Cross-Platform Release Notes for Cisco IOS Release 15.1XB

April 16, 2012

Cisco IOS Release 15.1(4)XB8

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These release notes support Cisco IOS Release 15.1XB and are updated as needed. This release is based on Cisco IOS Release 15.1M&T. Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 15.1M&T*.

Note Cisco IOS Release 15.1(1)XB2 introduces changes to LISP packet formats as prescribed by draft-ietf-lisp-07. LISP in Cisco IOS Release 15.1(1)XB2 is not backward compatible with the previous LISP releases. All LISP deployments must move to Cisco IOS Release 15.1(1)XB2 to retain compatibility.

Contents

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Introduction

Cisco IOS Release 15.1XB is based on Cisco IOS Release 15.1M&T. Many features and hardware that are supported in this software have been previously released to customers on other software releases. This release is intended exclusively for the deployment of the Locator/ID Separation Protocol (LISP) functionality on the routers that are listed in the "Supported Hardware" section on page 2 section.

For information on new features and Cisco IOS commands that are supported by Release 15.1XB, see the "New and Changed Information" section on page 2.

System Requirements

This section describes the system requirements for Cisco IOS Release 15.1XB. and includes the following section:

- Supported Hardware

Supported Hardware

Cisco IOS Release 15.1XB supports the following Cisco routers:

- Cisco 1800 (Cisco 1801, Cisco 1802, Cisco 1803, Cisco 1805, Cisco 1811, Cisco 1812, Cisco 1841, Cisco 1861)
- Cisco 1900 (Cisco 1941, Cisco 1941W)
- Cisco 2800 (Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851)
- Cisco 2900 (Cisco 2901, Cisco 2911, Cisco 2921, Cisco 2951)
- Cisco 3800 (Cisco 3825, Cisco 3845)
- Cisco 3900 (Cisco 3925, Cisco 3945)
- Cisco 7200 (Cisco 7201, Cisco 7204VXR, Cisco 7206VXR)

New and Changed Information

This section lists the new hardware and software features supported by Cisco IOS Release 15.1XB and contains the following subsections.

Note These release notes are not cumulative and list only features that are new to Cisco IOS Release 15.1XB. The parent release for Cisco IOS Release 15.1XB is Cisco IOS Release 15.1T&M. For information about inherited features, refer to Cisco.com or Cisco Feature Navigator. For Cisco.com, either go to Cisco.com and select the appropriate software release under Products and Service and Cisco IOS Software or go to http://www.cisco.com/cisco/web/psa/default.html and select the appropriate software release under Cisco IOS Software and Release Notes. You can use the Cisco Feature Navigator tool at http://www.cisco.com/go/fn.

New Hardware Features in Cisco IOS Release 15.1(4)XB8

There are no new hardware features in Cisco IOS Release 15.1(4)XB8.

New Software Features in Cisco IOS Release 15.1(4)XB8

This section describes the following new and changed software features in Cisco IOS Release 15.1(4)XB8.

LISP Delegated Database Tree

The LISP Delegated Database Tree (DDT) feature provides the ability to define a large-scale distributed database of LISP Endpoint Identifier (EID) space using a new type of LISP-speaking device known as a DDT node. A DDT node is configured to be authoritative for some specified portion of an overall LISP EID space, as well as the set of more specific subprefixes that are delegated to other DDT nodes.

New Hardware Features in Cisco IOS Release 15.1(4)XB7

There are no new hardware features in Cisco IOS Release 15.1(4)XB7.

New Software Features in Cisco IOS Release 15.1(4)XB7

This section describes the following new and changed software features in Cisco IOS Release 15.1(4)XB7.

LISP Delegated Database Tree "Beta" Support

The LISP Delegated Database Tree (DDT) feature provides the ability to define a large-scale distributed database of LISP Endpoint Identifier (EID) space using a new type of LISP-speaking device known as a DDT node. A DDT node is configured to be authoritative for some specified portion of an overall LISP EID space, as well as the set of more specific subprefixes that are delegated to other DDT nodes.

New Hardware Features in Cisco IOS Release 15.1(4)XB6

There are no new hardware features in Cisco IOS Release 15.1(4)XB6.

New Software Features in Cisco IOS Release 15.1(4)XB6

This section describes the following new and changed software features in Cisco IOS Release 15.1(4)XB6.

LISP Locator Table Virtualization Support

The LISP Locator Table virtualization feature allows multiple LISP instantiations created in support of multi-tenancy to each be associated with their own routing locator address space reachable via a Virtual Routing and Forwarding (VRF) table.

New Hardware Features in Cisco IOS Release 15.1(4)XB5

There are no new hardware features in Cisco IOS Release 15.1(4)XB5.

New Software Features in Cisco IOS Release 15.1(4)XB5

This section describes the following new and changed software features in Cisco IOS Release 15.1(4)XB5.

- LISP ALT Summary Route
- LISP PETR Load Sharing
- LISP Remote RLOC Probe
- LISP RLOC Auto-Discovery
- LISP Route-Import

LISP ALT Summary Route

The LISP ALT Summary Route feature enables an ALT-connected device to summarize and announce an aggregate prefix into the LISP ALT. This summary route can be announced in lieu of more-specifics to improve ALT scalability, and to simplify Map-Request handling.

LISP PETR Load Sharing

The LISP PETR Load Sharing feature adds priority and weight options to configured PETRs for configurable load sharing.

LISP Remote RLOC Probe

The LISP Remote RLOC Probe feature improves convergence times for LISP encapsulations by immediately sending triggered probes to remote RLOCs that undergo next-hop changes.

LISP RLOC Auto-Discovery

The LISP RLOC Auto-Discovery feature provides the ability to configure a LISP site with multiple xTRs to use dynamic provisioning for their RLOC interfaces (locators).

LISP Route-Import

The LISP Route-Import feature enables dynamic proxying of EID-space by a Proxy-ITR.

New Hardware Features in Cisco IOS Release 15.1(4)XB4

There are no new hardware features in Cisco IOS Release 15.1(4)XB4.

New Software Features in Cisco IOS Release 15.1(4)XB4

This section describes the following new and changed software features in Cisco IOS Release 15.1(4)XB4.

LISP Instance ID Support

The LISP Instance ID Support feature includes the following support:

- Multi-tenancy support on xTR: Ability to associate LISP instance IDs with virtual routing and forwarding (VRF) tables running on an xTR. This allows for an xTR that is connected to the multiple networks to use LISP instance IDs to provide segmentation of traffic for the EID prefixes that they support. (When Multi-tenancy is configured on an xTR, it must also be configured on the Map-Server. Note that multi-tenancy support for the Map-Server was provided in Cisco IOS Release 15.1(1)XB3.)
- ALT-less Proxy Ingress Tunnel Route support: Ability to configure LISP PITR functionality without requiring the PITR to be ALT-connected for EID-to-RLOC mapping resolution. This results in a simpler configuration of the PITR, and allows the PITR to use standard Map-resolution mechanisms for EID-to-RLOC mapping resolution instead of the ALT.

New Hardware Features in Cisco IOS Release 15.1(1)XB3

There are no new hardware features in Cisco IOS Release 15.1(1)XB3.

New Software Features in Cisco IOS Release 15.1(1)XB3

This section describes the following new and changed software features in Cisco IOS Release 15.1(1)XB3.

LISP Instance ID Support

The LISP Instance ID Support feature includes the following support:

- Single-tenancy support on xTR: Ability to associate an instance ID to a single LISP instance running on an xTR. This allows for xTRs that are connected to the same network to use different LISP instances resulting in segmentation of the EID prefixes that they support.
- Multi-tenancy support on MS/MR: Ability for an MS/MR to maintain segmentation of the EID prefixes between instance IDs when providing mapping services to xTRs that are running with different LISP instance IDs.

New Hardware Features in Cisco IOS Release 15.1(1)XB2

There are no new hardware features in Cisco IOS Release 15.1(1)XB2.

New Software Features in Cisco IOS Release 15.1(1)XB2

This section describes the following new and changed software features in Cisco IOS Release 15.1(1)XB2.

Support for LISP Map Server and Map Resolver Functionality

Map Resolver

A LISP Map-Resolver is deployed as a LISP infrastructure component. A Map-Resolver receives LISP Encapsulated Control Messages (ECM) containing Map-Requests from LISP ITRs directly over the underlying locator-based network. The Map-Resolver decapsulates these messages and forwards them on the LISP-ALT topology, where they are then delivered either to an ETR that is directly connected to the LISP-ALT and that is authoritative for the EID being queried by the Map-Request, or to the Map-Server that is injecting EID-prefixes into the LISP-ALT on behalf of the authoritative ETR.

Map Server

A LISP Map-Server is deployed as a LISP Infrastructure component. LISP site commands are configured on the Map Server for a LISP ETR that registers to it, including an authentication key, which must match the one also configured on the ETR. A Map Server receives Map-Register control packets from ETRs. When the Map Server is configured with a service interface to the LISP-ALT, it injects aggregates for the registered EID prefixes into the LISP-ALT.

The Map-Server also receives Map-Request control packets from the LISP-ALT, which it then forwards as a LISP Encapsulated Control Messages (ECM) to the registered ETR that is authoritative for the EID prefix being queried. The ETR returns a Map-Reply message directly back to the ITR.

New Hardware Features in Cisco IOS Release 15.1(1)XB1

There are no new hardware features in Cisco IOS Release 15.1(1)XB1.

New Software Features in Cisco IOS Release 15.1(1)XB1

This section describes the following new and changed software features in Cisco IOS Release 15.1(1)XB1.

- LISP Proxy Ingress Tunnel Router (PITR) Support
- LISP Proxy Egress Tunnel Router (PETR) Support
- LISP Support for IPv6

LISP Proxy Ingress Tunnel Router (PITR) Support

LISP Proxy Ingress Tunnel Router (PITR) support allows non-LISP enabled sites to communicate with LISP-enabled sites.

LISP Proxy Egress Tunnel Router (PETR) Support

LISP Proxy Egress Tunnel Router (PETR) support allows two LISP enabled sites with a common address-family to communicate with each other when the intermediate network between does not use that address family. PETR support also allows a LISP enabled site to communicate with non-LISP enabled sites when it is necessary to bypass Unicast Reverse Path Forwarding (uRPF) mechanisms.

LISP Support for IPv6

As a protocol, LISP was designed to operate in a mixed address-family manner. The initial Cisco IOS release of LISP did not implement IPv6 support. This release of Cisco IOS and Cisco IOS XE provides support for IPv6.

IPv6 support is provided for all LISP features available in these releases when LISP encapsulates IPv6 EIDs over IPv6 RLOCs or IPv6 EIDs over IPv4 RLOCs. This release does not support the LISP encapsulation of IPv4 EIDs over IPv6 RLOCs.

New Hardware Features in Cisco IOS Release 15.1(1)XB

There are no new hardware features in Cisco IOS Release 15.1(1)XB.

New Software Features in Cisco IOS Release 15.1(1)XB

This section describes new and changed software features in Cisco IOS Release 15.1(1)XB.

Locator/ID Separation Protocol

Locator/ID Separation Protocol (LISP) is a next-generation routing feature. LISP can be used for any multi-homing environments while reducing operational complexities.

LISP creates a new paradigm by splitting the device identity, known an Endpoint Identifier (EID), and its location, known as its Routing Locator (RLOC) into two different numbering spaces. Splitting EID and RLOC functions yields several advantages that include improved scalability of the routing system through greater aggregation of RLOCs and improved multi-homing efficiency and ingress traffic engineering while avoiding site renumbering and reducing opex costs.

The Cisco IOS implementation of LISP supports the following Internet Drafts:

- draft-ietf-lisp-07
- draft-ietf-lisp-alt-04
- draft-ietf-lisp-interworking-01
- draft-ietf-lisp-lig-00
- draft-ietf-lisp-ms-05

Related Documentation

The following section describes the documentation available for Cisco IOS Release 15.1XB.

Release-Specific Documents

The following documents are specific to Cisco IOS Release 15.1XB:

- *Cisco IOS LISP Command Reference* for Cisco IOS Release 15.1(4)XB5 at:

  http://www.cisco.com/en/US/docs/ios/lisp/command/reference/LISP_command_reference_1514xb5-only.pdf
- *Cisco IOS LISP Command Reference* for Cisco IOS Release 15.1(4)XB4 at:

  http://www.cisco.com/en/US/docs/ios/lisp/command/reference/LISP_command_reference_1514xb4-only.pdf
- *Cisco IOS LISP Command Reference* for Cisco IOS Release 15.1(1)XB3 and earlier releases at:

  http://www.cisco.com/en/US/docs/ios/lisp/command/reference/LISP_command_reference.pdf
- *Cisco IOS LISP Laboratory Testing Application Note* at:

  http://www.cisco.com/en/US/docs/ios/lisp/app/note/LISP_lab_test_app_note.pdf

Note If you do not find the answers to your questions or issues in the documentation that we have provided, please use the lisp-support@cisco.com mailing list.

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section on page 8.