

# **Space Assigned Numbers Authority (SANA)**

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# Introduction

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- **SANA = Space Assigned Numbers Authority**
- **SANA Working Group formed in response to CCSDS re-engineering done in 2003-4:**
  - **Restructured Organization and Processes for the Consultative Committee for Space Data Systems. Space Data System Standards, CCSDS A02.1-Y-2. Yellow Book. Issue 2. Washington, D.C.: CCSDS, April 2004.**
- **Inspired by the Internet Assigned Numbers Authority, used for IETF protocols.**
- **SANA = registrar service to the CCSDS community**

# What?

- **SANA manages protocol parameter registries**
- **Constants used in a frame field, in an id string, ...**
- **Some examples:**
  - **Spacecraft Ids, Protocol version numbers, CDMA PN Codes, XML namespaces**
  - **IP transport port numbers: i.e. Port 80 = http; port 25 = smtp, ... (IANA example)**
  - **Cryptographic algorithms: SHA1, MD5, DES, 3DES, ...**
- **Registries are located outside of protocol specifications (i.e. CCSDS books/IETF RFC)**

# Why Protocol Parameter Registries?



- **Characteristics:**
  - **central location:**
    - one place to look at all codepoints assigned for a field.
  - **independent of the protocol specifications**
    - No need to update the protocol specs to add one codepoint
  - **managed by an operator**
    - third party trusted by all parties involved in protocol authoring and implementing
  - **receives assignment instructions from protocol authors and CCSDS management**
  - **guarantees uniqueness of codepoints**
  - **enables interoperability between implementations.**

# IANA Example

- **IP transport ports registry:**
  - List of all ports used for IP transport
  - Port field = 16 bits = 65536 max.
  - Three ranges of port numbers are defined:
    - Reserved
    - IETF specification required
    - Request with justification
- **IANA assigns port numbers based on the requests it receives. It verifies if the request fulfills the registration procedures that were established when the registry was created.**

# SANA and CCSDS Books



- **Many working groups and document editors need registry services.**
- **Each CCSDS book includes a section on SANA.**
  - **The section specifies how SANA should create (or update) the registry and how the new assignments requests will be handled.**
  - **For example, the book may say: create this registry XYZ, assign 0,1,2,3,4 codepoints. Additional codepoints below 100 are assigned by a new specification approved by CCSDS. Codepoints above 100 can be assigned to any CCSDS member agency.**

# SANA Update

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- **SANA Yellow Book is at its last stages in the Working Group and will soon be sent for approval/publication**
- **A contract for start-up of the SANA operator is being put in place by the CCSDS Secretariat**
- **Eventual permanent home of SANA may be an international organization dedicated to coordinating international space mission cross support (such as the Inter-agency Operations Advisory Group, IOAG)**

# Conclusion

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- **SANA is the registrar for CCSDS protocol parameters registries.**
- **If you need to setup a registry, please contact me directly:**

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**until SANA is fully operational.**