

1. Model

2. Databases

2.1 OOEDS MongoDB

- 2.1.2 Activity
- 2.1.3 Agent
- 2.1.4 Entity
- 2.1.5 Evaluation
- 2.1.6 MeasurementContext
- 2.1.7 Permission
- 2.1.8 Property

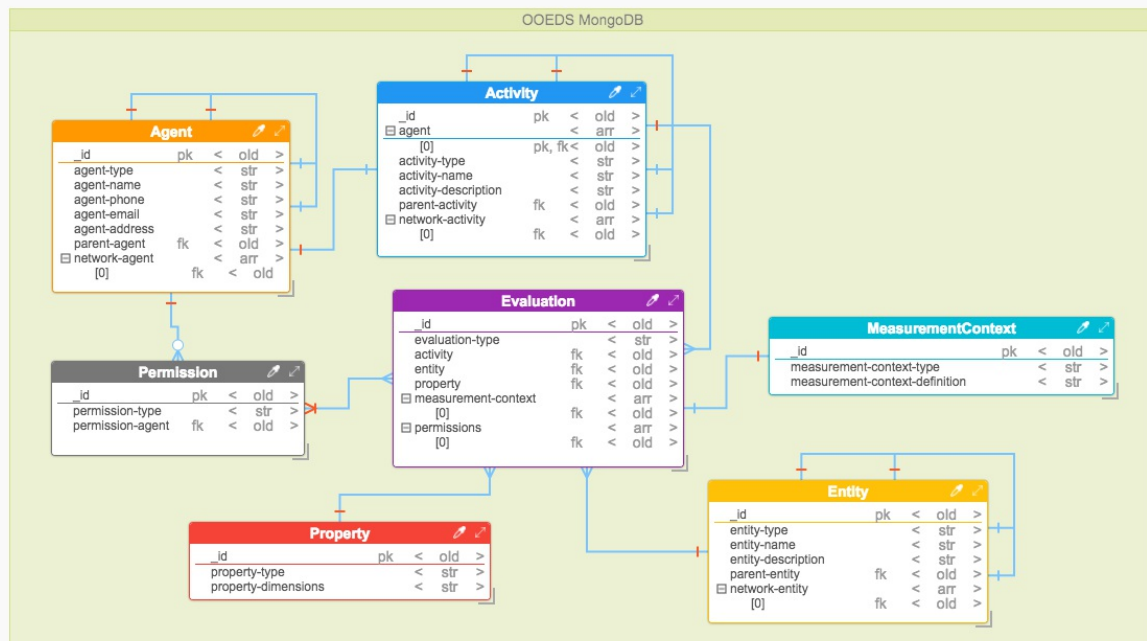
3. Relationships

- 3.1 Activity.Parent
- 3.2 Agent.Parent
- 3.3 Entity.Parent
- 3.4 Evaluation.Activity
- 3.5 Evaluation.Entity
- 3.6 Evaluation.Permission
- 3.7 Evaluation.Property
- 3.8 Permission.Agent
- 3.9 fk Activity._id to Activity.networkActivity.[0]
- 3.10 fk Agent._id to Activity.agent.[0]
- 3.11 fk Agent._id to Agent.networkAgent.[0]
- 3.12 fk Entity._id to Entity.networkEntity.[0]
- 3.13 fk Measurement Context._id to Evaluation.measurementContext.[0]

1. MODEL

1.1 Model OOEDS

1.1.1 OOEDS Entity Relationship Diagram



1.1.2 OOEDS Properties

PROPERTY	VALUE
Model name	OOEDS
Description	Instatiation of the Object Oriented Environmental Data System (OOEDS)
Author	S.J.K. Mason
Version	0.1
DB vendor	MongoDB
DB version	v3.4
Enable sharding	
Comments	Sat Sep 02 2017 14:24:47 GMT-0600 (MDT): Template Created

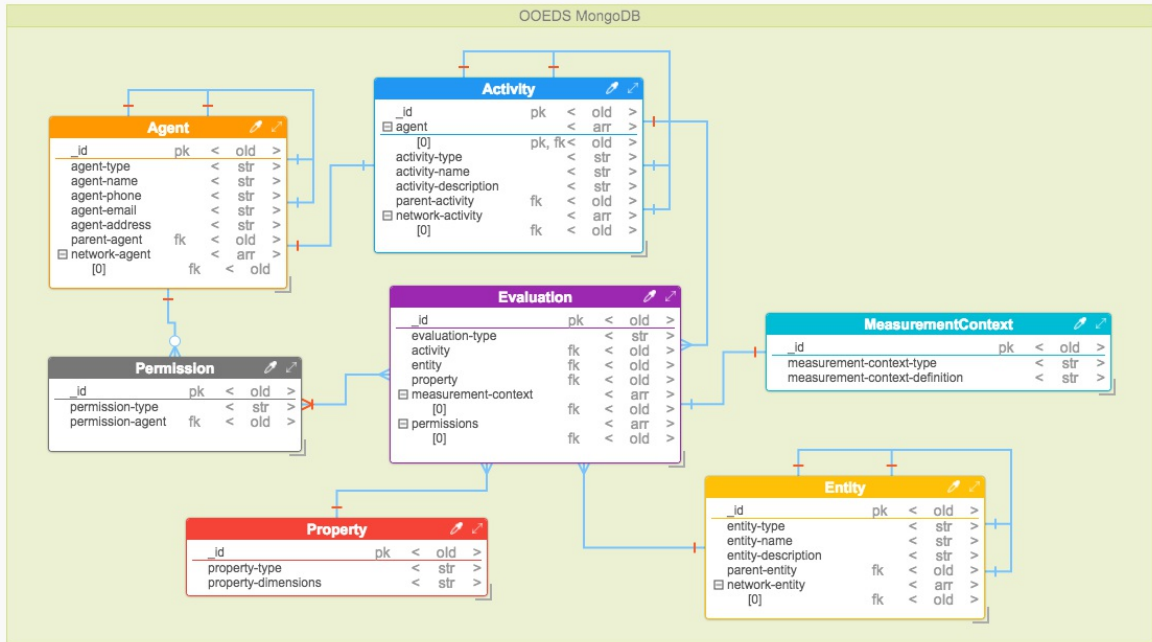
1.1.3 OOEDS Database Users

NAME	R	RW	DBADMIN	UADMIN	CLUSTER ADM	R ANYDB	RW ANYDB	UADM ANYDB	DBADM ANYDB
admin	true	true	true	true	true	true	true	true	

1.1.4 OOEDS DB Definitions

2. DATABASES

2.1 Database OOEDS MongoDB



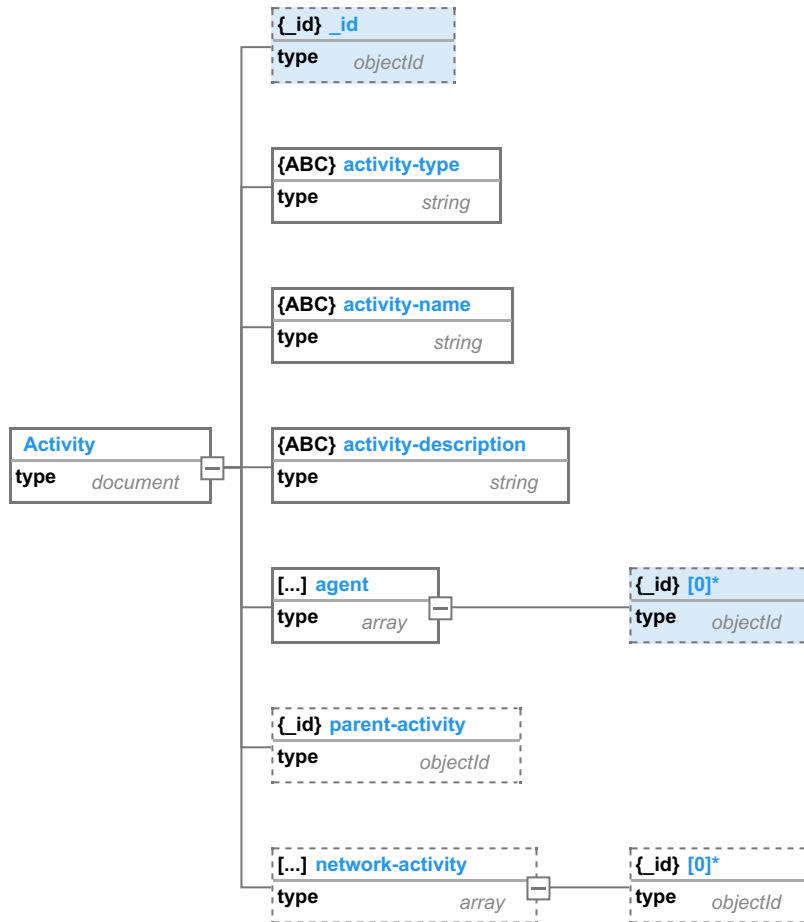
2.1.2 OOEDS MongoDB Properties

PROPERTY	VALUE
Database name	OOEDS MongoDB
Description	A MongoDB instantiation of the OOEDS information metamodel.
Comments	

2.1.3 OOEDS MongoDB Collections

2.1.3.1 Collection Activity

2.1.3.1.1 Activity Tree Diagram



2.1.3.1.2 Activity Properties

PROPERTY	VALUE
Collection name	Activity
Id	
Description	An Activity procures or generates one or more Evaluations
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	true
Comments	

2.1.3.1.3 Activity Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	false		Auto-generated by MongoDB	
activity-type	string	true		The specific Activity category or sub-class that inherits properties from the generic Activity class	
activity-name	string	true		The unambiguous name of the Activity	
activity-description	string	true		The description of the Activity that produced one or more Evaluations	
agent	array	true		The Agent(s) primarily responsible for conducting the Activity	
[0]	objectId	false			
parent-activity	objectId	false		The parent Activity under which this Activity is heirarchically nested	
network-activity	array	false		An undirected network of Activities	
[0]	objectId	false			

2.1.3.1.3.1 Field _id**2.1.3.1.3.1.1 _id Tree Diagram**

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	false
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.1.3.2 Field activity-type**2.1.3.1.3.2.1 activity-type Tree Diagram**

{ABC} activity-type
type <i>string</i>

activity-type properties

PROPERTY	VALUE
Name	activity-type
Id	
Type	string
Description	The specific Activity category or sub-class that inherits properties from the generic Activity class
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.1.3.3 Field activity-name**2.1.3.1.3.3.1 activity-name Tree Diagram**

{ABC} activity-name
type <i>string</i>

activity-name properties

PROPERTY	VALUE
Name	activity-name
Id	
Type	string
Description	The unambiguous name of the Activity
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.1.3.4 Field activity-description**2.1.3.1.3.4.1 activity-description Tree Diagram**

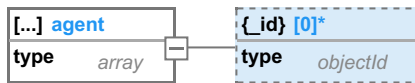
{ABC} activity-description
type <i>string</i>

activity-description properties

PROPERTY	VALUE
Name	activity-description
Id	
Type	string
Description	The description of the Activity that produced one or more Evaluations
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.1.3.5 Field agent

2.1.3.1.3.5.1 agent Tree Diagram



2.1.3.1.3.5.2 agent Hierarchy

Parent field: **Activity**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	pk, fk		

agent properties

PROPERTY	VALUE
Name	agent
Id	
Type	array
Description	The Agent(s) primarily responsible for conducting the Activity
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	false
Additional items	true
Comments	

2.1.3.1.3.6 Field New Field

2.1.3.1.3.6.1 New Field Tree Diagram

{_id} [0]
type <i>objectId</i>

New Field properties

PROPERTY	VALUE
Name	New Field
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	true
Foreign collection	Agent
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.1.3.7 Field parent-activity**2.1.3.1.3.7.1 parent-activity Tree Diagram**

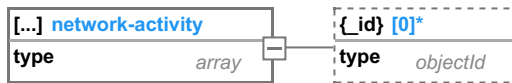
{_id} parent-activity
type <i>objectId</i>

parent-activity properties

PROPERTY	VALUE
Name	parent-activity
Id	
Type	objectId
Description	The parent Activity under which this Activity is heirarchically nested
Dependencies	
Required	false
Primary key	false
Foreign collection	Activity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.1.3.8 Field network-activity

2.1.3.1.3.8.1 network-activity Tree Diagram



2.1.3.1.3.8.2 network-activity Hierarchy

Parent field: **Activity**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	fk		

network-activity properties

PROPERTY	VALUE
Name	network-activity
Id	
Type	array
Description	An undirected network of Activities
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	false
Additional items	true
Comments	

2.1.3.1.3.9 Field New Field**2.1.3.1.3.9.1 New Field Tree Diagram**

{_id} [0]
type <i>objectId</i>

New Field properties

PROPERTY	VALUE
Name	New Field
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	Activity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.1.4 Activity Users (TBD)**2.1.3.1.5 Activity Indexes****2.1.3.1.6 Activity Sharding**

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.1.7 Activity Definitions**2.1.3.1.8 Activity JSON Schema**

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "An Activity procures or generates one or more Evaluations",
  "additionalProperties": true,
}
```

```
"capped": false,
"properties": {
  "_id": {
    "type": "objectId",
    "description": "Auto-generated by MongoDB",
    "primaryKey": true,
    "GUID": "f6156ca0-901d-11e7-9abf-294d0dde0341"
  },
  "activity-type": {
    "type": "string",
    "description": "The specific Activity category or sub-class that inherits properties from the generic Activity class",
    "primaryKey": false,
    "GUID": "41921c90-901f-11e7-9abf-294d0dde0341"
  },
  "activity-name": {
    "type": "string",
    "description": "The unambiguous name of the Activity",
    "primaryKey": false,
    "GUID": "37d325a0-901f-11e7-9abf-294d0dde0341"
  },
  "activity-description": {
    "type": "string",
    "description": "The description of the Activity that produced one or more Evaluations",
    "primaryKey": false,
    "GUID": "4b21c620-901f-11e7-9abf-294d0dde0341"
  },
  "agent": {
    "type": "array",
    "description": "The Agent(s) primarily responsible for conducting the Activity",
    "additionalItems": true,
    "primaryKey": false,
    "uniqueItems": false,
    "GUID": "53514370-901f-11e7-9abf-294d0dde0341",
    "items": {
      "type": "objectId",
      "arrayItem": true,
      "primaryKey": true,
      "GUID": "15177250-9024-11e7-9abf-294d0dde0341"
    }
  },
  "parent-activity": {
    "type": "objectId",
    "description": "The parent Activity under which this Activity is heirarchically nested",
    "primaryKey": false,
    "GUID": "70776bf0-901f-11e7-9abf-294d0dde0341"
  },
  "network-activity": {
    "type": "array",
    "description": "An undirected network of Activities",
    "additionalItems": true,
    "primaryKey": false,
    "uniqueItems": false,
    "GUID": "df063cd0-262a-11e8-8b82-433aa96de2ad",
    "items": {
      "type": "objectId",
      "arrayItem": true,
      "primaryKey": false,
      "GUID": "eba19fc0-262a-11e8-8b82-433aa96de2ad"
    }
  }
}
```

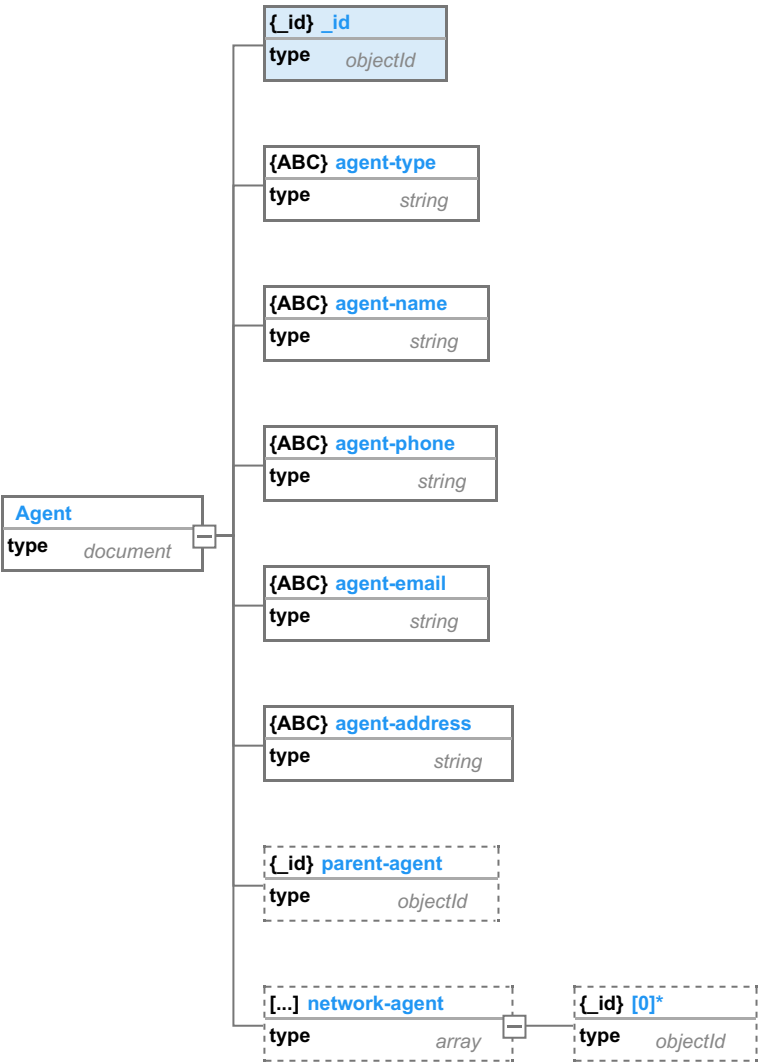
```
    }  
  }  
},  
"validationAction": "Error",  
"validationLevel": "Strict",  
"required": [  
  "activity-type",  
  "activity-name",  
  "activity-description",  
  "agent"  
]  
}
```

2.1.3.1.9 Activity JSON data

```
{  
  "_id": ObjectId("507f1f77bcf86cd799439011"),  
  "activity-type": "Lorem",  
  "activity-name": "Lorem",  
  "activity-description": "Lorem",  
  "agent": [  
    ObjectId("507f1f77bcf86cd799439011")  
  ],  
  "parent-activity": ObjectId("507f1f77bcf86cd799439011"),  
  "network-activity": [  
    ObjectId("507f1f77bcf86cd799439011")  
  ]  
}
```


2.1.3.2 Collection Agent

2.1.3.2.1 Agent Tree Diagram



2.1.3.2.2 Agent Properties

PROPERTY	VALUE
Collection name	Agent
Id	
Description	An Agent may be an individual, an organization, a company, a government, etc.
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	true
Comments	

2.1.3.2.3 Agent Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	true		Auto-generated by MongoDB	
agent-type	string	true		The specific category or sub-class of Agent that inherits properties from the generic Agent class	
agent-name	string	true		The name of the individual, organization, etc.	
agent-phone	string	true		Contact telephone number for the Agent	
agent-email	string	true		Contact email for the Agent	
agent-address	string	true		Contact physical address for the Agent	
parent-agent	objectId	false		The Agent under which this Agent is heirarchically nested	
network-agent	array	false		The non-heirarchical network of Agents this Agent is associated with	
[0]	objectId	false			

2.1.3.2.3.1 Field _id

2.1.3.2.3.1.1 _id Tree Diagram

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.2.3.2 Field agent-type**2.1.3.2.3.2.1 agent-type Tree Diagram**

{ABC} agent-type
type <i>string</i>

agent-type properties

PROPERTY	VALUE
Name	agent-type
Id	
Type	string
Description	The specific category or sub-class of Agent that inherits properties from the generic Agent class
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.2.3.3 Field agent-name

2.1.3.2.3.3.1 agent-name Tree Diagram

{ABC} agent-name
type <i>string</i>

agent-name properties

PROPERTY	VALUE
Name	agent-name
Id	
Type	string
Description	The name of the individual, organization, etc.
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.2.3.4 Field agent-phone

2.1.3.2.3.4.1 agent-phone Tree Diagram

{ABC} agent-phone
type <i>string</i>

agent-phone properties

PROPERTY	VALUE
Name	agent-phone
Id	
Type	string
Description	Contact telephone number for the Agent
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	^(\ [0-9]{3}\)?[0-9]{3}-[0-9]{4}\$
Format	
Enum	
Sample	(123)456-7890
Comments	

2.1.3.2.3.5 Field agent-email**2.1.3.2.3.5.1 agent-email Tree Diagram**

{ABC} agent-email
type <i>string</i>

agent-email properties

PROPERTY	VALUE
Name	agent-email
Id	
Type	string
Description	Contact email for the Agent
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	email
Enum	
Sample	
Comments	

2.1.3.2.3.6 Field agent-address**2.1.3.2.3.6.1 agent-address Tree Diagram**

{ABC} agent-address
type <i>string</i>

agent-address properties

PROPERTY	VALUE
Name	agent-address
Id	
Type	string
Description	Contact physical address for the Agent
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.2.3.7 Field parent-agent**2.1.3.2.3.7.1 parent-agent Tree Diagram**

{_id} parent-agent
type <i>objectId</i>

parent-agent properties

PROPERTY	VALUE
Name	parent-agent
Id	
Type	objectId
Description	The Agent under which this Agent is heirarchically nested
Dependencies	8b015b30-901e-11e7-9abf-294d0dde0341
Required	false
Primary key	false
Foreign collection	Agent
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.2.3.8 Field network-agent

2.1.3.2.3.8.1 network-agent Tree Diagram



2.1.3.2.3.8.2 network-agent Hierarchy

Parent field: **Agent**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	fk		

network-agent properties

PROPERTY	VALUE
Name	network-agent
Id	
Type	array
Description	The non-heirarchical network of Agents this Agent is associated with
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	false
Additional items	true
Comments	

2.1.3.2.3.9 Field New Field

2.1.3.2.3.9.1 New Field Tree Diagram

{_id} [0]
type objectId

New Field properties

PROPERTY	VALUE
Name	New Field
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	Agent
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.2.4 Agent Users (TBD)

2.1.3.2.5 Agent Indexes

PROPERTY	NEW INDEX
Name	New Index
Key	
Hashed	
Unique	
Drop duplicates	
Sparse	
Background indexing	
Partial filter exp	
Expire after (seconds)	
Storage engine	WiredTiger
Weights	
Default language	
Language override	language
Bits	26
Min	-180
Max	180
Bucket size	
Locale	
Variant	
Strength	
Case level	
Case first	
Numeric ordering	
Alternate	
Max variable	
Backwards	
Normalization	
2D Sphere	
Index Version	
Comments	

2.1.3.2.6 Agent Sharding

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.2.7 Agent Definitions

2.1.3.2.8 Agent JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "An Agent may be an individual, an organization, a company, a government, etc.",
  "additionalProperties": true,
  "capped": false,
  "properties": {
    "_id": {
      "type": "objectId",
      "description": "Auto-generated by MongoDB",
      "primaryKey": true,
      "GUID": "8b015b30-901e-11e7-9abf-294d0dde0341"
    },
    "agent-type": {
      "type": "string",
      "description": "The specific category or sub-class of Agent that inherits properties from the generic Agent
class",
      "primaryKey": false,
      "GUID": "5ecb8980-9020-11e7-9abf-294d0dde0341"
    },
    "agent-name": {
      "type": "string",
      "description": "The name of the individual, organization, etc.",
      "primaryKey": false,
      "GUID": "662d0870-9020-11e7-9abf-294d0dde0341"
    },
    "agent-phone": {
      "type": "string",
      "description": "Contact telephone number for the Agent",
      "pattern": "^(\\|\\|\\|([0-9]{3}\\|\\|\\|)?[0-9]{3}-[0-9]{4})$",
      "primaryKey": false,
      "sample": "(123)456-7890",
      "GUID": "6d521aa0-9020-11e7-9abf-294d0dde0341"
    },
    "agent-email": {
      "type": "string",
      "description": "Contact email for the Agent",
      "format": "email",
      "primaryKey": false,
      "GUID": "8d181b50-9020-11e7-9abf-294d0dde0341"
    },
    "agent-address": {
      "type": "string",
      "description": "Contact physical address for the Agent",
      "primaryKey": false,
      "GUID": "f0bed180-9020-11e7-9abf-294d0dde0341"
    },
    "parent-agent": {
      "type": "objectId",
      "description": "The Agent under which this Agent is heirarchically nested",
      "primaryKey": false,
      "GUID": "009ab970-9021-11e7-9abf-294d0dde0341"
    },
    "network-agent": {
      "type": "array",
      "description": "The non-heirarchical network of Agents this Agent is associated with",
      "additionalItems": true,
      "primaryKey": false,

```

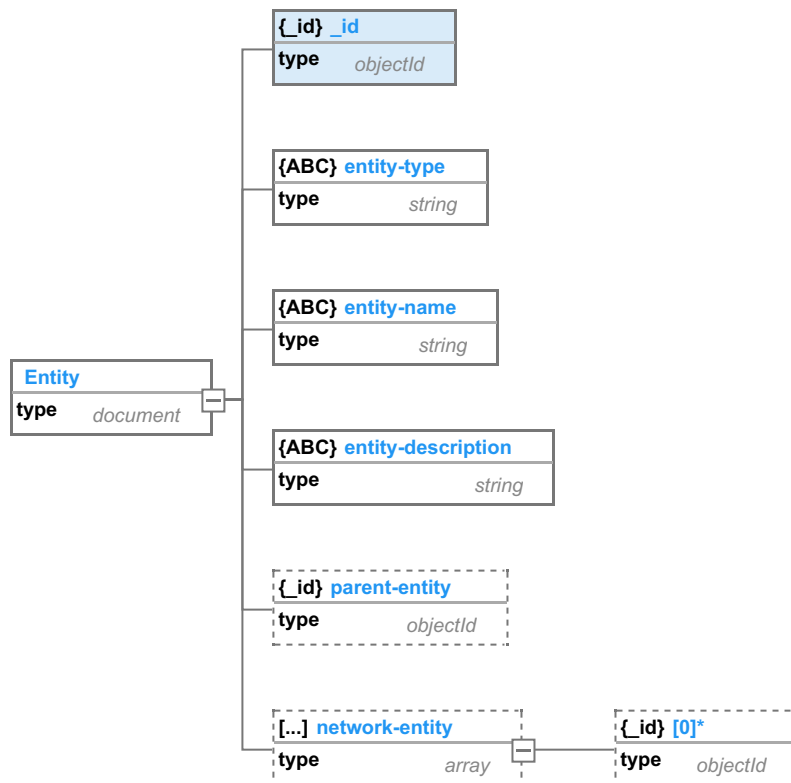
```
    "uniqueItems": false,
    "GUID": "0f87ad80-9021-11e7-9abf-294d0dde0341",
    "items": {
      "type": "objectId",
      "arrayItem": true,
      "primaryKey": false,
      "GUID": "19a6ece0-9021-11e7-9abf-294d0dde0341"
    }
  },
  "validationAction": "Error",
  "validationLevel": "Strict",
  "required": [
    "_id",
    "agent-type",
    "agent-name",
    "agent-phone",
    "agent-email",
    "agent-address"
  ],
  "dependencies": {
    "parent-agent": [
      "_id"
    ]
  }
}
```

2.1.3.2.9 Agent JSON data

```
{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "agent-type": "Lorem",
  "agent-name": "Lorem",
  "agent-phone": "(123)456-7890",
  "agent-email": "sample@email.com",
  "agent-address": "Lorem",
  "parent-agent": ObjectId("507f1f77bcf86cd799439011"),
  "network-agent": [
    ObjectId("507f1f77bcf86cd799439011")
  ]
}
```

2.1.3.3 Collection Entity

2.1.3.3.1 Entity Tree Diagram



2.1.3.3.2 Entity Properties

PROPERTY	VALUE
Collection name	Entity
Id	
Description	The object or phenomena subjected to observation or measurement. An Evaluation describes an Entity.
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	true
Comments	

2.1.3.3.3 Entity Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	true		Auto-generated by MongoDB	
entity-type	string	true		The specific Entity category or sub-class that inherits properties from the generic Entity class.	
entity-name	string	true		The unique name for the Entity	
entity-description	string	true		The unambiguous description of the Entity type	
parent-entity	objectId	false		The parent Entity under which this Entity is heirarchically nested	
network-entity	array	false		The non-heriarchical network of Entities of which this Entity is a part	
[0]	objectId	false			

2.1.3.3.3.1 Field _id**2.1.3.3.3.1.1 _id Tree Diagram**

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.3.3.2 Field entity-type

2.1.3.3.3.2.1 entity-type Tree Diagram

{ABC} entity-type
type <i>string</i>

entity-type properties

PROPERTY	VALUE
Name	entity-type
Id	
Type	string
Description	The specific Entity category or sub-class that inherits properties from the generic Entity class.
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.3.3.3 Field entity-name**2.1.3.3.3.3.1 entity-name Tree Diagram**

{ABC} entity-name
type <i>string</i>

entity-name properties

PROPERTY	VALUE
Name	entity-name
Id	
Type	string
Description	The unique name for the Entity
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.3.3.4 Field entity-description

2.1.3.3.3.4.1 entity-description Tree Diagram

{ABC} entity-description
type <i>string</i>

entity-description properties

PROPERTY	VALUE
Name	entity-description
Id	
Type	string
Description	The unambiguous description of the Entity type
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.3.3.5 Field parent-entity

2.1.3.3.3.5.1 parent-entity Tree Diagram

{_id} parent-entity
type <i>objectId</i>

parent-entity properties

PROPERTY	VALUE
Name	parent-entity
Id	
Type	objectId
Description	The parent Entity under which this Entity is heirarchically nested
Dependencies	
Required	false
Primary key	false
Foreign collection	Entity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.3.3.6 Field network-entity

2.1.3.3.3.6.1 network-entity Tree Diagram



2.1.3.3.3.6.2 network-entity Hierarchy

Parent field: **Entity**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	fk		

network-entity properties

PROPERTY	VALUE
Name	network-entity
Id	
Type	array
Description	The non-heriarchical network of Entities of which this Entity is a part
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	false
Additional items	true
Comments	

2.1.3.3.3.7 Field New Field**2.1.3.3.3.7.1 New Field Tree Diagram**

{_id} [0]
type <i>objectId</i>

New Field properties

PROPERTY	VALUE
Name	New Field
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	Entity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.3.4 Entity Users (TBD)**2.1.3.3.5 Entity Indexes****2.1.3.3.6 Entity Sharding**

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.3.7 Entity Definitions**2.1.3.3.8 Entity JSON Schema**

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "The object or phenomena subjected to observation or measurement. An Evaluation describes an Entity.",
}
```

```

"additionalProperties": true,
"capped": false,
"properties": {
  "_id": {
    "type": "objectId",
    "description": "Auto-generated by MongoDB",
    "primaryKey": true,
    "GUID": "83e48660-901e-11e7-9abf-294d0dde0341"
  },
  "entity-type": {
    "type": "string",
    "description": "The specific Entity category or sub-class that inherits properties from the generic Entity
class.",
    "primaryKey": false,
    "GUID": "9dd2bff0-901f-11e7-9abf-294d0dde0341"
  },
  "entity-name": {
    "type": "string",
    "description": "The unique name for the Entity",
    "primaryKey": false,
    "GUID": "a70d1d90-901f-11e7-9abf-294d0dde0341"
  },
  "entity-description": {
    "type": "string",
    "description": "The unambiguous description of the Entity type",
    "primaryKey": false,
    "GUID": "ad157520-901f-11e7-9abf-294d0dde0341"
  },
  "parent-entity": {
    "type": "objectId",
    "description": "The parent Entity under which this Entity is heirarchically nested",
    "primaryKey": false,
    "GUID": "b4cfc270-901f-11e7-9abf-294d0dde0341"
  },
  "network-entity": {
    "type": "array",
    "description": "The non-heriarchical network of Entities of which this Entity is a part",
    "additionalItems": true,
    "primaryKey": false,
    "uniqueItems": false,
    "GUID": "c4cacb20-901f-11e7-9abf-294d0dde0341",
    "items": {
      "type": "objectId",
      "arrayItem": true,
      "primaryKey": false,
      "GUID": "3b0a70f0-9021-11e7-9abf-294d0dde0341"
    }
  }
},
"validationAction": "Error",
"validationLevel": "Strict",
"required": [
  "_id",
  "entity-type",
  "entity-name",
  "entity-description"
]
}

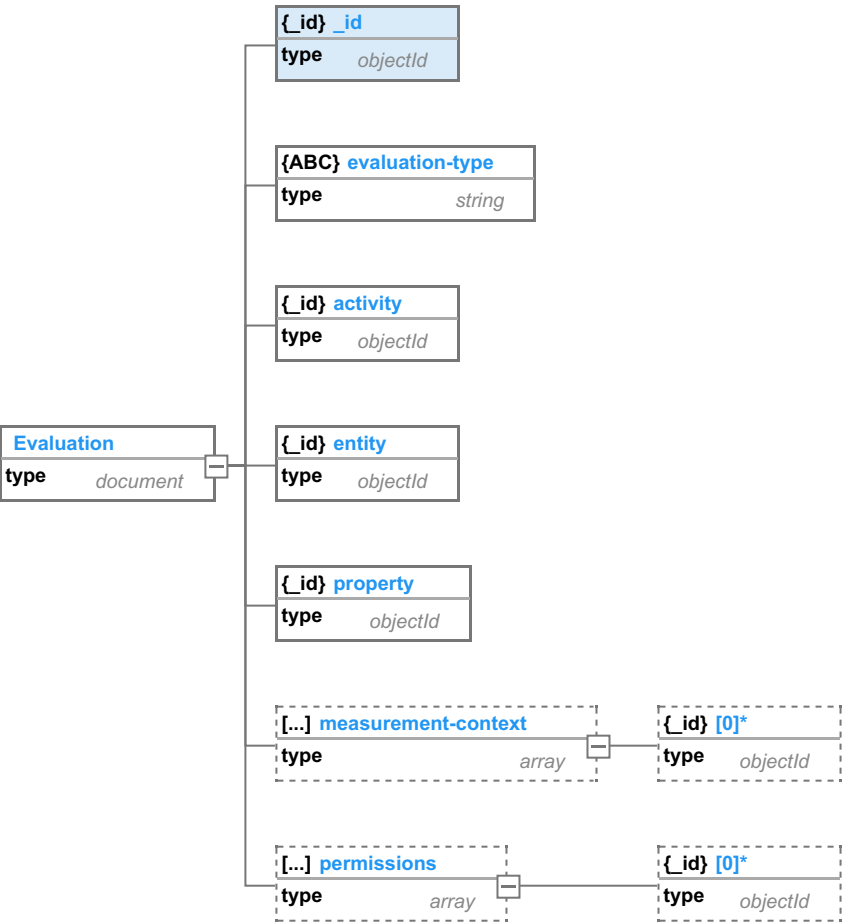
```


2.1.3.3.9 Entity JSON data

```
{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "entity-type": "Lorem",
  "entity-name": "Lorem",
  "entity-description": "Lorem",
  "parent-entity": ObjectId("507f1f77bcf86cd799439011"),
  "network-entity": [
    ObjectId("507f1f77bcf86cd799439011")
  ]
}
```

2.1.3.4 Collection Evaluation

2.1.3.4.1 Evaluation Tree Diagram



2.1.3.4.2 Evaluation Properties

PROPERTY	VALUE
Collection name	Evaluation
Id	
Description	A representation of a measurement of a real-world concept. This is the fundamental abstraction of a “datum” that retains relationships to a limited number of categories of metadata that apply to any type of environmental data you can define
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	true
Comments	

2.1.3.4.3 Evaluation Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
<u>_id</u>	objectId	true		Auto-generated by Mongo DB	
evaluation-type	string	true		The name for the specific Evaluation sub-class that inherits properties from the abstract Evaluation	
activity	objectId	true		The Activity that generated the Evaluation	
entity	objectId	true		An Evaluation describes an Entities	
property	objectId	true		The Property evaluated for the Entity subjected to measurement or observation	
measurement-context	array	false		The various Measurement-Contexts that make the data meaningful by providing reference frames for space, time, data quality, etc.	
[0]	objectId	false			
permissions	array	false		The read/write privileges on the Evaluation granted to various Agents.	
[0]	objectId	false			

2.1.3.4.3.1 Field _id

2.1.3.4.3.1.1 _id Tree Diagram

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by Mongo DB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.4.3.2 Field evaluation-type**2.1.3.4.3.2.1 evaluation-type Tree Diagram**

{ABC} evaluation-type
type <i>string</i>

evaluation-type properties

PROPERTY	VALUE
Name	evaluation-type
Id	
Type	string
Description	The name for the specific Evaluation sub-class that inherits properties from the abstract Evaluation
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.4.3.3 Field activity**2.1.3.4.3.3.1 activity Tree Diagram**

{_id} activity
type <i>objectId</i>

activity properties

PROPERTY	VALUE
Name	activity
Id	
Type	objectId
Description	The Activity that generated the Evaluation
Dependencies	
Required	true
Primary key	false
Foreign collection	Activity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.4.3.4 Field entity

2.1.3.4.3.4.1 entity Tree Diagram

{_id} entity
type objectId

entity properties

PROPERTY	VALUE
Name	entity
Id	
Type	objectId
Description	An Evaluation describes an Entities
Dependencies	
Required	true
Primary key	false
Foreign collection	Entity
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.4.3.5 Field property**2.1.3.4.3.5.1 property Tree Diagram**

{_id} property
type <i>objectId</i>

property properties

PROPERTY	VALUE
Name	property
Id	
Type	objectId
Description	The Property evaluated for the Entity subjected to measurement or observation
Dependencies	
Required	true
Primary key	false
Foreign collection	Property
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.4.3.6 Field measurement-context

2.1.3.4.3.6.1 measurement-context Tree Diagram



2.1.3.4.3.6.2 measurement-context Hierarchy

Parent field: **Evaluation**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	fk		

measurement-context properties

PROPERTY	VALUE
Name	measurement-context
Id	
Type	array
Description	The various Measurement-Contexts that make the data meaningful by providing reference frames for space, time, data quality, etc.
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	
Additional items	true
Comments	

2.1.3.4.3.7 Field New Field

2.1.3.4.3.7.1 New Field Tree Diagram

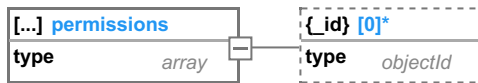
{_id} [0]
type objectId

New Field properties

PROPERTY	VALUE
Name	New Field
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	MeasurementContext
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.4.3.8 Field permissions

2.1.3.4.3.8.1 permissions Tree Diagram



2.1.3.4.3.8.2 permissions Hierarchy

Parent field: **Evaluation**

Child field(s):

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
[0]	objectId	false	fk		

permissions properties

PROPERTY	VALUE
Name	permissions
Id	
Type	array
Description	The read/write privileges on the Evaluation granted to various Agents.
Dependencies	
Required	false
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Min items	
Max items	
Unique items	false
Additional items	true
Comments	

2.1.3.4.3.9 Field [0]*

2.1.3.4.3.9.1 [0]* Tree Diagram

{_id} [0]
type objectId

[0]* properties

PROPERTY	VALUE
Name	[0]*
Id	
Type	objectId
Description	
Dependencies	
Required	false
Primary key	false
Foreign collection	Permission
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.4.4 Evaluation Users (TBD)

2.1.3.4.5 Evaluation Indexes

PROPERTY	NEW INDEX
Name	New Index
Key	
Hashed	
Unique	
Drop duplicates	
Sparse	
Background indexing	
Partial filter exp	
Expire after (seconds)	
Storage engine	WiredTiger
Weights	
Default language	
Language override	language
Bits	26
Min	-180
Max	180
Bucket size	
Locale	
Variant	
Strength	
Case level	
Case first	
Numeric ordering	
Alternate	
Max variable	
Backwards	
Normalization	
2D Sphere	
Index Version	
Comments	

2.1.3.4.6 Evaluation Sharding

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.4.7 Evaluation Definitions

2.1.3.4.8 Evaluation JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "A representation of a measurement of a real-world concept. This is the fundamental abstraction
of a 'datum' that retains relationships to a limited number of categories of metadata that apply to any type of
environmental data you can define",
  "additionalProperties": true,
  "capped": false,
  "properties": {
    "_id": {
      "type": "objectId",
      "description": "Auto-generated by Mongo DB",
      "primaryKey": true,
      "GUID": "2978ca10-901e-11e7-9abf-294d0dde0341"
    },
    "evaluation-type": {
      "type": "string",
      "description": "The name for the specific Evaluation sub-class that inherits properties from the abstract
Evaluation",
      "primaryKey": false,
      "GUID": "b6a4e280-901d-11e7-9abf-294d0dde0341"
    },
    "activity": {
      "type": "objectId",
      "description": "The Activity that generated the Evaluation",
      "primaryKey": false,
      "GUID": "9c176640-901d-11e7-9abf-294d0dde0341"
    },
    "entity": {
      "type": "objectId",
      "description": "An Evaluation describes an Entities",
      "primaryKey": false,
      "GUID": "cd177f50-901d-11e7-9abf-294d0dde0341"
    },
    "property": {
      "type": "objectId",
      "description": "The Property evaluated for the Entity subjected to measurement or observation",
      "primaryKey": false,
      "GUID": "46949250-901e-11e7-9abf-294d0dde0341"
    },
    "measurement-context": {
      "type": "array",
      "description": "The various Measurement-Contexts that make the data meaningful by providing reference
frames for space, time, data quality, etc.",
      "additionalItems": true,
      "primaryKey": false,
      "GUID": "b5adbbd0-901e-11e7-9abf-294d0dde0341",
      "items": {
        "type": "objectId",
        "arrayItem": true,
        "primaryKey": false,
        "GUID": "06c6b080-901f-11e7-9abf-294d0dde0341"
      }
    },
    "permissions": {
      "type": "array",
      "description": "The read/write privileges on the Evaluation granted to various Agents.",
      "additionalItems": true,

```

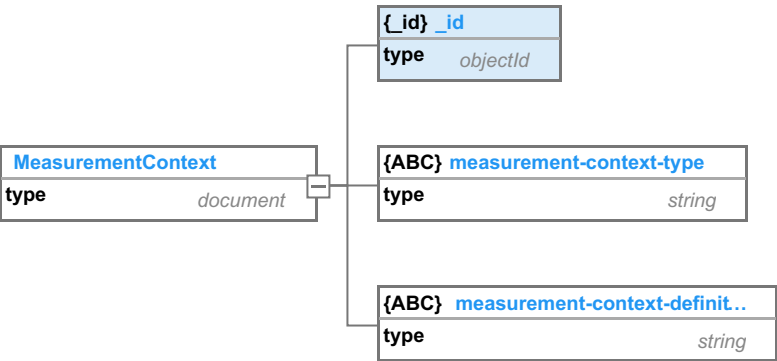
```
"primaryKey": false,
"uniqueItems": false,
"GUID": "e77c9690-901e-11e7-9abf-294d0dde0341",
"items": {
  "type": "objectId",
  "arrayItem": true,
  "primaryKey": false,
  "GUID": "f4822d00-901e-11e7-9abf-294d0dde0341"
}
},
"validationAction": "Error",
"validationLevel": "Strict",
"required": [
  "_id",
  "evaluation-type",
  "activity",
  "entity",
  "property"
]
}
```

2.1.3.4.9 Evaluation JSON data

```
{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "evaluation-type": "Lorem",
  "activity": ObjectId("507f1f77bcf86cd799439011"),
  "entity": ObjectId("507f1f77bcf86cd799439011"),
  "property": ObjectId("507f1f77bcf86cd799439011"),
  "measurement-context": [
    ObjectId("507f1f77bcf86cd799439011")
  ],
  "permissions": [
    ObjectId("507f1f77bcf86cd799439011")
  ]
}
```

2.1.3.5 Collection MeasurementContext

2.1.3.5.1 MeasurementContext Tree Diagram



2.1.3.5.2 MeasurementContext Properties

PROPERTY	VALUE
Collection name	MeasurementContext
Id	
Description	The Measurement-Context provides information about the perspective or frame of reference (e.g. spatial and/or temporal, QAQC, etc.) for the data
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	true
Comments	

2.1.3.5.3 MeasurementContext Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	true		Auto-generated by MongoDB	
measurement-context-type	string	true		The specific Measurement-Context sub-class that inherits properties from the abstract Measurement Context	
measurement-context-definition	string	true		The unambiguous definition of the Measurement-Context sub-class	

2.1.3.5.3.1 Field _id

2.1.3.5.3.1.1 _id Tree Diagram

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.5.3.2 Field measurement-context-type**2.1.3.5.3.2.1 measurement-context-type Tree Diagram**

{ABC} measurement-context-type
type <i>string</i>

measurement-context-type properties

PROPERTY	VALUE
Name	measurement-context-type
Id	
Type	string
Description	The specific Measurement-Context sub-class that inherits properties from the abstract Measurement Context
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.5.3.3 Field measurement-context-definition

2.1.3.5.3.3.1 measurement-context-definition Tree Diagram

{ABC} measurement-context-definit...
type
string

measurement-context-definition properties

PROPERTY	VALUE
Name	measurement-context-definition
Id	
Type	string
Description	The unambiguous definition of the Measurement-Context sub-class
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.5.4 MeasurementContext Users (TBD)

2.1.3.5.5 MeasurementContext Indexes

2.1.3.5.6 MeasurementContext Sharding

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.5.7 MeasurementContext Definitions

2.1.3.5.8 MeasurementContext JSON Schema

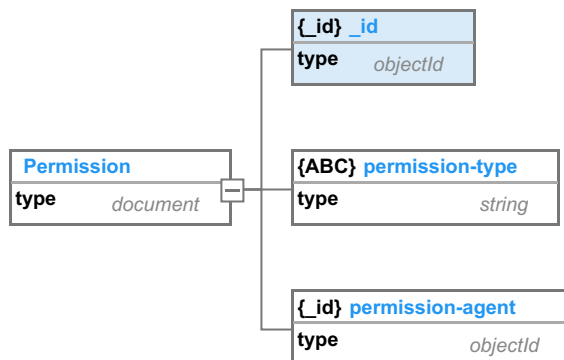
```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "The Measurement-Context provides information about the perspective or frame of reference (e.g. spatial and/or temporal, QAQC, etc.) for the data",
  "additionalProperties": true,
  "capped": false,
  "properties": {
    "_id": {
      "type": "objectId",
      "description": "Auto-generated by MongoDB",
      "primaryKey": true,
      "GUID": "ac072ee0-901e-11e7-9abf-294d0dde0341"
    },
    "measurement-context-type": {
      "type": "string",
      "description": "The specific Measurement-Context sub-class that inherits properties from the abstract Measurement Context",
      "primaryKey": false,
      "GUID": "b861ff00-9021-11e7-9abf-294d0dde0341"
    },
    "measurement-context-definition": {
      "type": "string",
      "description": "The unambiguous definition of the Measurement-Context sub-class",
      "primaryKey": false,
      "GUID": "86ab2620-262c-11e8-8b82-433aa96de2ad"
    }
  },
  "validationAction": "Error",
  "validationLevel": "Strict",
  "required": [
    "_id",
    "measurement-context-type",
    "measurement-context-definition"
  ]
}
```

2.1.3.5.9 MeasurementContext JSON data

```
{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "measurement-context-type": "Lorem",
  "measurement-context-definition": "Lorem"
}
```

2.1.3.6 Collection Permission

2.1.3.6.1 Permission Tree Diagram



2.1.3.6.2 Permission Properties

PROPERTY	VALUE
Collection name	Permission
Id	
Description	Including a Permissions object in the data model provides a mechanism for controlling read/write access at an extremely granular level, which is not natively supported by MongoDB.
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	false
Comments	

2.1.3.6.3 Permission Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	true		Auto-generated by MongoDB	
permission-type	string	true		User access levels	
permission-agent	objectId	true		The Agent the permissionType is assigned to	

2.1.3.6.3.1 Field _id**2.1.3.6.3.1.1 _id Tree Diagram**

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.6.3.2 Field permission-type

2.1.3.6.3.2.1 permission-type Tree Diagram

{ABC} permission-type
type <i>string</i>

permission-type properties

PROPERTY	VALUE
Name	permission-type
Id	
Type	string
Description	User access levels
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	read, readWrite
Sample	
Comments	

2.1.3.6.3.3 Field permission-agent

2.1.3.6.3.3.1 permission-agent Tree Diagram

{_id} permission-agent
type <i>objectId</i>

permission-agent properties

PROPERTY	VALUE
Name	permission-agent
Id	
Type	objectId
Description	The Agent the permissionType is assigned to
Dependencies	
Required	true
Primary key	false
Foreign collection	Agent
Foreign field	_id
Relationship type	Foreign Key
Default	
Sample	
Comments	

2.1.3.6.4 Permission Users (TBD)

2.1.3.6.5 Permission Indexes

2.1.3.6.6 Permission Sharding

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.6.7 Permission Definitions

2.1.3.6.8 Permission JSON Schema

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "Including a Permissions object in the data model provides a mechanism for controlling
read/write access at an extremely granular level, which is not natively supported by MongoDB.",
  "additionalProperties": false,
  "capped": false,
  "properties": {
    "_id": {
      "type": "objectId",
      "description": "Auto-generated by MongoDB",
      "primaryKey": true,
      "GUID": "a617b680-901e-11e7-9abf-294d0dde0341"
    },
    "permission-type": {
      "type": "string",
      "description": "User access levels",
      "enum": [
        "read, readWrite"
      ],
      "primaryKey": false,
      "GUID": "839a56a0-9021-11e7-9abf-294d0dde0341"
    },
    "permission-agent": {
      "type": "objectId",
      "description": "The Agent the permissionType is assigned to",
      "primaryKey": false,
      "GUID": "6909a610-9021-11e7-9abf-294d0dde0341"
    }
  },
  "validationAction": "Error",
  "validationLevel": "Strict",
  "required": [
    "_id",
    "permission-type",
    "permission-agent"
  ]
}

```

2.1.3.6.9 Permission JSON data

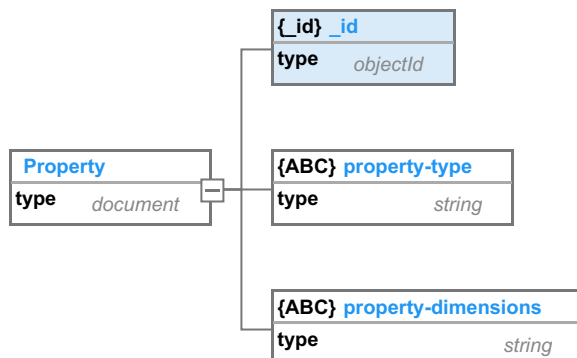
```

{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "permission-type": "read, readWrite",
  "permission-agent": ObjectId("507f1f77bcf86cd799439011")
}

```

2.1.3.7 Collection Property

2.1.3.7.1 Property Tree Diagram



2.1.3.7.2 Property Properties

PROPERTY	VALUE
Collection name	Property
Id	
Description	The characteristic of an Entity subjected to measurement or observation
Database	OOEDS MongoDB
Capped	false
Size	
Max	
Storage engine	WiredTiger
Validation level	Strict
Validation action	Error
Additional properties	false
Comments	

2.1.3.7.3 Property Fields

FIELD	TYPE	REQ	KEY	DESCRIPTION	COMMENTS
_id	objectId	true		Auto-generated by MongoDB	
property-type	string	true		The unambiguous name for the property (e.g. water temperature, solar irradiance)	
property-dimensions	string	true		The dimensions(s) associated with the property (e.g. length, time, mass/time)	

2.1.3.7.3.1 Field _id

2.1.3.7.3.1.1 _id Tree Diagram

{_id} _id
type <i>objectId</i>

_id properties

PROPERTY	VALUE
Name	_id
Id	
Type	objectId
Description	Auto-generated by MongoDB
Dependencies	
Required	true
Primary key	true
Foreign collection	
Foreign field	
Relationship type	
Default	
Sample	
Comments	

2.1.3.7.3.2 Field property-type

2.1.3.7.3.2.1 property-type Tree Diagram

{ABC} property-type
type <i>string</i>

property-type properties

PROPERTY	VALUE
Name	property-type
Id	
Type	string
Description	The unambiguous name for the property (e.g. water temperature, solar irradiance)
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.7.3.3 Field property-dimensions

2.1.3.7.3.3.1 property-dimensions Tree Diagram

{ABC} property-dimensions
type <i>string</i>

property-dimensions properties

PROPERTY	VALUE
Name	property-dimensions
Id	
Type	string
Description	The dimensions(s) associated with the property (e.g. length, time, mass/time)
Dependencies	
Required	true
Primary key	false
Foreign collection	
Foreign field	
Relationship type	
Default	
Min length	
Max length	
Pattern	
Format	
Enum	
Sample	
Comments	

2.1.3.7.4 Property Users (TBD)

2.1.3.7.5 Property Indexes

2.1.3.7.6 Property Sharding

PROPERTY	SHARDING
Key	
Hashed	
Unique	true
Number of initial chunks	
Collation	null
Zone (Tag)	
Comments	

2.1.3.7.7 Property Definitions

2.1.3.7.8 Property JSON Schema

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "type": "object",
  "description": "The characteristic of an Entity subjected to measurement or observation",
  "additionalProperties": false,
  "capped": false,
  "properties": {
    "_id": {
      "type": "objectId",
      "description": "Auto-generated by MongoDB",
      "primaryKey": true,
      "GUID": "7d4e1fa0-901e-11e7-9abf-294d0dde0341"
    },
    "property-type": {
      "type": "string",
      "description": "The unambiguous name for the property (e.g. water temperature, solar irradiance)",
      "primaryKey": false,
      "GUID": "1bd0a020-9020-11e7-9abf-294d0dde0341"
    },
    "property-dimensions": {
      "type": "string",
      "description": "The dimensions(s) associated with the property (e.g. length, time, mass/time)",
      "primaryKey": false,
      "GUID": "3364b280-9020-11e7-9abf-294d0dde0341"
    }
  },
  "validationAction": "Error",
  "validationLevel": "Strict",
  "required": [
    "_id",
    "property-type",
    "property-dimensions"
  ]
}
```

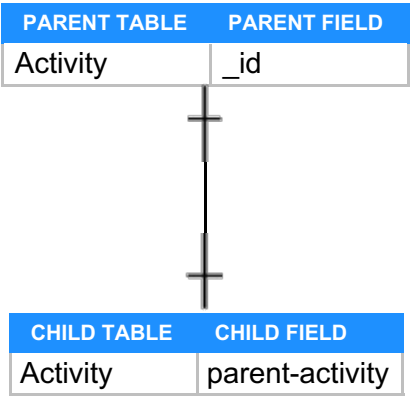
2.1.3.7.9 Property JSON data

```
{
  "_id": ObjectId("507f1f77bcf86cd799439011"),
  "property-type": "Lorem",
  "property-dimensions": "Lorem"
}
```

3. RELATIONSHIPS

3.1 Relationship Activity.Parent

3.1.1 Activity.Parent Diagram

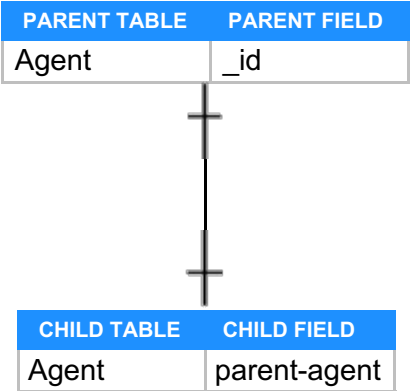


3.1.2 Activity.Parent Properties

PROPERTY	VALUE
Name	Activity.Parent
Description	An Activity may belong to a nested hierarchy of Activities
Parent Collection	Activity
Parent field	_id
Parent Cardinality	1
Child Collection	Activity
Child field	parent-activity
Child Cardinality	1
Comments	

3.2 Relationship Agent.Parent

3.2.1 Agent.Parent Diagram

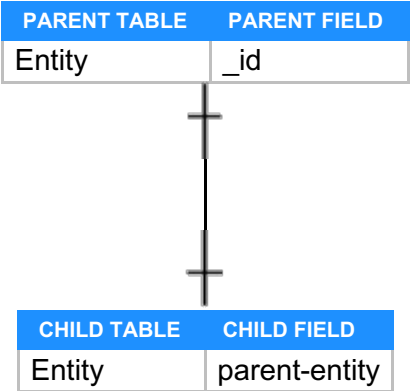


3.2.2 Agent.Parent Properties

PROPERTY	VALUE
Name	Agent.Parent
Description	An Agent may be a child of another Agent. This relationship is useful for mapping things lik employment of a "researcher" Agent by a "university" Agent.
Parent Collection	Agent
Parent field	_id
Parent Cardinality	1
Child Collection	Agent
Child field	parent-agent
Child Cardinality	1
Comments	

3.3 Relationship Entity.Parent

3.3.1 Entity.Parent Diagram

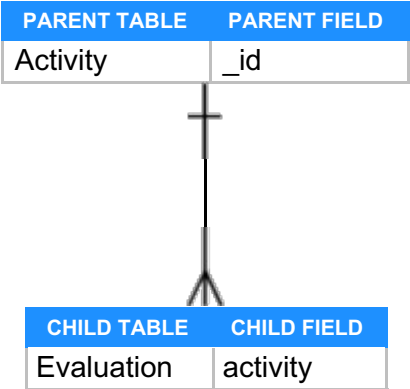


3.3.2 Entity.Parent Properties

PROPERTY	VALUE
Name	Entity.Parent
Description	An Entity may belong to a nested hierarchy of Entities
Parent Collection	Entity
Parent field	_id
Parent Cardinality	1
Child Collection	Entity
Child field	parent-entity
Child Cardinality	1
Comments	

3.4 Relationship Evaluation.Activity

3.4.1 Evaluation.Activity Diagram

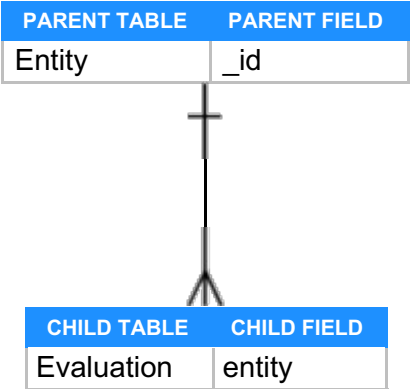


3.4.2 Evaluation.Activity Properties

PROPERTY	VALUE
Name	Evaluation.Activity
Description	An Evaluation is generated by an Activity
Parent Collection	Activity
Parent field	_id
Parent Cardinality	1
Child Collection	Evaluation
Child field	activity
Child Cardinality	n
Comments	

3.5 Relationship Evaluation.Entity

3.5.1 Evaluation.Entity Diagram

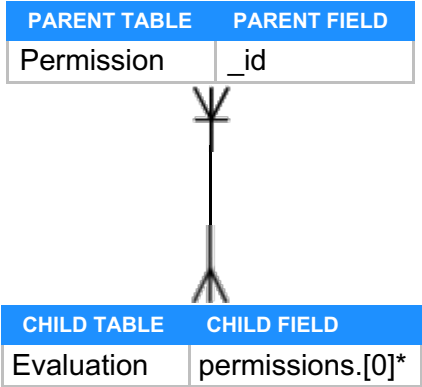


3.5.2 Evaluation.Entity Properties

PROPERTY	VALUE
Name	Evaluation.Entity
Description	An Evaluation describes an Entity
Parent Collection	Entity
Parent field	_id
Parent Cardinality	1
Child Collection	Evaluation
Child field	entity
Child Cardinality	n
Comments	

3.6 Relationship Evaluation.Permission

3.6.1 Evaluation.Permission Diagram

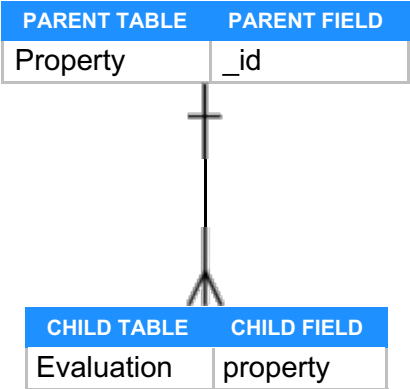


3.6.2 Evaluation.Permission Properties

PROPERTY	VALUE
Name	Evaluation.Permission
Description	Evaluations are accessible to Permissions
Parent Collection	Permission
Parent field	_id
Parent Cardinality	1..n
Child Collection	Evaluation
Child field	[0]*
Child Cardinality	n
Comments	

3.7 Relationship Evaluation.Property

3.7.1 Evaluation.Property Diagram

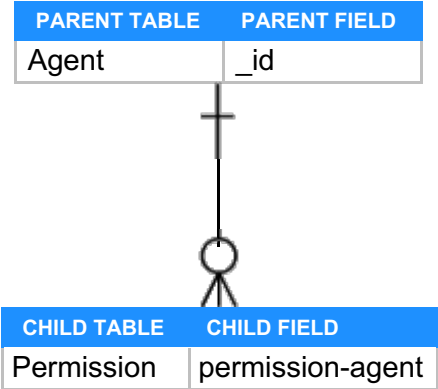


3.7.2 Evaluation.Property Properties

PROPERTY	VALUE
Name	Evaluation.Property
Description	An Evaluation evaluates a Property of an Entity
Parent Collection	Property
Parent field	_id
Parent Cardinality	1
Child Collection	Evaluation
Child field	property
Child Cardinality	n
Comments	

3.8 Relationship Permission.Agent

3.8.1 Permission.Agent Diagram

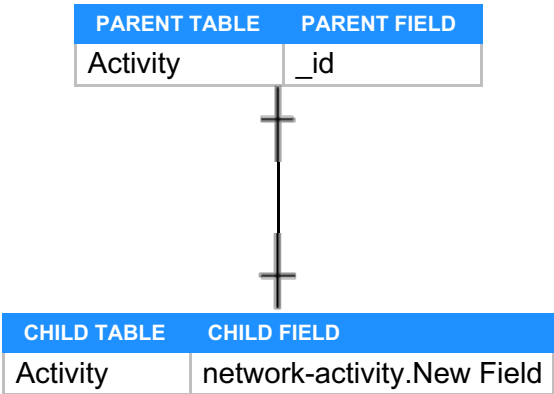


3.8.2 Permission.Agent Properties

PROPERTY	VALUE
Name	Permission.Agent
Description	Permissions describe the read/write priveledges of an Agent
Parent Collection	Agent
Parent field	_id
Parent Cardinality	1
Child Collection	Permission
Child field	permission-agent
Child Cardinality	0..n
Comments	

3.9 Relationship fk Activity._id to Activity.networkActivity.[0]

3.9.1 fk Activity._id to Activity.networkActivity.[0] Diagram

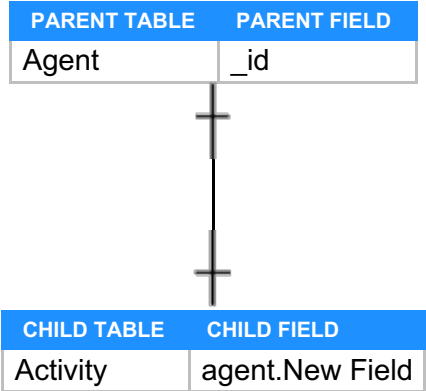


3.9.2 fk Activity._id to Activity.networkActivity.[0] Properties

PROPERTY	VALUE
Name	fk Activity._id to Activity.networkActivity.[0]
Description	
Parent Collection	Activity
Parent field	_id
Parent Cardinality	1
Child Collection	Activity
Child field	
Child Cardinality	1
Comments	

3.10 Relationship fk Agent._id to Activity.agent.[0]

3.10.1 fk Agent._id to Activity.agent.[0] Diagram

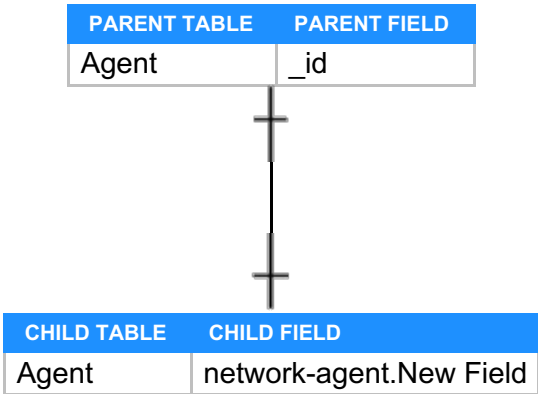


3.10.2 fk Agent._id to Activity.agent.[0] Properties

PROPERTY	VALUE
Name	fk Agent._id to Activity.agent.[0]
Description	
Parent Collection	Agent
Parent field	_id
Parent Cardinality	1
Child Collection	Activity
Child field	
Child Cardinality	1
Comments	

3.11 Relationship fk Agent._id to Agent.networkAgent.[0]

3.11.1 fk Agent._id to Agent.networkAgent.[0] Diagram

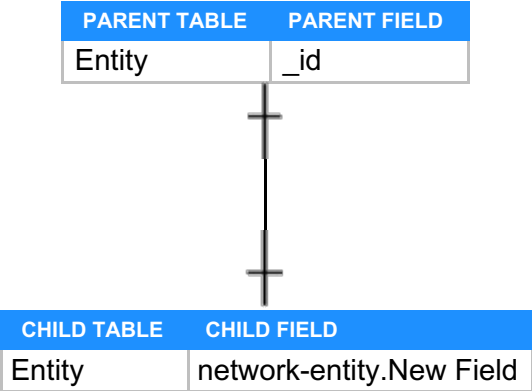


3.11.2 fk Agent._id to Agent.networkAgent.[0] Properties

PROPERTY	VALUE
Name	fk Agent._id to Agent.networkAgent.[0]
Description	
Parent Collection	Agent
Parent field	_id
Parent Cardinality	1
Child Collection	Agent
Child field	
Child Cardinality	1
Comments	

3.12 Relationship fk Entity._id to Entity.networkEntity.[0]

3.12.1 fk Entity._id to Entity.networkEntity.[0] Diagram

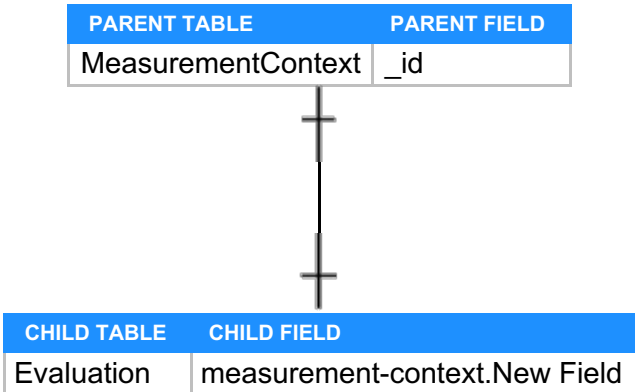


3.12.2 fk Entity._id to Entity.networkEntity.[0] Properties

PROPERTY	VALUE
Name	fk Entity._id to Entity.networkEntity.[0]
Description	
Parent Collection	Entity
Parent field	_id
Parent Cardinality	1
Child Collection	Entity
Child field	
Child Cardinality	1
Comments	

3.13 Relationship fk Measurement Context._id to Evaluation.measurementContext.[0]

3.13.1 fk Measurement Context._id to Evaluation.measurementContext.[0] Diagram



3.13.2 fk Measurement Context._id to Evaluation.measurementContext.[0] Properties

PROPERTY	VALUE
Name	fk Measurement Context._id to Evaluation.measurementContext.[0]
Description	
Parent Collection	MeasurementContext
Parent field	_id
Parent Cardinality	1
Child Collection	Evaluation
Child field	
Child Cardinality	1
Comments	

