ARE REST API

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RESTful API

To allow remote connection with the AsTeRICS Runtime Environment, the ARE RESTful API was developed. It allows manipulation of resources through a set of HTTP methods such as GET, POST, PUT and DELETE.

The API uses HTTP status codes to declare an error in a call. Specifically, when an error occurs, the response will contain a 500 HTTP status code (Internal Server Error) with an ARE-produced error message inside the HTTP response body.

The figure in the next page describes these methods and provides the necessary information in order to call them.

HTTP Method	Resource	Parameters	Consumes	Produces	Description
GET	/runtime/model	-	-	XML	Returns the currently deployed model in XML
PUT	/runtime/model	modelInXML (in body)	XML	TEXT	Deploys the model given as a parameter
PUT	/runtime/model/{filename}	filename	-	TEXT	Deploys the model contained in the given filename
PUT	/runtime/model/state/{state}	state	-	TEXT	Changes the state of the deployed model to STARTED, PAUSED, STOPPED
GET	/runtime/model/state	-	-	TEXT	Returns the state of the deployed model
PUT	/runtime/model/autorun/{filename}	filename	-	TEXT	Deploys and starts the model in the given filename
GET	/runtime/model/components	-	-	JSON	Returns all the components contained in the currently deployed model
GET	/runtime/model/components/{componentId}	componentId	-	JSON	Returns all property keys of the component with the given componentId in the currently deployed model
GET	/runtime/model/components/{componentId}/{componentKey}	componentId componentKey	-	TEXT	Returns property value of a specific component, in the currently deployed model
PUT	/ runtime/model/components/{componentId}/{componentKey}	componentId componentKey value (in body)	TEXT	TEXT	Changes a property value of a specific component, in the currently deployed model
GET	/storage/models/{filename}	filename	-	XML	Returns an xml representation of a model in a specific file
POST	/storage/models/{filename}	filename modelInXML (in body)	XML	TEXT	Stores a model in the given filename
DELETE	/storage/models/{filename}	filename	-	TEXT	Deletes the model with the given filename
GET	/storage/models	-	-	JSON	Returns a list with all the model that are saved in the ARE repository
GET	/restfunctions	-	-	JSON	Returns a list with all the available rest functions

RESTful API libraries

To provide easier RESTful API accessibility, communication libraries were created that simplify the whole procedure.

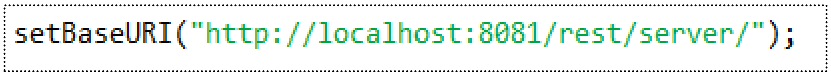
The JavaScript library

To install the JavaScript library in a webpage you have to:

1) Import the ‘ARECommunicator.js’ file in your page.

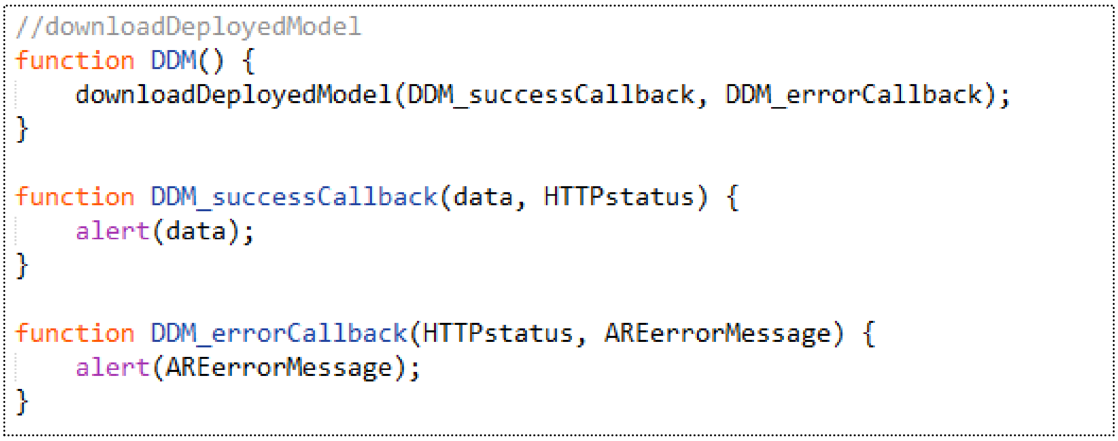
2) Import a script that provides jQuery functionality.

Before you start calling the ARE functions, you have to set the baseURI which is the URI where ARE runs at:



```
setBaseURI("http://localhost:8081/rest/server/");
```

To call any REST function, you have to provide two callback functions: a successCallback and an errorCallback such as the example below



```
//downloadDeployedModel
function DDM() {
    downloadDeployedModel(DDM_successCallback, DDM_errorCallback);
}

function DDM_successCallback(data, HTTPstatus) {
    alert(data);
}

function DDM_errorCallback(HTTPstatus, AREerrorMessage) {
    alert(AREerrorMessage);
}
```

In the next page you can find an array that describes each method that is contained in the library.

Function Signature	**Description**
downloadDeployedModel(**sCB1**, eCB)	Retrieves the currently deployed model in XML
uploadModel(**sCB1**, eCB, modelinXML)	Deploys the model given as a parameter
deployModelFromFile(**sCB1**, eCB, filename)	Deploys the model contained in the given filename

startModel(**sCB1**, eCB)
stopModel(**sCB1**, eCB)
pauseMolel(**sCB1**, eCB)
	Changes the state of the deployed model to STARTED, PAUSED, STOPPED

getModelState(**sCB1**, eCB)	Retrieves the state of the deployed model
autorun(**CB1**, eCB, filename)	Deploys and starts the model in the given filename
downloadComponentCollection(**sCB1**, eCB)	Retrieves all the components contained in the currently deployed model
getComponentPropertyKeys(**sCB2**, eCB, componentId)	Retrieves all property keys of the component with the given componentId in the currently deployed model
getComponentProperty(**sCB1**, eCB, componentId, componentKey)	Retrieves property value of a specific component, in the currently deployed model
setComponentProperty(**sCB1**, eCB, componentId, componentKey, value)	Changes a property value of a specific component, in the currently deployed model
downloadModelFromFile(**sCB1**, eCB, filename)	Retrieves an xml representation of a model in a specific file
storeModel(**sCB1**, eCB, filename, modelinXML)	Stores a model in the given filename
deleteModelFromFile(**sCB1**, eCB, filename)	Deletes the model with the given filename
listStoredModels(**sCB2**, eCB)	Retrieves a list with all the model that are saved in the ARE repository
getRestFunctions(**sCB2**, eCB)	Retrieves an array with all the available rest function information

sCB1: successCallback(textData, HTTPstatus)

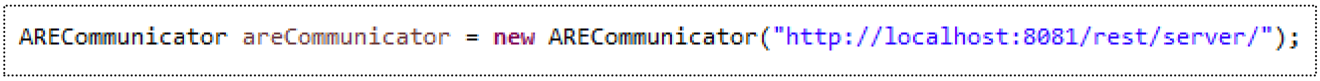
sCB2: successCallback(array, HTTPstatus)

eCB: errorCallback(HTTPstatus, AREerrorMessage)

The Java library

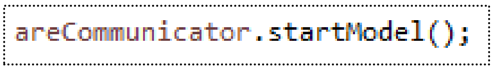
To use the JAVA framework in your code, you have to import the ‘ARECommunicator.jar’ file. When you do this, the procedure of communicating with ARE is reduced in plain calls of Java methods of an object.

As with JavaScript framework, you must first set the baseURI:



```
ARECommunicator areCommunicator = new ARECommunicator("http://localhost:8081/rest/server/");
```

when this is done, you can call any method:



```
areCommunicator.startModel();
```

In the next page you can find an array that describes each method that is contained in the library.

Function Signature	**Description**
String downloadDeployedModel()	Retrieves the currently deployed model in XML
String uploadModel(**String** modelinXML)	Deploys the model given as a parameter
String deployModelFromFile(**String** filename)	Deploys the model contained in the given filename
String startModel() **String** stopModel() **String** pauseModel()	Changes the state of the deployed model to STARTED, PAUSED, STOPPED
String getModelState()	Retrieves the state of the deployed model
String autorun(**String** filename)	Deploys and starts the model in the given filename
String[] downloadComponentCollection()	Retrieves all the components contained in the currently deployed model
String[] getComponentPropertyKeys(**String** componentId)	Retrieves all property keys of the component with the given componentId in the currently deployed model
String getComponentProperty(**String** componentId, **String** componentKey)	Retrieves property value of a specific component, in the currently deployed model
String setComponentProperty(**String** componentId, **String** componentKey, **String** value)	Changes a property value of a specific component, in the currently deployed model
String downloadModelFromFile(**String** filename)	Retrieves an xml representation of a model in a specific file
String storeModel(**String** filename**, String** modelinXML)	Stores a model in the given filename
String deleteModelFromFile(**String** filename)	Deletes the model with the given filename
String[] listStoredModels()	Retrieves a list with all the model that are saved in the ARE repository
ArrayList<RestFunction> functions()	Retrieves a list with all the available rest functions