                     IS-IS Registry Extension for Purges

Abstract

   IANA maintains the "IS-IS TLV Codepoints" registry. This registry
   documents which TLVs can appear in different types of IS-IS Protocol
   Data Units (PDUs), but does not document which TLVs can be found in
   zero Remaining Lifetime Link State PDUs (LSPs), a.k.a. purges. This
   document extends the existing registry to record the set of TLVs that
   are permissible in purges and updates the rules for generating and
   processing purges in the presence of authentication. This document
   updates RFC 3563, RFC 5304, and RFC 5310.

Status of This Memo

   This is an Internet Standards Track document.

   This document is a product of the Internet Engineering Task Force
   (IETF). It represents the consensus of the IETF community. It has
   received public review and has been approved for publication by the
   Internet Engineering Steering Group (IESG). Further information on
   Internet Standards is available in Section 2 of RFC 5741.

   Information about the current status of this document, any errata,
   and how to provide feedback on it may be obtained at
   http://www.rfc-editor.org/info/rfc6233.

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1. Introduction

   The IS-IS [ISO-10589] routing protocol maintains a link state
   database of the topology of its routing domain by flooding a set of
   Link State Protocol Data Units (LSPs). When the protocol no longer
   needs the information stored in an LSP, it uses the purge mechanism
   to cause the Intermediate Systems (ISs) in its domain to discard the
   information contained in the LSP. The process for generating purges
   can be found in Section 7.3.16.4 of [ISO-10589]. This process
   retains only the LSP header, discarding any TLVs that had been
   carried within the LSP.

   Subsequent enhancements to IS-IS, such as [RFC5304] [RFC5310], amend
   the process of generating a purge and allow the inclusion of certain
   TLVs in purges.

1.1. Requirements Language

   The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
   "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
   document are to be interpreted as described in [RFC2119].

2. Registry Changes

   This document extends the current "IS-IS TLV Codepoints" registry,
   defined in [RFC3563], to record the set of TLVs that MAY be found in
   purges. All other TLVs MUST NOT appear in purges. This will serve
   as an aid to subsequent documents, which can then refer to the
   registry as the definitive list of the TLVs allowed in purges. This
   will also act as an aid to implementers, providing them with an
   easily accessible compendium of allowable TLVs.

   The purge status defined for a given TLV applies to all sub-TLVs
   defined for that TLV.

3. Purges and Authentication

   Previous documents on authentication [RFC5304] [RFC5310] required
   that an IS only accept a purge if it only contained the
   Authentication TLV.

   This document updates and generalizes that behavior as follows: an
   implementation that implements authentication MUST NOT accept a purge
   that contains any TLV listed in the registry that is not acceptable
   in a purge. An implementation MUST NOT accept a purge that contains
   a TLV not listed in the registry unless the purge also contains the
   Purge Originator Identification (POI) TLV [RFC6232]. Purges that are
   accepted MUST be propagated without removal of TLVs. If multiple
   purges are received for the same LSP, then the implementation MAY
   propagate any one of the purges.

   If an implementation that implements authentication accepts a purge
   that does not include the POI TLV and it chooses to insert the POI
   TLV, it MUST also recompute authentication.

   ISs MUST NOT accept LSPs with a non-zero Remaining Lifetime that
   contain the POI TLV.

   Purge generation is updated as follows: an implementation that
   implements authentication generates a purge by first removing any
   TLVs that are not listed in the registry as being acceptable in
   purges. The POI TLV MUST be added. Then any other TLVs that MAY be
   in purges, as shown by the registry, MAY be added. Finally,
   authentication, if any, is added.

4. IANA Considerations

   IANA has modified the "IS-IS TLV Codepoints" registry by adding a
   column in the registry for 'Purge'. A 'y' in this column indicates
   that the TLV for this row MAY be found in a purge. An 'n' in this
   column indicates that the TLV for this row MUST NOT be found in a
   purge.

   The 'Purge' column should initially contain a 'y' for TLV type 10
   (Authentication) and for TLV type 137 (Dynamic hostname). All other
   entries in this column should have an 'n'. Other additions to this
   registry should explicitly specify their value for this column.

5. Security Considerations

   This document introduces no new security issues.

6. Normative References

   [ISO-10589]   ISO, "Intermediate system to Intermediate system
                 intra-domain routeing information exchange protocol for
                 use in conjunction with the protocol for providing the
                 connectionless-mode Network Service (ISO 8473)",
                 ISO/IEC 10589:2002.

   [RFC2119]   Bradner, S., "Key words for use in RFCs to Indicate
                 Requirement Levels", BCP 14, RFC 2119, March 1997.

   [RFC3563]   Zinin, A., "Cooperative Agreement Between the ISOC/IETF
                 and ISO/IEC Joint Technical Committee 1/Sub Committee 6
                 (JTC1/SC6) on IS-IS Routing Protocol Development",
                 RFC 3563, July 2003.

   [RFC5304]   Li, T. and R. Atkinson, "IS-IS Cryptographic
                 Authentication", RFC 5304, October 2008.

   [RFC5310]   Bhatia, M., Manral, V., Li, T., Atkinson, R., White, R.,
                 and M. Fanto, "IS-IS Generic Cryptographic
                 Authentication", RFC 5310, February 2009.

   [RFC6232]   Wei, F., Qin, Y., Li, Z., Li, T., and J. Dong, "Purge
                 Originator Identification TLV for IS-IS", RFC 6232,
                 May 2011.

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