IBM SmartCloud Entry

Software Development Kit (SDK) Reference 3.1

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Note

Before using this information and the product it supports, read the information in "Notices" on page 169.

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Contents

IBM SmartCloud Entry Software Development Kit (SDK) Reference – version 3.1

IBM SmartCloud® Entry version 3.1 provides a self-service portal for the cloud user that complements IBM® Systems Director VMControl™, VMware vSphere, and Hyper-V through OpenStack. IBM SmartCloud Entry is implemented as a lightweight web-based application that runs as an Open Services Gateway initiative (OSGi) application. IBM SmartCloud Entry provides an environment that enables cloud users serve themselves while they maintain control over the allocation of resources.

The self-service capabilities of IBM SmartCloud Entry simplify the process of performing many common public or private cloud operations such as the following operations:

- Provisioning (deploying) and de-provisioning servers
- Drafting and cloning workloads
- Taking workloads captures
- Starting and shutting down servers
- Resizing existing servers
- Creating projects to give team-specific access to workloads
- Providing network configurations that set unique network properties to different workloads
- Billing, accounting, and metering support
- Providing request and approval workflow support

These and many other features are included in this version of the IBM SmartCloud Entry.

For more detailed documentation about the IBM SmartCloud Entry capabilities, see the IBM SmartCloud Entry User Guide and the IBM SmartCloud Entry Administrator Guide.

Related information:

"Code license and disclaimer information" on page 165

What's new in IBM SmartCloud Entry Software Development Kit (SDK) Reference – version 3.1

The IBM SmartCloud Entry Software Development Kit (SDK) Reference, version 3.1 introduces new and updated services.

Note: IBM SmartCloud Entry version 3.1 is aligning more closely with OpenStack terminology. For example, in the user interface the terms "workload" and "appliance" have been replaced with "instance" and "image." However, to maintain API compatibility, the REST resources still use the former terms.

In this reference, new and changed information is identified by a vertical bar (|) in the left margin.

Appliance library services

- "GET /appliances/{id}/copies" on page 9

Authentication services

- "POST /auth" on page 23

  The **POST /auth** service now supports authentication tokens. Using authentication tokens for secure REST APIs is the recommended method of authentication.

Key pair services

- "GET /keypairs" on page 59
- "GET /keypairs/{id}" on page 60
- "POST /keypairs" on page 60

Virtual server services

- "GET /virtualServers/{id}/repositories" on page 131
- "GET /virtualServers/{id}/repositories/{id}/customization" on page 131

Overview of IBM SmartCloud Entry REST web services

IBM SmartCloud Entry provides a set of APIs that can be used to access IBM SmartCloud Entry data and services from applications that are running outside of the IBM SmartCloud Entry framework. These APIs are based on the Representational State Transfer (REST) architecture and are accessed using the HTTP or HTTPS protocol.

REST refers to an architecture used to create stateless web services that are typically accessed using the HTTP or HTTPS protocol.

Starting with IBM SmartCloud Entry 2.1, the REST APIs are implemented with complete compatibility from release to release. This means is that code that uses existing REST APIs will not be impacted by new versions of IBM SmartCloud Entry.

Note: IBM SmartCloud Entry version 3.1 is aligning more closely with OpenStack terminology. For example, in the user interface the terms "workload" and "appliance" have been replaced with "instance" and "image." However, to maintain API compatibility, the REST resources still use the former terms.

"Web services provided by IBM SmartCloud Entry"
IBM SmartCloud Entry provides the web services that are listed here.

"Connecting to an IBM SmartCloud Entry server" on page 4
IBM SmartCloud Entry is implemented as a lightweight web-based application that runs as an OSGi application.

"IBM SmartCloud Entry REST API response codes" on page 4
Find detailed information about the REST API response codes.

Web services provided by IBM SmartCloud Entry

IBM SmartCloud Entry provides the web services that are listed here.

- Appliance library services
- Authentication services
- Billing services
- Billing cloud product services
- Billing payment authorizer services
- Cloud management services
- Configuration services
- Delinquency policies services
- Event services

- Expiration policy services
- Key pair services
- Metering data services
- Network configuration services
- Product information services
- Project management services
- Request lifecycle services
- Statistics resource services
- User services
- Virtual server services
- Workload services

Connecting to an IBM SmartCloud Entry server

IBM SmartCloud Entry is implemented as a lightweight web-based application that runs as an OSGi application.

For production environments, IBM recommends that you use secure sockets layer (SSL) HTTPS communication between the IBM SmartCloud Entry server and the client that is using the IBM SmartCloud Entry REST APIs. Using SSL provides a greater level of security for the data on the network. For more information about configuring the server to use SSL communications, see the IBM SmartCloud Entry Administrator Guide.

All APIs, except for the authentication APIs, require authentication. The preferred method to provide credential information is to use the **/auth** API. Use the **/auth** API to authenticate your user name and password and then use an authentication token for other APIs. For more information, see "POST /auth" on page 23 API.

To establish a connection to the IBM SmartCloud Entry server, the format of the URL must be:

```
<communication_scheme>://<SCE_server_host>:<port>/cloud/api/<service>
```

Where

`<communication_scheme>`

is the scheme that is used for the communication protocol, such as HTTP or HTTPS.

`<SCE_server_host>`

is the host (where the IBM SmartCloud Entry server is running) which is contacted as the data provider.

`<port>`

is the remote port that is used for the scheme. The IBM SmartCloud Entry server currently uses 8080 for HTTP requests.

IBM SmartCloud Entry REST API response codes

Find detailed information about the REST API response codes.

200 OK
: The request was fulfilled successfully.

201 Created
: Following a POST command, this response indicates success in Express® creating the specified resource. This response includes the URI of the newly created resource in the HTTP Location header.

202 Accepted
The request is accepted for processing, but the processing is not complete. The request might eventually be acted upon, or it might be disallowed when processing actually takes place.

This response code is also used to indicate that a request is accepted, but that the request must be approved by an administrator. The URI of the request that must be approved is included in the HTTP Location header of the response, and users can track the status of their request by using that URI.

400 Bad request
The request has incorrect syntax. For example, the JSON object is not recognized or is not valid JSON.

401 Unauthorized
The parameter to this message gives a specification of authorization schemes that are acceptable. Submit the request with a suitable Authorization header.

404 Not found
The server cannot find the resource that is requested in the URI.

500 Internal Error
The server encountered an unexpected condition that prevented it from fulfilling the request.

For more information, see the Response.Status Javadoc.

Related information:

Response.Status Javadoc

Appliance library services

IBM SmartCloud Entry provides the following services for appliance libraries.

"POST /appliances" on page 21
This service creates a new appliance on the cloud. The appliance is created by capturing the current state of a workload or by copying a master appliance that links to the VMware, VMControl, or OpenStack cloud appliance.

Related information:

"Code license and disclaimer information" on page 165

GET /appliances

This service retrieves the appliances available in the appliance libraries of the cloud.

Sample Request

GET http://localhost:8080/cloud/api/appliances?architecture=*&cloudGroupId=251&user=admin

No HTTP body required.

Query Parameters

Name	Description	Default	Required
user	Gets the list of appliances that this user name can see.	N/A	No
cloudGroupId	Filters the list of appliances by the specified cloudGroupId.	N/A	No
architecture	Filters the list of appliances by the specified platform architecture.	N/A	No

Sample Response

HTTP Status: 200

HTTP Response Body:

1. For all appliances, including the master and copied appliance, the HTTP Response Body shows the creator as follows:


```
{
    "total": "2",
    "appliances": [
        {
            "cloudName": "mpcapture",
            "changedDate": 1340720783000,
            "cloudGroupId": "251",
            "name": "mpcapture",
            "uri": "http://localhost:8080/cloud/api/appliances/347",
            "cloudId": "cloud://251/49826",
            "state": {
                "label": "OK",
                "id": "OK"
            },
            "architecture": "Power",
            "projectUri": "http://localhost:8080/cloud/api/projects/151",
            "cloudGroupName": "9.123.100.141",
            "specificationVersion": "1.1",
            "hypervisor": "PowerVM",
            "version": "1.1",
            "id": "347",
```

```
        "revision": "1.1",
        "description": "true"
    },
    {
        "cloudName": "mpcapture",
        "changedDate": 1340199429000,
        "cloudGroupId": "251",
        "name": "mpcapture",
        "uri": "http://localhost:8080/cloud/api/appliances/303",
        "cloudId": "cloud://251/49567",
        "state": {
            "label": "Unknown",
            "id": "UNKNOWN"
        },
        "architecture": "Power",
        "projectUri": "http://localhost:8080/cloud/api/projects/151",
        "cloudGroupName": "9.123.100.141",
        "specificationVersion": "1.1",
        "hypervisor": "PowerVM",
        "version": "1.1",
        "id": "303",
        "revision": "1.1",
        "description": "true"
    }
]
```

2. If the appliance is a copy of another appliance, the HTTP Response Body shows the creator as follows:

```
{
  cloudId: "cloud://301/46047",
  cloudGroupId: "301",
  projectUri: "http://localhost:8080/cloud/api/projects/1",
  cloudGroupName: "9.123.100.120",
  state: {
    id: "OK",
    label: "OK"
  },
  architecture: "Power",
  logsUri: "http://localhost:8080/cloud/api/appliances/357/log",
  uri: "http://localhost:8080/cloud/api/appliances/357",
  specificationVersion: "1.1",
  creator: {
    id: "admin",
    name: "SmartCloud Entry Administrator"
  },
  cloudName: "RHEL63-Master",
  id: "357",
  changedDate: 1358392009084,
  revision: "1.1",
  customizationUri: "http://localhost:8080/cloud/api/appliances/357/customization",
  description: "root / passw0rd - RSCT 1.3.2.1 + fixes, AE 2.4.2.1",
  hypervisor: "PowerVM",
  name: "RHEL63-Master 2013-01-17 11:06:44",
  isMaster: false,
  targetsUri: "http://localhost:8080/cloud/api/appliances/357/targets"
}
```

GET /appliances/{id}

This service retrieves the properties of a specific appliance by id.

Sample Request

GET http://localhost:8080/cloud/api/appliances/347

No HTTP body required.

Sample Response

HTTP Status: 200

Localized values: "state"

HTTP Response Body:

```
{

    "cloudName": "mpcapture",
    "changedDate": 1340720783000,
    "priority": 2,
    "cloudGroupId": "251",
    "targetsUri": "http://localhost:8080/cloud/api/appliances/347/targets",
    "name": "mpcapture",
    "uri": "http://localhost:8080/cloud/api/appliances/347",
    "cloudId": "cloud://251/49826",
    "state": {
        "label": "OK",
        "id": "OK"
    },
    "architecture": "Power",
    "projectUri": "http://localhost:8080/cloud/api/projects/151",
    "cloudGroupName": "9.123.100.141",
    "specificationVersion": "1.1",
    "hypervisor": "PowerVM",
    "customizationUri": "http://localhost:8080/cloud/api/appliances/347/customization",
    "id": "347",
    "revision": "1.1",
    "description": "true",
    "logsUri": "http://localhost:8080/cloud/api/appliances/347/log"

}
```

PUT/appliances/{id}

This service updates the specific appliance by id.

Sample Request

PUT http://host/cloud/api/appliances/5415

```
{
  "name": "MyApp on AIX Image (dual-NIC) New Name",
  "description": "Some Better Descripton)"
}
```

Sample Response

HTTP Status: 200

DELETE/appliances/{id}

This service deletes an appliance that was captured by IBM SmartCloud Entry but failed during capture or was deleted from the cloud.

The appliance is deleted for IBM SmartCloud Entry, but not deleted from cloud) and can be run only on an appliance that is captured from IBM SmartCloud Entry that is 'FAILED' or 'UNKNOWN'.

Sample Request

DELETE http://host/cloud/api/appliances/5415

No HTTP body required.

Sample Response

HTTP Status: 200

GET /appliances/{id}/copies

This service retrieves copies of the target appliance that is available in the cloud.

The master appliance is the first appliance link to the VMControl, VMWare, or OpenStack cloud appliance. When the ID is the master image, this function returns a list of all its copies. When the ID is a copied image, this function returns its master and all its copies

Query Parameters

N/A

Sample Request

```
Get http://host/cloud/api/appliances/1122/copies
```

Sample Response

```
{
  total: "1",
  appliances: [
    {
      cloudId: "cloud://301/46047",
      cloudGroupId: "301",
      projectUri: "http://localhost:8080/cloud/api/projects/1",
      cloudGroupName: "9.123.100.120",
      state: {
        id: "UNKNOWN",
        label: "Unknown"
      },
      architecture: "Power",
      uri: "http://localhost:8080/cloud/api/appliances/357",
      specificationVersion: "1.1",
      cloudName: "RHEL63-Master",
      version: "1.1",
      id: "357",
      changedDate: 1358392009084,
      revision: "1.1",
      description: "root / passw0rd - RSCT 1.3.2.1 + fixes, AE 2.4.2.1",
      hypervisor: "PowerVM",
      name: "RHEL63-Master 2013-01-17 11:06:44",
      isMaster: false,
      projectName: "Public"
    }
  ]
}
```

GET /appliances/{id}/targets

This service retrieves the targets that are available in the cloud and that can handle a workload of this appliance.

This list of targets can be used to select a target by ID and update the default target in the appliance default customization. **This is an admin web service.**

Query Parameters

N/A

Sample Request

To retrieve the workload targets for appliance with ID 1

GET http://host/cloud/api/appliances/1/targets

Sample Response

```
{
   "targets":[
      {
         "name":"Server-7998-61X-SN1009F3A (Host)",
         "id":"20420"
      },
      {
         "name":"csk170 (Virtual Server)",
         "id":"20419"
      },
      {
         "name":"csk1701 (Virtual Server)",
         "id":"20261"
      },
      {
         "name":"csk1702 (Virtual Server)",
         "id":"20501"
      },
      {
         "name":"updatedcsk170hostname (Virtual Server)",
         "id":"20502"
      }
   ],
   "identifier":"id"
}
```

GET /appliances/{id}/customization

This service retrieves a default customization for an appliance.

When a user deploys an appliance, IBM SmartCloud Entry uses the default customization as the workload configuration for the appliance. Customizations are configured by administrators.

This is an admin web service.

Query Parameters

N/A

Sample Request

To retrieve the default customization for appliance with ID 347:

GET http://host/cloud/api/appliances/1/customization

Sample Response

```
{

    "target": "cloud://251/6648",
    "properties": [
```

```
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "128.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpushared",
      "description": "The desired number of dedicated or virtual
processors to be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "128.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpudedicated",
      "description": "The desired number of dedicated or virtual
processors to be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          "SHARED"
      ],
      "type": "SINGLE_SELECTION",
      "name": "cpumode",
      "description": "Indicates whether the virtual server will
use physical or virtual processors (dedicated or shared mode).",
      "basic": false,
      "options": [
          {
              "value": "Dedicated",
              "id": "DEDICATED"
          },
          {
              "value": "Shared",
              "id": "SHARED"
          }
      ],
      "required": false
  },
```

```
{
    "values": [
        512
    ],
    "rules": [
        {
            "value": "256",
            "id": "increment"
        },
        {
            "value": "LINEAR",
            "id": "incrementType"
        },
        {
            "value": "63488.0",
            "id": "max"
        },
        {
            "value": "256.0",
            "id": "min"
        }
    ],
    "type": "LONG",
    "name": "memsize",
    "description": "The desired amount of memory (MB) to be assigned to the virtual server.",
    "basic": false,
    "required": false
},
{
    "values": [
        8192
    ],
    "rules": [
        {
            "value": "256",
            "id": "increment"
        },
        {
            "value": "LINEAR",
            "id": "incrementType"
        },
        {
            "value": "63488.0",
            "id": "max"
        },
        {
            "value": "256.0",
            "id": "min"
        }
    ],
    "type": "LONG",
    "name": "memmax",
    "description": "The maximum amount of memory (MB) that can be assigned to the virtual server.",
    "basic": false,
    "required": false
},
{
    "values": [
        4096
    ],
    "rules": [
        {
            "value": "256",
            "id": "increment"
        },
        {
            "value": "LINEAR",
            "id": "incrementType"
        },
        {
            "value": "63488.0",
            "id": "max"
        },
        {
            "value": "256.0",
            "id": "min"
        }
    ],
    "type": "LONG",
```

```
      "name": "memmin",
      "description": "The minimum amount of memory (MB) that can
be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "80.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpushmin",
      "description": "The minimum number of dedicated or virtual
processors that can be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          "0.5"
      ],
      "rules": [
          {
              "value": "0.1",
              "id": "increment"
          },
          {
              "value": "8.0",
              "id": "max"
          },
          {
              "value": "0.1",
              "id": "min"
          }
      ],
      "type": "FLOAT",
      "name": "cpushminu",
      "description": "The minimum number of processing units that can
be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          "1.0"
      ],
      "rules": [
          {
              "value": "0.1",
              "id": "increment"
          },
          {
              "value": "12.8",
              "id": "max"
          },
          {
              "value": "0.1",
              "id": "min"
          }
      ],
      "type": "FLOAT",
```

```
      "name": "cpushu",
      "description": "The desired number of processing units
 to be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "128.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpushmax",
      "description": "The maximum number of dedicated or virtual processors
 that can be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          "1.0"
      ],
      "rules": [
          {
              "value": "0.1",
              "id": "increment"
          },
          {
              "value": "12.8",
              "id": "max"
          },
          {
              "value": "0.1",
              "id": "min"
          }
      ],
      "type": "FLOAT",
      "name": "cpushmaxu",
      "description": "The maximum number of processing units
 that can be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          "UNCAP"
      ],
      "type": "SINGLE_SELECTION",
      "name": "cpushmode",
      "description": "The processing units sharing mode of the virtual server.",
      "basic": false,
      "options": [
          {
              "value": "Capped",
              "id": "CAP"
          },
          {
              "value": "Uncapped",
              "id": "UNCAP"
          }
      ],
      "required": false
```

```
  },
  {
      "values": [
          128
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "255.0",
              "id": "max"
          },
          {
              "value": "0.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpushpri",
      "description": "The priority of the virtual server to available
processing units in the shared processor pool.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "8.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
          }
      ],
      "type": "LONG",
      "name": "cpudedmin",
      "description": "The minimum number of dedicated or virtual processors
that can be assigned to the virtual server.",
      "basic": false,
      "required": false
  },
  {
      "values": [
          1
      ],
      "rules": [
          {
              "value": "1",
              "id": "increment"
          },
          {
              "value": "LINEAR",
              "id": "incrementType"
          },
          {
              "value": "128.0",
              "id": "max"
          },
          {
              "value": "1.0",
              "id": "min"
```

```
            }
        ],
        "type": "LONG",
        "name": "cpudedmax",
        "description": "The maximum number of dedicated or virtual
processors that can be assigned to the virtual server.",
        "basic": false,
        "required": false
    },
    {
        "values":[
            false
        ],
        "type":"BOOLEAN",
        "name":"suspendresume",
        "description":"The virtual server can be suspended and resumed later.",
        "basic":false,
        "required":false
    },
    {
        "values": [
            "2"
        ],
        "type": "SINGLE_SELECTION",
        "name": "priority",
        "description": "Workload Priority",
        "basic": false,
        "options": [
          {
            "value": "1 (High)",
            "id": "1"
          },
          {
            "value": "2 (Normal)",
            "id": "2"
          },
          {
            "value": "3 (Low)",
            "id": "3"
          },
          {
            "value": "4 (Lowest)",
            "id": "4"
          }
        ],
        "required": false
    },
    {
        "values": [
            ""
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            ""
        ],
        "subtype": "IPV4_ADDRESS",
        "type": "STRING",
        "valueFrom": "ipAddress",
        "name": "product.vs0.com.ibm.ovf.vmcontrol.adapter.networking.ipv4addresses.5",
        "description": "Static IP address for the network adapter \"Network adapter 1 on Discovered-1-0\".",
        "category": "Internet Protocol Version 4",
        "basic": false,
        "group": "Adapter 1",
        "required": false
    },
    {
        "values": [
            ""
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            ""
        ],
```

```
    "subtype": "IPV4_SUBNET_MASK",
    "type": "STRING",
    "valueFrom": "subnet",
    "name": "product.vs0.com.ibm.ovf.vmcontrol.adapter.networking.ipv4netmasks.5",
    "description": "Static network mask for network adapter \"Network adapter 1 on Discovered-1-0\".",
    "category": "Internet Protocol Version 4",
    "basic": false,
    "group": "Adapter 1",
    "required": false
},
{
    "values": [
        ""
    ],
    "classification": {
        "label": "Network",
        "id": "NETWORK"
    },
    "valueOrigin": [
        ""
    ],
    "subtype": "HOST_NAME",
    "type": "STRING",
    "valueFrom": "ipAddress",
    "name": "product.vs0.com.ibm.ovf.vmcontrol.system.networking.hostname",
    "description": "Short host name for the system.",
    "category": "",
    "basic": false,
    "required": false
},
{
    "values": [
        ""
    ],
    "classification": {
        "label": "Network",
        "id": "NETWORK"
    },
    "valueOrigin": [
        ""
    ],
    "subtype": "DOMAIN_NAME",
    "type": "STRING",
    "valueFrom": "domain",
    "name": "product.vs0.com.ibm.ovf.vmcontrol.system.networking.domainname",
    "description": "DNS domain name for the system.",
    "category": "",
    "basic": false,
    "required": false
},
{
    "values": [
        ""
    ],
    "classification": {
        "label": "Network",
        "id": "NETWORK"
    },
    "valueOrigin": [
        ""
    ],
    "subtype": "IPV4_ADDRESS",
    "type": "STRING",
    "valueFrom": "dns1",
    "name": "product.vs0.com.ibm.ovf.vmcontrol.system.networking.dnsIPaddresses",
    "description": "IP addresses of DNS servers for system.",
    "category": "",
    "basic": false,
    "required": false
},
{
    "values": [
        ""
    ],
    "classification": {
        "label": "Network",
        "id": "NETWORK"
    },
    "valueOrigin": [
```

```
            ""
        ],
        "subtype": "IPV4_ADDRESS",
        "type": "STRING",
        "valueFrom": "gateway1",
        "name": "product.vs0.com.ibm.ovf.vmcontrol.system.networking.ipv4defaultgateway",
        "description": "Default IPv4 gateway.",
        "category": "",
        "basic": false,
        "required": false
    },
    {
        "values": [
            "VSCSI"
        ],
        "type": "SINGLE_SELECTION",
        "name": "storageconnection",
        "description": "Storage Connection",
        "basic": false,
        "options": [
            {
                "value": "NPIV",
                "id": "NPIV"
            },
            {
                "value": "VSCSI",
                "id": "VSCSI"
            }
        ],
        "required": false
    },
    {
        "values": [
            ""
        ],
        "subtype": "PASSWORD",
        "type": "STRING",
        "name": "rootpassword",
        "description": "",
        "basic": false,
        "required": false
    },
    {
        "values": [
            "[Discovered-1-0]=hostVnet:Discovered-1-0"
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            "[Discovered-1-0]=hostVnet:Discovered-1-0"
        ],
        "type": "SINGLE_SELECTION",
        "valueFrom": "networkId",
        "name": "virtualnetworks-0",
        "description": " Discovered-1-0 ",
        "basic": false,
        "options": [
            {
                "values": [
                    {
                        "value": "Discovered-1-0",
                        "description": "Network Name"
                    },
                    {
                        "value": "Captured from virtual server mpdeploy connected
     to Discovered-1-0 on host Server-8202-E4B-SN06A388P",
                        "description": "Description"
                    },
                    {
                        "value": "Discovered-1-0",
                        "description": "Virtual Networks on Host"
                    },
                    {
                        "value": "Discovered-1-0 (VLAN 1, Bridged)",
                        "description": "Discovered-1-0"
                    }
                ],
```

```
                "id": "[Discovered-1-0]=hostVnet:Discovered-1-0"
            }
        ],
        "group": "Adapter 1",
        "required": false
    },
    {
        "values": [
            true
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            true
        ],
        "subtype": "DNS_FLAG",
        "type": "BOOLEAN",
        "valueFrom": "obtainFromDNS",
        "name": "obtainFromDNS.network1",
        "description": "Obtain hostname and domain name from DNS server",
        "category": "Internet Protocol Version 4",
        "basic": false,
        "group": "Adapter 1",
        "required": false
    },
    {
        "values": [
            "11993"
        ],
        "rules": [
            {
                "value": "1.0",
                "id": "max"
            },
            {
                "value": "0.0",
                "id": "min"
            }
        ],
        "type": "SINGLE_SELECTION",
        "name": "storagemapping-1",
        "description": "Configure storage mapping table. Disk Name: disk1, Size (MB): 81920",
        "basic": false,
        "options": [
            {
                "values": [
                    {
                        "value": "zhuohual_array",
                        "description": "Name"
                    },
                    {
                        "value": "SAN: CSTL-CFS-DS5020",
                        "description": "Location"
                    },
                    {
                        "value": "1",
                        "description": "VIOS Count"
                    },
                    {
                        "value": "336072",
                        "description": "Maximum Allocation (MB)"
                    },
                    {
                        "value": "SAN pool accessed through one or more VIOS.",
                        "description": "Description"
                    }
                ],
                "id": "11993"
            }
        ],
        "required": false
    }
],
"appliance": {
    "name": "mpcapture",
```

```
        "uri": "http://localhost:8080/cloud/api/appliances/347"
    }

}
```

IBM SmartCloud Entry uses the `rootpassword` property to save the default root password for the appliance. This property can be configured by an administrator on the appliance so each user does not need to configure the property for each workload.

PUT /appliances/{id}/customization

This service enables you to update the default customization for an appliance. You can use this service to specify that an appliance is deployed to a specific target by default.

The customization for the appliance can also be given default values. These default values do not override explicit values that are given by a user for any workload property.

This is an admin web service.

Query Parameters

N/A

Sample Requests

1. Update the default workload target for appliance 1, make it target with id 123.

   PUT http://host/api/appliances/1/properties

   ```
   {
      "target":"123"
   }
   ```

2. Update the default customization such that when deploying appliance 1, CPU mode is `Dedicated` and the number of CPUs is 2 by default.

   PUT http://host/api/appliances/1/properties

   ```
   {
      "properties":[
         {
            "name":"cpumode",
            "value": "DEDICATED"
         },
         {
            "name":"cpudedicated",
            "value":2
         }
      ]
   }
   ```

Sample Response

HTTP Status: 200

DELETE /appliances/{id}/customization

This service resets the default customization for an appliance.

An administrator can use the **`DELETE /appliances/{id}/customization`** service to reset the customized appliance to its initial settings. A customization, however, will never be null. This service resets the customization to the original values based on what is available in the cloud.

This is an admin web service.

Query Parameters

N/A

Sample Request

Reset the default customization for appliance 1

DELETE http://host/cloud/api/appliances/1/customization

Sample Response

HTTP Status: 200

GET /appliances/{id}/log

This service retrieves any capture progress logs for an appliance that is captured in the cloud.

The exact contents of the logs are dependent on how the cloud stores the logs for capture. Logs might be deleted after an operation completes or fails; or, the logs might be maintained for an extended time. The actual string data that is returned in the JavaScript Object Notation (JSON) response is HTML formatted. Rather than having Java™ new line strings, the data shows **
** tags.

Query Parameters

N/A

Sample Request

Get capture progress logs for appliance 1122.

GET http://host/cloud/api/appliances/1122/log

Sample Response

```
{
   "log":"Workload, AIX 5L for POWER Version 5.3 , was created.

    Start asynch work run for deploy of virtual appliance :8498

    Workload removed due to exception: 11738

    Workload, AIX 5L for POWER Version 5.3 , was deleted.

    Error performing asynch work run for deploy of virtual appliance:8498

    New workload removed: 11738"

}
```

POST /appliances

This service creates a new appliance on the cloud. The appliance is created by capturing the current state of a workload or by copying a master appliance that links to the VMware, VMControl, or OpenStack cloud appliance.

Query Parameters

N/A

Sample Requests

1. Create an appliance by taking a capture of workload with workload ID 133.

   POST http://host/cloud/api/appliances

   ```
   {

      "workload":133

   }
   ```

2. Create an appliance by capturing a workload with workload ID 133. The new appliance is a Linux image and is at the image repository with ID 102.

   POST http://host/cloud/api/appliances

   ```
   {
      "workload":133,
      "repository":"102",
      "properties":[
        {
          "name":"ostypecapture",
          "value":"36"
        }
      ]
   }
   ```

3. Create an appliance by copying the appliance (5415).

   ```
   {
       "appliance":5415,
       "name":"TonyTest",
       "description":"NIM mksysb 12/09/09",
   }
   ```

Sample Response

HTTP Status: 201

HTTP Location Header: The URI of the new appliance

HTTP Body: The customization, to avoid a trip back to the server for it.

Authentication services

IBM SmartCloud Entry provides services for requesting new users and services that are related to passwords.

"POST /auth" on page 23
The **POST /auth** API validates the credentials for a user.

"GET /auth/reminder" on page 23
The **GET /auth/reminder** API requests that a password reminder is sent to the associated user with an email notification (as of version 1.1).

"POST /auth/registration" on page 24
The **POST /auth/registration** API sends an email request for a new user account to the administrator.

"GET /auth/reminder/isEnabled" on page 25
The **GET /auth/reminderisEnabled** API sends a password reset reminder.

Related information:

"Code license and disclaimer information" on page 165

POST /auth

The **POST /auth** API validates the credentials for a user.

The service takes an x-www-form-urlencoded form with two parameters: user name and password.

Upon successful credential validation, the service returns an encrypted authentication token and the expiration for the token (in UTC format). This encrypted authentication token can then be used on subsequent secure API calls rather than using x-www-form-urlencoded credentials for each API call. Using authentication tokens for secure REST APIs is the recommended method of authentication. The x-www-form-urlencoded form is deprecated for anything other than the auth service.

To use an encrypted authentication token on REST API calls, the REST agent must populate the HTTP request header with the cookie field name configured to transport authentication tokens (see the IBM SmartCloud Entry Administrator Guide). The IBM SmartCloud Entry REST APIs then obtain the encrypted authentication token from the cookie header and use it to validate the REST agent's identity.

If IBM SmartCloud Entry is configured to renew authentication tokens that are based on API usage, successfully authenticated API responses will also include a Set-Cookie header with a renewed authentication token and its associated expiration. The agent can then use this renewed token on subsequent REST calls. However if an authentication token expires, the agent must again use the auth service REST API to re-authenticate their credentials and obtain a new token.

This is an authenticated web service. This web service does not require authentication, so it is unsecured. The base uri for this web service is '/unsecured/cloud/api', so the complete URI looks like the following:

http://localhost:8080/unsecured/cloud/api/auth

HTTP Status: 200 if the user successfully authenticated 401 Unauthorized and 403 Forbidden.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "access":{
      "expires":1358206562876,
      "id":"S9EWN4xGHr7Knp583hyEWVHQohvg1PwycSvARknLNxNeMdU5db4qn9p+i1dFae2X"
   }
}
```

GET /auth/reminder

The **GET /auth/reminder** API requests that a password reminder is sent to the associated user with an email notification (as of version 1.1).

The actual reminder is sent only if the user name is specified and the installation has enabled notifications.

This web service does not require authentication, so it is unsecured. The base URI for this web service is "/unsecured/cloud/api", so the complete URI looks like the following:

http://localhost:8080/unsecured/cloud/api/auth/reminder

Query Parameters

Name	Description	Default	Required
user	The user name that is requesting the password reminder.	NA	Yes
email	The email the password reminder sent to.	NA	Yes

Sample Request

Send a password reminder to the user 'john' for this account.

GET http://host/unsecured/cloud/api/auth/reminder?user=john&email=aa@abc.com

HTTP Request Body:

N/A

Sample Response

HTTP Status: 200

POST /auth/registration

The **`POST /auth/registration`** API sends an email request for a new user account to the administrator.

The JSON in the request body should define the suggested values for the new user account, although the administrator can decide whether to use the values. Notifications must be enabled in order for the notification to be sent.

This web service does not require authentication, so it is unsecured. The base URI for this web service is "/unsecured/cloud/api", so the complete URI looks like the following:

http://localhost:8080/unsecured/cloud/api/auth/registration

Specify the Content Type as application/json.

Query Parameters

N/A

Sample Request

Send the administrator a notification that requests a new user account for "john".

POST http://host/unsecured/cloud/api/auth/registration

HTTP Request Body:

```
{
   "username":"john",
   "name":"Mr John",
   "password":"pwd4me",
   "email":"john@somewhere.org"
}
```

Sample Response

HTTP Status: 202

No HTTP Response Body

GET /auth/reminder/isEnabled

The **GET /auth/reminderisEnabled** API sends a password reset reminder.

No resource is returned.

Sample Response

HTTP Status:

- 200 if the password reset reminder is enabled.
- 500 if the password reset reminder is not enabled

Billing services

The IBM SmartCloud Entry product provides the billing services that are listed here.

"GET /accounts/{id}/charges" on page 33
This service retrieves the charges from all bills for this account.

"GET /accounts/{id}/credits" on page 34
This service retrieves the credits over all bills for this account.

"POST /accounts/{id}/credits" on page 35
This service adds credits to the specified account. You can use this service to add a credit or make a payment.

Related information:

"Code license and disclaimer information" on page 165

GET /accounts

This service retrieves the accounts that are defined in IBM SmartCloud Entry.

Query Parameters

Name	Description	Default	Required
user	Retrieve only the accounts that this user has access to (either by ownership or by membership). Administrators can see all accounts.	false	No

Sample Requests

1. Get all accounts known to the system

   GET http://host/cloud/api/accounts

   No HTTP body required.
2. Get all accounts to which user "user1"belongs to, owns, or is a member of.

   GET http://host/cloud/api/accounts?user=user1

   No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "accounts": [
        {
            "state": {
                "label": "Delinquent",
                "id": "DELINQUENT"
            },
            "isDelinquent": true,
            "currency": "USD",
           "owner": "user1",
            "accountNumber": "1401",
            "name": "acc1",
            "id": "1401",
            "balance": 0,
            "description": "acc1",
            "uri": "http://localhost:8080/cloud/api/accounts/1401"
        }
    ]
}
```

POST /accounts

This service creates a new account in IBM SmartCloud Entry. Use the **POST /accounts/{id}/users** API to add members to the account.

This request JSON allows for an (optional) 'startingBalance' attribute, which enables the user to specify an initial balance for the account during creation. If specified, the newly created account is credited for the 'startingBalance' amount.

Sample Request

POST http://host/cloud/api/accounts

HTTP Request Body:

```
{
  "currency":"USD",
  "owner":"admin",
  "lowFundsThreshold":"5.00",
  "name":"test account.",
  "description":"Test account for development purposes.",
  "defaultPaymentAuthorizer": "admin",
  "delinquencyPolicy": "com.ibm.cfs.services.billing.policies.shutdown",
  "startingBalance":1203.22,
  "currency": "USD"
}
```

Sample Response

HTTP Status: 201

HTTP Location Header: The URI of the new account

HTTP Response Body:

```
{
"billsUri":"http://host.rchland.ibm.com:8080/cloud/api/accounts/101651/bills",
   "isDelinquent":false,
  "usersUri":"http://host.rchland.ibm.com:8080/cloud/api/accounts/101651/users",
  "delinquencyPolicy":"com.ibm.cfs.services.billing.policies.shutdown",
   "name":"test account.",
  "uri":"http://host.rchland.ibm.com:8080/cloud/api/accounts/101651",
   "defaultPaymentAuthorizer":"admin",
   "lowFundsThreshold":5.0,
  "currency":"USD",
   "state":{
      "label":"OK",
      "id":"OK"
   },
  "creditsUri":"http://host.rchland.ibm.com:8080/cloud/api/accounts/101651/credits",
   "owner":"admin",
   "accountNumber":"101651",
   "id":"101651",
   "description":"Test account for development purposes.",
   "balance":-1203.22
}
```

GET /accounts/{id}

This service retrieves the properties of a specific account by ID.

Sample Request

GET http://host/cloud/api/accounts/1

No HTTP body required.

Sample Response

Note: The "total" is presented formatted in currency for account.

HTTP Status: 200

HTTP Response Body:

```
{
"billsUri":"http://localhost:8080/cloud/api/accounts/451/bills",
   "isDelinquent":false,
  "usersUri":"http://localhost:8080/cloud/api/accounts/451/users",
   "name":"Admin Account",
   "uri":"http://localhost:8080/cloud/api/accounts/451",
   "lowFundsThreshold":"$1,000.00",
   "currency":"USD",
   "state":{
      "label":"OK",
      "id":"OK"
   },
  "creditsUri":"http://localhost:8080/cloud/api/accounts/451/credits",
   "owner":"admin",
   "accountNumber":"451",
   "id":"451",
   "description":"",
   "balance":"($10,000,000.00)"
}
```

PUT /accounts/{id}

This service updates the properties of a specific account by ID.

Sample Request

PUT http://host/cloud/api/accounts/1

```
{
   "name":"Admin Account Changed",
   "lowFundsThreshold":100000
}
```

Sample Response

HTTP Status: 200

SUCCESS: Account 451 updated.

DELETE /accounts/{id}

This service removes an account.

Query Parameters

N/A

Sample Request

Remove the account “123”.

DELETE http://host/cloud/api/accounts/123

Sample Response

HTTP Status: 200

GET /accounts/users

This service retrieves all users that do not belong to any account. For IBM SmartCloud Entry 2.0, users can belong to only one billing account. You can use this service to list all users who are not members of any account. This service can be useful if you want to identify users that might potentially be added to a new account.

Query Parameters

N/A

Sample Request

Retrieve a listing of all users that do not belong to an account.

GET http://host/cloud/api/accounts/users

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "users":[
      {
         "username":"admin",
         "name":"Administrator",
         "isAdmin":true,
         "isApprover":true,
         "emailNotifications":false,
         "email":"admin@us.ibm.com",
        "uri":"http://localhost:8080/cloud/api/users/admin"
      },
      {
         "username":"jdoe@us.ibm.com",
         "name":"John Doe",
         "isAdmin":false,
         "isApprover":true,
         "emailNotifications":true,
         "email":"jdoe@us.ibm.com",
        "uri":"http://localhost:8080/cloud/api/users/jdoe@us.ibm.com"
      }
   ]
}
```

GET /accounts/{id}/users

This service retrieves the all users (members) associated with this account. The list is the same format as that returned under the 'users' resource but lists only those users who are members of this account. Users (members) can be added and removed with POST and DELETE as well.

Query Parameters

N/A

Sample Request

To retrieve all users for account with ID 1: GET http://host/cloud/api/accounts/1/users

Sample Response

```
{

    "users": [
        {
            "isLocked": false,
            "isAdmin": true,
            "role": {
                "label": "Admin",
                "id": "ADMIN"
            },
            "username": "admin",
            "name": "Cloud Administrator",
            "emailNotifications": false,
            "email": "",
            "isApprover": true
        },
        {
            "isLocked": false,
            "isAdmin": false,
            "role": {
                "label": "User",
                "id": "USER"
            },
            "username": "testUser",
            "name": "testUser",
            "emailNotifications": false,
            "email": "yanlu@cn.ibm.com",
            "isApprover": false
        }
    ]

}
```

POST /accounts/{id}/users

This service adds users to the member list for the account. This API does not create new users, so the users must exist in the IBM SmartCloud Entry registry.

Query Parameters

N/A

Sample Request 1

Add the user with user name "admin" to the member list of account ID {id}:

POST http://localhost:8080/cloud/api/accounts/{id}/users

HTTP Request Body:

```
{
    "users": [
        {
            "username": "test"
        }
    ]
}
Response:
{
    "users": [
        {
            "isLocked": false,
            "isAdmin": false,
            "role": {
                "label": "User",
                "id": "USER"
            },
            "username": "test",
            "name": "test",
            "emailNotifications": false,
            "isApprover": false
        }
    ]
}
```

Sample Response 1

HTTP Status: 201

HTTP Response Body:

```
{
   "users":[
      {
         "isAdmin":true,
         "username":"admin",
         "name":"Admin",
         "emailNotifications":false,
         "isApprover":true
      }
   ]
}
```

Sample Request 2

Add the users with usernames “john”and “luis”to the member list of account ID 1.

POST http://host/cloud/api/accounts/1/users

HTTP Request Body:

```
{
 "users":[
    {
        "username":"john"
    },
    {
       "username":"luis"
    }
  ]
}
```

Sample Response 2

HTTP Status: 201

HTTP Response Body:

```
{
 "users":[
      {
        "isAdmin":false,
        "username":"john",
        "name":"John Doe",
       "emailNotifications":false,
        "isApprover":false
      },
      {
        "isAdmin":false,
        "username":"luis",
        "name":"Luis G",
       "emailNotifications":false,
        "isApprover":false
      }
   ]
}
```

DELETE /accounts/{id}/users/{id}

This service removes a user from the member list for an account. The user is not deleted from the IBM SmartCloud Entry user registry, only the account association.

Query Parameters

N/A

Sample Request

Remove the user “jdoe” from the account ID 1.

DELETE http://host/cloud/api/accounts/1/users/jdoe

Sample Response

HTTP Status: 200

GET /accounts/{id}/bills

This service retrieves the bills for this account. This list of bills can be used to find the individual bill and their associated charges.

Query Parameters

N/A

Sample Request

To retrieve the bills for account with ID 1:

GET http://host/cloud/api/accounts/1/bills

Sample Response

Note: The "total" is presented formatted in the currency for the account.

```
{
    "bills": [
        {
            "currency": "USD",
```

```
            "total": 18.66666667008,
            "resourceType": "workload",
            "resourceName": "MyApp on SUSE Image 2012-07-19 10:52:15",
            "id": "1151",
            "creator": "admin",
            "uri": "http://localhost:8080/cloud/api/accounts/551/bills/1151",
            "invoice": "1151"
        },
        {
            "currency": "USD",
            "total": 0,
            "resourceType": "workload",
            "resourceName": "MyApp on SUSE Image 2012-07-19 10:54:37",
            "id": "1152",
            "creator": "admin",
            "uri": "http://localhost:8080/cloud/api/accounts/551/bills/1152",
            "invoice": "1152"
        }
    ]
}
```

GET /accounts/{id}/bills/{id}

This service retrieves a specific bill from the specified account. From this information, you can find links to the deployment associated with this bill and list of all charges that are associated with the bill.

Query Parameters

N/A

Sample Request

Get bill with ID 1 from account with ID 1:

GET http://host/cloud/api/accounts/1/bills/1

Sample Response

In this sample, the `total` is presented formatted in currency for the account.

```
{
    "currency": "USD",
    "total": 37.33333334016,
    "workloadUri": "http://localhost:8080/cloud/api/workloads/752",
    "resourceType": "workload",
    "resourceName": "MyApp on SUSE Image 2012-07-19 10:52:15",
    "id": "1151",
    "creator": "admin",
    "uri": "http://localhost:8080/cloud/api/accounts/551/bills/1151",
    "chargesUri": "http://localhost:8080/cloud/api/accounts/551/bills/1151/charges",
    "invoice": "1151"
}
```

GET /accounts/{id}/charges

This service retrieves the charges from all bills for this account.

Query Parameters

N/A

Sample Request

To retrieve the all charges for account with ID 1:

GET http://host/api/accounts/1/charges

Sample Response

In this sample, the `total` is presented formatted in currency for the account. The values for `currency`, `unitPrice`, `product`, and`id` are defined in the `SmartCloud Entry home path/products/*.xml` file.

```
{
    "charges": [
        {
            "currency": "USD",
            "total": 0.0668,
            "unitPrice": 0.0167,
            "id": "com.ibm.cfs.cloud.vmc.products.cpu",
            "date": 1340695970654,
            "product": "CPU",
            "units": "4"
        },
        {
            "currency": "USD",
            "total": 0.03333333334016,
            "unitPrice": 0.00001627604167,
            "id": "com.ibm.cfs.cloud.vmc.products.mem",
            "date": 1340695970654,
            "product": "RAM",
            "units": "2048"
        },
       {
            "currency": "USD",
            "total": 0,
            "unitPrice": 0.00001627604167,
            "id": "com.ibm.cfs.cloud.vmc.products.storage",
            "date": 1340695970654,
            "product": "Active Disk",
            "units": "0"
        }
        ]
}
```

GET /accounts/{id}/credits

This service retrieves the credits over all bills for this account.

Query Parameters

N/A

Sample Request

To retrieve the credits for account with ID 1:

GET http://host/cloud/api/accounts/1/credits

Sample Response

Note: The "amount" is presented formatted in currency for account.

```
{{
   "credits":[
      {
         "currency":"USD",
         "amount":"10.99",
         "date":1296761386473,
         "description":"Credit description 1"
```

```
      },
      {
         "currency":"USD",
         "amount":"15.99",
         "date":1296761386473,
         "description":"Credit description 2"
      }
   ]
}
```

POST /accounts/{id}/credits

This service adds credits to the specified account. You can use this service to add a credit or make a payment.

Payments can be added by any user. Payments are posted to the account if the payment passes the payment authorization verification.

Credits can be made only by administrators. Credits are automatically added to an account when the credit is made.

Query Parameters

Name	Description	Default	Required
payment	If true, then a payment authorizer is used.	false	No

Sample Requests

1. Add $100.00 in credits to account ID 1.

   POST http://host/cloud/api/accounts/1/credits

   HTTP Request Body:

   ```
   {
       "amount":100.00,
       "description":"Free 100 based on coupon."
   }
   ```

2. Make a $50 payment to account 1, using the accounts default payment system.

   POST http://host/cloud/api/accounts/1/credits?payment=true

   HTTP Request Body:

   ```
   {
       "amount":50
   }
   ```

3. Make a $50 payment to account 1, using a provided payment system.

   POST http://host/cloud/api/accounts/1/credits?payment=true

   HTTP Request Body:

   ```
   {
       "amount":50.0,
      "paymentAuthorizer":"visa.payments"
   }
   ```

Sample Response

HTTP Status: 200

HTTP Response Body: SUCCESS: The account is credited the requested amount.

Billing cloud product services

IBM SmartCloud Entry provides the billing cloud product services that are listed here.

"GET /billing/cloudProducts"
This service gets the summary list of all products.

"GET /billing/cloudProducts/{prodId}" on page 37
This service gets the information for a specific product.

Related information:

"Code license and disclaimer information" on page 165

GET /billing/cloudProducts

This service gets the summary list of all products.

Sample Request

GET http://host/cloud/api/billing/cloudProducts

No HTTP body required.

Sample Response

HTTP Status: 200

Localized values: "state"

HTTP Response Body:


```
{
    "cloudProducts": [
        {
            "currency": "USD",
            "name": "Active Disk",
            "id": "com.ibm.cfs.cloud.vmc.products.storage",
            "description": "The storage space allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmc.products.storage"
        },
        {
            "currency": "USD",
            "name": "CPU",
            "id": "com.ibm.cfs.cloud.vmware.products.cpu",
            "description": "The cpu allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmware.products.cpu"
        },
        {
            "currency": "USD",
            "name": "RAM",
            "id": "com.ibm.cfs.cloud.vmc.products.mem",
            "description": "The ram allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmc.products.mem"
        },
        {
            "currency": "USD",
            "name": "Active Disk",
            "id": "com.ibm.cfs.cloud.vmware.products.storage",
            "description": "The storage space allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmware.products.storage"
        },
        {
            "currency": "USD",
            "name": "CPU",
            "id": "com.ibm.cfs.cloud.vmc.products.cpu",
```

```
            "description": "The cpu allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmc.products.cpu"
        },
        {
            "currency": "USD",
            "name": "RAM",
            "id": "com.ibm.cfs.cloud.vmware.products.memory",
            "description": "The ram allocated to a virtual machine.",
            "uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmware.products.memory"
        }
    ]
}
```

GET /billing/cloudProducts/{prodId}

This service gets the information for a specific product.

Sample Request

GET http://host/cloud/api/billing/cloudProducts/com.ibm.cfs.services.billing.products.cpu

No HTTP body required.

Sample Response

HTTP Status: 200

Localized values: "state"

HTTP Response Body:

```
{
    -"currency": "USD",
    -"price": "$0.00",
    -"actualPrice": "0.00006627604167",
    -"name": "RAM",
    -"id": "com.ibm.cfs.cloud.vmc.products.mem",
    -"description": "The ram allocated to a virtual machine.",
    -"uri": "http://localhost:8080/cloud/api/billing/cloudProducts/com.ibm.cfs.cloud.vmc.products.mem",
    -"priceInterval": 60
    }
```

Billing payment authorizer services

IBM SmartCloud Entry provides the following services that are related to payment authorizers.

"GET /billing/paymentAuthorizers"
This service retrieves all the payment authorizers that are defined within IBM SmartCloud Entry.

"GET /billing/paymentAuthorizers/{id}" on page 38
This service retrieves the properties of a specific payment authorizer by id.

Related information:

"Code license and disclaimer information" on page 165

GET /billing/paymentAuthorizers

This service retrieves all the payment authorizers that are defined within IBM SmartCloud Entry.

Sample Request

GET http://host/cloud/api/billing/paymentAuthorizers

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "paymentAuthorizers":[
   {
      "name":"Administrator",
      "id":"admin",
     "uri":"http://localhost:8080/cloud/api/users/admin"
   },
   {
      "name":"John Doe",
      "id":"jdoe@us.ibm.com",
     "uri":"http://localhost:8080/cloud/api/users/jdoe@us.ibm.com"
       }
    ]
}
```

GET /billing/paymentAuthorizers/{id}

This service retrieves the properties of a specific payment authorizer by id.

Sample Request

GET http://host/cloud/api/paymentAuthorizers/admin

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "name":"Administrator",
   "id":"admin",
  "uri":"http://localhost:8080/cloud/api/billing/paymentAuthorizers/admin"
}
```

Configuration services

IBM SmartCloud Entry provides several services that are related to cloud configuration.

"GET /configuration/properties" on page 39
This service retrieves the configuration properties that are specified for the framework, from all the properties files in the home directory for the framework.

"GET /configuration/ipAddressPools" on page 40
This service retrieves the IP address pools for each network configuration.

"GET /configuration/ldap.xml" on page 40
This service retrieves the `ldap.xml` file, which defines the authentication properties and authentication process that is used to connect to an LDAP server.

"PUT /configuration/ldap.xml" on page 41
This service updates the `ldap.xml` file, which defines the authentication properties and authentication process that is used to connect to an LDAP server.

"GET /configuration/ldapCert" on page 42
This service retrieves the LDAP certificates from the keystore file.

"PUT /configuration/ldapCert" on page 43
This service updates the LDAP keystore file with the certificate provided.

Related information:

"Code license and disclaimer information" on page 165

GET /configuration/properties

This service retrieves the configuration properties that are specified for the framework, from all the properties files in the home directory for the framework.

Query Parameters

N/A

Sample Request

Get current configuration properties:

GET http://host/cloud/api/configuration/properties

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
  "product.AIX1.com.ibm.ovf.vim.2.networkport.6.dns2.ip":"10.10.1.17",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.7.dns2.ip":"9.10.244.100",
   "admin.name":"Administrator",
   "com.ibm.csk.email.relay.host":"relay.us.ibm.com",
  "com.ibm.cfs.cloud.hostname":"csk-mgr.rchland.ibm.com",
   "product.AIX1.com.ibm.ovf.vim.2.networkport.6.ip":"{SKC_Test_VLAN2}",
  "product.AIX1.com.ibm.ovf.vim.2.nim.7.nim.Resource.1":"CB_LPAR_FIXUP",
   "admin.username":"admin",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.7.domainname":"rchland.ibm.com",
   "product.AIX1.com.ibm.ovf.vim.2.system.domainname":"icbvm.cloud.com",
   "admin.password":"admin",
   "com.ibm.csk.email.from.address":"admin@cfs.com",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.6.dns1.ip":"10.10.1.17",
   "product.AIX1.com.ibm.ovf.vim.2.networkport.7.dns1.ip":"9.10.244.200",
  "com.ibm.cfs.billing.delinquency.policy":"com.ibm.cfs.services.billing.policies.shutdown",
   "com.ibm.cfs.cloud.mock":"true",
   "com.ibm.cfs.billing.enabled":"false",
   "authentication.secure":"true",
   "com.ibm.csk.deployments.threads":"4",
   "authentication.type":"LOCAL",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.7.ip":"{SKC_Test_VLAN3}",
  "com.ibm.cfs.billing.account.balance.threshold.interval":"24",
   "virtualnetworks-1":"[Network 1]=hostVnet:ETHERNET0/2",
   "com.ibm.cfs.cloud.username":"root",
  "com.ibm.csk.deployments.target.strategy":"anyPoolOrHost",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.6.gateway":"10.10.1.17",
   "com.ibm.cfs.request.lifecycle.enabled":"true",
   "com.ibm.cfs.cloud.password":"passw0rd",
  "com.ibm.cfs.billing.delinquency.finder.interval":"120",
```

```
  "product.AIX1.com.ibm.ovf.vim.2.networkport.7.gateway":"9.5.110.1",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.6.domainname":"icbvm.cloud.com",
   "product.AIX1.com.ibm.ovf.vim.2.networkport.6.netmask":"255.255.0.0",
  "product.AIX1.com.ibm.ovf.vim.2.networkport.7.netmask":"255.255.0.0"
   "product.cloud.name.replacements": "Unknown",
```

GET /configuration/ipAddressPools

This service retrieves the IP address pools for each network configuration.

Query Parameters

N/A

Sample Request

Get current configuration properties for IP address pools:

GET http://host/cloud/api/configuration/ipAddressPools

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "ipAddressPools":[
      {
         "size":1,
         "id":"1",
         "name":"Default Network Configuration",
         "uri":"http://localhost:8080/cloud/api/configuration/ipAddressPools/1"
      },
      {
         "size":508,
         "id":"2",
         "name":"VLAN1",
         "uri":"http://localhost:8080/cloud/api/configuration/ipAddressPools/2"
      },
      {
         "size":508,
         "id":"3",
         "name":"VLAN2",
         "uri":"http://localhost:8080/cloud/api/configuration/ipAddressPools/3"
      }
   ]
}
```

GET /configuration/ldap.xml

This service retrieves the `ldap.xml` file, which defines the authentication properties and authentication process that is used to connect to an LDAP server.

This is an admin web service.

Query Parameters

N/A

Sample Request

Get the `ldap.xml` file

GET http://host/cloud/api/configuration/ldap.xml

Sample Response

HTTP Status: 200

Content-Type: application/xml

```
<?xml version="1.0"?>
<config>
    <host>ldap://ldap.company.com</host>
    <adminUsers>admin@company.com,me@company.com</adminUsers>
    <enableSecureConn>true</enableSecureConn>
    <userNameCaseSensitive>true</userNameCaseSensitive>
    <step>
        <authDN password=encryptedPassword>dnname</authDN>
        <searchFilter>(|(mail={FILTER}))</searchFilter>
        <searchContext>ou=directory,o=company.com</searchContext>
        <outputs>
            <output attribute="fullname">
               <get>cn</get>
            </output>
      </outputs>
  </step>
  <step>
      <authDN>{PERSON_DN}</authDN>
  </step>
</config>
```

PUT /configuration/ldap.xml

This service updates the `ldap.xml` file, which defines the authentication properties and authentication process that is used to connect to an LDAP server.

This is an admin web service.

Query Parameters

N/A

Sample Request

Put the `ldap.xml` file

PUT http://host/cloud/api/configuration/ldap.xml

Content-Type: application/xml

```
<?xml version="1.0"?>
<config>
     <host>ldap://ldap.company.com</host>
     <adminUsers>admin@company.com,me@company.com</adminUsers>
     <enableSecureConn>true</enableSecureConn>
     <userNameCaseSensitive>true</userNameCaseSensitive>
     <step>
         <authDN password="password">dnname</authDN>
         <searchFilter>(|(mail={FILTER}))</searchFilter>
         <searchContext>ou=directory,o=company.com</searchContext>
         <outputs>
```

```
            <output attribute="fullname">
               <get>cn</get>
            </output>
         </outputs>
      </step>
   <step>
       <authDN>{PERSON_DN}</authDN>
   </step>
 </config>
```

Sample Response

HTTP Status: 200

GET /configuration/ldapCert

This service retrieves the LDAP certificates from the keystore file.

This is an admin web service.

Query Parameters

N/A

Sample Request

Get LDAP certificates from the keystore file.

GET http://host/cloud/api/configuration/ldapCert

Sample Response

HTTP Status: 200

```
Alias: 91fc5d38-666e-4ee8-8acb-ca4e6754bab4
Certificate: [

[
  Version: V3

  Subject:

  Signature Algorithm: SHA1withRSA, OID = 1.2.840.113549.1.1.5

  Key:  IBMJCE RSA Public Key:

modulus:

23322284055968216055249442416891412346553545992765381646553805705638063073757378408481
01659865938486418237812820529571551270203078948287774064338884591265010902515708627774
28297841969331959525949251495884729242486972388882015395506744068463728289890342219176
96949840890444293609616878919150679584781222807847827632592297804310512240105724722692
92709088579883248956064609925329030087363341864597103754199349447504920882925935392743
29220188443389038090302693755401527571833727323114502906949469212417296045437833283

public exponent:

65537

- - - - - -- - -

- - - - - - - -

]
```

PUT /configuration/ldapCert

This service updates the LDAP keystore file with the certificate provided.

This is an admin web service.

Query Parameters

N/A

Sample Request

Put LDAP certificate in the keystore file.

PUT http://host/cloud/api/configuration/ldapCert

File: C:\Users\IBM_ADMIN\Documents\abcd.cer

Content-Type: application/binary

Sample Response

HTTP Status: 200

Cloud management services

Use the services that are listed to work with clouds.

Related information:

"Code license and disclaimer information" on page 165

GET /clouds/certificate

Use this service to get the SSL certificate based on the cloud group configuration.

You can apply the GET/clouds/certificate service to view a certificate before you accept the certificate for a cloud group.

Query Parameters

hostname
The host name of the cloud group.

port
The cloud group port.

Sample Request

GET http://host/cloud/api/clouds/certificate?hostname=9.123.100.142&port=8422

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
       -"md5Fingerprint": "BB:1A:9A:22:D7:99:C1:D0:C4:2A:17:32:59:BB:F7:DF",
       -"validFrom": 1331063224000,
       -"issuedTo": "www.ibm.com",
       -"trusted": false,
       -"validTo": 2119981624000,
       -"issuer": "www.ibm.com, STG, IBM, Austin, TX, US",
       -"subject": "www.ibm.com, STG, IBM, Austin, TX, US",
       -"serialNumber": "4F:56:69:B8",
       -"sha1Fingerprint": "C1:D0:1A:98:92:44:5B:E8:A0:52:5B:A9:E2:B9:CC:18:3A:EB:36:46"
}
```

POST /clouds

Use this service to create cloud connections that are based on the provided cloud configuration information.

By default, this service trusts the SSL certificate from the cloud provider. If you specify cloud names that are not unique, the creation of the cloud connections fails.

Query Parameters

test
The test parameter is set to false by default. To allow clients to test the cloud configuration, change the value to true. When the value is set to true and clients are testing the cloud connection, the SSL certificate is always trusted.

trust
Specifies whether to trust the SSL certificate. By default, the POST /clouds service always trusts the certificate.

Sample Request 1: VMware cloud

Create a VMware cloud from the configuration.

```
POST  http://host/cloud/api/clouds
{
   "name":"vmware-120",
   "description":"vmware-120",
   "hostname":"9.111.222.333",
   "username":"root",
   "password":"vmware",
   "cloudType":"VMware"
}
```

Sample Response 1

HTTP Status: 201 Created

HTTP Response Body:

```
Location Header :  http://host/cloud/api/clouds/1253
{
   "timeout":600,
   "isComplete":true,
   "hostname":"9.125.13.120",
   "isJmsSSL":false,
   "username":"root",
   "name":"vmware-120",
   "id":"1253",
   "uri":"http://localhost:8080/cloud/api/clouds/1253",
   "description":"vmware-120",
   "cloudType":"VMware"
}
```

Sample Request 2: VMControl cloud

Create a VMControl cloud from the configuration.

```
 POST  http://host/cloud/api/clouds
{
   "name":"Test Cloud",
   "description":"VMControl 2.4 Test Cloud",
   "hostname":"9.123.123.123",
   "username":"root",
   "password":"password",
   "cloudType":"VMControl",
   "version":"2.4.1.x",
   "port":8422,
   "isJmsSSL":"true",
   "jmsPort":61617
}
```

Sample Response 2

HTTP Status: 201 – Created

HTTP Response Body:

```
Location Header :  http://host/cloud/api/clouds/1254
{
   "timeout":600,
   "port":8422,
   "isComplete":true,
   "isJmsSSL":true,
   "name":"Test Cloud",
   "uri":"http://localhost:8080/cloud/api/clouds/1254",
   "cloudType":"VMControl",
   "jmsPort":61617,
   "hostname":"9.123.100.141",
   "username":"root",
   "version":"2.4.1.x",
   "id":"1254",
   "description":"VMControl 2.4 Test Cloud"
}
```

DELETE /clouds/{id}

This service is used to remove a cloud from management.

All appliances and workloads that are associated with the cloud are removed. The cloud is removed as a managed cloud. Additionally, all information that is associated with the cloud, such as deployment and network properties, is lost.

Query Parameters

N/A

Sample Request

Delete a cloud:

DELETE http://host/cloud/api/clouds/123

Sample Response

HTTP Status: 200 success

GET /clouds

This service is used to view the status of the current clouds that are being managed.

Query Parameters

N/A

Sample Request

Get the configuration information and status of all clouds:

GET http://host/cloud/api/clouds

Sample Response

HTTP Status: 200 success


```
{
   "clouds":[
      {
         "timeout":600,
         "state":{
            "label":"OK",
            "id":"OK"
         },
         "isComplete":true,
         "hostname":"9.111.222.333",
         "isJmsSSL":false,
         "username":"root",
         "type":"VMware",
         "name":"vmware-120",
         "id":"1253",
         "description":"vmware-120",
         "uri":"http://localhost:8080/cloud/api/clouds/1253"
      },
      {
         "timeout":600,
         "port":8422,
         "isComplete":true,
         "isJmsSSL":true,
         "name":"9.123.100.141",
         "uri":"http://localhost:8080/cloud/api/clouds/1254",
```

```
         "jmsPort":61617,
         "state":{
            "label":"OK",
            "id":"OK"
         },
         "hostname":"9.123.100.141",
         "username":"root",
         "version":"2.4.1.x",
         "type":"VMControl",
         "id":"1254",
         "description":"9.123.100.141"
      }
   ]
}
```

GET /clouds/{id}

Use this service to view the status of a single cloud that is being managed.

Query Parameters

N/A

Sample Request

Get the configuration information and status of a single cloud:

GET http://host/cloud/api/clouds/{id}

Sample Response

HTTP Status: 200 success

```
{
   "timeout":600,
   "port":8422,
   "isComplete":true,
   "isJmsSSL":true,
   "name":"9.123.100.141",
   "uri":"http://localhost:8080/cloud/api/clouds/1254",
   "cloudType":"VMControl",
   "jmsPort":61617,
   "state":{
      "label":"OK",
      "id":"OK"
   },
   "hostname":"9.123.100.141",
   "username":"root",
   "version":"2.4.1.x",
   "id":"1254",
   "description":"9.123.100.141"
}
```

GET /clouds?types

This service retrieves the supported cloud types.

Query Parameters

N/A

Sample Request

Get the supported cloud types:

GET http://host/cloud/api/clouds?types=true

Sample Response

HTTP Status: 200 success

```
{
   "cloudTypes":[
      {
         "type":"VMControl",
         "versions":[
            "2.3.1.x",
            "2.4.1.x"
         ]
      },
      {
         "type":"VMware",
         "versions":[

         ]
      }
   ],
   "uri":"http://localhost:8080/cloud/api/clouds?types"
}
```

GET /clouds/{id}/certificate

This service is used to get the SSL certificate for the cloud.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/clouds/{id}/certificate

Sample Response

HTTP Status: 200 success

```
{
   "md5Fingerprint":"30:1E:7E:67:B8:E4:CD:D9:97:26:DF:7D:47:2C:24:E9",
   "validFrom":1223274478000,
   "issuedTo":"www.ibm.com",
   "trusted":true,
   "validTo":2000874478000,
   "issuer":"www.ibm.com, , IBM,  US",
   "subject":"www.ibm.com, IBM, US",
   "serialNumber":"44:EE:AF:EE",
   "sha1Fingerprint":"2C:A4:C8:AA:73:05:45:A8:94:B1:73:F4:FE:21:F6:17:C2:FE:01:05"
}
```

PUT /clouds/{id}

This service is used to update the cloud configuration and the cloud connection that is based on the provided cloud configuration information.

By default, this service trusts the SSL certificate from the cloud provider.

Query Parameters

test
Default value for this parameter is false. This gives the clients of the service the option to test the cloud configuration. By default, the SSL certificate is always trusted when testing the cloud connection.

Note: When you have an existing connection, testing the connection is not supported. Use the test parameter only when you do not have a valid connection and want to test the new configuration.

trust
Specifies whether to trust the SSL certificate. By default, this service always trusts the certificate. This parameter also controls whether to trust the cloud connection. You might choose not to trust the connection if something about the cloud configuration has changed.

Sample Request 1

Update the cloud name and description.

```
PUT  http://host/cloud/api/clouds/{id}
{
     "name":"Test Cloud Changed",
     "description":"Test Cloud VMC 2.4 Changed"
}
```

Sample Response 1

HTTP Status: 200 success

Sample Request 2

Untrust the current cloud connection and certificate.

```
PUT  http://host/cloud/api/clouds/{id}?trust=false
```

Sample Response 2

HTTP Status: 200 success

Delinquency policies services

IBM SmartCloud Entry provides services for managing delinquency policies.

"GET /billing/delinquencyPolicies"
This service retrieves all the delinquency policies that are defined within IBM SmartCloud Entry.

"GET /billing/delinquencyPolicies/{id}" on page 50
This service retrieves the properties of a specific delinquency policy by id.

Related information:

"Code license and disclaimer information" on page 165

GET /billing/delinquencyPolicies

This service retrieves all the delinquency policies that are defined within IBM SmartCloud Entry.

Sample Request

GET http://host/cloud/api/billing/delinquencyPolicies

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "delinquencyPolicies":[
      {
         "name":"Shutdown deployments",
        "id":"com.ibm.cfs.services.billing.policies.shutdown",
        "uri":"http://localhost:8080/cloud/api/billing/delinquencyPolicies/com.ibm.cfs.services.billing.policies.shutdown"
      },
      {
         "name":"Destroy deployments",
        "id":"com.ibm.cfs.services.billing.policies.destroy",
        "uri":"http://localhost:8080/cloud/api/billing/delinquencyPolicies/com.ibm.cfs.services.billing.policies.destroy"
      },
      {
         "name":"Do nothing",
         "id":"com.ibm.cfs.services.billing.policies.do.nothing",
        "uri":"http://localhost:8080/cloud/api/billing/delinquencyPolicies/com.ibm.cfs.services.billing.policies.do.nothing"
      }
   ]
}
```

GET /billing/delinquencyPolicies/{id}

This service retrieves the properties of a specific delinquency policy by id.

Sample Request

GET http://host/cloud/api/delinquencyPolicies/com.ibm.cfs.services.billing.policies.shutdown

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "name":"Shutdown deployments",
  "id":"com.ibm.cfs.services.billing.policies.shutdown",
  "uri":"http://localhost:8080/cloud/api/billing/delinquencyPolicies/com.ibm.cfs.services.billing.policies.shutdown"
}
```

Event services

IBM SmartCloud Entry provides the following services for events.

Related information:
"Code license and disclaimer information" on page 165

DELETE /events

This service clears event messages by a specified combination of conditions.

Query Parameters

Name	Description	Default	Required
severity	String of form severity=(INFO,WARNING,SEVERE). Represents query by event severity. The severity may be a combination of values, such as any of the following: • severity=INFO,SEVERE • severity=INFO,WARNING • severity=SEVERE,WARNING • severity=INFO,SEVERE,WARNING	null	No
startTime	This is a timestamp that is used to specify a starting timeframe for events returned. Events that occur before this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	No
endTime	This is a timestamp that is used to specify an ending timeframe for events returned. Events that occur after this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	Yes

Sample Request

To remove events with combination of conditions:

DELETE http://host/cloud/api/events?startTime=1341734400000&endTime=1341907199000
&severity=INFO,WARNING

Sample Response

HTTP Status: 200 if successful

GET /events

This service retrieves a list of events for the current user.

The current user is defined in the request header cookie savedUserId, therefore callers must ensure that set this cookie specifies the user for which to retrieve events. The events that are retrieved are in descending order.

The API current provides the following resource types for event messages (that is, the type in an element of the resources array); cloudConfiguration, workload, deploymentTarget, appliance, project, user, and virtualServer.

Query Parameters

Name	Description	Default	Required
start	This is the index of the first record that is returned from the database must >=0 and Integer	1	No
count	This is the number of records to return after the "start" parameter record, must >0 and Integer.	20	No
all	If true, then all known events are retrieved for the user.	false	No
originator	String of form originator=admin or originator=rykal, and represents query by event originator.	null	No
severity	String of form severity=(INFO,WARNING,SEVERE). Represents query by event severity	null	No
participants	String of form /participants=USER:nate,sue;PROJECT:1. Both the Type and ids are required.	null	No
startTime	This is a timestamp that is used to specify a starting timeframe for events returned. Events that occur before this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	No
endTime	This is a timestamp that is used to specify an ending timeframe for events returned. Events that occur after this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	No
order	This is the order that is used to specify the order direction for the events returned. Order can be descending (desc) or ascending (asc).	desc	No
sortBy	This the sorting column that is used to retrieve the events.	timestamp	No

Sample Request

GET http://host/cloud/api/events

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "events":[
      {
         "resources":[
               {
                  "type":"USER",
                  "id":"test",
                  "name":"test"
               }
            ],
```

```
         "timestamp":"1302153806444",
         "message":"User ${0} was created.",
         "id":"404",
        "uri":"http://localhost:8080/cloud/api/events/404",
         "originator":"SKC Administrator",
         "severity":{
            "label":"Info",
            "id":"INFO"
         }
      },
      {
         "resources":[
               {
                  "type":"APPLIANCE",
                  "id":"102",
                  "name":"MyApp on AIX Image (dual-NIC)"
               }
            ],
         "timestamp":"1302149649132",
         "message":"New appliance ${0} discovered in cloud.",
         "id":"403",
        "uri":"http://localhost:8080/cloud/api/events/403",
         "originator":"System",
         "severity":{
            "label":"Info",
            "id":"INFO"
         }
      },
      {
         "resources":[
               {
                  "type":"APPLIANCE",
                  "id":"101",
                  "name":"MyApp on SUSE Image"
               }
            ],
         "timestamp":"1302149648960",
         "message":"New appliance ${0} discovered in cloud.",
         "id":"402",
        "uri":"http://localhost:8080/cloud/api/events/402",
         "originator":"System",
         "severity":{
            "label":"Info",
            "id":"INFO"
         }
      },
      {
         "resources":[
               {
                  "type":"WORKLOAD",
                  "id":"251",
                  "name":"Workload 1"
               }
            ],
         "timestamp":"1302149648054",
         "message":"New workload ${0} discovered in cloud.",
         "id":"401",
        "uri":"http://localhost:8080/cloud/api/events/401",
         "originator":"System",
         "severity":{
            "label":"Info",
            "id":"INFO"
         }
      }
   ],
   "total":"46"
}
```

GET /events/eventcsv

This service exports the events that are retrieved for the current user with specified conditions. The exported file is in comma-separated value (CSV) format.

Query Parameters

Name	Description	Default	Required
severity	String of form severity=(INFO,WARNING,SEVERE). Represents query by event severity. The severity might be a combination of values, such as any of the following: • severity=INFO,SEVERE • severity=INFO,WARNING • severity=SEVERE,WARNING • severity=INFO,SEVERE,WARNING	null	No
startTime	This is a timestamp that is used to specify a starting timeframe for events returned. Events that occur before this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	No
endTime	This is a timestamp that is used to specify an ending timeframe for events returned. Events that occur after this timestamp are not returned. The startTime and endTime can be used together or alone to specify a timeframe for the events returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	null	Yes

Sample Request

To export file of events that query with combination of conditions:

GET http://host/cloud/api/events/eventcsv?startTime=1341734400000&endTime=1341907199000
&severity=INFO,WARNING

Sample Response

HTTP Status: 200 if successful

This service creates a new CSV file and exports it to the `serverhome/.skc/archives` directory. The name of the file includes `events_`, and the file is timestamped with the creation date. Columns included in the CSV file include EventID, Event, Severity, Originator, Time.

GET /events/{id}

This service retrieves an event by its ID.

This service can be used by callers if they know a specific event id to retrieve.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/events/105

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "id": "404",
    "message": "!user.created!",
    "resources": [
            {
                "type": "USER",
                "id": "test",
                "name": "test"
            }
        ],
    "severity": {
        "id": "INFO",
        "label": "Info"
    },
    "timestamp": "1302153806444",
    "uri": "http://localhost:8080/cloud/api/events/404"
}
```

Expiration policy services

The IBM SmartCloud Entry product provides the following expiration policy services.

"GET /expirationPolicies"
This service gets the expiration policies.

"PUT /expirationPolicy" on page 56
This service updates the properties of the default expiration policy.

"GET /expirationPolicy/{id}" on page 57
This service retrieves expiration policy by the expiration policy id.

"PUT /expirationPolicy/{id}" on page 57
This service updates the expiration policy identified by the expiration policy id.

"GET /projects/{id}/expirationPolicy" on page 58
This service retrieves the expiration policy of the project.

Related information:

"Code license and disclaimer information" on page 165

GET /expirationPolicies

This service gets the expiration policies.

Query Parameters

N/A

Sample Request

Retrieve all the expiration policies.

GET http://host/cloud/api/expirationPolicies

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "expirationPolicies": [
        {
            "notificationFrequency": 3,
            "maxExpirationPeriod": 30,
            "deleteAfterGrace": true,
            "notificationStart": 14,
            "gracePeriod": 0,
            "id": "51",
            "enableExtension": true,
            "maxExtensionPeriod": 30,
            "maxExpirationPeriodWithoutSetting": 1825,
            "ownerType": "project",
            "workloadExpirationSettingAppliable": false,
            "ownerId": "1"
        },
        {
            "notificationFrequency": 3,
            "maxExpirationPeriod": 30,
            "deleteAfterGrace": true,
            "notificationStart": 14,
            "gracePeriod": 0,
            "id": "52",
            "enableExtension": true,
            "maxExtensionPeriod": 30,
            "maxExpirationPeriodWithoutSetting": 1825,
            "ownerType": "project",
            "workloadExpirationSettingAppliable": false,
            "ownerId": "2"
        }
    ]
}
```

PUT /expirationPolicy

This service updates the properties of the default expiration policy.

Query Parameters

N/A

Sample Request

Update the properties of the default expiration policy.

PUT http://host/cloud/api/expirationPolicy

```
{
            "id" :"701",
            "notificationFrequency":3,
```

```
            "notificationStart",14,
            "maxExpirationPeriod":30,
            "maxExpirationPeriodWithoutSetting":1825,
            "maxExtensionPeriod":30,
            "gracePeriod" :30,
            "workloadExpirationSettingAppliable":false,
            "enableExtension":true,
            "deleteAfterGrace":false
}
```

Sample Response

HTTP Status: 200

GET /expirationPolicy/{id}

This service retrieves expiration policy by the expiration policy id.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/expirationPolicies/52

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "notificationFrequency": 3,
    "maxExpirationPeriod": 30,
    "deleteAfterGrace": true,
    "notificationStart": 14,
    "gracePeriod": 0,
    "id": "52",
    "enableExtension": true,
    "maxExtensionPeriod": 30,
    "maxExpirationPeriodWithoutSetting": 1825,
    "ownerType": "project",
    "workloadExpirationSettingAppliable": false,
    "ownerId": "2"
}
```

PUT /expirationPolicy/{id}

This service updates the expiration policy identified by the expiration policy id.

Query Parameters

N/A

Sample Request

PUT http://host/cloud/api/expirationPolicies/52

HTTP Request Body:

```
{

    "notificationFrequency": 5,
    "maxExpirationPeriod": 30,
    "deleteAfterGrace": true,
    "notificationStart": 14,
    "gracePeriod": 0,
    "enableExtension": true,
    "maxExtensionPeriod": 30,
    "maxExpirationPeriodWithoutSetting": 1825,
    "workloadExpirationSettingAppliable": true

}
```

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "notificationFrequency": 5,
    "maxExpirationPeriod": 30,
    "deleteAfterGrace": true,
    "notificationStart": 14,
    "gracePeriod": 0,
    "id": "52",
    "enableExtension": true,
    "maxExtensionPeriod": 30,
    "maxExpirationPeriodWithoutSetting": 1825,
    "ownerType": "project",
    "workloadExpirationSettingAppliable": true,
    "ownerId": "2"
}
```

GET /projects/{id}/expirationPolicy

This service retrieves the expiration policy of the project.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/projects/1234/expirationPolicy

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
"notificationFrequency":3,
"maxExpirationPeriod":30,
"deleteAfterGrace":true,
"notificationStart":14,
"gracePeriod":0,"id":"52",
"enableExtension":true,
"maxExtensionPeriod":30,
"maxExpirationPeriodWithoutSetting":1825,
"ownerType":"project",
"workloadExpirationSettingAppliable":false,
"ownerId":"1234"
}
```

Key pair services

IBM SmartCloud Entry provides the following services for key pairs. These functions apply only to an OpenStack cloud.

"GET /keypairs"
This service retrieves key pairs from the IBM SmartCloud Entry associated with the request authenticated user.

"GET /keypairs/{id}" on page 60
This service retrieves the properties for a specific key pair from the IBM SmartCloud Entry. The key pair ID must be URL encoded.

"POST /keypairs" on page 60
This service generates or imports a key pair.

Related information:

"Code license and disclaimer information" on page 165

GET /keypairs

This service retrieves key pairs from the IBM SmartCloud Entry associated with the request authenticated user.

Sample Request

Retrieve a listing of key pairs from the IBM SmartCloud Entry.

GET http://host/cloud/api/keypairs

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{

    "keypairs": [
        {
            "cloudId": "301",
            "fingerprint": "88:c9:d3:fc:75:a3:77:da:2e:bb:54:fe:f5:70:ed:89",
            "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDToRZemLJB5CwwN0hu9MgU0Mk1Hwbg/C7e+QgP38z8gp
                          HrBMF3fV7HpQbB3xnkrhr/jo15qk8GPMckZ0DhzkYrXQtdjmNBDESbwCWnJZEhgIYePIqgBQmslhJhl
                          FZ5ZKTaK6A7xySzFiF1HKFKoYagfTMloPIBAwhQqABuyChIlDOxpvIgaP9l13x8ZKjILGP+5Rrw1dAQqaY6R
                          QWeFHX2SkXhJawFhOYdmIcukQ7H7bpqASt4IZPMaE3FZcNFieltX71+IU0T1UBd/4Kt7edK0nsK93U1xCWc6
                          FFazxnPp7i950yClzups91OdSigOVMNB+rTm8zmo02ux8JzJRh/ Generated by Nova\n",
            "name": "test_keypair1",
```

```
            "id": "cloud://301/test_keypair1",
            "privateKey": "",
            "uri": "http://9.123.137.54:8080/cloud/api/keypairs/cloud%3A%2F%2F301%2Ftest_keypair1"
        },
        {
            "cloudId": "301",
            "fingerprint": "fa:95:ce:90:09:10:d2:5d:43:a9:9d:28:3f:71:9f:aa",
            "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQC702CI0gVq45Hn740s/H5EALv/yhMleCn86XWsuqjy
                          TIFMOt1Kr23J6DNCPk2stJRpbqNSu4WF2rQyB6rdMXfiLSy3C4zQ/5MJiOV8kFtZHDkjZaXKOYgDZ72UWHEj7
                          KdDP8J7wFtWYhaHR0Y/SwfCze5hsNMa7/ITzWdsBsb00fRQ+CmVk8xWqMovmjO2aUMagKmXIHssGnCaNuIk060yv
                          XU06sv8MS8wfYV1y5gzmojkUKKdz34BeTdCfjMTXlqAzQx2yn9j32yBVf2I0/rWyb076Pg5zKG7HUjJc0Q6TbbC2w
                          NnfWHAv9x4cVyfRTbWubhy9yFqyEOAGV7NedmT Generated by Nova\n",
            "name": "test_keypair2",
            "id": "cloud://301/test_keypair2",
            "privateKey": "",
            "uri": "http://9.123.137.54:8080/cloud/api/keypairs/cloud%3A%2F%2F301%2Ftest_keypair2"
        }
    ]

}
```

GET /keypairs/{id}

This service retrieves the properties for a specific key pair from the IBM SmartCloud Entry. The key pair ID must be URL encoded.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/keypairs/cloud%3A%2F%2F301%2Ftest_keypair1

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{

    "cloudId": "301",
    "fingerprint": "88:c9:d3:fc:75:a3:77:da:2e:bb:54:fe:f5:70:ed:89",
    "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDToRZemLJB5CwwN0hu9MgU0Mk1Hwbg/C7e+QgP38z8gp
                  HrBMF3fV7HpQbB3xnkrhr/jo15qk8GPMckZ0DhzkYrXQtdjmNBDESbwCWnJZEhgIYePIqgBQmslhJhl
                  FZ5ZKTaK6A7xySzFiF1HKFKoYagfTMloPIBAwhQqABuyChIlDOxpvIgaP9l13x8ZKjILGP+5Rrw1dAQqaY6
                  RQWeFHX2SkXhJawFhOYdmIcukQ7H7bpqASt4IZPMaE3FZcNFieltX71+IU0T1UBd/4Kt7edK0nsK93U1xCWc6
                  FFazxnPp7i950yClzups91OdSigOVMNB+rTm8zmo02ux8JzJRh/ Generated by Nova\n",
    "name": "test_keypair1",
    "id": "cloud://301/test_keypair1",
    "privateKey": ""

}
```

POST /keypairs

This service generates or imports a key pair.

Query Parameters

N/A

Sample Request 1

Generate the key pair “test_keypair1”.

POST http://host/cloud/api/keypairs

HTTP Request Body:

```
{
    "cloudId": "301",
    "name": "test_keypair1"
 }
```

Sample Response 1

HTTP Status: 201

HTTP Response Body:

```
{
   {
    "cloudId": "301",
    "fingerprint": "88:c9:d3:fc:75:a3:77:da:2e:bb:54:fe:f5:70:ed:89",
    "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDToRZemLJB5CwwN0hu9MgU0Mk1Hwbg/C7e
                  +QgP38z8gpHrBMF3fV7HpQbB3xnkrhr/jo15qk8GPMckZ0DhzkYrXQtdjmNBDESbwCWnJZEhgIYe
                  PIqgBQmslhJhlFZ5ZKTaK6A7xySzFiF1HKFKoYagfTMloPIBAwhQqABuyChIlDOxpvIgaP9l13x8
                  ZKjILGP+5Rrw1dAQqaY6RQWeFHX2SkXhJawFhOYdmIcukQ7H7bpqASt4IZPMaE3FZcNFieltX71
                  +IU0T1UBd/4Kt7edK0nsK93U1xCWc6FFazxnPp7i950yClzups91OdSigOVMNB+rTm8zmo02ux8JzJRh
        / Generated by Nova\n",
    "name": "test_keypair1",
    "id": "cloud://301/test_keypair1",
    "privateKey": "private key contents"

    }
}
```

Sample Request 2

Import the key pair 'test_keypair2'.

POST http://host/cloud/api/keypairs

HTTP Request Body:

```
{
    "cloudId": "301",
    "name": "test_keypair2",
    "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDToRZemLJB5CwwN0hu9MgU0Mk1Hwbg/C7e
                  +QgP38z8gpHrBMF3fV7HpQbB3xnkrhr/jo15qk8GPMckZ0DhzkYrXQtdjmNBDESbwCWnJZEhg
                  IYePIqgBQmslhJhlFZ5ZKTaK6A7xySzFiF1HKFKoYagfTMloPIBAwhQqABuyChIlDOxpvIgaP9l13x8ZKjILGP
                  +5Rrw1dAQqaY6RQWeFHX2SkXhJawFhOYdmIcukQ7H7bpqASt4IZPMaE3FZcNFieltX71+IU0T1UBd/
                  4Kt7edK0nsK93U1xCWc6FFazxnPp7i950yClzups91OdSigOVMNB+rTm8zmo02ux8JzJRh/ Generated by Nova\n"
 }
```

Sample Response 2

HTTP Status: 201

HTTP Response Body:

```
{
   {
    "cloudId": "301",
    "fingerprint": "88:c9:d3:fc:75:a3:77:da:2e:bb:54:fe:f5:70:ed:89",
    "publicKey": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDToRZemLJB5CwwN0hu9MgU0Mk1Hwbg/C7e
                  +QgP38z8gpHrBMF3fV7HpQbB3xnkrhr/jo15qk8GPMckZ0DhzkYrXQtdjmNBDESbwCWnJZEhg
                  IYePIqgBQmslhJhlFZ5ZKTaK6A7xySzFiF1HKFKoYagfTMloPIBAwhQqABuyChIlDOxpvIgaP9l13x8ZKjILGP
                  +5Rrw1dAQqaY6RQWeFHX2SkXhJawFhOYdmIcukQ7H7bpqASt4IZPMaE3FZcNFieltX71+IU0T1UBd
                  /4Kt7edK0nsK93U1xCWc6FFazxnPp7i950yClzups91OdSigOVMNB+rTm8zmo02ux8JzJRh
        /Generated by Nova\n",
    "name": "test_keypair2",
    "id": "cloud://301/test_keypair2"
    }
}
```

Metering data services

IBM SmartCloud Entry provides the following services managing metering data.

"GET /udrfiles"
This service gets the directories list containing all metering data (UDR) files.

"GET /udrfiles/{directoryName}" on page 63
This service retrieves the files list in a specific directory.

"GET /udrfiles/{directoryName}/{fileName}" on page 63
This service retrieves the file of specific file name.

"GET /udrs" on page 63
This service gets all the universal data records (UDRs) for metering data.

"GET /udrs/{id}" on page 65
This service retrieves the UDR with the udrId.

Related information:

"Code license and disclaimer information" on page 165

GET /udrfiles

This service gets the directories list containing all metering data (UDR) files.

Sample Request

GET http://host/cloud/api/udrfiles

No HTTP body required.

Sample Response

```
HTTP Status: 200 HTTP Response Body:
{

    "total": 2,
    "udrfiles": [
        {
            "type": "directory",
            "name": "201101023",
            "uri": "http://localhost:8080/cloud/api/udrfiles/201101023"
        },
        {
            "type": "directory",
            "name": "20111111",
            "uri": "http://localhost:8080/cloud/api/udrfiles/20111111"
        }
    ]

}
```

GET /udrfiles/{directoryName}

This service retrieves the files list in a specific directory.

Sample Request

GET http://host/cloud/api/udrfiles/{directoryName}

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
"total": 2,
"udrfiles": [
      {
         "type": "file",
         "name": "UDR_20111108010000.csv",
         "uri":"http://localhost:8080/cloud/api/udrfiles/20111023/UDR_20111108010000.csv"
      },
      {
         "type": "file",
         "name": "UDR_20111108010000.csv.digest",
         "uri":"http://localhost:8080/cloud/api/udrfiles/20111023/UDR_20111108010000.csv.digest"
      }
  ]
}
```

GET /udrfiles/{directoryName}/{fileName}

This service retrieves the file of specific file name.

Sample Request

GET http://host/cloud/api/udrfiles/{directoryName}/{fileName}

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body: The specific file according the file name.

GET /udrs

This service gets all the universal data records (UDRs) for metering data.

Sample Request

GET http://host/cloud/api/udrs

No HTTP body required.

Query Parameters

Name	Description	Default	Required
userId	Gets the UDRs that can be viewed by this userId.	N/A	No
globalObjectId	Gets the UDRs for the specified globalObjectId.	N/A	No
cloudId	Gets the UDRs for the specified cloudId.	N/A	No
objectType	Gets the UDRs for the specified objectType.	N/A	No
objectId	Gets the UDRs for the specified objectId.	N/A	No
projectId	Gets the UDRs the specified projectId.	N/A	No
architecture	Gets the UDRs for the specified architecture.	N/A	No
hypervisor	Gets the UDRs for the specified hypervisor.	N/A	No
startTime	Gets the UDRs for which the start time is after specified value.	N/A	No
endTime	Gets the UDRs for which the end time is after the specified value.	Now	No
start	This is the index of the first record that will be returned from the database. The value must be an integer greater than zero.	0	No
count	This is the number of records to return after the "start" parameter record. The value must be an integer greater than zero.	1000	No
sortBy	This parameter supports objectName, projectName, userId, startTime, and cloudName. Case insensitive.	startTime	No
order	Specify order with ascending or descending. Parameter can be set to `desc` or `asc`.	desc	No
cloudName	Gets the UDRs for the specified cloudName.	N/A	No

Sample Response

HTTP Status: 200

HTTP Response Body

```
{
    "udrs": [
        {
            "resourceValues": {
                "MEMORY": 1024,
                "CPU": 1,
                "DISK": 5120
            },
            "cloudId": "default",
            "cloudName": "VMC-120",
           "cloudType": "VMControl",
            "userId": "",
            "endTime": "0",
            "objectType": "virtual machine",
            "objectId": "752",
            "identifierValues": {
                "state": {
                    "id":"RUNNING",
                    "label":"RUNNING"
                },
                "workloadName": "NultiDisk_Capture_No_Delete_ByZhuohual",
                "workloadId": "702",
                "architecture": "Power",
                "projectName": "Public",
                "projectId": "151",
                "hypervisor": "PowerVM",
                "objectName": "naj-1202-192.168.128.16"
            },
            "id": "953",
            "uri": "http://localhost:8080/cloud/api/udrs/953",
            "globalObjectId": "cloud://default/13267",
            "meteringInterval": 1,
            "startTime": "20111202 13:12:35"
        },
        {
            "resourceValues": {
                "MEMORY": 1024,
                "CPU": 0.5,
                "DISK": 5120
            },
            "cloudId": "default",
            "cloudName": "VMC-120",
           "cloudType": "VMControl",
            "userId": "",
            "endTime": "0",
            "objectType": "virtual machine",
            "objectId": "751",
            "identifierValues": {
                "state": {
                    "id":"RUNNING",
                    "label":"RUNNING"
                },
                "workloadName": "naj_1202",
                "workloadId": "701",
                "architecture": "Power",
                "projectName": "Public",
                "projectId": "151",
                "hypervisor": "PowerVM",
                "objectName": "naj-1202-192-168-128-15"
            },
            "id": "952",
            "uri": "http://localhost:8080/cloud/api/udrs/952",
            "globalObjectId": "cloud://default/13227",
            "meteringInterval": 1,
            "startTime": "20111202 13:12:35"
        }
    ],
    "total": 9,
    "uri": "http://localhost:8080/cloud/api/udrs"
}
```


GET /udrs/{id}

This service retrieves the UDR with the udrId.

Sample Request

GET http://host/cloud/api/udrs/{id}

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "resourceValues": {
        "MEMORY": 1024,
        "CPU": 0.5,
        "DISK": 5120
    },
    "cloudId": "default",
    "cloudName": "VMC-120",
    "cloudType": "VMControl",
    "userId": "",
    "endTime": "0",
    "objectType": "virtual machine",
    "objectId": "751",
    "identifierValues": {
        "state": {
            "id":"RUNNING",
            "label":"RUNNING"
        },
        "workloadName": "naj_1202",
        "workloadId": "701",
        "architecture": "Power",
        "projectName": "Public",
        "projectId": "151",
        "hypervisor": "PowerVM",
        "objectName": "naj-1202-192-168-128-15"
    },
    "id": "952",
    "uri": "http://localhost:8080/cloud/api/udrs/952",
    "globalObjectId": "cloud://default/13227",
    "meteringInterval": 1,
    "startTime": "20111202 13:12:35"
}
```

Network configuration services

Work with your network configuration using the services described here.

"PUT /networkConfigurations/{id}/ipAddresses/{ip}" on page 79
This service enables updating of an existing managed IP address.
"DELETE /networkConfigurations/{id}/ipAddresses/{ip}" on page 79
This service removes an existing IP address from the network configuration of managed IP addresses.

Related information:

"Code license and disclaimer information" on page 165

GET /networkConfigurations

This service retrieves all network configurations.

Network configurations are used to automatically provide IP addresses, host names, DNS, gateway addresses, subnet masks, domain suffix search list, DHCP setting, and WINS addresses for workloads. An appliance can be configured to use a network configuration from an existing network configuration upon deployment.

This is an admin web service.

Query Parameters

cloudGroupId (optional)

Filters network configuration by cloudGroupId. Returns the network configurations that are valid for the specified cloudGroupId. If you specify * for the cloudGroupId, all network configurations are returned.

Sample Request

GET http://localhost:8080/cloud/api/networkConfigurations

No HTTP body required.

Sample Response

Note: The IPv6 related fields are returned only when there is an IPv6 subnet configured in this network.

HTTP Status: 200

HTTP Response Body:

```
{
 "networkConfigurations": [
  {
  "domainSuffixes": {
   "value": "",
   "label": "Domain suffix search list"
  },
  "ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/151/ipAddresses",
  "blockedCount": 0,
  "freeCount": 41,
  "domain": {
   "value": "private.cloud.com",
   "label": "Domain name"
  },
  "hostnamePrefix": {
   "value": "sce",
   "label": "Host name prefix"
  },
  "dns1": {
   "value": "203.0.113.100",
   "label": "DNS 1"
  },
```

```
 "networkId": {
  "value": "",
  "label": "Network ID"
 },
 "dns2": {
  "value": "203.0.113.200",
  "label": "DNS 2"
 },
 "name": "Default",
 "uri": "http://localhost:8080/cloud/api/networkConfigurations/151",
 "gateway1": {
  "value": "192.0.2.1",
  "label": "Gateway address"
 },
 "gateway2": {
  "value": "",
  "label": "Alternate gateway address"
 },
 "workgroup": {
  "value": "WORKGROUP",
  "label": "Workgroup"
 },
 "usedCount": 0,
 "isDefault": false,
 "useDHCP": {
  "value": false,
  "label": "Use DHCP"
 },
 "computerNamePrefix": {
  "value": "sce",
  "label": "Computer name prefix"
 },
 "wins1": {
  "value": "203.0.113.40",
  "label": "Primary WINS address"
 },
 "obtainFromDNS": {
  "value": false,
  "label": "Obtain hostname and domain name from DNS server"
 },
 "id": "151",
 "wins2": {
  "value": "203.0.113.140",
  "label": "Secondary WINS address"
 },
 "description": "Default Network Configuration",
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 }
},
{
 "cloudGroupUri": "http://localhost:8080/cloud/api/clouds/306",
 "ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/2052/ipAddresses",
 "blockedCount": 0,
 "freeCount": -1,
 "hostnamePrefix": {
  "value": "sce",
  "label": "Host name prefix"
 },
 "cloudGroupId": "306",
 "networkId": {
  "value": "VM Network",
  "label": "Network ID"
 },
 "name": "DHCP",
 "uri": "http://localhost:8080/cloud/api/networkConfigurations/2052",
```

```
 "workgroup": {
  "value": "WORKGROUP",
  "label": "Workgroup"
 },
 "cloudType": "VMware",
 "usedCount": -1,
 "cloudGroupName": "vCenter10",
 "isDefault": false,
 "useDHCP": {
  "value": true,
  "label": "Use DHCP"
 },
 "computerNamePrefix": {
  "value": "sce",
  "label": "Computer name prefix"
 },
 "obtainFromDNS": {
  "value": false,
  "label": "Obtain hostname and domain name from DNS server"
 },
 "id": "2052",
 "description": "Sample DHCP configuration",
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 }
},
{
 "cloudGroupUri": "http://localhost:8080/cloud/api/clouds/304",
 "blockedCount": 0,
 "freeCount": 253,
 "cloudGroupId": "304",
 "networkType": {
  "value": "vlan",
  "label": "Network type"
 },
 "name": "VLAN50",
 "cloudType": "OpenStack",
 "usedCount": 0,
 "physicalNetwork": {
  "value": "default",
  "label": "Physical network"
 },
 "endAllocation": {
  "value": "192.168.50.254",
  "label": "IP allocation pool end address"
 },
 "id": "304_6c72f74b-f335-4aef-bb23-9afcd89341a4",
 "blockedIpv6Count": 0,
 "freeIpv6Count": 253,
 "ipv6Gateway": {
  "value": "2001:db8::192:168:50:1",
  "label": "IPv6 gateway address"
 },
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 },
 "vlanId": {
  "value": 50,
  "label": "VLAN id"
 },
 "ipv6PrefixLength": {
  "value": "120",
  "label": "IPv6 prefix length"
 },
 "startAllocation": {
```

```
   "value": "192.168.50.2",
   "label": "IP allocation pool start address"
  },
  "ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/
                         304_6c72f74b-f335-4aef-bb23-9afcd89341a4/ipAddresses",
   "dns1":
  {
   "value": "203.0.113.100",
   "label": "DNS 1"
  },
  "dns2": {
   "value": "203.0.113.200",
   "label": "DNS 2"
  },
  "networkId": {
   "value": "6c72f74b-f335-4aef-bb23-9afcd89341a4",
   "label": "Network ID"
  },
  "usedIpv6Count": 0,
  "uri": "http://localhost:8080/cloud/api/networkConfigurations/304_6c72f74b-f335-4aef-bb23-9afcd89341a4",
  "gateway1": {
   "value": "192.168.50.1",
   "label": "Gateway address"
  },
  "ipv6Dns1": {
   "value": "2001:db8:0:0:203:0:113:100",
   "label": "IPv6 DNS1"
  },
  "ipv6Dns2": {
   "value": "2001:db8:0:0:203:0:113:200",
   "label": "IPv6 DNS2"
  },
  "ipv6EndAllocation": {
   "value": "2001:db8:0:0:192:168:50:fe",
   "label": "IPv6 IP allocation pool end address"
  },
  "cloudGroupName": "OpenStack",
  "isDefault": false,
  "useDHCP": {
   "value": false,
   "label": "Use DHCP"
  },
  "useDHCPv6": {
   "value": false,
   "label": "Use IPv6 DHCP"
  },
  "obtainFromDNS": {
   "value": false,
   "label": "Obtain hostname and domain name from DNS server"
  },
  "ipv6StartAllocation": "2001:db8:0:0:192:168:50:2"
 }  ]
}
```


The query response might include `cloudGroupUri`, `cloudGroupId`, and `cloudGroupName` or include none of the three if the networkConfiguration does not belong to any cloud groups.

POST /networkConfigurations

This service adds a network configuration.

Network configuration names must be unique. If a new network configuration name conflicts with an existing network configuration name, the service responds with a 400 status code. You can also specify some IP addresses when you create a network configuration.

This is an admin web service.

Sample Request 1

Add a network configuration named `Sample Network Configuration` without a cloudGroupId:

POST http://host/cloud/api/networkConfigurations

HTTP Request Body:

```
{
   "name":"Sample Network Configuration",
   "description":"Sample network configuration",
   "networkId":"VM Network",
   "gateway1":"192.168.1.1",
   "subnet":"255.255.255.0",
   "dns1":"203.0.113.100",
   "domain":"private.cloud.com"
}
```

Sample Response 1

HTTP Status: 201

HTTP Location: URL of the new network configuration

HTTP Response Body:

```
{
 "ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses",
 "blockedCount": 0,
 "freeCount": 0,
 "domain": {
  "value": "private.cloud.com",
  "label": "Domain name"
 },
 "dns1": {
  "value": "203.0.113.100",
  "label": "DNS 1"
 },
 "networkId": {
  "value": "VM Network",
  "label": "Network ID"
 },
 "name": "Sample Network Configuration",
 "uri": "http://localhost:8080/cloud/api/networkConfigurations/2053",
 "gateway1": {
  "value": "192.168.1.1",
  "label": "Gateway address"
 },
 "usedCount": 0,
 "isDefault": false,
 "useDHCP": {
  "value": false,
  "label": "Use DHCP"
 },
 "obtainFromDNS": {
  "value": false,
  "label": "Obtain hostname and domain name from DNS server"
 },
 "id": "2053",
 "description": "Sample network configuration",
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 }
```

Sample Request 2

Add a network configuration for OpenStack Cloud named `OpenStack VLAN10` with a cloudGroupId of 304:

POST http://host/cloud/api/networkConfigurations

HTTP Request Body:

```
{
   "name":"OpenStack VLAN10",
   "cloudGroupId":"304",
   "networkType":"vlan",
   "physicalNetwork":"default",
   "vlanId":10,
   "gateway1":"192.168.10.1",
   "subnet":"255.255.255.0",
   "startAllocation":"192.168.10.2",
   "endAllocation":"192.168.10.254",
   "dns1":"203.0.113.100",
   "ipv6Gateway":"2001:db8:0:0:192:168:10:1",
   "ipv6PrefixLength":"120",
   "ipv6StartAllocation":"2001:db8:0:0:192:168:10:2",
   "ipv6EndAllocation":"2001:db8:0:0:192:168:10:fe"
}
```

Sample Response 2

```
{
 "cloudGroupUri": "http://localhost:8080/cloud/api/clouds/304",
 "freeCount": 253,
 "blockedCount": 0,
 "cloudGroupId": "304",
 "networkType": {
  "value": "vlan",
  "label": "Network type"
 },
 "name": "OpenStack VLAN10",
 "cloudType": "OpenStack",
 "usedCount": 0,
 "physicalNetwork": {
  "value": "default",
  "label": "Physical network"
 },
 "id": "304_b45cd4b5-c4d8-4836-99de-e97e63c3366a",
 "endAllocation": {
  "value": "192.168.10.254",
  "label": "IP allocation pool end address"
 },
 "freeIpv6Count": 253,
 "blockedIpv6Count": 0,
 "ipv6Gateway": {
  "value": "2001:db8:0:0:192:168:10:1",
  "label": "IPv6 gateway address"
 },
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 },
 "vlanId": {
  "value": 10,
  "label": "VLAN id"
 },
 "ipv6PrefixLength": {
  "value": "120",
  "label": "IPv6 prefix length"
 },
 "startAllocation": {
```

```
 "value": "192.168.10.2",
 "label": "IP allocation pool start address"
},
"ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/
                     304_b45cd4b5-c4d8-4836-99de-e97e63c3366a/ipAddresses", "dns1": {
 "value": "203.0.113.100",
 "label": "DNS 1"
},
"networkId": {
 "value": "b45cd4b5-c4d8-4836-99de-e97e63c3366a",
 "label": "Network ID"
},
"usedIpv6Count": 0,
"uri": "http://localhost:8080/cloud/api/networkConfigurations/304_b45cd4b5-c4d8-4836-99de-e97e63c3366a",
"gateway1": {
 "value": "192.168.10.1",
 "label": "Gateway address"
},
"ipv6EndAllocation": {
 "value": "2001:db8:0:0:192:168:10:fe",
 "label": "IPv6 IP allocation pool end address"
},
"cloudGroupName": "OpenStack",
"isDefault": false,
"useDHCPv6": {
 "value": false,
 "label": "Use IPv6 DHCP"
},
"useDHCP": {
 "value": false,
 "label": "Use DHCP"
},
"obtainFromDNS": {
 "value": false,
 "label": "Obtain hostname and domain name from DNS server"
},
"ipv6StartAllocation": "2001:db8:0:0:192:168:10:2"
}
```


GET /networkConfigurations/{id}

This service retrieves a specific network configuration.

Network configurations are used to automatically provide IP addresses, host names, DNS, gateway addresses, subnet masks, domain suffix search list, DHCP setting, and WINS addresses for workloads. An appliance can be configured to use an existing network configuration upon deployment. This service retrieves all known information about a network configuration such as DNS1, DNS2, and gateway addresses.

This is an admin web service.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/networkConfigurations/304_6c72f74b-f335-4aef-bb23-9afcd89341a44

No HTTP body required.

Sample Response

Note: The IPv6 related fields are returned only when there is an IPv6 subnet configured in this network.

HTTP Status: 200

HTTP Response Body:


```
{
 "cloudGroupUri": "http://localhost:8080/cloud/api/clouds/304",
 "freeCount": 253,
 "blockedCount": 0,
 "cloudGroupId": "304",
 "networkType": {
  "value": "vlan",
  "label": "Network type"
 },
 "name": "VLAN50",
 "cloudType": "OpenStack",
 "usedCount": 0,
 "physicalNetwork": {
  "value": "default",
  "label": "Physical network"
 },
 "id": "304_6c72f74b-f335-4aef-bb23-9afcd89341a4",
 "endAllocation": {
  "value": "192.168.50.254",
  "label": "IP allocation pool end address"
 },
 "freeIpv6Count": 253,
 "blockedIpv6Count": 0,
 "ipv6Gateway": {
  "value": "2001:db8::192:168:50:1",
  "label": "IPv6 gateway address"
 },
 "subnet": {
  "value": "255.255.255.0",
  "label": "Subnet mask"
 },
 "vlanId": {
  "value": 50,
  "label": "VLAN id"
 },
 "ipv6PrefixLength": {
  "value": "120",
  "label": "IPv6 prefix length"
 },
 "startAllocation": {
  "value": "192.168.50.2",
  "label": "IP allocation pool start address"
 },
 "ipAddressPoolUri": "http://localhost:8080/cloud/api/networkConfigurations/304_6c72f74b-f335-4aef-bb23-9afcd89341a4/ipAddresses",
 "dns1": {
  "value": "203.0.113.100",
  "label": "DNS 1"
 },
 "dns2": {
  "value": "203.0.113.200",
  "label": "DNS 2"
 },
 "networkId": {
  "value": "6c72f74b-f335-4aef-bb23-9afcd89341a4",
  "label": "Network ID"
 },
 "usedIpv6Count": 0,
 "uri": "http://localhost:8080/cloud/api/networkConfigurations/304_6c72f74b-f335-4aef-bb23-9afcd89341a4",
 "gateway1": {
  "value": "192.168.50.1",
  "label": "Gateway address"
 },
 "ipv6Dns1": {
  "value": "2001:db8:0:0:203:0:113:100",
  "label": "IPv6 DNS1"
 },
 "ipv6Dns2": {
  "value": "2001:db8:0:0:203:0:113:200",
```

```
  "label": "IPv6 DNS2"
 },
 "ipv6EndAllocation": {
  "value": "2001:db8:0:0:192:168:50:fe",
  "label": "IPv6 IP allocation pool end address"
 },
 "cloudGroupName": "OpenStack",
 "isDefault": false,
 "useDHCPv6": {
  "value": false,
  "label": "Use IPv6 DHCP"
 },
 "useDHCP": {
  "value": false,
  "label": "Use DHCP"
 },
 "obtainFromDNS": {
  "value": false,
  "label": "Obtain hostname and domain name from DNS server"
 },
 "ipv6StartAllocation": "2001:db8:0:0:192:168:50:2"
}
```

PUT /networkConfigurations/{id}

This service updates a new network configuration.

Note: You can update only the following fields in the network configuration for an OpenStack cloud:

- name
- gateway1
- dns1
- dns2
- ipv6Gateway
- ipv6Dns1
- ipv6Dns2

In the OpenStack cloud network configuration, the order of the values for dns1 and dns2 might change after the values are updated.

Network configurations names must be unique. If a new network configuration name conflicts with an existing network configuration name, the service responds with a 400 status code.

This is an admin web service.

Sample Request

Update a network configuration named specified by id 2053:

PUT http://host/cloud/api/networkConfigurations/2053

HTTP Request Body:

```
{
   "name":"Sample Network Configuration - Renamed",
   "description":"Sample network configuration - Description renamed",
   "gateway1":"192.168.1.254",
   "dns1":"203.0.113.101",
   "dns2":"203.0.113.102",
   "wins1":"203.0.113.103",
   "wins2":"203.0.113.104"
}
```

Sample Response

HTTP Status: 200

The response might include `cloudGroupUri`, `cloudGroupId`, and `cloudGroupName` or include none of the three if the networkConfiguration does not belong to any cloud groups.

DELETE /networkConfigurations/{id}

This service removes an existing network configuration and all of the IP addresses that it manages.

If the network configuration to delete still has IP addresses in use, a 500 response is returned. Only network configurations with no used IP addresses can be deleted.

This is an admin web service.

Query Parameters

N/A

Sample Request

Remove the network configuration with ID 2053

DELETE http://host/cloud/api/networkConfigurations/2053

Sample Response

HTTP Status: 200

GET /networkConfigurations/{id}/ipAddresses

This service retrieves all known managed IP addresses in a network configuration.

A managed IP address is either “used” or “unused” as indicated by the IP addresses “isUsed” value, and “blocked” and “unblocked” is indicated by “'isBlocked'”. If an IP address is free, it is available for use in a workload.

This is an admin web service.

Query Parameters

Name	Description	Default	Required
used	The IP addresses retrieved should all be unused.	false	No

Sample Request

GET http://host/cloud/api/networkConfigurations/2053/ipAddresses

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "ipAddresses":[
      {
```

```
         "isBlocked":false,
         "hostname":"skc-host1",
         "isUsed":false,
         "uri":"http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.1",
         "ipAddress":"192.168.1.1"
      },
      {
         "isBlocked":false,
         "hostname":"skc-host2",
         "isUsed":false,
         "uri":"http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.2",
         "ipAddress":"192.168.1.2"
      }
   ]
}
```

POST /networkConfigurations/{id}/ipAddresses

This service adds one or more IP addresses to the network configuration.

Note: This interface is not supported for network configurations in an OpenStack cloud. All IP addresses must be defined when the OpenStack network configuration is first created.

IP addresses are always created as unused and unblocked so the value of "isUsed" and "isBlocked" are ignored on a POST service.

If any IP addresses specified to this service are already managed, none of them are added to the pool of managed IP addresses. A 400 response is returned.

To update the "isUsed" or "isBlocked" values, use the PUT service.

This is an admin web service.

Query Parameters

N/A

Sample Requests

1. Adding an IP address to the network configuration with ID 2053:
   POST http://host/cloud/api/networkConfigurations/2053/ipAddresses
   HTTP Request Body:
   ```
   {
       "ipAddress":"192.168.1.221",
       "hostname":"cfs-221"
   }
   ```
2. Adding multiple IP addresses to the network configuration with ID 2053:
   POST http://host/cloud/api/networkConfigurations/2053/ipAddresses
   HTTP Request Body:
   ```
   [
       {
           "ipAddress":"192.168.1.222",
           "hostname":"cfs-222"
       },
       {
           "ipAddress":"9.5.12.223",
           "hostname":"cfs-223"
       }
   ]
   ```
3. Adding multiple IP addresses in an address range to the network configuration with ID 2053:

POST http://host/cloud/api/networkConfigurations/2053/ipAddresses

HTTP Request Body:

```
{
    "ipAddressRange":{
    "start":"192.168.1.201",
    "end":"192.168.1.205"
    }
}
```

Sample Response

HTTP Status: 201

HTTP Response Body:

Note: The following HTTP response body is specific to sample request 2. The HTTP response body for the other sample requests is similar.

```
{
   "ipAddresses":[
      {
         "isBlocked":false,
         "hostname":"cfs-222",
         "isUsed":false,
         "uri":"http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.222",
         "ipAddress":"192.168.1.222"
      },
      {
         "isBlocked":false,
         "hostname":"cfs-223",
         "isUsed":false,
         "uri":"http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.223",
         "ipAddress":"192.168.1.223"
      }
   ]
}
```

GET /networkConfigurations/{id}/ipAddresses/{ip}

This service retrieves the properties of a specific managed IP address by IP address.

If the “isUsed” and “'isBlocked'” values for the IP address are “false”, the IP is free and available for use by a workload. If the value of either “isUsed” or “isBlocked” is “true”, the IP cannot be used by a workload.

This is an admin web service.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.221

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "isBlocked":false,
   "hostname":"cfs-221",
   "isUsed":false,
   "uri":"http://localhost:8080/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.221",
   "ipAddress":"192.168.1.221"
}
```

PUT /networkConfigurations/{id}/ipAddresses/{ip}

This service enables updating of an existing managed IP address.

The service is used to mark a managed IP address as blocked so that the IP address cannot be used in workloads. If the IP address is not in the managed IP pool, a 404 response is returned.

This is an admin web service.

Query Parameters

N/A

Sample Requests

1. Set IP address “192.168.1.221”to blocked and host name to “cfs-221-Blocked”

   PUT http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.221

   ```
   {
       "isBlocked":true,
       "hostname":"cfs-221-Blocked"
   }
   ```

   Note: Setting the host name of the IP address is not supported for network configurations in an OpenStack cloud.
2. Set IP addresses "192.168.1.222" and "192.168.1.223" to blocked

   PUT http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.222,192.168.1.223

   ```
   {
       "isBlocked":true
   }
   ```
3. Set IP addresses that range from "192.168.1.201" to "192.168.1.205" to blocked

   PUT http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.201-192.168.1.205

   ```
   {
       "isBlocked":true,
   }
   ```

Sample Response

HTTP Status: 200

DELETE /networkConfigurations/{id}/ipAddresses/{ip}

This service removes an existing IP address from the network configuration of managed IP addresses.

Note: This interface is not supported for network configurations in an OpenStack cloud. IP addresses cannot be deleted from an OpenStack network configuration.

If the specified IP is not in the network configuration of managed IP addresses, a 404 response is returned.

This is an admin web service.

Query Parameters

N/A

Sample Requests

1. Remove the managed IP address "192.168.1.221" in network configuration with ID 2053.

```
DELETE http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.221
```

2. Remove the managed IP addresses "192.168.1.222" and "192.168.1.223"

```
DELETE http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.222,192.168.1.223
```

3. Remove the managed IP addresses that range from "192.168.1.201" to "192.168.1.205"

```
DELETE http://host/cloud/api/networkConfigurations/2053/ipAddresses/192.168.1.201-192.168.1.205
```

Sample Response

HTTP Status: 200

Product information services

Use the services listed here to obtain product information about the IBM SmartCloud Entry offering.

Related information:

"Code license and disclaimer information" on page 165

GET /productInfo/version

This service retrieves the IBM SmartCloud Entry product version.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/version

No HTTP body required.

Sample Response

3.1.0.0

GET /productInfo/shortName

This service retrieves the IBM SmartCloud Entry product's short name.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/shortName

No HTTP body required.

Sample Response

SmartCloud Entry

GET /productInfo/name

This service retrieves the product's name.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/name

No HTTP body required.

Sample Response

IBM SmartCloud Entry

GET /productInfo/fullName

This is a utility service that retrieves the full name and version of the IBM SmartCloud Entry product.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/fullName

No HTTP body required.

Sample Response

HTTP Status: 200

Content-Type: text/plain

HTTP Response Body:

IBM SmartCloud Entry 3.1.0.0

GET /productInfo/vendorName

This is a utility service that retrieves the IBM SmartCloud Entry product's vendor name.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/vendorName

No HTTP body required.

Sample Response

HTTP Status: 200

Content-Type: text/plain HTTP Response Body:

IBM

GET /productInfo/vendorIcon

This is a utility service that retrieves the IBM SmartCloud Entry product's vendor icon.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/vendorIcon

No HTTP body required.

Sample Response

HTTP Status: 200

Content-Type: image/* HTTP Response Body is binary image stream.

GET /productInfo/splash

This is a utility service that retrieves the IBM SmartCloud Entry product's splash icon.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/productInfo/splash

No HTTP body required.

Sample Response

HTTP Status: 200

Content-Type: image/* HTTP Response Body is binary image stream.

GET /productInfo/icon{type}

This is a utility service that retrieves the IBM SmartCloud Entry product's icon, returns a 16x16 icon if type is small, returns a 32x32 icon if type is medium, pr returns a 48x48 icon if type is large.

Query Parameters

type, return 16x16 icon if type is small, return 32x32 icon if type is medium, return 48x48 icon if type is large

Sample Request

GET http://host/cloud/api/productInfo/icon{type}

No HTTP body required.

Sample Response

HTTP Status: 200

Content-Type: image/* HTTP Response Body is binary image stream.

Project management services

The IBM SmartCloud Entry product provides the following project management services.

"GET /projects/{id}/workloads" on page 87
This service retrieves the workloads with the specified ordering and counts associated with the project identified by id.

"GET /projects/{id}/appliances" on page 89

"GET /projects/{id}/users" on page 90
This service retrieves the users that have access to the project identified by id.

"GET /projects/{id}/expirationPolicy" on page 58
This service retrieves the expiration policy of the project.

"POST /projects/{id}/users" on page 91
This service adds a user to the project identified by ID or sends the owner of the project a notification (email based as of 1.1) requesting access to the project for the specified user. For access request notification, the owner of the project must have notifications enabled to receive the access request message.

"PUT /projects/{id}/users/{username}" on page 92
This service will update a user's in the project identified by id.

"DELETE /projects/{id}/users/{username}" on page 92
This service will remove the user identified by username from the project identified by id.

Related information:

"Code license and disclaimer information" on page 165

GET /projects

This service retrieves the list of projects in IBM SmartCloud Entry.

The owner field in the returned json string is deprecated from IBM SmartCloud Entry 2.2, because there can be more than owners.

Query Parameters

Name	Description	Default	Required
user	Gets the list of projects to which this user belongs	N/A	No
role	Gets the list of projects to which this user belongs and this user has the permission of specified role. This parameter should be used with the *user* parameter. This parameter supports OWNER, USER, and VIEWER. This parameter is case insensitive. OWNER has permission of USER and VIEWER. USER has permission of VIEWER. For example, if role is specified as USER, projects of which this user is OWNER and USER will be returned.	N/A	No

Sample Request

GET http://host/cloud/api/projects?user=jonest&role=user

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "identifier":"id",
   "projects":[
     {
         "isStaging":false,
    "useCloudApprovalPolicy": true,
    "isPublic":true,
         "isDefault":true,
         "name":"Public",
         "id":"51",
         "description":"This is the default project for all existing Cloud resources.",
         "uri":"http://localhost:8080/cloud/api/projects/51",
         "useCloudExpirationPolicy":true
     }
    ]
}
```

POST /projects

This service creates a new project in IBM SmartCloud Entry.

Sample Request

POST http://host/cloud/api/projects

HTTP Request Body:

```
{
   "name":"myProject1",
   "description":"My number 1
project",
   "members":[
      {
         "username":"user1",
         "role":"OWNER"
      }
   ]
}
```

Sample Response

HTTP Status: 201

HTTP Location Header: The URI of the new project

HTTP Response Body:

```
{
   "workloadsUri":" Header: The URI of the new project
"http://localhost:8080/cloud/api/projects/62951/workloads">http://localhost:8080/cloud/api/projects/62951/workloads",
   "isStaging":false,
   "owner":"admin",
   "isPublic":false,
   "usersUri":"oud/api/projects/62951/workloads">http://localhost:8080/cloud/api/projects/62951/workloads",
"http://localhost:8080/cloud/api/projects/62951/users">http://localhost:8080/cloud/api/projects/62951/users",
```

```
   "appliancesUri":"i/projects/62951/users">http://localhost:8080/cloud/api/projects/62951/users",
"http://localhost:8080/cloud/api/projects/62951/appliances">http://localhost:8080/cloud/api/projects/62951/appliances",
   "isDefault":false,
   "name":"myProject2",
   "id":"62951",
   "description":"My number 1 project",
   "uri":" number 1
  "useCloudExpirationPolicy":true
 "http://localhost:8080/cloud/api/projects/62951">http://localhost:8080/cloud/api/projects/62951"
}
```

DELETE /projects/{id}

This service deletes the project with the specified ID.

Sample Request

DELETE http://host/cloud/api/projects/1234

No HTTP body required.

Sample Response

HTTP Status: 200

No HTTP response body

PUT /projects/{id}

This service updates the attributes of the project identified by ID.

If the JavaScript Object Notation (JSON) in the request body does not contain a “members”array attribute, only the top-level project fields are synchronized. If the “members”array attribute is present in the incoming JSON, then the members are also synchronized. User names specified in the “members” array must exist as users. The implication of such is that you can update project members in bulk.

Sample Requests

1. Update the project with id “1234”to have the description “My number 1 project”.

   PUT http://host/cloud/api/projects/1234

   HTTP Request Body:

   ```
   {
      "description":"My number 1 project"
   }
   ```

2. Update the project with id “1234” to have the name “My Project,”a description of “A simple project,” and have the project members “admin” and “john.” The underlying project members exactly match the members specified.
3. PUT http://host/cloud/api/projects/1234

   HTTP Request Body:

   ```
   {
      "name":"My Project",
      "description":"A simple description",
      "members":[
         {
            "username":"admin"
         },
         {
            "username":"john"
         }
      ]
   }
   ```

4. Update the project with id “1234” to have the useCloudExpirationPolicy as false.
   PUT http://host/cloud/api/projects/1234
   HTTP Request Body:

```
{
   "useCloudExpirationPolicy":false
}
```

Sample Response

HTTP Status: 200

No HTTP Response Body

GET /projects/{id}

This service retrieves the attributes of the project identified by id.

Sample Request

GET http://host/cloud/api/projects/1234

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
  "workloadsUri":"http://localhost:8080/cloud/api/projects/1234/workloads",
  "isStaging":false,
  "owner":"admin",
  "isPublic":false,
 "useCloudApprovalPolicy": true,
  "usersUri":"http://localhost:8080/cloud/api/projects/1234/users",
  "appliancesUri":"http://localhost:8080/cloud/api/projects/1234/appliances",
  "isDefault":false,
  "name":"My Project",
  "id":"1234",
  "description":"A simple description",
  "uri":"http://localhost:8080/cloud/api/projects/1234",
  "useCloudExpirationPolicy":true
}
```

GET /projects/{id}/workloads

This service retrieves the workloads with the specified ordering and counts associated with the project identified by id.

Query Parameters

Name	Description	Default	Required
start	This is the index of the first record that will be returned from the database. If specified, the value must be an integer greater than zero.	0	No

Name	Description	Default	Required
count	This is the number of records to return after the "start" parameter record. The value must be an integer greater than zero.	20	No
sortBy	This is the sorted column in DeploymentEntity. This parameter supports EXECUTION_DATE, NAME, DESCRIPTION and STATE. This parameter is case insensitive.	EXECUTION_DATE	No
order	Specify order with ascending or descending. The parameter can be set desc or asc.	desc	No
includeHidden	Specifies whether returned workloads should include hidden workloads.	false	No

Sample Request

GET http://host/cloud/api/projects/1234/workloads?start=10&count=30&sortBy=NAME&order=asc

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "total": "2",
    "workloads": [
        {
            "cloudName": "zhanxin-GVTTest-noDelete",
            "cloudGroupId": "352",
            "name": "zhanxin-GVTTest-noDelete",
            "uri": "http://localhost:8080/cloud/api/workloads/531",
            "cloudId": "cloud://352/422e40df-6415-0a7c-2056-36e91e74f804",
            "state": {
                "label": "OK",
                "id": "OK"
            },
            "projectUri": "http://localhost:8080/cloud/api/projects/103001",
            "architecture": "x86",
            "isHidden": false,
            "cloudGroupName": "VMware-120",
            "hypervisor": "VMware",
            "id": "531",
            "description": "Workload could no longer be found in the Cloud. It could have been purposely deleted from the Cloud."
        },
        {
            "cloudName": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
            "cloudGroupId": "352",
            "name": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
            "uri": "http://localhost:8080/cloud/api/workloads/73508",
            "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
            "state": {
                "label": "OK",
                "id": "OK"
            },
            "projectUri": "http://localhost:8080/cloud/api/projects/103001",
```

```
            "architecture": "x86",
            "isHidden": false,
            "cloudGroupName": "VMware-120",
            "hypervisor": "VMware",
            "id": "73508",
            "description": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser"
        }
    ]
}
```

GET /projects/{id}/appliances

This service retrieves the appliances that are associated with the project identified by id.

Sample Request

GET http://host/cloud/api/projects/1234/appliances

No HTTP body required.

Sample Response

HTTP Status: 200

Localized values: "state"

HTTP Response Body:

```
{
    "total": "2",
    "appliances": [
        {
            "cloudName": "RHEL62_Mult_NIC_template",
            "changedDate": 1341245438785,
            "cloudGroupId": "352",
            "name": "RHEL62_Mult_NIC_template",
            "uri": "http://localhost:8080/cloud/api/appliances/55151",
            "revisionComments": "",
            "cloudId": "cloud://352/422e3a6f-48cd-7f0d-5ec7-b4e2ec4fdb7a",
            "state": {
                "label": "OK",
                "id": "OK"
            },
            "projectUri": "http://localhost:8080/cloud/api/projects/103001",
            "architecture": "x86",
            "cloudGroupName": "VMware-120",
            "specificationVersion": "vmx-08",
            "hypervisor": "VMware",
            "version": "vmx-08",
            "id": "55151",
            "revision": "",
            "description": "Red Hat Enterprise Linux 5 (64-bit)"
        },
        {
            "cloudName": "GVTTestLinux6.1",
            "changedDate": 1338301027525,
            "cloudGroupId": "352",
            "name": "GVTTestLinux6.1",
            "uri": "http://localhost:8080/cloud/api/appliances/498",
            "revisionComments": "",
            "cloudId": "cloud://352/422e0874-da6f-b06e-0f52-dacf7faa8a6d",
            "state": {
                "label": "OK",
                "id": "OK"
            },
            "projectUri": "http://localhost:8080/cloud/api/projects/103001",
            "architecture": "x86",
            "cloudGroupName": "VMware-120",
            "specificationVersion": "vmx-08",
            "hypervisor": "VMware",
            "version": "vmx-08",
            "id": "498",
            "revision": "",
```

```
            "description": "Red Hat Enterprise Linux 6 (64-bit)"
         }
      ]
}
```

GET /projects/{id}/users

This service retrieves the users that have access to the project identified by id.

Sample Request

GET http://host/cloud/api/projects/1234/users

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "users":[
      {

"uri":"http://host/cloud/api/projects/1234/users/admin",
         "username":"admin",
         "name":"Administrator",
         "isAdmin":true,
         "emailNotifications":true,
         "email":"admin@us.ibm.com",
         "role":
               {
                  "id":"OWNER",
                  "label":"Owner"
               }
      },
      {

"uri":"http://host/cloud/api/projects/1234/users/jonest",
         "username":"jonest",
         "name":"Tony Jones",
         "isAdmin":false
         "emailNotifications":true,
         "email":"jones@us.ibm.com",
         "role":
               {
                  "id":"OWNER",
                  "label":"Owner"
               }
      }
   ]
}
```

GET /projects/{id}/expirationPolicy

This service retrieves the expiration policy of the project.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/projects/1234/expirationPolicy

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
"notificationFrequency":3,
"maxExpirationPeriod":30,
"deleteAfterGrace":true,
"notificationStart":14,
"gracePeriod":0,"id":"52",
"enableExtension":true,
"maxExtensionPeriod":30,
"maxExpirationPeriodWithoutSetting":1825,
"ownerType":"project",
"workloadExpirationSettingAppliable":false,
"ownerId":"1234"
}
```

POST /projects/{id}/users

This service adds a user to the project identified by ID or sends the owner of the project a notification (email based as of 1.1) requesting access to the project for the specified user. For access request notification, the owner of the project must have notifications enabled to receive the access request message.

Query Parameters

Name	Description	Default	Required
requestOnly	Send a notification to the project owner requesting access.	false	No

Sample Request 1

Add the “jonest” user to project with ID “1234”.

POST http://host/cloud/api/projects/1234/users

HTTP Request Body:

```
{
   "username":"jonest",
   "role":"USER"
}
```

Sample Response 1

HTTP Status: 201

HTTP Location Header: The URI of the added user within the project

No HTTP Response Body

Sample Request 2

Send a notification to the owner of project “1234” requesting access for user “john”. The “john” user is not added by this call, rather the owner receiving the notification must add the user from the web interface.

POST http://host/cloud/api/projects/1234/users?requestOnly=true HTTP Request Body:

```
{
   "username":"john"
}
```

Sample Response 2

HTTP Status: 200

PUT /projects/{id}/users/{username}

This service will update a user's in the project identified by id.

The role of the user may be changed to OWNER, USER, or VIEWER. The role of a project member may be changed only by an IBM SmartCloud Entry admin or the project's owner.

Query Parameters

Name	Description	Required
username	The username of the user whose role in the project is to be updated	yes

Sample Request

Change the 'jonest' user's role to USER in project with Id '1234'.

PUT http://host/cloud/api/projects/1234/users/jonest

HTTP Request Body:

```
{
   "role":"USER"
}
```

Sample Response

HTTP Status: 200

No HTTP response body

DELETE /projects/{id}/users/{username}

This service will remove the user identified by username from the project identified by id.

Sample Request

DELETE http://host/cloud/api/projects/1234/users/jonest

No HTTP body required.

Sample Response

HTTP Status: 200

No HTTP response body

Request lifecycle services

The IBM SmartCloud Entry product provides the following lifecycle services.

"GET /requests"
This service retrieves a list of requests from the IBM SmartCloud Entry application. The service optionally allows the client to provide query parameters to retrieve specific requests by a given username or the request's resolved status.

"PUT /requests" on page 95
This service enables or disables the request lifecycle service as a whole.

"GET /requests/{id}" on page 95

"PUT /requests/{id}" on page 96

"GET /requests/{id}/parameters" on page 97
This service retrieves a specific request's parameters.

"PUT /requests/{id}/parameters" on page 97
This service updates a specific request's parameters.

"GET /requests/{id}/comments" on page 98
Retrieve the comments for a specific request specified by its id.

"POST /requests/{id}/comments" on page 98
Add a comment to the request specified by its id.

"GET /requests/handlers" on page 99
Retrieves sets of the request handlers for cloud groups and projects.

"PUT /requests/handlers" on page 101
This service updates the handler enablement state within a specific owner scope.

"GET /requests/requestcsv" on page 102
Exports requests, that are filtered by parameters, to file and saves it on a server architecture directory.

"DELETE /requests/requstcsv" on page 103
Deletes requests that are filtered by parameters.

Related information:

"Code license and disclaimer information" on page 165

GET /requests

This service retrieves a list of requests from the IBM SmartCloud Entry application. The service optionally allows the client to provide query parameters to retrieve specific requests by a given username or the request's resolved status.

- The optional 'user' query parameter filters the list of requests by the given user. If the user is an admin or an approver all requests are returned. Otherwise only requests made by the given user are returned.
- The optional 'resolved' query parameter filters the returned requests by their resolved status. If resolved is 'true' then only requests which are not in the 'PENDING' state are returned. If resolved is false only 'PENDING' requests are returned.
- The optional 'parameters' query parameter filters the returned requests by parameter name, such as "deployment". Specific IDs can be specified for each given parameter, separated from the type by a colon (:). Multiple parameters can be specified by adding a semicolon (;) between them.
- The optional 'state' query parameter filters the returned requests by their state, such as 'PENDING'. Multiple states can be checked for by adding a comma (,) between them to return requests that are in any of the states listed.

- The “user”, “resolved”, “parameter”, and “state” query parameters can be used together. If no parameter is used, then all requests are returned unfiltered.

There are other parameters related to pagination. Use the following query parameters to see more information.

Query Parameters

Name	Description	Default	Required
user	Filters the list of requests by the given user.	N/A	No
resolved	Filters the lists of requests by their resolved status.	N/A	No
parameters	Filters the lists of requests by their parameter.	N/A	No
state	Filters the lists of requests by their state.	N/A	No
start	The index of the first record.	0	No
count	The number of records to return.	20	No
sortBy	This parameter supports ID,REQUESTOR,STATE,ACTION, and REQUESTDATE. This parameter is case insensitive.	ID	No
order	Specify ascending (ASC) or descending (DESC) order.	DESC	No

Sample Request

GET http://host/cloud/api/requests?user=myuser&resolved=true

Retrieves all requests for 'myuser' which are resolved. If 'myuser' is an admin or approver of requests, then all requests are returned which are resolved. Otherwise only resolved requests are returned which were initiated by 'myuser'.

No HTTP body required.

GET http://host/cloud/api/requests?parameters=deployment:10,12,22&state=PENDING,REJECTED
Retrieves all PENDING or REJECTED requests that are deployments that have the ids 10,12,22.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "total":"1",
   "requests":[
      {
         "state":{
            "label":"Approved",
            "id":"APPROVED"
         },
         "requestor":"admin",
         "action":
            {
              "label":"Deployment Executed",
             "id":"DEPLOYMENT_EXECUTED"
             },
         "parameters": [
             {
               "value": "102"
```

```
              "name": "deployment"
            }
          ],
         "id":"751",
        "uri":"http://localhost:8080/cloud/api/requests/751",
         "requestDate":1299703640794
      }
   ],
   "uri":"http://localhost:8080/cloud/api/requests"
}
```

PUT /requests

This service enables or disables the request lifecycle service as a whole.

Query Parameters

N/A

Sample Request 1

Enables the request lifecycle service as a whole.

PUT http://host/cloud/api/requests

```
{
    "enabled":true
}
```

Sample Response 1

HTTP Status: 200

Sample Request 2

Disables the request lifecycle service as a whole.

PUT http://host/cloud/api/requests

```
{
    "enabled":false
}
```

Sample Response 2

HTTP Status: 200

GET /requests/{id}

This service retrieves a specific request from IBM SmartCloud Entry by the request's id.

Query Parameters

None

Sample Request

GET http://host/cloud/api/requests/751

Retrieves the request which has the id of '751'.

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "state":
   {
      "label":"Approved",
      "id":"APPROVED"
   },
   "requestor":"admin",
   "resolver":"admin",
   "action":
            {
              "label":"Deployment Executed",
             "id":"DEPLOYMENT_EXECUTED"
             },
  "commentsURI":"http://localhost:8080/cloud/api/requests/751/comments",
  "parametersURI":"http://localhost:8080/cloud/api/requests/751/parameters",
   "resolutionDate":1299704103719,
   "name":"DEPLOYMENT_EXECUTED",
   "id":"751",
  "uri":"http://localhost:8080/cloud/api/requests/751",
   "requestDate":1299703640794
}
```

PUT /requests/{id}

This service updates a specific request's status in IBM SmartCloud Entry specified by the request's id. This service cannot be use to modify other values associated with a request other than its state. Client's should use this service to approve, deny, reopen or withdraw requests.

The accepted states for a request are:

APPROVED - The request is approved.

REJECTED - The request is rejected and cannot be completed.

WITHDRAWN - The request has been withdrawn and is no longer PENDING.

PENDING - The request is open and pending approval.

Query Parameters

None

Sample Requests

1. Approve request 751.
   PUT http://host/cloud/api/requests/751
   HTTP Request Body:
   ```
   {
       "state":"APPROVED"
   }
   ```
2. Deny request 732.
   PUT http://host/cloud/api/requests/732
   HTTP Request Body:

```
{
    "state":"REJECTED"
}
```

Sample Response

HTTP Status: 200

HTTP Response Body: None

GET /requests/{id}/parameters

This service retrieves a specific request's parameters.

Query Parameters

None

Sample Request

GET http://host/cloud/api/requests/751/parameters

Retrieves the request which has the id of '751'.

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "parameters":[
       {
          "value":"OnedeployTest",
          "name":"workloadName"
       },
       {
          "value":"65901",
          "name":"workload"
       },
      {
          "value":"workload",
          "name":"type"
       }
    ],
    "uri":"http://localhost:8080/cloud/api/requests/66151/parameters"
}
```

PUT /requests/{id}/parameters

This service updates a specific request's parameters.

Query Parameters

None

Sample Request

Update the request parameters called “cpu”in request 751.

PUT http://host/cloud/api/requests/751

HTTP Request Body:

```
{

    "parameters": [
{"name":"cpu", "value":"2"}]

}
```

Sample Response

HTTP Status: 200

HTTP Response Body: None

GET /requests/{id}/comments

Retrieve the comments for a specific request specified by its id.

Query Parameters

None

Sample Request

Get the comments for request 751.

GET http://host/cloud/api/requests/751/comments

HTTP Request Body: None

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "comments":[
      {
         "user":"admin",
         "date":1299777502592,
         "comment":"This a sample comment"
      },
      {
         "user":"admin",
         "date":1299777519726,
         "comment":"Yet another comment for request 751"
      }
   ],
  "uri":"http://localhost:8080/cloud/api/requests/751/comments"
}
```

POST /requests/{id}/comments

Add a comment to the request specified by its id.

Query Parameters

None

Sample Request

Add a comment to request 751.

POST http://host/cloud/api/requests/751/comments

HTTP Request Body: This is a request comment

Sample Response

HTTP Status: 200

HTTP Response Body: None

GET /requests/handlers

Retrieves sets of the request handlers for cloud groups and projects.

Request handlers are specified on a per action basis and will either be enabled or not. An enabled request handler for a specific action is used to process (handle) the request when fired within IBM SmartCloud Entry.

Query Parameters

Table 1. Query parameters

Name	Description	Default value	Required
ownerType	The type of object to which the handlers set belongs. Values are CLOUDGROUP or PROJECT.	N/A	false
ownerId	Cloud group id or project id.	N/A	false

Sample Request

Get a list of the request handlers:

GET http://host/cloud/api/requests/handlers

HTTP Request Body: None

Sample Response

HTTP Status: 200

HTTP Response Body:

```
[
    {
        "requestHandlers": [
            {
                "enabled": false,
                "action": {
                    "label": "Workload expiration extend",
```

```
                "id": "DEPLOYMENT_EXPIRATION_EXTEND"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server detach storage request",
                "id": "STORAGE_DETACH_REQUEST"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server attach storage request",
     "id": "STORAGE_ATTACH_REQUEST"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server restore",
                "id": "VIRTUAL_SERVER_RESTORE_BACKUP"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server save image",
                "id": "VIRTUAL_SERVER_CREATE_BACKUP"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Workload resize",
                "id": "DEPLOYMENT_RESIZE"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Workload initiation",
                "id": "DEPLOYMENT_EXECUTION"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Workload capture",
                "id": "DEPLOYMENT_SNAPSHOT"
            }
        }
    ],
    "uri": "http://localhost:8080/cloud/api/requests/handlers?ownerType=CLOUDGROUP&ownerId=551",
    "ownerType": "CLOUDGROUP",
    "ownerId": "551"
},
{
    "requestHandlers": [
        {
            "enabled": false,
            "action": {
                "label": "Workload expiration extend",
                "id": "DEPLOYMENT_EXPIRATION_EXTEND"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server detach storage request",
                "id": "STORAGE_DETACH_REQUEST"
            }
        },
        {
            "enabled": false,
            "action": {
                "label": "Virtual server attach storage request",
                "id": "STORAGE_ATTACH_REQUEST"
            }
```

```
            },
            {
                "enabled": false,
                "action": {
                    "label": "Virtual server restore",
                    "id": "VIRTUAL_SERVER_RESTORE_BACKUP"
                }
            },
            {
                "enabled": false,
                "action": {
                    "label": "Virtual server save image",
                    "id": "VIRTUAL_SERVER_CREATE_BACKUP"
                }
            },
            {
          "enabled": false,
                "action": {
                    "label": "Workload resize",
                    "id": "DEPLOYMENT_RESIZE"
                }
            },
            {
                "enabled": false,
                "action": {
                    "label": "Workload initiation",
                    "id": "DEPLOYMENT_EXECUTION"
                }
            },
            {
                "enabled": false,
                "action": {
                    "label": "Workload capture",
                    "id": "DEPLOYMENT_SNAPSHOT"
                }
            }
        ],
        "uri": "http://localhost:8080/cloud/api/requests/handlers?ownerType=PROJECT&ownerId=1",
    "ownerType": "PROJECT",
    "ownerId": "1"
  }
]
```

PUT /requests/handlers

This service updates the handler enablement state within a specific owner scope.

Query Parameters

N/A

Sample Request

Update the request handler called "DEPLOYMENT_EXECUTION" for "CLOUDGROUP" 551 and handler "DEPLOYMENT_EXPIRATION_EXTEND" for "PROJECT" 1.

PUT http://host/cloud/api/requests/handlers

HTTP Request Body:

```
[
    {
        "requestHandlers": [
            {
                "enabled": true,
                "action": "DEPLOYMENT_EXECUTION"
            }
        ],
        "ownerType": "CLOUDGROUP",
        "ownerId": "551"
    },
```

```
    {
        "requestHandlers": [
            {
                "enabled": true,
                "action": "DEPLOYMENT_EXPIRATION_EXTEND"
            }
        ],
        "ownerType": "PROJECT",
        "ownerId": "1"
    }
]
```

Sample Response

HTTP Status: 200

HTTP Response Body: None

GET /requests/requestcsv

Exports requests, that are filtered by parameters, to file and saves it on a server architecture directory.

Query Parameters

Name	Description	Default	Required
startTime	Timestamp that specifies a starting timeframe for requests returned. Requests that occur before this timestamp will not be returned. The startTime and endTime can be used together to specify a timeframe for the requests returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	0	No
endTime	Timestamp that specifies an ending timeframe for requests returned. Requests that occur after this timestamp will not be returned. The startTime and endTime can be used together to specify a timeframe for the requests returned. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.		Yes
state	The request's state can be PENDING, APPROVED, REJECTED, WITHDRAWN or some combination. A comma is used to concatenate them.		Yes

Sample Request

GET http://localhost:8080/cloud/api/requests/requestcsv?startTime=1341385199000
&endTime=1341385299000&state=APPROVED,REJECTED

Sample Response

HTTP Status: 200 if successful

DELETE /requests/requstcsv

Deletes requests that are filtered by parameters.

Query Parameters

Name	Description	Default	Required
startTime	Timestamp that specifies a starting timeframe for deletion requests. Requests that occur before this timestamp will not be deleted. The startTime and endTime can be used together to specify a timeframe for deleting the requests. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.	0	No
endTime	Timestamp that specifies an ending timeframe for deletion requests. Requests that occur after this timestamp will not be deleted. The startTime and endTime can be used together to specify a timeframe for deleting the requests. This value is a timestamp that is the number of milliseconds since January 1, 1970, 00:00:00 GMT.		Yes
state	The request's state can be PENDING, APPROVED, REJECTED, WITHDRAWN or some combination. A comma is used to concatenate them.		Yes

Sample Request

DELETE http://localhost:8080/cloud/api/requests/requestcsv?startTime=1341385199000
&endTime=1341385299000&state=APPROVED,REJECTED

Sample Response

HTTP Status: 200 if successful

Statistics resource services

The IBM SmartCloud Entry product provides the following services for gathering statistics.

"GET /stats/free"
This service retrieves the statistics of all available resources in the cloud, such as CPU, memory, and storage.

"GET /stats/totals" on page 105
This service retrieves the statistics of all resources in the cloud, such as CPU, memory, and storage.

"GET /stats/usage" on page 106
This service retrieves usage resource statistics in the cloud, such as CPU, memory, and storage.

Related information:

"Code license and disclaimer information" on page 165

GET /stats/free

This service retrieves the statistics of all available resources in the cloud, such as CPU, memory, and storage.

The CPU statistic is measured in cores. Memory and storage are measured in Megabytes.

Query Parameters

- cloudId (optional)

  If you include a cloudId in the request URL, the service returns the free resource statistics for the single cloud identified. If you do not specify a cloudId, the service returns the free resource statistics for multiple clouds.

Sample Request

Retrieve all available resources from cloud

GET http://host/cloud/api/stats/free

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    uri: http://localhost:8080/cloud/api/stats/free
    stats: [
        {
            architecture: "Power"
            resources: [
                 {
                    value: "24.0"
                    label: "Processors"
                    id: "freeCPU"
                 }
                {
                    value: "236304.0"
                    label: "Memory"
```

```
                    id: "freeMemory"
                }
                {
                    value: "13645"
                    label: "Storage"
                    id: "freeDisk"
                }
        }
        {
            architecture: "x86"
            resources: [
                 {
                    value: "24.0"
                    label: "Processors"
                    id: "freeCPU"
                 }
                {
                    value: "236304.0"
                    label: "Memory"
                    id: "freeMemory"
                }
                {
                    value: "13645"
                    label: "Storage"
                    id: "freeDisk"
                }
            ]
        }
    ]
}
```

GET /stats/totals

This service retrieves the statistics of all resources in the cloud, such as CPU, memory, and storage.

The CPU statistic is measured in cores. Memory and storage are measured in Megabytes.

Query Parameters

- cloudId (optional)

  If you include a cloudId in the request URL, the service returns the resource statistics for the single cloud identified. If you do not specify a cloudId, the service returns the resource statistics for multiple clouds.

Sample Request

Retrieve all available resources from the cloud

GET http://host/cloud/api/stats/totals

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    uri: http://localhost:8080/cloud/api/stats/totals
    stats: [
        {
            architecture: "Power"
            resources: [
```

```
                {
                    value: "24.0"
                    label: "Processors"
                    id: "totalCPU"
                }
                {
                    value: "236304.0"
                    label: "Memory"
                    id: "totalMemory"
                }
                {
                    value: "13645"
                    label: "Storage"
                    id: "totalDisk"
                }
        }
        {
            architecture: "x86"
            resources: [
                {
                    value: "24.0"
                    label: "Processors"
                    id: "totalCPU"
                }
                {
                    value: "236304.0"
                    label: "Memory"
                    id: "totalMemory"
                }
                {
                    value: "13645"
                    label: "Storage"
                    id: "totalDisk"
                }
            ]
        }
    ]
}
```

GET /stats/usage

This service retrieves usage resource statistics in the cloud, such as CPU, memory, and storage.

The CPU statistic is measured in cores. Memory and storage are measured in Megabytes.

Query Parameters

Name	Description	Default	Required
user	Get the statistic summary of resource usage by specified user.	N/A	No
cloudId	If you include a cloudId in the request URL, the service returns the usage resource statistics for the single cloud identified. If you do not specify a cloudId, the service returns the usage resource statistics for multiple clouds.	N/A	No

Sample Request 1

Retrieve all resources usage statistics from the cloud

GET http://host/cloud/api/stats/usage

No HTTP body required.

Sample Response 1

HTTP Status: 200

HTTP Response Body:

```
{
uri:http://localhost:8080/cloud/api/stats/usage
    stats: [
                    {
                    architecture:"Power"
                    resources: [
                    {
                    value:"24.0"
                    label:"Processors"
                    id:"usageCPU"
                    }
                    {
                    value:"236304.0"
                    label:"Memory"
                    id:"usageMemory"
                }
                {
                    value:"13645"
                    label:"Storage"
                    id:"usageDisk"
                }
        }
        {
            architecture:"x86"
            resources: [
                 {
                    value:"24.0"
                    label:"Processors"
                    id:"usageCPU"
                 }
                {
                    value:"236304.0"
                    label:"Memory"
                    id:"usageMemory"
                }
                {
                    value:"13645"
                    label:"Storage"
                    id:"usageDisk"
                }
           ]
        }
]
}
```

Sample Request 2

Retrieve resources usage by admin

GET http://host/cloud/api/stats/usage?user=admin

No HTTP body required.

Sample Response 2

HTTP Status: 200

HTTP Response Body:

```
{
uri:http://localhost:8080/cloud/api/stats/usage
    stats: [
        {
            architecture:"Power"
            resources: [
                 {
                    value:"24.0"
                    label:"Processors"
                    id:"usageCPU"
                 }
                {
                    value:"236304.0"
                    label:"Memory"
                    id:"usageMemory"
                }
                {
                    value:"13645"
                    label:"Storage"
                    id:"usageDisk"
                }
        }
        {
            architecture:"x86"
            resources: [
                 {
                    value:"24.0"
                    label:"Processors"
                    id:"usageCPU"
                 }
                {
                    value:"236304.0"
                    label:"Memory"
                    id:"usageMemory"
                }
                {
                    value:"13645"
                    label:"Storage"
                    id:"usageDisk"
                }
            ]
        }
]
}
```

User services

The IBM SmartCloud Entry product provides the following services for managing the user registry.

Related information:

"Code license and disclaimer information" on page 165

GET /users

This service retrieves all known users from the IBM SmartCloud Entry user registry.

A IBM SmartCloud Entry Administrator user ('admin') is created by default and will always exist. A client can also use this service to retrieve a list of users with admin authority by using the **admin** query parameter. Note that a user's password is not returned in the response JSON.

Query Parameters

Name	Description	Default	Required
admin	The users retrieved should be admins, meaning they have admin access.	false	No

Sample Request

Retrieve a listing of all users in the IBM SmartCloud Entry user registry.

GET http://host/cloud/api/users

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "users": [
        {
            "emailNotifications": false,
            "username": "admin",
            "email": "",
            "isApprover": true,
            "name": "Cloud Administrator",
            "role": {
                "id": "ADMIN",
                "label": "label"
            },
            "isAdmin": true,
            "uri": "http://9.123.152.202:8080/cloud/api/users/admin",
            "isLocked": false
        },
        {
            "emailNotifications": false,
            "username": "test",
            "isApprover": false,
            "name": "test",
            "role": {
                "id": "USER",
                "label": "label"
            },
            "isAdmin": false,
            "uri": "http://9.123.152.202:8080/cloud/api/users/test",
            "isLocked": false
        },
        {
            "emailNotifications": false,
            "username": "xinzhan",
            "isApprover": false,
```

```
            "name": "xinzhan",
            "role": {
                "id": "USER",
                "label": "label"
            },
            "isAdmin": false,
            "uri": "http://9.123.152.202:8080/cloud/api/users/xinzhan",
            "isLocked": false
        },
        {
            "emailNotifications": false,
            "username": "zxx",
            "isApprover": false,
            "name": "zxx",
            "role": {
                "id": "USER",
                "label": "label"
            },
            "isAdmin": false,
            "uri": "http://9.123.152.202:8080/cloud/api/users/zxx",
            "isLocked": false
        }
    ]

}
```

GET /users/{username}

This service retrieves the properties for a specific user from the IBM SmartCloud Entry user registry.

If a user has admin authority, the 'isAdmin' attribute will be set to 'true'. Note that a user's password is not returned in the response JSON.

Query Parameters

N/A

Sample Request

GET http://host/cloud/api/users/jdoe@us.ibm.com

No HTTP body required.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
            "emailNotifications": false,
            "username": "admin",
            "email": "",
            "isApprover": true,
            "name": "Cloud Administrator",
            "role": {
                "id": "ADMIN",
                "label": "label"
            },
            "isAdmin": true,
            "uri": "http://9.123.152.202:8080/cloud/api/users/admin",
            "isLocked": false
}
```

POST /users

This service adds a user to the IBM SmartCloud Entry user registry.

Note: This API applies only when the IBM SmartCloud Entry server is using the local authentication scheme. If your server is configured to use LDAP authentication, you get an error if you use this API. For more information about authentication schemes, see the IBM SmartCloud Entry Administrator Guide.

A user can be added to the registry in one of two ways.

- Use the **POST /users** service to add a user to the registry.
- If a user is authenticated successfully with the **/auth** service, IBM SmartCloud Entry adds the authenticated user to the registry if the user does not exist. The password is not returned in the response JavaScript Object Notation (JSON).

This is an admin web service.

Query Parameters

N/A

Sample Request

Add the user "jdoe@us.ibm.com" to the user registry.

POST http://host/cloud/api/users

HTTP Request Body:

```
{
    "username":"jdoe@us.ibm.com",
    "password":"fun4csk",
    "isAdmin":false,
    "isApprover":true,
    "emailNotifications":true,
    "email":"jdoe@us.ibm.com",
    "name":"John Doe",
    "timezone": {
        "id": "America/Chicago"
    },
    "locale": {
        "id": "en-US"
    }
}
```

Sample Response

HTTP Status: 201

HTTP Response Body:

```
{
   "isAdmin":false,
   "isLocked":false,
   "username":"jdoe@us.ibm.com",
   "timezone":{
      "label":"Central Standard Time",
      "id":"America/Chicago"
   },
   "locale":{
      "label":"English (United States)",
      "id":"en-US"
   },
   "name":"John Doe",
```

```
   "emailNotifications":true,
   "email":"jdoe@us.ibm.com",
  "uri":"http://localhost:8080/cloud/api/users/jdoe%40us.ibm.com"
}
```

PUT /users/{username}

This service enables updating of an existing user in the IBM SmartCloud Entry user registry.

This service does not allow you to update the "username" associated with an existing user in the registry. If the "username" needs to be updated, the caller should first DELETE the user, and then use POST to create it with the new "username". The PUT/users/{username} service does not allow you to update the default IBM SmartCloud Entry administrator user "admin". After registering, a user can update the password in the service.

This is an admin Web service.

Query Parameters

N/A

Sample Request

Update user "jdoe@us.ibm.com" to have "password" set to "new2pass" and "name" to be "Mr John Doe"

PUT http://host/cloud/api/users/jdoe@us.ibm.com

```
{
    "username":"jdoe@us.ibm.com",
    "name":"Mr John Doe",
    "isAdmin":false,
    "isApprover":true,
    "isLocked":false,
    "password":"new2pass",
    "oldPassword":"old2pass",
    "timezone": {
        "id": "America/Chicago"
    },
    "locale": {
        "id": "en-US"
    }
}
```

Sample Response

HTTP Status: 200

DELETE /users/{username}

This service removes an existing user from the IBM SmartCloud Entry user registry.

If the specified user does not exist in the IBM SmartCloud Entry user registry, a 404 response status is returned. Note that the default IBM SmartCloud Entry administrator user ('admin') cannot be deleted.

This is an admin Web service.

Query Parameters

N/A

Sample Request

Remove the user “jdoe@us.ibm.com”from the user registry.

DELETE http://host/cloud/api/users/jdoe@us.ibm.com

Sample Response

HTTP Status: 200

Virtual server services

The IBM SmartCloud Entry product provides the following services for managing virtual servers.

"GET /virtualServers/{id}/repositories/{id}/customization" on page 131
This service retrieves customization that is associated with the virtual server and the image repository. The customization includes the information that is needed to capture the virtual server to the image repository.

Related information:

"Code license and disclaimer information" on page 165

GET /workloads/{id}/virtualServers

This service retrieves all the virtual servers within a workload by ID.

Workloads that have been executed and were successful will have virtual servers associated with them. Draft or failed workloads will return an empty array.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1:

GET http://host/cloud/api/workloads/1/virtualServers

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "virtualServers": [
        {
            "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
            "credentialsUri": "http://localhost:8080/cloud/api/workloads/73508/virtualServers/73555/credentials",
            "state": {
                "label": "Running",
                "id": "RUNNING"
            },
            "backups": "http://localhost:8080/cloud/api/virtualServers/73555/backups",
            "hostname": "testhost235",
            "storagesUri": "http://localhost:8080/cloud/api/virtualServers/73555/storages",
            "capabilities": [
                {
                    "isEnabled": true,
                    "id": "CREATE_DISK"
                },
                {
                    "isEnabled": false,
                    "id": "ATTACH_DISK"
                },
                {
                    "isEnabled": true,
                    "id": "DETACH_DISK"
                },
                {
                    "isEnabled": true,
                    "id": "THIN_PROVISIONED"
                },
                {
                    "isEnabled": true,
                    "id": "POWER_MANAGEMENT"
                },
                {
                    "isEnabled": true,
                    "id": "CAPTURE"
                },
                {
```

```
                    "isEnabled": true,
                    "id": "BACKUP"
                },
                {
                    "isEnabled": false,
                    "id": "SUSPEND_CAPABLE"
                },
                {
                    "isEnabled": true,
                    "id": "RESIZE"
                },
                {
                    "isEnabled": false,
                    "id": "PIN"
                },
                {
                    "isEnabled": false,
                    "id": "UNPIN"
                }
            ],
            "ip": "10.10.2.235",
            "id": "73555",
            "uri": "http://localhost:8080/cloud/api/virtualServers/73555"
        }
    ]
}
```

GET /workloads/{id}/virtualServers/{id}

This service retrieves a virtual server from the virtual servers in a workload by ID.

If a virtual server by the given ID doesn't exist in the workload, the service will return a 404.

Query Parameters

N/A

Sample Request

Get virtual server with ID 2 from workload with ID 1:

GET http://host/cloud/api/workloads/1/virtualServers/2

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
    "credentialsUri": "http://localhost:8080/cloud/api/workloads/73508/virtualServers/73555/credentials",
    "state": {
        "label": "Running",
        "id": "RUNNING"
    },
    "backups": "http://localhost:8080/cloud/api/virtualServers/73555/backups",
    "properties": [
        {
            "value": "1024",
            "description": "Memory (MB)",
            "category": "General Information"
        },
        {
            "value": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
            "description": "Name",
            "category": "General Information"
        },
        {
            "value": "1",
            "description": "CPUs",
```

```
            "category": "General Information"
        },
        {
            "value": "1",
            "description": "Number of Ethernet Cards",
            "category": "General Information"
        },
        {
            "value": "e7e213c5-4c6f-416b-9642-baa5ae6549cc",
            "description": "UUID",
            "category": "General Information"
        },
        {
            "value": "linuxGuest",
            "description": "Guest Operating System",
            "category": "General Information"
        },
        {
            "value": "rhel5_64Guest",
            "description": "Guest ID",
            "category": "General Information"
        },
        {
            "value": "testhost235",
            "description": "Guest Hostname",
            "category": "General Information"
        },
        {
            "value": "10.10.2.235",
            "description": "Guest IP Addresses",
            "category": "General Information"
        },
        {
            "value": "vm-2858",
            "description": "ID",
            "category": "General Information"
        },
        {
            "value": "Connected",
            "description": "Connection State",
            "category": "General Information"
        },
        {
            "value": "host-875",
            "description": "Host",
            "category": "General Information"
        },
        {
            "value": "Powered On",
            "description": "Power State",
            "category": "General Information"
        }
    ],
    "hostname": "testhost235",
    "storagesUri": "http://localhost:8080/cloud/api/virtualServers/73555/storages",
    "capabilities": [
        {
            "isEnabled": true,
            "id": "CREATE_DISK"
        },
        {
            "isEnabled": false,
            "id": "ATTACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "DETACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "THIN_PROVISIONED"
        },
        {
            "isEnabled": true,
            "id": "POWER_MANAGEMENT"
        },
        {
            "isEnabled": true,
            "id": "CAPTURE"
```

```
        },
        {
            "isEnabled": true,
            "id": "BACKUP"
        },
        {
            "isEnabled": false,
            "id": "SUSPEND_CAPABLE"
        },
        {
            "isEnabled": true,
            "id": "RESIZE"
        },
        {
            "isEnabled": false,
            "id": "PIN"
        },
        {
            "isEnabled": false,
            "id": "UNPIN"
        }
    ],
    "ip": "10.10.2.235",
    "id": "73555",
    "uri": "http://localhost:8080/cloud/api/virtualServers/73555"
}
```

GET /workloads/{id}/virtualServers/{id}/credentials

This service retrieves the credentials associated with the given Virtual Server Id.

These credentials are used during the capture process in order to perform the required access to capture. Note that the 'authenticated' attribute is not used for this particular service and so it can be ignored.

Query Parameters

N/A

Sample Request

Get VS with ID 2 credentials from workload with ID 1.

GET http://host/cloud/api/workloads/1/virtualServers/2/credentials

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "uri":"https://myhost/cloud/api/workloads/1/virtualServers/2/credentials",
    "user":"root",
    "pass":"not2pass"
}
```

PUT /workloads/{id}/virtualServers/{id}/credentials

This service updates the credentials associated with the given virtual server ID and workload ID.

These credentials are used during the capture process in order to perform the required access to capture. This service does not update any credentials on the configured cloud.

Query Parameters

N/A

Sample Request

Update VS with ID 2 credentials from workload with ID 1.

PUT http://host/cloud/api/workloads/1/virtualServers/2/credentials

```
{

    "user":"root",
    "password":"not2pass"

}
```

Sample Response

HTTP Status: 200

GET /virtualServers

This service retrieves all the virtual servers in all workloads that are available to the requesting user.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1:

GET http://host/cloud/api/virtualServers

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "virtualServers": [
        {
            "cloudId": "cloud://352/422e8944-573e-0af4-f3f7-603e5ff35c5f",
            "credentialsUri": "http://localhost:8080/cloud/api/virtualServers/3957/credentials",
            "state": {
                "label": "Unknown",
                "id": "UNKNOWN"
            },
            "backups": "http://localhost:8080/cloud/api/virtualServers/3957/backups",
            "storagesUri": "http://localhost:8080/cloud/api/virtualServers/3957/storages",
            "capabilities": [
                {
                    "isEnabled": false,
                    "id": "CREATE_DISK"
                },
                {
                    "isEnabled": false,
                    "id": "ATTACH_DISK"
                },
                {
                    "isEnabled": false,
                    "id": "DETACH_DISK"
                },
                {
                    "isEnabled": false,
                    "id": "THIN_PROVISIONED"
                },
                {
                    "isEnabled": false,
                    "id": "POWER_MANAGEMENT"
```

```
        },
        {
            "isEnabled": false,
            "id": "CAPTURE"
        },
        {
            "isEnabled": false,
            "id": "BACKUP"
        },
        {
            "isEnabled": false,
            "id": "SUSPEND_CAPABLE"
        },
        {
            "isEnabled": false,
            "id": "RESIZE"
        },
        {
            "isEnabled": false,
            "id": "PIN"
        },
        {
            "isEnabled": false,
            "id": "UNPIN"
        }
    ],
    "ip": "",
    "id": "3957",
    "uri": "http://localhost:8080/cloud/api/virtualServers/3957"
},
{
    "cloudId": "cloud://352/422e0b45-fb4a-1629-24af-c6d0be945fb5",
    "credentialsUri": "http://localhost:8080/cloud/api/virtualServers/3959/credentials",
    "state": {
        "label": "Running",
        "id": "RUNNING"
    },
    "backups": "http://localhost:8080/cloud/api/virtualServers/3959/backups",
    "hostname": "CCS-hgq",
    "storagesUri": "http://localhost:8080/cloud/api/virtualServers/3959/storages",
    "capabilities": [
        {
            "isEnabled": true,
            "id": "CREATE_DISK"
        },
        {
            "isEnabled": false,
            "id": "ATTACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "DETACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "THIN_PROVISIONED"
        },
        {
            "isEnabled": true,
            "id": "POWER_MANAGEMENT"
        },
        {
            "isEnabled": true,
            "id": "CAPTURE"
        },
        {
            "isEnabled": true,
            "id": "BACKUP"
        },
        {
            "isEnabled": false,
            "id": "SUSPEND_CAPABLE"
        },
        {
            "isEnabled": true,
            "id": "RESIZE"
        },
        {
            "isEnabled": false,
```

```
                    "id": "PIN"
                },
                {
                    "isEnabled": false,
                    "id": "UNPIN"
                }
            ],
            "ip": "9.125.13.135, 11.0.0.11",
            "id": "3959",
            "uri": "http://localhost:8080/cloud/api/virtualServers/3959"
        }
    ]
}
```

GET /virtualServers/{id}

This service retrieves a virtual server.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1:

GET http://host/cloud/api/virtualServers/203

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "cloudId": "cloud://551/40052",
    "credentialsUri": "http://localhost:8080/cloud/api/workloads/601/virtualServers/651/credentials",
    "state": {
        "label": "Running",
        "id": "RUNNING"
    },
    "backups": "http://localhost:8080/cloud/api/virtualServers/651/backups",
    "properties": [
        {
            "value": "true",
            "id": "Encapsulated",
            "description": "Encapsulated:",
            "category": "General Information"
        },
        {
            "value": "TRUE",
            "id": "Memory.ChangeableType",
            "description": "Dynamic memory change capable:",
            "category": "Memory"
        },
        {
            "value": "1024",
            "id": "Memory.VirtualLimit",
            "description": "Maximum memory size (MB):",
            "category": "Memory"
        },
        {
            "value": "1024",
            "id": "Memory.VirtualMinimum",
            "description": "Minimum memory size (MB):",
            "category": "Memory"
        },
        {
            "value": "1024",
            "id": "Memory.VirtualQuantity",
            "description": "Assigned memory size (MB):",
            "category": "Memory"
```

```
},
{
    "value": "kaiqiang-no-delete",
    "id": "Name",
    "description": "Name:",
    "category": "General Information"
},
{
    "value": "40052",
    "id": "Oid",
    "description": "Cloud object ID:",
    "category": "General Information"
},
{
    "value": "TRUE",
    "id": "Processor.ChangeableType",
    "description": "Dynamic processor change capable:",
    "category": "Processor"
},
{
    "value": "Shared",
    "id": "Processor.ConsumerVisibility",
    "description": "Processing mode:",
    "category": "Processor"
},
{
    "value": "0.1",
    "id": "Processor.Limit",
    "description": "Maximum processing units:",
    "category": "Processor"
},
{
    "value": "0.1",
    "id": "Processor.Minimum",
    "description": "Minimum processing units:",
    "category": "Processor"
},
{
    "value": "System",
    "id": "Processor.PoolID",
    "description": "Shared processor pool:",
    "category": "Processor"
},
{
    "value": "0.1",
    "id": "Processor.Reservation",
    "description": "Assigned processing units:",
    "category": "Processor"
},
{
    "value": "1",
    "id": "Processor.VirtualLimit",
    "description": "Maximum processors:",
    "category": "Processor"
},
{
    "value": "1",
    "id": "Processor.VirtualMinimum",
    "description": "Minimum processors:",
    "category": "Processor"
},
{
    "value": "1",
    "id": "Processor.VirtualQuantity",
    "description": "Assigned processors:",
    "category": "Processor"
},
{
    "value": "Medium(128)",
    "id": "Processor.Weight",
    "description": "Assigned share priority:",
    "category": "Processor"
},
{
    "value": "Started",
    "id": "State",
    "description": "State:",
    "category": "General Information"
},
```

```
        {
            "value": "HMC",
            "id": "Vendorinfo.ResourceType",
            "description": "Host type:",
            "category": "Vendor Information"
        },
        {
            "value": "FALSE",
            "id": "Vendorinfo.VIOS",
            "description": "Utility virtual server:",
            "category": "Vendor Information"
        },
        {
            "value": "AIX or Linux",
            "id": "Vendorinfo.VirtualSystemType",
            "description": "Environment:",
            "category": "Vendor Information"
        }
    ],
    "hostname": "kaiqiang-no-delete",
    "storagesUri": "http://localhost:8080/cloud/api/virtualServers/651/storages",
    "capabilities": [
        {
            "isEnabled": true,
            "id": "CREATE_DISK"
        },
        {
            "isEnabled": false,
            "id": "ATTACH_DISK"
        },
        {
            "isEnabled": false,
            "id": "DETACH_DISK"
        },
        {
            "isEnabled": false,
            "id": "THIN_PROVISIONED"
        },
        {
            "isEnabled": true,
            "id": "POWER_MANAGEMENT"
        },
        {
            "isEnabled": true,
            "id": "CAPTURE"
        },
        {
            "isEnabled": true,
            "id": "BACKUP"
        },
        {
            "isEnabled": false,
            "id": "SUSPEND_CAPABLE"
        },
        {
            "isEnabled": true,
            "id": "RESIZE"
        },
        {
            "isEnabled": false,
            "id": "PIN"
        },
        {
            "isEnabled": false,
            "id": "UNPIN"
        }
    ],
    "ip": "",
    "id": "651",
    "uri": "http://localhost:8080/cloud/api/virtualServers/651"
}
```


GET /virtualServers/{id}/storages

This service retrieves all the storage volumes attached to the virtual server.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1.

GET http://host/cloud/api/virtualServers/203/storages

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "storages":[
      {
         "size":0,
         "id":"1313",
         "name":"Unknown Storage",
        "uri":"http://localhost:8080/cloud/api/virtualServers/203/storages/1313"
      },
      {
         "size":12,
         "id":"1314",
         "name":"Nate",
        "uri":"http://localhost:8080/cloud/api/virtualServers/203/storages/1314"
      }
   ]
}
```

GET /virtualServers/{id}/storages/{id}

This service retrieves a storage volume from the list of all storage volumes attached to the virtual server.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1.

GET http://host/cloud/api/virtualServers/203/storages/1314

Note: The "thinProvisioned" attribute is returned only for VMware cloud.

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{

   "size":12,

   "thinProvisioned":true,

   "id":"1314",

   "name":"Nate",
```

```
  "uri":"http://localhost:8080/cloud/api/virtualServers/203/storages/1314"
}
```

POST /virtualServers/{id}/storages

This service adds a storage volume to the virtual server.

Query Parameters

N/A

Sample Request

Add the thin provisioned storage volume 'MyDisk' of size 1024 MB (1GB) to the virtual Server.

Note: The “thinProvisioned” attribute is valid only for VMware cloud)

POST http://host/cloud/api/virtualServers/101/storages

HTTP Request Body:

```
{

   "name":"MyDisk",
   "size":1024,
   "thinProvisioned":"true",

}
```

Sample Response

HTTP Status: 201

Created HTTP Response Body:

```
{empty}
```

DELETE /virtualServers/{id}/storages/{id}

This service removes a storage volume from the virtual server.

Query Parameters

N/A

Sample Request

Delete the storage volume with id '301' from the virtual Server.

DELETE http://host/cloud/api/virtualServers/101/storages/301

HTTP Request Body:

Sample Response

HTTP Status: 200

Deleted HTTP Response Body:

```
{empty}
```

GET /virtualServers/{id}/networks

This service retrieves all the networks attached to the virtual server.

Query Parameters

N/A

Sample Request

Get networks for virtual servers with ID 101. GET http://host/cloud/api/virtualServers/101/networks

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "networks":[
        {
            "name":"Default IP Address Pool",
            "id":"1",
            "dns1":
            {
                "value":"9.5.17.11",
                "label":"DNS 1"
            },
            "dns2":
            {
                "value":"9.5.17.12",
                "label":"DNS 2"
            },
            "gateway1":
            {
                "value":"9.5.40.1",
                "label":"Gateway address"
            },
            "gateway2":
            {
                "value":"9.5.40.2",
                "label":"Alternative gateway address"
            },
            "domain":
            {

         "value":"rchland.ibm.com",
                "label":"Domain name"
            },
            "domainSuffixes":
            {
                "value":"ibm.com,cn.ibm.com",
                "label":"Domain suffix search list"
            },
            "subnet":
            {

        "value":"255.255.252.0",
                "label":"Subnet mask"
            },
            "networkId":
            {
                "value":"123",
                "label":"Network ID"
            },
            "useDHCP":
            {
                "value":true,
                "label":"Use DHCP"
            },
```

```
     "wins1":
     {
         "value":"9.5.40.3",
         "label":"Primary WINS address"
     },
     "wins2":
     {
         "value":"9.5.40.4",
         "label":"Secondary WINS address"
     },
     "ipAddress":
     {
         "value":"9.1.2.125",
         "label":"IP address"
     },
     "hostName":
     {
         "value":"hostname1",
         "label":"Host name"
     },
     "computerName":
                {

"value":"skc",

"label":"Computer name"
                },
     "workgroup":
     {
         "value":"group",
         "label":"Workgroup"
     }
 },
 {
     "name":"IP Address Pool1",
     "id":"1",
     "dns1":
     {
         "value":"9.5.17.12",
         "label":"DNS 1"
     },
     "dns2":
     {
         "value":"9.5.17.13",
         "label":"DNS 2"
     },
     "gateway1":
     {
         "value":"9.5.40.1",
         "label":"Gateway address"
     },
     "gateway2":
     {
         "value":"9.5.40.2",
         "label":"Alternative gateway address"
     },
     "domain":
     {

"value":"rchland.ibm.com",
         "label":"Domain name"
     },
     "domainSuffixes":
     {

 "value":"ibm.com,cn.ibm.com",
         "label":"Domain suffix search list"
     },
     "subnet":
     {

 "value":"255.255.252.0",
         "label":"Subnet mask"
     },
     "networkId":
     {
         "value":"123",
         "label":"Network ID"
     },
```

```
            "useDHCP":
            {
                "value":true,
                "label":"Use DHCP"
            },
            "wins1":
            {
                "value":"9.5.40.3",
                "label":"Primary WINS address"
            },
            "wins2":
            {
                "value":"9.5.40.4",
                "label":"Secondary WINS address"
            },
            "ipAddress":
            {
                "value":"9.1.2.126",
                "label":"IP address"
            },
            "hostName":
            {
                "value":"hostname1",
                "label":"Host name"
            },
            "computerName":
                        {

       "value":"skc1",

       "label":"Computer name"
                        },
            "workgroup":
            {
                "value":"group2",
                "label":"Workgroup"
            }
        }
    ]
}
```

GET /virtualServers/{id}/networks/{id}

This service retrieves a network attached to the virtual server.

Query Parameters

N/A

Sample Request

Get networks with ID 202 for virtual servers with ID 101.

GET http://host/cloud/api/virtualServers/101/networks/202

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
            "name":"Default IP Address Pool",
            "id":"1",
            "dns1":
            {
                "value":"9.5.17.11",
                "label":"DNS 1"
            },
            "dns2":
            {
                "value":"9.5.17.12",
```

```
            "label":"DNS 2"
        },
        "gateway1":
        {
            "value":"9.5.40.1",
            "label":"Gateway address"
        },
        "gateway2":
        {
            "value":"9.5.40.2",
            "label":"Alternative gateway address"
        },
        "domain":
        {
  "value":"rchland.ibm.com",
            "label":"Domain name"
        },
        "domainSuffixes":
        {
  "value":"ibm.com,cn.ibm.com",
            "label":"Domain suffix search list"
        },
        "subnet":
        {
  "value":"255.255.252.0",
            "label":"Subnet mask"
        },
        "networkId":
        {
            "value":"123",
            "label":"Network ID"
        },
        "useDHCP":
        {
            "value":true,
            "label":"Use DHCP"
        },
        "wins1":
        {
            "value":"9.5.40.3",
            "label":"Primary WINS address"
        },
        "wins2":
        {
            "value":"9.5.40.4",
            "label":"Secondary WINS address"
        },
        "ipAddress":
        {
            "value":"9.1.2.125",
            "label":"IP address"
        },
        "hostName":
        {
            "value":"hostname1",
            "label":"Host name"
        },
        "computerName":
                    {
"value":"skc",
"label":"Computer name"
                    },
        "workgroup":
        {
            "value":"group",
            "label":"Workgroup"
        }
    }
```

GET /virtualServers/{id}/backups

This service retrieves all saved server images associated with a virtual server.

Query Parameters

N/A

Sample Request

Get saved server images for virtual server with the id 203.

GET http://host/cloud/api/virtualServers/203/backups

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "backups":[
      {
         "id":"505",
         "name":"os installed",
         "description":"RHEL 5.5 installed, not configured",
         "uri":"http://localhost:8080/cloud/api/virtualServers/203/backups/505",
         "creationDate":1312298597963
      },
      {
         "id":"506",
         "name":"after xyz was installed",
         "description":"",
        "uri":"http://localhost:8080/cloud/api/virtualServers/203/backups/506",
         "creationDate":1312298895370
      }
   ]
}
```

GET /virtualServers/{id}/backups/{id}

This service retrieves a specific saved server image associated with a virtual server.

Query Parameters

N/A

Sample Request

Get saved server image with the id 505 for virtual server with the id 203.

GET http://host/cloud/api/virtualServers/203/backups/505

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "id":"505",
   "name":"os installed",
   "description":"RHEL 5.5 installed, not configured",
   "uri":"http://localhost:8080/cloud/api/virtualServers/203/backups/505",
   "creationDate":1312298597963
}
```

POST /virtualServers/{id}/backups

This service creates a new saved server image for the virtual server.

Query Parameters

N/A

Sample Request

Create a new saved server image for virtual server with the id 203.

POST http://host/cloud/api/virtualServers/203/backups

```
{
   "name" : "name for saved server image",
   "description" : "description of image"
}
```

Sample Response

HTTP Status: 201 Created

Response Body: {empty}

PUT /virtualServers/{id}/backups/{id}

This service restores the virtual server using the specified saved server image.

Query Parameters

N/A

Sample Request

Restore the virtual server with the id 203 using the saved server image with the id 505.

PUT http://host/cloud/api/virtualServers/203/backups/505

```
{
   "state": "RESTORING"
}
```

Sample Response

HTTP Status: 200 OK

Response Body: {empty}

DELETE /virtualServers/{id}/backups/{id}

This service deletes the specified saved server image associated with a virtual server.

Query Parameters

N/A

Sample Request

Delete saved server image with the id 505 for virtual server with the ID 203.

DELETE http://host/cloud/api/virtualServers/203/backups/505

Sample Response

HTTP Status: 200 OK

Response Body: {empty}

GET /virtualServers/{id}/repositories

This service retrieves all valid repositories that can be used to capture the virtual server.

Query Parameters

N/A

Sample Request

Get valid image repositories for virtual server with ID 203.

```
GET
 http://host/cloud/api/virtualServers/203/repositories
```

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
  "total": "1",
  "repositories": [
    {
      "cloudId": "11632",
      "name": "image_repository"
    }
  ],
  "identifier": "cloudId"
}
```

GET /virtualServers/{id}/repositories/{id}/customization

This service retrieves customization that is associated with the virtual server and the image repository. The customization includes the information that is needed to capture the virtual server to the image repository.

Query Parameters

N/A

Sample Request

Get customization for virtual server with ID 203 and image repository with ID 102.

```
GET
 http://host/cloud/api/virtualServers/203/repositories/102/customization
```

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
  "properties": [
    {
      "values": [ ],
      "type": "SINGLE_SELECTION",
      "name": "ostypecapture",
      "description": "Specify OS Type for capture",
      "basic": false,
      "options": [
        {
          "value": "Linux",
          "id": "36"
        },
        {
          "value": "AIX",
          "id": "9"
        }
      ],
      "required": false
    }
  ],
  "appliance": {
    "name": "Unknown"
  },
  "instances": 1
}
```

Workload services

IBM SmartCloud Entry provides the workload services listed here.

"PUT /workloads/{id}" on page 160
This service updates a workload either by changing its properties or by running it.
"DELETE /workloads/{id}" on page 164
This service is used to either 'soft delete' a workload from IBM SmartCloud Entry, or 'hard delete' it from the cloud.
"GET /workloads/stats" on page 164
This service retrieves statistics about workloads. The default statistic is the states of the various workloads.

Related information:

"Code license and disclaimer information" on page 165

GET /workloads

This service retrieves a list with the summary of all the known workloads available in the cloud.

Query Parameters

Name	Description	Default	Required
user	Gets the list of workloads that this username can see.	N/A	No
includeHidden	Specifies whether returned workloads should include hidden workloads.	false	No

Sample Request

Get all known workloads:

GET http://host/cloud/api/workloads

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "total": "44",
    "workloads": [
        {
            "cloudName": "host122-win2k3_host_2_10",
            "cloudGroupId": "352",
            "name": "host122-win2k3_host_2_10",
            "uri": "http://localhost:8080/cloud/api/workloads/60351",
            "cloudId": "cloud://352/422ea1c0-d1ae-961e-095d-3b96ba3b1601",
            "state": {
                "label": "Unknown",
                "id": "UNKNOWN"
            },
            "projectUri": "http://localhost:8080/cloud/api/projects/151",
            "architecture": "x86",
            "isHidden": false,
            "cloudGroupName": "VMware-120",
            "hypervisor": "VMware",
            "id": "60351",
            "description": "Workload could no longer be found in the Cloud. It could have been purposely deleted from the Cloud."
        },
        {
      "cloudName": "DHCP&DNS(inner)_RHEL61_64Bit_hgq(Not Delete)",
      "cloudGroupId": "352",
      "name": "DHCP&DNS(inner)_RHEL61_64Bit_hgq(Not Delete)",
      "uri": "http://localhost:8080/cloud/api/workloads/37452",
```

```
      "cloudId": "cloud://352/422ed793-b6cb-46a7-53e7-59d39d66d322",
      "state": {
        "label": "OK",
        "id": "OK"
          },
      "projectUri": "http://localhost:8080/cloud/api/projects/151",
      "architecture": "x86",
      "isHidden": false,
      "cloudGroupName": "VMware-120",
      "hypervisor": "VMware",
      "id": "37452",
      "description": "Workload could no longer be found in the Cloud. It could have been purposely deleted from the Cloud."
   }
   ]
}
```

POST /workloads

This service creates a new workload. Creating a workload does not mean executing it. When a workload is created it means that a workload is prepared for its eventual execution given the current resources in the cloud.

A workload has name, description, a project it belongs to and specific workload properties specific to the base appliance. The workload properties are contained in what we call a customization. Creating a workload requires a base appliance and in that case the appliance ID is required; it is also possible to create a workload from an existing workload, or recreating a workload, in that case the base workload ID is required.

Important: After you create a workload, the workload will not automatically appear in the IBM SmartCloud Entry graphical user interface. The workload will also not appear in any workload lists returned by APIs. In order for the workload to appear in the graphical user interface and in lists returned by APIs, you must use the “PUT /workloads/{id}” on page 160 service to execute the workload.

All workloads created under IBM SmartCloud Entry need to be associated to a project. Workloads have a visibility attribute that determined whether the workload can only be seen by the members of the project, or also by any IBM SmartCloud Entry user. The default visibility is `PROJECT`.

Query Parameters

N/A

Sample Requests

1. Create a new workload for appliance ID 133.

   POST http://host/cloud/api/workloads

   ```
   {
      "appliance":133
   }
   ```

2. Create a new workload from an existing workload with ID 156.

   POST workload from an existing workload with ID 156.

   "http://host/cloud/api/workloads">http://host/cloud/api/workloads

   ```
   {
      "workload":156
   }
   ```

Sample Response

HTTP Status: 201

HTTP Location Header: The URI of the new workload

HTTP Body: The customization, to avoid a trip back to the server for it. The returned customization not only contains the customization properties getting from IBM Systems Director VMControl, but also the IBM SmartCloud Entry core generated properties named `storagemapping-N`, which stands for the storage mapping for each disk. The "values" field has default value which suggested by IBM SmartCloud Entry core. The user can also fill the values field to specify mapping to which storage pool for this disk.

```
{
    "target": "cloud://352/host-875",
    "properties": [
        {
            "values": [
                "{1}"
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
            "valueOrigin": [
                "{1}"
            ],
            "subtype": "HOST_NAME",
            "type": "STRING",
            "valueFrom": "ipAddress",
            "name": "linux.hostname",
            "description": "Host name",
            "category": "TCP/IP Network Settings ",
            "basic": true,
            "required": false
        },
        {
            "values": [
                "{1}"
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
            "valueOrigin": [
                "{1}"
            ],
            "subtype": "DOMAIN_NAME",
            "type": "STRING",
            "valueFrom": "domain",
            "name": "linux.domainname",
            "description": "Domain name",
            "category": "TCP/IP Network Settings ",
            "basic": true,
            "required": true
        },
        {
            "values": [
                "{1}"
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
            "valueOrigin": [
                "{1}"
            ],
            "subtype": "IPV4_ADDRESS",
            "type": "STRING",
            "valueFrom": "dns1",
            "name": "linux.dns1",
            "description": "Primary DNS",
            "category": "TCP/IP Network Settings ",
            "basic": false,
            "required": false
        },
        {
            "values": [
                "{1}"
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
```

```
        "valueOrigin": [
            "{1}"
        ],
        "subtype": "IPV4_ADDRESS",
        "type": "STRING",
        "valueFrom": "dns2",
        "name": "linux.dns2",
        "description": "Backup DNS",
        "category": "TCP/IP Network Settings ",
        "basic": false,
        "required": false
    },
    {
        "values": [
            "{1}"
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            "{1}"
        ],
        "subtype": "DOMAIN_NAMES",
        "type": "STRING",
        "valueFrom": "domainSuffixes",
        "name": "dnssuffixlist",
        "description": "Domain name server suffix list (comma separated)",
        "category": "TCP/IP Network Settings ",
        "basic": false,
        "required": false
    },
    {
        "values": [
            4345
        ],
        "classification": {
            "label": "Storage",
            "id": "STORAGE"
        },
        "rules": [
            {
                "value": "1",
                "id": "increment"
            },
            {
                "value": "LINEAR",
                "id": "incrementType"
            },
            {
                "value": "2097151",
                "id": "max"
            },
            {
                "value": "4345",
                "id": "min"
            }
        ],
        "type": "LONG",
        "name": "DiskSize.Hard disk 1",
        "description": "Disk Size of Hard disk 1 (MB)",
        "category": "Storage Settings",
        "basic": false,
        "required": false
    },
    {
        "values": [
            "skc.default.storage"
        ],
        "classification": {
            "label": "Storage",
            "id": "STORAGE"
        },
        "type": "SINGLE_SELECTION",
        "name": "target.storage",
        "description": "Target Storage",
        "category": "Storage Settings",
        "basic": false,
        "options": [
```

```
        {
            "value": "Default",
            "id": "skc.default.storage"
        },
        {
            "value": "xBLADE_Server_01_DS5020_DISK",
            "id": "xBLADE_Server_01_DS5020_DISK"
        }
    ],
    "required": false
},
{
    "values": [
        1024
    ],
    "classification": {
        "label": "Hardware",
        "id": "HARDWARE"
    },
    "rules": [
        {
            "value": "4",
            "id": "increment"
        },
        {
            "value": "LINEAR",
            "id": "incrementType"
        },
        {
            "value": "128",
            "id": "min"
        }
    ],
    "type": "LONG",
    "name": "vmware.memory",
    "description": "Memory (MB)",
    "category": "Memory and CPU Settings",
    "basic": true,
    "required": false
},
{
    "values": [
        1
    ],
    "classification": {
        "label": "Hardware",
        "id": "HARDWARE"
    },
    "rules": [
        {
            "value": "1",
            "id": "increment"
        },
        {
            "value": "LINEAR",
            "id": "incrementType"
        },
        {
            "value": "12",
            "id": "max"
        },
        {
            "value": "1",
            "id": "min"
        }
    ],
    "type": "LONG",
    "name": "vmware.cpu",
    "description": "Virtual CPUs",
    "category": "Memory and CPU Settings",
    "basic": true,
    "required": false
},
{
    "values": [
        "VM Network"
    ],
    "classification": {
        "label": "Network",
```

```
            "id": "NETWORK"
        },
        "valueOrigin": [
            "VM Network"
        ],
        "type": "SINGLE_SELECTION",
        "valueFrom": "networkId",
        "name": "networkdevice.Network adapter 1.network",
        "description": "Network associated with Network adapter 1",
        "category": "Network adapter 1",
        "basic": false,
        "options": [
            {
                "value": "VM Network",
                "id": "VM Network"
            }
        ],
        "group": "Adapter 1",
        "required": true
    },
    {
        "values": [
            false
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            false
        ],
        "subtype": "DHCP_FLAG",
        "type": "BOOLEAN",
        "valueFrom": "useDHCP",
        "name": "networkdevice.Network adapter 1.usedhcp",
        "description": "Use DHCP for Network adapter 1",
        "category": "Network adapter 1",
        "basic": false,
        "group": "Adapter 1",
        "required": false
    },
    {
        "values": [
            "{1}"
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            "{1}"
        ],
        "subtype": "IPV4_ADDRESS",
        "type": "STRING",
        "valueFrom": "ipAddress",
        "name": "networkdevice.Network adapter 1.ipaddress",
        "description": "IP address for Network adapter 1",
        "category": "Network adapter 1",
        "basic": false,
        "group": "Adapter 1",
        "required": true
    },
    {
        "values": [
            "{1}"
        ],
        "classification": {
            "label": "Network",
            "id": "NETWORK"
        },
        "valueOrigin": [
            "{1}"
        ],
        "subtype": "IPV4_SUBNET_MASK",
        "type": "STRING",
        "valueFrom": "subnet",
        "name": "networkdevice.Network adapter 1.netmask",
        "description": "Subnet mask for Network adapter 1",
        "category": "Network adapter 1",
```

```
            "basic": false,
            "group": "Adapter 1",
            "required": true
        },
        {
            "values": [
                "{1}"
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
            "valueOrigin": [
                "{1}"
            ],
            "subtype": "IPV4_ADDRESS",
            "type": "STRING",
            "valueFrom": "gateway1",
            "name": "networkdevice.Network adapter 1.gateway1",
            "description": "Default gateway for Network adapter 1",
            "category": "Network adapter 1",
            "basic": false,
            "group": "Adapter 1",
            "required": false
        },
        {
            "values": [
                true
            ],
            "classification": {
                "label": "Network",
                "id": "NETWORK"
            },
            "valueOrigin": [
                true
            ],
            "subtype": "DNS_FLAG",
            "type": "BOOLEAN",
            "valueFrom": "obtainFromDNS",
            "name": "obtainFromDNS.network1",
            "description": "Obtain hostname and domain name from DNS server",
            "category": "Network adapter 1",
            "basic": false,
            "group": "Adapter 1",
            "required": false
        }
    ],
    "id": "73512",
    "appliance": {
        "name": "RHEL6_Template121",
        "uri": "http://localhost:8080/cloud/api/appliances/37701"
    }
}
```


You can view the customization details in the “GET /workloads/{id}/customization” on page 140 API description.

GET /workloads/{id}

This service retrieves a workload by ID.

If the workloads was created using IBM SmartCloud Entry, the returned workload will include a customization, otherwise it won't. Workloads may or may not include a virtual server associated with them, depending on whether the workload has already been attempted or is still in draft mode, and if the workload was attempted whether or not it was successful.

Query Parameters

N/A

Sample Request

Get workload with ID 1:

GET http://host/cloud/api/workloads/1

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "cloudName": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
    "priority": 2,
    "cloudGroupId": "352",
    "executionDate": 1341290499109,
    "virtualServersUri": "http://localhost:8080/cloud/api/workloads/73508/virtualServers",
    "name": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
    "uri": "http://localhost:8080/cloud/api/workloads/73508",
    "timestampsUri": "http://localhost:8080/cloud/api/workloads/73508/timestamps",
    "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
    "state": {
        "label": "OK",
        "id": "OK"
    },
    "architecture": "x86",
    "projectUri": "http://localhost:8080/cloud/api/projects/103001",
    "isHidden": false,
    "cloudGroupName": "VMware-120",
    "hypervisor": "VMware",
    "customizationUri": "http://localhost:8080/cloud/api/workloads/73508/customization",
    "targetUri": "http://localhost:8080/cloud/api/workloads/73508/target",
    "id": "73508",
    "description": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
    "logsUri": "http://localhost:8080/cloud/api/workloads/73508/log"
}
```


GET /workloads/{id}/customization

This service retrieves customization for a workload by ID.

A workload's customization includes the workload's virtualization properties used to execute this particular workload on the cloud. This service can also return the dynamic virtualization properties, which are the properties that can be used to modify this workload at runtime. You can, for example, change the allotted CPU.

Query Parameters

Name	Description	Default	Required
dynamicProperties	Return the dynamic virtualization properties for this workload.	false	No
priority	Return the priority property of this workload.	false	No

Sample Request

To retrieve the customization for workload with ID 1 GET http://host/cloud/api/workloads/1/customization

Sample Response


```
{
   "target":"cloud://default/6678",
   "properties":[
      {
         "values":[
            "1"
         ],
         "rules":[
            {
               "value":"1",
               "id":"increment"
            },
            {
               "value":"LINEAR",
               "id":"incrementType"
            },
            {
               "value":"240.0",
               "id":"max"
            },
            {
               "value":"1.0",
               "id":"min"
            }
         ],
         "type":"LONG",
         "name":"cpushared",
         "description":"The desired number of dedicated or
virtual processors to be assigned to the virtual server.",
         "basic":false,
         "required":true
      },
      {
         "values":[
            "1"
         ],
         "rules":[
            {
               "value":"1",
               "id":"increment"
            },
            {
               "value":"LINEAR",
               "id":"incrementType"
            },
            {
               "value":"128.0",
               "id":"max"
            },
            {
               "value":"1.0",
               "id":"min"
            }
         ],
         "type":"LONG",
         "name":"cpudedicated",
         "description":"The desired number of dedicated or virtual processors to be assigned to the virtual server.",
         "basic":false,
         "required":true
      },
      {
         "values":[
            "SHARED"
         ],
         "type":"SINGLE_SELECTION",
         "name":"cpumode",
         "description":"Indicates whether the virtual server will use physical or virtual processors (dedicated or shared mode).",
         "basic":false,
         "options":[
            {
               "value":"Dedicated",
               "id":"DEDICATED"
            },
            {
               "value":"Shared",
               "id":"SHARED"
            }
```

```
        ],
        "required":true
    },
    {
        "values":[
            "512"
        ],
        "rules":[
            {
                "value":"256",
                "id":"increment"
            },
            {
                "value":"LINEAR",
                "id":"incrementType"
            },
            {
                "value":"160512.0",
                "id":"max"
            },
            {
                "value":"256.0",
                "id":"min"
            }
        ],
        "type":"LONG",
        "name":"memsize",
        "description":"The desired amount of memory (MB) to be assigned to the virtual server.",
        "basic":false,
        "required":true
    },
{
    "values":[
        false
    ],
    "type":"BOOLEAN",
    "name":"suspendresume",
    "description":"The virtual server can be suspended and resumed later.",
    "basic":false,
    "required":false
},
    {
        "values":[
            "2048"
        ],
        "rules":[
            {
                "value":"256",
                "id":"increment"
            },
            {
                "value":"LINEAR",
                "id":"incrementType"
            },
            {
                "value":"160512.0",
                "id":"max"
            },
            {
                "value":"256.0",
                "id":"min"
            }
        ],
        "type":"LONG",
        "name":"memmax",
        "description":"The maximum amount of memory (MB) that can be assigned to the virtual server.",
        "basic":false,
        "required":true
    },
    {
        "values":[
            "512"
        ],
        "rules":[
            {
                "value":"256",
                "id":"increment"
            },
            {
```

```
            "value":"LINEAR",
            "id":"incrementType"
         },
         {
            "value":"160512.0",
            "id":"max"
         },
         {
            "value":"256.0",
            "id":"min"
         }
      ],
      "type":"LONG",
      "name":"memmin",
      "description":"The minimum amount of memory (MB) that can be assigned to the virtual server.",
      "basic":false,
      "required":true
   },
   {
      "values":[
         "1"
      ],
      "rules":[
         {
            "value":"1",
            "id":"increment"
         },
         {
            "value":"LINEAR",
            "id":"incrementType"
         },
         {
            "value":"240.0",
            "id":"max"
         },
         {
            "value":"1.0",
            "id":"min"
         }
      ],
      "type":"LONG",
      "name":"cpushmin",
      "description":"The minimum number of dedicated or virtual processors that can be assigned to the virtual server.",
      "basic":false,
      "required":false
   },
   {
      "values":[
         "0.1"
      ],
      "rules":[
         {
            "value":"0.1",
            "id":"increment"
         },
         {
            "value":"24.0",
            "id":"max"
         },
         {
            "value":"0.1",
            "id":"min"
         }
      ],
      "type":"FLOAT",
      "name":"cpushminu",
      "description":"The minimum number of processing units that can be assigned to the virtual server.",
      "basic":false,
      "required":false
   },
   {
      "values":[
         "0.1"
      ],
      "rules":[
         {
            "value":"0.1",
            "id":"increment"
         },
```

```
      {
         "value":"24.0",
         "id":"max"
      },
      {
         "value":"0.1",
         "id":"min"
      }
   ],
   "type":"FLOAT",
   "name":"cpushu",
   "description":"The desired number of processing units to be assigned to the virtual server.",
   "basic":false,
   "required":false
},
{
   "values":[
      "1"
   ],
   "rules":[
      {
         "value":"1",
         "id":"increment"
      },
      {
         "value":"LINEAR",
         "id":"incrementType"
      },
      {
         "value":"240.0",
         "id":"max"
      },
      {
         "value":"1.0",
         "id":"min"
      }
   ],
   "type":"LONG",
   "name":"cpushmax",
   "description":"The maximum number of dedicated or virtual processors that can be assigned to the virtual server.",
   "basic":false,
   "required":false
},
{
   "values":[
      "1"
   ],
   "rules":[
      {
         "value":"0.1",
         "id":"increment"
      },
      {
         "value":"24.0",
         "id":"max"
      },
      {
         "value":"0.1",
         "id":"min"
      }
   ],
   "type":"FLOAT",
   "name":"cpushmaxu",
   "description":"The maximum number of processing units that can be assigned to the virtual server.",
   "basic":false,
   "required":false
},
{
   "values":[
      "UNCAP"
   ],
   "type":"SINGLE_SELECTION",
   "name":"cpushmode",
   "description":"The processing units sharing mode of the virtual server.",
   "basic":false,
   "options":[
      {
         "value":"Capped",
         "id":"CAP"
```

```
      },
      {
         "value":"Uncapped",
         "id":"UNCAP"
      }
   ],
   "required":false
},
{
   "values":[
      "128"
   ],
   "rules":[
      {
         "value":"1",
         "id":"increment"
      },
      {
         "value":"LINEAR",
         "id":"incrementType"
      },
      {
         "value":"255.0",
         "id":"max"
      },
      {
         "value":"0.0",
         "id":"min"
      }
   ],
   "type":"LONG",
   "name":"cpushpri",
   "description":"The priority of the virtual server to available processing units in the shared processor pool.",
   "basic":false,
   "required":false
},
{
   "values":[
      "1"
   ],
   "rules":[
      {
         "value":"1",
         "id":"increment"
      },
      {
         "value":"LINEAR",
         "id":"incrementType"
      },
      {
         "value":"24.0",
         "id":"max"
      },
      {
         "value":"1.0",
         "id":"min"
      }
   ],
   "type":"LONG",
   "name":"cpudedmin",
   "description":"The minimum number of dedicated or virtual processors that can be assigned to the virtual server.",
   "basic":false,
   "required":false
},
{
   "values":[
      "1"
   ],
   "rules":[
      {
         "value":"1",
         "id":"increment"
      },
      {
         "value":"LINEAR",
         "id":"incrementType"
      },
      {
         "value":"128.0",
```

```
            "id":"max"
         },
         {
            "value":"1.0",
            "id":"min"
         }
      ],
      "type":"LONG",
      "name":"cpudedmax",
      "description":"The maximum number of dedicated or virtual processors that can be assigned to the virtual server.",
      "basic":false,
      "required":false
   },
   {
      "values": [
         "2"
      ],
      "type": "SINGLE_SELECTION",
      "name": "priority",
      "description": "Workload Priority",
      "basic": false,
      "options": [
         {
           "value": "1 (High)",
           "id": "1"
         },
         {
           "value": "2 (Normal)",
           "id": "2"
         },
         {
           "value": "3 (Low)",
           "id": "3"
         },
         {
           "value": "4 (Lowest)",
           "id": "4"
         }
      ],
      "required": false
   },
   {
      "values":[
         "192-168-2-183"
      ],
      "classification":{
         "label":"Network",
         "id":"NETWORK"
      },
      "valueOrigin": [
       "{1}"
      ],
      "subtype":"HOST_NAME",
      "type":"STRING",
      "valueFrom": "hostnamePrefix",
      "name":"product.AIX1.com.ibm.ovf.vim.2.system.hostname",
      "description":"Short hostname for the system.",
      "category":"TCP/IP Network Settings",
      "basic":false,
      "required":false
   },
   {
      "values":[
         "icb.cloud.com"
      ],
      "valueOrigin": [
       "{1}"
      ],
      "classification":{
         "label":"Network",
         "id":"NETWORK"
      },
      "subtype":"DOMAIN_NAME",
      "type":"STRING",
      "valueFrom": "domain",
      "name":"product.AIX1.com.ibm.ovf.vim.2.system.domainname",
      "description":"DNS domain name for the system.",
      "category":"TCP/IP Network Settings",
      "basic":false,
```

```
   "required":false
},
{
   "values":[
      "192.168.1.17"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
   "valueFrom": "dns1",
  "name":"product.AIX1.com.ibm.ovf.vim.2.system.dns1.ip",
   "description":"IP address of primary DNS server for system.",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "required":false
},
{
   "values":[
      "192.168.1.17"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
   "valueFrom": "dns2",
  "name":"product.AIX1.com.ibm.ovf.vim.2.system.dns2.ip",
   "description":"IP address of secondary DNS server for system.",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "required":false
},
{
   "values":[
      "192.168.2.183"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
   "valueFrom": "ipAddress",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.6.ip",
   "description":"Static IP address for the network adapter on \"Network 1\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 1",
   "required":true
},
{
   "values":[
      "false"
   ],
   "type":"STRING",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.6.ipv6autoconf",
   "description":"Use IPv6 stateless address autoconfiguration on \"Network 1\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "required":false
},
{
   "values":[
      "192.168.1.17"
   ],
   "classification":{
```

```
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.6.gateway",
   "description":"Static default gateway for the network adapter on \"Network 1\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 1",
   "required":true
},
{
   "values":[
      "255.255.0.0"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "subtype":"IPV4_SUBNET_MASK",
   "type":"STRING",
   "valueFrom": "subnet",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.6.netmask",
   "description":"Static network mask for the network adapter on \"Network 1\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 1",
   "required":true
},
{
   "values":[
      "10.10.2.185"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{2}"
   ],
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
   "valueFrom": "ipAddress",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.7.ip",
   "description":"Static IP address for the network adapter on \"Network 2\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 2",
   "required":true
},
{
   "values":[
      "false"
   ],
   "type":"STRING",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.7.ipv6autoconf",
   "description":"Use IPv6 stateless address autoconfiguration on \"Network 2\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "required":false
},
{
   "values":[
      "192.168.1.17"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{2}"
   ],
```

```
   "subtype":"IPV4_ADDRESS",
   "type":"STRING",
   "valueFrom": "gateway1",
   "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.7.gateway",
   "description":"Static default gateway for the network adapter on \"Network 2\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 2",
   "required":true
},
{
   "values":[
      "255.255.0.0"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{2}"
   ],
   "subtype":"IPV4_SUBNET_MASK",
   "type":"STRING",
   "valueFrom": "subnet",
  "name":"product.AIX1.com.ibm.ovf.vim.2.networkport.7.netmask",
   "description":"Static network mask for the network adapter on \"Network 2\".",
   "category":"TCP/IP Network Settings",
   "basic":false,
   "group":"Adapter 2",
   "required":true
},
{
   "values":[
      "[Network 1]=hostVnet:ETHERNET0/1"
   ],
   "classification":{
      "label":"Network",
      "id":"NETWORK"
   },
   "valueOrigin": [
    "{1}"
   ],
   "type":"SINGLE_SELECTION",
   "valueFrom": "networkId",
   "name":"virtualnetworks-1",
   "description":" Network 1\"",
   "basic":false,
   "options":[
      {
         "values":[
            {
               "value":"Network 1",
               "description":"Network Name"
            },
            {
               "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
               "description":"Description"
            },
            {
               "value":"VLAN 1, Bridged",
               "description":"Virtual Networks on Host"
            }
         ],
         "id":"[Network1]=hostVnet:ETHERNET0/1"
      },
      {
         "values":[
            {
               "value":"Network 1",
               "description":"Network Name"
            },
            {
               "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
               "description":"Description"
            },
            {
               "value":"VLAN 2, Bridged",
               "description":"Virtual Networks on Host"
            }
```

```
            ],
            "id":"[Network1]=hostVnet:ETHERNET0/2"
         },
         {
            "values":[
               {
                  "value":"Network 1",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 3, Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network1]=hostVnet:ETHERNET0/3"
         },
         {
            "values":[
               {
                  "value":"Network 1",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 91, Not Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network1]=hostVnet:ETHERNET0/91"
         },
         {
            "values":[
               {
                  "value":"Network 1",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 92, Not Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network1]=hostVnet:ETHERNET0/92"
         },
         {
            "values":[
               {
                  "value":"Network 1",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 1 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 93, Not Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network1]=hostVnet:ETHERNET0/93"
         }
      ],
      "group":"Adapter 1",
      "required":false
   },
   {
      "values":[
         "[Network 2]=hostVnet:ETHERNET0/2"
      ],
```

```
"classification":{
   "label":"Network",
   "id":"NETWORK"
},
"valueOrigin": [
 "{2}"
],
"type":"SINGLE_SELECTION",
"valueFrom": "networkId",
"name":"virtualnetworks-2",
"description":" Network 2\"",
"basic":false,
"options":[
   {
      "values":[
         {
            "value":"Network 2",
            "description":"Network Name"
         },
         {
            "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
            "description":"Description"
         },
         {
            "value":"VLAN 1, Bridged",
            "description":"Virtual Networks on Host"
         }
      ],
      "id":"[Network2]=hostVnet:ETHERNET0/1"
   },
   {
      "values":[
         {
            "value":"Network 2",
            "description":"Network Name"
         },
         {
            "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
            "description":"Description"
         },
         {
            "value":"VLAN 2, Bridged",
            "description":"Virtual Networks on Host"
         }
      ],
      "id":"[Network2]=hostVnet:ETHERNET0/2"
   },
   {
      "values":[
         {
            "value":"Network 2",
            "description":"Network Name"
         },
         {
            "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
            "description":"Description"
         },
         {
            "value":"VLAN 3, Bridged",
            "description":"Virtual Networks on Host"
         }
      ],
      "id":"[Network2]=hostVnet:ETHERNET0/3"
   },
   {
      "values":[
         {
            "value":"Network 2",
            "description":"Network Name"
         },
         {
            "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
            "description":"Description"
         },
         {
            "value":"VLAN 91, Not Bridged",
            "description":"Virtual Networks on Host"
         }
      ],
```

```
            "id":"[Network2]=hostVnet:ETHERNET0/91"
         },
         {
            "values":[
               {
                  "value":"Network 2",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 92, Not Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network 2]=hostVnet:ETHERNET0/92"
         },
         {
            "values":[
               {
                  "value":"Network 2",
                  "description":"Network Name"
               },
               {
                  "value":"Captured from virtual server 192-168-2-34 connected to VLAN 2 on host ICB-CPT1",
                  "description":"Description"
               },
               {
                  "value":"VLAN 93, Not Bridged",
                  "description":"Virtual Networks on Host"
               }
            ],
            "id":"[Network2]=hostVnet:ETHERNET0/93"
         }
      ],
      "group":"Adapter 2",
      "required":false
   },
   {
      "values":[
         "1"
      ],
      "rules":[
         {
            "value":"1",
            "id":"increment"
         },
         {
            "value":"LINEAR",
            "id":"incrementType"
         },
         {
            "value":"240.0",
            "id":"max"
         },
         {
            "value":"1.0",
            "id":"min"
         }
      ],
      "type":"LONG",
      "name":"cskCPU",
      "description":"CPU",
      "basic":true,
      "required":false
   },
   {
      "values":[
         "512"
      ],
      "rules":[
         {
            "value":"256",
            "id":"increment"
         },
         {
            "value":"LINEAR",
```

```
            "id":"incrementType"
         },
         {
            "value":"160512.0",
            "id":"max"
         },
         {
            "value":"256.0",
            "id":"min"
         }
      ],
      "type":"LONG",
      "name":"cskRAM",
      "description":"RAM",
      "basic":true,
      "required":false
   },
   {
      "values":[
         true
      ],
      "classification":{
         "label":"Network",
         "id":"NETWORK"
      },
      "valueOrigin": [
       true
      ],
      "subtype":"DNS_FLAG",
      "type":"BOOLEAN",
      "valueFrom": "obtainFromDNS",
      "name":"obtainFromDNS.network1",
      "description":"Obtain hostname and domain name from DNS server",
      "category":"TCP/IP Network Settings",
      "basic":false,
      "group":"Adapter 1",
      "required":false
   },
 ],
 "id":"402",
 "appliance":{
    "name":"NewSampleImageSCS",
   "uri":"http://adminconsole.ppd.pok.ibm.com:8080/cloud/api/appliances/104"
 }
}
```


GET /workloads/{id}/target

This service retrieves the a workload's target for a workload by ID.

A workload's target includes the id, name, and type of the target. Also, it contains any target metrics present at the time of the request.

Query Parameters

N/A

Sample Request

To retrieve the workload target for workload with ID 1 GET http://host/cloud/api/workloads/1/target

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "id": 5416,
    "name": "Host 1 (Host)",
    "metrics": [
```

```
        {
            "id": "342abc",
            "name": "CPU Utilization",
            "type": "Percent",
            "value": "30",
            "timestamp": 1223456789
            "duration": "13245"
            "status": "Valid"
            "dataProperties": { ... }
        }
    ]
}
```

GET /workloads/{id}/log

This service retrieves a workload logs for a workload by ID.

The workload logs show the cloud log messages for a workload execution. It may provide some more information about why a workload failed. We do not have control over these logs, they come directly from the cloud.

Query Parameters

N/A

Sample Request

Get workload log for workload 1.

GET http://host/cloud/api/workloads/1/log

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
   "log":"Workload, AIX 5L for POWER Version 5.3 , was created.
Start asynch work run for deploy of virtual appliance :8498
Workload removed due to exception: 11738
Workload, AIX 5L for POWER Version 5.3 , was deleted.
Error performing asynch work run for deploy of virtual appliance :8498
Error:  DNZIMN878E Command LANG=C; nim -a verbose=5 -o bos_inst -a
source=mksysb -a group=nimrf-0000000000000008-res_group -a accept_licenses=yes rdpnfse0 did not run properly.
New workload removed: 11738"
}
```

GET /workloads/{id}/virtualServers

This service retrieves all the virtual servers within a workload by ID.

Workloads that have been executed and were successful will have virtual servers associated with them. Draft or failed workloads will return an empty array.

Query Parameters

N/A

Sample Request

Get virtual servers for workload with ID 1:

GET http://host/cloud/api/workloads/1/virtualServers

Sample Response

HTTP Status: 200 HTTP Response Body:


```
{
    "virtualServers": [
        {
            "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
            "credentialsUri": "http://localhost:8080/cloud/api/workloads/73508/virtualServers/73555/credentials",
            "state": {
                "label": "Running",
                "id": "RUNNING"
            },
            "backups": "http://localhost:8080/cloud/api/virtualServers/73555/backups",
            "hostname": "testhost235",
            "storagesUri": "http://localhost:8080/cloud/api/virtualServers/73555/storages",
            "capabilities": [
                {
                    "isEnabled": true,
                    "id": "CREATE_DISK"
                },
                {
                    "isEnabled": false,
                    "id": "ATTACH_DISK"
                },
                {
                    "isEnabled": true,
                    "id": "DETACH_DISK"
                },
                {
                    "isEnabled": true,
                    "id": "THIN_PROVISIONED"
                },
                {
                    "isEnabled": true,
                    "id": "POWER_MANAGEMENT"
                },
                {
                    "isEnabled": true,
                    "id": "CAPTURE"
                },
                {
                    "isEnabled": true,
                    "id": "BACKUP"
                },
                {
                    "isEnabled": false,
                    "id": "SUSPEND_CAPABLE"
                },
                {
                    "isEnabled": true,
                    "id": "RESIZE"
                },
                {
                    "isEnabled": false,
                    "id": "PIN"
                },
                {
                    "isEnabled": false,
                    "id": "UNPIN"
                }
            ],
            "ip": "10.10.2.235",
            "id": "73555",
            "uri": "http://localhost:8080/cloud/api/virtualServers/73555"
        }
    ]
}
```

GET /workloads/{id}/virtualServers/{id}

This service retrieves a virtual server from the virtual servers in a workload by ID.

If a virtual server by the given ID doesn't exist in the workload, the service will return a 404.

Query Parameters

N/A

Sample Request

Get virtual server with ID 2 from workload with ID 1:

GET http://host/cloud/api/workloads/1/virtualServers/2

Sample Response

HTTP Status: 200

HTTP Response Body:


```
{
    "cloudId": "cloud://352/e7e213c5-4c6f-416b-9642-baa5ae6549cc",
    "credentialsUri": "http://localhost:8080/cloud/api/workloads/73508/virtualServers/73555/credentials",
    "state": {
        "label": "Running",
        "id": "RUNNING"
    },
    "backups": "http://localhost:8080/cloud/api/virtualServers/73555/backups",
    "properties": [
        {
            "value": "1024",
            "description": "Memory (MB)",
            "category": "General Information"
        },
        {
            "value": "RHEL6_Template121 2012-07-03 12:41:05 test_ly_by_testUser",
            "description": "Name",
            "category": "General Information"
        },
        {
            "value": "1",
            "description": "CPUs",
            "category": "General Information"
        },
        {
            "value": "1",
            "description": "Number of Ethernet Cards",
            "category": "General Information"
        },
        {
            "value": "e7e213c5-4c6f-416b-9642-baa5ae6549cc",
            "description": "UUID",
            "category": "General Information"
        },
        {
            "value": "linuxGuest",
            "description": "Guest Operating System",
            "category": "General Information"
        },
        {
            "value": "rhel5_64Guest",
            "description": "Guest ID",
```

```
            "category": "General Information"
        },
        {
            "value": "testhost235",
            "description": "Guest Hostname",
            "category": "General Information"
        },
        {
            "value": "10.10.2.235",
            "description": "Guest IP Addresses",
            "category": "General Information"
        },
        {
            "value": "vm-2858",
            "description": "ID",
            "category": "General Information"
        },
        {
            "value": "Connected",
            "description": "Connection State",
            "category": "General Information"
        },
        {
            "value": "host-875",
            "description": "Host",
            "category": "General Information"
        },
        {
            "value": "Powered On",
            "description": "Power State",
            "category": "General Information"
        }
    ],
    "hostname": "testhost235",
    "storagesUri": "http://localhost:8080/cloud/api/virtualServers/73555/storages",
    "capabilities": [
        {
            "isEnabled": true,
            "id": "CREATE_DISK"
        },
        {
            "isEnabled": false,
            "id": "ATTACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "DETACH_DISK"
        },
        {
            "isEnabled": true,
            "id": "THIN_PROVISIONED"
        },
        {
            "isEnabled": true,
            "id": "POWER_MANAGEMENT"
        },
        {
            "isEnabled": true,
            "id": "CAPTURE"
        },
        {
            "isEnabled": true,
            "id": "BACKUP"
        },
        {
            "isEnabled": false,
            "id": "SUSPEND_CAPABLE"
```

```
        },
        {
            "isEnabled": true,
            "id": "RESIZE"
        },
        {
            "isEnabled": false,
            "id": "PIN"
        },
        {
            "isEnabled": false,
            "id": "UNPIN"
        }
    ],
    "ip": "10.10.2.235",
    "id": "73555",
    "uri": "http://localhost:8080/cloud/api/virtualServers/73555"
}
```

GET /workloads/{id}/virtualServers/{id}/credentials

This service retrieves the credentials associated with the given Virtual Server ID. These credentials are used during the capture process to perform the required access to capture.

Note: The "authenticated" attribute is not used for this particular service and so can be ignored.

Query Parameters

N/A

Sample Request

Get the Virtual Server with ID 2 credentials from workload with ID 1.

GET http://host/cloud/api/workloads/1/virtualServers/2/credentials

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{
    "uri":"https://myhost/cloud/api/workloads/1/virtualServers/2/credentials",
    "user":"root",
    "pass":"not2pass"
}
```

PUT /workloads/{id}/virtualServers/{id}/credentials

This service updates the credentials associated with the given Virtual Server ID and workload ID. These credentials are used during the capture process in order to perform the required access to capture.

This service does not update any credentials on the configured cloud.

Query Parameters

N/A

Sample Request

Update the Virtual Server with ID 2 credentials from workload with ID 1.

PUT http://host/cloud/api/workloads/1/virtualServers/2/credentials

```
{
    "user":"root",
    "password":"not2pass"
}
```

Sample Response

HTTP Status: 200

GET /workloads/{id}/timestamps

This service retrieves a workload's timestamps.

All timestamps are measured in Unix time format (the number of milliseconds since January 1, 1970 00:00:00 GMT) and only apply to workloads created from IBM SmartCloud Entry. For timestamps that are unset of not applicable, their values will be set to -1 which indicate to the consumer that the timestamp is not applicable.

The following table outlines the current timestamps returned by this service.

Name	Description
started	The timestamp (Date) indicating when the workload was submitted to the cloud.
completed	The timestamp (Date) indicating when the workload execution completed as successful or failed.
deployTime	The estimated duration (elapsed time) of the workload's execution as measured by completionDate - submissionDate.
uptime	The total "uptime" (elapsed time) for a workload which is measured as the current timestamp - completionDate. This value is only applicable to workloads in the 'OK' state. Note that uptime does not take into account durations for which the workload has been stopped since execution completion.

For workloads in the “OK” state, the executionTime measures the amount of time the workload execution took from submission to successful execution completion. For workloads in the “FAILED” state, the executionTime will estimate how long the workload executed before failing.

If the workload is a “multi-workload,” the response will contain a set of timestamps for each workload in the multi-workload. In this case the consumer can correlate timestamps to workloads using the “workload” attribute of each timestamp element of the response which indicates the IBM SmartCloud Entry workload's name the timestamp is associated with.

Query Parameters

N/A

Sample Request

Get the timestamps for a workload with ID 1. GET http://host/cloud/api/workloads/1/timestamps

Sample Response

HTTP Status: 200 HTTP Response Body:

```
{
   "uri": ody: "http://host/cloud/api/workloads/1/timestamps">http://host/cloud/api/workloads/1/timestamps,
   "timestamps":[
      {
         "workload":"sampleDeployment-1",
         "started":1276108020765,
         "completed":1276108020765,
         "deployTime":1276108020765,
         "uptime":1276108020765
      },
      {
         "workload":"sampleDeployment-2",
         "started":1276108020765,
         "completed":1276108020765,
         "deployTime":1276108020765,
         "uptime":1276108020765
      },
      {
         "workload":"sampleDeployment-3",
         "started":1276108020765,
         "completed":1276108020765,
         "deployTime":1276108020765,
         "uptime":1276108020765
      },
      {
         "deployment":"sampleDeployment-4",
         "started":1276108020765,
         "completed":1276108020765,
         "deployTime":1276108020765,
         "uptime":1276108020765
      }
   ]
}
```

PUT /workloads/{id}

This service updates a workload either by changing its properties or by running it.

This service can also be used to request that a workload be “started” or “stopped” in the cloud as shown in the following examples.

Query Parameters

Name	Description	Default	Required
dry	The workload is not sent to the cloud although all IBM SmartCloud Entry processing is applied. The workload is marked as failed.	False	No

Sample Requests

1. Run workload with ID 1 on the cloud.

   PUT http://host/cloud/api/workloads/1

   ```
   {
      "state": "executing"
   }
   ```

2. Request that the workload with ID 1 be started in the cloud.

   PUT http://host/cloud/api/workloads/1

```
{
    "state":"OK"
}
```

3. Request the workload with ID 1 be stopped in the cloud.
   PUT http://host/cloud/api/workloads/1
```
{
    "state":"Stopped"
}
```
4. Request the "Hidden" workload with ID 1 be shown in IBM SmartCloud Entry.
   PUT http://host/cloud/api/workloads/1
```
{
    "state":"Show"
}
```
5. Update the name that is assigned to a workload with ID 1.
   PUT http://host/cloud/api/workloads/1
```
{
   "name":"My updated deployment"
}
```
6. Update the workload properties that are assigned to a workload draft with ID 1.
   - For PowerVM® workloads, use this request:
```
PUT http://host/cloud/api/workloads/1
      {
           "name":"myName",
            "instances":"###",
            "project":"###",
            "properties":[
          {
                       "name":"cpushared",
                       "value":2
                  },
                  {
                       "name":"memsize",
                       "value":2048
                  },
                  {
                       "name":"cskCPU",
                       "value":2
                  },
                 {
                       "name":"cskRAM",
                        "value":2048
                 }
          {"name":"vimRef1disk",
          "basic":false,"value":5376
          }
              ],
           "state":"EXECUTING"
       }
```
   - For KVM workloads, use this request:
```
PUT http://host/cloud/api/workloads/1
    {
       "name":"myName",
       "instances":"###",
       "project":"###",
       "properties":[
             {
                 "name":"cpu",
                 "value":3
             },
             {"name":"memminvu",
               "value":1027
```

```
            }
        {"name":"vimRef1disk",
               "basic":false,"value":5376
        }
     ],
         "state":"EXECUTING"
    }
```

- For VMware workloads, use this request:

```
PUT http://host/cloud/api/workloads/1
  {
      "name":"myName",
      "instances":"###",
      "project":"###",
      "properties":[
          {
              "name":"vmware.memory",
              "value":1032
          },
          {
              "name":"vmware.cpu",
              "value":2
          }
       ],
       "state":"EXECUTING"
  }
```

- For OpenStack workloads, you can set the Quantum network uuids that you want to use for the workload with this request:

```
PUT http://host/cloud/api/workloads/1
    {
  "name":"myName",
  "instances":"###",
  "project":"###",
  "properties":[
  {
  "name":"cpu",
  "value":3
  },
  {
  "name":"memminvu",
  "value":1027
  },
  {
  "name":"vimRef1disk",
  "basic":false,"value":5376
  },
  {
  "name":"networkdevice.Network adapters.networks",
  "values":[
  25ec1f24-8539-4ae9-af05-279c8d8bd132,
  fc9d435e-c575-462f-b517-6e6a19fb0de3
  ]
  }
  ],
  "state":"EXECUTING"
  }
```

7. Update the project that this workload belongs to, to project with ID 45.
   PUT http://host/cloud/api/workloads/1

```
{
   "project": 45
}
```

8. Run workload with ID 1 on the cloud, creating five instances of this workload.
   PUT http://host/cloud/api/workloads/1

```
{
   "state": "executing",
   "instances":5
}
```

9. Resize a workload with ID 1 on the cloud. Increase its VMs, CPUs, and assigned memory.

   PUT http://host/cloud/api/workloads/1

```
{
   "state": "resizing",
   "properties":[
      {
         "name":"cpu",
         "value":3
      },
      {
         "name":"memsize",
         "value":1024
      }
   ]
}
```

   If this is a KVM workload, the request should be:

```
{
   "state": "resizing",
   "properties":[
      {
         "name":"cpumin",
         "value":3
      },
      {
         "name":"memminvu",
         "value":[MB]=vmemsize:1024
      }
   ]

}
```

10. Check whether the specified target is compatible with the target of workload 1.

    PUT http://host/cloud/api/workloads/1?dry=true

```
{
   "target": "45"
}
```

    If not compatible, a JSON string returns as the HTTP response, which contains all the incompatible properties. The HTTP status is always 200 OK whether the specified target is compatible.

11. Update the priority of this workload with ID 1 to priority 3.

    PUT http://host/cloud/api/workloads/1

```
{
    "properties":[
        {
            "name": "priority",
            "basic": false,
            "value": "3"
        }
    ],
    "state": "UPDATE_PRIORITY"
}
```

12. Enable remote restart capability of a workload when creating it.

```
{
    "name":"myName",
    "instances":"###",
    "project":"###",
    "properties":[
```

```
            {
            "name":"remoterestartcapable",
            "value":true
            },
        ]
    "state":"EXECUTING"
}
```

Note: This property is valid only when the target is a system pool and the hypervisor is Power®. For Linux Kernel-based Virtual Machine (KVM), this feature is enabled by default and not configurable. If the hypervisor is a VMware Server, the feature is not supported and the property is not valid.

Sample Response

- HTTP Status: 200 OK - For property updates
- HTTP Status: 202 Accepted - For workload executions, power management and resizes.

DELETE /workloads/{id}

This service is used to either 'soft delete' a workload from IBM SmartCloud Entry, or 'hard delete' it from the cloud.

In the case of 'soft delete' the workload resources are not removed from the cloud, but rather the IBM SmartCloud Entry workload is marked as 'DELETED' and not returned in any service that queries workloads. In the case of 'hard delete' the workload resources (workload and virtual server) are also removed from the cloud.

Query Parameters

Name	Description	Default	Required
hard	The workload resource should be removed from the Cloud if hard is set to 'true'.	false	No

Sample Request

To remove workload with ID 1:

DELETE http://host/cloud/api/workloads/1

Sample Response

HTTP Status: 200 if successful

GET /workloads/stats

This service retrieves statistics about workloads. The default statistic is the states of the various workloads.

Query Parameters

Name	Description	Default	Required
user	Gets the statistics for workloads that this username can see.	N/A	No

Sample Request

Get workloads statistics:

GET http://host/cloud/api/workloads/stats

Sample Response

HTTP Status: 200

HTTP Response Body:

```
{"groupBy":"state",
               "uri":"http://localhost:8080/cloud/api/workloads/stats",
                "stats":[
                        {"value":{"label":"Draft","id":"DRAFT"},"count":1},
                       {"value":{"label":"OK","id":"OK"},"count":1},
                        {"value":{"label":"Pending","id":"PENDING"},"count":2}
                ]
               }
```

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