

EOSC Technical Specification

Cloud IaaS VM Management

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DELIVERY SLIP



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TERMINOLOGY

<https://wiki.eosc-hub.eu/display/EOSC/EOSC-hub+Glossary>

Terminology/Acronym	Definition

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Introduction

Services of Cloud IaaS VM Management provide on-demand API-based access to computing resources as Virtual Machines that can run user-defined arbitrary software (including operating systems and applications). Services in this category also allow management of block storage that

can be associated to the VMs and network management to provide connectivity between VMs and external networks.

Adopted standards

Standard	Short description	References
Open Virtualization Format (OVF)	Packaging format for software solutions based on virtual systems (VM image format)	OVF 2.1.1

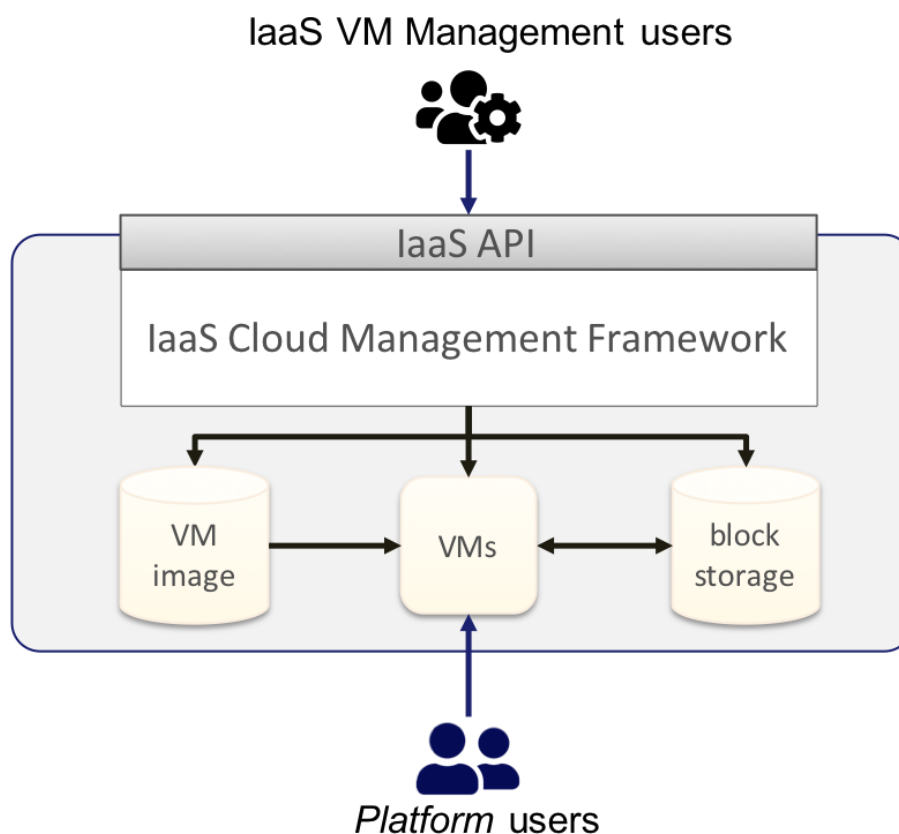
There are several competing APIs for this block, most of them proprietary / closed and not interoperable. The main standards in the area ([OGF OCCl](#) and [DMTF CIMl](#)) have little support from vendors and/or providers and have little use. The table below lists some of the APIs implemented by IaaS providers, but it's not meant to be an exhaustive list.

Protocol/API	Short description	References
OpenStack	OpenStack is an Open Source cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed and provisioned through APIs with common authentication mechanisms.	OpenStack API
Amazon EC2/EBS/VPS & AWS VPN	Amazon Elastic Compute Cloud (EC2), Elastic Block Storage (EBS), Virtual Private Cloud (VPS) and AWS Virtual Private Network (AWS VPN) provide management of Virtual Machines and associated block storage and network features	AWS EC2 API
Azure Virtual Machines/Disks/VNet	IaaS VM management services from Microsoft Azure	Azure Virtual Machines API
Google Cloud Compute Engine	IaaS VM management service from Google Cloud Platform	Google Cloud Compute Engine API

High-level Service Architecture

IaaS VM Management services allow users to manage VMs that are instantiated from VM images and can be associated with permanent block storage. The VMs can execute any kind of workload,

including new services or platforms that are accessed by *platform* users, which may be different from the IaaS VM Management users that manage the IaaS resources.



Interoperability guidelines

Technical interoperability guidelines

Interoperable service in this category must:

- **Provide API access** for on-demand management of VMs and associated resources. Open and/or Standard APIs are preferred. Services that provide the capability to manage VMs through graphical dashboards but limit API access to users cannot be considered interoperable. See table above for a non-comprehensive list of APIs that may be supported by the service.

AAI interoperability

- Services should provide access to users authenticated with one of the EOSC-hub AAI federated identity protocols (OpenID Connect and/or SAML)

Orchestration interoperability

- Services should expose APIs that are supported by the IaaS Orchestrator services of EOSC-hub.

Federation interoperability:

- Services in this category that need to be federated into a cloud federation should provide API-based access to:
 - Management of VM images, i.e. allow to create (upload) and delete VM images from which VMs can be instantiated.
 - Access usage information of individual VMs and block storage so accounting records can be generated for integration into the EOSC-hub central services.

Examples of solutions implementing this specification

EOSC-hub services:

- [EGI Cloud Compute](#)

OpenSource implementations:

- [OpenStack](#)
- [OpenNebula](#)

Procedure to integrate a service with the EOSC Hub Cloud Compute

The providers willing to join the EOSC-hub service (EGI Cloud Compute) have all the documentation on how to federate their IaaS system at <https://docs.egi.eu/providers/fedcloud/>. The procedure includes a technical integration part dealing with the configuration of the AAI, VM image management and accounting records generation, and an organisation integration part dealing with joining the coordinated operations of EGI.

Providers not federated into EGI may follow the regular Service Onboarding procedure of EOSC-hub to integrate in the EOSC-portal.