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| CHANGE REQUEST |
| Meeting ID:\* |  SDS #66 |
| Source:\* | Mohd Uvaish Siddiqui, C-DOT, uvaish@cdot.inPrateek Varshney, C-DOT, prateekv@cdot.inPoornima Shandilya, C-DOT, poornima@cdot.inAnupama Chopra, C-DOT, anupama@cdot.in |
| Date:\* | 2024-09-12  |
| Reason for Change/s:\* | TS-0004 – accessControlObjectDetails handling in <accessControlPolicy> resource |
| CR against: Release\* | Release 5 |
| CR against: WI\* | [ ]  Active WI-xxxx[ ]  MNT maintenance / < Work Item number(optional)>Is this a mirror CR? Yes [ ]  No [ ] mirror CR number: (Note to Rapporteur - use latest agreed revision)[x]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0004 v.4.2.0 |
| Clauses \* | 6.3.5.27, 7.3.3.15, 7.4.2.2, 8.2.5 and CDT-commonTypes-v3\_31\_0.xsd |
| Type of change: \* | [ ]  Editorial change[ ]  Bug Fix or Correction[x]  Change to existing feature or functionality[ ]  New feature or functionalityOnly ONE of the above shall be ticked |
| Impacted other TS/TR(s) | TS-0001 and TS-0003 |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [x]  NO [ ] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2017 (Do 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 separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

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 clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause 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 CR proposes changes to *accessControlObjectDetails* attribute in access control rule of <accessControlPolicy> resource for handling of Create, Retrieve, Update, Delete and Discovery operations on a target resource. This is in continuation to discussion of SDS-2024-0078R02-oneM2MResourceTypeACR presented in SDS session of TP-65 on 24th June 2024. Two proposals were discussed for handling of resourceType. Proposal no. 1 was agreed and the changes for the same are introduced in this CR.

Additionally*,* changes are made to *childReso*urce*Type* parameter of *accessControlObjectDetails* with introduction of a new parameter *childSpecializationType* to support resourceType as well as specializationType for child resources to be created.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 6.3.5.27 m2m:accessControlRule

Table 6.3.5.27‑1: Type Definition of m2m:accessControlRule

|  |  |  |  |
| --- | --- | --- | --- |
| **Element Path** | **Element Data Type** | **Multiplicity** | **Note** |
| accessControlOriginators | list of xs:anyURI | 1 | See clause 7.3.3.15 for the detail |
| accessControlOperations | m2m:accessControlOperations | 1 |  |
| accessControlContexts |  | 0..n |  |
| accessControlContexts/accessControlWindow | m2m:scheduleEntry | 0..n |  |
| accessControlContexts/accessControlIpAddresses |  | 0..1 |  |
| accessControlContexts/accessControlIpAddresses/ipv4Addresses | list of m2m:ipv4 | 0..1 | List of IPv4 addresses |
| accessControlContexts/accessControlIpAddresses/ipv6Addresses | list of m2m:ipv6 | 0..1 | List of IPv6 addresses |
| accessControlContexts/accessControlLocationRegion | m2m:locationRegion | 0..1 |  |
| accessControlContexts/accessControlUserIDs | m2m:listOfM2MID | 0..1 |  |
| accessControlContexts/accessControlEvalCriteria | m2m:evalCriteria | 0..1 |  |
| accessControlContexts/accessControlLimit | xs:nonNegativeInteger | 0..1 |  |
| accessControlAuthenticationFlag | xs:boolean | 0..1 |  |
| accessControlObjectDetails |  | 0..n |  |
| accessControlObjectDetails/resourceType | m2m:resourceType | 0..1 | resourceType identifier of the targeted parent resource |
| accessControlObjectDetails/specializationType | m2m:specializationType | 0..1 | This could be a containerDefinition or mgmtDefinition |
| accessControlObjectDetails/childResourceType | list of m2m:resourceType | 0..1 |  |
| accessControlObjectDetails/childSpecializationType | m2m:listOfChildSpecializationType | 0..1 |  |
| accessControlAttributes | m2m:attributeList | 0..1 |  |

The accessControlContexts/accessControlIpAddresses element may include either the ipv4Addresses element, ipv6Addresses element, or both elements.

Each individual IPv4 address of data type m2m:ipv4 in the list of IPv4 addresses is represented in dotted-decimal notation with optional Classless Inter-Domain Routing (CIDR) suffix in accordance with IETF RFC 4632 [29]. Each individual IPv6 address of data type m2m:ipv6 in the list of IPv6 addresses is represented in colon separated groups of hexadecimal digits with optional network prefix in accordance with IETF RFC 5952 [30]. Example IPv4 and IPv6 addresses which comply with data types m2m:ipv4 and m2m:ipv6, respectively, are given in Table 6.3.2-1. If the accessControlAuthenticationFlag element is not present, then the value is assumed to be false.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 7.3.3.15 Check authorization of the originator

If the target resource contains the *accessControlPolicyIDs* attribute, the Hosting CSE shall use the linked <accessControlPolicy> resources as in the evaluation procedure below. See clause 9.6.1.3.2 in oneM2M TS-0001 [6] for how to handle the case where the target resource has no accessControlPolicyIDs attribute.

The evaluation procedure shall be performed as following:

1. The Hosting CSE retrieves the access control rules from *privilege* attribute of the <accessControlPolicy> which is linked as the *accessControlPolicyIDs*. If the target is <accessControlPolicy> resource, it retrieves the rules from *selfPrivilege* attribute instead.
2. The Hosting CSE checks the following conditions for the access control rules. If there is any rule satisfying all conditions or there is a set of rules that contain *accessControlAttributes* that individually satisfy all conditions apart from *accessControlAttributes* and that collectively as a union satisfy the *accessControlAttributes* condition then the evaluation is successful, otherwise access is denied. For more details, see clause 7.1.5 in oneM2M TS‑0003 [7].
* *accessControlOriginators* of the rule includes the Originator information. The *accessControlOriginators* comprises a list of domains, CSE-IDs, AE-IDs, resource-IDs of <group> resources that contain <AE> or <remoteCSE> as members and/or Role-IDs. If the *accessControlOriginators* includes a groupID, the Hosting CSE checks if the Originator is a member of that <group> resource. The *accessControlOriginators* can be set to reserved keyword "all" to grant access to all originators. It is allowed to include the wildcard character, "\*", into the URI string of domain, CSE-ID or AE‑ID at any level. See clause 9.6.2.1 in oneM2M TS-0001 [6].

Table 7.3.3.15‑1: Types of values in *accessControlOriginators*

| Name | Description | Wildcard applicability |
| --- | --- | --- |
| *domain* | A M2M-SP-ID representing domain | Allowed |
| *originatorID* | CSE-ID | Allowed |
|  | AE-ID | Allowed |
| *group* | The resource-ID of a <group> resource which contains <AE> or <remoteCSE> as member | Not allowed |
| *all* | Any Originators are allowed | Not allowed |
| *Role-ID* | A Role Identifier as defined in clause 7.1.14 of oneM2M TS-0001 [6] | Not allowed |

* *accessControlContexts* of the rule (i.e. *accessControlWindow, accessControlLocationRegion, accessControlIpAddresses*, *accessControlUserIDs, accessControlEvalCriteria* and *accessControlLimit*), if present, includes the request context, according to clause 7.1.3 of oneM2M TS-0003 [7].
* *accessControlOperations* condition of the rule is satisfied if the type of operation in the request matches an operation defined in *accessControlOperations*.
* If the *accessControlAuthenticationFlag* is true, then access control rule applies only if the Originator is considered to be authenticated by the Hosting CSE according to clause 7.1.2 in oneM2M TS-0003 [7].

The *accessControlObjectDetails* condition is satisfied if the type of resource or specialization, whichever applicable, of the targeted resource matches the *resourceType* or *specializationType* elements of the *accessControlObjectDetails* resource. For Create operation, if *childResourceType* is present the CSE shall also match the type of child resource to be created against one of the elements defined in *childResourceType* element of *accessControlObjectDetails.* Further, if *childSpecializationType* is present, the CSE shall match one of the elements present in the *childSpecializationType* with the specialization type of resource that is to be created*.* See clause 7.1.3 in oneM2M TS-0003 [7] for details.

* *accessControlAttributes* of the rule specifies a list of resource attribute names as defined in clauses 7.1.3 and 7.1.5 in oneM2M TS-0003 [7]. The list includes one or more names of oneM2M resource attributes represented in their short name format. If there is a rule for which all conditions of the rule are satisfied, then other rules shall be ignored. Otherwise, rules that contain *accessControlAttributes* and that satisfy all conditions apart from *accessControlAttributes* are considered and are referred to as “applicable rules”. In this case, the resource attributes associated with the request are evaluated against the union of resource attributes defined across all the *accessControlAttributes* of the “applicable rules” to determine if access is allowed. Depending on the type of operation (e.g., Create, Retrieve, Update, Delete, Discovery), this evaluation shall be performed as defined in clause 7.1.5 in oneM2M TS-0003 [7].

If the evaluation of these access control rules results in access being permitted, the authorization check process ends. If the result is "DENY", the Hosting CSE proceeds with Dynamic Authorization (see clause 7.3 in oneM2M TS-0003 [7]) if it supports that.

If Dynamic Authorization returns "PERMIT", the authorization check process ends. If the result is "DENY" the Hosting CSE proceeds with Distributed Authorization (see clause 7.5 in oneM2M TS-0003 [7]) if it supports that. If this returns "PERMIT", the authorization check process ends.

If the Hosting CSE reaches the point where it has tried all the authorization processes that it supports and they have all returned "DENY" the Hosting CSE shall reject the request with an "ORIGINATOR\_HAS\_NO\_PRIVILEGE" ***Response Status Code*** parameter value.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 7.4.2.2 accessControlPolicy resource specific procedures for CRUD operations

##### 7.4.2.2.0 Introduction

This clause describes accessControlPolicy resource-specific behaviour for CRUD operations.

##### 7.4.2.2.1 Create

***Originator:***

No changes from the generic procedures in clause 7.2.2.1.

***Receiver:***

Primitive specific operation on Recv-1.0 "Check the syntax of received message":

If the <accessControlPolicy> received does not have at least one accessControlRule specified in the *selfPrivileges* attribute then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

If the <accessControlPolicy> received have accessControlObjectDetails specified in an accessControlRule and if the value of the *resourceType* element is 13 (<mgmtObject> specialization) or 28 (<flexContainer> specialization>) but *specializationType* element is not present then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

If the <accessControlPolicy> received have accessControlObjectDetails specified in an accessControlRule and if *specializationType* element is present but the value of the *resourceType* element is neither 13 (<mgmtObject> specialization) nor 28 (<flexContainer> specialization>) then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

##### 7.4.2.2.2 Retrieve

***Originator:***

No changes from the generic procedures in clause 7.2.2.1.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2.

##### 7.4.2.2.3 Update

***Originator:***

No change from the generic procedures in clause 7.2.2.1.

***Receiver:***

Primitive specific operation on Recv-1.0 "Check the syntax of received message":

If the <accessControlPolicy> received removes all accessControlRules specified in the *selfPrivileges* attribute then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

If the <accessControlPolicy> received have accessControlObjectDetails specified in an accessControlRule and if the value of the *resourceType* element is 13 (<mgmtObject> specialization) or 28 (<flexContainer> specialization) but *specializationType* element is not set in the target resource or not provided in the request then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

If the <accessControlPolicy> received have accessControlObjectDetails specified in an accessControlRule and if *specializationType* element is present but the value of the *resourceType* element is neither 13 (<mgmtObject> specialization) nor 28 (<flexContainer> specialization) in the target resource or in the request then "Create an unsuccessful Response primitive" with the ***Response Status Code*** indicating "BAD\_REQUEST" error.

##### 7.4.2.2.4 Delete

***Originator:***

No change from the generic procedures in clause 7.2.2.1.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 8.2.5 Complex data types members

In protocol bindings complex data type member names shall be translated into short names of Table 8.2.5-1.

Table 8.2.5‑1: Complex data type member short names

| Member Name | Occurs in | Short Name |
| --- | --- | --- |
| createdBefore | filterCriteria, eventNotificationCriteria | ***crb*** |
| createdAfter | filterCriteria, eventNotificationCriteria | ***cra*** |
| modifiedSince | filterCriteria, eventNotificationCriteria | ***ms*** |
| unmodifiedSince | filterCriteria, eventNotificationCriteria | ***us*** |
| stateTagSmaller | filterCriteria, eventNotificationCriteria | ***sts*** |
| stateTagBigger | filterCriteria, eventNotificationCriteria | ***stb*** |
| expireBefore | filterCriteria, eventNotificationCriteria | ***exb*** |
| expireAfter | filterCriteria, eventNotificationCriteria | ***exa*** |
| labels | filterCriteria, eventNotificationCriteria | ***lbl\**** |
| labelsQuery | filterCriteria | ***lbq*** |
| resourceType | filterCriteria, accessControlObjectDetails | ***ty\**** |
| sizeAbove | filterCriteria, eventNotificationCriteria | ***sza*** |
| sizeBelow | filterCriteria, eventNotificationCriteria | ***szb*** |
| contentType | filterCriteria | ***cty*** |
| limit | filterCriteria | ***lim*** |
| attribute | filterCriteria, eventNotificationCriteria | ***atr*** |
| contentFilterSyntax | filterCriteria | ***cfs*** |
| contentFilterQuery | filterCriteria | ***cfq*** |
| level | filterCriteria | ***lvl*** |
| offset | filterCriteria | ***ofst*** |
| geoQuery | filterCriteria | ***gq*** |
| geometryType | geoQuery | ***gmty*** |
| geometry | geoQuery | ***geom*** |
| geoSpatialFunction | geoQuery | ***gsf*** |
| notificationEventType | eventNotificationCriteria, notificationEvent | ***net*** |
| operationMonitor | eventNotificationCriteria, notificationEvent | ***om*** |
| representation | notificationEvent | ***rep*** |
| filterUsage | filterCriteria | ***fu\**** |
| eventCatType | eventCat | ***ect*** |
| eventCatNo | eventCat | ***ecn*** |
| number | batchNotify, missingData | ***num*** |
| duration | batchNotify, missingData | ***dur*** |
| notification | aggregatedNotification, Request Primitive Content | ***sgn*** |
| notificationEvent | notification | ***nev*** |
| verificationRequest | notification | ***vrq*** |
| subscriptionDeletion | notification | ***sud*** |
| subscriptionReference | notification | ***sur*** |
| creator | notification | ***cr\**** |
| notificationForwardingURI | notification | ***nfu\**** |
| notificationTarget | notification | ***ntt*** |
| targetRemovalRequest | notification | ***trr*** |
| targetRemovalAllowance | notification | ***tra*** |
| IPEDiscoveryRequest | notification | ***idr*** |
| AERegistrationPointChange | notification | ***aerp*** |
| AEReferenceIDChange | notification | ***aerid*** |
| trackingID1 | notification | ***tid1*** |
| trackingID2 | notification | ***tid2*** |
| filterCriteria | IPEDiscoveryRequest | ***fc\**** |
| operation | operationMonitor, dynAuthDasRequest | ***op\**** |
| operations | operationMonitor, filterCriteria, primitiveProfile | ***ops*** |
| originator | operationMonitor, IPEDiscoveryRequest, dynAuthDasRequest | ***or\**** |
| action | actionStatus, e2eQosPolicy | ***acn\**** |
| status | actionStatus, e2eQosPolicy | ***sus\**** |
| childResource | All except execInstance, announced resource, management resources from firmware | ***ch*** |
| accessControlRule | privileges, selfPrivileges | ***acr*** |
| accessControlOriginators | accessControlRule | ***acor*** |
| accessControlOperations | accessControlRule | ***acop*** |
| accessControlContexts | accessControlRule | ***acco*** |
| accessControlWindow | accessControlContexts | ***actw*** |
| accessControlIpAddresses | accessControlContexts | ***acip*** |
| ipv4Addresses | accessControlIpAddress | ***ipv4*** |
| ipv6Addresses | accessControlIpAddress | ***ipv6*** |
| accessControlLocationRegion | accessControlContexts | ***aclr*** |
| countryCode | accessControlLocationRegion | ***accc*** |
| circRegion | accessControlLocationRegion | ***accr*** |
| accessControlEvalCriteria | accessControlContexts | ***acec*** |
| accessControlLimit | accessControlContexts | ***acl*** |
| name | attribute, anyArgType, mgmtLinkRef, childResourceRef, contentRef, listOfAttributes | ***nm\**** |
| specializationType | childResourceRef, listOfChildSpecializationType, accessControlObjectDetails | ***spty\**** |
| containerDefinition | specializationType | ***cnd\**** |
| mgmtDefinition | specializationType | ***mgd\**** |
| value | attribute, listOfAttributes | ***val*** |
| type | anyArgType, childResourceRef, mgmtLinkRef, location | ***typ*** |
| maxNrOfNotify | rateLimit | ***mnn*** |
| timeWindow | rateLimit | ***tww*** |
| scheduleEntry | scheduleElement | ***sce*** |
| aggregatedNotification | Request Primitive Content | ***agn*** |
| attributeList | Request Primitive Content | ***atrl*** |
| securityInfo | Request Primitive Content, Response Primitive Content | ***seci*** |
| timeSyncBeaconNotification | Request Primitive Content | ***tsbn*** |
| aggregatedResponse | Response Primitive Content | ***agr*** |
| aggregatedRequestPrimitives | Response Primitive Content | ***agrp*** |
| resource | Response Primitive Content | ***rce*** |
| URIList | Response Primitive Content | ***uril*** |
| debugInfo | Response Primitive Content | ***dbg*** |
| queryResult | Response Primitive Content | ***qres*** |
| anyArg | resetArgsType, rebootArgsType, uploadArgsType, downloadArgsType, softwareInstallArgsType softwareUpdateArgsType, softwareUninstallArgsType, execReqArgsListType | ***any*** |
| fileType | downloadArgsType | ***ftyp*** |
| URI | resourceWrapper, dynAuthTokenReqInfo, resourcePermissions | ***uri*** |
| resourcePermission | resourcePermissions | ***rpm*** |
| setOfACRs | resourcePermissions | ***sacr*** |
| URL | downloadArgsType | ***url\**** |
| username | uploadArgsType, downloadArgsType, softwareUpdateArgsType, softwareUninstallArgsType | ***unm*** |
| password | uploadArgsType, downloadArgsType, softwareUpdateArgsType, softwareUninstallArgsType | ***pwd*** |
| filesize | downloadArgsType | ***fsi*** |
| targetFile | downloadArgsType | ***tgf*** |
| delaySeconds | downloadArgsType | ***dss*** |
| successURL | downloadArgsType | ***surl*** |
| startTime | downloadArgsType | ***stt*** |
| completeTime | downloadArgsType | ***cpt*** |
| UUID | softwareInstallArgsType softwareUpdateArgsType, softwareUninstallArgsType | ***uuid*** |
| executionEnvRef | softwareInstallArgsType softwareUpdateArgsType, softwareUninstallArgsType | ***eer*** |
| version | softwareUninstallArgsType, tokenClaimSet | ***vr\**** |
| reset | execReqArgsListType | ***rst*** |
| reboot | execReqArgsListType | ***rbo\**** |
| upload | execReqArgsListType | ***uld*** |
| download | execReqArgsListType | ***dld*** |
| softwareInstall | execReqArgsListType | ***swin*** |
| softwareUpdate | execReqArgsListType | ***swup*** |
| softwareUninstall | execReqArgsListType | ***swun*** |
| tracingOption | deliveryMetaData | ***tcop*** |
| tracingInfo | deliveryMetaData | ***tcin*** |
| responseTypeValue | responseTypeInfo | ***rtv*** |
| notificationURI | responseTypeInfo | ***nu*** |
| timeOfDay | deletionContexts | ***tod*** |
| locationRegions | deletionContexts | ***lr*** |
| URIReference | contentRef | ***urir*** |
| semanticsFilter | filterCriteria | ***smf*** |
| missingData | eventNotificationCriteria | ***md*** |
| tokenID | tokenClaimSet, dynAuthLocalTokenIdAssignments | ***tkid*** |
| holder | tokenClaimSet | ***tkhd\**** |
| issuer | tokenClaimSet | ***tkis\**** |
| notBefore | tokenClaimSet | ***tknb\**** |
| notAfter | tokenClaimSet | ***tkna\**** |
| tokenName | tokenClaimSet | ***tknm\**** |
| audience | tokenClaimSet | ***tkau\**** |
| permissions | tokenClaimSet | ***tkps\**** |
| extension | tokenClaimSet | ***tkex\**** |
| permission | tokenPermissions | ***pm*** |
| resourceIDs | tokenPermission | ***ris*** |
| privileges | tokenPermission, setOfPermissions | ***pv\**** |
| roleIDs | tokenPermission | ***rids\**** |
| localTokenIdAssignment | dynAuthLocalTokenIdAssignments | ***ltia*** |
| localTokenID | dynAuthLocalTokenIdAssignment | ***lti*** |
| dasInfo | dynAuthTokenReqInfo | ***dasi*** |
| securedDasRequest | dynAuthTokenReqInfo | ***sdr*** |
| filterOperation | filterCriteria, eventNotificationCriteria | ***fo*** |
| targetedResourceType | dynAuthDasRequest | ***trt*** |
| originatorIP | dynAuthDasRequest | ***oip\**** |
| ipv4Address | dynAuthDasRequest, ipAddress | ***ip4*** |
| ipv6Address | dynAuthDasRequest, ipAddress | ***ip6*** |
| originatorLocation | dynAuthDasRequest | ***olo\**** |
| originatorRoleIDs | dynAuthDasRequest | ***orid*** |
| requestTimestamp | dynAuthDasRequest | ***rts*** |
| targetedResourceID | dynAuthDasRequest | ***trid*** |
| proposedPrivilegesLifetime | dynAuthDasRequest | ***ppl*** |
| roleIDsFromACPs | dynAuthDasRequest | ***rfa*** |
| tokenIDs | dynAuthDasRequest | ***tids*** |
| dynamicACPInfo | dynAuthDasResponse | ***dai*** |
| grantedPrivileges | dynAuthDasResponse | ***gp*** |
| privilegesLifetime | dynAuthDasResponse | ***pl*** |
| tokens | dynAuthDasResponse | ***tkns*** |
| securityInfoType | securityInfo | ***sit*** |
| dasRequest | securityInfo, dynAuthTokenReqInfo | ***dreq*** |
| dasResponse | securityInfo | ***dres*** |
| dynAuthRelMapRequest | securityInfo | ***darq*** |
| dynAuthRelMapResponse | securityInfo | ***dars*** |
| esprimRandObject | securityInfo | ***ero*** |
| esprimObject | securityInfo | ***epo*** |
| escertkeMessage | securityInfo | ***eckm*** |
| resourceRef | listOfChildResourceRef | ***rrf*** |
| resourceRefList | Response Primitive Content | ***rrl*** |
| esprimRandID | originatorESPrimRandObject, receiverESPrimRandObject | ***esri*** |
| esprimRandValue | originatorESPrimRandObject, receiverESPrimRandObject | ***esrv*** |
| esprimRandExpiry | originatorESPrimRandObject, receiverESPrimRandObject | ***esrx*** |
| esprimKeyGenAlgID | originatorESPrimRandObject | ***esk*** |
| esprimKeyGenAlgIDs | receiverESPrimRandObject | ***esks*** |
| esprimProtocolAndAlgIDs | originatorESPrimRandObject, receiverESPrimRandObject | ***espa*** |
| supportede2ESecFeatures | e2eSecInfo | ***esf*** |
| certificates | e2eSecInfo | ***escert*** |
| sharedReceiverESPrimRandObject | e2eSecInfo | ***esro*** |
| networkAction | backOffParameters | ***nwa*** |
| initialBackoffTime | backOffParameters | ***ibt*** |
| additionalBackoffTime | backOffParameters | ***abt*** |
| maximumBackoffTime | backOffParameters | ***mbt*** |
| optionalRandomBackoffTime | backOffParameters | ***rbt*** |
| backOffParametersSet | backOffParameters | ***bops*** |
| dataLink | listOfDataLinks | ***dali*** |
| attributeName | dataLink | ***atn*** |
| dataContainerID | dataLink | ***dcid*** |
| accessControlAuthenticationFlag | accessControlRule | ***acaf*** |
| accessControlObjectDetails | accessControlRule | ***acod*** |
| dataLinkEntry | listOfDataLinks | ***dle*** |
| childResourceType | accessControlObjectDetails, eventNotificationCriteria, filterCriteria | ***chty*** |
| childSpecializationType | accessControlObjectDetails | ***chsp*** |
| parentResourceType | filterCriteria | ***pty*** |
| childLabels | filterCriteria | ***clbl***  |
| parentLabels | filterCriteria | ***palb*** |
| childAttribute | filterCriteria | ***catr*** |
| parentAttribute | filterCriteria | ***patr*** |
| applyRelativePath | filterCriteria | ***arp*** |
| sessionDescription | sessionDescriptions | ***sdc*** |
| activityPattern | activityPatternElements | ***apt*** |
| stationaryIndication | activityPattern | ***sti*** |
| dataSizeIndicator | activityPattern | ***dsi*** |
| eventNotificationCriteriaEntry | eventNotificationCriteriaSet | ***encn*** |
| memberURI | mashupMembers | ***muri*** |
| memberValue | mashupMembers | ***mvl*** |
| coordinates | location | ***crd*** |
| qosLevel | e2eQosRequirements | ***qosl*** |
| resourceIDList | e2eQosRequirements | ***ril*** |
| sessionSchedule | e2eQosRequirements | ***ssch*** |
| numOfRequests | e2eQosRequirements | ***nor*** |
| numOfBytes | e2eQosRequirements | ***nob*** |
| accessControlUserIDs | accessControlContexts | ***acui*** |
| timeSyncBeaconReference | timeSyncBeaconNotification | ***tbr*** |
| currentTime | timeSyncBeaconNotification | ***ctm\**** |
| timeOffset | timeSyncBeaconNotification | ***tost*** |
| target | setOfNotificationStatsInfo | ***tg\**** |
| requestsSent | setOfNotificationStatsInfo | ***rqs*** |
| responsesReceived | setOfNotificationStatsInfo | ***rsr*** |
| notificationEventCount | setOfNotificationStatsInfo | ***noec*** |
| operator | evalCriteria | ***optr*** |
| subject | evalCriteria | ***sbjt*** |
| threshold | evalCriteria | ***thld*** |
| contentString | actionInput | ***cstr*** |
| resourceID | actionInput | ***rsid*** |
| resourceAttributeID | actionInput | ***raid*** |
| subjectResourceID | softwareTriggerCriterion | ***srid*** |
| evalCriteria | softwareTriggerCriterion | ***evcr*** |
| softwareTriggerCriterionEntry | listOfSoftwareTriggerCriteria | ***stce*** |
| actionStatusEntry | listOfActionStatuses | ***swid*** |
| accessControlAttributes | accessControlRule | ***aca*** |
| evalCriteria | stateTransition, listOfEvalCriteria | ***evc\**** |
| nextState | stateTransition | ***nxst*** |
| stateTransition | listOfStateTransitions | ***sttr*** |
| NOTE: \* marked short names have been already assigned in attribute Table 8.2.3-1 to Table 8.2.3-6. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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<xs:complexType name="accessControlRule">

 <xs:sequence>

 <xs:element name="accessControlOriginators" type="m2m:listOfURIs" />

 <!-- accessControlOperations defined as enumerated list 1 ... 63 -->

 <xs:element name="accessControlOperations" type="m2m:accessControlOperations" />

 <xs:element name="accessControlContexts" minOccurs="0" maxOccurs="unbounded">

 <xs:complexType>

 <xs:sequence>

 <xs:element name="accessControlWindow" type="m2m:scheduleEntry" minOccurs="0" maxOccurs="unbounded" />

 <xs:element name="accessControlIpAddresses" minOccurs="0">

 <xs:complexType>

 <xs:sequence>

 <xs:element name="ipv4Addresses" minOccurs="0" maxOccurs="1">

 <!-- space separated list of IPv4 addresses -->

 <xs:simpleType>

 <xs:restriction>

 <xs:simpleType>

 <xs:list itemType="m2m:ipv4" />

 </xs:simpleType>

 <xs:minLength value="1"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:element>

 <xs:element name="ipv6Addresses" minOccurs="0" maxOccurs="1">

 <!-- space separated list of IPv6 addresses -->

 <xs:simpleType>

 <xs:restriction>

 <xs:simpleType>

 <xs:list itemType="m2m:ipv6" />

 </xs:simpleType>

 <xs:minLength value="1"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:element>

 </xs:sequence>

 </xs:complexType>

 </xs:element>

 <xs:element name="accessControlLocationRegion" type="m2m:locationRegion" minOccurs="0" />

 </xs:sequence>

 </xs:complexType>

 </xs:element>

 <xs:element name="accessControlAuthenticationFlag" type="xs:boolean" minOccurs="0" />

 <xs:element name="accessControlObjectDetails" minOccurs="0" maxOccurs="unbounded">

 <xs:complexType>

 <xs:sequence>

 <xs:element name="resourceType" type="m2m:resourceType" minOccurs="0" />

 <xs:element name="specializationType" type="m2m:specializationType" minOccurs="0" />

 <xs:element name="childResourceType" minOccurs="0" maxOccurs="1">

 <xs:simpleType>

 <xs:restriction>

 <xs:simpleType>

 <xs:list itemType="m2m:resourceType" />

 </xs:simpleType>

 <xs:minLength value="1"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:element>

 <xs:element name="childSpecializationType" type="m2m:listOfChildSpecializationType" minOccurs="0" />

 <xs:complexType name="listOfChildSpecializationType ">

 <xs:sequence>

 <xs:element name="specializationType" type="m2m:specializationType" minOccurs="1" maxOccurs="unbounded">

 </xs:sequence>

 </xs:complexType>

 </xs:sequence>

 </xs:complexType>

 </xs:element>

 </xs:sequence>

 </xs:complexType>

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### m2m:listOfChildSpecializationType

Used for the *accessControlObjectDetails* attribute of the <acessControlPolicy> resource.

**Table 6.3.5.67‑1: Type Definition of m2m:**listOf**ChildSpecializationType**

|  |  |  |  |
| --- | --- | --- | --- |
| **Element Path** | **Element Data Type** | **Multiplicity** | **Note** |
| specializationType | m2m:specializationType | 1..n |  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*