Pub-Sub Profile for Authentication and Authorization for Constrained Environments (ACE)

draft-ietf-ace-pubsub-profile-08

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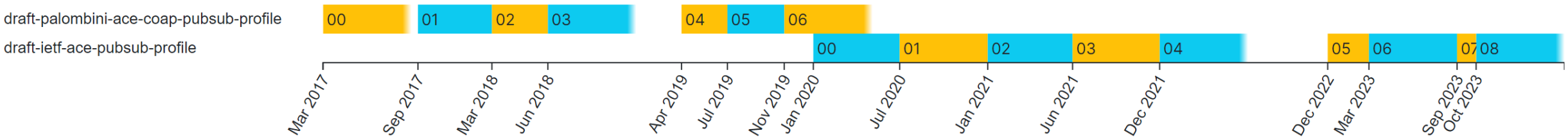
Updates to the document

Versions:

00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08

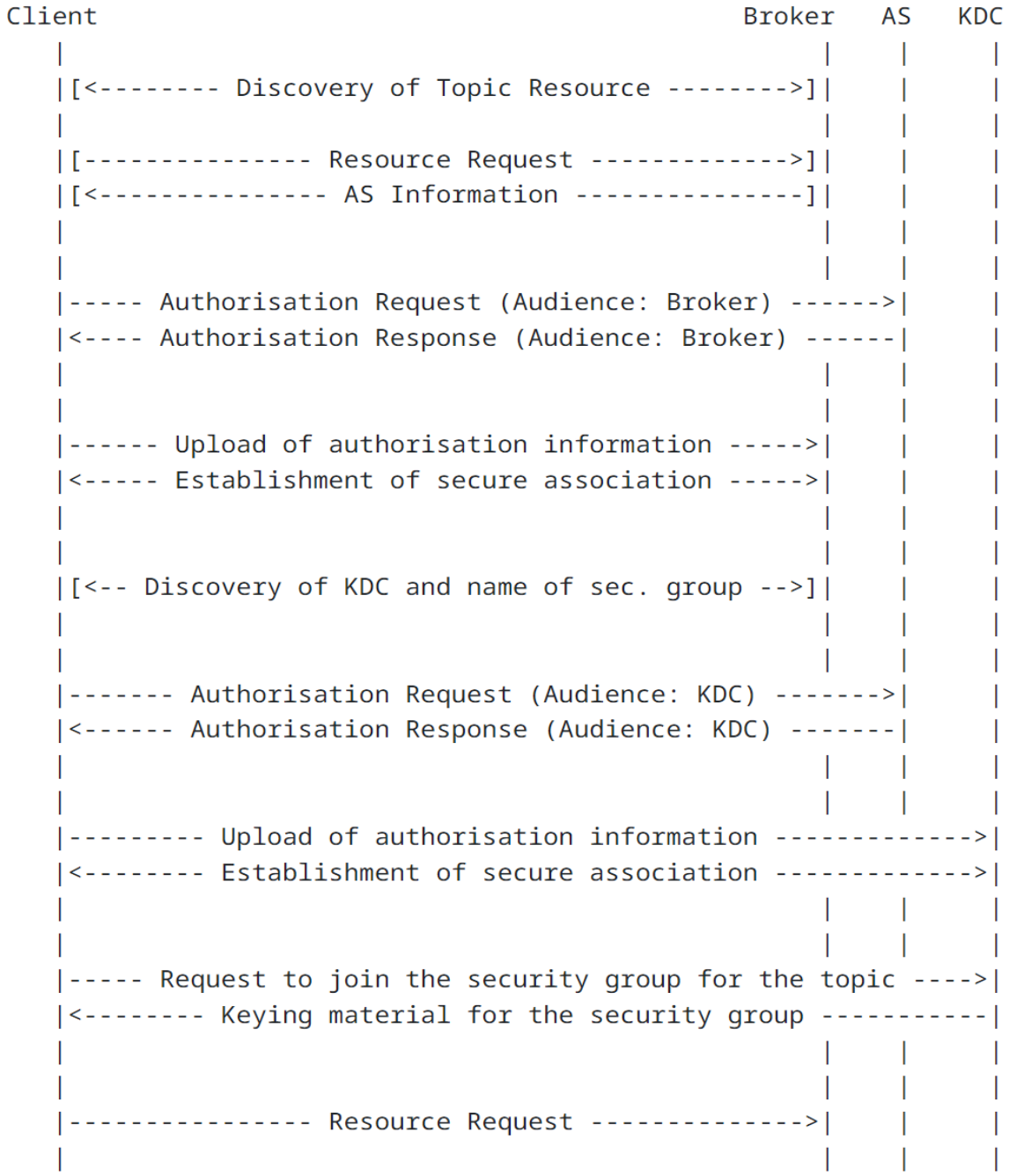


The document defines a way to authorize pub-sub clients and protect group communication using the ACE framework

- Focuses on securing group communications for CoAP pub-sub clients (**may support MQTT**)
  - Relies on transport or application layer security profiles of ACE (e.g. DTLS [RFC9202] or OSCORE [RFC9203]) to achieve communication security, server authentication and proof-of-possession for Access Tokens
- Message exchanges/message formats and processing follow the specifications for provisioning and renewing keying material in key-groupcomm
  - **Current description satisfies most key-groupcomm requirements (30) / and options (15)**

Version -07 to -08

- Revised the scope format.
- Revised Join Request-Response exchange.
  - The 'cnonce' parameter must be present in the Join Request.
  - The 'kid' of the group key is used as Group Identifier.
  - Relaxed inclusion of the 'peer_roles' parameter.
- More detailed description of the encryption and signing operations.
  - Defined construction of the AEAD nonce.
- Clarifications and editorial improvements.



Authorisation Flow

Workflow mostly complete

Further discussion needed: How to support topic resource discovery besides .well-known/core

Authorisation Request & Scope

- The Client sends **two Authorisation Requests** to the AS for **two audiences**: the Broker and the KDC
- Audience (required) and Scope (optional) and MUST be of data model AIF-PUBSUB-GROUPCOMM
  - The object identifier ("Toid") is a CBOR text string, specifying the topic name for the scope entry.
  - The permission set ("Tperm") is a CBOR unsigned integer with value, signaling the Client role, operations the Client can execute on Topic Data in which type of group.

```
AIF-PUBSUB-GROUPCOMM = AIF-Generic<pubsub-topic, pubsub-perm>
 pubsub-topic = tstr ; pub/sub topic name
                     ; (the associated security group)

 pubsub-perm = uint .bits pubsub-perm-details

 pubsub-perm-details = &(
  Admin: 0,
  AppGroup: 1
  Publish: 2,
  Read: 3,
  Delete: 4
 )

 scope_entry = [pubsub-topic, pubsub-perm]
```

Figure 5: Pub/sub scope using the AIF format

Next steps

- Define the replay-checks at the subscribers: based on the same approach used for OSCORE and using a Replay Window
- REQ10: Register a Resource Type for the root url-path, which is used to discover the correct url to access at the KDC : the Resource Type (rt=) Link Target Attribute value "core.ps.gm" is registered in Section Section 8.3.
  - ToDo: This possibly will not stay as the final method for KDC discovery
- REQ20: If used, specify the format and content of 'group_policies' and its entries. Specify the policies default values:
- Rekeying:
  - OPT12: Optionally, specify for the KDC to perform group rekeying (together or instead of renewing individual keying material) when receiving a Key Renewal Request: ToDo.
  - OPT14: Optionally, specify additional information to include in rekeying messages for the "Point-to-Point" group rekeying scheme: ToDo.