Mohamed Sellami, Sami Yangui, Mohamed Mohamed and Samir Tata (Telecom SudParis)
June 7, 2013
Updated: July 19, 2013

Open Cloud Computing Interface - Application

Status of this Document

Draft - In progress work.

Abstract

This document provides information regarding our proposed Open Cloud Computing Interface- Application resources extension.

Contents

1 Introduction

2 Application

The OCCI Application document details how the OCCI core meta-model can be extended to model a cloud Application resources. The current extension also uses platform resources defined in the OCCI Platform extension [1].

OCCI Application defines the following Resource and Link sub-types : Environment, Application, Deployable and EnvironmentLink.

Figure 1 details an overview of the application types and their connection with the OCCI core entities.

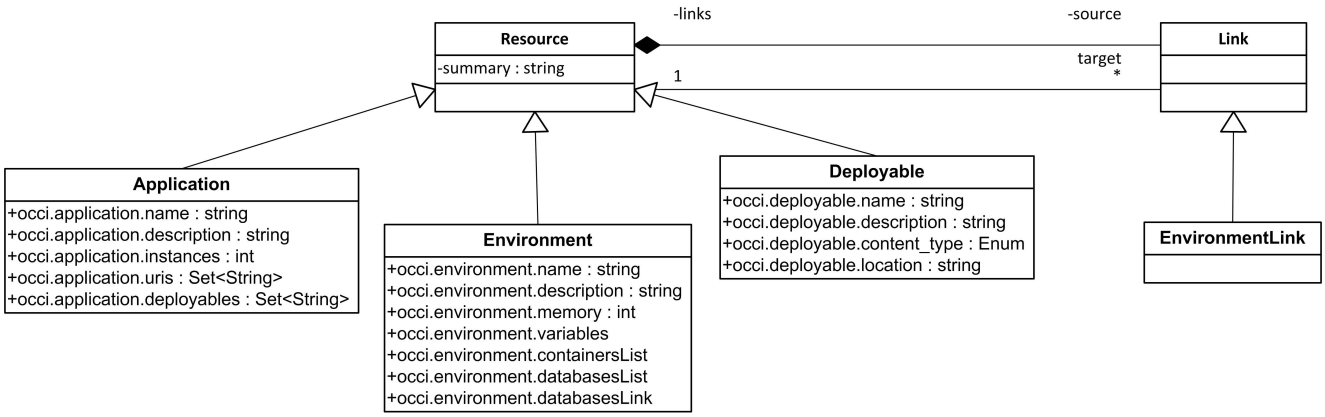

Figure 1. Overview Diagram of OCCI Application Types.

2.1 Environment

The Environment type represents a set of "settings" needed to host and run an application: i.e. the needed runtime (java 7, java 6, ruby, etc.), the needed frameworks/containers (spring, tomcat, ruby, etc.) and possible needed services (databases, messaging, etc.). Environment inherits the Resource base type defined in OCCI Core Model [2].

Table 1. Attributes defined for the Environment type.

Attribute	Type	Multi-plicity	Mutability	Description
occi.environment.name	String	0...1	Mutable	Label associated to the instance.
occi.environment.description	String	0...1	Mutable	Human readable description of the instance.
oocci.environment.memory	Float, 10^9 (GiB)	0...1	Mutable	RAM in gigabytes allocated to the instance.
occi.environment.variables	Set of (var,value)	1	Mutable	Environment variables associated to the instance.
occi.environment.containersList	Set of URIs	0...1	Mutable	Set of URIs of Container instances associated to the instance (see OCCI Platform [1]).
occi.environment.databasesList	Set of URIs	0...1	Mutable	Set of URIs of Database instances associated to the instance (see OCCI Platform [1]).
occi.environment.databasesLink	Set of URIs	0...1	Mutable	Set of URIs of DatabaseLink instances associated to the instance (see OCCI Platform [1]).
occi.environment.state	Enum {available, unavailable}	1	Immutable	Current state of the instance.

Table 1 describes the OCCI Attributes [2] defined by Environment through its Kind instance.

Table 2 describes the Actions defined for Environment by its Kind instance. These Actions are exposed by an instance of the Environment type of an OCCI implementation.

Table 2. Actions applicable to instances of the Environment type.

Action Term	Target state	Attributes
update	None	–

2.2 Application

The Application type represents any computer software or program that can be deployed on top of a Platform (i.e PaaS). Application inherits the Resource base type defined in OCCI Core Model [2].

Table 3. Attributes defined for the Application type.

Attribute	Type	Multiplicity	Mutability	Description
occi.application.name	String	0...1	Mutable	Label associated to the instance.
occi.application.description	String	0...1	Mutable	Human readable description of the instance.
oocci.application.instances	Integer	1...N	Mutable	Number of application instances.
occi.application.url	String	0...1	Mutable	The public URL associated to the instance.
occi.application.deployables	Set of URIs	0...1	Mutable	Set of URIs of Deployable instances associated to the instance (see Section 2.3).
occi.application.state	Enum {started, stopped}	1	Immutable	Current state of the instance.

Table 3 describes the OCCI Attributes defined by Application through its Kind instance.

Table 4 describes the Actions defined for Application by its Kind instance. These Actions are exposed by an instance of the Application type of an OCCI implementation.

Table 4. Actions applicable to instances of the Application type.

Action Term	Target state	Attributes
update	None	–
start	started	–
stop	stopped	–
restart	started	–

2.3 Deployable

The Deployable type represents the application deployable (e.g. artifact, source files, etc.). Deployable inherits the Resource base type defined in OCCI Core Model.

Table 5. Attributes defined for the Deployable type.

Attribute	Type	Multiplicity	Mutability	Description
occi.deployable.name	String	0...1	Mutable	The name of the deployable file associated to the instance.
occi.deployable.description	String	0...1	Mutable	Human readable description of the instance.
occi.deployable.content_type	Enum {artifact, war, ear, jar}	0...1	Mutable	Type of the artifact associated to the instance.
occi.deployable.location	String	0...1	Mutable	Location of the artifact associated to the instance. It can be a file path or a logical Name.
occi.deployable.state	Enum {unavailable, available}	1	Immutable	Current state of the instance.

Table 5 describes the OCCI Attributes defined by Deployable through its Kind instance.

Table 6 describes the Actions defined for Deployable by its Kind instance. These Actions are exposed by an instance of the Deployable type of an OCCI implementation.

Table 6. Actions applicable to instances of the Deployable type.

Action Term	Target state	Attributes
update	None	–

2.4 Linking Application Resources

In order to create an operational application, one must : (1) link the previously defined Resources and (2) link them to Resources from the platform layer as defined in the OCCI Platform extension [1].

2.4.1 Linking to Environment

The EnvironmentLink represents a link from an Application instance to a target Environment instance. An EnvironmentLink between an application instance app1 and an environment instance *env1* implies that *app1* is **deployed** on top of the environment *env1*.

2.4.2 Linking to

TODO: How to link environment instances to Platform instances?

3 Contributors

We would like to thank the following people who contributed to this document:

Name	Affiliation	Contact

References

[1] S. Yangui, M. Mohamed, M. Sellami, and S. Tata, "Open Cloud Computing Interface – Platform," Mai 2013. [Online]. Available:

[2] R. Nyrén, A. Edmonds, A. Papaspyrou, and T. Metsch, "Open Cloud Computing Interface – Core," GFD-P-R.183, April 2011. [Online]. Available: http://ogf.org/documents/GFD.183.pdf