

DIT

Root DSE (11)

o=jans (20)

ou=authorizations

ou=ciba

ou=metric

ou=resetPasswordRequests

ou=sessions

ou=stat

ou=tokens

ou=trustRelationships

ou=attributes (78)

ou=cache

ou=clients (7)

inum=1001.d24cb299-dbf6-4554-ba48-9d7273d4

inum=1201.608b1893-0bd2-4cc2-bee6-5511b24f

inum=1202.6f8cdb8c-3520-4ff4-bbed-53b3e50b

inum=1801.6fd2a52b-0494-468a-965c-59216c6d

inum=3E20

inum=AB77-1A2B

inum=FF81-2D39

ou=configuration

ou=groups

ou=people (22)

inum=B1F3-AEAE-B798

inum=B1F3-AEAE-B799

inum=e4f16a90-91bd-4551-a5e8-acf2b15c909a

ou=push (2)

ou=scopes (50)

ou=scripts (36)

ou=sector_identifiers

ou=u2f

ou=uma (2)

ou=pct

ou=resources (105)

[1...100]

jansId=0089dede-3681-4320-b33b-69bd08

jansId=00ae85fb-57dc-4d43-81bc-d640e0a

jansId=013f3a07-f679-4e08-8847-e10ac36

o=metric (1)

ou=statistic (1)

o=site (1)

Convert object classes to tables

Table name = objectClass name			
doc_id	e4f16a90-91bd-4551-a5e8-acf2b15c909a	Last RDN value	VARCHAR(48) Primary key, Not null, Unique
objectClass	jansPerson	Last objectClass	VARCHAR(48)
dn	inum=e4f16a90-91bd-4551-a5e8-acf2b15c909a,ou=people,o=jans	LDAP DN	VARCHAR(128)
attr1 (from OC)	attr1 value	Attribute value	
attr2 (from OC)	attr2 value		
...			

Convert attributes based on these rules

Schema type	SQL Type	
1.3.6.1.4.1.1466.115.121.1.7	Boolean syntax	TINYINT
1.3.6.1.4.1.1466.115.121.1.12	Distinguished name syntax	TINYTEXT
1.3.6.1.4.1.1466.115.121.1.15	Directory string syntax	VARCHAR(127) / TINYTEXT / TEXT / Type from schema if defined
1.3.6.1.4.1.1466.115.121.1.24	Generalized Time syntax	DATETIME(3)
1.3.6.1.4.1.1466.115.121.1.27	Integer syntax	INT
Each type above with multivalued=true	json	Store values as JSON types in JSON array

Extended rules to specify required type

```
{
  "desc": "jans user id",
  "equality": "caseIgnoreMatch",
  "names": [
    "jansUsrId",
    "usrId"
  ],
  "oid": "jansAttr",
  "substr": "caseIgnoreSubstringsMatch",
  "syntax": "1.3.6.1.4.1.1466.115.121.1.15",
  "x_origin": "Jans created attribute",
  "db_data_type": {"db": "mysql", "type": "VARCHAR", "size": 47}
},
```

Extended rules to convert Directory Strings

1. Default string size is 47.
2. Override string size with size from `"db_data_type"` if exists.
3. Use VARCHAR(size) if length <= 127
4. Use TINYTEXT if 128 < length <= 255
5. Use TEXT if length > 255

Case when attribute defined in system schema

```
{  
  "names": [  
    "userPassword"  
  ],  
  "syntax": "1.3.6.1.4.1.1466.115.121.1.15",  
  "x_origin": "Jans created attribute",  
  "db_data_type": {"db": "mysql", "type": "VARCHAR", "size": 63}  
},
```

JSON attributes

In order to avoid MySQL limitation:

Error Code: 1235. This version of MySQL doesn't yet support 'CAST-ing JSON OBJECT type to array' 0.047 sec

SQL ORM stores data in JSON in next format instead of storing them as JSON array:

```
'{"v": [94582,94536]}'
```

```
'{"v": [2021-02-01T21:18:28.382, 2021-03-01T21:18:28.382]}'
```

```
'{"v": ["value_1", "value_2"]}'
```

JSON indexes

This index will be used to check if array contains specific value

```
ALTER TABLE jans.jansPerson ADD INDEX jansExtUidValues( (CAST(jansExtUid->'$.v' AS UNSIGNED ARRAY)) );  
ALTER TABLE jans.jansPerson ADD INDEX address( (CAST(address->'$.v' AS CHAR(48) ARRAY)) );
```

UNSIGNED/ CHAR(48) are used here as reference. Instead of it valid data type should be used.

Sample query:

```
SELECT COUNT(*) FROM jans.jansPerson doc  
WHERE doc.objectClass = 'jansPerson' AND JSON_CONTAINS(doc. jansExtUid->'$.v', CAST('[243]' AS JSON))
```

This index is need to compare specific value from array

```
ALTER TABLE jans.jansPerson ADD INDEX jansExtUidValue0( (CAST(jansExtUid->'$.v[0]' AS UNSIGNED)) );  
ALTER TABLE jans.jansPerson ADD INDEX jansExtUidValue1( (CAST(jansExtUid->'$.v[1]' AS UNSIGNED)) );  
ALTER TABLE jans.jansPerson ADD INDEX jansExtUidValue2( (CAST(jansExtUid->'$.v[2]' AS UNSIGNED)) );
```

This index setup should create for first 3 elements of array only. Admin can add indexes for next elements later if needed.

Sample query:

```
SELECT COUNT(*) FROM jans.jansPerson doc  
WHERE doc.objectClass = 'jansPerson' AND jansExtUid->'$.v[0]' > 3 or jansExtUid->'$.v[1]' > 3 or jansExtUid->'$.v[2]' > 3
```