Beta Extended L7 Debug

Technical Note

UPDATED: 19 March 2021

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1 Introduction

This document relates to additional logging capabilities that enable debug and client trace logging at a per-Virtual Service (VS) level. Because this is a beta feature, only configuring using the Web User Interface (WUI) is supported, no Application Program Interface (API) functionality has been implemented.

1.1 Related Firmware Version

Published with LMOS version 7.2.48.4 LTS. This document has not required substantial changes since 7.2.48.4 LTS. However, the content is in sync with the latest LoadMaster LTS firmware.

2 Extended Debug WUI Options

There is a global debug option called **Enable L7 Debug Traces** that enables debugging on all Layer 7 (L7) connections. This global setting has precedence over the new Extended L7 debug feature capabilities outlined below.

This new beta feature allows additional logging capabilities that enables debug logging on a per-VS level and a further option to limit the logging by specifying the client IP address. All logs associated with this feature are recorded in the system messages file **messages.txt**.
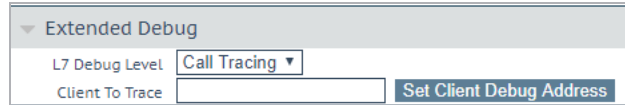
Debug Options

Disable All Transparency	Disable Transparency
Enable L7 Debug Traces	Enable Traces
Enable Extended L7 Debug	Enable Extended Debug
Enable IRQ Pinning	Enable IRQ Pinning
Perform an l7adm	l7adm
Enable WAF Debug Logging	Enable Logging
Enable IRQ Balance	Enable IRQ Balance
Enable TSO	Enable TSO
Enable TCP SACK	Enable TCP SACK
Enable Layer 4 IPv6 Forwarding	☑
Disable CLI VS Management	Disable CLI VS Management
Enable Bind Debug Traces	Enable Bind Traces
Perform a PS	ps
Perform Top	top Iterations 10 Interval 1 sec ☐ Show Threads ☐ Sort by Memory usage
Include Top in Backups	☐
Display Meminfo	Meminfo
Display Slabinfo	Slabinfo
Perform an Ifconfig	Ifconfig
Perform a Netstat	Netstat
Include Netstat in Backups	☑
Reset Statistic Counters	Reset Statistics
Flush OCSPD Cache	Flush Cache
Enable SSOMGR Debug Traces	Enable Traces
Flush SSO Authentication Cache	Flush SSO Cache
Linear SSO Logfiles	☐
Start IPsec IKE Daemon	Start IPsec IKE Daemon
Perform an IPsec Status	IPsec Status
Enable IKE Debug Level Logs	Enable Logs
Netconsole Host	[ ] Interface eth0 ▾ Set Netconsole Host
Ping Host	[ ] Interface eth0 ▾ Ping
Ping6 Host	[ ] Interface Automatic ▾ Ping6
Traceroute Host	[ ] Traceroute
Kill LoadMaster (395722)	[ ] Kill LoadMaster
Enable DHCPv6 Client	☐

You can enable this feature using the **Enable Extended L7 Debug** setting in the **System Configuration > Logging Options > System Log Files > Debug Options** page.

> Enabling Extended L7 Debug does not start logging. By default, the **L7 Debug Level** is set to **No Debug** for all Virtual Services and SubVSs. To enable logging for a particular Virtual Service or SubVS, you must set the **L7 Debug Level** to **Call Tracing** or **Full Debug** in the **Extended Debug** section of the Virtual Service or SubVS modify screen.

When this option is enabled, the **Extended Debug** configuration item is made available to all VSs. When using Sub-Virtual Services (SubVSs), the **Extended Debug** settings are also inherited by the

SubVS, so that a single call can be logged in its entirety. It is also possible to enable debug on only a single SubVS if required.

When **Enable Extended L7 Debug** is set, the **Extended Debug** options are available when configuring or modifying a VS. The options available are:

- **L7 Debug Level:** There are currently three levels available; **No Debug**, **Call Tracing**, and **Full Debug**. **Call Tracing** is a basic level log that displays most relevant operations, while **Full Debug** displays all available debug logs, which is the same as the global setting of **Enable L7 Debug Traces** but on a per-VS level.

  > In LoadMaster firmware version 7.2.53, a new value was added to the **L7 Debug Level** drop-down list called **Full Debug + HTTP Headers**.
  > **Warning:** Setting the **L7 Debug Level** to **Full Debug + HTTP Headers** may expose sensitive information.
  > For further details, refer to the following article: Extended Debug Enhancements.

- **Client To Trace:** It is also possible to limit the debug information even further by specifying a client IP address (you can specify an IPv4 or IPv6 address). If an address is specified, only connections coming from that specific client IP are logged/traced. This allows debugging capability from a single address.

Last Updated Date

This document was last updated on 19 March 2021.