

# Unified Properties for ALTO Diffs since v11

draft-ietf-alto-unified-props-new-12

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# Unified Properties for the ALTO Protocol in a nutshell

- Extends IPv4 and IPv6 endpoints to entities such as IPv4/6, PIDs, ANEs
  - On which properties are conveyed
- Introduces a new information resource and media type
  - (Filtered) Property Map
- Used by several ALTO Services
  - Standalone entity property service
  - In multi-part Path-Vector Cost Map Server response
  - In CDNI-FCI footprint capabilities
- Entity Property Service handles information resource dependent entities and properties, which requires
  - Careful design for resource-dependent entities and properties
  - Unambiguous mapping of properties to applicable entities
  - Unambiguous mapping of entities, properties to applicable information resources
- Long-lasting design and specification work

# Unified property updates - overview

- Design updates
  - Introduced « defining information resource »
    - To define authorized mappings of entity domain types and information resource types
    - To support defining « persistent entities » returned by Path Vector
  - Added sections relating to « defining information resource » in v12
    - For the definition
    - In sections specifying entity domain types introduced in the UP draft
    - In sections introducing property types introduced in the UP draft
    - In IANA section on entity property types
    - Removed section 6.1 in V11 on Information Resource Export
- Text clarifications and reformulation
  - 3.2. Entity Domain
  - 4. Advanced Features of the Unified Property Extension
  - 5.1. Entity Domain
  - Updated example IRD and example UP transactions
- ToC updates
  - Added Section 1.1 Terminology
  - Added section 2 Requirments language
- STATUS: in WGLC until August 7

# Design – Defining information resource

- A defining information resource for an entity domain D
  - The information resource where entities of D are defined
  - That is, all the information on the entities of D can be retrieved in this resource
- This concept applies to resource specific domains
- Useful for entity domain types that are by essence domain-specific,
  - such as "pid" and "ane" domain types
  - Allows to expose ANE property maps
- Useful for resource-specific entity domains constructed from resource agnostic domain types,
  - such as for example, network map specific domains of local IPv4 addresses
- Useful for ALTO Client to see if ALTO Server exposes unauthorized mappings of entity domains and properties

# Design – Defining information resource – definition

- 4.6 Defining Information Resource (for an entity domain D)
  - has an entry in the IRD,
  - defines the entities of D,
  - does not use another information resource that defines these entities
  - defines and exposes entity identifiers that are all persistent
  - its media type is unique and is specified in the documents introducing the corresponding entity domain type
- 4.6.2 Examples for media-types of defining resources for ED types
  - "pid" → "application/alto-networkmap+json",
  - "ipv4" and "ipv6" (if local) → "application/alto-networkmap+json"
  - "ane" → "application/alto-propmap+json" for ANEs having a persistent identifier
- The ALTO Client checks the media-type to verify correctness of mapping

# Design – Defining information resource for property values

- Property values may be resource-specific
- Useful to Client to check if (ED, Property) mapping is correct
- NEW 4.7 Defining Information Resource for Resource-Specific Property Values
- 4.7.1 Examples
  - “PID”
    - media type of value defining resource is "application/alto-networkmap+json"
    - because PIDs are defined in network map resources
  - "cdni-fci-capability" : error in text
    - Will be corrected to "cdni-capabilities" → "application/alto-cdni+json"

# Text updates

- Besides 4.6 and 4.7 on « Defining IR »
- NEW 6.1.4. Defining Information Resource Media Type for domain types IPv4 and IPv6
- NEW 6.2.4. Defining Information Resource Media Type for Domain Type PID
- NEW 8.7. Entity property type defined in this document (PID)
  
- 10.4. Information Resource Directory (IRD), see next slide
  - ADDED example "ane-dc-property-map" resource, for persistent ANEs
  - Removed example "path-vector-map " resource,
- 10.10 updated example transaction accordingly
- 12.2.2 ALTO Entity Domain Type Registration Process (IANA)
  - ADDED member “Media type of defining information resource”
- 12.3 Media type of defining information resource (IANA)
  - ADDED member “Security Considerations”
  
- REMOVED 12.5. ALTO Resource Entity Property Mapping Registries

# Design – Defining information resource and media type

- Example in 10.4. Information Resource Directory (IRD)

```
"ane-dc-property-map": {
  "uri" : "http://alto.example.com/propmap/ane",
  "media-type" : "application/alto-propmap+json",
  "accepts": "application/alto-propmapparams+json",
  "capabilities": {
    "mappings": {
      ".ane" : ["storage-capacity" ],
      ".ane" : ["ram", "cpu"],
    }
  },
}
```



# Text updates cont'd

- 4. Advanced Features of the Unified Property Extension
  - 4.5. Supported Properties on Entity Domains in Property Map Capabilities
  - 4.4 Entity Hierarchy and Property Inheritance: re-phrased and re-organized
    - 4.4.2. Property Inheritance: re-phrased
    - NEW 4.4.3. Property Value Unicity
    - The inheritance rules must ensure that an entity belonging to a hierarchical set of entities inherits no more than one property value
- 5.1.2 Entity Domain Name: re-organized
  - 5.1.2.1. Resource-specific Entity Domain
    - EG "netmap-1.pid"
  - 5.1.2.2. Resource-agnostic Entity Domain
    - EG: "ipv4", "ipv6"
  - 5.1.2.3. Self-defined Entity Domain
    - Neither resource-specific nor resource-agnostic but are instead defined within the property map itself
    - EG ".ane"

# NEXT STEPS

- In WGLC
  - Fri, July 17, 2020, to Fri, August 7, 2020

Thank you