20230815

TINYIOT

이번 주 진행 상황

1. cJSON으로 이전 – 성능평가 cont.
2. spec2md
3. Discovery (TP/oneM2M/CSE/DIS/005)
4. accessControlIpAddresses
5. attribute validation 추가

cJSON으로 전환

- 기존버전에서 통과하는 84개의 Test진행.

[ACME] - Test Results

Test Suite	Count	Skipped	Errors	Times Exec	Sleep	Proc	Exec Time per Test	Request	Proc Time per Test	Request	Requests
testACP	23	0	0	2.9688	0.00	0.0466	0.1291	0.1024	0.0020	0.0016	29
testAE	20	0	0	2.8916	0.00	0.0450	0.1446	0.1033	0.0022	0.0016	28
testCIN	2	0	0	0.5735	0.00	0.0086	0.2867	0.1147	0.0043	0.0017	5
testCNT	21	0	0	2.7243	0.00	0.0438	0.1297	0.1048	0.0021	0.0017	26
testCNT_CIN	0	0	0	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0
testGRP	18	0	0	3.6797	0.00	0.0563	0.2044	0.1082	0.0031	0.0017	34
Totals	84	0	0	12.8434	0.00	0.2058	0.1529	0.1053	0.0025	0.0017	122

cJSON

첫 Test시 각 5회 시행, 약 27%정도 cJSON이 빠르게 나타남

속도가 일정하게 나오지 않음

=> 맥이 백그라운드에서 무언가 하고 있을 수 있음.

저번 주와 크게 다른 결과 때문에 충분한 시간을 두고(3시간 이상) 3회 씩 진행해서 총 14회를 진행함.

차이는 변경 후 속도 - 기존속도

차이%는 기존 속도/변경 후 속도 * 100

우측사진은 1~14회까지의 종합결과

```
new Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        newLogTotalAvg :  0.0007291980255516842
        newLogRetAvg :  0.00017042857142857143
        newLogCreAvg :  0.0009211357142857142
        newLogUpdAvg :  0.0005890952380952382
        newLogDelAvg :  0.0011937270408163266

old Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        oldLogTotalAvg :  0.0009233077816492451
        oldLogRetAvg :  0.0002723087557603687
        oldLogCreAvg :  0.001015569642857143
        oldLogUpdAvg :  0.0008608541666666668
        oldLogDelAvg :  0.0015657857142857142

Diff
diff :  -0.0001941097560975609
diff% :  126.61962173453564
diffRet :  -0.00010188018433179727
diffRet% :  159.7788172944326
diffCre :  -9.443392857142873e-05
diffCre% :  110.25190176722836
diffUpd :  -0.0002717589285714286
diffUpd% :  146.1315778837604
diffDel :  -0.00037205867346938766
diffDel% :  131.16781816511053
```

cJSON

6~8회차

```
new Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        newLogTotalAvg :  0.0007849620596205961
        newLogRetAvg :  0.0002179462365591398
        newLogCreAvg :  0.0009661500000000001
        newLogUpdAvg :  0.0006718055555555554
        newLogDelAvg :  0.0012508809523809523

old Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        oldLogTotalAvg :  0.0008345772357723578
        oldLogRetAvg :  0.00021118279569892472
        oldLogCreAvg :  0.0009417333333333334
        oldLogUpdAvg :  0.000713
        oldLogDelAvg :  0.0014758928571428573

Diff
diff :  -4.961517615176172e-05
diff% :  106.32071009594308
diffRet :  -6.763440860215077e-06
diffRet% :  96.89673886230203
diffCre :  2.4416666666666727e-05
diffCre% :  97.47278717935448
diffUpd :  -4.119444444444461e-05
diffUpd% :  106.13189993797812
diffDel :  -0.00022501190476190494
diffDel% :  117.98827493004931
```

cJSON

9~11회차

```
new Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        newLogTotalAvg :  0.0007952791327913 28
        newLogRetAvg :  0.00021933333333333334
        newLogCreAvg :  0.0010105666666666666
        newLogUpdAvg :  0.0006907083333333334
        newLogDelAvg :  0.0012150119047619047

old Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        oldLogTotalAvg :  0.0012543333333333332
        oldLogRetAvg :  0.00047610752688172046
        oldLogCreAvg :  0.0013417666666666666
        oldLogUpdAvg :  0.0014166250000000003
        oldLogDelAvg :  0.0018519285714285714

Diff
diff :  -0.0004590542005420057
diff% :  157.72239979826753
diffRet :  -0.0002507741935483871 5
diffRet% :  217.07030100990292
diffCre :  -0.0003312000000000003
diffCre% :  132.77369132829767
diffUpd :  -0.0007259166666666669
diffUpd% :  205.09742414188335
diffDel :  -0.0006369166666666667
diffDel% :  152.42061120310404
```

cJSON

12~14회차

```
new Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        newLogTotalAvg :  0.0006802547425474254
        newLogRetAvg :  0.0001316129032258064 6
        newLogCreAvg :  0.0008832000000000001
        newLogUpdAvg :  0.0005075000000000001
        newLogDelAvg :  0.0011458333333333336

old Log
        Retrieve Cnt :  31
        Create Cnt :  40
        Update Cnt :  24
        Delete Cnt :  28
        oldLogTotalAvg :  0.0008506260162601628
        oldLogRetAvg :  0.00022555913978494625
        oldLogCreAvg :  0.00094705
        oldLogUpdAvg :  0.0007194722222222224
        oldLogDelAvg :  0.0015173333333333332

Diff
diff :  -0.00017037127371273737
diff% :  125.0452166014645
diffRet :  -9.394023633913979e-05
diffRet% :  171.38071895424835
diffCre :  -6.384999999999984e-05
diffCre% :  107.22939311594202
diffUpd :  -0.00021197222222222223
diffUpd% :  141.767925561029
diffDel :  -0.00037149999999999965
diffDel% :  132.42181818181814
```

Discovery (TP/oneM2M/CSE/DIS/005)

Check that the IUT accepts a discovery requests to the resource TARGET_RESOURCE_ADDRESS when AE has no privilege to perform the discovery operation on the children/descendant of resource TARGET_RESOURCE_ADDRESS

Discovery 요청 시 target resource에 Originator이 DISCOVERY 작업을 수행할 수 있는지 권한 체크.

Discovery (TP/oneM2M/CSE/DIS/005)

범위가 확실하지 않음…

EX) TinyIoT/TestAE1 에 권한이 없을 때, TestAE1하위의 모든 리소스도 Discovery불가?

현재 구현은 자녀 리소스 모두 Discovery 불가하도록 되어있음

AccessControlIpAddress

해당 Attr의 경우

accessControlContexts 하위에 존재

AccessControlIpAddress는 ipv4와 ipv6의 각 Array를 가짐.

AccessControlIpAddress

TS0004 6.3.5.27

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 0 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	1	
accessControlAttributes	m2m:attributeList	0..1	

AccessControlIpAddress

TS0003 7.1.3

Table 7.1.3-1: Parameters of an access-control-rule-tuple

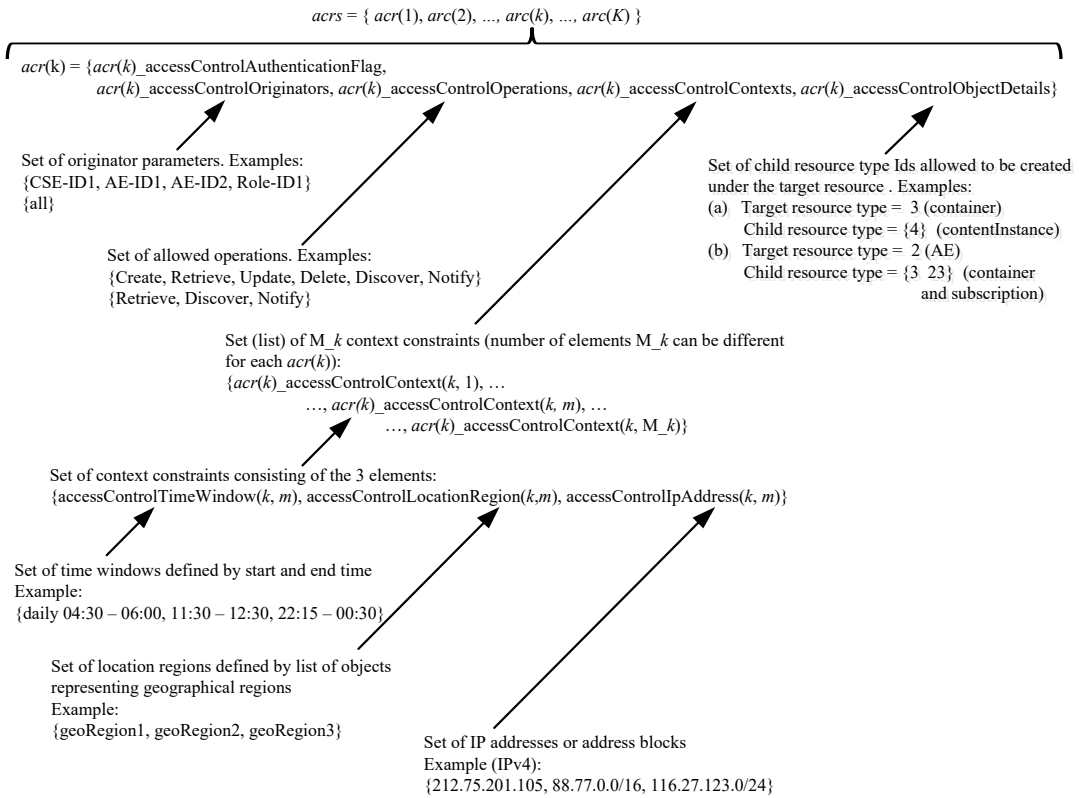
Parameter	Usage Description	Mandatory/Optional	Format
accessControlOriginators	Set of Originators that can be authorized	M	List of CSE-IDs and/or AE-IDs, or keyword "all" to grant access to all originators
accessControlOperations	Set of Operations that can be authorized	M	Enumerated list of operations Create Retrieve, Update, Delete, Discover, Notify
accessControlContexts	See table 7.1.3-3	O	See table 7.1.3-3
accessControlObjectDetails	See table 7.1.3-2	O	See table 7.1.3-2
accessControlAuthenticationFlag	Indicates whether the rule applies only to Originators which are considered to be authenticated by the Hosting CSE	O	Boolean

AccessControlIpAddress

TS0003 7.1.3

Parameter	Usage Description	Mandatory/Optional	Formats
accessControlWindow	Set of Time Windows that can be authorized	O	List of time intervals where access can be granted in extended crontab format
accessControlLocationRegion	Set of Location Regions that can be authorized	O	1) Latitude/longitude coordinates, and a radius defining a circular region around the coordinates 2) Country code
accessControlIpAddresses	Set of IPv4 and IPv6 addresses that can be authorized	O	IPv4: dotted-decimal notation with CIDR suffix IPv6: colon separated groups of hexadecimal digits with CIDR suffix

AccessControlIpAddress



AccessControlIpAddress

도커 사용 중이라 그런지 Request의 IP를 가져오는 것에 문제 발생.

일단 lo아닌 IP를 설정 해놓으면 reject당하는것 까지 확인

Attribute Validation 추가

현재 main 에서 parse함

```
int main(int argc, char **argv) {
    signal(SIGINT, stop_server);
    ATTRIBUTES = cJSON_Parse(
    "{ \
        \"general\": {\"rn\": \"\", \"ri\": \"\", \"pi\": \"\", \"ct\": \"\", \"et\
        \"m2m:ae\": {\"ri\": \"\", \"api\": \"\", \"aei\" : \"\", \"rr\": true, \"p
        \"m2m:cnt\": {\"ri\":\"\", \"cr\": null, \"mni\":0, \"mbs\":0, \"mia\":0, \
        \"m2m:cin\": {\"ri\":\"\", \"cs\":0, \"cr\":null, \"con\":\"\"}, \
        \"m2m:acp\": {\"ri\":\"\", \"pv\":{\"acr\":[{\"acor\":[\"\"],\"acop\":0, \"
        \"m2m:sub\": {\"ri\":\"\", \"enc\":{\"net\":[1]}, \"exc\":0, \"nu\":[\"\"],
        \"m2m:grp\": {\"ri\":\"\", \"cr\":\"\", \"mt\":0, \"cnm\":0, \"mnm\":0, \"m
        \"m2m:csr\": {\"ri\":\"\", \"cst\":0, \"poa\":[\"\"], \"cb\":\"\", \"csi\":
        \"m2m:cb\": {\"ri\":\"\", \"cst\":0, \"csi\":\"\", \"srt\":[\"\"], \"poa\":
     }"
    );
```

Attribute Validation 추가

요청에 있는 모든 Attribute에 대해서 지원하는 Attribute인지 검증함.

Attribute 하위에 다른 attribute가 있는 경우 모두 검증함

Attribute의 Type까지 검증함.

예)

- m2m:acp/pv/acr/acco/acip/ipv4 라면 ipv4 배열의 Type까지(String) 검증함.

Attribute Validation 추가

추후 settings.conf 등 런타임 config파일을 만들면 이 부분을 json으로 설정하기 쉽게 제작 가능.