

Exporting MIB Variables using the IPFIX Protocol

draft-ietf-ipfix-mib-variable-export-01

Juergen Schoenwaelder, Srikar B S, Benoit Claise, Paul Aitken

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Overview

- This document specifies a way to complement IPFIX Flow Records with Management Base (MIB) objects, avoiding the need to define new IPFIX Information Elements for existing Management Information Base objects that are already fully specified.

- -01 introduces Extended Field Specifiers
 - to address an issue on the mailing list
(<http://www.ietf.org/mail-archive/web/ipfix/current/msg06347.html>)
 - to resolve multiple open issues
(see “Resolved Issues” slides)

Extended Field Specifiers: overview 1

- A method of providing additional information about the MIB.
- Effectively, here is a MIB IE...
 - with this OID
 - with this other MIB as an index
 - with this IE as an index
 - with another field already in the flow as an index

Extended Field Specifiers: overview 2

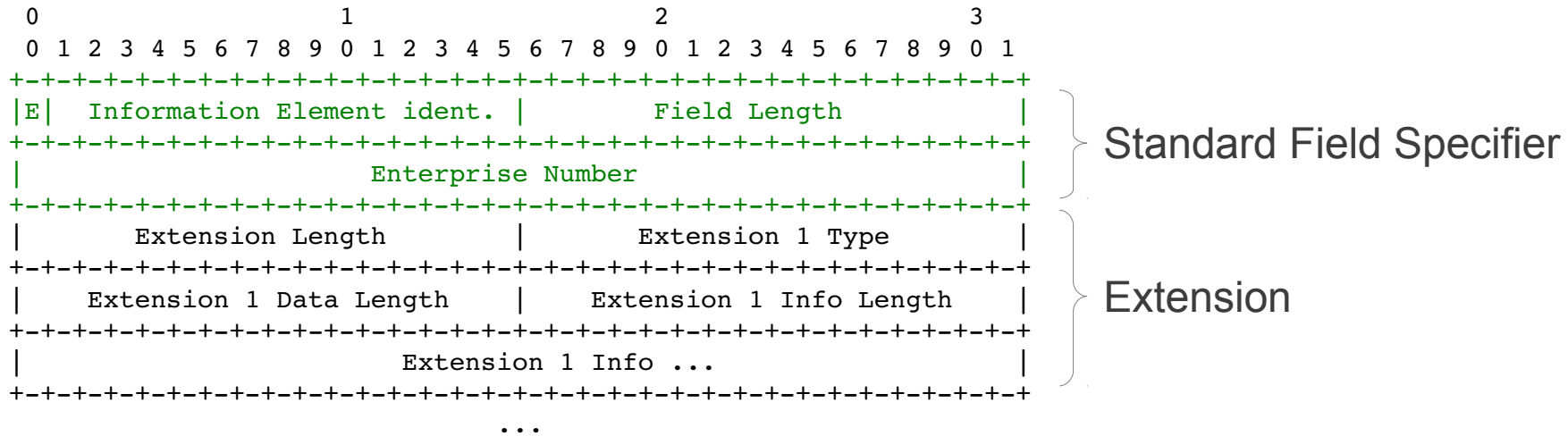
- EFS can add additional data to Data Records
 - information which changes from record to record
 - eg, MIB index
- EFS can add data directly within the Template:
 - unchanging information
 - eg, the MIB OID
- Exporting MIB IE:
 - Template includes EFS with the MIB OID
 - Data Records include MIB value and the OID index

Extended Field Specifiers: format

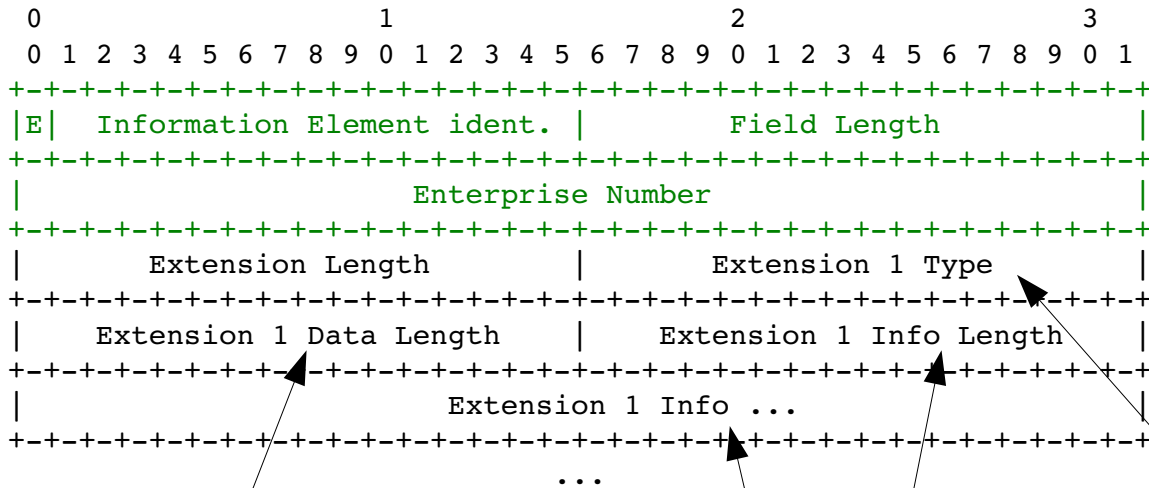
```
0          1          2          3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|E|  Information Element ident. |          Field Length          |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|          Enterprise Number          |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
```

} Standard Field Specifier

Extended Field Specifiers: format



Extended Field Specifiers: format



Standard Field Specifier

Extension

How much data the extension contributes to Flow Records.

What kind of extension this is, eg the MIB OID, or an index.

Extra information, eg the OID itself.

Resolved issues 1

- Skipping the length. Is a new Set ID the right solution?
 - new Set IDs are required to support EFS.
- Index is an IPFIX IE that didn't appear the flow record?
 - section 5.3.6 = provide an IE as index
 - section 5.3.7 = provide an informationElementIndex
- We can use the IE as an index if there is one and only one similar with that length in the Template Records.
 - no longer an issue
- This also allows reduced size encoding for the indices.
 - now noted in the text.

Resolved issues 2

- Describe how to choose between multiple instances of the required index field (eg, when the index is the egress interface for multicast). eg, rather than specifying the index IE by ID, we could specify it by number: the n'th field in the record.
 - index can be specified by informationElementIndex
- How does the example in 5.5 work (ifOutQLen indexed by: ifIndex) since ifIndex is not present in the record?
 - not possible. Example to be reworked
- How does the example in 5.8.2 work, since the ifName is indexed by ifIndex which comes after - so the value is not already known.
 - not possible. Example to be reworked

New issues

- Should the Field Length be zero, and extension 1 data length carry the length?
 - Conflicts with "unobserved fields".
- Should the Field Length contain the overall length of (data + all extensions)? *See Feedback (next slide)*.
- Rework the examples using the EFSF.
 - only the technical details in section 5.3 were updated
- Change RFC5102 references into references to -bis or IANA-IPFIX.
 - obviously
- Revise or delete section 5.4 "Indices Considerations".
 - seems to no longer apply

Feedback

- If a collector doesn't recognise a field or an extension, it must still parse all of the ESF to calculate the total data length to be skipped.
 - ie the Field Length alone is not sufficient when extensions are present.
 - The Field Length should report the total amount of data in the Data Record (ie, field + extensions), so collectors can skip ESF fields which they don't recognise.
 - The collector can verify that

$$\text{Field Length} == \sum \text{extension data lengths}$$

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