

# **DOTS Information and Data Model**

draft-andreasen-dots-info-data-model-01

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# Background

- DOTS needs an Information and Data Model
  - So far, proposals have mostly been intertwined with DOTS protocol proposals
- Volunteered to produce Information and Data Model draft in IETF 96 meeting (Berlin)
- -00 presented at the DOTS Interim meeting in September
  - Focus was on overall document structure and high-level content based on requirements, architecture and use-cases
  - Mostly a structured inventory of the more detailed model work that needed to be done; details missing

# Current Draft

- Start providing more details with a focus on the Information Model aspects
  - Protocol and transport agnostic, but need to satisfy requirements, architecture, and use cases
  - Describes a logical API to put Information Elements in context and ensure we define the right ones
    - May have veered into protocol aspects in a few places
  - Defines the various Information Elements
    - Note: Mostly inventory in -01

# Document Outline

- Major Sections
  - Introduction, etc.
  - Information Model
  - Data Model
  - IANA, Security Considerations, etc.
- Data Model Section is currently empty
  - And maybe it should stay that way ?
  - Focus on Information model only here, and leave specific data model to whichever protocol we ultimately chose ?

# Information Model Outline

- 3.1 General
  - Logical description of key concepts the information model needs to support
    - Request/Response and Notifications
    - Modularity with mandatory, optional and extensions
    - DOTS Agent Identity
    - Server Discovery, Versioning and message correlation
- 3.2 Signal Channel Messages
  - Logical API that defines different Request/Response and Notifications for the signal channel with:
    - Information Elements (parameters)
    - Modularity considerations (mandatory, optional, extension)

# Information Model Outline

- 3.3 Data Channel Messages
  - Logical API that defines different Request/Response for the data channel with:
    - Information Elements (parameters)
    - Modularity considerations (mandatory, optional, extension)
- 3.4 Information Elements
  - The actual Information Elements for the information model
    - Mostly inventory in -01

# Open Issues

- Document is work in progress with more details needed in various sections
- A number of more detailed issues are noted in the document and require further work as well
- A few of these are worth highlighting here

# Issue 1 – Mandatory, Optional and Extensions

- Modularity is key; we can't require everybody to do everything
  - Different capabilities, attack target types, etc.
- What do we consider to be
  - mandatory baseline functionality ?
  - optional baseline functionality ?
  - extensions ?
- Proposal
  - Requirements, use cases and information/data model documents all need to identify mandatory, optional, extension
    - Requirements should be the driver
  - Each of the above documents should focus on mandatory and optional; extensions can be provided separately
    - Scope and phase the work to ensure timely progress

# Issue 2: DOTS Authentication, Authorization, Agent-IDs and Domains

- What is the DOTS Identity Model ?
- Mutual authentication is a DOTS requirement
  - Assume we will run on top of (D)TLS
- We have the notion of DOTS domains with mutual authentication/ authorization between them
- Do we need a DOTS Agent-ID at the DOTS level ?
  - DOTS Agent unique identifier with domain structure
    - Helps simplify authorization and operations
    - Helps DOTS Gateway scenarios (?) – or are we effectively reintroducing DOTS relays ?
  - What does it look like ?
  - Is it authenticated at the DOTS level ?
    - Alternative is to rely on lower-level security, i.e. (D)TLS
- Proposal
  - We should have a DOTS Agent-ID with domain-structure
  - Authentication details TBD

# Other Issues

- To Anycast and/or Redirect
  - That is the question...
- Is redirect of signal channel and data channel independent ?
- Various details for specific Information Elements

# Next Steps

- Is document and overall approach on the right track ?
- Do people want to see this work continue ?
- Plan on adding more content, resolve open issues etc.
  - Comments and input from the WG appreciated