Stream Control Transmission Protocol (SCTP) Chunk Flags Registration

Abstract

This document defines the procedure for registering chunk flags with the Internet Assigned Numbers Authority (IANA) for the Stream Control Transmission Protocol (SCTP). It updates RFC 4960 and also defines the IANA registry for contents for currently defined chunk types. It does not change SCTP in any other way.

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/rfc6096.

Copyright Notice

Copyright (c) 2011 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to BCP 78 and the IETF Trust’s Legal Provisions Relating to IETF Documents (http://trustee.ietf.org/license-info) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.
Table of Contents

1. Introduction ............................... 3
2. Conventions .................................. 3
3. IANA Considerations .......................... 3
   3.1. Updated IETF-Defined Chunk Extension .......... 3
   3.2. New IETF Chunk Flags Registration .............. 4
   3.3. Initial Registrations ........................ 4
      3.3.1. DATA Chunk Flags .......................... 4
      3.3.2. INIT Chunk Flags .......................... 5
      3.3.3. INIT ACK Chunk Flags ...................... 5
      3.3.4. SACK Chunk Flags .......................... 5
      3.3.5. HEARTBEAT Chunk Flags ..................... 5
      3.3.6. HEARTBEAT ACK Chunk Flags ................. 5
      3.3.7. ABORT Chunk Flags ......................... 5
      3.3.8. SHUTDOWN Chunk Flags ...................... 6
      3.3.9. SHUTDOWN ACK Chunk Flags ................... 6
      3.3.10. ERROR Chunk Flags ....................... 6
      3.3.11. COOKIE ECHO Chunk Flags .................. 6
      3.3.12. COOKIE ACK Chunk Flags .................. 6
      3.3.13. ECNE Chunk Flags ........................ 6
      3.3.14. CWR Chunk Flags .......................... 6
      3.3.15. SHUTDOWN COMPLETE Chunk Flags ............. 6
      3.3.16. AUTH Chunk Flags ....................... 7
      3.3.17. ASCONF ACK Chunk Flags .................. 7
      3.3.18. PAD Chunk Flags .......................... 7
      3.3.19. FORWARD TSN Chunk Flags ................. 7
      3.3.20. ASCONF Chunk Flags ...................... 7
   4. Security Considerations ..................... 7
   5. Acknowledgments ............................. 7
   6. Normative References ....................... 8
1. Introduction

[RFC4960], which currently defines the Stream Control Transmission Protocol (SCTP), provides a procedure to define new chunk types. However, several protocol extensions currently being discussed need to define new chunk flags for existing chunks.

This document updates RFC 4960 to overcome this limitation. It defines the procedure to register chunk flags and specifies the registry entries for existing chunk types. The protocol is not changed in any other way. Therefore, only Section 14.1 of [RFC4960] is affected.

2. Conventions

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].

3. IANA Considerations

Section 3.1 provides the updated procedure for SCTP Chunk Type registration; it replaces Section 14.1 of [RFC4960].

Section 3.2 provides a new procedure for SCTP Chunk Flag registration. A registry entry must be created for each SCTP Chunk Type.

Section 3.3 provides the SCTP Chunk Flag registry values for the SCTP Chunk Types specified in [RFC3758], [RFC4820], [RFC4960], [RFC4895], and [RFC5061].

3.1. Updated IETF-Defined Chunk Extension

The assignment of new chunk type codes is done through an IETF Review action, as defined in [RFC5226]. Documentation of a new chunk MUST contain the following information:

a) A long and short name for the new chunk type;

b) A detailed description of the structure of the chunk, which MUST conform to the basic structure defined in Section 3.2 of [RFC4960];

c) A detailed definition and description of intended use of each field within the chunk, including the chunk flags if any. Defined chunk flags will be used as initial entries in the chunk flags table for the new chunk type;
A detailed procedural description of the use of the new chunk type within the operation of the protocol.

The last chunk type (255) is reserved for future extension if necessary.

For each new chunk type, IANA creates a registration table for the chunk flags of that type. The procedure for registering particular chunk flags is described in the following Section 3.2.

3.2. New IETF Chunk Flags Registration

The assignment of new chunk flags is done through an RFC required action, as defined in [RFC5226]. Documentation of the chunk flags MUST contain the following information:

a) A name for the new chunk flag;

b) A detailed procedural description of the use of the new chunk flag within the operation of the protocol. It MUST be considered that implementations not supporting the flag will send ’0’ on transmit and just ignore it on receipt.

IANA selects a chunk flags value. This must be one of 0x01, 0x02, 0x04, 0x08, 0x10, 0x20, 0x40, or 0x80, which MUST be unique within the chunk flag values for the specific chunk type.

3.3. Initial Registrations

This section describes the initial values of the chunk flag tables, one table for each chunk. Most tables are currently empty. IANA used these values to create the new registry.

3.3.1. DATA Chunk Flags

+-------------------+-----------------+-----------+
| Chunk Flag Value  | Chunk Flag Name | Reference |
|-------------------+-----------------+-----------|
| 0x01              | E bit           | [RFC4960] |
| 0x02              | B bit           | [RFC4960] |
| 0x04              | U bit           | [RFC4960] |
### 3.3.2. INIT Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.3. INIT ACK Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.4. SACK Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.5. HEARTBEAT Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.6. HEARTBEAT ACK Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.7. ABORT Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x01</td>
<td>T bit</td>
<td>[RFC4960]</td>
</tr>
</tbody>
</table>

### 3.3.8. SHUTDOWN Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>
### 3.3.9. SHUTDOWN ACK Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.10. ERROR Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.11. COOKIE ECHO Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.12. COOKIE ACK Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.13. ECNE Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.14. CWR Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
</table>

### 3.3.15. SHUTDOWN COMPLETE Chunk Flags

<table>
<thead>
<tr>
<th>Chunk Flag Value</th>
<th>Chunk Flag Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x01</td>
<td>T bit</td>
<td>[RFC4960]</td>
</tr>
</tbody>
</table>

---

**Tuexen & Stewart** Standards Track [Page 6]
3.3.16. AUTH Chunk Flags

+------------------+-----------------+-----------+
| Chunk Flag Value | Chunk Flag Name | Reference |
+------------------+-----------------+-----------+

3.3.17. ASCONF ACK Chunk Flags

+------------------+-----------------+-----------+
| Chunk Flag Value | Chunk Flag Name | Reference |
+------------------+-----------------+-----------+

3.3.18. PAD Chunk Flags

+------------------+-----------------+-----------+
| Chunk Flag Value | Chunk Flag Name | Reference |
+------------------+-----------------+-----------+

3.3.19. FORWARD TSN Chunk Flags

+------------------+-----------------+-----------+
| Chunk Flag Value | Chunk Flag Name | Reference |
+------------------+-----------------+-----------+

3.3.20. ASCONF Chunk Flags

+------------------+-----------------+-----------+
| Chunk Flag Value | Chunk Flag Name | Reference |
+------------------+-----------------+-----------+

4. Security Considerations

This document does not add any additional security considerations in addition to the ones given in [RFC4960].

5. Acknowledgments

The authors wish to thank Anna Brunstroem, Gorry Fairhurst, Russ Housley, Suresh Krishnan, and Dan Romascanu for their invaluable comments.
6. Normative References


Authors' Addresses

Michael Tuexen
Muenster University of Applied Sciences
Stegerwaldstr. 39
48565 Steinfurt
DE
EMail: tuexen@fh-muenster.de

Randall R. Stewart
Huawei
Chapin, SC  29036
US
EMail: randall@lakerest.net