

**OCF “Essen” – New OCF Interface for CREATE operation – Core Technology WG CR  
1229**

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## OCF Interface methods

### 6.6.2.1 Overview

OCF Interface methods shall not violate the defined OpenAPI 2.0 definitions for the Resources as defined in Annex D.

The defined OCF Interfaces are listed in Table 8:

**Table 8 – OCF standard OCF Interfaces**

OCF Interface	Name	Applicable Operations	Description
baseline	"oic.if.baseline"	RETRIEVE, NOTIFY, UPDATE	The baseline OCF Interface defines a view into all Properties of a Resource including the Meta Properties. This OCF Interface is used to operate on the full Representation of a Resource.
links list	"oic.if.ll"	RETRIEVE, NOTIFY	The links list OCF Interface provides a view into Links in a Collection (Resource). Since Links represent relationships to other Resources, the links list OCF Interfaces may be used to discover Resources with respect to a context. The discovery is done by retrieving Links to these Resources. For example: the Core Resource "/oic/res" uses this OCF Interface to allow discovery of Resource hosted on a Device.
batch	"oic.if.b"	RETRIEVE, NOTIFY, UPDATE	The batch OCF Interface is used to interact with a Collection of Resources at the same time. This also removes the need for the Client to first discover the Resources it is manipulating – the Server forwards the requests and aggregates the responses
read-only	"oic.if.r"	RETRIEVE NOTIFY	The read-only OCF Interface exposes the Properties of a Resource that may be read. This OCF Interface does not provide methods to update Properties, so can only be used to read Property Values.
read-write	"oic.if.rw"	RETRIEVE, NOTIFY, UPDATE	The read-write OCF Interface exposes only those Properties that may be read from a Resource during a RETRIEVE operation and only those Properties that may be written to a Resource during and UPDATE operation.
actuator	"oic.if.a"	RETRIEVE, NOTIFY, UPDATE	The actuator OCF Interface is used to read or write the Properties of an actuator Resource.
sensor	"oic.if.s"	RETRIEVE, NOTIFY	The sensor OCF Interface is used to read the Properties of a sensor Resource.
create	"oic.if.create"	RETRIEVE, CREATE, NOTIFY	The create OCF Interface is used to create new Resources in a Collection. Both the Resource and the Link pointing to it are created in a single atomic operation.

**<Clauses 7.6.3.2 – 7.6.3.8 are unchanged>**

### 6.6.2.9 Create OCF Interface

#### 6.6.2.9.1 Overview

The create OCF Interface is used to create Resource instances in a Collection. An instance of a Resource and the Link pointing to the Resource are created together, atomically, according to a Client-supplied representation. The create OCF Interface name is "oic.if.create". A Collection which exposes the "oic.if.create" OCF Interface shall expose the "rts" Property (see

clause 7.8.2.5) with all Resource Types that can be hosted with the Collection. If a Client attempts to create a Resource Type which is not supported by the Collection, the Server shall return an appropriate error status code, for example "Bad Request". Successful CREATE operations shall return a success code, i.e. "Created". The IDD for all allowed Resource Types that may be created shall adhere to Introspection for dynamic Resources (see clause 11.8).

#### 6.6.2.9.2 Data format for CREATE

The data format for the create OCF Interface is similar to the data format for the batch OCF Interface. The create OCF Interface format consists of a set of Link Parameters and a "rep" Parameter which contains a representation for the created Resource.

The representation supplied for the Link pointing to the newly created Resource shall contain at least the "rt" and "if" Link Parameters.

The Link Parameter "p" should be included in representations supplied for all created Resources. If the "Discoverable" bit is set, then the supplied Link representation shall be exposed in "/oic/res" of the Device on which the Resource is being created. The Link Parameters representation in the "/oic/res" Resource does not have to mirror the Link Parameters in the Collection of the created Resource (e.g., "ins" Parameter).

Creating a discoverable Resource is the only way to add a Link to "/oic/res".

If the "p" Parameter is not included, the Server shall create the Resource using the default settings of not discoverable, and not observable.

The representation supplied for a created Resource in the value of the "rep" Parameter shall contain all mandatory Properties required by the Resource Type to be created excluding the Common Properties "rt" and "if" as they are already included in the create payload.

Note that the "rt" and "if" Property Values are created from the supplied Link Parameters of the Resource creation payload.

If the supplied representation does not contain all of the required Properties and Link Parameters, the Server shall return an appropriate error status code, for example "Bad Request".

An example of the create OCF Interface payload is as illustrated:

```
{
  "rt": ["oic.r.temperature"],
  "if": ["oic.if.a", "oic.if.baseline"],
  "p": {"bm": 3},
  "rep": {
    "temperature": 20
  }
}
```

The representation returned when a Resource is successfully created shall contain the "href", "if", and "rt" Link Parameters and all other Link Parameters that were included in the CREATE operation. In addition, the "rep" Link Parameter shall include all Resource Properties as well as the "rt" and "if" Link Parameters supplied in the CREATE operation. The Server may include additional Link Parameters and Properties in the created Resource as required by the application-specific Resource Type. The Server shall assign an "ins" value to each created Link and shall include the "ins" Parameter in the representation of each created Link as illustrated in the Collection that the Link of the created Resource was created within:

```
{
  "href": "/3755f3ac",
  "rt": ["oic.r.temperature"],
```

```
"if": ["oic.if.a", "oic.if.baseline"],
"ins": 39724818,
"p": {"bm": 3},
"rep": {
  "rt": ["oic.r.temperature"],
  "if": ["oic.if.a", "oic.if.baseline"],
  "temperature": 20
}
}
```

The Link Parameters representation in the "/oic/res" Resource, if the created Resource is discoverable, may not mirror exactly all the Link Parameters added in the Collection; except it shall expose at a minimum the mandatory Properties of the Link (i.e., "rt", "if", and "href") of the created Resource.

#### 6.6.2.9.3 Use with CREATE

The CREATE operation shall be sent to the URI of the Collection in which the Resource is to be created. The query string "?if=oic.if.create" shall be included in all CREATE operations.

The Server shall generate a URI for the created Resource and include the URI in the "href" Parameter of the created Link.

When a Server successfully completes a CREATE operation using the "oic.if.create" OCF Interface addressing a Collection, the Server shall automatically modify the ACL Resource to provide initial authorizations for accessing for the newly created Resource according to ISO/IEC 30118-2:2018.

An example performing a CREATE operation is as illustrated:

```
CREATE /scenes/scenel?if=oic.if.create
{
  "rt": ["oic.r.temperature"],
  "if": ["oic.if.a", "oic.if.baseline"],
  "p": {"bm": 3},
  "rep": {
    "temperature": 20
  }
}
Response: Created
Payload:
{
  "href": "/3755f3ac",
  "ins": 39724818,
  "rt": ["oic.r.temperature"],
  "if": ["oic.if.a", "oic.if.baseline"],
  "p": {"bm": 3},
  "rep": {
    "rt": ["oic.r.temperature"],
    "if": ["oic.if.a", "oic.if.baseline"],
    "temperature": 20
  }
}
```

#### 6.6.2.9.4 Use with NOTIFY

The NOTIFY operation (clause 11.4) may be used with the create OCF Interface. A successful NOTIFY operation shall return a status code indicating success with an empty payload, i.e. "Valid". Notifications sent to observers shall only be sent as a result of successful CREATE operations. Notifications on the create OCF Interface shall contain the required payload for the CREATE response as defined in 7.6.3.9.3. A successful NOTIFY shall return a success status

code, i.e. "Created". An example performing a NOTIFY operation using the create OCF Interface is as illustrated:

```
NOTIFY /scenes/scenel?if=oic.if.create
Response: Valid
Payload: (empty)
```

➔ Later when a Resource is created:

```
Response: Created
Payload:
{
  "href": "/3755f3ac",
  "ins": 39724818
  "rt": ["oic.r.temperature"],
  "if": ["oic.if.a","oic.if.baseline"],
  "p": {"bm":3},
  "rep": {
    "rt": ["oic.r.temperature"],
    "if": ["oic.if.a","oic.if.baseline"],
    "temperature": 20
  }
}
```

#### 6.6.2.9.5 Use with RETRIEVE

The RETRIEVE operation is allowed with the create OCF Interface. A successful RETRIEVE operation shall return a status code indicating success with an empty payload, i.e. "Valid").

#### 6.6.2.9.6 Use with UPDATE and DELETE

The UPDATE and DELETE operations are not allowed by the create OCF Interface. Attempts to perform UPDATE or DELETE operations using the create OCF Interface shall return an appropriate error status code, for example "Method Not Allowed", unless the UPDATE and CREATE operations map to the same transport binding method (e.g., CoAP with the POST method). In that situation where the UPDATE and CREATE operations map to the same transport binding method, this shall be processed as a CREATE operation according to clause 7.6.3.9.3.

### 12.2.7 CRUDN to CoAP response codes

The mapping of CRUDN operations response codes to CoAP response codes are identical to the response codes defined in IETF RFC 7252. When that mapping results in a 2.03 ("Valid"), the response may not include an Etag.