OCF 2.3 – New Resources for Location Service – DMWG CR 1781

Legal Disclaimer

1.1 Distance Service

1.1.1 Introduction

A Location Collection made up of Distance Entities
Retrieves the current distances between the reference entity and all other entities

1.1.2 Example URI

/DistanceCollectionResURI

1.1.3 Resource type

The resource type (rt) is defined as: ['oic.r.locationcollection'].

1.1.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Distance Service",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
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ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/DistanceCollectionResURI?if=oic.if.baseline" : {
      "get": {
        "description": "A Location Collection made up of Distance Entities\nRetrieves the current
distances between the reference entity and all other entities\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":    ["oic.r.locationcollection"],
                  "id":    "unique_example_id",
                  "rts":   ["oic.r.location.entity.distance","oic.r.value.conditional"],
                  "supportedlocationservices": ["distance"],
                  "links": [
                    {"href": "/entity1", "rt": ["oic.r.location.entity.distance"], "if":
```

```
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity2", "rt": ["oic.r.location.entity.distance"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity3", "rt": ["oic.r.location.entity.distance"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity4", "rt": ["oic.r.location.entity.distance"], "if":
["oic.if.s","oic.if.baseline"]}
                  ]
                },
              "schema": { "$ref": "#/definitions/LocationCollection" }
            }
          }
        }
      }
    },
    "parameters": {
      "query-ed" : {
        "in" : "query",
        "name" : "entityDescription",
        "type" : "string"
      },
      "query-eid" : {
        "in" : "query",
        "name" : "entityId",
        "type" : "string"
      },
      "query-refeid" : {
        "in" : "query",
        "name" : "referenceEntityId",
        "type" : "string"
      },
      "query-refed" : {
        "in" : "query",
        "name" : "referenceEntityDescription",
        "type" : "string"
      },
      "interface-all" : {
        "in" : "query",
        "name" : "if",
        "type" : "string",
        "enum" : ["oic.if.ll", "oic.if.baseline"]
      }
    },
    "definitions": {
      "oic.oic-link": {
        "properties": {
          "if": {
            "description": "The interface set supported by the linked resource",
            "items": {
              "enum": [
                "oic.if.baseline",
                "oic.if.r",
                "oic.if.rw"
              ],
              "type": "string"
            },
            "minItems": 1,
            "uniqueItems": true,
            "readOnly": true,
            "type": "array"
          },
          "rt": {
            "description": "Resource Type of the linked Resource",
            "items": {
              "type": "string"
```

```
          },
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
        },
        "anchor": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/anchor"
        },
        "di": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/di"
        },
        "eps": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/eps"
        },
        "href": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/href"
        },
        "ins": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/ins"
        },
        "p": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/p"
        },
        "rel": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/rel_array"
        },
        "title": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/title"
        },
        "type": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/type"
        }
      },
      "required": [
        "href",
        "rt",
        "if"
      ],
      "type": "object"
    },
    "LocationCollection" : {
      "properties": {
        "rt" : {
          "items": {
            "enum": [
              "oic.r.locationcollection"
```

```
            ]
          },
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
        },
        "supportedlocationservice" : {
          "description": "Array of possible entities the device supports.",
          "items": {
            "enum": [
              "distance"
            ]
          },
          "readOnly": true,
          "type": "array"
        },
        "links": {
          "type": "array",
          "items": {
            "$ref": "#/definitions/oic.oic-link"
          },
          "minItems": 2,
          "maxItems": 2
        },
        "n" : {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "rts" :  {
          "items": {
            "enum": ["oic.r.location.entity.distance","oic.r.value.conditional"]
          },
          "maxItems": 2,
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.ll"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["supportedlocationservice"]
    }
  }
}
```

1.1.5 Property definition

Table 1The properties definitions of the resource with type 'rt' = DistanceCollectionResURI?if=oic.if.baseline

Property name	Value type	Mandatory	Access mode	Description
rt	array: see schema	Yes	Read Only	Resource Type of the linked Resource
p	multiple types: see schema	No	Read Write	
type	multiple types: see schema	No	Read Write	
href	multiple types: see schema	Yes	Read Write	
title	multiple types: see schema	No	Read Write	
anchor	multiple types: see schema	No	Read Write	
if	array: see schema	Yes	Read Only	The interface set supported by the linked resource
rel	multiple types: see schema	No	Read Write	
eps	multiple types: see schema	No	Read Write	
ins	multiple types: see schema	No	Read Write	
di	multiple types: see schema	No	Read Write	
id	string	No	Read Only	Instance ID of this specific resource
n	string	No	Read Only	Friendly name of the resource
rt	array: see schema	No	Read Write	
rts	array: see schema	No	Read Write	
if	array: see schema	No	Read Only	The interface set supported by this resource
supportedlocationservice	array: see schema	Yes	Read Only	

				Array of possible entities the device supports.
links	array: see schema	No	Read Write	

1.1.6 CRUDN behaviour

Table 2The CRUDN operations of the resource with type 'rt' = DistanceCollectionResURI?if=oic.if.baseline

Resource	Create	Read	Update	Delete	Notify
/DistanceCollectionResURI		get			observe

1.2 Distance Entity

1.2.1 Introduction

A Distance Entity is an location services entity that contains distance information.
Distance information is the distance (in metres) between the reference entity and the distance entity.
Retrieves the representation of a distance Entity

1.2.2 Example URI

/DistanceEntityURI

1.2.3 Resource type

The resource type (rt) is defined as: ['oic.r.location.entity.distance'].

1.2.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Distance Entity",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
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ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
```

```
  "paths": {
    "/DistanceEntityURI" : {
      "get": {
        "description": "A Distance Entity is an location services entity that contains distance
information.\nDistance information is the distance (in metres) between the reference entity and the
distance entity.\nRetrieves the representation of a distance Entity\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                    "rt":         ["oic.r.location.entity.distance"],
                    "id":         "unique_example_id",
                    "referenceentity": {"entityid":"11:22:33:44:55","entitydescription":"Front
Door"},
                    "entity": {"entityid":"00:11:22:33","entitydescription":"Mom"},
                    "distance": 10.2,
                    "accuracy": 0.5,
                    "timestamp":  "2015-11-05T14:30:15Z"
                },
              "schema": { "$ref": "#/definitions/DistanceEntity" }
            }
        }
      },
      "post": {
        "description": "Sets the entity description.\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"},
          {
            "name": "body",
            "in": "body",
            "required": true,
            "schema": { "$ref": "#/definitions/DistanceEntity-Update" },
            "x-example":
              {
                "referenceentity": {"entitydescription":"Shed"},
                "entity": {"entitydescription":"Dad"}
              }
          }
        ],
        "responses": {
            "200": {
              "description" : "Success path response code\n"
            }
        }
      }
    }
  },
  "parameters": {
    "interface-all" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.rw","oic.if.baseline"]
    }
  },
  "definitions": {
    "DistanceEntity" : {
      "properties": {
        "rt" : {
          "description": "Resource Type",
          "items": {
```

```
            "enum": ["oic.r.entity.distance"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "distance" :  {
          "description": "The current distance (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "accuracy" : {
          "description": "The accuracy radius.  68% confidence that the reading is within the
specified accuracy (meters)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "referenceentity" : {
          "properties": {
            "entitydescription": {
              "description": "Human readable description (non-unique)",
              "maxLength": 128,
              "type": "string"
            },
            "entityid": {
              "description": "Globally Unique Identifier for entity",
              "maxLength": 128,
              "type": "string"
            }
          },
          "type": "object"
        },
        "entity" :  {
          "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
entity"
        },
        "range" :  {
          "description": "The valid range for the distance Property",
          "items": {
            "type": "number"
          },
          "maxItems": 2,
          "minItems": 2,
          "readOnly": true,
          "type": "array"
        },
        "timestamp" :  {
          "description": "An RFC3339 formated time indicating when the data was observed (e.g.:
2016-02-15T09:19Z)",
          "format": "date-time",
          "readOnly": true,
          "type": "string"
        },
        "step" :  {
          "type": "number",
          "description": "Step value across the defined range",
          "readOnly": true
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
```

```
          "readOnly": true,
          "type": "string"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" : {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object"
    },
    "DistanceEntity-Update" : {
      "properties": {
        "entity": {
          "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
entity-update"
        },
        "referenceentity": {
          "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
entity-update"
        }
      },
      "type": "object"
    }
  }
}
```

1.2.5 Property definition

Table 3The properties definitions of the resource with type 'rt' = DistanceEntityURI

Property name	Value type	Mandatory	Access mode	Description
distance	number		Read Only	The current distance (metres)
id	string		Read Only	Instance ID of this specific resource
range	array: see schema		Read Only	The valid range for the distance Property

referenceentity	object: see schema		Read Write	
rt	array: see schema		Read Only	Resource Type
n	string		Read Only	Friendly name of the resource
timestamp	string		Read Only	An RFC3339 formated time indicating when the data was observed (e.g.: 2016-02-15T09:19Z)
accuracy	number		Read Only	The accuracy radius. 68% confidence that the reading is within the specified accuracy (meters)
step	number		Read Only	Step value across the defined range
entity	multiple types: see schema		Read Write	
if	array: see schema		Read Only	The interface set supported by this resource
referenceentity	multiple types: see schema		Read Write	
entity	multiple types: see schema		Read Write	

1.2.6 CRUDN behaviour

Table 4The CRUDN operations of the resource with type 'rt' = DistanceEntityURI

Resource	Create	Read	Update	Delete	Notify
/DistanceEntityURI		get	post		observe

1.3 Distance Sensor

1.3.1 Introduction

This resource describes the properties associated with a distance sensor.
distance is the distance between the sensor and a reference point in metres.
accuracy is the accuracy radius. 68% confidence that the reading is within the specified accuracy (metres).

Retrieves the current distance sensor information.

1.3.2 Example URI

/DistanceResURI

1.3.3 Resource type

The resource type (rt) is defined as: ['oic.r.sensor.distance'].

1.3.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Distance Sensor",
    "version": "v1.0-2018",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
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ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/DistanceResURI" : {
      "get": {
        "description": "This resource describes the properties associated with a distance
sensor.\ndistance is the distance between the sensor and a reference point in metres.\naccuracy is
the accuracy radius.  68% confidence that the reading is within the specified accuracy
(metres).\nRetrieves the current distance sensor information.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.sensor.distance"],
                  "id":         "unique_example_id",
                  "distance": 10.5,
                  "accuracy": 0.75
                },
              "schema": { "$ref": "#/definitions/Distance" }
            }
        }
      }
    }
  },
```

```
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.s", "oic.if.baseline"]
    }
  },
  "definitions": {
    "Distance" : {
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.sensor.distance"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "distance" :  {
          "description": "The current distance (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "range" :  {
          "description": "The valid range for the distance Property",
          "items": {
            "type": "number"
          },
          "maxItems": 2,
          "minItems": 2,
          "readOnly": true,
          "type": "array"
        },
        "step" :  {
          "type": "number",
          "description": "Step value across the defined range",
          "readOnly": true
        },
        "accuracy" :  {
          "description": "The accuracy radius.  68% confidence that the reading is within the
specified accuracy (meters)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
```

```
              "oic.if.baseline",
              "oic.if.s"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["distance"]
    }
  }
}
```

1.3.5 Property definition

Table 5The properties definitions of the resource with type 'rt' = DistanceResURI

Property name	Value type	Mandatory	Access mode	Description
accuracy	number	No	Read Only	The accuracy radius. 68% confidence that the reading is within the specified accuracy (meters)
if	array: see schema	No	Read Only	The interface set supported by this resource
n	string	No	Read Only	Friendly name of the resource
id	string	No	Read Only	Instance ID of this specific resource
range	array: see schema	No	Read Only	The valid range for the distance Property
distance	number	Yes	Read Only	The current distance (metres)
step	number	No	Read Only	Step value across the defined range
rt	array: see schema	No	Read Only	Resource Type

1.3.6 CRUDN behaviour

Table 6The CRUDN operations of the resource with type 'rt' = DistanceResURI

Resource	Create	Read	Update	Delete	Notify
/DistanceResURI		get			observe

1.4 Entity Catalogue

1.4.1 Introduction

Collection of all location entities that the Server knows about
Retrieves a collection of links which allow the manipulation of entities

1.4.2 Example URI

/EntityCatalogResURI

1.4.3 Resource type

The resource type (rt) is defined as: ['oic.r.locationcollection'].

1.4.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Entity Catalogue",
    "version": "v1.1.0-20171102",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
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OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/EntityCatalogResURI?if=oic.if.baseline" : {
      "get": {
        "description": "Collection of all location entities that the Server knows about\nRetrieves
a collection of links which allow the manipulation of entities\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                   "rt":  ["oic.r.locationcollection"],
```

```
                    "id":  "unique_example_id",
                    "rts": ["oic.r.location.entity","oic.r.value.conditional"],
                    "supportedlocationservices": ["entitycatalog"],
                    "links": [
                      {"href": "/{EntityPath1}", "rt": ["oic.r.location.entity"], "if":
["oic.if.s","oic.if.baseline"]},
                      {"href": "/{EntityPath2}", "rt": ["oic.r.location.entity"], "if":
["oic.if.s","oic.if.baseline"]},
                      {"href": "/{EntityPath3}", "rt": ["oic.r.location.entity"], "if":
["oic.if.s","oic.if.baseline"]},
                      {"href": "/{EntityPath4}", "rt": ["oic.r.location.entity"], "if":
["oic.if.s","oic.if.baseline"]}
                    ]
                  },
              "schema": { "$ref": "#/definitions/collection" }
            }
        }
      }
    }
  },
  "parameters": {
    "query-ed" : {
      "in" : "query",
      "name" : "entityDescription",
      "type" : "string"
    },
    "query-eid" : {
      "in" : "query",
      "name" : "entityId",
      "type" : "string"
    },
    "interface-all" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.ll", "oic.if.baseline"]
    }
  },
  "definitions": {
    "oic.oic-link": {
      "properties": {
        "if": {
          "description": "The interface set supported by the linked resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r",
              "oic.if.rw"
            ],
            "type": "string"
          },
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
        },
        "rt": {
          "description": "Resource Type of the linked Resource",
          "items": {
            "type": "string"
          },
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
```

```
        },
        "anchor": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/anchor"
        },
        "di": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/di"
        },
        "eps": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/eps"
        },
        "href": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/href"
        },
        "ins": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/ins"
        },
        "p": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/p"
        },
        "rel": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/rel_array"
        },
        "title": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/title"
        },
        "type": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/type"
        }
      },
      "required": [
        "href",
        "rt",
        "if"
      ],
      "type": "object"
    },
    "collection" : {
      "properties": {
        "rt" :  {
          "items": {
            "enum": [
              "oic.r.locationcollection"
            ]
          },
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
```

```
        },
        "supportedlocationservice" :  {
          "description": "Array of possible entities the device supports.",
          "items": {
            "enum": [
              "entitycatalog"
            ]
          },
          "readOnly": true,
          "type": "array"
        },
        "links" : {
          "type": "array",
          "items": {
            "$ref": "#/definitions/oic.oic-link"
          },
          "minItems": 2,
          "maxItems": 2
        },
        "n" : {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "rts" :  {
          "items": {
            "enum": ["oic.r.location.entity","oic.r.value.conditional"]
          },
          "maxItems": 2,
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.ll"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["supportedlocationservice"]
    }
  }
}
```

1.4.5 Property definition

Table 7The properties definitions of the resource with type 'rt' = EntityCatalogResURI?if=oic.if.baseline

Property name	Value type	Mandatory	Access mode	Description
type	multiple types: see schema	No	Read Write	
di	multiple types: see schema	No	Read Write	
anchor	multiple types: see schema	No	Read Write	
title	multiple types: see schema	No	Read Write	
ins	multiple types: see schema	No	Read Write	
href	multiple types: see schema	Yes	Read Write	
p	multiple types: see schema	No	Read Write	
eps	multiple types: see schema	No	Read Write	
if	array: see schema	Yes	Read Only	The interface set supported by the linked resource
rel	multiple types: see schema	No	Read Write	
rt	array: see schema	Yes	Read Only	Resource Type of the linked Resource
id	string	No	Read Only	Instance ID of this specific resource
n	string	No	Read Only	Friendly name of the resource
rts	array: see schema	No	Read Write	
supportedlocationservice	array: see schema	Yes	Read Only	Array of possible entities the device supports.
if	array: see schema	No	Read Only	The interface set supported

				by this resource
links	array: see schema	No	Read Write	
rt	array: see schema	No	Read Write	

1.4.6 CRUDN behaviour

Table 8The CRUDN operations of the resource with type 'rt' = EntityCatalogResURI?if=oic.if.baseline

Resource	Create	Read	Update	Delete	Notify
/EntityCatalogResURI		get			observe

1.5 Entity

1.5.1 Introduction

This resource describes an object that is tracked by location services. Location services refers to the presence, geofence, distance, position, and entitycatalog services.
An entity contains two fields, the entityId, a globally unique identifier whose format is defined by the device or service, and the entityDescription, a description which is non-unique and human readable.
Retrieve a list of entities

1.5.2 Example URI

/EntityResURI

1.5.3 Resource type

The resource type (rt) is defined as: ['oic.r.location.entity'].

1.5.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Entity",
    "version": "v1.0.0-20170612",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
```

```
  "produces": ["application/json"],
  "paths": {
    "/EntityResURI" : {
      "get": {
        "description": "This resource describes an object that is tracked by location services.
Location services refers to the presence, geofence, distance, position, and entitycatalog
services.\nAn entity contains two fields, the entityId, a globally unique identifier whose format
is defined by the device or service, and the entityDescription, a description which is non-unique
and human readable.\nRetrieve a list of entities\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.location.entity"],
                  "id":         "unique_example_id",
                  "entityid": "00:11:22:33",
                  "entitydescription": "Mom"
                },
              "schema": { "$ref": "#/definitions/entity" }
            }
        }
      },
      "post": {
        "description": "Sets the entity description.\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"},
          {
            "name": "body",
            "in": "body",
            "required": true,
            "schema": { "$ref": "#/definitions/entity-update" },
            "x-example":
              {
                "entitydescription":"Dad"
              }
          }
        ],
        "responses": {
            "200": {
              "description" : "Success path response code\n"
            }
        }
      }
    }
  },
  "parameters": {
    "interface-all" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.rw", "oic.if.baseline"]
    }
  },
  "definitions": {
    "entity" : {
      "properties": {
        "rt" : {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.location.entity"],
            "type": "string"
```

```
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "entitydescription" :  {
          "description": "Human readable description (non-unique)",
          "maxLength": 128,
          "type": "string"
        },
        "entityid" :  {
          "description": "Globally Unique Identifier for entity",
          "maxLength": 128,
          "type": "string"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["entityid", "entitydescription"]
    },
    "entity-update" : {
      "properties": {
        "entitydescription" :  {
          "description": "Human readable description (non-unique)",
          "maxLength": 128,
          "type": "string"
        }
      },
      "type": "object",
      "required": ["entitydescription"]
    }
  }
}
```

1.5.5 Property definition

Table 9The properties definitions of the resource with type 'rt' = EntityResURI

Property name	Value type	Mandatory	Access mode	Description
entitydescription	string	Yes	Read Write	

				Human readable description (non-unique)
id	string	No	Read Only	Instance ID of this specific resource
if	array: see schema	No	Read Only	The interface set supported by this resource
rt	array: see schema	No	Read Only	Resource Type
entityid	string	Yes	Read Write	Globally Unique Identifier for entity
n	string	No	Read Only	Friendly name of the resource
entitydescription	string	Yes	Read Write	Human readable description (non-unique)

1.5.6 CRUDN behaviour

Table 10The CRUDN operations of the resource with type 'rt' = EntityResURI

Resource	Create	Read	Update	Delete	Notify
/EntityResURI		get	post		observe

1.6 Geofence Service

1.6.1 Introduction

This is a collection of Geofence Resources and Geofence Reports.
Retrieves the current complete collection subject to any query parameters.
A query that includes an entityId (wildcard or actual) returns the Geofence Entity Report(s) for that Entity.
All other queries return the matching Geofence Entities.
A query that includes a Reference Entity and a radius that doesn't match results in the creation of a new Geofence Entity.
No query parameters result in the complete collection being returned

1.6.2 Example URI

/GeofenceCollectionResURI

1.6.3 Resource type

The resource type (rt) is defined as: ['oic.r.locationcollection'].

1.6.4 Swagger 2.0 definition

```
{
  "swagger": "2.0",
```

```
  "info": {
    "title": "Geofence Service",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/GeofenceCollectionResURI?if=oic.if.baseline" : {
      "get": {
        "description": "This is a collection of Geofence Resources and Geofence Reports.\nRetrieves
the current complete collection subject to any query parameters.\nA query that includes an entityId
(wildcard or actual) returns the Geofence Entity Report(s) for that Entity.\nAll other queries
return the matching Geofence Entities.\nA query that includes a Reference Entity and a radius that
doesn't match results in the creation of a new Geofence Entity.\nNo query parameters result in the
complete collection being returned\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":       ["oic.r.locationcollection"],
                  "id":       "unique_example_id",
                  "rts":
["oic.r.location.entity.geofence","oic.r.location.entity.geofence.report","oic.r.value.conditional"
],
                  "supportedlocationservices": ["geofence"],
                  "links": [
                    {"href": "/entity1", "rt": ["oic.r.location.entity.geofence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity2", "rt": ["oic.r.location.entity.geofence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity3", "rt": ["oic.r.location.entity.geofence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity4", "rt": ["oic.r.location.entity.geofence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity5", "rt": ["oic.r.location.entity.geofence.report"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity6", "rt": ["oic.r.location.entity.geofence.report"], "if":
["oic.if.s","oic.if.baseline"]}
                  ]
                }
                ,
              "schema": { "$ref": "#/definitions/LocationCollection" }
```

```
            }
          }
        }
      }
    },
    "parameters": {
      "query-ed" : {
        "in" : "query",
        "name" : "entityDescription",
        "type" : "string"
      },
      "query-eid" : {
        "in" : "query",
        "name" : "entityId",
        "type" : "string"
      },
      "query-refeid" : {
        "in" : "query",
        "name" : "referenceEntityId",
        "type" : "string"
      },
      "query-refed" : {
        "in" : "query",
        "name" : "referenceEntityDescription",
        "type" : "string"
      },
      "interface-all" : {
        "in" : "query",
        "name" : "if",
        "type" : "string",
        "enum" : ["oic.if.ll", "oic.if.baseline"]
      }
    },
    "definitions": {
      "oic.oic-link": {
        "properties": {
          "if": {
            "description": "The interface set supported by the linked resource",
            "items": {
              "enum": [
                "oic.if.baseline",
                "oic.if.r",
                "oic.if.rw"
              ],
              "type": "string"
            },
            "minItems": 1,
            "uniqueItems": true,
            "readOnly": true,
            "type": "array"
          },
          "rt": {
            "description": "Resource Type of the linked Resource",
            "items": {
              "type": "string"
            },
            "minItems": 1,
            "uniqueItems": true,
            "readOnly": true,
            "type": "array"
          },
          "anchor": {
            "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/anchor"
```

```
        },
        "di": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/di"
        },
        "eps": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/eps"
        },
        "href": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/href"
        },
        "ins": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/ins"
        },
        "p": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/p"
        },
        "rel": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/rel_array"
        },
        "title": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/title"
        },
        "type": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/type"
        }
      },
      "required": [
        "href",
        "rt",
        "if"
      ],
      "type": "object"
    },
    "LocationCollection" : {
      "properties": {
        "rt" : {
          "items": {
            "enum": [
              "oic.r.locationcollection"
            ]
          },
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
        },
        "supportedlocationservice" :  {
          "description": "Array of possible entities the device supports.",
          "items": {
            "enum": [
```

```
              "geofence"
            ]
          },
          "readOnly": true,
          "type": "array"
        },
        "links" :{
          "type": "array",
          "items": {
            "$ref": "#/definitions/oic.oic-link"
          },
          "minItems": 2,
          "maxItems": 2
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "rts" :  {
          "items": {
            "enum": [
                  "oic.r.location.entity.geofence",
                  "oic.r.location.entity.geofence.report",
                  "oic.r.value.conditional"
            ]
          },
          "maxItems": 3,
          "minItems": 1,
          "type": "array",
          "uniqueItems": true
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.ll"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["supportedlocationservice"]
    }
  }
}
```

1.6.5 Property definition

Table 11The properties definitions of the resource with type 'rt' = GeofenceCollectionResURI?if=oic.if.baseline

Property name	Value type	Mandatory	Access mode	Description
title	multiple types: see schema	No	Read Write	
rel	multiple types: see schema	No	Read Write	
rt	array: see schema	Yes	Read Only	Resource Type of the linked Resource
if	array: see schema	Yes	Read Only	The interface set supported by the linked resource
ins	multiple types: see schema	No	Read Write	
anchor	multiple types: see schema	No	Read Write	
href	multiple types: see schema	Yes	Read Write	
type	multiple types: see schema	No	Read Write	
p	multiple types: see schema	No	Read Write	
eps	multiple types: see schema	No	Read Write	
di	multiple types: see schema	No	Read Write	
id	string	No	Read Only	Instance ID of this specific resource
rt	array: see schema	No	Read Write	
if	array: see schema	No	Read Only	The interface set supported by this resource
supportedlocationservice	array: see schema	Yes	Read Only	Array of possible entities the device supports.
n	string	No	Read Only	

				Friendly name of the resource
rts	array: see schema	No	Read Write	
links	array: see schema	No	Read Write	

1.6.6 CRUDN behaviour

Table 12The CRUDN operations of the resource with type 'rt' = GeofenceCollectionResURI?if=oic.if.baseline

Resource	Create	Read	Update	Delete	Notify
/GeofenceCollectionResURI		get			observe

1.7 Geofence Entity Report

1.7.1 Introduction

A Geofence Entity Report is a location services entity that contains information on wether the entity is inside or outside a geofence surrounding the reference entity.
Retrieves the representation of a Geofence Entity Report.

1.7.2 Example URI

/GeofenceEntityReportResURI

1.7.3 Resource type

The resource type (rt) is defined as: ['oic.r.location.entity.geofence.report'].

1.7.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Geofence Entity Report",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/GeofenceEntityReportResURI" : {
      "get": {
```

```
        "description": "A Geofence Entity Report is a location services entity that contains
information on wether the entity is inside or outside a geofence surrounding the reference
entity.\nRetrieves the representation of a Geofence Entity Report.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.location.entity.geofence.report"],
                  "id":         "unique_example_id",
                  "referenceEntity": {"entityid":"11:22:33:44:55","entitydescription":"Front
Door"},
                  "entity": {"entityid":"66:77:88:99:00","entitydescription":"Uncle Jack"},
                  "ingeofence": false,
                  "accuracy": 0.5,
                  "geofenceRadius": 1.5,
                  "timestamp": "2018-05-05T13:13:13Z"
                },
              "schema": { "$ref": "#/definitions/GeofenceEntityReport" }
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.r", "oic.if.baseline"]
    }
  },
  "definitions": {
    "GeofenceEntityReport" : {
      "properties": {
        "rt" : {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.location.entity.geofence.report"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "ingeofence" :  {
          "description": "Indicates whether an entity is inside the Geofence",
          "readOnly": true,
          "type": "boolean"
        },
        "referenceentity" : {
          "properties": {
            "entitydescription": {
              "description": "Human readable description (non-unique)",
              "maxLength": 128,
              "type": "string"
            },
            "entityid": {
              "description": "Globally Unique Identifier for entity",
              "maxLength": 128,
              "type": "string"
            }
```

```
          },
          "type": "object"
        },
        "geofenceradius" :  {
          "description": "The radius of the geofence (metres).",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "entity" :  {
          "properties": {
            "entitydescription": {
              "description": "Human readable description (non-unique)",
              "maxLength": 128,
              "type": "string"
            },
            "entityid": {
              "description": "Globally Unique Identifier for entity",
              "maxLength": 128,
              "type": "string"
            }
          },
          "type": "object"
        },
        "n" : {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "timestamp" :   {
          "description": "An RFC3339 formated time indicating when the data was observed (e.g.:
2016-02-15T09:19Z)",
          "format": "date-time",
          "readOnly": true,
          "type": "string"
        },
        "accuracy" :  {
          "description": "The accuracy radius of any Geofence defined using this sensor.  68%
confidence that the reading is within the specified accuracy (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "measurementmethod" :  {
          "description": "Method by which position of an entity in the Geofence was determined if
known.  See Device Specification for valid values.",
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r"
            ],
            "type": "string"
          },
          "minItems": 1,
```

```
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object"
    }
  }
}
```

1.7.5 Property definition

Table 13The properties definitions of the resource with type 'rt' = GeofenceEntityReportResURI

Property name	Value type	Mandatory	Access mode	Description
ingeofence	boolean		Read Only	Indicates whether an entity is inside the Geofence
entity	object: see schema		Read Write	
if	array: see schema		Read Only	The interface set supported by this resource
accuracy	number		Read Only	The accuracy radius of any Geofence defined using this sensor. 68% confidence that the reading is within the specified accuracy (metres)
id	string		Read Only	Instance ID of this specific resource
timestamp	string		Read Only	An RFC3339 formated time indicating when the data was observed (e.g.: 2016-02-15T09:19Z)
referenceentity	object: see schema		Read Write	
geofenceradius	number		Read Only	

				The radius of the geofence (metres).
rt	array: see schema		Read Only	Resource Type
n	string		Read Only	Friendly name of the resource
measurementmethod	string		Read Write	Method by which position of an entity in the Geofence was determined if known. See Device Specification for valid values.

1.7.6 CRUDN behaviour

Table 14The CRUDN operations of the resource with type 'rt' = GeofenceEntityReportResURI

Resource	Create	Read	Update	Delete	Notify
/GeofenceEntityReportResURI		get			observe

1.8 Geofence Entity

1.8.1 Introduction

A Geofence Entity is a location services entity that contains information on the attributes of a geofence surrounding the reference entity.
Retrieves the representation of a Geofence Entity.

1.8.2 Example URI

/GeofenceEntityURI

1.8.3 Resource type

The resource type (rt) is defined as: ['oic.r.sensor.geofenceentity'].

1.8.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Geofence Entity",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
```

```
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/GeofenceEntityURI" : {
      "get": {
        "description": "A Geofence Entity is a location services entity that contains information
on the attributes of a geofence surrounding the reference entity.\nRetrieves the representation of
a Geofence Entity.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.sensor.geofenceentity"],
                  "id":         "unique_example_id",
                  "referenceentity": {"entityid":"11:22:33:44:55","entitydescription":"Front
Door"},
                  "ingeofence": false,
                  "accuracy": 0.5,
                  "geofenceRadius": 1.5
                },
              "schema": { "$ref": "#/definitions/GeofenceEntity" }
            }
        }
      },
      "post": {
        "description": "Sets the entity description.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"},
          {
            "name": "body",
            "in": "body",
            "required": true,
            "schema": { "$ref": "#/definitions/GeofenceEntity-Update" },
            "x-example":
              {
                "referenceEntity": {"entitydescription":"Garage Door"}
              }
          }
        ],
        "responses": {
            "200": {
              "description" : "Success path response code\n"
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
```

```
      "type" : "string",
      "enum" : ["oic.if.rw", "oic.if.baseline"]
    }
  },
  "definitions": {
    "GeofenceEntity" : {
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.location.entity.geofence"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "referenceentity" :  {
          "properties": {
            "entitydescription": {
              "description": "Human readable description (non-unique)",
              "maxLength": 128,
              "type": "string"
            },
            "entityid": {
              "description": "Globally Unique Identifier for entity",
              "maxLength": 128,
              "type": "string"
            }
          },
          "type": "object"
        },
        "geofenceradius" :  {
          "description": "The radius of the geofence (metres).",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "precision" :  {
          "description": "Accuracy granularity of the exposed radius",
          "readOnly": true,
          "type": "number"
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "range" :  {
          "description": "The valid range for the radius Property",
          "items": {
            "type": "number"
          },
          "maxItems": 2,
          "minItems": 2,
          "readOnly": true,
          "type": "array"
        },
        "step" :  {
          "type": "number",
          "description": "Step value across the defined range",
          "readOnly": true
        },
        "id" : {
```

```
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" : {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object"
    },
    "GeofenceEntity-Update" : {
      "properties": {
        "referenceentity": {
          "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
entity-update"
        }
      },
      "type": "object"
    }
  }
}
```

1.8.5 Property definition

Table 15The properties definitions of the resource with type 'rt' = GeofenceEntityURI

Property name	Value type	Mandatory	Access mode	Description
referenceentity	multiple types: see schema		Read Write	
rt	array: see schema		Read Only	Resource Type
step	number		Read Only	Step value across the defined range
range	array: see schema		Read Only	The valid range for the radius Property
n	string		Read Only	Friendly name of the resource
if	array: see schema		Read Only	The interface set supported by this resource

precision	number		Read Only	Accuracy granularity of the exposed radius
id	string		Read Only	Instance ID of this specific resource
referenceentity	object: see schema		Read Write	
geofenceradius	number		Read Only	The radius of the geofence (metres).

1.8.6 CRUDN behaviour

Table 16The CRUDN operations of the resource with type 'rt' = GeofenceEntityURI

Resource	Create	Read	Update	Delete	Notify
/GeofenceEntityURI		get	post		observe

1.9 Geofence

1.9.1 Introduction

This resource describes the properties associated with a geofence sensor.
See also oic.r.location.entity.geofence.
ingeofence is a boolean that indicates whether something is in or outside of this geofence.
accuracy is the accuracy radius of any geofence defined using this sensor.
measurementmethod is an indicator of how it is determined that an entity is inside this Geofence.
Retrieves the current Geofence information.

1.9.2 Example URI

/GeofenceResURI

1.9.3 Resource type

The resource type (rt) is defined as: ['oic.r.sensor.geofence'].

1.9.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Geofence",
    "version": "v1.0-2018",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
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Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
```

```
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/GeofenceResURI" : {
      "get": {
        "description": "This resource describes the properties associated with a geofence
sensor.\nSee also oic.r.location.entity.geofence.\ningeofence is a boolean that indicates whether
something is in or outside of this geofence.\naccuracy is the accuracy radius of any geofence
defined using this sensor.\nmeasurementmethod is an indicator of how it is determined that an
entity is inside this Geofence.\nRetrieves the current Geofence information.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.sensor.geofence"],
                  "id":         "unique_example_id",
                  "ingeofence":  true,
                  "accuracy": 5.0,
                  "measurementmethod": "gps"
                },
              "schema": { "$ref": "#/definitions/Geofence" }
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.s", "oic.if.baseline"]
    }
  },
  "definitions": {
    "Geofence" : {
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.sensor.geofence"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "ingeofence" :  {
          "description": "Indicates whether an entity is inside the Geofence",
          "readOnly": true,
          "type": "boolean"
        },
        "n" : {
```

```
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "accuracy" : {
          "description": "The accuracy radius of any Geofence defined using this sensor.  68%
confidence that the reading is within the specified accuracy (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "id" : {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "measurementmethod" :  {
          "description": "Method by which position of an entity in the Geofence was determined if
known.  See Device Specification for valid values.",
          "type": "string"
        },
        "if" : {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.s"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["ingeofence"]
    }
  }
}
```

1.9.5 Property definition

Table 17The properties definitions of the resource with type 'rt' = GeofenceResURI

Property name	Value type	Mandatory	Access mode	Description
n	string	No	Read Only	Friendly name of the resource
measurementmethod	string	No	Read Write	Method by which position of an entity in the Geofence was determined if known. See Device Specification for valid values.

id	string	No	Read Only	Instance ID of this specific resource
ingeofence	boolean	Yes	Read Only	Indicates whether an entity is inside the Geofence
if	array: see schema	No	Read Only	The interface set supported by this resource
accuracy	number	No	Read Only	The accuracy radius of any Geofence defined using this sensor. 68% confidence that the reading is within the specified accuracy (metres)
rt	array: see schema	No	Read Only	Resource Type

1.9.6 CRUDN behaviour

Table 18The CRUDN operations of the resource with type 'rt' = GeofenceResURI

Resource	Create	Read	Update	Delete	Notify
/GeofenceResURI		get			observe

1.10 Geolocation

1.10.1 Introduction

This resource describes the properties associated with the current geolocation coordinate.
Geolocation is a geolocation coordinate data.
Latitude is a device's current Latitude coordinate (degrees).
Longitude is a device's current Longitude coordinate (degrees).
Altitude is a device's current Altitude position (metres).
Accuracy is the accuracy level of the latitude and longitude coordinates (metres).
altitudeAccuracy is the accuracy level of the altitude coordinates (metres).
heading is a direction of travel of device (degree).
speed is a device's current velocity (metres per second).
timestamp is the time at which the last measurement was obtained.
Retrieves the current geolocation coordinates.

1.10.2 Example URI

/GeolocationResURI

1.10.3 Resource type

The resource type (rt) is defined as: ['oic.r.sensor.geolocation'].

1.10.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Geolocation",
    "version": "v1.1.0-20160519",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
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ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/GeolocationResURI" : {
      "get": {
        "description": "This resource describes the properties associated with the current
geolocation coordinate.\nGeolocation is a geolocation coordinate data.\nLatitude is a device's
current Latitude coordinate (degrees).\nLongitude is a device's current Longitude coordinate
(degrees).\nAltitude is a device's current Altitude position (metres).\nAccuracy is the accuracy
level of the latitude and longitude coordinates (metres).\naltitudeAccuracy is the accuracy level
of the altitude coordinates (metres).\nheading is a direction of travel of device (degree).\nspeed
is a device's current velocity (metres per second).\ntimestamp is the time at which the last
measurement was obtained.\nRetrieves the current geolocation coordinates.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.sensor.geolocation"],
                  "id":         "unique_example_id",
                  "latitude":  55.070859,
                  "longitude": -3.60512,
                  "alt": 12.07,
                  "accuracy": 65.0,
                  "altitudeAccuracy": 0.0,
                  "heading": 90.0,
                  "speed": 0.0,
                  "timestamp": "2018-05-05T13:13:13Z"
                },
              "schema": { "$ref": "#/definitions/Geolocation" }
            }
        }
```

```
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.s", "oic.if.baseline"]
    }
  },
  "definitions": {
    "Geolocation" : {
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.sensor.geolocation"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "timestamp" : {
          "description": "An RFC3339 formated time indicating when the data was observed (e.g.:
2016-02-15T09:19Z)",
          "format": "date-time",
          "readOnly": true,
          "type": "string"
        },
        "longitude" :  {
          "description": "Device's Current Longitude coordinate (degrees)",
          "readOnly": true,
          "type": "number"
        },
        "heading" :  {
          "description": "Direction of travel of device (degree)",
          "maximum": 360,
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "latitude" :  {
          "description": "Device's Current Latitude coordinate (degrees)",
          "readOnly": true,
          "type": "number"
        },
        "altitudeAccuracy" :  {
          "description": "The accuracy level of the altitude coordinates (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "alt" :  {
          "description": "The current height of the position (metres)",
          "readOnly": true,
          "type": "number"
        },
```

```
        "accuracy" : {
          "description": "The accuracy level of the latitude and longitude coordinates (metres)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "speed" :  {
          "description": "Device's current velocity (metres per second)",
          "minimum": 0,
          "readOnly": true,
          "type": "number"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "measurementmethod" : {
          "description": "Method by which position was determined if known.  See Device
Specification for valid values.",
          "type": "string"
        },
        "if" :  {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.s"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["latitude", "longitude", "alt"]
    }
  }
}
```

1.10.5 Property definition

Table 19The properties definitions of the resource with type 'rt' = GeolocationResURI

Property name	Value type	Mandatory	Access mode	Description
longitude	number	Yes	Read Only	Device's Current Longitude coordinate (degrees)
altitudeAccuracy	number	No	Read Only	The accuracy level of the altitude coordinates (metres)
n	string	No	Read Only	

				Friendly name of the resource
alt	number	Yes	Read Only	The current height of the position (metres)
rt	array: see schema	No	Read Only	Resource Type
accuracy	number	No	Read Only	The accuracy level of the latitude and longitude coordinates (metres)
speed	number	No	Read Only	Device's current velocity (metres per second)
latitude	number	Yes	Read Only	Device's Current Latitude coordinate (degrees)
measurementmethod	string	No	Read Write	Method by which position was determined if known. See Device Specification for valid values.
heading	number	No	Read Only	Direction of travel of device (degree)
if	array: see schema	No	Read Only	The interface set supported by this resource
timestamp	string	No	Read Only	An RFC3339 formated time indicating when the data was observed (e.g.: 2016-02-15T09:19Z)
id	string	No	Read Only	

				Instance ID of this specific resource

1.10.6 CRUDN behaviour

Table 20The CRUDN operations of the resource with type 'rt' = GeolocationResURI

Resource	Create	Read	Update	Delete	Notify
/GeolocationResURI		get			observe

1.11 $ref

1.11.1 Introduction

A Location Collection that contains instances of Position Entities
Retrieves the current position coordinates.

1.11.2 Example URI

/PositionCollectionResURI

1.11.3 Resource type

The resource type (rt) is defined as: ['oic.r.locationcollection'].

1.11.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Position Service",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/PositionCollectionResURI?if=oic.if.baseline" : {
      "get": {
        "description": "A Location Collection that contains instances of Position
Entities\nRetrieves the current position coordinates.\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
```

```
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt": ["oic.r.locationcollection"],
                  "id": "unique_example_id",
                  "supportedlocationservices": ["position"],
                  "links": [
                    {"href": "/entity1", "rt": ["oic.r.location.entity.position"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity2", "rt": ["oic.r.location.entity.position"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity3", "rt": ["oic.r.location.entity.position"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity4", "rt": ["oic.r.location.entity.position"], "if":
["oic.if.s","oic.if.baseline"]}
                  ]
                },
              "schema": { "$ref": "#/definitions/LocationCollection" }
            }
        }
      }
    }
  },
  "parameters": {
    "query-ed" : {
      "in" : "query",
      "name" : "entityDescription",
      "type" : "string"
    },
    "query-eid" : {
      "in" : "query",
      "name" : "entityId",
      "type" : "string"
    },
    "query-refeid" : {
      "in" : "query",
      "name" : "referenceEntityId",
      "type" : "string"
    },
    "query-refed" : {
      "in" : "query",
      "name" : "referenceEntityDescription",
      "type" : "string"
    },
    "interface-all" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.ll", "oic.if.baseline"]
    }
  },
  "definitions": {
    "oic.oic-link": {
      "properties": {
        "if": {
          "description": "The interface set supported by the linked resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r",
              "oic.if.rw"
            ],
            "type": "string"
          },
```

```
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
        },
        "rt": {
          "description": "Resource Type of the linked Resource",
          "items": {
            "type": "string"
          },
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
        },
        "anchor": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/anchor"
        },
        "di": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/di"
        },
        "eps": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/eps"
        },
        "href": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/href"
        },
        "ins": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/ins"
        },
        "p": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/p"
        },
        "rel": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/rel_array"
        },
        "title": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/title"
        },
        "type": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/type"
        }
      },
      "required": [
        "href",
        "rt",
        "if"
```

```
    ],
    "type": "object"
  },
  "LocationCollection" : {
    "properties": {
      "rt" :  {
        "items": {
          "enum": [
            "oic.r.locationcollection"
          ]
        },
        "minItems": 1,
        "type": "array",
        "uniqueItems": true
      },
      "supportedlocationservice" :  {
        "description": "Array of possible entities the device supports.",
        "items": {
          "enum": [
            "position"
          ]
        },
        "readOnly": true,
        "type": "array"
      },
      "links" :  {
        "type": "array",
        "description": "A set of simple or individual OIC Links.",
        "items": {
          "$ref": "#/definitions/oic.oic-link"
        },
        "minItems": 2,
        "maxItems": 2
      },
      "n" : {
        "description": "Friendly name of the resource",
        "maxLength": 64,
        "readOnly": true,
        "type": "string"
      },

      "rts" : {
        "items": {
          "enum": [
            "oic.r.location.entity.position",
            "oic.r.value.conditional"
          ]
        },
        "maxItems": 2,
        "minItems": 1,
        "type": "array",
        "uniqueItems": true
      },
      "id" :  {
        "description": "Instance ID of this specific resource",
        "maxLength": 64,
        "readOnly": true,
        "type": "string"
      },
      "if" :  {
        "description": "The interface set supported by this resource",
        "items": {
          "enum": [
            "oic.if.baseline",
            "oic.if.ll"
```

```
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["supportedlocationservice"]
    }
  }
}
```

1.11.5 Property definition

Table 21The properties definitions of the resource with type 'rt' = PositionCollectionResURI?if=oic.if.baseline

Property name	Value type	Mandatory	Access mode	Description
rts	array: see schema	No	Read Write	
id	string	No	Read Only	Instance ID of this specific resource
links	array: see schema	No	Read Write	A set of simple or individual OIC Links.
n	string	No	Read Only	Friendly name of the resource
rt	array: see schema	No	Read Write	
supportedlocationservice	array: see schema	Yes	Read Only	Array of possible entities the device supports.
if	array: see schema	No	Read Only	The interface set supported by this resource
ins	multiple types: see schema	No	Read Write	
di	multiple types: see schema	No	Read Write	
type	multiple types: see schema	No	Read Write	
if	array: see schema	Yes	Read Only	

				The interface set supported by the linked resource
eps	multiple types: see schema	No	Read Write	
anchor	multiple types: see schema	No	Read Write	
rt	array: see schema	Yes	Read Only	Resource Type of the linked Resource
p	multiple types: see schema	No	Read Write	
rel	multiple types: see schema	No	Read Write	
href	multiple types: see schema	Yes	Read Write	
title	multiple types: see schema	No	Read Write	

1.11.6 CRUDN behaviour

Table 22The CRUDN operations of the resource with type 'rt' = PositionCollectionResURI?if=oic.if.baseline

Resource	Create	Read	Update	Delete	Notify
/PositionCollectionResURI		get			observe

1.12 Position Entity

1.12.1 Introduction

This resource describes the position of the Entity using absolute or relative co-ordinates.
Origin is a label for the starting position of the coordinate data.
x is a device's x coordinate in a 3d graph (meters).
y is a device's y coordinate in a 3d graph (meters).
z is a device's z coordinate in a 3d Graph (meters).
Accuracy is the accuracy level of the x and y coordinates (meters within a 68% accuracy).
altitudeAccuracy is the accuracy level of the z coordinates (meters within a 68% accuracy).
Retrieves the representation of a position Entity

1.12.2 Example URI

/PositionEntityURI

1.12.3 Resource type

The resource type (rt) is defined as: ['oic.r.location.entity.position'].

1.12.4 Swagger 2.0 definition

```
{
  "swagger": "2.0",
  "info": {
    "title": "Position Entity",
    "version": "v1.0.0-20171205",
```

```
            "x-example":
              {
                "entitydescription":"Garage Door"
              }
          }
        ],
        "responses": {
            "200": {
              "description" : "Success path response code\n"
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.of.rw", "oic.if.baseline"]
    }
  },
  "definitions": {
    "PositionEntity" : {
      "allOf": [{
        "properties": {
          "rt" : {
            "description": "Resource Type",
            "items": {
              "enum": ["oic.r.location.entity.position"],
              "type": "string"
            },
            "minItems": 1,
            "readOnly": true,
            "type": "array"
          },
          "n" :  {
            "description": "Friendly name of the resource",
            "maxLength": 64,
            "readOnly": true,
            "type": "string"
          },
          "entitydescription" :  {
            "description": "Human readable description (non-unique)",
            "maxLength": 128,
            "type": "string"
          },
          "entityid" :  {
            "description": "Globally Unique Identifier for entity",
            "maxLength": 128,
            "type": "string"
          },
          "id" :  {
            "description": "Instance ID of this specific resource",
            "maxLength": 64,
            "readOnly": true,
            "type": "string"
          },
          "if" : {
            "description": "The interface set supported by this resource",
            "items": {
              "enum": [
                "oic.if.baseline",
                "oic.if.r"
              ],
```

```
              "type": "string"
            },
            "minItems": 1,
            "readOnly": true,
            "type": "array"
          }
        },
        "type" : "object"
      },
      {
        "anyOf": [
          {
            "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/PositionResURI.swagger.json#/definition
s/Position"
          },
          {
            "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/GeolocationResURI.swagger.json#/definit
ions/Geolocation"

          }
        ]
      }]
    },
    "PositionEntity-Update" : {
      "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
entity-update"
    }
  }
}
```

1.12.5 Property definition

Table 23The properties definitions of the resource with type 'rt' = PositionEntityURI

Property name	Value type	Mandatory	Access mode	Description
id	string		Read Only	Instance ID of this specific resource
entitydescription	string		Read Write	Human readable description (non-unique)
n	string		Read Only	Friendly name of the resource
entityid	string		Read Write	Globally Unique Identifier for entity
if	array: see schema		Read Only	The interface set supported by this resource

rt	array: see schema		Read Only	Resource Type

1.12.6 CRUDN behaviour

Table 24The CRUDN operations of the resource with type 'rt' = PositionEntityURI

Resource	Create	Read	Update	Delete	Notify
/PositionEntityURI		get	post		observe

1.13 Position

1.13.1 Introduction

This resource describes the properties associated with the current position of a Device.
This can be represented either using geolocation (GPS) or via [x,y,z] co-ordinates in a defined 3D space.
See also oic.r.geolocation.
origin is a description of the [0,0,0] point.
x is the current X coordinate (metres from origin).
y is the current Y coordinate (metres from origin).
z is the current Z coordinate (metres from origin).
Accuracy is the accuracy level of the x and y coordinates (metres).
altitudeAccuracy is the accuracy level of the z coordinates (metres).
measurementmethod is an indicator of how the position was derived.
timestamp is the time at which the last measurement was obtained.
Retrieves the current position.

1.13.2 Example URI

/PositionResURI

1.13.3 Resource type

The resource type (rt) is defined as: ['oic.r.sensor.position'].

1.13.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Position",
    "version": "v1.0-2018",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
```

```
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/PositionResURI" : {
      "get": {
        "description": "This resource describes the properties associated with the current position
of a Device.\nThis can be represented either using geolocation (GPS) or via [x,y,z] co-ordinates in
a defined 3D space.\nSee also oic.r.geolocation.\norigin is a description of the [0,0,0] point.\nx
is the current X coordinate (metres from origin).\ny is the current Y coordinate (metres from
origin).\nz is the current Z coordinate (metres from origin).\nAccuracy is the accuracy level of
the x and y coordinates (metres).\naltitudeAccuracy is the accuracy level of the z coordinates
(metres).\nmeasurementmethod is an indicator of how the position was derived.\ntimestamp is the
time at which the last measurement was obtained.\nRetrieves the current position.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":         ["oic.r.sensor.position"],
                  "id":         "unique_example_id",
                  "origin": "Home",
                  "x":  55.070859,
                  "y": -3.60512,
                  "z": 12.07,
                  "accuracy": 0.5,
                  "altitudeAccuracy": 0.2,
                  "measurementmethod": "wifi"
                }
                ,
              "schema": { "$ref": "#/definitions/Position" }
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.s", "oic.if.baseline"]
    }
  },
  "definitions": {
    "Position" : {
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.sensor.position"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "origin": {
          "type": "string",
          "maxLength": 128,
          "readOnly": true
        },
```

```
        "x": {
          "type": "number",
          "readOnly": true,
          "description": "Device's Current x coordinate (metres)"
        },
        "y": {
          "type": "number",
          "readOnly": true,
          "description": "Device's Current y coordinate (metres)"
        },
        "z": {
          "type": "number",
          "readOnly": true,
          "description": "Device's Current z coordinate (metres)"
        },
        "accuracy": {
          "type": "number",
          "minimum": 0,
          "readOnly": true,
          "description": "The accuracy level of the x and y coordinates (metres)"
        },
        "altitudeAccuracy": {
          "type": "number",
          "minimum": 0,
          "readOnly": true,
          "description": "The accuracy level of the altitude coordinates (metres)"
        },
        "timestamp" :   {
          "description": "An RFC3339 formated time indicating when the data was observed (e.g.:
2016-02-15T09:19Z)",
          "format": "date-time",
          "readOnly": true,
          "type": "string"
        },
        "measurementmethod": {
          "type": "string",
          "description": "Method by which position was determined if known.  See Device
Specification for valid values."
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" : {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.s"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
```

```
      "type" : "object"
    }
  }
}
```

1.13.5 Property definition

Table 25The properties definitions of the resource with type 'rt' = PositionResURI

Property name	Value type	Mandatory	Access mode	Description
z	number		Read Only	Device's Current z coordinate (metres)
altitudeAccuracy	number		Read Only	The accuracy level of the altitude coordinates (metres)
if	array: see schema		Read Only	The interface set supported by this resource
accuracy	number		Read Only	The accuracy level of the x and y coordinates (metres)
origin	string		Read Only	
y	number		Read Only	Device's Current y coordinate (metres)
rt	array: see schema		Read Only	Resource Type
n	string		Read Only	Friendly name of the resource
id	string		Read Only	Instance ID of this specific resource
x	number		Read Only	Device's Current x coordinate (metres)

timestamp	string		Read Only	An RFC3339 formated time indicating when the data was observed (e.g.: 2016-02-15T09:19Z)
measurementmethod	string		Read Write	Method by which position was determined if known. See Device Specification for valid values.

1.13.6 CRUDN behaviour

Table 26The CRUDN operations of the resource with type 'rt' = PositionResURI

Resource	Create	Read	Update	Delete	Notify
/PositionResURI		get			observe

1.14 Presence Entity

1.14.1 Introduction

A Presence Entity is a location service entity that describes whether or not the given entities presence is detected
Retrieves the representation of a presence Entity

1.14.2 Example URI

/PresenceEntityURI

1.14.3 Resource type

The resource type (rt) is defined as: ['oic.r.location.entity.presence'].

1.14.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Presence Entity",
    "version": "v1.0.0-20171205",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
```

```
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/PresenceEntityURI" : {
      "get": {
        "description": "A Presence Entity is a location service entity that describes whether or
not the given entities presence is detected\nRetrieves the representation of a presence Entity\n",
        "parameters": [
          {"$ref": "#/parameters/interface"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                    "rt":     ["oic.r.location.entity.presence"],
                    "id":     "unique_example_id",
                    "entityid": "00:11:22:33",
                    "entitydescription": "Mom",
                    "value": true,
                    "timestamp":  "2015-11-05T14:30:15Z"
                },
              "schema": { "$ref": "#/definitions/PresenceEntity" }
            }
          }
        },
      "post": {
        "description": "Sets the entity description.\n",
        "parameters": [
          {"$ref": "#/parameters/interface"},
          {
            "name": "body",
            "in": "body",
            "required": true,
            "schema": { "$ref": "#/definitions/PresenceEntity-Update" },
            "x-example":
              {
                "entitydescription":"Dad"
              }
          }
        ],
        "responses": {
            "200": {
              "description" : "Success path response code\n"
            }
        }
      }
    }
  },
  "parameters": {
    "interface" : {
      "in" : "query",
      "name" : "if",
      "type" : "string",
      "enum" : ["oic.if.rw", "oic.if.baseline"]
    }
  },
  "definitions": {
    "PresenceEntity" : {
```

```
      "properties": {
        "rt" :  {
          "description": "Resource Type",
          "items": {
            "enum": ["oic.r.location.entity.presence"],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        },
        "value": {
          "description": "Indicator of the detection (true) or otherwise (false) of presence",
          "type": "boolean",
          "readOnly": true
        },
        "timestamp" :  {
          "description": "An RFC3339 formated time indicating when the data was observed (e.g.:
2016-02-15T09:19Z)",
          "format": "date-time",
          "readOnly": true,
          "type": "string"
        },
        "n" :  {
          "description": "Friendly name of the resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "entitydescription" :  {
          "description": "Human readable description (non-unique)",
          "maxLength": 128,
          "type": "string"
        },
        "entityid" : {
          "description": "Globally Unique Identifier for entity",
          "maxLength": 128,
          "type": "string"
        },
        "id" :  {
          "description": "Instance ID of this specific resource",
          "maxLength": 64,
          "readOnly": true,
          "type": "string"
        },
        "if" : {
          "description": "The interface set supported by this resource",
          "items": {
            "enum": [
              "oic.if.baseline",
              "oic.if.r"
            ],
            "type": "string"
          },
          "minItems": 1,
          "readOnly": true,
          "type": "array"
        }
      },
      "type" : "object",
      "required": ["value"]
    },
    "PresenceEntity-Update" : {
      "$ref":
"https://openconnectivityfoundation.github.io/IoTDataModels/EntityResURI.swagger.json#/definitions/
```

```
entity-update"
    }
  }
}
```

1.14.5 Property definition

Table 27The properties definitions of the resource with type 'rt' = PresenceEntityURI

Property name	Value type	Mandatory	Access mode	Description
id	string	No	Read Only	Instance ID of this specific resource
entityid	string	No	Read Write	Globally Unique Identifier for entity
n	string	No	Read Only	Friendly name of the resource
value	boolean	Yes	Read Only	Indicator of the detection (true) or otherwise (false) of presence
if	array: see schema	No	Read Only	The interface set supported by this resource
rt	array: see schema	No	Read Only	Resource Type
entitydescription	string	No	Read Write	Human readable description (non-unique)
timestamp	string	No	Read Only	An RFC3339 formated time indicating when the data was observed (e.g.: 2016-02-15T09:19Z)

1.14.6 CRUDN behaviour

Table 28The CRUDN operations of the resource with type 'rt' = PresenceEntityURI

Resource	Create	Read	Update	Delete	Notify
/PresenceEntityURI		get	post		observe

1.15 Presence Service

1.15.1 Introduction

Collection of Presence Entities.
Retrieves the the Presence Entities matching the query paramters
The query parameters are a regular expressions. A match occurs when both the entityId and the entityDescription matches

1.15.2 Example URI

/PresenceServiceResURI

1.15.3 Resource type

The resource type (rt) is defined as: ['oic.r.locationcollection'].

1.15.4 Swagger 2.0 definition


```
{
  "swagger": "2.0",
  "info": {
    "title": "Presence Service",
    "version": "v1.0.0-20170604",
    "license": {
      "name": "copyright 2016-2017 Open Connectivity Foundation, Inc. All rights reserved.",
      "x-description": "Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:\n        1.
Redistributions of source code must retain the above copyright notice, this list of conditions and
the following disclaimer.\n        2.  Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.\n\n        THIS SOFTWARE IS PROVIDED BY THE Open
Connectivity Foundation, INC. \"AS IS\" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR
WARRANTIES OF NON-INFRINGEMENT, ARE DISCLAIMED.\n        IN NO EVENT SHALL THE Open Connectivity
Foundation, INC. OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)\n        HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.\n"
    }
  },
  "schemes": ["http"],
  "consumes": ["application/json"],
  "produces": ["application/json"],
  "paths": {
    "/PresenceServiceResURI?if=oic.if.baseline" : {
      "get": {
        "description": "Collection of Presence Entities.\nRetrieves the the Presence Entities
matching the query paramters\nThe query parameters are a regular expressions. A match occurs
when\nboth the entityId and the entityDescription matches\n",
        "parameters": [
          {"$ref": "#/parameters/interface-all"}
        ],
        "responses": {
            "200": {
              "description" : "",
              "x-example":
                {
                  "rt":   ["oic.r.locationcollection"],
                  "id":   "unique_example_id",
                  "supportedlocationservices": ["presence"],
                  "links": [
                    {"href": "/entity1", "rt": ["oic.r.location.entity.presence"], "if":
```

```
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity2", "rt": ["oic.r.location.entity.presence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity3", "rt": ["oic.r.location.entity.presence"], "if":
["oic.if.s","oic.if.baseline"]},
                    {"href": "/entity4", "rt": ["oic.r.location.entity.presence"], "if":
["oic.if.s","oic.if.baseline"]}
                  ]
                },
              "schema": { "$ref": "#/definitions/LocationCollection" }
            }
          }
        }
      }
    },
    "parameters": {
      "query-ed" : {
        "in" : "query",
        "name" : "entityDescription",
        "type" : "string"
      },
      "query-eid" : {
        "in" : "query",
        "name" : "entityId",
        "type" : "string"
      },
      "query-refeid" : {
        "in" : "query",
        "name" : "referenceEntityId",
        "type" : "string"
      },
      "query-refed" : {
        "in" : "query",
        "name" : "referenceEntityDescription",
        "type" : "string"
      },
      "interface-all" : {
        "in" : "query",
        "name" : "if",
        "type" : "string",
        "enum" : ["oic.if.ll", "oic.if.baseline"]
      }
    },
    "definitions": {
      "oic.oic-link": {
        "properties": {
          "if": {
            "description": "The interface set supported by the linked resource",
            "items": {
              "enum": [
                "oic.if.baseline",
                "oic.if.r",
                "oic.if.rw"
              ],
              "type": "string"
            },
            "minItems": 1,
            "uniqueItems": true,
            "readOnly": true,
            "type": "array"
          },
          "rt": {
            "description": "Resource Type of the linked Resource",
            "items": {
              "type": "string"
```

```
          },
          "minItems": 1,
          "uniqueItems": true,
          "readOnly": true,
          "type": "array"
        },
        "anchor": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/anchor"
        },
        "di": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/di"
        },
        "eps": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/eps"
        },
        "href": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/href"
        },
        "ins": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/ins"
        },
        "p": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/p"
        },
        "rel": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/rel_array"
        },
        "title": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/title"
        },
        "type": {
          "$ref":
"https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
schema.json#/definitions/type"
        }
      },
      "required": [
        "href",
        "rt",
        "if"
      ],
      "type": "object"
    },
    "LocationCollection" : {
      "properties": {
        "rt" :  {
          "items": {
            "enum": [
              "oic.r.locationcollection"
```

```
          ]
        },
        "minItems": 1,
        "type": "array",
        "uniqueItems": true
      },
      "supportedlocationservice" : {
        "description": "Array of possible entities the device supports.",
        "items": {
          "enum": [
            "presence"
          ]
        },
        "readOnly": true,
        "type": "array"
      },
      "links" : {
        "type": "array",
        "items": {
          "$ref": "#/definitions/oic.oic-link"
        },
        "minItems": 2,
        "maxItems": 2
      },
      "n" :  {
        "description": "Friendly name of the resource",
        "maxLength": 64,
        "readOnly": true,
        "type": "string"
      },
      "rts" : {
        "items": {
          "enum": [
            "oic.r.location.entity.presence",
            "oic.r.value.conditional"
          ]
        },
        "maxItems": 2,
        "minItems": 1,
        "type": "array",
        "uniqueItems": true
      },
      "id" :  {
        "description": "Instance ID of this specific resource",
        "maxLength": 64,
        "readOnly": true,
        "type": "string"
      },
      "if" :  {
        "description": "The interface set supported by this resource",
        "items": {
          "enum": [
            "oic.if.baseline",
            "oic.if.ll"
          ],
          "type": "string"
        },
        "minItems": 1,
        "readOnly": true,
        "type": "array"
      }
    },
    "type" : "object",
    "required": ["supportedlocationservice"]
  }
```

```
  }
}
```

1.15.5 Property definition

Table 29The properties definitions of the resource with type 'rt' = PresenceServiceResURI?if=oic.if.baseline

Property name	Value type	Mandatory	Access mode	Description
rts	array: see schema	No	Read Write	
n	string	No	Read Only	Friendly name of the resource
rt	array: see schema	No	Read Write	
supportedlocationservice	array: see schema	Yes	Read Only	Array of possible entities the device supports.
links	array: see schema	No	Read Write	
id	string	No	Read Only	Instance ID of this specific resource
if	array: see schema	No	Read Only	The interface set supported by this resource
title	multiple types: see schema	No	Read Write	
di	multiple types: see schema	No	Read Write	
rel	multiple types: see schema	No	Read Write	
rt	array: see schema	Yes	Read Only	Resource Type of the linked Resource
anchor	multiple types: see schema	No	Read Write	
if	array: see schema	Yes	Read Only	The interface set supported by the linked resource
ins	multiple types: see schema	No	Read Write	

p	multiple types: see schema	No	Read Write	
eps	multiple types: see schema	No	Read Write	
href	multiple types: see schema	Yes	Read Write	
type	multiple types: see schema	No	Read Write	

1.15.6 CRUDN behaviour

Table 30The CRUDN operations of the resource with type 'rt' = PresenceServiceResURI?if=oic.if.baseline

Resource	Create	Read	Update	Delete	Notify
/PresenceServiceResURI		get			observe