

Optional Checksums in ISIS
<[draft-ietf-isis-wg-snp-checksum-02.txt](#)>

Status of This Memo

This document is an Internet-Draft and is in full conformance with all provisions of [Section 10 of RFC2026](#). Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at
<http://www.ietf.org/ietf/lid-abstracts.txt>

The list of Internet-Draft Shadow Directories can be accessed at
<http://www.ietf.org/shadow.html>.

Abstract

This draft describes an optional extension to IS-IS [IS090 , Cal90a , Cal90b], used today by several ISPs for routing within their clouds. IS-IS is an interior gateway routing protocol developed originally by OSI and used with IP extensions as IGP. IS-IS originally doesn't provide CSNP and PSNP checksums, relying on the underlying layers to verify the integrity of information provided. Experience with the protocol shows that this precondition does not always hold and scenarios can be imagined that impact protocol functionality. This document introduces a new optional TLV providing checksums.

1. Introduction

IS-IS CSNPs and PSNPs and IIHs can be corrupted in case of faulty implementations of L2 hardware or lack of checksumming on a specific network technology. As a particularly ugly case, corruption of length and/or TLV length fields may lead to generation of extensive

Internet Draft

SNP Checksums

1 Jul 2000

numbers of "empty" LSPs in the receiving node. Since we cannot rely on authentication as checksum mechanism, this document proposes an optional TLV to add checksums to the elements.

[2.](#) TLV Description

The optional TLV MAY BE included in all CSNP, PSNP and IIH packets and an implementation that implements optional checksums MUST accept PDUs if they do NOT contain the optional checksum. Implementations that receive optional checksum TLV and support it MUST discard the PDU if the checksum is incorrect. An implementation that does NOT implement optional checksums MAY accept a PDU that contains the checksum TLV. An implementation that supports optional checksums and receives it within any other PDU than CSNP, PSNP or IIH MUST discard the PDU. Such an implementation MUST discard the PDU as well if more than one optional checksum TLVs are included within it. Additionally, any implementation supporting optional checksums MUST accept PDUs with an optional checksum with the value 0 and consider such a checksum as correct.

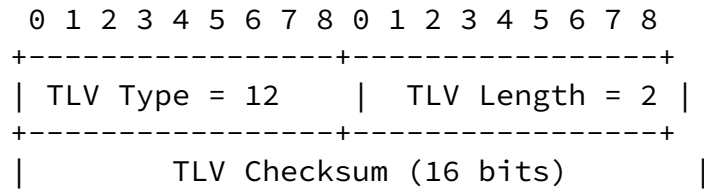
[3.](#) Checksum Computation

The checksum is a fletcher checksum computed according to iso 8473 Annex C over the complete PDU.

[4.](#) Interaction with TLVs using PDU Data to Compute Signatures

The implementation MUST either omit the optional checksum on an interface or send a 0 checksum value if it includes in the PDU signatures that provide equivalent or stronger functionality, such as HMAC or MD5, otherwise an implementation that handles such signatures but not the optional checksums, may fail to compute the MD5 signature on the packet due to the fact that MD5 is computed with checksum value set to 0 and only as final step the checksum value is being filled in.

5. TLV Format



Przygienda et al.

Expires 1 Feb 2001

[Page 2]

Internet Draft

SNP Checksums

1 Jul 2000

+-----+

6. Acknowledgments

Tony Li mentioned the original problem. Mike Shand provided comments. Somehow related problems with purging on LSP checksum errors have been observed by others before. Nischal Sheth spelled out the issues of interaction between MD5 and the optional checksums.

7. Security Consideration

ISIS security applies to the work presented. No specific security issues as to the new element are known.

References

- [Cal90a] R. Callon. OSI ISIS Intradomain Routing Protocol. INTERNET-RFC, Internet Engineering Task Force, February 1990.
- [Cal90b] R. Callon. Use of OSI ISIS for Routing in TCP/IP and Dual Environments. INTERNET-RFC, Internet Engineering Task Force, December 1990.
- [ISO90] ISO. Information Technology - Telecommunications and Information Exchange between Systems - Intermediate System to Intermediate System Routing Exchange Protocol for Use in Conjunction with the Protocol for Providing the Connectionless-Mode Network Service. ISO, 1990.

Authors' Addresses

Tony Przygienda
Redback
[350](#) Holger Way
San Jose, CA 95134-1362
(408) 548 9416
prz@redback.com

Przygienda et al.

Expires 1 Feb 2001

[Page 3]