Expanded IP Addressing

Allow IP address ending in 255.

Server Initiating Protocol

Added POP3 as an option.

HTTP Health Checking

Request include a User-Agent header field.

Issues Resolved

- SSL Server

Now works correctly with Server Initiating Protocols. In previous versions the serverinit could not be set over the WUI if SSL Acceleration was set.

283 - Certificates

When using multi-host certificates the names of all hosts are now correctly displayed in the VS display.

- RS Statistics

Fixed to accurately count the number of Active Connections.

- Weighted response Time

Display on the VS is corrected.

- VS Nickname

Added to the SNMP traps.

- Traps

Now always sent from the shared IP address of the interface where the WUI administration is located.

- Re-encryption

Corrected an issue with using re-encrypting VS's that may have caused dropped connections when bahd was changed.

294 – HA Configuration

An issue with HA setup from command line interface corrected.

- VSSLproxy

Functions differently between serverinit and non-serverinit services.

295 – SNMP VS Status

Fixed issue with SNMP Get for VS Status that returned a 1 (up) when the service was down.

297 – WUI

Simplified WUI wording to 'Software Update' instead of 'Patch'.

298 – Port 80

'Add a Port 80 Redirector VS' in port 443 VS showed up twice in WUI.

299 – GEO/DR

Fixed issue when you have multiple FQDN checks going to the same IP, but different port.

301 – LM-DR & Geo

Update to firmware specifically for multi-site LoadMasters.

302 – HA Sync Time/Date

Standby in HA pair will now sync time and date.

304 – Data Stream

Fixed SSL re-encrypt data stream.

305 – Log File Time Stamp

Time stamp in log files is automatically updated when time zone is changed.

303 – VLM Reboot

Fixed problem of VLM rebooting when changing persistence type.

309 – HA Cluster with Remote LoadMasters

Corrected an issue with the configuration file when adding or deleting remote partner.

310 – SSL Certificate in HA

Fixed issue of certificate not copying correctly to Standby unit.

- TSO Disabled VMs

TCPIP offload disabled on virtual machines due to instability.

- Persistence

Issue resolved that potentially caused spurious reboots

- Expect 100

Added values to correct various issues.

- CPU's apparent overload

Fixed a problem that makes CPU's appear to be running at 100% when they are not anywhere near that level.

317 – LMDR WUI Update

Cleaned up network options that were not relevant to the DR.

323 – LM-2200

Fixed issue with display of total active connections.

325 – Caching File Extensions

Fixed issue with adding file extensions that should not be cached..

Known Issues

None

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Release 5.1.55

New Features

WUI Home page

Automatically updates its information: i.e. the CPU load and network load are now updated every 5 seconds. There is also a new field TPS which gives a current and max TPS of the unit.

It also displays the current and max SSL TPS. The TPS field INCLUDES the SSL TPS, they should NOT be added together.

On a HA the IP address and Active Since/Boot time are also updated. (Serial number, Licensing Info + Version are NOT updated). - Boot time is also updated on non HA.

New SSL option Re-Encrypt

This allows an SSL connection to be end-to-end. With this option, you no longer need the separate reverse SSL VS. It simply "hides" this functionality to make it much more user friendly.

Restrictions: Each re-encrypted SSL connection counts as 2 SSL sessions w.r.t. maximum SSL sessions. This is the same as before.

Transparency is NOT available - the source address of the connection to the RS will be the LoadMaster's address on the interface, not the VS IP address.

URL Rewrite rules

Using rules it is now possible to rewrite the HTTP version to one specified by the system. This feature should not be generally used. It is only available for URL rewrite rules and *ONLY available via CLI* (i.e. not over the WUI).

Option is "forcevers" when editing a URL rewrite rule. setting it to 1, will force rewriting to HTTP/1.0, setting it to 2 will force rewriting to HTTP/1.1. Setting to 0 (zero) turns off the feature.

IRQ balancing

This helps to distribute the load more evenly across CPUs, which is especially important when using a lot of compression. Since there is NO optimal balance that can be achieved when using multiple ethernet controllers, the IRQs are randomly distributed across CPUs once every second.

NOTE: Since there is only one thread that handles each interface. The theoretical speed limit for a single ethernet interface is when the processing of it takes 100% of a single CPU core. Moving the IRQ around does NOT change this. To increase the rate, bonding multiple interfaces is the only way to go - multiple CPUs can then handle the stream of packets. (One CPU per interface).

New scheduling method

"Weighted response time" has been implemented. The weights for the RSs are adjusted every 15 seconds dependent on the response time of the server.

Force close

Added option to force a close when the LM returns 304 when a cache entry hasn't changed

New option in the debug page

IRQ balancing is now disabled by default. IRQ balancing can be turned on by the switch on the debug page.

Persistence

Persist timeout can now be specified up to 7 days.

Homepage

The maximum CPU load (ever) is displayed on the homepage.

SSL acceleration

Disabling SSL acceleration on a HTTP 443 service disables all HTTP specific options i.e. cache and persist.

Issues Resolved

Intermediate certificate display bug corrected.

Heartbeat (not CARP) not running properly.

Issue with Wildcard VS traffic being sent to real servers on port 2.

Bytes statistics wrong for Wildcard Services

Changing Server Initiating Protocols option is not sticking

Wrong Page after switching Detection Level

Cannot unset "Set Check Port"

Warning limits for VLM incorrect

RS metrics page

Percentage values are now within a usual range

L7 debug traces

Traces correctly dump out the connection to which the operation is related.

SNMP

Corrected some operational issues.

Date and Time

Setting the ntp server address now gives a diagnostic and refuses to set the address/time if the server cannot be found. A diagnostic is also given if it can find the server.

Content rules

A content matching rule that specifies "src-ip" as the header field, then the content matching will be applied to the clients source address. (as a dotted quad in IPv4).

Known Issues

None

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Release 5.1.45

New Features

L7 engine

Improved performance for individual Virtual Service

Support Virtual Hosts in Cache

When not enabled the cache assumes there is only one virtual host supported on the Real Server. Enabling this option allows the cache to support multiple virtual hosts which have different content.

SNMP

SNMP overhauled for improved reporting

SSL Offloading

Improved performance

CPU temperature monitoring

Add logging for adaptive scheduling

Log messages for 101 & 102 server messages

Allow multi port RS

Add Extra Ports

Allow User to specify additional ports for VS

RADIUS support

Added RADIUS support for LoadMaster administration

SSL CSR generation

Added UCC/SAN support

Caching/Compression

Added menu to allow configurable file types for caching & compression

Issues Resolved

222- Bonded interface not aggregated in statistics

238- Server cookie persistence issue

Persist timeout should be => the timeout on the Real Server. If the server has timed out the cookie, then it will use a new Set-Cookie and everything will work as expected.

242- WUI not enforcing reboot

Now reboots after Restore.

244- Request change ARP thresholds 1, 2 & 3

Increased values to 512, 2048 & 4096 respectively.

Caching causing out of sync errors

LoadMaster certificate's date was in 1902

Problems between carp and bonding/vlans

Problems with Expect-100

Unexpectedly large server packets exceed the TCP-negotiated MSS

Optimizations introduced by VMWare in their drivers, required addition of adapter-independent handling for unexpectedly large packets

Known Issues

None

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Release 5.1.28

New Features

Enhanced Debugging/Diagnostics

“tcpdump” capture support enabled in the Web User Interface, “Ifconfig” and other utilities added as well. These tools should be used in conjunction with KEMP Support.

Enhanced HTTP/HTTPS Persistence

Super HTTP – HTTP/HTTPS examination of User Agent and authorization headers to identify unique visitors.
Selected Header - HTTP/HTTPS examination of a single configurable header for identifying unique visitors.

GEO LoadMaster Integration

This option allows GEO LoadMaster to read internal statistics and configuration of LoadMaster.

Enforce Strict IP Routing

When set only accept IP frames from a host over the interface where the routing algorithm would route frames to the host. (Strict source route validation).

Graceful Shutdown

Gracefully change the run level before powering the device off.

Advanced HTTP/HTTPS Header Support

HTTP/HTTPS headers can be deleted, added and modified on the request to the target Real Server and also on the reply from the Real Server.

Advanced Content Switching

HTTP/HTTPS headers can be examined to make intelligent decisions around which Real Server should receive the request.

Enhanced Named User Support

A Web User Interface only named user can now operate at the default permission level for the “bal” super user.

Enhanced Statistics

Real Server agent values: 0 – 100 reported in the Web User Interface.

Duplicate Virtual Service

Ability to clone a Virtual Service.

Change Virtual Service

Modify a Virtual Service (VS/VIP) IP or Port number.

Port Range Support

Port range can be mapped directly to Real Server(s) using only one Virtual Service (the Virtual Service must be “Force L7” enabled).

Wildcard Port Support

An asterisk “*” (wildcard) port can be used to map all Virtual Service traffic to the same port on the Real Server(s) using only one Virtual Service.

Health Checking Enhancements

DNS health checker can be configured to query a specific FQDN.
Health checking has been uncoupled from Real Server port.

Disabling health checking per Virtual Service has been enabled.

Statistics display

Better pagination in the statistics page for Virtual Services with large amounts of Real Servers.

Subnet masks

Now displayed in CIDR notation throughout the WUI consistently.

Log files

Save all log files export button added.

Diagnostics

TCPDump utility from WUI.

Issues Resolved

HTTP Request returns “Invalid Request” due to proxy using absolute instead of relative URL.

HTTP POST operations using “Expect 100” header fail

Active cookie persistence was not being set when using compression.

Newly configured devices can only have default gateways on 192.168.1.0/24 network.

When replacing certificate on existing virtual service, the private key was not being displayed.

Bonded interfaces did not show aggregated speed on stats screen.

If one email recipient is unknown in a list of recipients, none of the recipients would receive the alert message.

Known Issues

None

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Release 5.0.70 - 100

New Features

Highly Available Enhancements

The HA mechanism permits force reload of the standby unit with configuration information from the active device. The “Force Partner Update” option is only permitted on the standby device.

HTTP Health Check Support

Health checking can operate at either HTTP 1.0 or 1.1 Enabling HTTP 1.1 allows host header support.

Per Virtual Service L7 Connection Timeout

By default TCP connections that become idle are garbage collected based on a global timeout, this value can be overridden on L7 Virtual Services.

Granular SNAT

Per Virtual Service level, IP and port mappings support for controlling Network Address Translation of Real Servers behind LoadMaster

Custom HTTP Header Support

HTTP/HTTPS Virtual Services support fixed value custom header injection.

Rules Ignore Case Support

Content Rules can be configured to be case insensitive.

2,048 Bit SSL Key Support

Generating a Certificate Signing Request can be either based on a 1024 Bit or 2048 Bit private key.

VLAN Trunking Support

Multiple VLAN tags supported per physical interface. IEEE 802.1Q compliant.

Interface Bonding Support

Link aggregation for bandwidth and link redundancy supported. IEEE 802.1AX/IEEE 802.3ad/LACP compliant.

Configurable SSH/HTTPS Ports

Remote administrative access using HTTPS or SSH support nonstandard port numbers

Layer 7 Application Drain Stoppin

TCP level connection drain stopping has been enhanced to support application level drain stopping when administratively disabling Real Servers.

Alternate Default Gateway Support

Multi-arm deployments support a global default gateway

Selective Transparency

LoadMaster will automatically make a runtime decision for transparent or non-transparent source IP on all one-armed L7 Virtual Services.

Enhanced Adaptive

Real Server agent values: 0 – 100 (0 Low Usage, 100 High Usage) and 101 implies remove Real Server from Virtual Service pool without L7 drain stopping, 102 value implies remove Real Server honoring existing L7 persistence entries.

Always Check Persist

LoadMaster can be configured to examine all data over a single TCP/IP connection for persistence information. Only enable after contacting support.

Allow connection scaling over 64K Connections

Enhancement to NON Transparent Virtual Service, under very high load situations, which can lead to local port exhaustion. Enable only at the request of KEMP Support.

The following features are introduced in the KEMP Technologies LoadMaster **5.0-72 minor release**:

Client Certificates Support

SSL off loaded supports the use of client certificates.

The following features are introduced in the KEMP Technologies LoadMaster **5.0-74 minor release**:

Disable Health Checking

Turn off Real Server health checking, use with caution.

The following features are introduced in the KEMP Technologies LoadMaster **5.0-79 minor release**:

Enhanced Debugging/Diagnostics

Interface summary information has been added to the Diagnostic and debugging tools. These tools should be used in conjunction with KEMP Support.

The following features are introduced in the KEMP Technologies LoadMaster **5.0-100 minor release**:

Virtual Appliance Supports DHCP

Initial installation of the Virtual LoadMaster (VLM) will attempt to use DHCP for IP assignment. The leased IP will be displayed on the console.

Serial Number Available Remotely

Factory shipped appliances with 5.0-100 or greater will display the appliance serial number directly in the Web User Interface.

Issues Resolved

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-71 minor release**:

Unable to set the “Not Available Redirection Handling” Error Code.

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-72 minor release**:

Unable to set the “Not Available Redirection Handling” Error Code.

White space characters not permitted in Virtual Service Name field.

SNMP Contact field double quoted.

No password reset option for named users.

Adding named users results in no access to third party certificates.

Longer than expected time for Real Servers to detect a failover when preferred host not set, approximately ten minutes.

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-73 minor release**:

Patching HA units from 4.3 causes temporary lose of local administrative access to patched partner until second unit is patched.

Unavailable Real Servers will remain marked failed in a L4 Virtual Services during LoadMaster reboot.

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-74 minor release**:

Web User Interface HA status indicators display incorrect color/state via local administrative access.

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-75 minor release**:

Real Server statistics page displays inaccurate "System Total Bytes".

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-78 minor release**:

No upper bound for CSR company name, 64 character limit is mandated by RFC3280.

The following issues are resolved in the KEMP Technologies LoadMaster **5.0-78 minor release**:

Heading injection disabled when accessing transparent Virtual Service.

Known Issues

None

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Release 4.3

New Features

NOTE: This is the highest release available for the LM-1500 model.

Highly Available Enhancements

The HA mechanism can now be either Heartbeat or CARP. CARP provides shared-IP or shared-MAC mode, improvements to support prolonged time to link, and supports cryptographic hashing to validate HA communication .

Virtual MAC support when using CARP.

HA mode can be configured without re-licensing. A stand-alone appliance can be enabled for HA, each appliance can be assigned either the First or Second Role.

Web User Interface high availability status includes the interface(s) state of each appliance.

User Management

Distributed administration and management is possible using individual user accounts.

Virtual Service Real Server(s) Management

Real Server(s) can be disabled on a per Virtual Service level

SSL Certificate Export and Import

Certificates can be exported and imported for migration from LoadMaster to LoadMaster.

Advanced Debugging/Diagnostics

Diagnostic and debugging tools such as ping, ps, and enhanced logging. These tools should be used in conjunction with KEMP Support.

Hover Help

By default onscreen hover help is enabled. Hover help explains features and provides tips

Enhanced Remote Access Configuration

When changing the default administrative access you can also specify the default gateway used for administrative access.

WUI NTP Support

Making changes to the NTP host can be done in the WUI.

WUI Layout Enhancement

The Web User Interface will expand the entire width of your supported resolution.

Download Root LoadMaster Certificate

Support available for adding KEMP Technologies as a trusted CA. Installing this certificate will eliminate security dialogs associated with a self-signed certificate used for LoadMaster administration.

Issues Resolved

Port unavailable

Resolves observed problem with LoadMaster1500 communication, most commonly manifested as a single network port of a multi-armed deployment becoming unavailable during heavy load.

Direct Server Return configuration displays invalid Virtual Service level options.

Medium risk named user security flaw corrected.

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