DRIP Registries

draft-wiethuechter-drip-registries-01

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Updates since -00

- Expired Aug 2021
- Massively expanded (11 pages to 36 pages)
- Attestation definitions added
- Registry Classes/Entities
- Registry Operations
- Update Provisioning to use new Attestation forms

Overall, please excuse the mess – throwing all recent and old thoughts into one place to organize and share

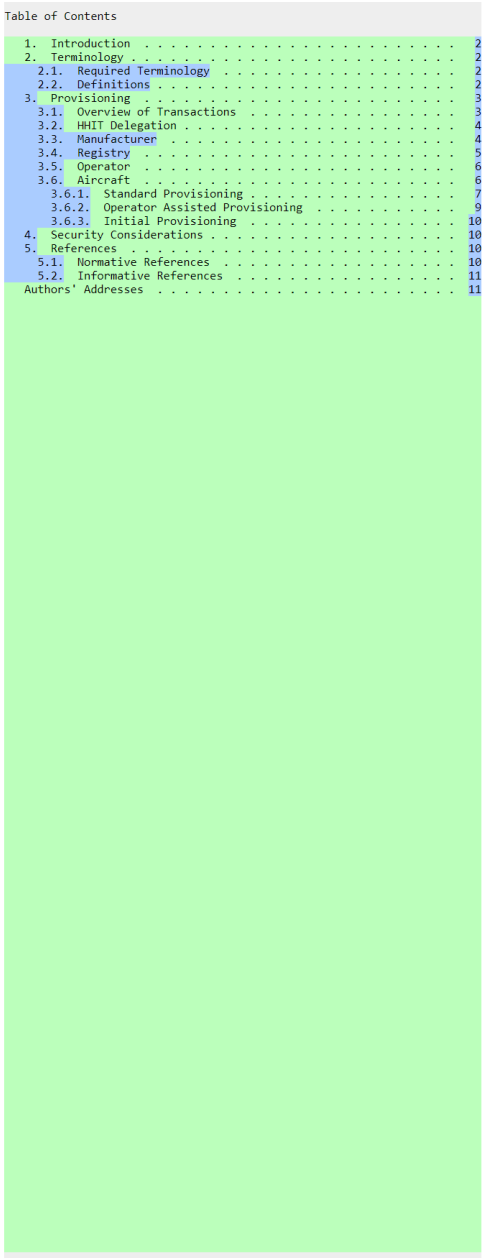
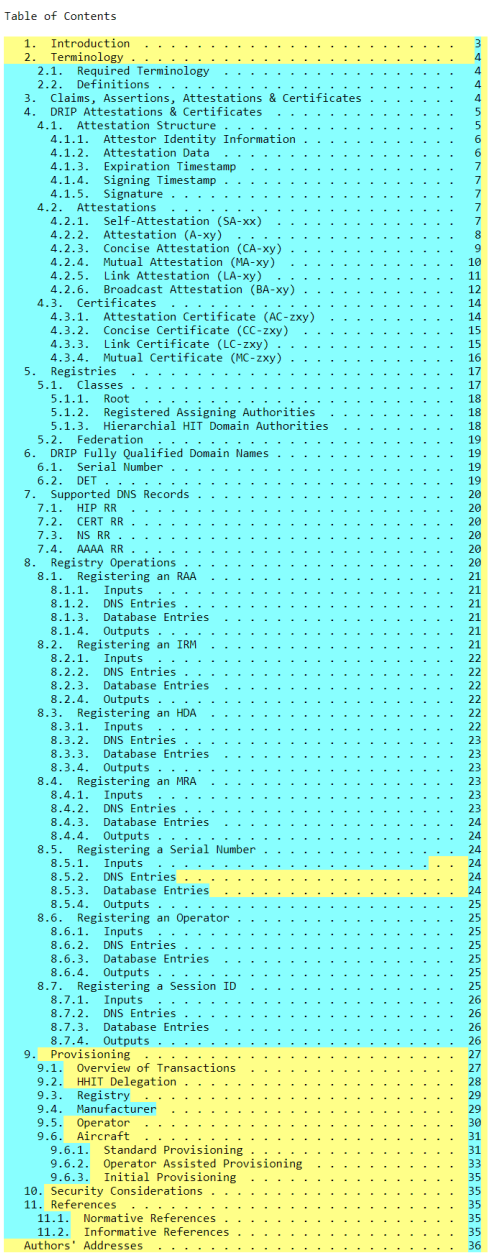


Table of Contents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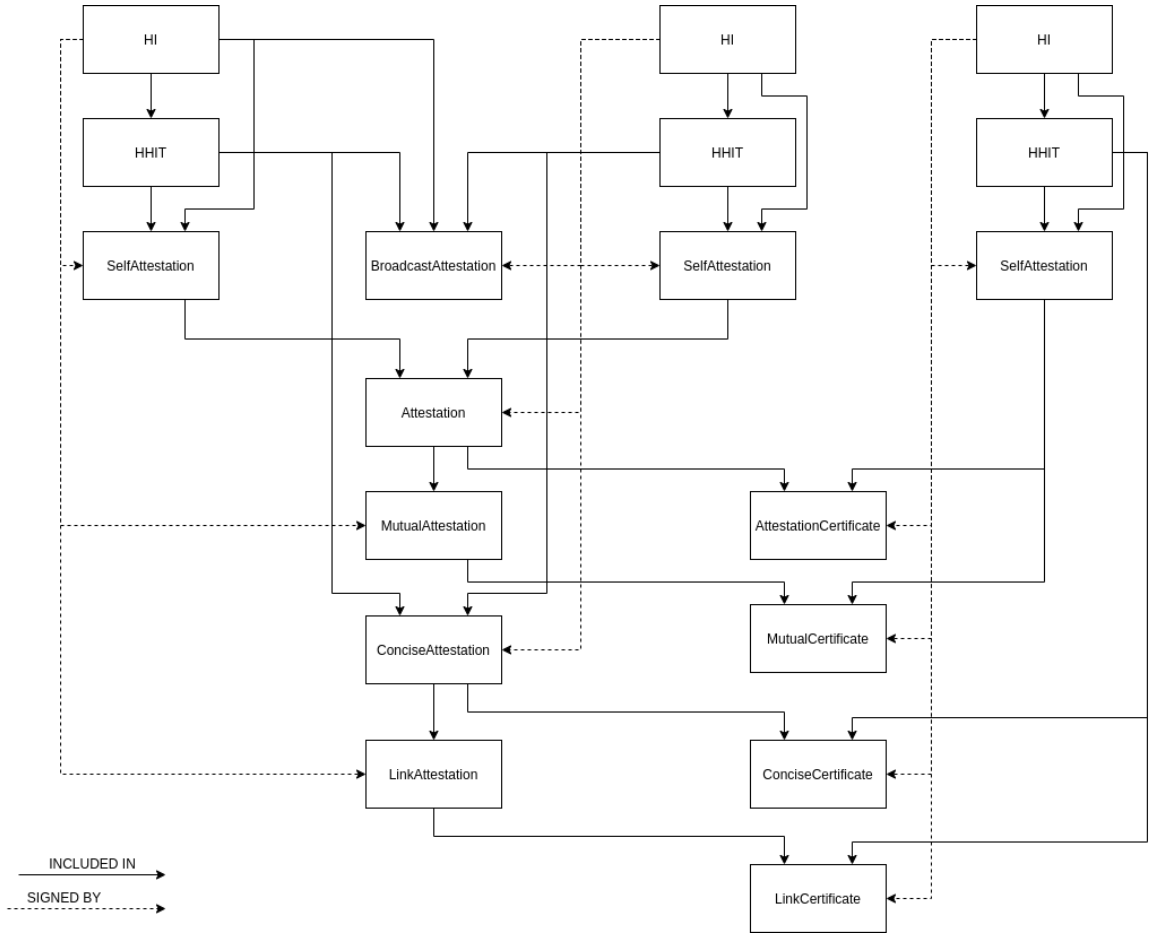
Text "Borrowed" from other DRIP drafts

- Definitions of Claims, Assertions, Attestations, Certificates
  - Trying to harmonize as in 3 different places (-arch, -uas-rid, -registries)
  - In line with –arch (do we remove from there and –uas-rid?)
- Section 4 was originally Appendix B of –auth
  - Expanded as needed with text and reorganized into subsections
  - Section 4.1 is new to this document

Attestations & Certificates

Figure 1: Attestation Structure

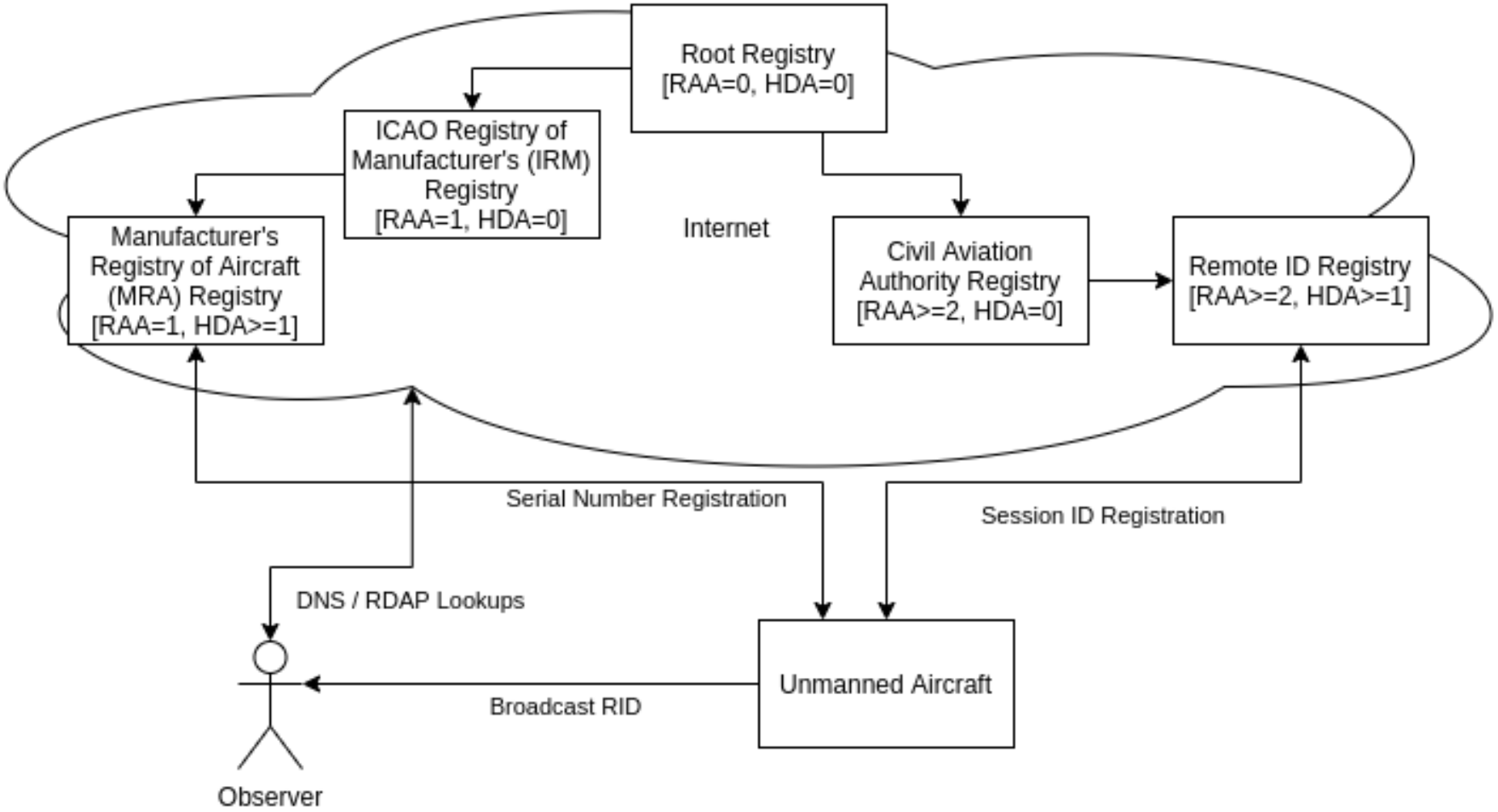


Registry Classes/Entities

Attempting to make a set of terms to make talking about registries easier

- Root - RAA=0, HDA=0
- RAAs
  - ICAO Registry of Manufacturer's (IRM) - RAA=1, HDA=0
  - Other RAAs (typically CAAs) - RAA=2+, HDA=0
- HDAs
  - Manufacturer's Registry of Aircraft (MRA) - RAA=1, HDA=1+
  - Remote ID Registries (RIDR) - RAA=2+, HDA=1+
    - perhaps useless/confusing classification?

Registry Tree Diagram



FQDN Definitions

For Serial Numbers and DETs

- Based on current prototype implementation at AX
  - Needs to harmonize with –uas-rid

Open questions:

- RAA/HDA format (int or hex)?
- Exploded (with padding) or Condensed IPv6 form?

6.1. Serial Number

```
Serial Number: 8653FZ2T7B8RA85D19LX
ICAO Mfr Code: 8653
Length Code: F
ID: FZ2T7B8RA85D19LX
FQDN: Z2T7B8RA85D19LX.F.8653.mfr.remoteid.aero
```

6.2. DET

```
DET: 2001:0030:00a0:0145:a3ad:1952:0ad0:a69e
ID: a3ad:1952:0ad0:a69e
OGA: 5
HDA: 0014 = 20
RAA: 000a = 10
FQDN: a3ad19520ad0a69e.5.20.10.det.remoteid.aero
```

DNS Records

- List of supported DNS RRs for DRIP
- Justification for their use
- NS RRs
  - Many different special forms and where they live
  - Determined from implementation prototyping to get lookups working properly

Registry Operations

- Biggest "new" section
- Hot mess of thoughts and notes
  - Needs massive rework to make "human" readable

Mostly a rehash of Section 9, but in a more technical sense defining end points and their mandatory/optional parameters

Implementation

Finally?!

AX Initial Prototype

- Deployed on a development Kub. Cluster
- Rough HTTP API to register
  - Registries, Operators, Aircraft (Serial Number and Session ID)
- "Manually" updates DNS zones
  - Started with BIND9, ended up with CoreDNS

Took over 4 months, due to other priorities but was used in last AX demo to register aircraft! DNS lookups worked, but not live (due to network constraints).

EPP / RDAP Progress

- EPP
  - Working on integrating with old prototype
  - Plan to pull XML tag definitions into draft for IANA considerations
    - Will need help on this as very confusing
  - Overall same results as original prototype but better
- RDAP
  - Starting soon...

TODOs / Next Steps

- Refine Section 4
- Section 8 needs help...
- Clean up and refine provisioning process
  - Are we missing anything?
  - Is very US centric – need EU inputs
- EPP/RDAP sections
  - EPP XML Tags and IANA Considerations associated with them
- PII protection (aka encryption of Serial Number and other things)

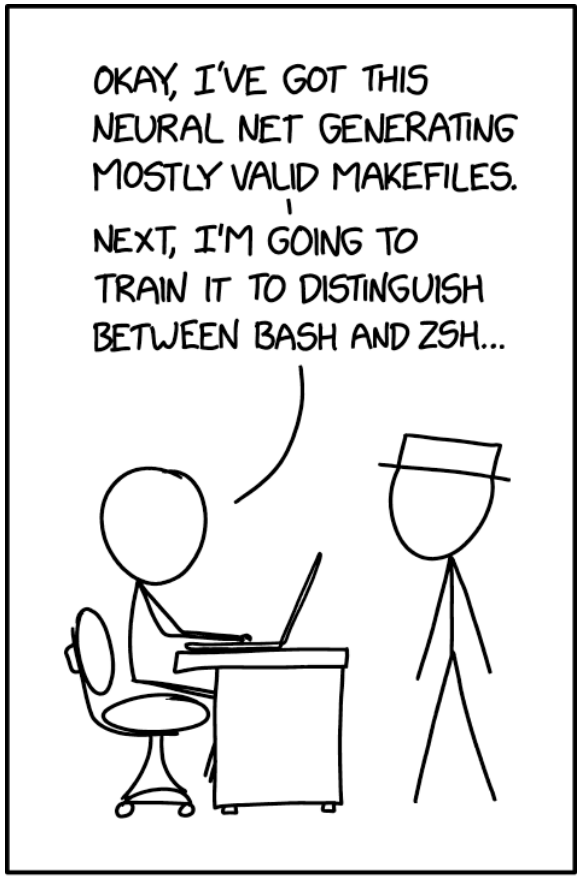
Plan to work with Bob M. extensively to add in the X.509 work and sort out other items.

This is the next major work item – important as supports –auth and –operator-privacy!

Adopt when?

Discussion

Questions, Comments, Concerns?



"I tried to train an AI to repair my Python environment but it kept giving up and deleting itself."
https://xkcd.com/2510