Admin Interface for the OSCORE Group Manager

draft-ietf-ace-oscore-gm-admin-04

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Recap

- **RESTful admin interface at the OSCORE Group Manager**
  - Create, (re-)configure and delete OSCORE groups
  - Support for both: i) Link Format and CBOR ; ii) CoRAL

- **Two new types of resources at the Group Manager**
  - A single *group-collection* resource, at /manage
  - One *group-configuration* resource per group, at /manage/GROUPNAME

- **Using ACE for authentication and authorization**
  - The Administrator is the Client
  - The Group Manager is the Resource Server
  - For secure communication, use transport profiles of ACE

Overview

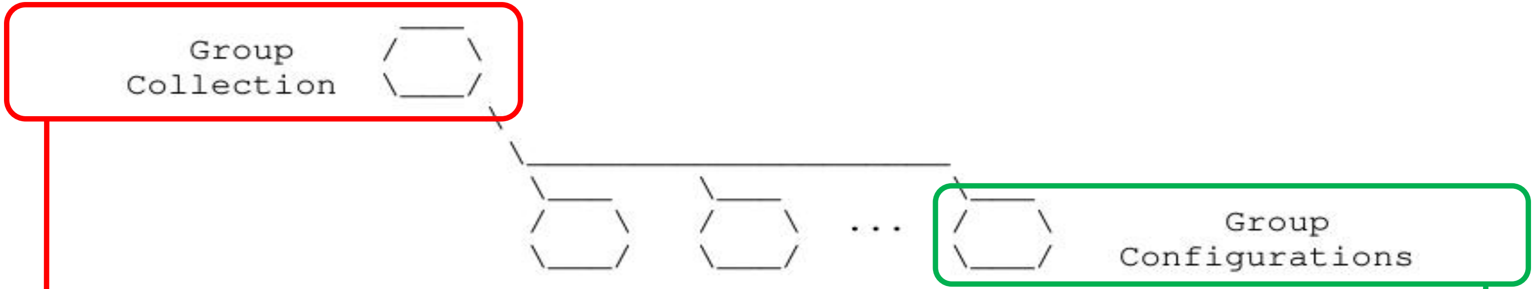


Figure 1: Resources of a Group Manager

***Group-collection* resource**

- Create a new OSCORE group (POST)
  - A group-configuration resource is created
  - A group-membership for joining nodes is also created, see *ace-key-groupcomm-oscore*
- Retrieve the list of OSCORE groups
  - All groups (GET)
  - Group selected by filters (FETCH)

***Group-configuration* resource**

- Retrieve the group configuration (GET)
- Retrieve part of the group configuration (FETCH)
- Overwrite the group configuration (PUT)
- Update the group configuration (PATCH) ***NEW***
- Delete the group (DELETE)

Main updates from -02, -03 and -04

- **Improved error handling, using also the new error types**
  - Following the format of error messages in *draft-ietf-ace-key-groupcomm*
  - Additional error situations are handled and replied to, e.g. deleting a still active group

- **Admit multiple Administrators**
  - All Administrators can access the group-configuration resource
  - A set of Administrators can access a group-configuration resource
    - Possibly, only certain operations to certain Administrators
    - Possibly, act on groups created by another Administrator
  - “Classes” of Administrators, to be enforced through ‘scope’
    - Section 2.1.1 as placeholder, with a sketched technical direction

Main updates from -02, -03 and -04

Added PATCH/iPATCH handler for group-configuration resources

- **Selective updates of an existing group configuration**
  - Specify only parameters to update
  - Other parameters keep their current value (they don't default like when PUT is used)

- **Plain "replacement" update for most parameters, as new pair ("label", value)**

- **Special handling for the 'app_groups' parameter – List of names of application groups**
  - Option 1: whole new list as hard replacement
  - Option 2: set of names to remove and set of new names to add

Not both in the same PATCH request!

- **PATCH can't be used to create a new group!**

Main updates from -02, -03 and -04

- **Improved handling of default values for configuration/status parameters**
  - If the request to the Group Manager does not include a parameter …
  - … and the Group Manager uses a different default value than what recommended …
  - … then the Group Manager must include the chosen value in the response

- **New optional configuration parameters for OSCORE deterministic requests**
  - Main approach defined in *draft-amsuess-core-cachable-oscore*
  - ‘det_req’ : simple value true/false // Use of deterministic requests in the group
  - ‘det_hash_alg’ : tstr/int // Hash algorithm to use with deterministic requests

- **Alignment with recent updates in other documents, especially**
  - *draft-ietf-ace-key-groupcomm, draft-ietf-ace-key-groupcomm-oscore*
  - *draft-ietf-core-oscore-groupcomm*

Summary and next steps

- **Latest updates**
  - Improved error handling
  - Admitting multiple Administrators (to be practically enforced with ‘scope’)
  - PATCH/iPATCH, to selectively update a group configuration
  - New/update parameters, with handling of default values
  - Revised examples and side effects due to parameter changes

- **Next steps**
  - Define the format of ‘scope’, using AIF and patterns for group names
    - Allow some actions to Administrators that did not create the group [1]
    - Direction sketched in Section 2.1.1 – Discuss at an ACE interim meeting?
  - Keep aligned with other related documents as they get updated

[1] https://mailarchive.ietf.org/arch/msg/ace/gLr5NgAURoi5P9f6RcgHkL2jFr8/

Thank you!

Comments/questions?

https://github.com/ace-wg/ace-oscore-gm-admin

Backup

Group Configuration Parameters

- **Configuration properties**
  - hkdf
  - pub_key_enc
  - group_mode
  - sign_enc_alg
  - sign_alg
  - sign_params
  - pairwise_mode
  - alg
  - ecdh_alg
  - ecdh_params
  - det_req
  - det_hash_alg

- **Status properties**
  - rt = “core.osc.gconf”
  - active
  - group_name // Plain immutable identifier
  - group_title // Descriptive string
  - ace_groupcomm_profile
  - exp
  - **app_groups** // Names of application groups
  - joining_uri
  - ? group_policies
  - ? max_stale_sets
  - ? as_uri // Link to the AS

- When using PATCH, easy “replacement” update for most parameters
  - Specify the pair (“label”, new_value), like when creating the group
- ‘app_groups’ is a list of names and requires special handling

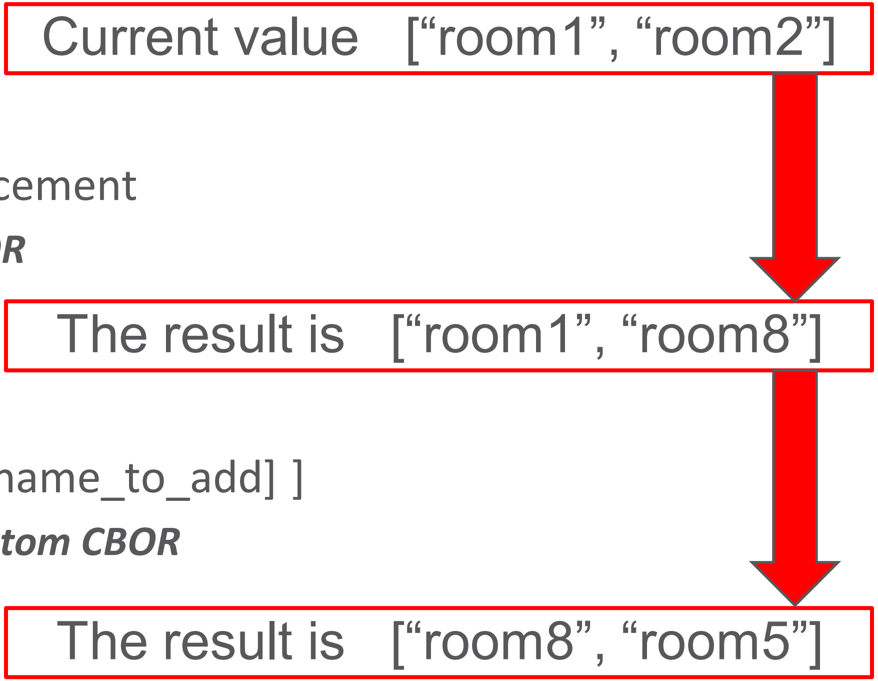
Configuration update with PATCH

- **Two ways to update ‘app_groups’**
  - List of associated applications groups

- **Overwrite** – New array of names as hard replacement
  - app_groups : [“room1”, “room8”] ***Custom CBOR***
  - app_group “room1”
    app_group “room8” } ***CoRAL***

- **Addition/deletion** – [[*name_to_remove], [*name_to_add]]
  - app_groups_diff : [[“room1”], [“room5”]] ***Custom CBOR***
  - app_group_del “room1”
    app_group_add “room8” } ***CoRAL***

- Overwrite and addition/deletion **not together** in the same PATCH payload



Current value [“room1”, “room2”]

The result is [“room1”, “room8”]

The result is [“room8”, “room5”]

Configuration update with PATCH

- **4.00 (Bad request)**
  - Any malformed or invalid payload
  - iPATCH is used as request method, but:
    - ‘app_groups_diff’ is included (Custom CBOR)
    - ‘app_group_del’ and/or ‘app_group_add’ are included (CoRAL)

- **4.09 (Conflict)**
  - New parameter values would yield an inconsistent group configuration

- **4.22 (Unprocessable entity)** might be returned just as per RFC 8132
  - The server is unable to or is incapable of processing the request

Sketched format of ‘scope’

- Section 2.1.1 as placeholder, with a list of design considerations
- New AIF Data Model – Similar to *draft-ace-key-groupcomm-oscore*
- AIF-Generic<Toid, Tperm> = [*[Toid, Tperm]]
  - Toid: Text string, specifying a name pattern for security groups
  - Tperm: Unsigned integer, indicating permissions as flag bits
    - Retrieving the list of security groups is always possible, for any Tperm
- Possible granted permissions – Over group names matching the pattern!
  - Create the groups, and later do anything on those
  - Read the configuration of groups created by others
  - Overwrite/update the configuration of groups created by others
  - Delete groups created by others
- Useful to enable additional Administrators after a group creation