Progress®
Kemp® LoadMaster®

LoadMaster 7.2.60.1 Release Notes

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Introduction

LMOS Version 7.2.60.1 is a security update of the General Availability (GA) branch made available on 12 September 2024. Please read these release notes before upgrading to this version.

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Before You Upgrade (READ ME FIRST)

Please pay special attention to the issues below before you begin an upgrade to this release.

Generation of 4096-bit DHE Key

During an upgrade to this version from a version prior to 7.2.53.0, a new 4096-bit DHE key is generated. On some virtual or hardware appliances, this can lead to significant CPU and memory consumption that could impact regular Virtual Service traffic. Progress Kemp strongly recommends that updates to this release from a version prior to 7.2.53.0 be performed during a maintenance interval.

Best Practices Cipher Set

In the 7.2.60.0 release, the **BestPractices** cipher set was updated to remove two ciphers that are considered weak. This change was made to improve security and conform to the latest industry best practices. This change is effective immediately after upgrading to this release.For further details, refer to the following section in the 7.2.60.0 Release Notes: Security Updates - Removed Weak Ciphers from Best Practices Cipher Set.

Note: If you depend on any of the cipher sets being removed from the **BestPractices** set, then before you upgrade you should create a custom cipher set that contains these ciphers and assign this new custom cipher set to the Virtual Services that are currently using the **BestPractices** cipher set. After this is done, you can upgrade to this release and your services will continue to use the old ciphers. If you do not, then after upgrading, any clients that depend on these ciphers being available will no longer be able to connect.

It is recommended, however, that you migrate your services as soon as possible to use the new

BestPractices cipher set.

Contents

- Supported Models for Upgrade
- Upgrade Path

Supported Models for Upgrade

This release of LMOS is supported on the Hardware and Virtual models shown in the first three columns of the table below. *It is not supported and should not be installed on any model listed in the column at right.* This update patch can be applied to any supported model regardless of licensing (for example, Service Provider License Agreement (SPLA) or Metered Enterprise License Agreement (MELA)) or platform (for example, hardware, local cloud, or public cloud).

Supported Virtual Models	Supported Hardware Models	Supported Bare Metal Models	Unsupported Hardware & Virtual Models
VLM-200	LM-X25-NG	LMB-1G	LM-2000
VLM-500	LM-X40-NG	LMB-2G	LM-2200
VLM-2000	LM-X40M-NG	LMB-5G	LM-2400
VLM-3000	LM-XHC-25G-NG	LMB-10G	LM-2500
VLM-5000	LM-XHC-40G-NG	LMB-MAX	LM-2600
VLM-10G	LM-XHC-100G-NG		LM-3500
VLM-GEO	LM-X1		LM-3600
VLM-MAX	LM-X3		LM-5000
VLM-SPLA-50	LM-X15		LM-5300
VLM-SPLA-100	LM-X25		LM-5500
VLM-SPLA-500	LM-X40		LM-Exchange
VLM-SPLA-3000	LM-X40M		LM-GEO
VLM-SPLA-GEO	LM XHC 25G		LM-UCS Series
	LM XHC 40G		LM-R320
	LM XHC 100G		LM-5400
	LM-3000		LM-8020-FIPS
	LM-3400		VLM-100
	LM-4000		VLM-1000

Supported Virtual Models	Supported Hardware Models	Supported Bare Metal Models	Unsupported Hardware & Virtual Models
	LM-5600		
	LM-8000		
	LM-8020		
	LM-8020M		
	LM-X3-NG		
	LM-X15-NG		
	LM-X25MT-NG		
	LM-XHC20-NG*		
	LM-XHC30-NG*		
	LM-XHC45-NG*		
	LM-XHC55-NG		
	LM-XHC60-NG*		
	LM-XHC75-NG		
	LM-XHC100-NG		

Note: *Available in the Asia-Pacific region only.

If your model number is not listed above, refer to the list of End of Life models.

Upgrade Path

You can upgrade to this release from any previous 7.2.x release. For full upgrade path information, refer to one of the following documents:

- Updating the LoadMaster Software Technical Note (Long Term Support Feature (LTSF) version)
- Updating the LoadMaster Software Technical Note (General Availability (GA) version)

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- Upgrade Patch XML File Verification Notes

Upgrade Patch XML File Verification Notes

By default, verification of the digital signature on upgrade images is required in LMOS 7.2.50.0 and above.

See the **Update Verification Options** setting under **System Administration > Miscellaneous Options > WUI Settings**. If the unit you are upgrading is set to require validation, you must supply the XML Verification File supplied with this release.

Note that:

- In previous releases, *two* verification files were provided: one for pre-7.2.51 systems and one for later systems. This restriction has been removed with the 7.2.53.0 release; if upgrading from firmware 7.2.51.0 / 7.2.48.3 and above you can use the XML file provided with this release. If upgrading from any other firmware version you must follow the upgrade path detailed in the Updating the LoadMaster Software Technical Note article.
- Appliances running an LMOS version prior to 7.2.49 do not provide the option of XML file verification in the UI or API. If you are upgrading from one of these releases to this release, you can verify the digital signatures offline. For further information, refer to the Verifying XML Signatures Technical Note.

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- Code Signing Certificate Update

Code Signing Certificate Update

On 27 May 2022, the certificate used to sign LoadMaster release artifacts for LoadMaster LMOS version 7.2.56.x and prior releases expired. For most customers, this will not impact normal operations, as explained in this article LoadMaster Code Signing Certificate Expires 27 May 2022.

All releases that occur after the above date (for example, LMOS 7.2.57.0) will be digitally signed using a newly obtained code signing certificate.

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New Features

Refer to the following section for details about the new feature released in version 7.2.60.1.

Ephemeral Port Range Selection

“Ephemeral ports” refers to the range of source ports used by the system for initiating outbound communications, particularly to Real Servers. By default (as recommended in RFC 6506) the LoadMaster uses a wide range of ports for ephemeral port selection – ports 1024 through 63999.

Some customers may require the ability to restrict the port range used for ephemeral port selection, so that dedicated ports used by specific applications on Real Servers can be excluded from the port selection process.

Starting with this release, the **System Configuration > Miscellaneous Options > Network Options > Local Reserved Ports** parameter allows you to specify a list of ports that will be excluded from the source port selection process. Some things to note about the **Local Reserved Ports** are as follows:

- You can specify a single port (or a list of comma-separated ports) that will not be used when initiating connections to Real Servers.
- Ports specified in the list must be between 1024 and 63999, inclusive.
- A port cannot appear more than once in the list.
- The total length of the list cannot exceed 128 characters.
- When making changes to an existing list, the entire list of ports must be specified.

Warning: Significantly reducing the number of ports available for connections to Real Servers could lead to

port exhaustion (that is, dropped server-side connections) during heavy traffic periods. Best practice is to keep the number of ports removed low – a single-digit percentage of all ports.

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Security Updates

Fix for CVE-2024-6658

It is possible for authenticated, remote attackers who have access to the management interface of LoadMaster (and LoadMaster credentials) to issue a carefully crafted HTTP request using the NetConsole API command that will allow arbitrary system commands to be executed. This vulnerability has been closed by sanitizing request user input to mitigate arbitrary system commands being executed. Refer to this knowledge base article for more information.

Fix for CVE-2024-7591

It is possible for unauthenticated, remote attackers (who have access to the LoadMaster management interface) to issue a carefully crafted HTTP request that will allow arbitrary system commands to be executed. This vulnerability has been closed by sanitizing request user input to mitigate arbitrary system commands being executed. [Note that this fix was previously delivered in an add-on patch; the same fix has now been included in this release and will be included in all subsequent releases.] Refer to this knowledge base article for more information.

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Change Notices

The RESTful APIv1 documentation has been moved to Postman and is now accessible at https://loadmasterapiv1.docs.progress.com. This provides a more dynamic and modern format of API documentation.

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New Known Issues

LM-6620	**ACME Boot Time Console Message**: After applying the 7.2.60.1 update image, the following message may be seen on the system console while rebooting: `/sbin/init.d/rc2.d/S99final: line 289: /one4net/cfg/_ACME2_TYPE: No such file or directory` This is a spurious diagnostic message and can be ignored. It indicates that a second ACME account has not been configured.
LM-6620	**SSL Boot Time Console Messages (FIPS mode only)**: When rebooting a 7.2.60.0 (or later) system configured into FIPS mode, the following message may be seen on the system console while rebooting: `Failed services in runlevel 2: sslciphers` This is a spurious diagnostic message and can be ignored. It indicates that there are no custom cipher sets defined in the current configuration.

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Issues Resolved

LM-6529	**ACME Certificate Display**: Fixed an issue that caused a blank page to be displayed when a read-only user navigates to the ACME certificate store.
LM-6525	**Security**: Fixed an issue that allowed unauthenticated command injection (CVE-2024-6591). [Previously released as an add-on package.]
LM-6477	**ACME Certificate Renewal**: Fixed an internal issue that caused certificate renewal to fail.
LM-6389	**RADIUS UI Login**: In previous releases, it was observed that applying Microsoft patch KB5040430 to a Windows Server 2019 configuration breaks RADIUS UI authentication. This issue has been fixed.

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Existing Known Issues

LM-2749	**API Keys**: An API key created for a remotely managed user (for example, RADIUS) will not work unless the remote user ID is also added as a local user on the LoadMaster.
LM-1865	**WAF Audit Logs**: No output is returned when selecting a date range.

LM-1557	**Single Sign On**: A segmentation fault in the SSO management process can occur under high load resulting in users being logged out. Messages like the following will be seen in the log:
	`kernel ssomgr[46119]: segfault at <num> ip <num> sp <num> error 4`
	`kernel L7: verify_user: Auth request failed for id 0`

LM-1527	**GEO Cluster Checks**: GEO cluster checks against LoadMasters configured in Clustering mode do not work.
LM-1412	**API stats command**: On a unit in Clustering mode, the up/down status value returned by the stats command may be different (and incorrect) compared to the status returned by **listvs** or **vstotals**.
LM-1373	**Let's Encrypt ACME Certificates**: After certificate renewal, the old certificate may still be in use by the Virtual Service. The workarounds are to either: • Remove and re-add the Virtual Service certificate • Disable and re-enable the Virtual Service

LM-477	**GEO Downgrade**: When downgrading from a release that supports **more than 64 IPs per FQDN** to a release that only supports **up to 64 IPs per FQDN**, the GEO configuration may become corrupted if there is at least one FQDN in the configuration that contains more than 64 IP addresses. The corruption will likely be evidenced by errors in the UI/API when you list the FQDNs. To avoid this issue entirely, reduce the number of IPs per FQDN to 64 or less for all FQDNs defined *before* you downgrade. If you have already downgraded, you can switch back to the previous boot partition to go back to the newer release (which supports > 64 IPs per FQDN); you can then reduce the number of IPs as above and downgrade again. If neither of these options is possible, contact Progress Kemp Support who will consult with engineering on a solution to your issues.
PD-19704	**GEO Cluster Status**: When adding a Cluster that is unavailable (DOWN) to a Site, the Site may reflect the Cluster's status as available (UP) for a short time before changing to DOWN.
PD-19108, LM-127	**GEO**: Modifying an FQDN entry displays a spurious error on the system console, similar to the one shown below. The FQDN is modified properly. <*FQDN*>:794 Uncaught ReferenceError: disp_addrr_elements is not defined at <*FQDN*>:794 (anonymous) @ <*FQDN*>:794
PD-19093, LM-127	**GEO**: Cannot configure GEO into partnering mode unless there is at least one FQDN already defined.
PD-18646, LM-133	**Certificate-Based Administrative Login**: Using a certificate that does not have a SAN attribute (that is, no Principal Name) results in a failed login attempt.
PD-18615, LM-134	**GEO**: No statistics (queries per second, and so on) are displayed for a site if the FQDN is configured to use the "All Available" Selection Criteria.
PD-18099, LM-136	**Client Certificates**: Authentication may be denied if multiple "Other names" are present in the client certificate.
PD-15872	**LDAP/Syslog**: StartTLS is not working when the **Server Certificate Validation** flag is enabled.
PD-15475	**VS Redirects**: If you attempt to upload a new redirect error HTML file to a Virtual Service with **Not Available Redirection Handling** enabled *while traffic is currently being redirected*, then traffic to the Virtual Service is dropped. Click the **Error Message** radio button in the UI and the Virtual Service begins accepting connections again.
PD-15354	**SSO Timeout**: In LMOS 7.2.51.0, a fix was introduced for issues that caused an SSO client to not be properly logged out when the configured session timeout expires. It has been observed that while sessions do timeout, they are not always closed immediately upon the expiry of the timer; it can take close to a

	minute longer for the session to be closed.
PD-15294 LM-142	**ESP Verify Bearer Header**: The LoadMaster does not return an error when an encrypted token is received and there is no SSL certificate assigned to the Virtual Service to decrypt the token.
PD-15172 LM-143	**ESP Verify Bearer Header**: Validation is not working when "Allowed Virtual Hosts" and "Allowed Virtual Directories" are blank on the Virtual Service.
PD-13899	**ACLs and Real Servers**: Real Servers located on networks on which LoadMaster also has an IP address are *always* allowed to access Virtual Services on that network interface regardless of any access control list (ACL) settings on LoadMaster. For Layer 7 services, this issue can be worked around using Content Rules. The workaround for other services is to block access for local Real Servers (if desired) on another network device (firewall, switch, router, and so on).
PD-12838	**ESP / SSO**: The ESP **Permitted Group SID(s)** setting is not working as expected when configured on a SubVS.
PD-12616	**WAF / Compression**: With Web Application Firewall (WAF) enabled, compressed files are incorrectly decompressed. As a workaround, ensure compression is enabled in Virtual Service Advanced Properties by selecting the **Enable Compression** option.
PD-12492	**Downgrade**: If an **Azure VLM** is downgraded to the LTS firmware release (7.1.35.x), the WUI may display in the top right-hand corner that the VLM is a **Hyper-V VLM**. This indicates that the **Azure VLM Add-On Package** must be added to the system to provide full Azure VLM functionality. If this occurs, contact Progress Kemp Support to get the required add-on package.
PD-12354, PD-10466	**Hardware Support**: The LoadMaster models LM-X15, LM-X25, and LM-X40 do not support the following SFP+ modules: LM-SFP-SX (SFP+ SX Transceiver 1000BASE-SX 850nm, 550m over MMF), LM-SFP-LX (SFP+ LX Transceiver 1000BASE-LX 1310nm, 10KM over SMF).
PD-12237	**HA / NTP**: Configuring NTP for the first time *after* the system is running in High Availability (HA) mode *and* when the current time on the machines is not correct, may cause the systems to both go into the Master state.
PD-12147	**ESP / RADIUS**: In a LoadMaster configuration with ESP and Radius server-side authentication enabled, sessions may fail to be established.
PD-12058	**Browser Support**: An issue exists when connecting to the LoadMaster WUI when using newer versions of the Firefox browser on initial configuration of a hardware FIPS LoadMaster.
PD-11861	**RADIUS / IPv6**: IPv6 is not supported by the current RADIUS implementation in the LoadMaster for both WUI Authorization and ESP Authentication.
PD-11166	**Networking**: Azure LoadMasters are not translating the additional network address between the Master and Slave correctly.
PD-110	**SharePoint Virtual Services**: A second authentication prompt is presented when a file is uploaded to

44	SharePoint with the following configuration: WAF is configured with **Process Responses** enabled on the main Virtual Service and KCD is enabled on the SubVS level for server-side authentication.
PD-10917	**HA**: An issue exists when setting up a 2-armed HA Virtual LoadMaster in Azure.
PD-10784	**HA**: Configuring LoadMaster HA using eth1 on an Amazon Web Services (AWS) Virtual LoadMaster does not work.
PD-10193	**Exchange 2010 Virtual Services**: A WAF, ESP, and KCD configuration with Microsoft Exchange 2010 is not supported.
PD-10188	**Browser Support**: (Safari) When adding a Real Server to a Virtual Service or SubVS using the Safari browser, the list of available Real Servers is not available.
PD-10159	**Statistics**: When upgrading firmware from version 7.1.35.*n*, CPU and network usage graphs are not appearing. As a workaround, reset the statistics in the UI.
PD-10136	**Clustering**: In a LoadMaster cluster configuration, a new node can be added with the same IP address as an existing node.
PD-9816, PD-9476	**WAF**: There is an API command to list individual rules in a ruleset, but there is no command to list the available rulesets themselves.
PD-9765	**GEO**: DNS TCP requests from unknown sources are not supported.
PD-9507	**Networking**: Unable to add an SDN controller using the RESTful API/WUI in a specific scenario.
PD-9375	**SharePoint Virtual Services**: Microsoft Office files in SharePoint do not work in Firefox and Chrome when using SAML authentication.