

Inter-Domain Routing
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BGP Link-State Information Distribution Implementation Report
draft-gredler-idr-ls-distribution-impl-00

Abstract

This document is an implementation report for the BGP Link-State Information Distribution protocol as defined in [\[I-D.ietf-idr-ls-distribution\]](#). The editors did not verify the accuracy of the information provided by respondents. The respondents are experts with the implementations they reported on, and their responses are considered authoritative for the implementations for which their responses represent. Respondents were asked to only use the YES answer if the feature had at least been tested in the lab.

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Internet-Draft BGP Link-State Implementation report February 2014

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Table of Contents

1.	Introduction	3
2.	Implementation Forms	3
3.	NLRI subtypes	3
4.	Link NLRI TLV support	4
5.	Node NLRI TLV support	7
6.	Prefix NLRI TLV support	8
7.	Interoperable Implementations	9
7.1.	Cisco Implementation	9
7.2.	Juniper Implementation	10
7.3.	TBD Implementation	10
8.	IANA Considerations	10
9.	Security considerations	10
10.	Acknowledgements	10
11.	Informative References	10
	Authors' Addresses	10

Internet-Draft BGP Link-State Implementation report February 2014

1. Introduction

In order to share network link-state and traffic engineering information collected with external components using the BGP routing protocol a new BGP Network Layer Reachability Information (NLRI) encoding format is required.

This document provides an implementation report for the BGP Link-State Information Distribution NLRI Format as defined in [\[I-D.ietf-idr-ls-distribution\]](#).

The editors did not verify the accuracy of the information provided by respondents or by any alternative means. The respondents are experts with the implementations they reported on, and their responses are considered authoritative for the implementations for which their responses represent. Respondents were asked to only use the YES answer if the feature had at least been tested in the lab.

2. Implementation Forms

Contact and implementation information for person filling out this form:

IOS-XR

Name: Manish Bhardwaj
Email: manbhard@cisco.com
Vendor: Cisco Systems, Inc.
Release: IOS-XR
Protocol Role: Sender, Receiver

JUNOS

Name: Balaji Rajagopalan
Email: balajir@juniper.net
Vendor: Juniper Networks, Inc.
Release: JUNOS

3. NLRI subtypes

Does the implementation support the Network Layer Reachability (NLRI) subtypes as described in Section 3.2 of [\[I-D.ietf-idr-ls-distribution\]](#) ?

N1: Node NLRI

N2: Link NLRI

N3: IPv4 Topology Prefix NLRI

N4: IPv6 Topology Prefix NLRI

	IOS-XR	JUNOS	TBD
Rcv.N1	YES	YES	---
Snd.N1	YES	YES	---
Rcv.N2	YES	YES	---
Snd.N2	YES	YES	---
Rcv.N3	YES	NO(1)	---
Snd.N3	YES	NO(1)	---
Rcv.N4	YES	NO(1)	---
Snd.N4	YES	NO(1)	---

Note 1: Topology Prefix NLRIs get transparently relayed.

4. Link NLRI TLV support

Does the implementation support the TLVs described in Section 7 of [\[I-D.ietf-idr-ls-distribution\]](#) ?

TLV 256: Local Node Descriptor
TLV 257: Remote Node Descriptor
TLV 258: Link Local/Remote Identifier
TLV 259: IPv4 Interface address
TLV 260: IPv4 Neighbor address
TLV 261: IPv6 Interface address
TLV 262: IPv6 Neighbor address
TLV 263: Multi-Topology IDs

TLV 512: Autonomous System
TLV 513: BGP-LS Identifier
TLV 514: Area ID
TLV 515: IGP Router ID
TLV 1028: IPv4 router-ID of Local Node
TLV 1029: IPv6 router-ID of Local Node
TLV 1030: IPv4 router-ID of Remote Node
TLV 1031: IPv6 router-ID of Remote Node
TLV 1088: Administrative group (color)
TLV 1089: Maximum link bandwidth
TLV 1090: Maximum reservable link bandwidth

TLV 1091: Unreserved link bandwidth

TLV 1092: TE default Metric

TLV 1093: Link Protection Type

TLV 1094: MPLS Protocol Mask

TLV 1095: IGP Metric

TLV 1096: Shared Risk Link Group

TLV 1097: Opaque Link attribute

TLV 1098: Link name attribute

	IOS-XR	JUNOS	TBD
Rcv.TLV 256	YES	YES	---
Snd.TLV 256	YES	YES	---
Rcv.TLV 257	YES	YES	---
Snd.TLV 257	YES	YES	---
Rcv.TLV 258	YES	YES	---
Snd.TLV 258	YES	YES	---
Rcv.TLV 259	YES	YES	---

Snd.TLV 259	YES	YES	---
Rcv.TLV 260	YES	YES	---
Snd.TLV 260	YES	YES	---
Rcv.TLV 261	YES	YES	---
Snd.TLV 261	YES	YES	---
Rcv.TLV 262	YES	YES	---
Snd.TLV 262	YES	YES	---
Rcv.TLV 263	---	NO	---
Snd.TLV 263	---	NO	---
Rcv.TLV 512	YES	YES	---
Snd.TLV 512	YES	YES	---
Rcv.TLV 513	---	YES	---
Snd.TLV 513	---	NO	---
Rcv.TLV 514	---	YES	---
Snd.TLV 514	---	NO	---

Rcv.TLV	515	YES	YES	---
Snd.TLV	515	YES	YES	---
Rcv.TLV	1028	YES	YES	---
Snd.TLV	1028	YES	YES	---
Rcv.TLV	1029	YES	YES	---
Snd.TLV	1029	YES	YES	---
Rcv.TLV	1030	YES	YES	---
Snd.TLV	1030	YES	YES	---
Rcv.TLV	1031	YES	YES	---
Snd.TLV	1031	YES	YES	---
Rcv.TLV	1088	YES	YES	---
Snd.TLV	1088	YES	YES	---
Rcv.TLV	1089	YES	YES	---
Snd.TLV	1089	YES	YES	---
Rcv.TLV	1090	---	YES	---
Snd.TLV	1090	---	YES	---
Rcv.TLV	1091	---	YES	---
Snd.TLV	1091	---	YES	---
Rcv.TLV	1092	---	YES	---
Snd.TLV	1092	---	YES	---
Rcv.TLV	1093	---	NO	---
Snd.TLV	1093	---	NO	---
Rcv.TLV	1094	NO	NO	---
Snd.TLV	1094	NO	NO	---
Rcv.TLV	1095	---	NO	---
Snd.TLV	1095	---	NO	---
Rcv.TLV	1096	YES	YES	---
Snd.TLV	1096	---	YES	---
Rcv.TLV	1097	---	YES	---
Snd.TLV	1097	---	NO	---
Rcv.TLV	1098	NO	NO	---
Snd.TLV	1098	NO	NO	---

5. Node NLRI TLV support

Does the implementation support the TLVs described in Section 7 of [\[I-D.ietf-idr-ls-distribution\]](#) ?

TLV 256: Local Node Descriptor

TLV 263: Multi-Topology IDs

TLV 512: Autonomous System
TLV 513: BGP-LS Identifier
TLV 514: Area ID
TLV 515: IGP Router ID
TLV 1024: Node flag bits
TLV 1025: Opaque Node properties
TLV 1026: Node name
TLV 1027: IS-IS Area Identifier
TLV 1028: IPv4 router-ID of Local Node
TLV 1029: IPv6 router-ID of Local Node

		IOS-XR	JUNOS	TBD
Rcv.TLV	256	YES	YES	---
Snd.TLV	256	YES	YES	---
Rcv.TLV	263	---	NO	---
Snd.TLV	263	---	NO	---
Rcv.TLV	512	YES	YES	---
Snd.TLV	512	YES	YES	---
Rcv.TLV	513	---	YES	---
Snd.TLV	513	---	NO	---
Rcv.TLV	514	---	YES	---
Snd.TLV	514	---	NO	---
Rcv.TLV	515	YES	YES	---
Snd.TLV	515	YES	YES	---
Rcv.TLV	1024	YES	NO	---
Snd.TLV	1024	YES	NO	---
Rcv.TLV	1025	---	NO	---
Snd.TLV	1025	---	NO	---
Rcv.TLV	1026	---	NO	---
Snd.TLV	1026	---	NO	---
Rcv.TLV	1027	---	NO	---
Snd.TLV	1027	---	NO	---
Rcv.TLV	1028	YES	YES	---
Snd.TLV	1028	YES	YES	---
Rcv.TLV	1029	YES	YES	---
Snd.TLV	1029	YES	YES	---

6. Prefix NLRI TLV support

Does the implementation support the TLVs described in Section 7 of [\[I-D.ietf-idr-ls-distribution\]](#) ?

TLV 256: Local Node Descriptor

TLV 263: Multi-Topology IDs

TLV 264: OSPF route type

TLV 265: IP Reachability information

TLV 1152: IGP Flags

TLV 1153: Route Tag

TLV 1154: Extended Tag

TLV 1155: Prefix Metric

TLV 1156: OSPF Forwarding Address

TLV 1157: Opaque Prefix Attribute

	IOS-XR	JUNOS	TBD
Rcv.TLV 256	YES	NO	---
Snd.TLV 256	YES	NO	---
Rcv.TLV 263	YES	NO	---
Snd.TLV 263	YES	NO	---
Rcv.TLV 264	YES	NO	---
Snd.TLV 264	YES	NO	---
Rcv.TLV 265	YES	NO	---
Snd.TLV 265	YES	NO	---
Rcv.TLV 1152	YES	NO	---
Snd.TLV 1152	YES	NO	---
Rcv.TLV 1153	YES	NO	---
Snd.TLV 1153	YES	NO	---
Rcv.TLV 1154	YES	NO	---
Snd.TLV 1154	YES	NO	---
Rcv.TLV 1155	YES	NO	---
Snd.TLV 1155	YES	NO	---
Rcv.TLV 1156	YES	NO	---
Snd.TLV 1156	YES	NO	---
Rcv.TLV 1157	---	NO	---
Snd.TLV 1157	---	NO	---

7. Interoperable Implementations

List other implementations that you have tested interoperability of BGP-LS Protocol Implementation.

7.1. Cisco Implementation

Cisco: The Cisco Systems, Inc. IOS-XR implementation should be interoperable with other vendor BGP-LS Protocol implementations. In particular we have tested our interoperability with Juniper's JUNOS

and Telefonica's XXX implementation.

Internet-Draft

BGP Link-State Implementation report

February 2014

[7.2.](#) Juniper Implementation

Juniper: The Juniper Networks, Inc. JUNOS implementation should be interoperable with other vendor BGP-LS Protocol implementations. In particular we have tested our interoperability with Cisco Systems, Inc. IOS-XR implementation.

[7.3.](#) TBD Implementation

TBD: The TBD implementation has been tested by us with other implementations. It was so buggy that we were rolling on the floor laughing. We think this was either due to bad star alignment or perhaps increased solar flare activity.

[8.](#) IANA Considerations

This document makes no request of IANA.

Note to RFC Editor: The IANA has requested that this section remain in the document upon publication as an RFC. This note to the RFC Editor, however, may be removed.

[9.](#) Security considerations

No new security issues are introduced to the BGP Link-State Information Distribution Protocol defined in [\[I-D.ietf-idr-ls-distribution\]](#).

[10.](#) Acknowledgements

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[11.](#) Informative References

[I-D.ietf-idr-ls-distribution]

Gredler, H., Medved, J., Previdi, S., Farrel, A., and S. Ray, "North-Bound Distribution of Link-State and TE Information using BGP", [draft-ietf-idr-ls-distribution-04](#) (work in progress), November 2013.

Gredler, et al.

Expires August 18, 2014

[Page 10]

Internet-Draft

BGP Link-State Implementation report

February 2014

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Gredler, et al.

Expires August 18, 2014

[Page 11]