# Synchronization GE SceneAPI v1 Specification

DATE: 14 September 2015

This version:

http://realxtend.github.io/fiware-synchronization/api/v1.0

Latest version:

http://realxtend.github.io/fiware-synchronization/api/latest

## **Editors**

1. Lasse Öörni, LudoCraft Ltd.

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## **Abstract**

The SceneAPI in the Synchronization GE provides a RESTful API for querying and modifying Entity-Component-Attribute formatted scene data. The scene data is communicated via XML.

For a description of the Entity-Component-Attribute data model, see [Scene and EC model] (https://github.com/realXtend/tundra/wiki/Scene-and-EC-Model).

## **REST API**

## Status of this document

Final version of the SceneAPI.

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## **API** Specification

## Scene

he resources	ınclude	scene	entities,	which	contain	components,	which	contain	attributes

### **Entities** [/entities]

The collection of all entities in the scene.

#### Retrieve Data of All Entities - GET /entities

The entities' data, including their components and attributes is returned in XML format.

Response 200 (application/xml)

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entities/retrieve-

data-of-all-entities)

#### Retrieve an Entity by Name - GET /entities?name={entity\_name}

Using the query syntax, search for an entity by name. The entity's data and the components it contains + their attributes are returned as XML.

Response 200 (application/xml)

Response 404

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entities/retrieve-

an-entity-by-name)

#### Create a New Entity - POST /entities

The POST request body may contain XML-serialized data to be put inside the entity (components & their attribute values). If omitted, an empty entity is created. A free ID is assigned to the new entity and its data is returned as XML.

Response 200 (application/xml)

Response 400

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entities/create-a-

new-entity)

## Entity [/entities/{entity\_id}]

Represents a single entity in the scene. In addition to the components it contains, each entity

has an integer ID and a temporary flag, which means whether or not to persist it when the scene is saved on the server.

#### Retrieve Data of an Entity - GET /entities/{entity\_id}

The entity's data and the components it contains + their attributes are returned as XML.

Response 200 (application/xml)

Response 404

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entity/retrieve-

data-of-an-entity)

#### Create a New Entity with a Specified ID - POST /entities/{entity\_id}

The POST request body may contain XML data to be put inside the entity (components & their attribute values). If omitted, an empty entity is created. If there is an ID conflict with an existing entity, another free ID is chosen. The entity's data is returned as XML.

Response 200 (application/xml)

Response 400

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entity/create-a-

new-entity-with-a-specified-id)

#### <u>Set Entity's Component Data - PUT /entities/{entity\_id}</u>

The entity with the specified ID must already exist in the scene. Its new components and their attribute data are to be contained in the PUT request body as XML. All existing components in the entity will be deleted and replaced with those contained in the request body. The entity's new data is returned as XML.

Response 200 (application/xml)

Response 400

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entity/set-

entity's-component-data)

Delete an Entity - DELETE /entities/{entity\_id}

Response 200
Response 400
Go to example
View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/entity/delete-an-entity)

## Component [/entities/{entity\_id}/{component\_type}]

Components within an entity are identified by their type name, for example Placeable, Name or Script. They may also be temporary, which is indicated by a boolean.

Retrieve Data of a Component - GET /entities/{entity\_id}/{component\_type}

Returns the component's data as XML.

Response 200 (application/xml)

Response 404

Go to example

View in Apiary

(http://docs.sceneapi.apiary.io/#reference/scene/component/retrieve-data-of-a-

component)

#### <u>Create a New Component Into an Entity - POST</u> /<u>entities</u>/<u>{entity id}</u>/<u>{component type}</u>

The POST request body may contain initial attribute values as XML to be put into the created component. If omitted, the attributes will have default values. The component's new data is returned as XML.

**Response 200** (application/xml)

Response 400

Go to example

View in Apiary

(http://docs.sceneapi.apiary.io/#reference/scene/component/create-a-new-

component-into-an-entity)

## <u>Set New Attribute Values Into a Component - PUT /entities/{entity\_id}/{component\_type}</u>

The attribute values are to be contained inside the PUT request body as XML. The component's new data is returned as XML.

Response 200 (application/xml)

Response 400

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/component/setnew-attribute-values-into-a-component)

#### <u>Set New Attribute Value Into a Component - PUT</u> /entities/{entity\_id}/{component\_type}?{attribute\_name}={new\_attribute\_value}

Set a single attribute inside a component to a new value using the query syntax. The component's new data is returned as XML.

Response 200

Response 400

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/component/setnew-attribute-value-into-a-component)

#### <u>Delete a Component From an Entity - DELETE</u> /<u>entities</u>/<u>entity id}</u>/<u>(component type)</u>

Response 200

Response 400

Go to example

View in Apiary

(http://docs.sceneapi.apiary.io/#reference/scene/component/delete-a-

component-from-an-entity)

## Attribute [/entities/{entity\_id}/{component\_type}/{attribute\_name}]

Attributes are typed values (for example integer, boolean, 3-dimensional vector) inside the component, identified by their names.

Retrieve the Value of an Attribute - GET /entities/{entity\_id}/{component\_type}/{attribute\_name}

The value is returned as text.

Response 200 (text/plain)

Response 404

Go to example

View in Apiary (http://docs.sceneapi.apiary.io/#reference/scene/attribute/retrieve-

the-value-of-an-attribute)

## **Examples**

#### Scene

## Entities [/entities] Retrieve Data of All Entities - GET /entities Response 200 (application/xml) Headers Content-Type: application/xml Body <scene> <entity temporary="false" id="1" sync="true"> <component temporary="false" typeId="5" type="Script" sync="true"> <attribute value="avatarmenu.js" type="AssetReferenceList" id="scriptRef" name= "Script ref"/> <attribute value="true" type="bool" id="runOnLoad" name="Run on load"/> <attribute value="0" type="int" id="runMode" name="Run mode"/> <a tribute value="" type="string" id="applicationName" name="Script application n <attribute value="" type="string" id="className" name="Script class name"/> </component> <component temporary="false" typeId="26" type="Name" sync="true">

```
<attribute value="AvatarMenu" type="string" id="name" name="Name"/>
 <attribute value="" type="string" id="description" name="Description"/>
 <attribute value="" type="string" id="group" name="Group"/>
 </component>
</entity>
<entity temporary="false" id="2" sync="true">
 <component temporary="false" typeId="5" type="Script" sync="true">
 <a tribute value="avatarapplication.js;simpleavatar.js;exampleavataraddon.js" type
="AssetReferenceList" id="scriptRef" name="Script ref"/>
 <attribute value="true" type="bool" id="runOnLoad" name="Run on load"/>
 <attribute value="0" type="int" id="runMode" name="Run mode"/>
 <a tribute value="AvatarApp" type="string" id="applicationName" name="Script ap
plication name"/>
 <a tribute value="" type="string" id="className" name="Script class name"/>
 </component>
 <component temporary="false" typeId="26" type="Name" sync="true">
 <attribute value="AvatarApp" type="string" id="name" name="Name"/>
 <attribute value="" type="string" id="description" name="Description"/>
 <attribute value="" type="string" id="group" name="Group"/>
 </component>
</entity>
</scene>
```

#### Go to specification

#### Retrieve an Entity by Name - GET /entities?name={entity name}

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

Response 404

Go to specification

Create a New Entity - POST /entities

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

<entity temporary="false" id="1" sync="true"/>

Response 400

#### Entity [/entities/{entity\_id}]

Go to specification

#### Retrieve Data of an Entity - GET /entities/{entity\_id}

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

```
<entity temporary="false" id="1" sync="true">
<component temporary="false" typeId="5" type="Script" sync="true">
 <a tribute value="avatarmenu.js" type="AssetReferenceList" id="scriptRef" name="
Script ref"/>
 <attribute value="true" type="bool" id="runOnLoad" name="Run on load"/>
 <attribute value="0" type="int" id="runMode" name="Run mode"/>
 <a tribute value="" type="string id="applicationName" name="Script application na
me"/>
 <attribute value="" type="string" id="className" name="Script class name"/>
</component>
<component temporary="false" typeId="26" type="Name" sync="true">
 <attribute value="AvatarMenu" type="string" id="name" name="Name"/>
 <attribute value="" type="string" id="description" name="Description"/>
 <attribute value="" type="string" id="group" name="Group"/>
</component>
</entity>
```

Response 404

Go to specification

#### Create a New Entity with a Specified ID - POST /entities/{entity\_id}

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

```
<entity temporary="false" id="10" sync="true"/>
```

Response 400

Go to specification

#### Set Entity's Component Data - PUT /entities/{entity\_id}

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

```
<entity temporary="false" id="1" sync="true">
<component temporary="false" typeId="20" type="Placeable" sync="true">
 <attribute
value="0.000000,50.000000,0.000000,0.000000,0.000000,1.000000,1.000000,1.0
00000" type="Transform" id="transform" name="Transform"/>
 <attribute value="false" type="bool" id="drawDebug" name="Show bounding box"/
 <attribute value="true" type="bool" id="visible" name="Visible"/>
 <attribute value="1" type="int" id="selectionLayer" name="Selection layer"/>
 <attribute value="" type="EntityReference" id="parentRef" name="Parent entity ref"/
 <attribute value="" type="string" id="parentBone" name="Parent bone name"/>
</component>
<component temporary="false" typeId="26" type="Name" sync="true">
 <attribute value="NewName" type="string" id="name" name="Name"/>
 <attribute value="" type="string" id="description" name="Description"/>
 <attribute value="" type="string" id="group" name="Group"/>
</component>
```

</entity> Response 400 Go to specification Delete an Entity - DELETE /entities/{entity\_id} Response 200 Response 400 Go to specification Component [/entities/{entity\_id}/{component\_type}] Retrieve Data of a Component - GET /entities/{entity\_id}/{component\_type} Response 200 (application/xml) Headers Content-Type: application/xml Body <component temporary="false" typeId="5" type="Script" sync="true"> <attribute value="avatarmenu.js" type="AssetReferenceList" id="scriptRef" name="

```
<component temporary="false" typeId="5" type="Script" sync="true">
  <attribute value="avatarmenu.js" type="AssetReferenceList" id="scriptRef" name="
Script ref"/>
  <attribute value="true" type="bool" id="runOnLoad" name="Run on load"/>
  <attribute value="0" type="int" id="runMode" name="Run mode"/>
  <attribute value="" type="string" id="applicationName" name="Script application name"/>
  <attribute value="" type="string" id="className" name="Script class name"/>
  </component>
```

Response 404

Go to specification

<u>Create a New Component Into an Entity - POST</u> /<u>entities/{entity\_id}/{component\_type}</u>

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

Response 400

Go to specification

## <u>Set New Attribute Values Into a Component - PUT /entities/{entity\_id}/{component\_type}</u>

Response 200 (application/xml)

Headers

Content-Type: application/xml

Body

```
<component temporary="false" typeld="20" type="Placeable" sync="true">
    <attribute
value="0.000000,50.000000,0.000000,0.000000,0.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.000000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1.00000,1
```

Response 400

Go to specification

## Set New Attribute Value Into a Component - PUT <u>/entities/{entity\_id}/{component\_type}?{attribute\_name}={new\_attribute\_value}</u> Response 200 Body <component temporary="false" typeId="20" type="Placeable" sync="true"> <attribute 00000" type="Transform" id="transform" name="Transform"/> <attribute value="false" type="bool" id="drawDebug" name="Show bounding box"/> <attribute value="true" type="bool" id="visible" name="Visible"/> <attribute value="1" type="int" id="selectionLayer" name="Selection layer"/> <attribute value="" type="EntityReference" id="parentRef" name="Parent entity ref"/ <attribute value="" type="string" id="parentBone" name="Parent bone name"/> </component> Response 400 Go to specification Delete a Component From an Entity - DELETE /entities/{entity\_id}/{component\_type} Response 200 Response 400 Go to specification Attribute [/entities/{entity\_id}/{component\_type}/{attribute\_name}] Retrieve the Value of an Attribute - GET /entities/{entity\_id}/{component\_type}/{attribute\_name} Response 200 (text/plain) Headers Content-Type: text/plain Body 0.000000, 50.000000, 0.000000, 0.000000, 0.000000, 0.000000, 1.000000, 1.000000, 1.000000

Response 404