Key Management for OSCORE Groups in ACE

draft-ietf-ace-key-groupcomm-oscore-07

Marco Tiloca, RISE
Jiye Park, Universität Duisburg-Essen
Francesca Palombini, Ericsson

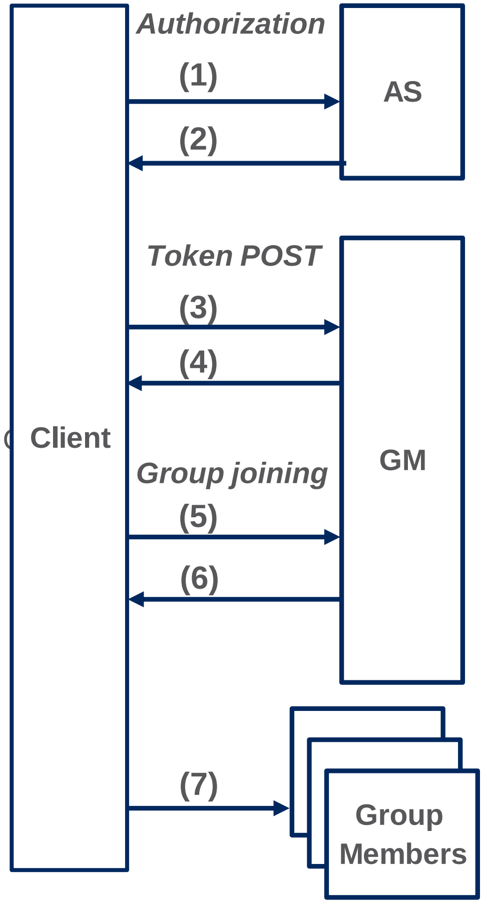
IETF ACE WG, Virtual Interim, June 22nd, 2020

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*



Since virtual meeting 15-04-2020

- Two versions submitted
  - v-06 : addressed Jim's review of -05 (thanks!)
  - v-07 : aligned with *ace-key-groupcomm*, comments from Peter (thanks!)

- Registered a new group policy
  - Signal whether the pairwise mode of Group OSCORE is used in the group

- Removed role combination ["Requester", "Monitor"]
  - … and a new open point came up (see later slide)

- Added new role "Verifier"
  - **Not** a group member, but authorized to retrieve public keys from the GM
  - Can verify countersignatures of Group OSCORE messages in the group

Since virtual meeting 15-04-2020

- Reverted to ‘kdcchallenge’ **not** for single use
  - Valid as long as the posted Access Token is valid
  - The GM returns it in an error response to a Joining Request
    - If the old one has been deleted, a new one is provided and stored
  - Security considerations updates accordingly

- ‘kdcchallenge’ MAY be omitted if:
  - The ‘scope’ in the Access Token has only the “monitor” role or only the “verifier” role, for each specified group.
  - The final choice is for the implementer.

Since virtual meeting 15-04-2020

- Updated format of parameters about the countersignature
  - ‘sign_info’ , in the response to the Token post
  - ‘cs_params’ and ‘cs_key_params’ in the Joining Response
  - Now using the Capabilities from the COSE registries

- More considerations on a node missing a group rekeying
  - Missed rekeying → Being unable to decrypt incoming group messages
  - The node has to ask the GM for the current keying material
    - Those messages (may) include a new Gid, not sufficient as a hint
  - If the node is in multiple groups of a same GM
    - Request keying material for one group at the time
  - If multiple GMs are involved
    - Request keying material from one GM at the time
    - The Gid format Prefix+Epoch helps (Appendix of *core-oscore-groupcomm*)

Open point

- Legitimate role combinations
  - Removed role combination [“Requester”, “Monitor”]
  - It doesn’t make sense inside a group. But, **when** should this be checked?

- Now the AS checks that, when getting a Token Request:
  - [“Requester”, “Responder”] is valid
  - [“Requester”, “Monitor”] is not valid
  - A node wanting to join first as Requester, then as Monitor needs 2 tokens
  - Shouldn’t this be checked by the GM when getting a Joining Request?

- Distinguish ‘scope’ in Token Request and in the Joining Request
  - Token Request: any combination of any admitted role is fine
  - Joining Request: any legitimate combination of roles in the token is fine
  - Issues with that?

Next steps

- Submit version -08 before the cut-off
  - Close the open point on role combinations
  - Default values of ‘cs_alg’, ‘cs_params’, ‘cs_key_params’, ‘cs_key_enc’
    - Now defined in *draft-tiloca-ace-oscore-gm-admin*
    - Jim suggested [1] to move them to this document

- Then ready for WGLC (?)

- Advance the implementation and run interop tests

[1] https://mailarchive.ietf.org/arch/msg/ace/q55WDjJLdEMVvI0bV7k_VrzRgIY/

Thank you!

Comments/questions?

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