

IPv6 Compliance with USGv6 Standards

Technical Note

UPDATED: 27 July 2023

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

These materials and all Progress® software products are copyrighted and all rights are reserved by Progress Software Corporation. The information in these materials is subject to change without notice, and Progress Software Corporation assumes no responsibility for any errors that may appear therein. The references in these materials to specific platforms supported are subject to change.

#1 Load Balancer in Price/Performance, 360 Central, 360 Vision, Chef, Chef (and design), Chef Habitat, Chef Infra, Code Can (and design), Compliance at Velocity, Corticon, Corticon.js, DataDirect (and design), DataDirect Cloud, DataDirect Connect, DataDirect Connect64, DataDirect XML Converters, DataDirect XQuery, DataRPM, Defrag This, Deliver More Than Expected, DevReach (and design), Driving Network Visibility, Flowmon, Inspec, Ipswitch, iMacros, K (stylized), Kemp, Kemp (and design), Kendo UI, Kinvey, LoadMaster, MessageWay, MOVEit, NativeChat, OpenEdge, Powered by Chef, Powered by Progress, Progress, Progress Software Developers Network, SequeLink, Sitefinity (and Design), Sitefinity, Sitefinity (and design), Sitefinity Insight, SpeedScript, Stylized Design (Arrow/3D Box logo), Stylized Design (C Chef logo), Stylized Design of Samurai, TeamPulse, Telerik, Telerik (and design), Test Studio, WebSpeed, WhatsConfigured, WhatsConnected, WhatsUp, and WS_FTP are registered trademarks of Progress Software Corporation or one of its affiliates or subsidiaries in the U.S. and/or other countries.

Analytics360, AppServer, BusinessEdge, Chef Automate, Chef Compliance, Chef Desktop, Chef Workstation, Corticon Rules, Data Access, DataDirect Autonomous REST Connector, DataDirect Spy, DevCraft, Fiddler, Fiddler Classic, Fiddler Everywhere, Fiddler Jam, FiddlerCap, FiddlerCore, FiddlerScript, Hybrid Data Pipeline, iMail, InstaRelinker, JustAssembly, JustDecompile, JustMock, KendoReact, OpenAccess, PASOE, Pro2, ProDataSet, Progress Results, Progress Software, ProVision, PSE Pro, Push Jobs, SafeSpaceVR, Sitefinity Cloud, Sitefinity CMS, Sitefinity Digital Experience Cloud, Sitefinity Feather, Sitefinity Thunder, SmartBrowser, SmartComponent, SmartDataBrowser, SmartDataObjects, SmartDataView, SmartDialog, SmartFolder, SmartFrame, SmartObjects, SmartPanel, SmartQuery, SmartViewer, SmartWindow, Supermarket, SupportLink, Unite UX, and WebClient are trademarks or service marks of Progress Software Corporation and/or its subsidiaries or affiliates in the U.S. and other countries. Java is a registered trademark of Oracle and/or its affiliates. Any other marks contained herein may be trademarks of their respective owners.

Please refer to the NOTICE.txt or Release Notes – Third-Party Acknowledgements file applicable to a particular Progress product/hosted service offering release for any related required third-party acknowledgements.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

Table of Contents

1 LoadMaster IPv6 Support **4**

1.1 Applicable Versions 4

1.2 SLAAC and DHCPv6 4

1.3 Prerequisite 5

1.4 Modifying the Default Network Configuration 5

1.5 Post Installation Configuration 5

1.6 Additional Resources 6

Last Updated Date **7**

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

1 LoadMaster IPv6 Support

This document tells you how to set up your LoadMaster for strict conformance with IPv6 interoperability standards as defined within the IPv6 RFC documents and as tested by the University of New Hampshire InterOperability Laboratory (UNH) for conformance with the US Government's USGv6 Testing Program.

1.1 Applicable Versions

LoadMaster Operating System (LMOS) 7.2.48.2 was tested by UNH for USGv6 compliance and the resulting certification:

- Applies to 7.2.48.2 and all subsequent releases that use the same IPv6 stack. This includes all LMOS versions between 7.2.48.2 and the current release (which, as of the publication of this document, was 7.2.52.0).
- Applies to all LoadMaster platforms: LM-X hardware, Virtual LoadMaster, Cloud-Native LoadMaster, ECS Connection Manager, and BareMetal LoadMaster.

You can view Kemp's certification listing on the UNH website and the complete testing report at the following link: USGv6 Tested Registry.

1.2 SLAAC and DHCPv6

LMOS has been certified as USGv6 compliant for both StateLess Address AutoConfiguration (SLAAC) interoperability and Dynamic Host Configuration Protocol Version 6 (DHCPv6) client interoperability. SLAAC is the native IPv6 facility for automatic IP address configuration for network devices. In the earlier IPv4 addressing scheme, this facility was provided by DHCPv4. DHCPv6 is just the IPv6 version of the earlier DHCPv4 capability.

So, why provide DHCPv6 client interoperability on the LoadMaster? Why not just use SLAAC?

In practice, IPv4 and IPv6 addressing are currently widely used together within the same infrastructures, and there is a significant part of the IPv6 market that continues to leverage both DHCPv4 and DHCPv6, rather than using SLAAC. This is done so that both IPv4 and IPv6 IP address auto-configuration can be managed from within the current administrative infrastructure. This preserves the value of that infrastructure, which may have been costly to develop, until such time as IPv4 is no longer needed, and provides a single management interface for both addressing architectures.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

1.3 Prerequisite

You must have a LoadMaster running LMOS 7.2.48.2 or above, that has been provisioned, licensed, and installed onto the target network.

1.4 Modifying the Default Network Configuration

Unless you configured a specific IP addresses when the LoadMaster was installed, the LoadMaster will be assigned both an IPv4 and an IPv6 address on the eth0 interface. Navigate to **System Configuration > Network Setup** to configure the network interfaces as needed.

> When an IPv6 address has been assigned to an interface using DHCPv6, it appears in the **Additional addresses** list. If both an IPv4 and IPv6 address has been assigned and the IPv4 address is not desired, you can remove it leaving only the IPv6 address on the interface.

1.5 Post Installation Configuration

To run in compliance with the USGv6 standards, the following options must be modified from their default values:

> Refer to the procedure at the bottom of this section for step-by-step instructions on how to modify each of these options.

- **Disable Layer 4 IPv6 Forwarding:** This option is on by default; it enables legacy IPv6 forwarding behavior on which some Kemp customers depend. This behavior conflicts with the relevant RFC and so must be disabled.
- **Enable DHCPv6 Client:** Under normal operation, the LoadMaster runs both the IPv4 and IPv6 DHCP clients on first-time boot only to obtain an IP address for the system; after that the clients no longer run (even after a reboot). To run the DHCPv6 client during normal system operation so that it can interoperate with other DHCPv6-capable devices on the network as required by the USGv6 standards, this option must be enabled.
- **Disable GEO GSLB and the Packet Filter:** If your system is licensed for GEO GSLB (Global Server Load Balancing), then GEO GSLB and the Packet Filter are turned on by default. Both must be disabled in order to run in compliance with the IPv6 standards.

The following procedure leads you through making the above changes:

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

1. In the main menu of the LoadMaster User Interface (UI), click **System Configuration > System Administration > Logging Options > System Log Files**.

2. Click **Debug Options**.

3. Turn off the **Enable Layer 4 IPv6 Forwarding** option.

4. Turn on the **Enable DHCPv6 Client** option.

5. In the main menu, click **Global Balancing > Disable GSLB**, and then click **OK** to confirm. After this, the sub-menu should only contain one link: **Enable GSLB**. This indicates that GEO is disabled.

6. In the main menu, click **System Configuration > Network Setup > Packet Routing Filter** and click **Disable** next to the **Packet Routing Filter** label.

1.6 Additional Resources

For further information, refer to the following documents:

UI Configuration Guide

RESTful API Interface Description

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

Last Updated Date

This document was last updated on 27 July 2023.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.