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| CHANGE REQUEST | |
| Meeting:\* | ARC 17.2 |
| Source:\* | Ericsson, KETI |
| Date:\* | 2015-05-29 |
| Contact:\* | George Foti, Sungchan Choi, Ting Martin Miao, Jaeho Kim (csc@keti.re.kr) |
| Reason for Change/s:\* | CR for *Result Content* parameter clarification |
| CR against: Release\* | Release 2 |
| CR against: WI\* | Active <Work Item number>  MNT Maintenance / < Work Item number(optional)>  STE Small Technical Enhancements / < Work Item number (optional)>  Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0001-V2.1.0 |
| Clauses/Sub Clauses\* | 8.1.2 result content |
| Type of change: \* | Editorial change  Bug Fix or Correction  Change to existing feature or functionality  New feature or functionality  Only ONE of the above shall be ticked |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES  NO  This CR is a mirror CR? YES  NO  if YES, please indicate the document number of the original CR:  <Document Number)<CR Number of the original CR to the current Release> |
| Template Version:23 February 2015 (Dot not modify) | |

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GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separated “mirror CR” should be posted at the same time of this CR

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete sections need not show surrounding clauses as long as the proposed section number clearly shows where the new section is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

## Introduction

This contribution proposes clarification of result content parameter in request message. Specifically, this CR clarifies the operations which are related to each result content value used and the limit usage.

### -----------------------Start of change 1-------------------------------------------

### 8.1.2 Request

* ***Result Content*:** optional result content: Indicates what are the expected components of the result of the requested operation. The Originator of a request may not need to get back a result of an operation at all. This shall be indicated in the ***Result Content*** parameter. Settings of ***Result Content*** depends on the requested operation specified in ***Operation***. Possible values for ***Result Content*** are:
* **attributes:** Representation of the requested resource shall be returned as content, without the address(es) of the direct child resource(s) or their descendants. For example, if the request is to retrieve a *<container>* resource, the address(es) of the *<contentInstance>* child-resource(s) is not provided. This setting shall be valid for Create, Retrieve, Update, Delete operation. When this is used for Create operation, only assigned/modified attributes shall be included in the content. If the Originator does not set ***Result Content*** parameter in the request message, this setting shall be the default value when the Receiver processes the request message.
* **hierarchical-address:** Representation of the address of the created resource. This shall be only valid for a Create operation. The address shall be in hierarchical address scheme.
* **Hierarchical-address+attributes:** Representation of the addresses in hierarchical address scheme and assigned/modified attributes of the created resource. This shall be only valid for a Create operation.

- **attributes+child-resources :** Representation of the requested resource, along with a nested representation of all of its direct child resource(s), and their descendants in line with any provided filter criteria as given in the ***Filter Criteria*** parameter shall be returned as content. If there is no filter criteria parameter in the request message then all children/descendants are returned along with their attributes. For example, if the request is to retrieve a *<container>* resource that only has *<contentInstance>* children, the attributes of that *<container>* resource and a representation of all of its *<contentInstance>* child-resource(s), including their attributes, are provided.

The Originator may request to limit the number of bytes to be returned in the response, in which case the hosting CSE shall comply with the request or apply its default maximum if there is one and it is lower than the requested one. If no limit is specified in the request then the hosting CSE shall return all direct child resources and their descendants subject to maximum limit that may be imposed by the hosting CSE. In addition, the originator may request to limit the maximum number of direct allowed nesting levels. Finally, the Originator may specify a starting point for the direct child resources to be returned. This setting shall be only valid for a Retrieve operation.

The hosting CSE shall list parent resources before their children. This means that the originator of the request will not receive a discovered resource without having received its parents. The hosting CSE shall also ensure that proper nesting representation of all the children is incorporated in its listing for parents and children.

Nested processing is applicable at every level in the resource tree. Processing a direct child resource can stop at any nested child if either the defined maximum number of bytes in the request is reached or the hosting CSE maximum default size is reached. If a direct child resource and all its descendants cannot be included in the returned content due to size limitations then the direct child resource shall not be included in the response.

An indication shall be included in the response to indicate if the returned content is complete or partial. If the indication is for partial content, the response shall include an offset for the direct child resource where processing can restart for the remaining direct child resources.

**- child-resources:** A nested representation of the requested resource’s direct child resource(s) their descendants, and their attributes, shall be returned as content. The resources that are returned are subject to any filter criteria that are given in the ***Filter Criteria*** parameter (if there are no filter criteria then all children are returned). The attributes of the parent resource are not returned, but all the attributes of the children are returned. For example, if the request is to retrieve a *<container>* resource that only has *<contentInstance>* children, only a representation of all of its *<contentInstance>* child-resource(s) is provided.

Processing of direct child resources, size limitations, and offset for the starting of direct child resource processing of **the attributes+child-resources** option shall apply to this option as well.

This setting shall be only valid for a Retrieve operation.

* **attributes+child-resource-references:** Representation of the requested resource, along with the address(es) of the child resource(s) and their descendants, shall be returned as content. For example, if the request is to retrieve a *<container>* resource, the *<container>* resource and the address(es) of the *<contentInstance>* child-resource(s) are provided.

Processing of child resources, size limitations, and offset for the starting of child resource processing of **the attributes+child-resources** option shall apply to this option as well.

This setting shall be valid for a Retrieve operation.

This option can be used within the context of resource discovery mechanisms (See clause 10.2.6)

* **child-resource-references:** Address(es) of the child resources and their descendants, without any representation of the actual requested resource shall be returned as content. For example, if the request is to retrieve a *<container>* resource, only the address(es) of the *<contentInstance>* child-resource(s) is provided.

Processing of child resources, size limitations, and offset for the starting of child resource processing of **the attributes+child-resources** option shall apply to this option as well.

This setting shall be valid for a Retrieve operation.

This option can be used within the context of resource discovery mechanisms (See clause 10.2.6)

* **nothing:** Nothing shall be returned as operational result content. This setting is not valid for a Retrieve operation. For example, if the request is to delete a resource, this setting indicates that the response shall not include any content.
* **original-**resource**:** Representation of the original resource pointed by the *link* attribute in the announced resource shall be returned as content, without the address(es) of the child resource(s). This setting shall be only valid for a Retrieve operation where the ***To*** parameter targets the announced resource.

Note that for any of the above options, Discovery access control is applied against discovery related procedures, while Retrieve access control procedures is applied against non-discovery related Retrieve operations.

Note that the fitter criteria usage governs the purpose of a Retrieve operation

### -----------------------End of change 1---------------------------------------------

### -----------------------Start of change 2---------------------------------------------

### 8.1.3 Response

The Response received by the Originator of a Request accessing resources over the Mca and Mcc reference points shall contain mandatory and may contain optional parameters. Certain parameters may be mandatory or optional depending upon the Requested operation (CRUDN) or the mandatory response code. In this clause, the mandatory parameters are detailed first, followed by those that are conditional, and then by those that are optional:

**Mandatory Parameters:**

* ***Response Code*:** response code: This parameter indicates whether the requested operation was successful, unsuccessful or is an acknowledgement:
* A **successful** code indicates to the Originator that the Requested operation has been executed successfully by the Hosting CSE.
* An **unsuccessful** code indicates to the Originator that the Requested operation has not been executed successfully by the Hosting CSE.
* An **acknowledgement** indicates to the Originator that the Request has been received and accepted by the attached CSE, i.e. by the CSE that received the Request from the issuing Originator directly, but the Request operation has not been executed yet. The success or failure of the execution of the Requested operation is to be conveyed later.

Details of successful, unsuccessful and acknowledge codes are provided in clause 6.8 of oneM2M Protocol Specification (TS-0004) [i.2].

* ***Request Identifier*:** Request Identifier. The ***Request Identifier*** in the Response shall match the ***Request Identifier*** in the corresponding Request.

**Conditional Parameters:**

* ***Content*:** resource content:
* If ***Response Code*** is *successful* then:

The ***Content*** parameter may be present in a Response in the following cases:

* **Create (C): *Content*** is the address and/or the content of the created resource depending on ***Result Content*** value (i.e. **attributes**, **address** and **address+attributes**).
* **Update (U): *Content*** is the content replaced in an existing resource. If attributes are created at an existing resource, ***Content*** includes the names of the attributes created and their associated values. If attributes are updated at an existing resource, ***Content*** includes the names of the attributes updated and their associated values. If attributes are deleted at an existing resource, ***Content*** includes the names of the attributes deleted.
* **Delete (D):** Optionally, ***Content*** is the content actually deleted.

The ***Content*** parameter shall be present in a Response in the following cases:

* **Retrieve (R): *Content*** is the retrieved resource content or aggregated contents of discovered resources.

If present in the Request, ***Result Content***, indicates which components of the result of the requested operation are to be included in the Response.

* If ***Response Code*** is *unsuccessful* then the ***Content*** parameter may be present in a Response to provide more error information.
* If ***Response Code*** is *acknowledgment* then the ***Content*** parameter:
* Shall contain the address of a *<request>* resource if the response was an acknowledgement of a non-blocking request and the *<request>* resource type is supported by the Receiver CSE.
* Is not present otherwise.
* ***Content Status*:** This parameter take one of two values: complete or partial depending on the ***Content*** parameter.
* If ***Response Code*** is *successful* then and the ***Content*** parameter is present due to the following case::
* **Retrieve (R): *Content*** is the retrieved resource content or aggregated contents of discovered resources.

Then ***Content Status*** parameter shall be present in the response for a **Retrieve (R)** operation

* ***Content Offset*:** This parameter includes either a starting point which can be used in a subsequent Retrieve request for direct child resource processing in the resource tree or the actual number of child resources, and descendants returned in ***Content***. Its value depends on the information included in the ***Content Status*** parameter
* If ***Content Status*** parameter is complete then this includes the number of returned child resources
* If ***Content Status*** parameter is partial then this includes the offset where processing can restart for the remaining direct child resources in the resource tree.

Then Content ***Offset*** parameter shall be present in the response for a **Retrieve (R)**  operation.

### -----------------------End of change 3---------------------------------------------

CHECK LIST

* Does this change request include an informative introduction containing the problem(s) being solved, and a summary list of proposals.?
* Does this CR contain changes related to only one particular issue/problem?
* Have any mirror crs been posted?
* Does this change request make **all** the changes necessary to address the issue or problem? E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable?
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* Are multiple changes in this CR clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.?