Key Management for OSCORE Groups in ACE

draft-ietf-ace-key-groupcomm-oscore-05

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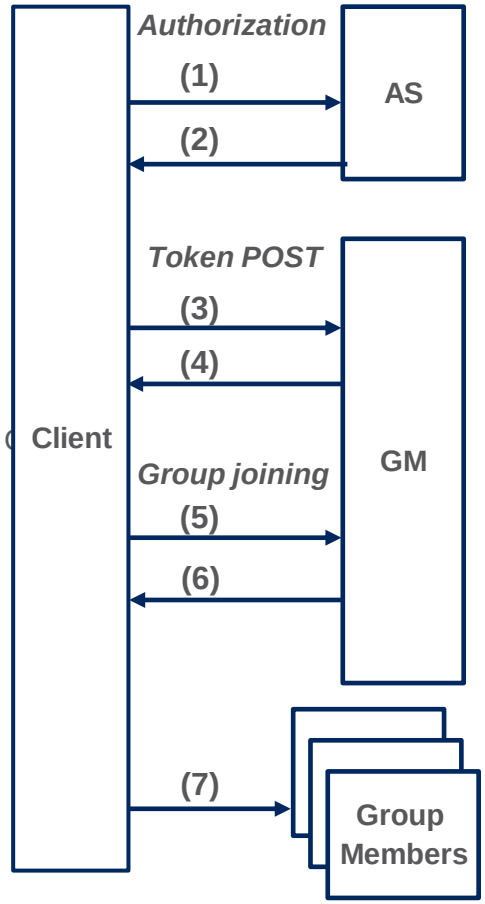
Recap

- Message content and exchanges for:
  - Provisioning keying material to joining nodes and groups (rekeying)
  - Joining an OSCORE group through its Group Manager (GM)
  - More operations for current members at the GM
- Builds on *draf-ietf-ace-key-groupcomm*
  - Agnostic of the ACE transport profile used by C and GM
- Out of Scope:
  - Authorizing access to resources at group members
    - *draft-tiloca-ace-group-oscore-profile*
  - Actual secure communication in the OSCORE group
    - *draft-ietf-core-oscore-groupcomm*



What happened since IETF 106

- Version -04 was submitted end of January
  - Closed most points from IETF 106
  - Presented at January ACE interim
- Version -05 was submitted before the cut-off
  - Based on a review and comments from Jim [1][2] – Thanks!
  - Discussion at the February ACE interim
- New review of -05 from Jim [3] – Thanks!
  - Mostly covered in the latest Editor's version
  - Some open points left (later slides)

- [1] https://mailarchive.ietf.org/arch/msg/ace/Uz1BfItsJfbwsNKdAbn4WT_wm9I/
- [2] https://mailarchive.ietf.org/arch/msg/ace/OId3wGsbOeP4Ei8DOE5bvjafi9k/
- [3] https://mailarchive.ietf.org/arch/msg/ace/nPnee1oxabwQoQhohqdLeTR8Nls/

Selected updates from -05

- Security considerations about N_S and N_C
  - Used to build the signature challenge, at minimum 8-byte long each
  - Section 17.2 – Security of their size , also requested by Ben at IETF 106
  - Section 17.3 – Reusage of no random nonces across reboot; no replay

- Registered dedicated TLS Exporter label
  - *EXPORTER-ACE-Sign-Challenge-coap-group-oscore-app*
  - Used to build the signature challenge, when nonces are not exchanged

- Multi-group scope
  - A single Access Token can cover multiple groups and the roles for them
  - Re-using format defined in *draft-ace-key-groupcomm*
  - Roles compressed as CBOR integers

Selected updates from -05

- Jim's proposal of legal requester/responder
  - Node A knows the roles of node B, and can ignore abusive messages
  - Roles come beside public keys, in the *peer_roles* parameter
    - Upon joining, or later when separately requesting public keys

- Detailed operation for uploading a new public key
  - Resource and handler defined in *draft-ace-key-groupcomm*

- Defined a new resource and handler at the GM
  - Return the current status of the group, i.e. active/inactive
  - If inactive, members should not communicate, no new nodes can join
  - Specific to the OSCORE GM, so defined in this document
  - Status set by an Administrator client, see *ace-oscore-gm-admin*

In current Editor's copy

- Clarified difference between group name and OSCORE Gid
- Removed role combination ["Requester", "Monitor"]
- Authorization Request to the AS
  - Both scope and audience may be implicit (aligned with the framework)
- When a member asks for a new Sender ID
  - The GM may prefer to opt for a whole group rekeying instead
  - If so, no error returned to the requesting node
  - Rekey the requesting node first, then the rest of the group
- Aligned to Editor's copy of *ace-key-groupcomm*
  - 'rsnonce' → 'kdcnonce'
  - New structure for the 'sign_info' parameter (multiple groups at once)

Open points

- Group OSCORE is introducing a new pairwise mode
  - Monitor-only nodes need a public key
  - They need also a Sender ID, to enable retrieval of their public key

- Proposed update – Issues with that?
  - Also a monitor-only can provide a public key to the GM
  - If it does, the GM assigns and provides a Sender ID to that node
  - A monitor-only supporting the pairwise mode, provides its public key
  - This would update uploading/retrieval/caching of public keys

- Register a new group policy – Issues with that?
  - Signal whether the pairwise mode is admitted in the group
  - If not, possible to have less public keys in the Joining Response

Open points

- Pending updates on ‘kdcnonce’ (was ‘rsnonce’) from the GM
  - After Token posting, return also to monitor-only nodes
    - They may later send a public key (see pairwise mode of Group OSCORE)
  - It should actually be single-use
    - The value in the response from /authz-info is only to use for the immediately following first Joining Request
    - The value from an error response to a Joining Request is to use only for the following re-attempt of the first Joining Request (assuming a Token POST to /authz-info)
    - Derived challenges are used instead in any other case
  - Tentative text already in the Editor’s copy (Sections 5.2.1 and 5.3).
  - Issues with that?

Next steps

› Close open points

› Keep aligned with *ace-key-groupcomm*

› Update implementations and start interoping

  – RISE [1], Jim, Peter, …

[1] https://bitbucket.org/marco-tiloca-sics/ace-java/

Thank you!

Comments/questions?

https://github.com/ace-wg/ace-key-groupcomm-oscore