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# OCCI Infrastructure

OCCI Infrastructure defines three kinds and various extensions relating to management of cloud infrastructure services (IaaS).

**Table 1. Common Attributes**

Attribute	Type	Description	Mandatory/Optional
OCCI-Infrastructure-Hostname	String	Valid DNS hostname for the resource (may be FQDN)	Mandatory

## Kinds

Cloud infrastructure can be modeled using three primary kinds: `compute`, `network` and `storage`.

**Table 2. Kinds**

Kind	URI	Description	Mandatory/Optional
<code>compute</code>	<code>http://purl.org/occi/kind/compute</code>	Information processing resources	Mandatory
<code>network</code>	<code>http://purl.org/occi/kind/network</code>	Interconnection resources	Mandatory
<code>storage</code>	<code>http://purl.org/occi/kind/storage</code>	Recorded information resources	Mandatory

## Compute

A compute resource is capable of conducting computations (e.g. a virtual machine).

**Table 3. Compute Attributes**

Attribute	Type	Description	Mandatory/Optional
OCCI-Compute-CPU-Arch	Enum (x86, x64)	CPU Architecture (e.g. x64)	Mandatory
OCCI-Compute-CPU-Cores	Integer	Number of CPU cores (e.g. 1, 2)	Mandatory
OCCI-Compute-CPU-Speed	Float (10 <sup>9</sup> Hertz)	Clock speed in gigahertz (e.g. 2.4)	Mandatory
OCCI-Compute-Memory-Size	Float (10 <sup>6</sup> bytes)	RAM in megabytes (e.g. 8192)	Mandatory
OCCI-Compute-Memory-Speed	Float (10 <sup>9</sup> bytes/second)	RAM speed in Gbit/s (e.g. 17 for PC-8500 DDR3 per Wikipedia)	Optional
OCCI-Compute-Memory-Reliability	Enum (standard, checksum)	Qualitative measure of RAM reliability (e.g. ECC)	Optional

## Network

A network resource is capable of transferring data (e.g. a virtual network or VLAN).

**Table 4. Network Attributes**

Attribute	Type	Description	Mandatory/Optional
OCCI-Net-work-VLAN	Integer (0..4095)	802.1q VLAN ID (e.g. 4095)	Optional
OCCI-Network-Label	Token	Tag based VLANs (e.g. external-dmz)	Optional
OCCI-Network-Address	IPv4 or IPv6 Address (in CIDR notation)	IP gateway address or network address where there is none (e.g. 192.168.0.1/24, 2001:db8:a::123/64)	Mandatory
OCCI-Network-Allocation	Enum (auto, dhcp, manual)	Address allocation mechanism: <ul style="list-style-type: none"> <li>• auto is handled automatically by infrastructure and/or guest agent</li> <li>• dhcp uses network-based allocation protocol(s)</li> <li>• manual requires preconfiguration or manual allocation</li> </ul>	Mandatory

*TODO: Tidy up network interface addressing.*

## Storage

A storage resource is capable of mass storage of data (e.g. a virtual hard drive).

**Table 5. Storage Attributes**

Attribute	Type	Description	Mandatory/Optional
storage.retention-duration	Time	The duration the storage instance is retained after deletion	Optional
storage.capacity	Integer plus "IEC60027-2 unit prefix"	Maximum size of the storage resource.	Mandatory
storage.size	Integer plus "IEC60027-2 unit prefix"	Size of the storage resource capacity in use.	Mandatory
storage.status	Enum (Online, Offline, Standby, Degraded)	The current operating status of the storage resource	Optional
storage.class	Enum (Volatile, Main-tained)	The operating class of storage	Mandatory

## Extensions

Various extensions provide for more advanced management functionality such as billing, monitoring and reporting.

## Bibliography

Normative References

Informative References

[Wikipedia] *Wikipedia: List of device bandwidths.* [http://en.wikipedia.org/wiki/List\\_of\\_device\\_bandwidths..](http://en.wikipedia.org/wiki/List_of_device_bandwidths..)