

# OCCI Infrastructure Extension

SPIRALS

August 22, 2017

# 1 OCCI infrastructure extension

<b>Name</b>	infrastructure
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Specification</b>	<a href="https://www.ogf.org/documents/GFD.224.pdf">https://www.ogf.org/documents/GFD.224.pdf</a>

## 1.1 Description

OCCI Infrastructure Model

## 1.2 Imported OCCI extensions

<b>Name</b>	core
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a>

## 1.3 Specification

The specification of OCCI Infrastructure extension is available here: <https://www.ogf.org/documents/GFD.224.pdf>.

## 1.4 Kinds

### 1.4.1 Network kind

<b>Name</b>	Network
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	Network Resource
<b>Parent</b>	Resource ( <a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a> )

- Network attributes

Attribute	Type	Required	Mutable	Default	Description
occi.network.vlan	Vlan	false	true		802.1q VLAN Identifier (e.g., 343)
occi.network.label	Token	false	true		Tag based VLANs (e.g., external-dmz)
occi.network.state	NetworkStatus	true	false	inactive	Current state of the instance
occi.network.state.message	String	false	false		Human-readable explanation of the current instance state

- Network actions

– **Scheme:** <http://schemas.ogf.org/occi/infrastructure/network/action#>

Term	Attributes	Title
up		Up a network.
down		Down a network.

### 1.4.2 Compute kind

<b>Name</b>	Compute
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	Compute Resource
<b>Parent</b>	Resource ( <a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a> )

- Compute attributes

Attribute	Type	Required	Mutable	Default	Description
occi.compute.architecture	Architecture	false	true		CPU Architecture of the instance
occi.compute.cores	Core	false	true		Number of CPU cores assigned to the instance
occi.compute.hostname	String	false	true		Fully Qualified DNS host-name for the instance
occi.compute.share	Share	false	true		Relative number of CPU shares for the instance
occi.compute.speed	GHz	false	true		CPU Clock frequency (speed) in gigahertz
occi.compute.memory	GiB	false	true		Maximum RAM in gigabytes allocated to the instance
occi.compute.state	ComputeStatus	true	false	inactive	Current state of the instance
occi.compute.state.message	String	false	false		Human-readable explanation of the current instance state

- **Compute actions**

- **Scheme:** <http://schemas.ogf.org/occi/infrastructure/compute/action#>

Term	Attributes	Title
start		Start the system
stop	method StopMethod	Stop the system (graceful, acpioff or poweroff)
restart	method RestartMethod	Restart the system (graceful, warm or cold)
suspend	method SuspendMethod	Suspend the system (hibernate or in RAM)
save	method SaveMethod , name String	Save the system (hot, deferred)

### 1.4.3 Storage kind

<b>Name</b>	Storage
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	Storage Resource
<b>Parent</b>	Resource ( <a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a> )

- **Storage attributes**

Attribute	Type	Required	Mutable	Default	Description
occi.storage.size	GiB	true	true		Storage size of the instance in gigabytes
occi.storage.state	StorageStatus	true	false		Current status of the instance
occi.storage.state.message	String	false	false		Human-readable explanation of the current instance state

- **Storage actions**

- **Scheme:** <http://schemas.ogf.org/occi/infrastructure/storage/action#>

Term	Attributes	Title
online		Set storage online
offline		Set storage offline

### 1.4.4 StorageLink kind

<b>Name</b>	StorageLink
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	StorageLink Link
<b>Parent</b>	Link ( <a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a> )

- **StorageLink attributes**

Attribute	Type	Required	Mutable	Default	Description
occi.storagelink.deviceid	String	true	true		Device identifier as defined by the OCCI service provider
occi.storagelink.mountpoint	String	false	true		Point to where the storage is mounted in the guest OS
occi.storagelink.state	StorageLinkStatus	true	false		Current status of the instance
occi.storagelink.state.message	String	false	false		Human-readable explanation of the current instance state

#### 1.4.5 NetworkInterface kind

<b>Name</b>	NetworkInterface
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	NetworkInterface Link
<b>Parent</b>	Link ( <a href="http://schemas.ogf.org/occi/core#">http://schemas.ogf.org/occi/core#</a> )

- **NetworkInterface attributes**

Attribute	Type	Required	Mutable	Default	Description
occi.networkinterface.interface	String	true	false		Identifier that relates the link to the link's device interface
occi.networkinterface.mac	Mac	true	true		MAC address associated with the link's device interface
occi.networkinterface.state	NetworkInterfaceStatus	true	false		Current status of the instance
occi.networkinterface.state.message	String	false	false		Human-readable explanation of the current instance state

## 1.5 Mixins

### 1.5.1 IpNetwork mixin

<b>Name</b>	IpNetwork
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure/network#">http://schemas.ogf.org/occi/infrastructure/network#</a>
<b>Title</b>	An IP Networking Mixin

**Applies to:**

- Network (<http://schemas.ogf.org/occi/infrastructure#>)

- **IpNetwork attributes**

Attribute	Type	Required	Mutable	Default	Description
occi.network.address	IpAddressRange	false	true		Internet Protocol (IP) network address (e.g., 192.168.0.1/24, fc00::/7)
occi.network.gateway	IpAddress	false	true		Internet Protocol (IP) network address (e.g., 192.168.0.1, fc00::)
occi.network.allocation	Allocation	false	true		Address allocation mechanism: dynamic e.g., uses the dynamic host configuration protocol, static e.g., uses user supplied static network configurations

### 1.5.2 IpNetworkInterface mixin

<b>Name</b>	IpNetworkInterface
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure/networkinterface#">http://schemas.ogf.org/occi/infrastructure/networkinterface#</a>
<b>Title</b>	IP NetworkInterface Mixin

Applies to:

- NetworkInterface (<http://schemas.ogf.org/occi/infrastructure#>)
- **IpNetworkInterface attributes**

Attribute	Type	Required	Mutable	Default	Description
occi.networkinterface.address	IpAddress	true	true		Internet Protocol (IP) network address (e.g., 192.168.0.1/24, fc00::/7) of the link
occi.networkinterface.gateway	IpAddress	false	true		Internet Protocol (IP) network address (e.g., 192.168.0.1/24, fc00::/7)
occi.networkinterface.allocation	Allocation	true	true		Address mechanism: dynamic e.g., uses the dynamic host configuration protocol, static e.g., uses user supplied static network configurations

### 1.5.3 Os\_Tpl mixin

<b>Name</b>	Os_Tpl
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	OS Template

Applies to:

- Compute (<http://schemas.ogf.org/occi/infrastructure#>)

### 1.5.4 Resource\_Tpl mixin

<b>Name</b>	Resource_Tpl
<b>Scheme</b>	<a href="http://schemas.ogf.org/occi/infrastructure#">http://schemas.ogf.org/occi/infrastructure#</a>
<b>Title</b>	Resource template

Applies to:

- Resource (<http://schemas.ogf.org/occi/core#>)

### 1.5.5 SSH\_key mixin

<b>Name</b>	SSH_key
<b>Scheme</b>	http://schemas.ogf.org/occi/infrastructure/credentials#
<b>Title</b>	Credentials Mixin

Applies to:

- Compute (<http://schemas.ogf.org/occi/infrastructure#>)
- SSH\_key attributes

Attribute	Type	Required	Mutable	Default	Description
occi.credentials.ssh.publickey	String	true	true		The contents of the public key file to be injected into the Compute Resource

### 1.5.6 User\_Data mixin

<b>Name</b>	User_Data
<b>Scheme</b>	http://schemas.ogf.org/occi/infrastructure/compute#
<b>Title</b>	Contextualization Mixin

Applies to:

- Compute (<http://schemas.ogf.org/occi/infrastructure#>)
- User\_Data attributes

Attribute	Type	Required	Mutable	Default	Description
occi.compute.userdata	String	true	false		Contextualization data (e.g., script, executable) that the client supplies once and only once. It cannot be updated

## 1.6 Types

### 1.6.1 SuspendMethod type

Literals

- hibernate
- suspend

### 1.6.2 Vlan type

- **Basic type:** Integer
- **minInclusive:** 0
- **maxInclusive:** 4095

### 1.6.3 Token type

- **Basic type:** String

### 1.6.4 NetworkStatus type

Literals

- active
- inactive
- error

### 1.6.5 ComputeStatus type

#### Literals

- active
- inactive
- suspended
- error

### 1.6.6 NetworkInterfaceStatus type

#### Literals

- active
- inactive
- error

### 1.6.7 Architecture type

#### Literals

- x86
- x64

### 1.6.8 StopMethod type

#### Literals

- graceful
- acpioff
- poweroff

### 1.6.9 RestartMethod type

#### Literals

- graceful
- warm
- cold

### 1.6.10 IPAddress type

- Basic type: String

### 1.6.11 Allocation type

#### Literals

- dynamic
- static

### 1.6.12 StorageStatus type

#### Literals

- online
- offline
- error

### 1.6.13 StorageLinkStatus type

#### Literals

- active
- inactive
- error

### 1.6.14 Core type

- **Basic type:** Integer
- **minExclusive:** 0

### 1.6.15 GHz type

- **Basic type:** Float
- **minExclusive:** 0

### 1.6.16 GiB type

- **Basic type:** Float
- **minExclusive:** 0

### 1.6.17 IpAddressRange type

- **Basic type:** String

### 1.6.18 Mac type

- **Basic type:** String

### 1.6.19 Share type

- **Basic type:** Integer
- **minInclusive:** 0

### 1.6.20 SaveMethod type

#### Literals

- hot : hot documentation
- deferred