# Guidelines for Authors and Reviewers of IPFIX IEs (draft-trammell-ipfix-ie-doctors-01)

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IETF 80 – Prague, CZ – 29 March 2011

# IE-DOCTORS in a nutshell

- IPFIX is expanding into new application areas
  - Expansion up and down the stack (e.g. SIPCLF, data link layer)
  - New metrics (e.g., draft-akhter-ipfix-perfmon)
- Most new applications just need new IEs
- → Streamline IE definition process
  - Enable domain experts to specify new IEs and applications with assistance from IPFIX experts, or IE-DOCTORS.
  - Provide processes in line with RFC 5102 and existing IANA Expert Review process.

# Contents

- 1. Introduction
  - Intended audience: IETF contributors extending the applicability of IPFIX; IPFIX Experts (IE-DOCTORS) assisting and reviewing these extensions; and IANA, which manages the registry

- 2. Terminology
  - **Application**: a candidate protocol, task, or domain to which IPFIX export, collection, and/or storage is applied.

- 3. How to apply IPFIX
  - Criteria for good candidate applications

# More contents

- 4. Defining new IEs
  - Guidelines for defining IEs: naming, typing, structure, etc; based on RFC5102.
  - New since -00: numbering (v9 compatible vs. normal, policy for number assignment)
- 5. The IE Lifecycle
  - Defines deprecated and obsolete status, and procedures for managing them
- 6. When not to define new IEs
  - Guidelines for reducing IE space explosion through reuse and application of enterprise-specific IEs where appropriate.

# Yet more contents

- 7. Applying IPFIX to non-Flow Applications
- 8. Writing I-Ds for IPFIX Applications
  - new since -00: guidelines for applying IPFIX in an I-D, IANA Considerations, and an example I-D IE definition subsection
- 9. A Textual Format for Specifying IEs and Templates
  - adapted from expired draft-trammell-ipfix-text-iespec

# Defining Information Elements

- "Make Information Elements that look like those in 5102"
- Many of these taken direct from 5102 or 5153: this is a superset
- Descriptive interCapped English names, naming related protocol
- Only v9-compatible IEs use numbers below 128
- Use unsigned64/signed64 and reduced size encoding for maximum flexibility with integers, unless there's a native width
- Data type semantics and units should be defined when appropriate
- Information elements should have no internal structure
  - Use Structured Data when necessary
- Use sub-registries when appropriate
- Non-reversible Information Elements should be noted

# Not defining Information Elements

- Use existing Information Elements whenever possible:
  - Simply changing the context in which an Information Element will be used is insufficient reason for the definition of a new Information Element.
  - Use RFC5103 for reversible Information Elements
  - Reuse observationTime* timestamps for events, and flow (Start,End) for events with duration.
  - Use absolute timestamps whenever possible
- Use enterprise-specific Information Elements when appropriate:
  - Implementation-specific information
  - Information derived in a commercially-sensitive or proprietary way
  - Pre-standardization or experimental testing.

# Modification and Deprecation

- Information Elements may be **modified**
  - if such modification is *interoperable*, or
  - if the Information Element is not yet widely implemented ("grace period" for trivial, editorial, or errate changes to new IEs)
- Information Elements may be **deprecated**
  - when not modifiable, and a new IE is required to address an error, a change in the application, or a change in the IPFIX Protocol
- Deprecated IEs transition to **obsolete** after some (as yet unspecified) time

# Writing I-Ds to define IEs/Templates

- IPFIX applications should not specify *mandatory* templates.
- However, *recommended* templates can help illustrate the application, as long as they are
  - order-independent and extensible,
  - coexistent with other templates in a stream, and
  - defined with appropriate flow keys
- Examples provided to assist I-D authors
- Textual IE specification provided for simple definition of recommended templates.
  - List of bracket-delimited tuples
  - *name(number)<type>[size]*

# The IE-DOCTORS Process (Proposed)

- IE Doctors nominated by WG, appointed by IESG
- Requests for IEs sent to ipfix-ie-doctors@ietf.org (or similar)
- IE Doctors review and modify changes during a review period (e.g. 4 weeks)
- Mutually-acceptable IE registry entries, in XML format, sent to IANA by IE Doctors and immediately added to registry
  - Expert Review considered complete by IE Doctors
- Separate Expert Review process for V9 IEs.

# Next steps

- Draft ready for WG adoption
  - Additions from Prague to be incorporated into ietf-00 revision
- Draft needs input from the WG, IANA, and future IE-DOCTORS themselves
  - This will show us the way to take applications of IPFIX forward
- Resolve the largest open issue: versioning
  - Should the whole registry be versioned?
  - Should specific IEs be versioned?
    - (especially those with "reserved" values)