



## **Cisco Intercloud Fabric REST API Guide, Release 3.1.1**

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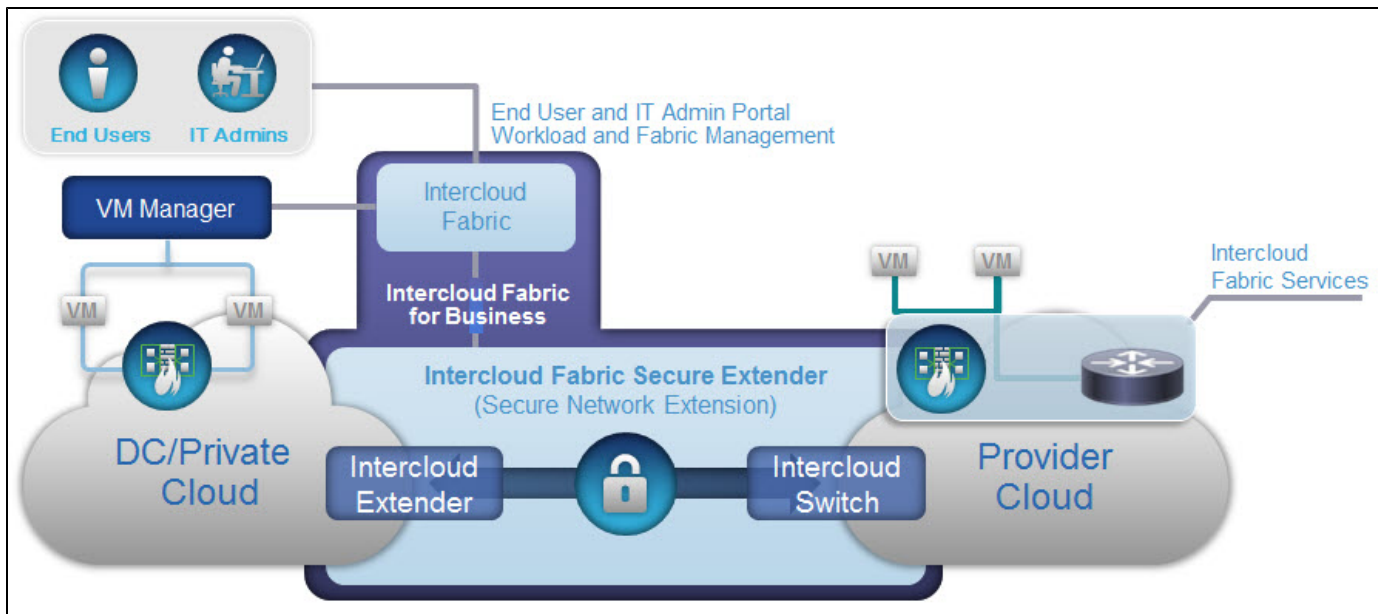
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## Cisco Intercloud Fabric for Business Overview

Cisco Intercloud Fabric for Business (ICFB) provides a faster and flexible response to business needs and addresses the potential challenges with hybrid clouds. A hybrid cloud is an interaction between private and provider clouds where private clouds extend to provider clouds and use provider cloud resources in a secure and scalable way. Cisco ICFB provides the architectural foundation for secure hybrid clouds, which allows enterprises to easily and securely connect the private clouds to the provider cloud as needed and on demand. With a hybrid cloud, enterprises can combine the benefits of private and provider clouds. Cisco ICFB provides the following benefits:

- Provides a single point of management and control for virtual workloads across multiple provider clouds.
- Provides a choice of cloud providers, such as Amazon Web Services, Microsoft Azure, and multiple Cisco-powered providers.
- Provides highly secure, scalable connectivity to extend private clouds to service provider clouds.
- Enforces consistent network and workload policies throughout the hybrid cloud.

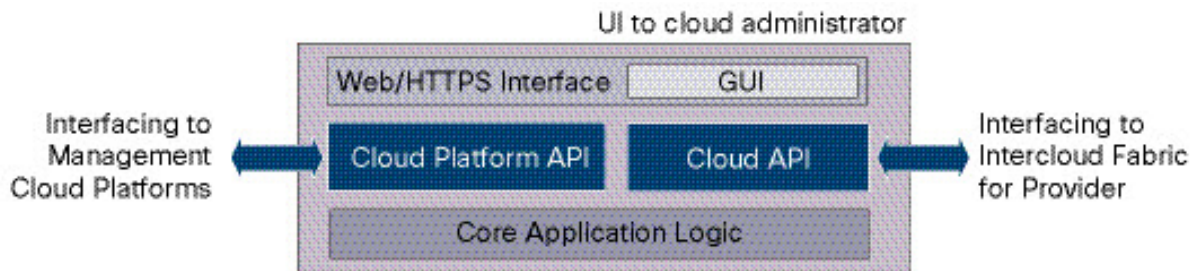


## The Cisco Intercloud Fabric for Business REST API

The Cisco ICFB Representational State Transfer (REST) API enables you to perform operations on Cisco ICFB resources and to integrate these operations into applications so that they can provide API-supported functionality and features. The REST APIs use a northbound interface to perform the following functions:

- Integrate Cisco ICFB with a service provider's business and operations support systems.
- Act as a substitute for the GUI for the end-user or administrator.

The following figure shows the Cisco Intercloud Fabric (ICF) architecture.



You can use applications developed using the REST APIs to do the following:

- Get Cisco ICFB reports about physical and virtual devices, networks, appliances, groups, users, policies, administration, resource accounting, funds, and other monitored entities within your Intercloud Fabric domains.
- Invoke orchestrator workflow and task operations.
- Invoke additional operations specific to Cisco ICFB.

## Access Privileges

With the appropriate access privileges, you can use the APIs to get any report that is available through Cisco ICFB. Access to the API interface is limited to registered user accounts. Secure access is administered by using the REST API access key, which is a unique key code assigned to each user account. A user account is administratively associated with a user type, so this access key determines the user account's level of access to information exposed through the API.

Different user types have access to different categories of data. A Cisco ICFB administrator defines the access rules associated with each user type. For more information on the end-user and administrator user types and the data accessible to each type of user, contact your system administrator. Work with your system administrator to get the necessary user access privileges for your project.

## API Version

The Cisco ICFB API version is v1. The Cisco ICFB API endpoint is /icfb/v1.

## Supported Protocols and Formats

Cisco ICFB APIs are compatible with any HTTP or HTTPS browser and use code formatted in JavaScript Object Notation (JSON).

The Cisco ICFB API documentation refers to REST API request arguments and responses (payload data) that are encoded in JSON format. For more information, see <http://www.json.org> or <http://en.wikipedia.org/wiki/JSON>.

**Note:** Live and valid Cisco ICFB API requests and responses in JSON format are provided with Cisco ICFB. These provide excellent examples of JSON protocols and formatting. To see this API data, you must first enable the developer menus and then use the **Report Metadata** option available on any report in Cisco ICFB.

## REST API Design

### Introduction

The Intercloud Fabric for Business (ICFB) REST API is a complete set of API methods that provides programmatic access to all ICF functionality. The ICFB graphical user interface (GUI) is, in essence, a REST client that uses these APIs to provide an intuitive, user-friendly mechanism for configuring the ICF ecosystem. By using the REST APIs, the functions can be performed in an automated manner using any language of the developer's choosing. For example, these ICFB REST APIs have been programmed by using Go and Python, in addition to JavaScript programming languages.

### Code Conventions

Following standard norms, the ICFB REST API uses a consistent naming scheme and structure for HTTP requests. These conventions include a structure for the URIs, request and response payloads, and application and HTTP return codes. This standardization makes it easy to build language-specific client libraries that can be used to build orchestration applications on the ICFB platform. The conventions are described in greater detail in the following sections.

In this document, text that appears in Courier typeface, such as the following, represents code or input that a user enters either in a programming language or a REST client, such as POSTMAN:

```
Code or input in Courier typeface
```

### Versioning

Versioning is a critical element of all APIs, and ICFB is no exception. API specifications corresponding to an API are immutable and care must be taken to ensure that changes made to the same version remain backward-compatible. API versioning is a complex undertaking and evolves over time without compromising the core underlying principles. In this release, a simple scheme is followed to version the API and the request, response, and error code schema.

All APIs accessed in the 3.x release carry the v1 version in the URI path. For instance, to access the list of users in the system, you would use the following URI path:

```
/v1/users
```

The term *REST endpoint* is sometimes used to describe the top-level resource in a URI. For instance, in the preceding example, the REST endpoint would be *users* and could be referred to as the *users REST endpoint*. In this document, the terms *REST endpoint*, *REST resource*, and *resource* are used interchangeably.

## Role-Based Access Control (RBAC) for ICFB APIs

All ICFB REST APIs, with the exception of the `/v1/token` API, are access-controlled, and most APIs are available only to users with administrative privileges. This version of ICFB supports two roles: The ICF Administrator role and the ICF end-user role. The ICF administrator is responsible for setting up the hybrid cloud infrastructure to support IT users, while ICF end users leverage the infrastructure to manage their workloads (such as VMs and applications) in the public cloud. This privilege, for instance, allows end users to create a VM in the public cloud, but does not let them modify the policies that the administrator has set for that VM. When a user does not have the permission to access a particular REST endpoint, the server returns a 403 FORBIDDEN HTTP status code.

The user role also determines the structure of the response payload and the field values that are returned by a particular GET API request. For more details, see the Response Payload section below.

## Hypermedia as the Engine of Application State (HATEOAS) Principle

The HATEOAS principle essentially states that a client interacts with a system entirely through the hypermedia provided dynamically by the server. A REST client does not need any prior knowledge about the application to interact with it, other than an understanding of the concept of hypermedia. This principle decouples clients from servers and allows each to evolve independently.

## URI Design

As a hybrid cloud integration platform, ICF supports multiple cloud providers, each with a distinct API set. The ICF REST API does not attempt to aggregate provider APIs because it would be an impossible goal to achieve, especially while the number of supported providers grows. To scale well, the ICF REST API defines a set of abstractions through the careful design of URI patterns that allow providers to be dynamically supported by a given API version, while also supporting provider-specific concepts. All ICF REST API URIs use the following convention:

```
/v1/<endpoint>/[ {oid} ]/[action|sub-resources]/[ {subResourceType} | {oid} ]
```

where:

- Square brackets ([]) represent an optional attribute.
- {oid} represents a unique identifier for the endpoint.
- subResourceType is a subresource of the endpoint.

Every REST resource is internally assigned a unique object identifier, or OID, that can be used to retrieve, modify, or delete the resource. For example, the following API patterns are valid:

| API Call   | Description   |
|--|---|
| GET <code>/v1/</code>  | Returns all instances of.   |
| GET <code>/v1//abcd</code>   | Returns the specific instance of with the OID <b>abcd</b> .   |
| POST <code>/v1/</code>   | Creates a new instance of with the parameters specified in the request body.                          |
| PUT <code>/v1//abcd</code>   | Modifies the object with the OID <b>abcd</b> using the parameters specified in the request body.      |
| DELETE <code>/v1//abcd</code>  | Deletes the object with the OID <b>abcd</b> .   |
| POST <code>/v1/instances/abcd/start</code>                           | Starts the operation of the VM instance with the OID <b>abcd</b> .                                    |
| DELETE <code>/v1/icf-clouds/abcd/live-storage-synchronization</code> | Removes the live-storage-synchronization service from the ICF cloud with the identifier <b>abcd</b> . |

## Request Payload

All ICF REST API POST and PUT requests accept a JSON payload in the request body. The schema for the request parameters is published by the endpoint. Because ICF APIs can be abstracted, the schema for the request payload depends on a property of the payload. For example, the endpoint **virtual-accounts** is used to create an ICF virtual account resource. However, depending on the attribute **virtual\_account\_type** in the request payload, the type of input required by the endpoint varies. The **virtual-account** resource models a provider account (such as Amazon AWS or Azure). If the call creates an Amazon AWS virtual account, the request parameters are the AWS user credentials: Access ID and Access Key. For Azure, because a certificate-based mechanism is used, only the Access Key needs to be specified.



## Response Payload

All REST API responses follow the pattern described in this section. Response payloads are designed to minimize the number of keywords that are identified as predefined by the ICFB REST API and to provide namespace support. All REST API responses have the following structure:

- **Properties:** The **properties** object contains a list of attributes for the endpoint. In addition to the native attributes of the object, a **summary** object containing a summary of the relationships that the object has to other objects can also be returned by the API. You can obtain the full details of related objects by executing a GET request on the URL specified in the relationship attribute of the **summary** object.
  - An **object\_type** property is included in the GUI to support programmability. If you use an object-oriented programming model, you might, for example, want to create the class **restartVM** to restart a VM. The **restartVM** class would then take the VM instance as an argument. As an alternative, you could use a factory class that looks at the **object\_type** attribute and constructs different objects in the language of your choice. If the **object\_type** property did not exist, you would need to retain the original context to interpret what the object is. Having an object type allows these JSON islands to operate in a standalone manner.
  - **Summary** objects have been added to the GET request so that you do not need to submit an additional query to obtain the supporting details.
- **Links:** The **links** object is a set of predefined key-and-value pairs that contain the URLs associated with each instance in the response. The "self" link gives the URL used to access the object represented by the response itself (a link to itself), whereas the "metadata" link is used to provide metadata about the response object (future).
- **Relationships:** The **relationships** object serves two purposes:
  - Indicates a relationship between a given object and other, related objects. These might or might not be reflected in the **summary** object in the response.
  - The presence or absence of a relationship indicates whether or not a given user has access to the object. For instance, the **/infrastructure/status-summary** API is available to both end users and admin users. However, an admin user can access the details using the **/infrastructure** API and view the service requests for the infrastructure (if it is active), but an end user cannot. The GET API for **/infrastructure/status-summary** does not return relationships for an end user but it does for an admin user.
- **Namespaces:** [FUTURE] The **namespace** attribute is reserved for future use and is used to indicate a namespace prefix for attributes in properties, links, and relationships.

## HTTP Status and Application Error Codes

For POST and PUT responses, the API returns a standard HTTP status code when the operation does not succeed. However, because HTTP status codes are not sufficiently descriptive, an application-specific error code is also returned that provides more insight into the reason behind the failure. Each API publishes the HTTP status codes it returns and the corresponding application error codes for each status code.

## Handling HTTP 202 Responses

In many cases, the ICF REST APIs perform long-running operations that can take a significant amount of time to complete. To maximize performance, these operations are performed asynchronously. In ICF terminology, such asynchronous workflows are called *service requests*. In each case, the API, in response to a POST, PUT, or DELETE request, returns an HTTP 202 ACCEPTED status code. When this status code is received, the API user can examine the response payload to extract the **service\_request\_oid** attribute and examine the progress of the asynchronous request. The service request endpoint **/v1/service-requests/** provides detailed information about the progress of the workflow.

## Common Attributes

### URI

All URIs start with the prefix **/icfb/v1/**.

For example, the URI for login is **http://\* (http://\*){/icfb/v1/token\***.

## Request Headers

| Header Attribute | Request | Response | Description  |
|------------------|---------|----------|--|
| etag             |         | yes      | Sent by the server to give an etag value of the response . An etag is generated for each response. Sent by the client as the last received etag value. |
| content-type     |         | yes      | The server sets 'application/json' in response.  |

|              |  |     |  |
|--------------|--|-----|--|
| location     |  | yes | In response to a post request , the server sends the location in the header.                               |
| x_icfb_token |  | yes | In response to a login, the key is sent in the response payload as access_token. (Not required for login.) |

## HTTP Error Codes

| Error Code | Description  |
|------------|--|
| 1xx        | Informational.   |
| 200        | Success.   |
| 201        | Create successful.   |
| 202        | Success; start of async operation.   |
| 204        | Success, when response body is empty.  |
| 301        | Moved permanently; API should be provided in the location header.              |
| 304        | Not modified since last invocation.  |
| 400        | Bad request.   |
| 401        | Not authenticated or authorized.   |
| 403        | Forbidden.   |
| 404        | Not found.   |
| 405        | Method not allowed.  |
| 406        | When requested media type is not served, as specified in the accept.           |
| 409        | Conflict, when the precondition does not match the operation.                  |
| 415        | When the requested media type is not served, as specified in the content type. |
| 5xx        | Internal server error.   |

## Application Error Format (sent in response payload when there is an error)

The error message is sent as an i18n string depending on the locale setting of the user (en only for this release). The client's Accept-Language header is used to determine the correct locale value. An unsupported locale reverts to the default English language string.

```
{
  "error": {
    "code": 1234,
    "message": "No IP address in IP pool"
  }
}
```

## Application Error Codes

- 1000-1999: Data input-related error.
- 2000-2999: Security-related errors.

- **Base URL**

```
http://{ip}/icfb/v1/
```

or

```
https://{ip}/icfb/v1/
```

## Application Success Response for POST/PUT Request

The success response for all POST/PUT requests.

Response payload for API that returns 201 (CREATED) HTTP status:

```
{
  "success": {
    "code": 100,
    "message": [
      "Create success"
    ],
    "links": {
      "new_resource":
"http://{ip}/icfb/v1/users/4128ca4a-4d9c-4a7d-b32d-0e967aaaf84f"
    }
  }
}
```

Response payload for API that returns 202 (ACCEPTED) HTTP status:

```
{
  "success": {
    "code": 400,
    "message": [
      "Create accepted, but not complete"
    ],
    "links": {
      "new_resource":
"http://{ip}/icfb/v1/virtual-accounts/a7ab2c69-ccb5-4c28-9daf-1dbb50526772"
      ,
      "service_request":
"http://{ip}/icfb/v1/service-requests/a5124d9f-0459-40a0-a2b5-75ec14c17266"
    }
  }
}
```

# REST API Specifications

## Core and User Management APIs

### Login

The Login API authenticates users and provides them with an API access token that allows access to the remaining APIs. This is the only API that is accessed without the API key. All other APIs require the API key specified in the header. (See the section on Request Headers.)

- **Metadata**

| Property                  | Operations (Create, Update, Read) | Type   | Range | Mandatory During Create                          | Description   |
|---------------------------|-----------------------------------|--------|-------|--|---|
| username                  | C                                 | string | 1-256 | yes  | The login username.   |
| password                  | C                                 | string | 8-16  | yes  | The username password.  |
| authentication_domain_oid | C                                 | string |       | no for local domain<br>yes for all other domains | ICFD will always be in one domain (LOCAL/CECS).<br>The OID of the domain to which ICFD belongs. |

- **API details**

| API Attribute   | Description   |
|-----------------|---|
| URI             | /token  |
| METHOD          | POST  |
| REQUEST PAYLOAD | <pre>For Local users without authentication_domain_id  {   "username": "user-1",   "password": "Cisco123" }  For Local users with authentication_domain_id  {   "username": "user-1",   "password": "Cisco123",   "authentication_domain_oid": "ceal0c-7c5d-4d1e-b7d1-7c0827045776" }  For UCSD users  {   "username": "ucsd_user_name",   "authentication_domain_oid": "8fcea10c-7c5d-4d1e-b7d1-7c0827045776",   "user_groups": [     "ucsd usergroup-1",     "ucsd usergroup-2"   ] }</pre> |

|                         |   |
|-------------------------|---|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 304 - Authentication is successful. (This message is returned if the user is already authenticated within the same browser.)</li> <li>• 403 - The login failed. (See the response payload for the app error code.)</li> <li>• 405 - The method is not allowed (method != POST).</li> <li>• 409 - The username, password, or both are empty. (The app error code contains the specific error message.)</li> </ul> |
| HTTP RESPONSE HEADER    | x_icfb_token contains the token value. For example: 501d0f97-337e-47e5-b350-b5c5f5a6a400.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 5 - Invalid login.</li> <li>• 1000 - The field {fieldname} cannot remain empty or be named "fieldname" (username, password, or both).</li> </ul>   |

## Logout

The Logout API invalidates the access token and all further access to ICF using that token.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | /logout   |
| Method                  | POST  |
| REQUEST PAYLOAD         |   |
| HTTP RESPONSE STATUS    | 200 - Success.<br>All standard errors are returned as applicable. |
| Application error codes | None  |

## License

The Intercloud Fabric (ICF) license is based on Hybrid Cloud Units (HCUs). Each virtual machine that is running in a public cloud consumes an HCU. A virtual machine in the powered-off state does not consume any HCUs.

For Amazon Web Services and Microsoft Azure, two HCUs are checked out for each virtual machine. For example, if the HCU count is ten, five VMs can be in the running state in the public cloud. For Cisco-powered providers, one HCU is checked out for each virtual machine. For example, if the HCU count is ten, ten VMs can be in the running state in the public cloud.

## API to upload license file

The Upload License API uploads an Intercloud Fabric license.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <code>/icf-licenses</code>   |
| Method               | POST   |
| Request Payload      | Client should send license file as payload with the request parameter name as "file".  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 400 - The license file is invalid or an unsupported license type.</li> </ul> All other standard HTTP error codes. |

|                         |  |
|-------------------------|--|
| Response Payload        | <pre> {   "success": {     "code": 100,     "messages": [       "Create success"     ],     "links": {       "new_resource": "http://ip/icfb/v1/icf-licenses/03d47baa-0cff-4c2a-b25a-3a713e069228"     }   } } </pre>  |
| Application error codes | <p>36501 - Invalid license file. Error: (error_message_given_by_parser)</p> <p>36502 - Multiple license entries are found in the file.</p> <p>36503 - The license does not have an expiry date.</p> <p>36504 - The request does not have a form-data parameter with the name 'file'.</p> <p>36505 - Unsupported license type (given_type); supported types are ICFB-CPC and ICFB-NFR-EBDS.</p> <p>36506 - An ICFB-NFR-EBDS license cannot be uploaded when an ICFB-CPC license is present. Only another ICFB-CPC license uploaded.</p> <p>36507 - This license has already been applied.</p> |
| Stub Build #            |  |
| Functional Build #      |  |

## API to get all license details

The Get All Licenses API retrieves the details of all installed ICF licenses.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /icf-licenses </pre>  |
| Method               | GET   |
| Request Payload      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>200 - Success.</li> </ul> All other standard HTTP error codes.   |
| Response Payload     | <pre> {   "value": [     {       "object_type": "license",       "links": {         "self": "http://{ip}/icfb/v1/icf-licenses/a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1"       },       "properties": { </pre> |

```
        "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",
        "license_type": "ICFB-EVAL-EBD",
        "hybrid_cloud_units": 20,
        "license_start_date_milli_epoch": 1458604800000,
"license_start_date_ISO": "2016-03-22T00:00Z",
        "license_expiry_date_milli_epoch": 1459468740000,
"license_expiry_date_ISO": "2016-03-31T23:59Z",
        "lic_file_id": null,
"lic_line_id": null
    }
},
{
    "object_type": "license",
    "links": {
        "self":
"http://{ip}/icfb/v1/icf-licenses/7f1d10ac-654f-4927-ad19-460e36d3bca6"
    },
    "properties": {
        "oid": "7f1d10ac-654f-4927-ad19-460e36d3bca6",
        "license_type": "ICFB-NFR-EBDS",
        "hybrid_cloud_units": 50,
        "license_start_date_milli_epoch": 1458604800000,
"license_start_date_ISO": "2016-03-22T00:00Z",
        "license_expiry_date_milli_epoch": 1459468740000,
"license_expiry_date_ISO": "2016-03-31T23:59Z",
        "lic_file_id": "20160304171657801",
"lic_line_id": "1"
    }
},
{
    "object_type": "license",
    "links": {
        "self":
"http://{ip}/icfb/v1/icf-licenses/cd5e2cf8-e082-4752-8177-680a4d8a19f6"
    },
    "properties": {
        "oid": "cd5e2cf8-e082-4752-8177-680a4d8a19f6",
        "license_type": "ICFB-CPC",
        "hybrid_cloud_units": 100,
        "license_start_date_milli_epoch": 1458604800000,
"license_start_date_ISO": "2016-03-22T00:00Z",
        "license_expiry_date_milli_epoch": 1459468740000,
"license_expiry_date_ISO": "2016-03-31T23:59Z",
        "lic_file_id": "20160315173636015",
"lic_line_id": "1"
    }
}
}
```

|                         |                        |
|-------------------------|------------------------|
|                         | <pre>     ]   } </pre> |
| Application error codes | None                   |
| Stub Build #            |                        |
| Functional Build #      |                        |

## API to get individual license details

The Get License Details API retrieves the details of the specified ICF license.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /icf-licenses/{oid} </pre>   |
| Method               | GET  |
| Request Payload      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> All other standard HTTP error codes.  |
| Response Payload     | <pre> {   "value": [     {       "object_type": "icf_license",       "links": {         "self": "http://{ip}/icfb/v1/icf-licenses/a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1"       },       "properties": {         "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",         "license_type": "ICFB-EVAL-EBD",         "hybrid_cloud_units": 20,         "license_start_date_milli_epoch": 1458604800000,         "license_start_date_ISO": "2016-03-22T00:00Z",         "license_expiry_date_milli_epoch": 1459468740000,         "license_expiry_date_ISO": "2016-03-31T23:59Z",         "lic_file_id": null,         "lic_line_id": null       }     }   ] } </pre> |



|                         |      |
|-------------------------|------|
| Application error codes | None |
| Stub Build #            |      |
| Functional Build #      |      |

## API to get license status

The Get License Status API retrieves the status of all ICF licenses.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <code>/icf-licenses/status</code>   |
| Method               | GET   |
| Request Payload      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"><li>• 200 - Success.</li></ul> All other standard HTTP error codes. |

Response Payload

```
{
  "value": [
    {
      "object_type": "icf_license_status",
      "links": {
        "self":
        "http://{ip}/icfb/v1/icf-licenses/status"
      },
      "properties": {
        "status":
        "compliant/license_expired/allocation_exceeded",
        "licenses": [
          {
            "license_type": "ICFB-CPC",
            "hybrid_cloud_units_allocated": 100,
            "hybrid_cloud_units_consumed": 60,
            "hybrid_cloud_units_expiring_in_30_days":0,
            "active": true,
            "license_expiry_date": 1459468740000,
            "license_expiry_date_ISO":
            "2016-03-31T23:59Z"
          },
          {
            "license_type": "ICFB-CPC",
            "hybrid_cloud_units_allocated": 50,
            "hybrid_cloud_units_consumed": 0,
            "hybrid_cloud_units_expiring_in_30_days":0,
            "active": false,
            "license_expiry_date": 1521819073000,
            "license_expiry_date_ISO":
            "2018-03-23T23:59Z"
          }
        ]
      }
    }
  ]
}
```

Application error codes    None

Stub Build #

Functional Build #

## Service Request

In Cisco Intercloud Fabric, operations that can take a significant amount of time to complete are performed asynchronously to improve performance. These asynchronous workflows are called *service requests*. The service request endpoint provides all of the information about the progress of the workflow.

The following APIs enable you to perform operations associated with a service request.

- **Metadata**

| Property                  | Operations (Create, Update, Read) | Type   | Range   | Mandatory During Create | Description  |
|---------------------------|-----------------------------------|--------|---|-------------------------|--|
| oid                       | R                                 | String |   | -                       | The service request ID.                                    |
| workflow_name             | R                                 | string |   | -                       | The service request workflow name.                         |
| name                      | R                                 | String |   | -                       | The service request name.                                  |
| creation_time             | R                                 | long   |   |                         | The start time in UTC long format after January 1 1970.    |
| execution_status          | R                                 | String | Not Started, In Progress, Failed, Completed, Warning, Cancelled, Paused, Skipped. |                         | The service request status.                                |
| comments                  | R                                 | String |   |                         |  |
| workflow_tasks->task_id   | R                                 | int    |   |                         | The individual task ID.                                    |
| workflow_tasks->task_name | R                                 | String |   |                         | The individual task name.                                  |
| initiating_user_summary   | R                                 | Object |   |                         | The details of the user who initiated the service request. |

- **API Details**

## API to retrieve list of service requests

The Get Service Requests API retrieves a list of all service requests.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /service-requests  |
| Method               | GET  |
| REQUEST PAYLOAD      |  |
| HTTP RESPONSE STATUS | 200 - Success.<br>All standard errors are returned as applicable.  |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "logs": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3         "user": "http://{ip}/icfb/v1/users/856014b0-798e-49b8-a2be-b515       },       "object_type": "service_request",       "links": {         "self": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3       },       "properties": {         "oid": "6770232c-a2ea-47c0-ab36-b57cb90d3561",         "name": "vaVcenter::CREATE_VA_AND_FETCH_INVENTORY::0",         "steps": [           {             "name": "Connecting to vCenter to fetch Inventory", </pre> |

```
{ip}",
  "description": "Connecting and fetching inventory from the
(status": "COMPLETED",
workflow_tasks": [
  {
    "task_name": "Register and Save ICFC Certificate",
    "task_id": "registerAndSaveICFCCertificate",
    "status": "COMPLETED",
    "start_time": 1463074433678,
    "end_time": 1463074434856
  },
  {
    "task_name": "Create Virtual Account in ICFC
(VIRTUAL_ACC_CREATION_INPROGRESS)",
    "task_id": "createVirtualAccountInICFC",
    "status": "COMPLETED",
    "start_time": 1463074434879,
    "end_time": 1463074436148
  },
  {
    "task_name": "Poll ICFC Task",
    "task_id": "pollICFCTaskId",
    "status": "COMPLETED",
    "start_time": 1463074436186,
    "end_time": 1463074466707
  }
],
"start_time": 1463074433678,
"end_time": 1463074466707
},
{
  "name": "Saving inventory fetched from vCenter",
  "description": "",
  "status": "COMPLETED",
  "workflow_tasks": [
    {
      "task_name": "Fetch Inventory for Virtual Account",
      "task_id": "fetchInventoryTask",
      "status": "COMPLETED",
      "start_time": 1463074466749,
      "end_time": 1463074467545
    }
  ],
  "start_time": 1463074466749,
  "end_time": 1463074467545
},
{
  "name": "Completing virtual account creation",
  "description": "",
  "status": "COMPLETED",
  "workflow_tasks": [
    {
      "task_name": "Create default objects for virtual-accou
```

```
        "task_id": "createDefaultObjectsTask",
        "status": "COMPLETED",
        "start_time": 1463074467574,
        "end_time": 1463074468577
    },
    {
        "task_name": "Complete Processing",
        "task_id": "MarkProcessingCompleteTask",
        "status": "COMPLETED",
        "start_time": 1463074468603,
        "end_time": 1463074468641
    }
],
"start_time": 1463074467574,
"end_time": 1463074468641
}
],
"system_object": false,
"workflow_name": "Create Virtual Account and Fetch Inventory",
"creation_time": 1463074430566,
"end_time": 1463074468665,
"execution_status": "SUCCESS",
"type": "external",
"initiating_user_summary": {
    "object_type": "User",
    "links": {
        "self":
"http://{ip}/icfb/v1/users/856014b0-798e-49b8-a2be-b515715aaf1f"
    },
    "properties": {
        "oid": "856014b0-798e-49b8-a2be-b515715aaf1f",
        "username": "admin",
        "email": "",
        "system_object": false
    }
},
"workflow_tasks": [
    {
        "task_name": "TODO",
        "task_id": "todo",
        "status": "NOT_STARTED",
        "start_time": 0,
        "end_time": 0
    }
],
"has_more_steps": false
}
```

|                         |                          |
|-------------------------|--------------------------|
|                         | <pre>     }   ] } </pre> |
| Application error codes | None                     |

## API to retrieve a service request

The Get Service Request API retrieves the details of the specified service request.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /service-requests/{oid}   |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | 200 - Success.<br>All standard errors are returned as applicable.   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "logs": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3         "user": "http://{ip}/icfb/v1/users/856014b0-798e-49b8-a2be-b515       },       "object_type": "service_request",       "links": {         "self": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3       },       "properties": {         "oid": "6770232c-a2ea-47c0-ab36-b57cb90d3561",         "name": "vaVcenter::CREATE_VA_AND_FETCH_INVENTORY::0",         "steps": [           {             "name": "Connecting to vCenter to fetch Inventory",             "description": "Connecting and fetching inventory from the {ip}",             "status": "COMPLETED",             "workflow_tasks": [               {                 "task_name": "Register and Save ICFC Certificate",                 "task_id": "registerAndSaveICFCCertificate", </pre> |

```
        "status": "COMPLETED",
        "start_time": 1463074433678,
        "end_time": 1463074434856
    },
    {
        "task_name": "Create Virtual Account in ICFC
(VIRTUAL_ACC_CREATION_INPROGRESS)",
        "task_id": "createVirtualAccountInICFC",
        "status": "COMPLETED",
        "start_time": 1463074434879,
        "end_time": 1463074436148
    },
    {
        "task_name": "Poll ICFC Task",
        "task_id": "pollICFCTaskId",
        "status": "COMPLETED",
        "start_time": 1463074436186,
        "end_time": 1463074466707
    }
],
"start_time": 1463074433678,
"end_time": 1463074466707
},
{
    "name": "Saving inventory fetched from vCenter",
    "description": "",
    "status": "COMPLETED",
    "workflow_tasks": [
        {
            "task_name": "Fetch Inventory for Virtual Account",
            "task_id": "fetchInventoryTask",
            "status": "COMPLETED",
            "start_time": 1463074466749,
            "end_time": 1463074467545
        }
    ],
    "start_time": 1463074466749,
    "end_time": 1463074467545
},
{
    "name": "Completing virtual account creation",
    "description": "",
    "status": "COMPLETED",
    "workflow_tasks": [
        {
            "task_name": "Create default  objects for virtual-accou
            "task_id": "createDefaultObjectsTask",
            "status": "COMPLETED",
            "start_time": 1463074467574,
            "end_time": 1463074468577
        }
    ],
    {
        "task_name": "Complete Processing",
```

```
        "task_id": "MarkProcessingCompleteTask",
        "status": "COMPLETED",
        "start_time": 1463074468603,
        "end_time": 1463074468641
    }
],
    "start_time": 1463074467574,
    "end_time": 1463074468641
}
],
"system_object": false,
"workflow_name": "Create Virtual Account and Fetch Inventory",
"creation_time": 1463074430566,
"end_time": 1463074468665,
"execution_status": "SUCCESS",
"type": "external",
"initiating_user_summary": {
    "object_type": "User",
    "links": {
        "self":
"http://{ip}/icfb/v1/users/856014b0-798e-49b8-a2be-b515715aaf1f"
    },
    "properties": {
        "oid": "856014b0-798e-49b8-a2be-b515715aaf1f",
        "username": "admin",
        "email": "",
        "system_object": false
    }
},
"workflow_tasks": [
    {
        "task_name": "TODO",
        "task_id": "todo",
        "status": "NOT_STARTED",
        "start_time": 0,
        "end_time": 0
    }
],
"has_more_steps": false
}
```



|                         |   |
|-------------------------|---|
|                         | <pre>     }   ] } </pre>                          |
| Application error codes | 200 - The specified service request is not found. |

## API to retrieve logs for a service request

The Get Service Request Logs API retrieves the logs for the specified service request.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /service-requests/{oid}/logs </pre>  |
| Method               | GET  |
| REQUEST PAYLOAD      |  |
| HTTP RESPONSE STATUS | <p>200 - Success.</p> <p>All standard errors are returned as applicable.</p>   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "service-requests": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3       },       "object_type": "service_request_log",       "links": {         "self": "http://{ip}/icfb/v1/service-requests/6770232c-a2ea-47c0-ab36-b57cb90d3       },       "properties": {         "system_object": false,         "logs": [           {             "severity": "INFO",             "timestamp": 1463074430965,             "message": "Workflow task [Create Virtual AccountAcquire Lo             "system_object": false,             "task_id": "createVirtualAccountAcquireLocksTask",             "task_status": "In Progress"           },           {             "severity": "INFO",             "timestamp": 1463074431726, </pre> |

```
        "message": "Workflow task [Create Virtual AccountAcquire Lo
successfully completed",
        "system_object": false,
        "task_id": "createVirtualAccountAcquireLocksTask",
        "task_status": "Completed"
    },
    {
        "severity": "INFO",
        "timestamp": 1463074431732,
        "message": "SR: 6770232c-a2ea-47c0-ab36-b57cb90d3561, Lock
for: oid 8b207bf5-289c-4a89-be73-0de7cf1432af(virtualAccount);",
        "system_object": false,
        "task_id": "AcquireLocks",
        "task_status": "Completed"
    },
    {
        "severity": "INFO",
        "timestamp": 1463074434879,
        "message": "Workflow task [Create Virtual Account in ICFC
(VIRTUAL_ACC_CREATION_INPROGRESS)] started",
        "system_object": false,
        "task_id": "createVirtualAccountInICFC",
        "task_status": "In Progress"
    },
    {
        "severity": "INFO",
        "timestamp": 1463074436148,
        "message": "Workflow task [Create Virtual Account in ICFC
(VIRTUAL_ACC_CREATION_INPROGRESS)] successfully completed",
        "system_object": false,
        "task_id": "createVirtualAccountInICFC",
        "task_status": "Completed"
    },
    {
        "severity": "INFO",
        "timestamp": 1463074436186,
        "message": "Workflow task [Poll ICFC Task] started",
        "system_object": false,
        "task_id": "pollICFCTaskId",
        "task_status": "In Progress"
    },
    {
        "severity": "INFO",
        "timestamp": 1463074436610,
        "message": "[Adding VmManager 8b207bf5-289c-4a89-be73-0de7c
[Step 1 of 2 : Registration with private virtual account.]",
        "system_object": false,
        "task_id": "pollICFCTaskId",
        "task_status": "In Progress"
    },
    .....
    {
        "severity": "INFO",
```

```
        "timestamp": 1463074468967,
        "message": "SR: 6770232c-a2ea-47c0-ab36-b57cb90d3561, Lock
notification sent for: oid 8b207bf5-289c-4a89-be73-0de7cf1432af(virtua
        "system_object": false,
        "task_id": "WorkflowEnd",
        "task_status": "Completed"
    }
  ]
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] } </pre>   |
| Application error codes | 200 - The specified service request is not found.  |
| Notes                   | <p>Supported APIs:</p> <pre> GET - http://{ip}/icfb/v1/service-requests/{oid}/logs - All the logs fr above are displayed. This is equivalent to view=info. GET - http://{ip}/icfb/v1/service-requests/{oid}/logs?view={VIEW_NAME} views are info and all. For view = info, we display all the logs from info level onwards For view = all, we display all the logs. </pre> |

## API to delete service requests

The Delete Service Request API deletes the specified service request.

The following conventions for parameters apply:

- The allowed set for sr\_status values is (SUCCESS, FAILED). The values are case-insensitive.
- To delete service requests (SRs) with multiple SR statuses, use a comma-separated list such as sr\_status=SUCCESS,FAILED.
- The default sr\_status is SUCCESS if it is not provided in the URL.
- The default value of older\_than\_days is 6, if it is not provided. Service requests are always retained for the first 6 days.

The following conventions apply to backend handling:

- Service requests with the status IN\_PROGRESS or NOT\_STARTED are not deleted.
- Service requests with the status PARTIAL\_SUCCESS or SYSTEM\_ABORTED are treated as SUCCESS.
- Service requests with the status DELETE\_FAILED or OWNER\_ID\_NOT\_PRESENT are treated as FAILED.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <p>Supported URLs:</p> <pre> /service-requests /service-requests?older_than_days=&lt;days&gt; /service-requests?sr_status=SUCCESS   FAILED   SUCCESS, FAILED /service-requests?older_than_days=&lt;days&gt;&amp;sr_status=SUCCESS   FAILED   S </pre> |
| Method               | DELETE  |
| REQUEST PAYLOAD      | None  |
| RESPONSE PAYLOAD     | Accepted response with the SR link  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 202 - Successful; request accepted.</li> <li>• 400 - Bad request; parameters are invalid.</li> </ul>   |

|                         |   |
|-------------------------|---|
| Application error codes | <ul style="list-style-type: none"> <li>• 3013 - Service request status should be either SUCCESS or FAILED.</li> <li>• 3014 - The value of older_than_days should be more than 5.</li> </ul> |
| Functional Build #      |   |

## User Group

A user group is the group or customer organization to which the user belongs. A user group determines the resources an end user can access. In the current implementation, a virtual data center (VDC) is associated with a user group. Users belonging to that user group can access the VDC and any associated resources. Admin users have access to all resources in the system.

The following APIs enable you to perform user group operations.

- **Metadata**

| Property        | Operations (Create, Update, Read) | Type   | Range | Mandatory During Create | Description                 |
|-----------------|-----------------------------------|--------|-------|-------------------------|-----------------------------|
| name            | C, R                              | String | 1-256 | yes                     | A unique group name.        |
| description     | C, R, U                           | String | 1-256 | no                      |                             |
| group_admin_oid | C, R, U                           | String |       | no                      | The administrator user OID. |

- **API Details**

When using role-based access control (RBAC), only the administrator can access the user group API.

### API to create a user group

The Create User Group API creates a new user group.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /user-groups   |
| Method               | POST   |
| REQUEST PAYLOAD      | <pre>{   "name" : "group-1",   "description" : "group-1 description",   "group_admin_oid" : "Oid" }</pre>      |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 400 - Bad request; invalid data.</li> </ul> |

|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <p>The location attribute in the header contains the URL of the newly created user group.<br/>Success payload:</p> <pre> {   "success": {     "code": 100,     "message": [       "Create success"     ],     "links": {       "new_resource": "http://{{ipaddress}}/icfb/v1/user-groups/4128ca4a-4d9c-4a7d-b32d-0e967aa     }   } } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The object with the value {} is not found.</li> <li>• 408 - The length of the string is out of range.</li> <li>• 415 - A required field is missing.</li> </ul>   |

## API to retrieve list of user groups

The Get User Groups API retrieves a list of all user groups.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /user-groups </pre>  |
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> <p>All standard errors are returned as applicable.</p>  |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "vdcs": "http://{ip}/icfb/v1/vdcs?user-group-oid=cd5e2cf8-e0         "domain": "http://{ip}/icfb/v1/authentication-domains/f91287         "catalog-items": "http://{ip}/icfb/v1/catalog-items?user-gro       },       "object_type": "usergroup",       "links": {         "self": "http://{ip}/icfb/v1/user-groups/59965460-48e7-47c6-       },       "properties": {         "oid": "59965460-48e7-47c6-8ce1-6fb77c3e9eff", </pre> |

```
"name":"system_default_admin",
"description":"Default System Admin User Group",
"system_object":false,
"system_usergroup":true,
"roles":[
  "admin"
],
"user_summary":[
  {
    "object_type":"User",
    "links":{
      "self":"http://{ip}/icfb/v1/users/27f941aa-4027-4f",
    },
    "properties":{
      "oid":"27f941aa-4027-4f08-b112-370f2697bed0",
      "username":"admin",
      "email":"",
      "system_object":false
    }
  }
],
"authentication_domain":{
  "object_type":"authentication-domain",
  "links":{
    "self":"http://{ip}/icfb/v1/authentication-domains/f9",
  },
  "properties":{
    "oid":"f9128779-ad77-4a8e-881a-bcbc498842de",
    "name":"LOCAL",
    "description":"System defined local domain",
    "system_object":false
  }
}
},
{
  "relationships":{
    "domain":"http://{ip}/icfb/v1/authentication-domains/f91287",
  },
  "object_type":"usergroup",
  "links":{
    "self":"http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-",
  },
  "properties":{
    "oid":"421a5754-8c6d-46ea-86cd-4abd0de99eda",
    "name":"system_default_enduser",
    "description":"Default System End User Group",
    "system_object":false,
    "system_usergroup":true,
    "roles":[
      "end_user"
    ],
  },
  "authentication_domain":{
```

```
"object_type":"authentication-domain",
"links":{
  "self":"http://{ip}/icfb/v1/authentication-domains/f9
},
"properties":{
  "oid":"f9128779-ad77-4a8e-881a-bcbc498842de",
  "name":"LOCAL",
  "description":"System defined local domain",
  "system_object":false
}
}
```



|                         |                          |
|-------------------------|--------------------------|
|                         | <pre>     ]   } } </pre> |
| Application error codes | None                     |

## API to retrieve a user group

The Get User Group API retrieves the details of the specified user group.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /user-groups/{oid} </pre>  |
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The group is not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |

|                         |  |
|-------------------------|--|
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "relationships": {         "domain": "http://{ip}/icfb/v1/authentication-domains/f91287",         "vdcs": "http://{ip}/icfb/v1/vdcs?user-group-oid=cd5e2cf8-e0"       },       "object_type": "usergroup",       "links": {         "self": "http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-"       },       "properties": {         "oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",         "name": "system_default_enduser",         "description": "Default System End User Group",         "system_object": false,         "system_usergroup": true,         "roles": [           "end_user"         ],         "authentication_domain": {           "object_type": "authentication-domain",           "links": {             "self": "http://{ip}/icfb/v1/authentication-domains/f9"           },           "properties": {             "oid": "f9128779-ad77-4a8e-881a-bcbc498842de",             "name": "LOCAL",             "description": "System defined local domain",             "system_object": false           }         }       }     }   ] } </pre> |
| Application error codes | 200 - The object with the ID {} cannot be found.   |

## API to delete a user group

The Delete User Group API deletes the specified user group.

| API Attribute | Description                     |
|---------------|---------------------------------|
| URI           | <pre> /user-groups/{oid} </pre> |
| Method        | DELETE                          |

|                        |  |
|------------------------|--|
| REQUEST PAYLOAD        | none   |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The group is not found.</li> <li>• 401 - Not authorized.</li> <li>• 403 - Forbidden.</li> </ul> <p>All standard errors are returned as applicable.</p>  |
| RESPONSE PAYLOAD       | <p>Success payload:</p> <pre> {   "success": {     "code": 3,     "messages": [       "Deleted successfully"     ]   } } </pre>  |
| Application error code | <ul style="list-style-type: none"> <li>• 201 - The user group with the ID {} cannot be found.</li> <li>• 3000 - The user group {} has active users and cannot be deleted.</li> <li>• 3001 - The user group {} is in use by VDCs and cannot be deleted.</li> <li>• 3002 - The user group {} is in use by catalogs and cannot be deleted.</li> </ul> |

## Users

Cisco Intercloud Fabric supports the following user roles:

- end user
- admin

End users can have access to VDCs, VMs, catalogs, and service requests.

Users cannot be created under the default system admin user group.

The following APIs enable you to perform user-specific operations.

- **Metadata**

| Property      | Operations<br>(Create, Update, Read) | Type    | Range | Mandatory<br>During Create | Description  |
|---------------|--------------------------------------|---------|-------|----------------------------|--|
| username      | C, R                                 | string  | 1-256 | yes                        | The login username.  |
| password      | C, R, U                              | string  | 8-16  | yes                        | The username password.                                       |
| usergroup_oid | C, R                                 | string  |       | yes                        | The usergroup name. The usergroup should already be created. |
| email         | C, R, U                              | string  |       | no                         |  |
| first_name    | C, R, U                              | string  |       | no                         |  |
| last_name     | C, R, U                              | string  |       | no                         |  |
| phone_number  | C, R, U                              | string  |       | no                         |  |
| address       | C, R, U                              | string  |       | no                         |  |
| system_user   | R                                    | boolean |       |                            | True, if the system created the user.                        |

- **API Details**

### API to create users in the system

The Create Users API creates new user accounts.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | /users  |
| Method                  | POST  |
| REQUEST PAYLOAD         | <pre> {   "username": "End User",   "password": "Welcome123",   "usergroup_oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",   "email": "end_user@cs.com",   "first_name": "End",   "last_name": "User",   "phone_number": "111-222-3333",   "address": "80 Des Dr SanJose CA" } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 400 - Bad request; invalid data.</li> </ul>  |
| RESPONSE PAYLOAD        | <p>The location attribute in the header contains the URL of the newly created user.<br/>Success payload:</p> <pre> {   "success": {     "code": 100,     "message": [       "Create success"     ],     "links": {       "new_resource": "http://{{ipaddress}}/icfb/v1/users/4128ca4a-4d9c-4a7d-b32d-0e967aaaf84f"     }   } } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The object with the value {} is not found.</li> <li>• 403 - A required field is missing.</li> <li>• 404 - The length of the string is out of range.</li> <li>• 408 - The name entry must contain between 1 and 12 characters.</li> <li>• 408 - The first_name entry must contain between 0 and 35 characters.</li> <li>• 408 - The last_name entry must contain between 0 and 35 characters.</li> <li>• 410 - The email entry must contain more than 1 character.</li> </ul> |

## API to retrieve list of users

The Get Users API retrieves a list of all users.

| API Attribute | Description |
|---------------|-------------|
| URI           | /users      |

|                         |  |
|-------------------------|--|
| Method                  | GET  |
| REQUEST PAYLOAD         | none   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> All standard errors are returned as applicable.   |
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "relationships": {         "usergroup": "http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-86cd-4abd0de99eda"       },       "object_type": "user",       "links": {         "self": "http://{ip}/icfb/v1/users/29ff06a2-e720-4aa4-bd3a-78caf8c4fad4"       },       "properties": {         "oid": "29ff06a2-e720-4aa4-bd3a-78caf8c4fad4",         "email": "end_user@cs.com",         "address": "80 Des Dr SanJose CA",         "system_object": false,         "usergroup_oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",         "username": "End User",         "usergroup_summary": {           "object_type": "usergroup",           "links": {             "self": "http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-86cd-4abd0de99eda"           },           "properties": {             "oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",             "name": "system_default_enduser",             "system_object": false           }         }       },       "first_name": "End",       "last_name": "User",       "phone_number": "111-222-3333",       "system_user": false,       "restricted_user": false     }   ] } </pre> |
| Application error codes | None   |

## API to retrieve a user

The Get User API retrieves the details of the specified user.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <code>/users/{oid}</code>   |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"><li>• 200 - Success.</li><li>• 404 - The specified user is not found.</li></ul> All standard errors are returned as applicable. |

RESPONSE  
PAYLOAD

```
{
  "value": [
    {
      "relationships": {
        "usergroup":
"http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-86cd-4abd0de99eda"
      },
      "object_type": "user",
      "links": {
        "self":
"http://{ip}/icfb/v1/users/29ff06a2-e720-4aa4-bd3a-78caf8c4fad4"
      },
      "properties": {
        "oid": "29ff06a2-e720-4aa4-bd3a-78caf8c4fad4",
        "email": "end_user@cs.com",
        "address": "80 Des Dr SanJose CA",
        "system_object": false,
        "usergroup_oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",
        "username": "End User",
        "usergroup_summary": {
          "object_type": "usergroup",
          "links": {
            "self":
"http://{ip}/icfb/v1/user-groups/421a5754-8c6d-46ea-86cd-4abd0de99eda"
          },
          "properties": {
            "oid": "421a5754-8c6d-46ea-86cd-4abd0de99eda",
            "name": "system_default_enduser",
            "system_object": false
          }
        }
      },
      "first_name": "End",
      "last_name": "User",
      "phone_number": "111-222-3333",
      "system_user": false,
      "restricted_user": false
    }
  ]
}
```

Application  
error codes

- 200 - The user with the ID {} cannot be found.

### API to delete a user

The Delete User API deletes the specified user.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                        |  |
|------------------------|--|
| URI                    | <code>/users/{oid}</code>  |
| Method                 | DELETE   |
| REQUEST PAYLOAD        | none   |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success</li> <li>• 401 - Not authorized.</li> <li>• 404 - The user is not found.</li> <li>• 409 - The username cannot be updated.</li> </ul> <p>All standard errors are returned as applicable.</p> |
| RESPONSE PAYLOAD       | <pre> {   "success": {     "code": 3,     "messages": [       "Deleted successfully"     ]   } } </pre>  |
| Application error code | <ul style="list-style-type: none"> <li>• 111009 - User cannot delete self.</li> </ul>  |
| Stub Build #           |  |
| Functional Build #     | 14   |

## API to reset password

The Reset Password API resets the user's current password.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <code>/users/reset-password</code>  |
| Method               | PUT   |
| REQUEST PAYLOAD      | <pre> {   "current_password": "sasasasewew",   "new_password": "mynewpassword" } </pre>   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 409 - Conflict in request.</li> </ul> <p>All standard errors are returned as applicable.</p> |
| RESPONSE PAYLOAD     | None unless application error payload is returned.  |



|                         |   |
|-------------------------|---|
| Application error codes | <ul style="list-style-type: none"> <li>• 111002 - The current password does not match the entry.</li> <li>• 111004 - The current password field cannot be blank.</li> <li>• 111006 - User mode is not local.</li> <li>• 111007 - The password must be between 8 and 64 characters.</li> </ul> |
| Notes                   | The current password is required only if the user is changing their own password. It is not required if an admin user is changing an end user's password.   |

## API to reset end user password by admin

The Reset End User Password API enables an admin user to reset an end user's password.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <code>/users/{Oid}/reset-password</code>  |
| Method                  | PUT   |
| REQUEST PAYLOAD         | <pre>{   "new_password" : "mynewpassword" }</pre>   |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 409 - Conflict in request.</li> </ul> <p>All standard errors are returned as applicable.</p>   |
| RESPONSE PAYLOAD        | None unless an application error payload is returned.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 111001 - An end user cannot modify another end user's password.</li> <li>• 111003 - A user account with the OID does not exist.</li> <li>• 111006 - User mode is not local.</li> <li>• 111007 - The password must be between 8 and 64 characters.</li> <li>• 111010 - The current password is not a recognized attribute.</li> </ul> |
| Notes                   |   |

## Cloud Providers

### API to retrieve list of cloud providers

A provider list is a list of the providers supported by Cisco Intercloud Fabric for Business. The Import Cloud Provider API enables you to update the supported providers by importing the latest provider list.

- **API Details**

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <code>/provider-lists</code>   |
| Method               | POST   |
| Request Payload      | The client sends a provider list file as the payload with the request parameter name "file".   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Provider list file is invalid or unsupported.</li> </ul> <p>All other standard HTTP error codes</p> |

|                         |  |
|-------------------------|--|
| Response Payload        | <pre> {   "success": {     "code": 19804,     "messages": [       "Imported file successfully."     ]   } } </pre>   |
| Application error codes | <p>19801 - The file extension should be .zip. Confirm that this is a valid zip file.</p> <p>19802 - The request does not contain the form-data parameter with the name "file".</p> <p>19803 - The imported file cannot be validated. Confirm that the file is valid.</p> <p>19804 - Successfully imported the file.</p> <p>19805 - Failed to import the file because the file contents could not be copied. Confirm that the file is valid.</p> <p>19806 - Failed to import the file because the file is not a zip archive file. Confirm that the file is valid.</p> <p>19807 - Failed to import the file because the imported file is not supported. Obtain the supported provider list file.</p> |
|                         |  |

- **Resources**

- **Network**

The network APIs are used to manage networks in Intercloud Fabric. Networks in Intercloud Fabric can be local to the cloud, or stretched from the enterprise to the cloud. In addition to data networks that connect VMs, Intercloud Fabric requires one management network for Intercloud Fabric components and an optional transport network. A transport network is required if the routing service is configured in a cloud. The same network can be used for management, transport, and data.

- **Metadata**

| Property           | Operations (Create, Update, Read) | Type       | Range  | Default | Mandatory During Create                           | Description   |
|--------------------|-----------------------------------|------------|--------|---------|---|---|
| name               | C, R, U                           | string     | 1-32   |         | yes   | Network name.   |
| segment_type       | C, R                              | string     | vlan   | vlan    | yes   | Segmentation type. (Only VLAN is supported.)  |
| segment_id         | C, R, U                           | int        | 1-4094 |         | yes, if segment_type is vlan                      | For the segmentation type VLAN, the ID is the VLAN ID. This must be unique in the network and can be updated only when the network is not in use.<br><br><b>Note:</b> VLAN IDs 3968 to 4047 are reserved for the Cisco Nexus 1000V switch. They are available for use in the VMware Virtual Switch (vSwitch). |
| cidr               | C, R, U                           | string     | 1-18   |         | yes   | CIDR for the network. CIDR can be updated only when the network is not in use.  |
| enterprise_gateway | C, R, U                           | IP Address |        |         | yes, for transport network and management network | Enterprise (private cloud) gateway for the network. The enterprise cloud gateway can be updated only when the network is not in use. This field is valid only if is_extended is set to TRUE.  |
| is_l3_connected    | C, R, U                           | boolean    |        | false   | no  | If set to true, routing service is enabled on the network. For transport and management networks, this field is set to true if a value is not specified and cannot be set to false.   |

|                       |         |         |       |       |     |   |
|-----------------------|---------|---------|-------|-------|-----|---|
| is_extended           | C, R, U | boolean |       | true  | no  | If set to true, this network extends from the private cloud to the public cloud; otherwise, the network is local to the cloud. For transport and management networks, this field is set to true if a value is not specified and cannot be set to false.   |
| is_transport          | C, R, U | boolean |       | false | no  | If set to true, the network is used by the routing service in the public cloud to reach the enterprise-only network. Set the is_extended property to true to enable is_transport.   |
| is_management_network | C, R, U | boolean |       | false | no  | If set to true, the network is used for the management interface on Intercloud service components. The is_extended property should be set to true.  |
| is_data_network       | C, R, U | boolean |       | true  | no  | If set to true, the network can be used for cloud VM interfaces.<br><br><b>Note:</b> You must set is_transport, is_management, or is_data to true.  |
| is_dhcp_enabled       | C, R, U | boolean |       | false | no  | If set to true, a DHCP server exists for the network on the private cloud. This flag is used if is_data_network is set to true and does not apply to management-only or transport-only networks.  |
| description           | C, R, U | string  | 1-256 |       | no  | Network description.  |
| ip_pools              | C, R, U | string  | 1-256 |       | yes | The maximum limit is 255 characters.  |
| • name                |         |         |       |       |     |   |
| ip_pools              | C, R, U | string  | 0-255 |       | no  | The maximum limit is 255 characters.  |
| • description         |         |         |       |       |     |   |
| ip_pools              | C, R, U | int     |       |       | no  | By default, IP version 4 is saved.  |
| • ip_version          |         |         |       |       |     |   |
| ip_pools              | C, R, U | string  | 1-256 |       | yes | A comma-separated string of all ranges in the network (for example, "a#b,a-b,a").<br><br>Use the following formats to specify IP pool ranges: <ul style="list-style-type: none"> <li>• x.x.x.x - y.y.y.y – IP addresses between x.x.x.x - y.y.y.y, inclusive.</li> <li>• x.x.x.x#n – n IP addresses from x.x.x.x.</li> <li>• x.x.x.x – Only one IP address x.x.x.x.</li> <li>• x.x.x.x - y.y – Provide only from the first octet that changes. For example, to create the range 10.10.10.10 - 10.10.20.20, you would use the format "10.10.10.10-20.20".</li> </ul> |
| • ips_in_pool         |         |         |       |       |     |   |

- **API Details**

## API to create network

The Create Network API creates a new network.

| API Attribute | Description |
|---------------|-------------|
| URI           | /networks   |
| Method        | POST        |

|                         |  |
|-------------------------|--|
| Request Payload         | <pre> {   "name": "data_network_101",   "segment_id": 101,   "cidr": "172.16.1.0/24",   "enterprise_gateway": "172.16.1.1",   "is_l3_connected": true,   "is_extended": true,   "is_data_network": true,   "is_management_network": true,   "is_transport": true,   "is_dhcp_enabled": true,   "description": "cVM extended network on VLAN 101",   "ip_pools": [{     "name": "ip-pool-1",     "description": "ip-pools description",     "ips_in_pool": "172.16.1.112#3"   },   {     "name": "ip-pool-2",     "ips_in_pool": "172.16.1.118-172.16.1.119"   } ] } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 201 - Success; workflow is not triggered.</li> <li>• 202 - Success; workflow is triggered.</li> <li>• 400 - Bad request; parameters are invalid.</li> <li>• 409 - Parameters conflict with the existing values.</li> </ul>  |
| Response Payload        | <p>None, unless there is an error.<br/>The location attribute in the header contains the URL of the newly created network resource.</p>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 9027 - Invalid IP address or format for CIDR, enterprise, or cloud gateway.</li> <li>• 9028 - A network with the specified name or VLAN ID already exists.</li> <li>• 9030 - Invalid is_extended value for a transport network.</li> <li>• 9031 - Network type is unknown.</li> <li>• 9032 - Invalid mask for CIDR.</li> <li>• 9035 - An enterprise network with the OID (given) does not exist.</li> <li>• 9036 - The enterprise network with the OID (given) is not in the same VLAN as the network.</li> <li>• 9037 - The enterprise network with the OID (given) is not in ACCESS mode.</li> <li>• 9038 - The enterprise network with the OID (given) is not of the type portprofile.</li> <li>• 9052 - A network with the isTransport flag enabled already exists. Only one transport network can be created.</li> <li>• 9053 - A network with the isManagementNetwork flag enabled already exists. Only one management network can be created.</li> <li>• 9054 - The enterprise gateway value is not in the provided subnet.</li> <li>• 9077 - A network with the segment ID (0) of the type (1) already exists.</li> </ul> |

## API to update network

The Update Network API updates the attributes for an existing network.

The following conventions apply:

- Only the fields to be modified need to be sent in the request. (The request can also include fields that do not need to be modified.)
- For ip\_pools, the entire list of IP pools in the request will replace the list of existing IP pools.
- If the ip\_pools property is not present in the request, there is no change to the IP pools in the network.
- To update a single IP pool, the request must include all existing IP pools (along with their OIDs).

- If the ip\_pools property is present in the request and does not contain an existing IP pool, that IP pool will be deleted.
- If the ip\_pools property contains [] (an empty array), all IP pools in the network will be deleted (if all validations are passed).

| API Attribute   | Description  |
|-----------------|--|
| URI             | <pre>/networks/{oid}</pre>   |
| Method          | PUT  |
| Request Payload | <p>If IP pools must be added, updated, or deleted during a network update:</p> <pre> {   "is_extended": true,   "is_dhcp_enabled": false,   "ip_pools": [{     "name" : "ip-pool-1",     "oid" : "c69cc2d9-4424-4e4d-9eee-61026ff9f0b6" //This has oid, t will replace the existing IP Pool with the same oid.     "description" : "ip-pools description",     "ips_in_pool" : "172.16.1.112#3"   },   {     "name" : "ip-pool-2", //This does not have oid, that means this I being newly created during Network update.     "description" : "ip-pools description",     "ips_in_pool" : "172.16.1.118-172.16.1.119"   }] } </pre> <p>If IP pools do not need to be modified during a network update:</p> <pre> {   "is_data": true,   "segment_id": 59 } </pre> <p>If all IP pools must be deleted during a network update:</p> <pre> {   "is_dhcp_enabled": true,   "is_l3_connected": false,   "description": "This is a DHCP only network without any IP Pools",   "ip_pools" : [] //Send empty array to delete all IP Pools in this ne } </pre> |

|                         |  |
|-------------------------|--|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success; a workflow is not triggered.</li> <li>• 201 - Success; a workflow is triggered.</li> <li>• 400 - Bad request; invalid parameters.</li> <li>• 404 - The network OID is not found.</li> </ul>  |
| Response Payload        | <p>If a workflow is not required:</p> <pre> {   "success": {     "code": 2,     "messages": [       "Updated successfully"     ]   } } </pre> <p>If a workflow is triggered:</p> <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request":       "http://10.36.36.215/icfb/v1/service-requests/f7ab798b-aaa2-4764-8b18-0"     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 9060 - The IP pool overlaps with the enterprise gateway IP address.</li> <li>• 9061 - The IP pool OID is not sent in the request for a create network event.</li> <li>• 9062 - The VLAN ID, subnet, or enterprise gateway cannot be updated because the network is in use (IP addresses are reserved).</li> <li>• 9063 - The VLAN ID, subnet, or enterprise gateway cannot be updated because the network is in use by VM(s).</li> <li>• 9064 - The IP pool (OID) cannot be deleted because IP addresses are reserved from this pool.</li> <li>• 9065 - At least one IP pool must be present.</li> <li>• 9066 - The IP pool with the OID is not found in the network.</li> <li>• 9067 - The network name cannot be modified.</li> <li>• 9068 - Cannot remove management capability for this network because it is in use.</li> <li>• 9069 - Cannot remove transport capability for this network because it is in use.</li> <li>• 9070 - Cannot remove data capability for this network because it is in use.</li> <li>• 9071 - The IP pool with the OID is present more than once in the request.</li> <li>• 9072 - The enterprise gateway for the network must be specified.</li> <li>• 9073 - For a network to be transport/management, it must be L3-connected.</li> <li>• 9074 - Cannot disable DHCP capability because DHCP NICs are configured in VM(s).</li> </ul> |

## API to retrieve list of networks

The Get Networks API returns a list of the configured networks.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                      |   |
|----------------------|---|
| URI                  | <pre>/networks</pre>  |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"><li>• 200 - Success.</li></ul>  |
| Response Payload     | <pre>{   "value": [     {       "object_type": "network",       "links": {         "self": "http://{ip}/icfb/v1/networks/a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1"       },       "properties": {         "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",         "name": "data_network_101",         "description": "cVM extended network on VLAN 101",         "object_status": {           "status": "success",           "last_sr_oid": "dcf7e2ad-393b-4438-b066-98547f0780aa"         },         "system_object": false,         "segment_id": 101,         "cidr": "172.16.1.0/24",         "enterprise_gateway": "172.16.1.1",         "enterprise_network_partitions": [],         "is_l3_connected": true,         "is_extended": true,         "is_dhcp_enabled": true,         "is_data_network": true,         "is_transport": true,         "is_management_network": true,         "segment_type": "vlan",         "ip_pools": [           {             "oid": "57fb34a5-ecaa-47c9-b007-5ebeda53f2de",             "name": "ip-pool-1",             "description": "ip-pools description",             "system_object": false,             "ips_in_pool": "172.16.1.112#3",             "ip_version": 4           }         ],       }     }   ] }</pre> |

```
        "oid": "fa7757a3-d883-4b95-b9f4-a97edb585c90",
        "name": "ip-pool-2",
        "system_object": false,
        "ips_in_pool": "172.16.1.118-172.16.1.119",
        "ip_version": 4
    }
]
}
},
{
    "object_type": "network",
    "links": {
        "self":
"http://{{ip}}/icfb/v1/networks/4acbf530-a673-411e-878f-86a29ff50494"
    },
    "properties": {
        "oid": "4acbf530-a673-411e-878f-86a29ff50494",
        "name": "data_network_102",
        "description": "This is a DHCP only network without any IP
Pools",
        "object_status": {
            "status": "success",
            "last_sr_oid": "641d4b35-444c-4586-b1b3-27c381716d4d"
        },
        "system_object": false,
        "segment_id": 102,
        "cidr": "172.16.2.0/24",
        "enterprise_gateway": "172.16.2.1",
        "enterprise_network_partitions": [],
        "is_l3_connected": false,
        "is_extended": true,
        "is_transport": false,
        "is_dhcp_enabled": true,
        "is_data_network": true,
        "is_management_network": false,
        "segment_type": "vlan"
    }
}
```



|                         |                          |
|-------------------------|--------------------------|
|                         | <pre>     }   ] } </pre> |
| Application error codes | None                     |

## API to retrieve a network

The Get Network API retrieves the details of the specified network.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /networks/{oid} </pre>  |
| Method               | GET   |
| Request Payload      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul>  |
| Response Payload     | <pre> {   "value": [     {       "object_type": "network",       "links": {         "self": "http://{{ip}}/icfb/v1/networks/a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1"       },       "properties": {         "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",         "name": "data_network_101",         "description": "cVM extended network on VLAN 101",         "object_status": {           "status": "success",           "last_sr_oid": "dcf7e2ad-393b-4438-b066-98547f0780aa"         },         "system_object": false,         "segment_id": 101,         "cidr": "172.16.1.0/24",         "enterprise_gateway": "172.16.1.1",         "enterprise_network_partitions": [],         "is_l3_connected": true,         "is_extended": true, </pre> |

```
"is_dhcp_enabled": true,
"is_data_network": true,
"is_transport": true,
"is_management_network":true,
"segment_type": "vlan",
"ip_pools": [
  {
    "oid": "57fb34a5-ecaa-47c9-b007-5ebeda53f2de",
    "name": "ip-pool-1",
    "description": "ip-pools description",

    "system_object": false,
    "ips_in_pool": "172.16.1.112#3",
    "ip_version": 4
  },
  {
    "oid": "fa7757a3-d883-4b95-b9f4-a97edb585c90",
    "name": "ip-pool-2",
    "system_object": false,
    "ips_in_pool": "172.16.1.118-172.16.1.119",
    "ip_version": 4
  }
]
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] } </pre>                                 |
| Application error codes | <ul style="list-style-type: none"> <li>• None</li> </ul> |

## API to delete a network

The Delete Network API deletes the specified network.

| API Attribute          | Description   |
|------------------------|---|
| URI                    | <pre> /networks/{oid} </pre>  |
| Method                 | DELETE  |
| REQUEST PAYLOAD        | None  |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 202 - Request accepted.</li> <li>• 401 - Not authorized.</li> <li>• 403 - Forbidden.</li> <li>• 404 - Network is not found.</li> </ul> <p>All standard errors are returned as applicable.</p>  |
| RESPONSE PAYLOAD       | <p>Success payload:</p> <pre> {   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/77f971d4-694d-4fe4-908a-043cdb5ad"     }   } } </pre>  |
| Application error code | <ul style="list-style-type: none"> <li>• 200 - Network not found.</li> <li>• 9051 - The network with the OID cannot be deleted because an IP pool with the OID is in use.</li> <li>• 9055 - The data network (given network name) (OID: given network OID) cannot be deleted because the network is in use by VMs using this network) VM(s).</li> </ul> |

## IP Pool within a network

The IP pool APIs are used to perform IP pool-related operations within a network.

In Intercloud Fabric, IP pools are used for the following:

- ICF components, such as Intercloud Fabric Extender (ICX) or the infrastructure component, in the private cloud.
- ICF components, such as Intercloud Fabric Switch (ICS), in the public cloud.
- Virtual machine addresses in the cloud.

The maximum IP pool limit is 1024.

- **Metadata**

| Property    | Operations (Create, Update, Read) | Type   | Range | Mandatory During Create | Description  |
|-------------|-----------------------------------|--------|-------|-------------------------|--|
| name        | C, R, U                           | string | 1-256 | yes                     | The maximum limit is 255 characters  |
| description | C, R, U                           | string | 0-255 | no                      | The maximum limit is 255 characters.   |
| ips_in_pool | C, R, U                           | string | 1-256 | yes                     | Use the following formats for IP pool ranges: <ul style="list-style-type: none"> <li>• x.x.x.x - y.y.y.y – IP addresses between x.x.x.x - y.y.y.y, inclusive.</li> <li>• x.x.x.x#n – n IP addresses from x.x.x.x.</li> <li>• x.x.x.x – Only one IP address x.x.x.x.</li> </ul> |
| ip_version  | C, R, U                           | int    |       | no                      | The default value is version 4.<br>The supported version is version 4.   |

## API to create IP pool

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <code>/networks/{oid}/ip-pools</code>   |
| Method               | POST  |
| REQUEST PAYLOAD      | <pre>{   "name" : "ip-pool-4",   "ip_version" : 4,   "ips_in_pool" : "172.16.1.116-172.16.1.120" }</pre>  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 403 - Forbidden.</li> <li>• 409 - Validation error.</li> <li>• 500 - Internal server error.</li> </ul> |
| RESPONSE PAYLOAD     | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created IP pool.  |

|                         |   |
|-------------------------|---|
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - A resource is not found for the IP pool with the specified OID.</li> <li>• 408 - The segment ID must be between 1 and 4094.</li> <li>• 2001 - The attribute <code>ip-pool name</code> must be unique, but an object with the name (name) already exists.</li> <li>• 3004 - Cannot perform the operation; another service request is running.</li> <li>• 4000 - The request cannot be completed because the system is temporarily unavailable.</li> <li>• 9017 - IP allocation pool range (0)(3).</li> <li>• 9019 - Error while validating IP pool create service IP pools.</li> <li>• 9021 - The IP pool (IP range start - IP range end value) overlaps with existing pools.</li> <li>• 9024 - The starting IP address (IP) or ending IP address (IP) of the pool cannot be a broadcast or network address.</li> <li>• 9025 - The IP allocation pool starting IP address (0) cannot be greater than the ending IP address (1).</li> <li>• 9040 - IP is not a valid IP range format.</li> <li>• 9041 - The IP address () is not a valid host IP address. Host IP addresses are Class A, B, or C IP addresses, and must not be linklocal or loopback addresses.</li> <li>• 9042 - IP pools cannot be updated using a PUT on the network object. Submit a POST request to <code>/networks/{oid}/ip-pools</code>.</li> <li>• 9043 - IP range is in use. Unallocate it to modify this range.</li> <li>• 9045 - IP is the last IP pool in the network; it cannot be deleted.</li> <li>• 9047 - Invalid IP version <code>ip_version</code>; only IP version 4 is supported.</li> <li>• 9060 - The IP pool overlaps with the enterprise gateway IP address.</li> </ul> |
|-------------------------|---|

## API to retrieve list of IP pools

The Get IP Pools API retrieves a list of all IP pools.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <code>/networks/{oid}/ip-pools</code>   |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Static IP pool is found.</li> <li>• 404 - User is not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |

|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "object_type": "ip_pool",       "links": {         "self": "http://{ip}/icfb/v1/networks/821360ed-dc2f-4e80-938a-3b19dc9e5",       },       "properties": {         "oid": "f49f2925-5d45-4374-8315-b451645031ef",         "name": "ip-pool-5",         "description": "description for pool 5",         "system_object": false,         "ip_version": 4,         "ips_in_pool": "10.36.0.60-10.36.0.70,10.36.0.90,10.36.0.101-200"       }     },     {       "object_type": "ip_pool",       "links": {         "self": "http://{ip}/icfb/v1/networks/821360ed-dc2f-4e80-938a-3b19dc9e5",       },       "properties": {         "oid": "07ec2f9a-6618-443e-8117-a0023fe97b74",         "name": "ip-pool-4",         "description": "description for pool 4",         "system_object": false,         "ip_version": 4,         "ips_in_pool": "10.36.0.80-10.36.0.89"       }     }   ] } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - Resource not found for the network with OID.</li> </ul>  |

## API to retrieve an IP pool

The Get IP Pool API retrieves the details of the specified IP pool.

| API Attribute   | Description                                 |
|-----------------|---|
| URI             | <pre> /networks/{oid}/ip-pools/{oid} </pre> |
| Method          | GET   |
| REQUEST PAYLOAD | None  |

|                         |  |
|-------------------------|--|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Static IP pool is found.</li> <li>• 404 - User is not found.</li> </ul> <p>All standard errors are returned as applicable.</p>  |
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "object_type": "ip_pool",       "links": {         "self": "http://{ip}/icfb/v1/networks/821360ed-dc2f-4e80-938a-3b19dc9e5"       },       "properties": {         "oid": "f49f2925-5d45-4374-8315-b451645031ef",         "name": "ip-pool-5",         "description": "description for pool 5",         "system_object": false,         "ip_version": 4,         "ips_in_pool": "10.36.0.60-10.36.0.70,10.36.0.90,10.36.0.101-200"       }     }   ] } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - Resource not found for IP pool with OID.</li> </ul>   |

## API to update IP pool

The Update IP Pool API enables you to update the attributes of the specified IP pool.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /networks/{oid}/ip-pools/{ip-pool-oid} </pre>   |
| Method               | PUT   |
| REQUEST PAYLOAD      | <pre> {   "name" : "ip-pool-4",   "ip_version" : 4,   "ips_in_pool" : "172.16.1.116-172.16.1.120" } </pre>  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 403 - Forbidden.</li> <li>• 404 - IP pool not found.</li> <li>• 409 - Validation error.</li> <li>• 500 - Internal server error.</li> </ul> |

|                         |  |
|-------------------------|--|
| RESPONSE PAYLOAD        | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created IP pool.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - A resource is not found for the IP pool with OID.</li> <li>• 408 - The segment ID must be between 1 and 4094.</li> <li>• 2001 - The attribute <code>ip-pool name</code> must be unique, but an object with the name (name) already exists.</li> <li>• 3004 - Cannot perform operation; another service request is running.</li> <li>• 4000 - The request could not be completed because the system is temporarily unavailable.</li> <li>• 9017 - IP allocation pool range (0)(3).</li> <li>• 9019 - Error while validating IP pool create service IP pools.</li> <li>• 9021 - The IP pool (IP range start - IP range end value) overlaps with existing pools.</li> <li>• 9024 - The starting IP address (IP) or ending IP address (IP) of the pool cannot be a broadcast or network address.</li> <li>• 9025 - The IP allocation pool starting IP address (0) cannot be greater than the ending IP address (1).</li> <li>• 9040 - IP is not a valid IP range format.</li> <li>• 9041 - The IP address (IP) is not a valid host IP address. Host IP addresses are Class A, B, or C IP addresses, and cannot be linklocal or loopback addresses.</li> <li>• 9042 - IP pools cannot be updated using a PUT request on the network object. Submit a POST request to <code>/networks/{oid}/ip-pools</code>.</li> <li>• 9043 - The IP range is in use. Unallocate it to modify this range.</li> <li>• 9045 - IP is the last IP pool in the network (given); it cannot be deleted.</li> <li>• 9047 - Invalid IP version <code>IP_version</code>. Only IP version 4 is supported.</li> <li>• 9060 - The IP pool overlaps with the enterprise gateway IP address.</li> </ul> |

## API to delete IP pool

The Delete IP Pool API deletes the specified IP pool.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <code>/networks/{oid}/ip-pools/{ip-pool-oid}</code>   |
| Method                  | POST  |
| REQUEST PAYLOAD         | None  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 403 - Forbidden.</li> <li>• 404 - IP pool OID not found.</li> <li>• 409 - Validation error.</li> <li>• 500 - Internal server error.</li> </ul> |
| RESPONSE PAYLOAD        | None, unless there is an error.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - Resource not found for the IP pool with OID.</li> </ul>  |

## Managed Objects

### System Settings

The system settings APIs are used to configure or retrieve system settings such as the NTP configuration, DNS server configuration, the domain, and time zone. The system settings configuration is applied on Cisco Intercloud Fabric for Business and infrastructure endpoints, such as an ICF component or ICX/ICS.

- **Metadata**

| Property  | Operations (Read, Update) | Type   | Range | Mandatory During Update | Description       |
|---|---------------------------|--------|-------|-------------------------|-------------------|
| time_zone   | R, U                      | string |       | No                      | System time zone. |
| dns_configuration   |                           |        |       |                         |                   |
| <ul style="list-style-type: none"> <li>• domain_name</li> </ul> | R, U                      | string |       | No                      | DNS domain name.  |



|                               |      |         |  |     |   |
|-------------------------------|------|---------|--|-----|---|
| • dns_server                  |      |         |  |     |   |
| • primary                     | R, U | string  |  | Yes | DNS primary server.   |
| • primary_status              | R    | enum    | NOT_REACHABLE<br>REACHABLE<br>NOT_CONFIGURED<br>UNKNOWN<br>UNAVAILABLE | N/A | DNS primary server reachability status.   |
| • secondary                   | R, U | string  |  | No  | DNS secondary server.   |
| • secondary_status            | R    | enum    | NOT_REACHABLE<br>REACHABLE<br>NOT_CONFIGURED<br>UNKNOWN<br>UNAVAILABLE | N/A | DNS secondary server reachability status.   |
| ntp_configuration             |      |         |  |     |   |
| • ntp_server                  |      |         |  |     |   |
| • primary                     | R, U | string  |  | No  | NTP primary server.   |
| • primary_status              | R    | enum    | NOT_REACHABLE<br>REACHABLE<br>NOT_CONFIGURED<br>UNKNOWN<br>UNAVAILABLE | N/A | NTP primary server reachability status.   |
| • secondary                   | R, U | string  |  | No  | NTP secondary server.   |
| • secondary_status            | R    | enum    | NOT_REACHABLE<br>REACHABLE<br>NOT_CONFIGURED<br>UNKNOWN<br>UNAVAILABLE | N/A | NTP secondary server reachability status.   |
| icfd_version                  | R    | string  |  | N/A | ICFD version.   |
| enforce_complex_user_password | R, U | boolean |  | N/A | If this is set to true while creating a new user or while resetting an existing user's password, the password will be validated against strong password rules.<br><br>If this is set to false while creating a new user or while resetting an existing users's password, simple passwords will be accepted. |

## API to retrieve system settings information

The Get System Settings API retrieves the current system settings.

| API Attribute          | Description                   |
|------------------------|-------------------------------|
| <b>URI</b>             | <code>/system-settings</code> |
| <b>Method</b>          | GET                           |
| <b>REQUEST PAYLOAD</b> | None                          |

|                                |   |
|--------------------------------|---|
| <b>HTTP RESPONSE STATUS</b>    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul>  |
| <b>Response Payload</b>        | <pre> {   "value": [     {       "object_type": "device-profile",       "links": {         "self": "http://{ip}/icfb/v1/system-settings"       },       "properties": {         "system_object": false,         "system_information": {           "system_object": false,           "time_zone": "America/Los_Angeles",           "icfd_version": "3.1.1.1843"         },         "dns_configuration": {           "domain": "cisco.com",           "system_object": false,           "dns_server": {             "primary": "10.0.12.45",             "system_object": false,             "primary_status": "REACHABLE"           }         },         "ntp_configuration": {           "system_object": false,           "ntp_server": {             "primary": "ntp.example.com",             "system_object": false,             "primary_status": "REACHABLE"           }         },         "enforce_complex_user_password": false       }     }   ] } </pre> |
| <b>Application error codes</b> | N/A   |

## API to update system settings information

The Update System Settings API updates the system settings as specified.

### Note:

- NTP server configuration is not mandatory. The NTP server configuration is applied even if the NTP server is not reachable.
- A primary DNS server is mandatory. At least one DNS server must be reachable for the system settings to be applied.
- To remove an NTP or DNS server, send an empty string ("") in the payload.

- API Details

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <pre>/system-settings</pre>   |
| Method                  | PUT   |
| REQUEST PAYLOAD         | <pre>{   "system_information": {     "time_zone": "America/Los_Angeles"   },   "dns_configuration": {     "domain": "cisco.com",     "dns_server": {       "primary": "10.10.10.13",       "secondary": "10.10.10.14"     }   },   "ntp_configuration": {     "ntp_server": {       "primary": "10.10.10.14",       "secondary": "10.10.10.15"     }   },   "enforce_complex_user_password": false }</pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Update started successfully.</li> <li>• 400 - Bad request.</li> <li>• 402 - Invalid field.</li> <li>• 403 - Forbidden; only an admin user can update the settings.</li> <li>• 409 - Conflict in the request.</li> </ul> <p>All other standard HTTP error codes.</p>  |
| Response Payload        |   |
| Application error codes | <ul style="list-style-type: none"> <li>• 105601 - The DNS server {0} is not a valid IP address.</li> <li>• 105602 - The NTP server {0} is not a valid IP address or hostname.</li> <li>• 105603 - The DNS server {0} is not reachable. Provide a correct DNS server.</li> <li>• 105604 - The DNS domain name {0} is not found. Provide an accessible DNS domain name.</li> <li>• 105605 - The NTP server {0} is not reachable. Provide an accessible NTP server.</li> <li>• 105606 - The DNS server {0} and NTP server {0} cannot be the same.</li> <li>• 105607 - The DNS primary server {0} and secondary server {0} cannot be the same.</li> <li>• 105608 - The DNS domain name {0} is not valid.</li> <li>• 105609 - The NTP primary server {0} and secondary server {0} cannot be the same.</li> <li>• 105610 - The primary NTP server {0} cannot be removed if a secondary server is configured.</li> <li>• 105611 - The primary DNS server {0} cannot be removed.</li> <li>• 105612 - The existing primary DNS server {0} is the same as the secondary server {0} to be added.</li> <li>• 105613 - The existing primary NTP server {0} is same as the secondary server {0} to be added.</li> <li>• 105614 - Error in generating an ICF certificate.</li> </ul> |

## MAC Pools

Intercloud Fabric assigns MAC addresses to VM instances and system components in the cloud. A MAC pool defines the set of MAC addresses that can be used by the system. A default MAC pool is created by the system for this purpose. Admins can create additional MAC pools and associate them with one or more ICF clouds.

The MAC pool APIs enable you to perform MAC pool-related operations.

- **Metadata**

| Property             | Operations (Create, Update, Read) | Type    | Range       | Mandatory During POST | Description   |
|----------------------|-----------------------------------|---------|-------------|-----------------------|---|
| <b>name</b>          | C                                 | String  | 1-256       | yes                   | MAC pool name   |
| description          | C                                 | string  | 0-255       | no                    | The maximum character limit is 255.                           |
| <b>object_type</b>   | C                                 | String  | 1-256       | yes                   | Managed object type ("mac-pool").                             |
| start_mac_address    | C                                 | String  | 1-256       | yes                   | Starting address of the MAC address in the MAC address range. |
| <b>num_addresses</b> | C                                 | Integer | 1000-160000 | yes                   | Number of addresses that should be present in the range.      |

### API to create MAC pool

The Create MAC Pool API creates a new MAC pool.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <code>/mac-pools</code>   |
| Method                  | POST  |
| Request Payload         | <pre>{   "name" : "mac-pool1",   "object_type" : "mac-pool",   "start_mac_address" : "aa:bb:cc:dd:ee:ff",   "num_addresses" : 1000, "description" : "desc of macpool" }</pre>   |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>  |
| Response Payload        | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created MAC pool.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 409 - The MAC pool range conflicts with existing MAC pools.</li> <li>• 415 - field_name - The required field cannot be empty.</li> <li>• 2000 - A MAC pool with the same name already exists.</li> <li>• 2001 - The attribute name must be unique; an object with the value xxx already exists.</li> </ul> |

### API to retrieve list of MAC pools

The Get MAC Pools API retrieves a list of all MAC pools.

| API Attribute | Description             |
|---------------|-------------------------|
| URI           | <code>/mac-pools</code> |
| Method        | GET                     |

|                         |   |
|-------------------------|---|
| Request Payload         | None  |
| Response payload        | <pre> {   "value": [{     "object_type": "mac-pool",     "links": {       "self": "http://{ip}:{port}/icfb/v1/mac-pools/{oid}"     },     "properties": {       "oid": "be121d32-6399-4af4-a2b1-67365b03abf4",       "name": "mac-pool1",       "start_mac_address": "aa:bb:cc:dd:ee:ff",       "num_addresses": 1000,       "description": "desc of macpool"     }   }],   {     "object_type": "mac-pool",     "links": {       "self": "http://{ip}:{port}/icfb/v1/mac-pools/{oid}"     },     "properties": {       "oid": "be121d32-6399-4af4-a2b1-67365b03abf4",       "name": "mac-pool2",       "start_mac_address": "aa:bb:cc:ee:ee:ff",       "num_addresses": 1000,       "description": "desc of macpool"     }   } }] </pre> |
| HTTP Response Status    | • 200 - Success.  |
| Application error codes | None  |

## API to retrieve a MAC pool

The Get MAC Pool API retrieves the details of the specified MAC pool.

| API Attribute   | Description                   |
|-----------------|-------------------------------|
| URI             | <pre> /mac-pools/{oid} </pre> |
| Method          | GET                           |
| Request Payload | None                          |

|                         |  |
|-------------------------|--|
| Response Payload        | <pre> {   "value": [{     "object_type": "mac-pool",     "links": {       "self": "http://{ip}:{port}/icfb/v1/mac-pools/{oid}"     },     "properties": {       "oid": "be121d32-6399-4af4-a2b1-67365b03abf4",       "name": "mac-pool1",       "start_mac_address": "aa:bb:cc:dd:ee:ff",       "num_addresses": 1000,       "description" : "desc of macpool"     }   }] } </pre> |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - Cannot find an object with the ID xxx.</li> </ul>   |

## Cloud Security Group

A cloud security group is a collection of Classless Inter-Domain Routing (CIDR) arrays that can access VM instances that are created in the public cloud. These are global groups and can be referenced from an ICF public cloud.

The Infra Access (infra-access) cloud security group contains the enterprise public and NAT CIDR arrays that can access infrastructure components, such as an ICF Switch (ICS). This enables ICF and ICF Extender (ICX) to communicate with ICS on a set of predefined ports, such as port 6644, 6646, 22, or 443.

The Provider Services Access (app-access) cloud security group is used by service networks and ICS to access cloud VM instances that are enabled for provider network access. Users cannot create this type of cloud security group, but can update the default global one.

Default Infra and Provider Services Access cloud security groups are configured with any CIDR (0.0.0.0/0).

The cloud security group APIs are used to perform cloud security group-related operations.

- **Metadata**

| Property                  | Operations (Create, Update, Read) | Type   | Range                    | Default | Mandatory During Create | Description  |
|---------------------------|-----------------------------------|--------|--------------------------|---------|-------------------------|--|
| name                      | C, R, U                           | string | 1-32                     |         | yes                     | Name of the Infra Access cloud security group.                           |
| cidrs                     | C, R, U                           | string | 1-18                     |         | yes                     | Array of CIDRs for the cloud security group.                             |
| description               | C, R, U                           | string | 1-256                    |         | no                      | Description of the cloud security group.                                 |
| cloud_security_group_type | C, R                              | string | infra-access, app-access |         | yes                     | Type of cloud security group. Create is supported only for infra-access. |

## API to create cloud security group

The Create Cloud Security Group API creates a new cloud security group.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                         |   |
|-------------------------|---|
| URI                     | <code>/cloud-security-groups</code>   |
| Method                  | POST  |
| Request Payload         | <pre> {   "cloud_security_group_type": "infra-access",   "name": "InfraAccess1",   "cidrs": [     {       "cidr": "10.12.1.0/24"     },     {       "cidr": "10.13.1.0/24"     }   ],   "description": "Infra Access Security Group 1" } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 400 - Bad request; invalid parameters.</li> <li>• 409 - An IP group with the same name or IP range already exists.</li> </ul>  |
| RESPONSE PAYLOAD        | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created IP group resource.  |
| Application error codes | <ul style="list-style-type: none"> <li>• 429 - (validatedValue) - Whitespaces are not allowed. The allowed characters are: a-z A-Z 0-9 ! ( ) * + , . : ; = @ [ ] ^ _ `   ~ -</li> <li>• 1001 - Creation failed.</li> <li>• 1003 - Mandatory fields are not provided.</li> <li>• 1004 - The provided string values are not in the expected range.</li> <li>• 1005 - Invalid field; the IP address has an invalid format.</li> <li>• 1006 - A cloud security group with the same name already exists or the IP range overlaps.</li> <li>• 1009 - The specified IP address is not in the expected range.</li> <li>• 2108 - The cloud security group type is unknown.</li> <li>• 36001 - A cloud security group with the name (0) already exists.</li> <li>• 36002 - Invalid value for property. The valid values are: (0), (1).</li> <li>• 36003 - The CIDR list cannot be empty.</li> <li>• 36004 - Invalid CIDR: (0).</li> <li>• 36005 - At least one invalid CIDR is found.</li> <li>• 36006 - This property cannot be modified.</li> </ul> |

## API to retrieve list of all cloud security groups

The Get All Cloud Security Groups API retrieves information for all configured cloud security groups.

| API Attribute   | Description                         |
|-----------------|-------------------------------------|
| URI             | <code>/cloud-security-groups</code> |
| Method          | GET                                 |
| REQUEST PAYLOAD | None                                |

HTTP  
RESPONSE  
STATUS

- 200 - Success.

Response  
Payload

```
{
  "value": [
    {
      "object_type": "cloud-security-group",
      "links": {
        "self":
"http://{ip}/icfb/v1/cloud-security-groups/a18d530d-3ee9-47e3-a4ff-1a1d
      },
      "properties": {
        "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",
        "cloud-security-group_type": "infra-access",
        "name": "InfraAccess1",
        "cidrs": [
          {
            "cidr": "10.12.1.0/24"
          },
          {
            "cidr": "10.13.1.0/24"
          }
        ],
        "description": "Infra Access Security Group 1"
      }
    },
    {
      "object_type": "cloud-security-group",
      "links": {
        "self":
"http://{ip}/icfb/v1/cloud-security-groups/a18d530d-3ee9-47e3-a4ff-1a1d
      },
      "properties": {
        "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb2",
        "cloud-security-group_type": "infra-access",
        "name": "InfraAccess2",
        "cidrs": [
          {
            "cidr": "10.14.1.0/24"
          },
          {
            "cidr": "10.15.1.0/24"
          }
        ],
        "description": "Infra Access Security Group 2"
      }
    }
  ]
}
```



|                         |      |
|-------------------------|------|
| Application error codes | None |
|-------------------------|------|

## API to retrieve a cloud security group

The Get Cloud Security Group API retrieves the details of the specified security group.

| API Attribute           | Description  |
|-------------------------|--|
| URI                     | <code>/cloud-security-groups/{oid}</code>  |
| Method                  | GET  |
| REQUEST PAYLOAD         | None   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul>   |
| Response Payload        | <pre>{   "value": [     {       "object_type": "cloud-security-group",       "links": {         "self": "http://{ip}/icfb/v1/cloud-security-groups/a18d530d-3ee9-47e3-a4ff-1a1d",       },       "properties": {         "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",         "cloud_security_group_type": "infra-access",         "name": "InfraAccess1",         "cidrs": [           {             "cidr": "10.12.1.0/24"           },           {             "cidr": "10.13.1.0/24"           }         ],         "description": "Infra Access Security Group 1"       }     }   ] }</pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - Cannot find Object with id c877d694-6bd6-4cff-a9d0-d5bc25a56f24x</li> </ul>   |

## API to update Cloud Security Group

The Update Cloud Security Group API updates the specified cloud security group.

| API Attribute           | Description  |
|-------------------------|--|
| URI                     | <code>/cloud-security-groups/{oid}</code>  |
| Method                  | PUT  |
| Request Payload         | <pre>{   "cloud_security_group_type": "infra-access",   "name": "InfraAccess1",   "cidrs": [     {       "cidr": "10.12.1.0/24"     },     {       "cidr": "10.13.1.0/24"     }   ],   "description": "Infra Access Security Group 1" }</pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Success; workflow started.</li> <li>• 400 - Bad request; invalid parameters.</li> <li>• 404 - Entry not found.</li> </ul>   |
| Response Payload        | Follows the default behavior for the respective HTTP response codes.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 429 - (validatedValue) - Whitespaces are not allowed. The allowed characters are: a-z A-Z 0-9 ! ( ) * + , . : ; = @ [ ] ^ _ `   ~ -</li> <li>• 36002 - Invalid value for property; the valid values are: (0), (1).</li> <li>• 36003 - The CIDR list cannot be empty.</li> <li>• 36004 - Invalid CIDR: (0).</li> <li>• 36005 - At least one invalid CIDR is found.</li> <li>• 36006 - This property cannot be modified.</li> </ul> |
| Stub Build #            |  |
| Functional Build #      |  |

### API to delete a cloud security group

The Delete Cloud Security Group API deletes the specified cloud security group.

| API Attribute | Description                               |
|---------------|---|
| URI           | <code>/cloud-security-groups/{oid}</code> |
| Method        | DELETE                                    |

|                        |  |
|------------------------|--|
| REQUEST PAYLOAD        | None   |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The cloud security group is not found.</li> </ul> |
| RESPONSE PAYLOAD       | None, unless an application error payload is sent back.  |
| Application error code | 10557 - The cloud security group with OID c877d694-6bd6-4cff-a9d0-d5bc25a56f24x is not found.                              |

## Policies

### VM Policy

The VM Policy API is used to control the resources and access privileges of cloud virtual machines that are created on a VDC. The VM policy is global to the system with one global policy that applies to all VDCs. Although additional VM policies cannot be created, the global policy can be updated.

- **Metadata**

| Property                        | Operations (Create, Update, Read) | Type    | Range | Default                  | Description  |
|---------------------------------|-----------------------------------|---------|-------|--------------------------|--|
| name                            | R                                 | String  |       | system_default_vm_policy | VM policy name.                                      |
| enable_provider_services_access | R, U                              | Boolean |       | false                    | Allow VM deployment with access to provide services. |

### API to update a VM policy

The Update VM Policy API updates the specified VM policy with the information provided.

| API Attribute          | Description   |
|------------------------|---|
| URI                    | <code>/vm-policies/{oid}</code>   |
| Method                 | PUT   |
| REQUEST PAYLOAD        | <pre>{   "enable_provider_services_access" : true }</pre>   |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The specified VM policy is not found.</li> </ul> |
| RESPONSE PAYLOAD       | None  |
| Application error code | None  |

### API to retrieve a VM policy

The Get VM Policy API retrieves the details of the specified VM policy.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                        |   |
|------------------------|---|
| URI                    | <code>/vm-policies/{oid}</code>   |
| Method                 | GET   |
| REQUEST PAYLOAD        | None  |
| RESPONSE PAYLOAD       | <pre>{   "value": [     {       "object_type": "vm_policy",       "links": {         "self": "http://10.36.62.60/icfb/v1/vmpolicy/8bd1aed3-b2ef-45b4-a02f-a3401f6023       },       "properties": {         "oid": "8bd1aed3-b2ef-45b4-a02f-a3401f602374",         "name": "system_default_vm_policy",         "policy_type": "vm_policy",         "enable_provider_services_access": false,         "is_default": true       }     }   ] }</pre> |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The specified VM policy is not found.</li> </ul>   |
| Application error code | None  |

## API to retrieve a list of the VM policy

The Get VM Policies API retrieves a list of the configured VM policies.

| API Attribute   | Description               |
|-----------------|---------------------------|
| URI             | <code>/vm-policies</code> |
| Method          | GET                       |
| REQUEST PAYLOAD | None                      |

|                        |   |
|------------------------|---|
| RESPONSE PAYLOAD       | <pre> {   "value": [     {       "object_type": "vm_policy",       "links": {         "self": "http://10.36.62.60/icfb/v1/vmpolicy/8bd1aed3-b2ef-45b4-a02f-a3401f6023       },       "properties": {         "oid": "8bd1aed3-b2ef-45b4-a02f-a3401f602374",         "name": "system_default_vm_policy",         "policy_type": "vm_policy",         "enable_provider_services_access": false,         "is_default": true       }     }   ] } </pre> |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The specified VM policy is not found.</li> </ul>   |
| Application error code | None  |

## Virtual Accounts

A virtual account is an abstraction that uniformly represents any cloud provider account. One private virtual account is created during the installation process, and any number of public virtual accounts can be defined by the user. A public virtual account provides Intercloud Fabric with access to the public cloud resources that are associated with that account. The type of information that you need depends on the cloud provider type. For example, if you choose an AWS account type, you must know the Access ID and the Access Key given to you by the provider.

The Virtual Account APIs enable you to:

- Create a virtual account.
- Retrieve specific information for one or more virtual accounts.
- Update a failed VMware virtual account.
- Delete a virtual account.

### Metadata

| Property                           | Operations (Create, Update, Read) | Type   | Range   | Mandatory During Create | Description   |
|------------------------------------|-----------------------------------|--------|---------|-------------------------|---|
| name                               | C, R                              | string | 1-32    | Yes                     | Virtual account name.   |
| description                        | C, R, U                           | string | 1-256   | No                      | Virtual account description.                                  |
| virtual_account_type               | C, R                              | String |         | Yes                     | Type of virtual account being created: vmware or aws-ec2.     |
| virtual_account_status             | R                                 | string |         | NA                      | String that describes the virtual account creation status.    |
| operational_status                 | R                                 | string | up/down | NA                      | String that describes the virtual account operational status. |
| <b>VMware-specific properties:</b> |                                   |        |         |                         |   |
| server                             | C, R, U                           | string | 1-256   | Yes                     | Hostname or IP address of the VMware vSphere Client.          |
| username                           | C, R, U                           | string | 1-256   | Yes                     | Username to log in to the VMware vSphere Client.              |
| password                           | C, U                              | string | 1-256   | Yes                     | Password to log in to the VMware vSphere Client.              |

|                                 |         |        |       |     |   |
|---------------------------------|---------|--------|-------|-----|---|
| sdk_url                         | C, R, U | string | 1-256 | No  | String that indicates the service endpoint (for example, /sdk). |
| <b>AWS-specific properties:</b> |         |        |       |     |   |
| access_id                       | C, R, U | string | 1-256 | Yes | Access ID.  |
| access_key                      | C, R, U | string | 1-256 | Yes | Access key.   |

## API to a create virtual account

The Create Virtual Account API creates a new virtual account with the specified information.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /virtual-accounts   |
| Method               | POST  |
| Request Payload      | <pre> POST /virtual-accounts (vmware){   "virtual_account_type": "vmware",   "name": "sample3",   "description": "",   "server": "Sample Server IP address",   "username": "sample_user",   "password": "Sample Password",   "sdk_url": "/sdk" }  POST /virtual-accounts (AWS) {   "virtual_account_type": "aws-ec2",   "name": "Amazon-1",   "description": "",   "access_id": "access-key",   "access_key": "access-key" }  POST /virtual-accounts (ICFPP based providers) {   "virtual_account_type": "british-telecom", // british-telecom, iland,   cisco-infrastructure-services - Supported ICFPP based providers   "name": "Icfpp-1",   "description": "sample account",   "icfpp_url": "https://{icfpp_ip}/capi/v1",   "username": "username@tenant",   "password" : "password" } </pre> |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 202 - Success; virtual account creation in progress.</li> <li>• 400 - Bad request; invalid parameters.</li> <li>• 409 - A virtual account with the same name already exists.</li> </ul>  |

|                         |  |
|-------------------------|--|
| RESPONSE PAYLOAD        | <p>The location attribute in the header contains the URL of the newly created virtual account.</p> <pre> {   "success": {     "code": 400,     "messages": [       "Create accepted, but not complete"     ],     "links": {       "new_resource": "http://ipaddress/icfb/v1/virtual-accounts/6e6b0741-faa"       "service_request": "http://ipaddress/icfb/v1/service-requests/9cbf268c-"     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 400 - Creation request accepted but not complete.</li> <li>• 402 - Invalid JSON input.</li> <li>• 403 - Mandatory fields are not provided.</li> <li>• 408 - The input string values are not in the expected range.</li> <li>• 1000 - Cannot save the object with the name {}.</li> <li>• 2002 - Internal error encountered while converting the user input. The operation failed with a message.</li> <li>• 2500 - An account with the specified name already exists.</li> <li>• 4000 - The system is temporarily unavailable.</li> <li>• 9001 - The field is invalid; the IP address uses an invalid format.</li> <li>• 9002 - Invalid server IP address; cannot be used.</li> <li>• 35610 - Another virtual account of type <b>vmware</b> already exists. Only one virtual account of type <b>vmware</b> is allowed.</li> </ul> |
| Comments                | Only one virtual account of type <b>vmware</b> is allowed.   |

## Retrieve APIs

The following APIs enable you to retrieve detailed information about virtual accounts.

### API to retrieve list of virtual accounts

The Get Virtual Accounts API retrieves a list of all virtual accounts.

| API Attribute    | Description   |
|------------------|---|
| URI              | <code>/virtual-accounts</code>  |
| Method           | GET   |
| REQUEST PAYLOAD  | None  |
| RESPONSE PAYLOAD | <pre> {   "value": [     {       "object_type": "virtual_account",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/a18d530d-3ee9-"         "capability": "http://{ip}/icfb/v1/virtual-accounts/vmware/c </pre> |

```
    "metadata": "http://{ip}/icfb/v1/virtual-accounts/vmware/met
  },
  "properties": {
    "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",
    "name": "vc-157-54",
    "description": "comm-vc-157",
    "server": "172.23.43.157",
    "username": "administrator",
    "object_status": {
      "status": "success",
      "last_sr_oid": "6770232c-a2ea-47c0-ab36-b57cb90d3561"
    },
    "system_object": false,
    "virtual_account_type": "vmware",
    "virtual_account_status": "Virtual_Account_Successfully_Crea
    "operational_status": "up",
    "status_message": "Please check the Credentials",
    "is_private": true,
    "infra_account": true,
    "port_number": 80,
    "sdk_url": "/sdk"
  },
  "relationships": {
    "compute": "http://{ip}/icfb/v1/virtual-accounts/a18d530d-3e
    "storage": "http://{ip}/icfb/v1/virtual-accounts/a18d530d-3e
    "networks": "http://{ip}/icfb/v1/virtual-accounts/a18d530d-3
    "active_service_request": "http: // {ip}/icfb/v1/service-requ
    "infrastructure": "http://10.36.101.130/icfb/v1/infrastructu
    "icf-clouds": "http://{ip}/icfb/v1/icf-clouds?virtual-accoun
  }
}
]
},
{
  "object_type": "virtual_account",
  "links": {
    "self": "http://{ip}/icfb/v1/virtual-accounts/24754824-c023-4463-b98
    "capability": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/capabili
    "metadata": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/metadata"
  },
  "properties": {
    "oid": "24754824-c023-4463-b987-8390049ca897",
    "name": "va_test_aws",
    "description": "public account",
    "virtual_account_type": "aws-ec2",
    "virtual_account_status": "Virtual_Account_Successfully_Cre
    "operational_status": "down",
    "status_message": "Please check the NTP Configuration/Credentials"
    "access_id": "AKIAJS3YLUMFVBDLGLFA"
  },
  "relationships": {
    "locations": "http://{ip}/icfb/v1/virtual-accounts/24754824-c023-
    "active_service_request": "http: // {ip}/icfb/v1/service-requests/
```



```
"archived_service_requests": "http: // {ip} / icfb / v1 / service-reques  
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] }</pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> |
| Application error codes | None   |

## API to retrieve a virtual account

The Get a Virtual Account API retrieves the details of the specified virtual account.

| API Attribute    | Description  |
|------------------|--|
| URI              | <pre> /virtual-accounts/{oid}</pre>  |
| Method           | GET  |
| REQUEST PAYLOAD  | None   |
| RESPONSE PAYLOAD | <pre> //vmware {   "value": [     {       "object_type": "virtual_account",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/a18d530d-3ee9-         "capability": "http://{ip}/icfb/v1/virtual-accounts/vmware/c         "metadata": "http://{ip}/icfb/v1/virtual-accounts/vmware/met       },       "properties": {         "oid": "a18d530d-3ee9-47e3-a4ff-1a1d9522dfb1",         "name": "vc-157-54",         "description": "comm-vc-157",         "server": "172.23.43.157",         "username": "administrator",         "object_status": {           "status": "success",           "last_sr_oid": "6770232c-a2ea-47c0-ab36-b57cb90d3561"         },         "system_object": false,         "virtual_account_type": "vmware",         "virtual_account_status": "Virtual_Account_Successfully_Crea         "operational_status": "up",         "status_message": "Please check the Credentials",         "is_private": true,</pre> |

```

        "infra_account":true,
        "port_number":80,
        "sdk_url":"/sdk"
    },
    "relationships":{
        "compute":"http://{ip}/icfb/v1/virtual-accounts/a18d530d-3e
        "storage":"http://{ip}/icfb/v1/virtual-accounts/a18d530d-3e
        "networks":"http://{ip}/icfb/v1/virtual-accounts/a18d530d-3
        "active_service_request":"http: //{ip}/icfb/v1/service-requ
        "infrastructure":"http://10.36.101.130/icfb/v1/infrastructu
        "icf-clouds":"http://{ip}/icfb/v1/icf-clouds?virtual-accoun
    }
}
]
}
//aws-ec2
{
    "value": [
        {
            "object_type": "virtual_account",
            "links": {
                "self": "http://{ip}/icfb/v1/virtual-accounts/24754824-c023-4463-b98
                "capability": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/capabili
                "metadata": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/metadata"
            },
            "properties": {
                "oid": "24754824-c023-4463-b987-8390049ca897",
                "name": "va_test_aws",
                "description": "public account",
                "virtual_account_type": "aws-ec2",
                    "virtual_account_status": "Virtual_Account_Successfully_Cre
                    "operational_status": "up",
                "status_message": "Please check the NTP Configuration/Credentials"
                "access_id": "AKIAJS3YLUMFVBDLGLFA"
            },
            "relationships": {
                "locations": "http://{ip}/icfb/v1/virtual-accounts/24754824-c023-
                "active_service_request": "http: //{ip}/icfb/v1/service-requests/
                "archived_service_requests": "http: //{ip}/icfb/v1/service-reques
            }
        }
    ]
}
//icfpp
{
    "value": [
        {
            "object_type": "virtual_account",
            "links": {
                "metadata": "http://{ip}/icfb/v1/virtual-accounts/icfppclou
                "capability":
"http://{ip}/icfb/v1/virtual-accounts/9a13d3b9-ccdd-4524-a314-760133f17
                "self": "http://{ip}/icfb/v1/virtual-accounts/9a13d3b9-ccdd
            },

```

```
"properties": {
  "oid": "9a13d3b9-ccdd-4524-a314-760133f1735b",
  "name": "TestCsp",
  "description": "cloudstack account",
  "username": "admin@cloudstack",
  "virtual_account_type": "british-telecom",
  "virtual_account_status": "Virtual_Account_Successfully_Cre",
  "operational_status": "up",
  "icfpp_url": "https://{icfpp-ip}/capi/v1"
},
"relationships": {
  "active_service_request": "http://{ip}/icfb/v1/service-requests",
  "archived_service_requests":
"http://{ip}/icfb/v1/service-requests?owner_oid=9a13d3b9-ccdd-4524-a314",
  "locations": "http://{ip}/icfb/v1/virtual-accounts/9a13d3b9-ccd
```

|                         |   |
|-------------------------|---|
|                         | <pre>     }   } }</pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul>    |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The specified virtual account does not exist.</li> </ul> |

## API to retrieve capability of a virtual account

The Get Capability Virtual Account API retrieves the cloud provider capabilities of the specified virtual account.

**Note:** The capability **self** link is not implemented in this release.

|                  |   |
|------------------|---|
| URI              | <code>/virtual-accounts/&lt;oid&gt;/capabilities</code>   |
| Method           | GET   |
| REQUEST PAYLOAD  | None  |
| Response payload | <pre> //aws-ec2 {   "value":   [     {       "object_type": "capabilities",       "links":       {         "self": "http://{ip}/icfb/v1/virtual-accounts/d5dab839-a91c-470f-bc4c-20d2b48c0bd0-4bce-9b67-3c25da899722"       },       "properties":       {         "oid": "e9450dbf-4bd0-4bce-9b67-3c25da899722",         "cloud_type": "aws-ec2",         "cloud_style": "VPC",         "container_type": "NONE",         "fractional_memory_support": true,         "image_type": "RAW",         "init_ics_on_first_boot": false,         "location_hierarchy": "Region",         "require_provider_vpc_cidr": true,         "supported_os_types": "RHEL,CentOS,Windows_2008.R2",         "supports_storage_type": true,         "provider_vpc_management":         [           "READ"         ],         "provider_vpc_network":         [           "READ"         ],         "security_group_containment":         [           "PROVIDER_VPC"         ],       }     }   ] }</pre> |

```

        "server_cpu_range":
        {
            "start": 1,
            "end": 32
        },
        "server_memory_range":
        {
            "start": 1024,
            "end": 249856
        },
        "service_types":
        [
            "VSG",
            "CSR_DISCOVER",
            "ICS_DISCOVER",
            "CVM_DISCOVER"
        ]
    }
},
{
    "object_type": "capabilities",
    "links":
    {
        "self": "http://{ip}/icfb/v1/virtual-accounts/d5dab839-a91c-470f-bc4c-20d2b48c0
ad2-4ac1-a833-f2aa14e828f4"
    },
    "properties":
    {
        "oid": "3f55c67f-8ad2-4ac1-a833-f2aa14e828f4",
        "cloud_type": "aws-ec2",
        "cloud_style": "INSTANCE_BASED",
        "container_type": "NONE",
        "fractional_memory_support": true,
        "image_type": "RAW",
        "init_ics_on_first_boot": false,
        "location_hierarchy": "Region",
        "require_provider_vpc_cidr": false,
        "supported_os_types": "RHEL,CentOS,Windows_2008.R2",
        "supports_storage_type": true,
        "provider_vpc_management":
        [
        ],
        "provider_vpc_network":
        [
        ],
        "security_group_containment":
        [
            "LOCATION"
        ],
        "server_cpu_range":
        {
            "start": 1,
            "end": 32
        },
        "server_memory_range":
        {
            "start": 1024,
            "end": 249856
        },
        "service_types":
        [
            "VSG",
            "CSR_DISCOVER",
            "ICS_DISCOVER",
            "CVM_DISCOVER"
        ]
    }
}
]
}
}
//azure

```

```

{
  "value":
  [
    {
      "object_type": "capabilities",
      "links":
      {
        "self": "http://{ip}/icfb/v1/virtual-accounts/c4b3ebcc-a5b6-45bf-9613-2b02f0233
c3d-4f63-b8ad-fa9f23396ac5"
      },
      "properties":
      {
        "oid": "f4c16ad8-5c3d-4f63-b8ad-fa9f23396ac5",
        "system_object": false,
        "cloud_type": "azure",
        "cloud_style": "INSTANCE_BASED",
        "container_type": "NONE",
        "fractional_memory_support": true,
        "image_type": "VHD",
        "init_ics_on_first_boot": false,
        "location_hierarchy": "Location",
        "require_provider_vpc_cidr": false,
        "supported_os_types": "RHEL,CentOS,Windows_2008.R2",
        "supports_storage_type": true,
        "provider_vpc_management": [],
        "provider_vpc_network": [],
        "security_group_containment":
        [
          "VIRTUAL_NETWORK"
        ],
        "server_cpu_range":
        {
          "start": 1,
          "end": 16
        },
        "server_memory_range":
        {
          "start": 768,
          "end": 114688
        },
        "service_types":
        [
          "VSG",
          "CSR"
        ]
      }
    }
  ]
}
//icfpp
{
  "value":
  [
    {
      "object_type": "capabilities",
      "links":
      {
        "self": "http://{ip}/icfb/v1/virtual-accounts/5cb5d8b6-7219-4a89-b1dc-166287ca2
1f0-40e1-8138-03e5af70e46a"
      },
      "properties":
      {
        "oid": "fcc74ca7-b1f0-40e1-8138-03e5af70e46a",
        "cloud_style": "VPC",
        "fractional_memory_support": false,
        "init_ics_on_first_boot": false,
        "location_hierarchy": "Region,Zone",
        "require_provider_vpc_cidr": false,
        "supported_os_types": "RHEL,CentOS,Windows_2008.R2",
        "supports_storage_type": false,
        "provider_vpc_management":

```

|                         |  |
|-------------------------|--|
|                         | <pre> [   "CREATE",   "UPDATE",   "DELETE" ], "provider_vpc_network": [   "CREATE",   "DELETE" ], "security_group_containment": [   "VM" ], "server_cpu_range": {   "start": 1,   "end": 64 }, "server_memory_range": {   "start": 512,   "end": 65536 }, "service_types": [   "VSG",   "CSR" ] } ] } </pre> |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>   |
| Application error codes | None   |

## API to retrieve virtual account locations

The following APIs enable you to retrieve information for specific virtual account locations:

- Get Virtual Account Location API
- Get Virtual Account Location Details API

## API to retrieve locations, VPC, and subnet for an AWS virtual account

The Get Virtual Account Location API retrieves the following information for the specified AWS virtual account:

- Location
- VPC
- Subnet

| API Attribute | Description                                    |
|---------------|--|
| URI           | <pre> /virtual-accounts/{oid}/locations </pre> |



|                      |  |
|----------------------|--|
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"><li>• 200 - Success.</li><li>• 404 - The specified virtual account was not found.</li></ul>  |
| Response Payload     | <pre>{   "value": [     {       "object_type": "virtual_account_location",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/6e169e47-8414-4058-a4b3-af21ba566       "capability": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/capabili       "metadata": "http://{ip}/icfb/v1/virtual-accounts/locations/metadata     },     "properties": {       "oid": "7a20fb43-265e-444b-a8d0-3e5aabc71f5f",       "name": "eu-west-1",       "object_type": "location",       "location_provider_id": "eu-west-1",       "provider_vpcs": [         {           "oid": "7280d992-fce9-4c46-934d-8d0e9ae477cd",           "name": "",           "object_type": "provider_vpc",           "vpc_id": "vpc-953eb5f0",           "vpc_cidr": "0.0.0.0/0",           "is_discovered": true,           "external_gateway_exists": true,           "subnets": [             {               "oid": "95a30901-a8ae-4612-bc96-fe4072bafb12",               "name": "",               "object_type": "subnet",               "subnet_id": "subnet-0fe88778",               "subnet_cidr": "172.30.1.0/24",               "is_discovered": true,               "external_gateway_route_exists": true             },             {               "oid": "a8f6701d-1342-45ee-a52f-b3d2c93f394f",               "name": "",               "object_type": "subnet",               "subnet_id": "subnet-354bca6c",               "subnet_cidr": "172.30.2.0/24",               "is_discovered": true,               "external_gateway_route_exists": true             }           ],           "oid": "d9e8f349-8199-453e-96ac-ff254d9f2f11",</pre> |

```
        "name": "",
        "object_type": "subnet",
        "subnet_id": "subnet-4bd1962e",
        "subnet_cidr": "172.30.0.0/24",
        "is_discovered": true,
        "external_gateway_route_exists": true
    }
]
}
],
"storage_types": [
{
    "oid": "881a9e60-1942-4eec-85a3-8f84b3ec7fa8",
    "name": "Provisioned IOPS",
    "description": "SSD",
    "provider_id": "io1",
    "object_type": "storage_type",
    "io_max_speed": 20000,
    "io_min_speed": 100,
    "is_default": false,
    "instance_types": ""
},
{
    "oid": "08c3ed7c-88c5-4aca-97f1-2fb83f960c0d",
    "name": "General Purpose",
    "description": "SSD",
    "provider_id": "gp2",
    "object_type": "storage_type",
    "io_max_speed": 0,
    "io_min_speed": 0,
    "is_default": false,
    "instance_types": ""
},
{
    "oid": "0551f4e9-f578-486a-b370-e9d50b92782a",
    "name": "Magnetic",
    "description": "",
    "provider_id": "standard",
    "object_type": "storage_type",
    "io_max_speed": 0,
    "io_min_speed": 0,
    "is_default": true,
    "instance_types": ""
}
]
}
}
```

|                         |   |
|-------------------------|---|
|                         | <pre>     }]   } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - Cannot find the object with the specified ID.</li> </ul> |

### API to retrieve one location details for a virtual account

The Get Virtual Account Location Details API retrieves the details of the specified virtual account with the specified location.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /virtual-accounts/{oid}/locations/{locationOid}   |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The specified virtual account or location is not found.</li> </ul>   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "object_type": "virtual_account_location",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/6e169e47-8414-4058-a4b3-af21ba566 "capability": "http://{ip}/icfb/v1/virtual-accounts/aws-ec2/capabili "metadata": "http://{ip}/icfb/v1/virtual-accounts/locations/metadata       },       "properties": {         "oid": "7a20fb43-265e-444b-a8d0-3e5aabc71f5f",         "name": "eu-west-1",         "object_type": "location",         "location_provider_id": "eu-west-1",         "provider_vpcs": [           {             "oid": "7280d992-fce9-4c46-934d-8d0e9ae477cd",             "name": "",             "object_type": "provider_vpc",             "vpc_id": "vpc-953eb5f0",             "vpc_cidr": "0.0.0.0/0",             "is_discovered": true,             "external_gateway_exists": true,             "subnets": [               {                 "oid": "95a30901-a8ae-4612-bc96-fe4072bafb12",                 "name": "",                 "object_type": "subnet",                 "subnet_id": "subnet-0fe88778",                 "subnet_cidr": "172.30.1.0/24", </pre> |

```
    "is_discovered": true,
    "external_gateway_route_exists": true
  },
  {
    "oid": "a8f6701d-1342-45ee-a52f-b3d2c93f394f",
    "name": "",
    "object_type": "subnet",
    "subnet_id": "subnet-354bca6c",
    "subnet_cidr": "172.30.2.0/24",
    "is_discovered": true,
    "external_gateway_route_exists": true
  },
  {
    "oid": "d9e8f349-8199-453e-96ac-ff254d9f2f11",
    "name": "",
    "object_type": "subnet",
    "subnet_id": "subnet-4bd1962e",
    "subnet_cidr": "172.30.0.0/24",
    "is_discovered": true,
    "external_gateway_route_exists": true
  }
]
},
"storage_types": [
  {
    "oid": "881a9e60-1942-4eec-85a3-8f84b3ec7fa8",
    "name": "Provisioned IOPS",
    "description": "SSD",
    "provider_id": "iol",
    "object_type": "storage_type",
    "io_max_speed": 20000,
    "io_min_speed": 100,
    "is_default": false,
    "instance_types": ""
  },
  {
    "oid": "08c3ed7c-88c5-4aca-97f1-2fb83f960c0d",
    "name": "General Purpose",
    "description": "SSD",
    "provider_id": "gp2",
    "object_type": "storage_type",
    "io_max_speed": 0,
    "io_min_speed": 0,
    "is_default": false,
    "instance_types": ""
  },
  {
    "oid": "0551f4e9-f578-486a-b370-e9d50b92782a",
    "name": "Magnetic",
    "description": "",
    "provider_id": "standard",
    "object_type": "storage_type",
```

```
        "io_max_speed": 0,  
        "io_min_speed": 0,  
        "is_default": true,  
        "instance_types": ""  
    }  
]  
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     }   } }]] </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The object with the specified ID is not found.</li> </ul> |

## API to retrieve virtual account networks

The Get Virtual Account Networks API retrieves information about the networks for the specified virtual account.

### Metadata

| Property         | Operations (Create, Update, Read) | Type   | Range           | Mandatory During Create | Description   |
|------------------|-----------------------------------|--------|-----------------|-------------------------|---|
| oid              | R                                 | string | 1-32            | NA                      | Virtual account OID.  |
| network-oid      | R                                 | string | 1-32            | NA                      | Network entity OID.   |
| name             | R                                 | string | 1-256           | NA                      | Network entity name.  |
| description      | R                                 | string | 1-256           | NA                      | Account description.  |
| provider_id      | R                                 | string | 1-32            | NA                      | Managed object reference (MOR) ID of the object.                    |
| mode             | R                                 | string | access or trunk | NA                      | Access or trunk mode.   |
| segment_id       | R                                 | string | VLAN range      | NA                      | Range of VLANs supported.   |
| parent_hierarchy | R                                 | string |                 | NA                      | String literal parent hierarchy of the entity from the root.        |
| port_group_type  | R                                 | String |                 | NA                      | Port group type: vswitch_pg or dvs_pg.                              |
| compute          | R                                 | String |                 | NA                      | Relationship type; link to the compute node that holds this entity. |

### API to get virtual account networks

The Get Virtual Accounts Networks API retrieves network details for the specified virtual account.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /virtual-accounts/{oid}/networks </pre>                      |
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> |

|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <pre> {   "value":[     {       "object_type":"port_profile",       "links":{         "self":"http://{ip}/icfb/v1/virtual-accounts/oid/networks/{network-oid}"       },       "properties":{         "oid":"2aa48096-3e4d-47d6-a948-3a2a7d9074e2",         "name":"pp-name",         "mode":"access",         "system_object":false,         "provider_id":"network-2527",         "parent_hierarchy":"datacenter-abc/host-abc/vswitch-abc" OR "datacenter-abc/dvs-abc",         "portgroup_type":"vmware_vswitch",         "segment_id":"92",         "is_available":true       },       "relationships":{         "compute":"http://{ip}/icfb/v1/virtual-accounts/{oid}/compute?portgroup_oid={network-oid}",         "virtual-accounts":"http://{ip}/icfb/v1/virtual-accounts/oid"       }     }   ] } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The specified virtual account was not found.</li> <li>• 24503 - Unsupported port group mode.</li> <li>• 35601 - The virtual account with the name {} does not support the requested URI.</li> <li>• 35603 - Query parameters {} contain unknown keywords or unsupported combinations.</li> <li>• 35604 - Query parameters contain unknown keywords or unsupported combinations with the unsupported view {}.</li> <li>• 35606 - A network resource with the OID {} does not exist for the virtual account.</li> <li>• 35608 - Unsupported object type for {} network resource.</li> </ul>  |
| Notes                   | <p>Supported APIs:</p> <pre> GET request - [https://{ip}/virtual-accounts/{oid}/networks] GET request - [https://{ip}/virtual-accounts/{oid}/networks/{oid}] GET request - [https://{ip}/virtual-accounts/{oid}/networks?mode=access] GET request - [https://{ip}/virtual-accounts/{oid}/networks?mode=trunk] GET request - [https://{ip}/virtual-accounts/{oid}/networks?segment_id=] GET request - [https://{ip}/virtual-accounts/{oid}/networks?segment_id=] GET request - [https://{ip}/virtual-accounts/{oid}/networks?host_oid=a9] GET request - [https://{ip}/virtual-accounts/{oid}/networks?host_oid=a9] GET request - [https://{ip}/virtual-accounts/{oid}/networks?host_oid=a9] GET request - [https://{ip}/virtual-accounts/{oid}/networks?host_oid=a9218750-1f98-48] GET request - [https://{ip}/virtual-accounts/{oid}/networks?host_oid=a9218750-1f98-48] </pre> <p>If user does not give mode, then return both access and trunk.If mode i then return nlk port profiles along with 0 vlan port profiles.If mode i of segment_id.</p> |

## API to retrieve virtual account compute

The Get Virtual Account Compute API retrieves host information for the specified virtual account.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <pre>/virtual-accounts/{oid}/compute</pre>  |
| Method                  | GET   |
| REQUEST PAYLOAD         | None  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>  |
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "relationships": {         "storage": "http://{ip}/icfb/v1/virtual-accounts/VA_Oid/stor         "networks": "http://{ip}/icfb/v1/virtual-accounts/VA_Oid/net         "virtual-accounts": "http://{ip}/icfb/v1/virtual-accounts/VA       },       "object_type": "host",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/{oid1}/compute       },       "properties": {         "oid": "ed668c13-29a1-475f-8fa5-4b17e71741d9",         "name": "Host Name",         "system_object": false,         "provider_id": "host-358",         "parent_hierarchy": "Data center",         "connection_status": "connected",         "is_available": true       }     }   ] } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The specified virtual account was not found.</li> <li>• 35601 - The virtual account with the name {} does not support the requested URI.</li> <li>• 35603 - The query parameters {} contain unknown keywords or unsupported combinations.</li> <li>• 35604 - The query parameters contain unknown keywords or unsupported combinations with unsupported view {}.</li> <li>• 35608 - Unsupported object type for {} compute resource.</li> </ul>   |



|       |   |
|-------|---|
| Notes | <p>Supported APIs:</p> <pre> GET request - [https://{ip}/virtual-accounts/{oid}/compute] GET request - [https://{ip}/virtual-accounts/{oid}/compute/{oid}] GET request - [https://{ip}/virtual-accounts/{oid}/compute?portgroup_oi </pre> |
|-------|---|

### API to retrieve virtual account storage (Returns only the available storage)

The Get Virtual Account Storage API retrieves the available storage for the specified virtual account.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre>/virtual-accounts/{oid}/storage</pre>                         |
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> |

|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <pre> {   "value": [     {       "relationships": {         "virtual-accounts": "http://{ip}/icfb/v1/virtual-accounts/VA",       },       "object_type": "datastore",       "links": {         "self": "http://{ip}/icfb/v1/virtual-accounts/VA_OID/storage",       },       "properties": {         "oid": "e673810a-3d7f-478d-aafe-38e0ce8351e6",         "name": "datastore1",         "provider_id": "datastore-60",         "parent_hierarchy": "New Datacenter/Host",         "system_object": false,         "total_capacity": {           "value": 273,           "unit": "gb"         },         "total_available": {           "value": 253,           "unit": "gb"         },         "storage_type": "local",         "file_system_type": "vmfs",         "is_available": true       }     }   ] } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The specified virtual account was not found.</li> <li>• 35601 - The virtual account with the name {} does not support the requested URI.</li> <li>• 35603 - The query parameters {} contain unknown keywords or unsupported combinations.</li> <li>• 35604 - The query parameters contain unknown keywords or unsupported combinations with unsupported view {}.</li> <li>• 35606 - A compute resource with the OID {} does not exist for the virtual account {}.</li> </ul>   |
| Notes                   | <p>Supported APIs:</p> <pre> GET request - [https://{ip}/virtual-accounts/{oid}/storage] GET request - [https://{ip}/virtual-accounts/{oid}/storage/{oid}] GET request - [https://{ip}/virtual-accounts/{oid}/storage?host_oid={oi </pre> <p>All <b>/storage</b> APIs return only the data stores that are available. There are no filters or query parameters that return both available : data stores.</p>  |

## API to update private virtual account (on failed private virtual account only)

The Update Private Virtual Account API enables you to update the username and password for the specified private virtual account. Use this API only if a **fetch** inventory request fails for a private virtual account.

You can also use this API to change the VMware vCenter IP address and port.

| API Attribute          | Description   |
|------------------------|---|
| URI                    | /virtual-accounts/{virtual-account-oid}   |
| Method                 | PUT   |
| REQUEST PAYLOAD        | <pre> {   "server": "Sample Server IP address",   "port_number": "443",   "username": "sample_user",   "password": "Sample Password",   "virtual_account_type" : "vmware" } </pre>  |
| RESPONSE PAYLOAD       | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/oid"     }   } } </pre>   |
| Application Error Code | <ul style="list-style-type: none"> <li>• 35611 - Updating a virtual account is not supported for non-VMware virtual accounts.</li> <li>• 35612 - Updating a virtual account is not supported for a successfully created virtual account.</li> </ul>   |
| HTTP Codes             | <p>All standard errors are returned as applicable.</p> <ul style="list-style-type: none"> <li>• 202 - Request accepted; update started successfully.</li> <li>• 403 - Bad request; input is invalid or a required field is not provided.</li> <li>• 404 - The virtual account in the request URL does not exist.</li> </ul> |

## API to delete a virtual account

The Delete Virtual Account API deletes the specified virtual account.

| API Attribute   | Description                          |
|-----------------|--------------------------------------|
| URI             | <pre> /virtual-accounts/{oid} </pre> |
| Method          | DELETE                               |
| REQUEST PAYLOAD | None                                 |

|                         |  |
|-------------------------|--|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - The deletion is requested for a private virtual account.</li> <li>• 404 - The specified virtual account is not found.</li> <li>• 409 - The request cannot be completed because: <ul style="list-style-type: none"> <li>• The virtual account is in use.</li> <li>• The virtual account is being deleted.</li> <li>• Another service request is running for the specified virtual account.</li> </ul> </li> <li>• 503 - Service unavailable.</li> </ul>            |
| RESPONSE PAYLOAD        | None, unless an application error payload is returned.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 7 - Deletion succeeded.</li> <li>• 201 - The specified virtual account does not exist.</li> <li>• 3003 - The specified virtual account is being deleted.</li> <li>• 3011 - Another service request is running for the specified virtual account.</li> <li>• 4000 - The system is temporarily unavailable.</li> <li>• 35613 - The virtual account is in use and cannot be deleted.</li> <li>• 35614 - The specified virtual account is a private virtual account and cannot be deleted.</li> </ul> |

## API to refresh virtual account inventory

The Refresh Virtual Account Inventory API refreshes the virtual account inventory for VMware, Cisco-powered provider, and AWS virtual accounts.

| API Attribute           | Description  |
|-------------------------|--|
| URI                     | /virtual-accounts/oid/refresh  |
| METHOD                  | POST   |
| REQUEST PAYLOAD         | None   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 404 - The virtual account with the specified OID cannot be found.</li> <li>• 409 - Another operation is in progress on the specified virtual account, or the specified virtual account is not in a Success state</li> </ul>         |
| RESPONSE PAYLOAD        | <p>*Success</p> <pre> {   "success": {     "code": 403,     "messages": [       "Action accepted, but not complete"     ],     "links": {       "service_request": "http://10.193.77.30:13028/icfb/v1/service-requests/7b9d3b3b-8832-45ea-     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - The specified virtual account cannot be found.</li> <li>• 403 - Request accepted.</li> <li>• 3005 - Another operation is in progress and locks are not available.</li> <li>• 3012 - The specified virtual account is not in a Success state.</li> </ul> |
| Feature build           | 1738   |

## Provider VPC APIs (Supported only for Cisco-powered providers)

### API to create Provider VPC

This API creates a provider virtual private cloud (VPC). This API is currently supported only for Cisco-powered providers.

- **Metadata**

| Property                     | Operations | Type   | Range | Mandatory | Description   |
|------------------------------|------------|--------|-------|-----------|---|
| name                         | C, R       | string | 1-256 | yes       | Name of the provider VPC.                           |
| cidr(in provider_vpc_subnet) | C, R       | string | 1-18  | no        | CIDR block for cloud private network. See comments. |
| name(in provider_vpc_subnet) | C, R       | string | 1-256 | no        | Name of the provider private subnet.                |

- **API Details**

| API Attribute          | Description  |
|------------------------|--|
| URI                    | /virtual-accounts/<oid>/locations/<oid>/provider-vpcs  |
| Method                 | POST   |
| Request Payload        | <pre>{   "name": "testVpc1",   "provider_vpc_subnet": {     "name": "testSubnet1",     "cidr": "10.36.12.0/24"   } }</pre>   |
| RESPONSE PAYLOAD       | <pre>{   "success": {     "code": 400,     "links": {       "new_resource": "http://{ip}/icfb/v1/virtual-accounts/a32036f8-ec6f-4725-91b1-3c400e-95ca-408c-9f4c-09be7711b90b"       "service_request": "http://{ip}/icfb/v1/nservice-requests/8a34aa44-1965-47b1-b2f7-8"     },     "message": [       "Create accepted, but not complete"     ]   } }</pre> |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"><li>• 202 - Success; creating the provider VPC.</li><li>• 400 - Bad request; invalid parameters.</li></ul>   |
| Application Error Code | <ul style="list-style-type: none"><li>• 35609 - The location does not exist for the virtual account.</li><li>• 35617 - The virtual account with the OID does not exist.</li><li>• 35631 - The cloud provider does not support the provider VPC <b>create</b> operation.</li></ul>  |
| Comments               | <ul style="list-style-type: none"><li>• The <b>provider_vpc_subnet</b> block in the request input is optional. It is specifically for use with cloud providers who have both c</li></ul>   |

### API to delete a Provider VPC

This API deletes the specified provider VPC. This API is currently supported only for Cisco-powered providers.

- **API Details**

| API Attribute          | Description   |
|------------------------|---|
| URI                    | <code>/virtual-accounts/&lt;oid&gt;/locations/&lt;oid&gt;/provider-vpcs/&lt;oid&gt;</code>  |
| Method                 | DELETE  |
| REQUEST PAYLOAD        | None  |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>200 - Success.</li> </ul>  |
| RESPONSE PAYLOAD       | <pre>{   "success":   {     "code": 7,     "messages":     [       "Delete is accepted but not complete"     ],     "links":     {       "service_request": "http://{ip}/icfb/v1/service-requests/5efa47a6-5995-410c-b3fe-cdc5252dba8b"     }   } }</pre>   |
| Application error code | <ul style="list-style-type: none"> <li>200 - Success.</li> <li>35609 - The location does not exist for the virtual account.</li> <li>35617 - The virtual account with the specified OID does not exist.</li> <li>35626 - The provider VPC cannot be deleted; it is in use by an ICF cloud.</li> <li>35630 - The provider VPC is in use by multiple ICF clouds. Delete the objects that use this VPC before deleting the VPC.</li> </ul> |

## Provider Private Subnet APIs (Supported only for Cisco-powered providers)

### API to create Provider Private Subnet

This API creates a provider subnet under a provider VPC. This API is currently supported only for Cisco-powered providers.

- Metadata**

| Property | Operations | Type   | Range | Mandatory | Description                               |
|----------|------------|--------|-------|-----------|---|
| name     | C, R       | string | 1-256 | yes       | Name of the provider subnet.              |
| cidr     | C, R       | string | 1-18  | yes       | CIDR block for the cloud private network. |

- API Details**

| API Attribute   | Description  |
|-----------------|--|
| URI             | <code>/virtual-accounts/&lt;oid&gt;/locations/&lt;oid&gt;/provider-vpcs/&lt;oid&gt;/subnets</code> |
| Method          | POST   |
| Request Payload | <pre>{   "name": "testSubnet1",   "cidr": "10.36.18.0/24" }</pre>                                  |

|                        |  |
|------------------------|--|
| RESPONSE PAYLOAD       | <pre>{   "success": {     "code": 400,     "links": {       "new_resource": "http://{ip}/icfb/v1/virtual-accounts/f8415187-ade7-40ec-947c-c14ac4-1965-47b1-b2f7-833135df50c1"       "service_request": "http://{ip}/icfb/v1/nservice-requests/8a34aa44-1965-47b1-b2f7-8"     },     "message": [       "Create accepted, but not complete"     ]   } }</pre>   |
| Application Error Code | <ul style="list-style-type: none"> <li>• 35609 - The location does not exist for the virtual account.</li> <li>• 35617 - The virtual account with the specified OID does not exist.</li> <li>• 35629 - The provider VPC does not exist under the location for this virtual account. Confirm that the provider VPC is correct.</li> <li>• 35632 - The cloud provider does not support the provider subnet <b>create</b> operation.</li> </ul> |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 202 - Success; creating the provider subnet.</li> <li>• 400 - Bad request; invalid parameters.</li> </ul>   |

## API to delete a Provider Private Subnet

This API deletes the provider private subnet. This API is currently supported only for Cisco-powered providers.

- **API Details**

| API Attribute          | Description   |
|------------------------|---|
| URI                    | <pre>/virtual-accounts/&lt;oid&gt;/locations/&lt;oid&gt;/provider-vpcs/&lt;oid&gt;/subnets/&lt;oid&gt;</pre>  |
| Method                 | DELETE  |
| REQUEST PAYLOAD        | None  |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>  |
| RESPONSE PAYLOAD       | <pre>{   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/5efa47a6-5995-410c-b3fe-cdc5252dba8b"     }   } }</pre>   |
| Application error code | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 35609 - The location does not exist for the virtual account.</li> <li>• 35617 - The virtual account with the specified OID does not exist.</li> <li>• 35629 - The provider private subnet cannot be deleted; it is in use by an ICF cloud.</li> <li>• 35634 - The provider subnet is in use by multiple ICF clouds. Delete the objects that use this subnet before deleting the subnet.</li> </ul> |

## Infrastructure Setup

The infrastructure setup enables you to install Intercloud Fabric. Intercloud Fabric needs access to the hypervisor on which the ICF components will be installed. You must specify the VM manager credentials for the VMware vCenter Client. This information is typically provided by your enterprise IT virtualization administrator.

The Infrastructure APIs enable you to do the following:

- Create an Intercloud Fabric infrastructure.
- Retrieve information about an Intercloud Fabric infrastructure.
- Update the infrastructure after a failed infrastructure setup attempt.
- Delete an Intercloud Fabric infrastructure.
- Reboot an Intercloud Fabric infrastructure.
- **Metadata**

| Property                            | Operations (Create, Update, Read) | Type    | Range  | Mandatory During Create        | Description   |
|-------------------------------------|-----------------------------------|---------|--|--------------------------------|---|
| oid                                 | R                                 | int     |  | -                              | Object ID.  |
| active_sr_oid                       | R                                 | int     |  | -                              | Service request ID created after the infrastructure setup is created.   |
| high_availability                   | C, R                              | boolean |  | Optional; the default is false | Indicates whether to create ICF VSM in HA or standalone mode.   |
| status                              | R                                 | String  | Not Started, In Progress, Failed, Completed, Warning, Cancelled, Paused, Skipped | -                              | Infrastructure status.  |
| ip_pool_oid                         | C, R                              | int     |  | Yes                            | Object ID for the IP pool policy.   |
| ip_pool_name                        | R                                 | String  |  | -                              | Name of the IP pool policy referenced by mgmt_static_ip_pool_id.  |
| icf_vsm->domain_id                  | C, R                              | int     |  | Optional                       | If not provided, the system generates the domain ID.  |
| icf_vsm->mgmt_ip_address            | R                                 | String  |  | -                              | Management IP address assigned to icfVSM.   |
| icf_vsm->connection_status          | R                                 | String  | Success / Failed   | -                              | Connection status of the icfVSM.  |
| icf_vsm->ha_role                    | R                                 | String  | primary / secondary / standalone   | -                              | Role of the active icfVSM: primary or secondary.  |
| network->port_group                 | C, R                              | string  | 1-256  | Yes                            | Port group name on the host where icfVSM will be installed.   |
| <b>Placement:</b>                   |                                   |         |  |                                |   |
| virtual_account_name                | R                                 | string  | 1-256  |                                | Virtual account name.   |
| virtual_account_oid                 | C, R                              | String  | 1-256  | Yes                            | Virtual account OID.  |
| instances->ha_role                  | C, R                              | string  | 1-256 primary / secondary / standalone   | Yes                            | For HA mode, two instances of primary and secondary must be created. For standalone mode, one instance of standalone must be created. |
| instances->compute->host_id         | C, R                              | string  |  | Yes                            | Host ID.  |
| instances->compute->host_name       | R                                 | string  | 1-256  | -                              | Hostname referenced by host_id.   |
| instances->storage->datastore_id    | C, R                              | string  |  | Yes                            | ID of the data store on the host.   |
| instances->storage->datastore_name  | R                                 | string  | 1-256  | -                              | Name of the data store on the host.   |
| instances->network->port_group_oid  | C, R                              | string  |  | Yes                            | Port group to use for IcfVSM.   |
| instances->network->port_group_name | R                                 | string  | 1-256  |                                | Port group name referenced by port_group_id.  |



- API Details

## API to create an infrastructure setup

The Create Infrastructure API creates the Intercloud Fabric infrastructure.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /infrastructure   |
| Method               | POST  |
| REQUEST PAYLOAD      | <pre> {   "high_availability":false,   "ip_pool_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0",   "name":"Infrastructure-Setup",   "icf_vsm":{"domain_id":100 },   "placement":{"     "virtual_account_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0",     "instances":[       {         "ha_role":"primary   secondary   standalone",         "compute":{"host_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" },         "network":{"           "mgmt":{"port_group_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }         },         "storage":{"datastore_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }       }     ]   } } </pre> |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - Bad request.</li> </ul>  |
| RESPONSE PAYLOAD     | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created license resource.   |

|                         |  |
|-------------------------|--|
| Application error codes | <ul style="list-style-type: none"> <li>• 102001 - Port group mode () is invalid.</li> <li>• 102002 - Invalid VLAN start (), end () for port group. The VLAN range for a port group with the mode access must have the same start and end.</li> <li>• 102003 - Port group VLAN () does not match the network VLAN (). The port group VLAN should be the same as the network VLAN.</li> <li>• 102004 - The data store with the OID () does not belong to the host with the OID (). This operation can be performed only if the data store belongs to the host.</li> <li>• 102005 - Host information is missing for the data store (). Confirm that the data store belongs to the host.</li> <li>• 102006 - Invalid data store OID (). Confirm that the OID is correct.</li> <li>• 102008 - The host with the OID () does not belong to the virtual account with the name () (OID []). This operation can be performed only if the host belongs to the virtual account.</li> <li>• 102009 - A switch reference is missing for the port profile with the OID (). A port profile must belong to a switch.</li> <li>• 102010 - The port profile with the OID () does not belong to the host with the OID (). This operation can be performed only if the port profile belongs to the host.</li> <li>• 102011 - The switch with the OID () does not have a host reference. A switch must belong to a host.</li> <li>• 102012 - Invalid switch OID () found for the port profile with the OID (). Confirm that the switch OID is correct.</li> <li>• 102013 - Invalid port profile OID (). Confirm that port profile OID is correct.</li> <li>• 102016 - The domain ID must be in the range 1-1023.</li> <li>• 102019 - The virtual account () is not ready to perform this operation. Try again in a few minutes.</li> <li>• 102018 - The IP pool () (OID: ()) does not belong to a management network. Confirm that the IP pool belongs to a management network.</li> <li>• 102024 - No VLAN is found for the port profile (). A port profile must have a VLAN range.</li> </ul> |
| Notes                   | <p>Only one successful infrastructure setup can be done.</p> <p>If <code>high_availability</code> is <code>true</code>, the primary and secondary placement information must be provided.</p> <p>If <code>high_availability</code> is <code>false</code>, the standalone information must be provided.</p>   |

## API to retrieve the infrastructure

The Get Infrastructure API retrieves details for the specified infrastructure.

| API Attribute    | Description  |
|------------------|--|
| URI              | <pre> /infrastucture /infrastucture/{oid} </pre>   |
| Method           | GET  |
| REQUEST PAYLOAD  | None   |
| RESPONSE PAYLOAD | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://{ip}/icfb/v1/service-requests/b3e1ffc",       },       "object_type": "infrastructure",       "links": {         "metadata": "http://{ip}/icfb/v1/infrastructure/metadata",         "self": "http://{ip}/icfb/v1/infrastructure/d73c4ef3-14fc-4f17-8d18-4c8",       },       "properties": {         "oid": "d73c4ef3-14fc-4f17-8d18-4c80a694e749",         "status": "Completed",         "high_availability": true, </pre> |

```
"active_sr_oid": "b3e1ffc4-35f2-4ecb-bc87-bef302591c04",
"mgmt_vlan": 36,

"ip_pool_summary": {
  "object_type": "ip_pools",
  "links": {
    "self": "http://{ip}/icfb/v1/networks/321e0388-0453-4d8b-ab96-e92ae5459
  },
  "properties": {
    "oid": "a84f57cd-aaba-44c7-a875-6cbd6200cbcf",
    "name": "pool36"
  }
},

"icf_vsm": {
  "mgmt_ip_address": "10.36.32.251",
  "connection_status": "Success",
  "domain_id": 200
},
"placement": {
  "virtual_account_summary": {
    "object_type": "virtual_account",
    "links": {
      "self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
    },
    "properties": {
      "oid": "b811dee6-074c-4793-9b1d-e37f79215a78",
      "name": "va-vmware",
      "virtual_account_type": "vmware"
    }
  },
  "instances": [
    {
      "ha_role": "primary",
      "compute_summary": {
        "object_type": "host",
        "links": {
          "self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
        },
        "properties": {
          "oid": "5b7e65b6-0e68-46c0-91b8-237d07aadf61",
          "name": "10.36.32.2"
        }
      },
      "storage_summary": {
        "object_type": "datastore",
        "links": {
          "self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
        },
        "properties": {
          "oid": "ee4f5603-6eb8-4eae-b0be-0254922abe18",
          "name": "ds2"
        }
      }
    }
  ]
}
```

```
},
"network_summary": {
"mgmt": {
"object_type": "port_profile",
"links": {
"self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
},
"properties": {
"oid": "43a34b6b-06aa-467a-97ae-1c9297e436aa",
"name": "dvs-36",
"switch_name": "dvSwitch"
}
}
},
},
{
"ha_role": "secondary",
"compute_summary": {
"object_type": "host",
"links": {
"self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
},
"properties": {
"oid": "bb9942f1-f75a-41fc-b4bf-b4553e1d3615",
"name": "10.36.32.4"
}
},
"storage_summary ": {
"object_type": "datastore",
"links": {
"self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
},
"properties": {
"oid": "0031bb2f-9a62-481b-8063-0798fd9f14d0",
"name": "Storage-1"
}
},
"network_summary ": {
"mgmt": {
"object_type": "port_profile",
"links": {
"self": "http://{ip}/icfb/v1/virtual-accounts/b811dee6-074c-4793-9b1d-e
},
"properties": {
"oid": "43a34b6b-06aa-467a-97ae-1c9297e436aa",
"name": "dvs-36",
"switch_name": "dvSwitch"
}
}
}
}
]
```

}  
}

|                         |   |
|-------------------------|---|
|                         | <pre> ] } </pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |
| Application error codes | None  |

## API to update the infrastructure setup (on failed infrastructure setups only)

The Update Infrastructure API enables you to update a failed infrastructure setup.

| API Attribute | Description                        |
|---------------|------------------------------------|
| URI           | <pre> /infrasturcture/{oid} </pre> |
| Method        | PUT                                |

REQUEST  
PAYLOAD

\* To update high\_availability please send the entire placement

```
{
  "high_availability":false,
  "placement":{
    "virtual_account_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0",
    "instances":[
      {
        "ha_role":"primary | secondary | standalone",
        "compute":{ "host_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" },
        "network":{
          "mgmt":{ "port_group_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }
        },
        "storage":{ "datastore_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }
      }
    ]
  }
}
```

\* To update any information in instance, please send entire instance

```
{"placement":{
  "instances":[
    {
      "ha_role":"primary | secondary | standalone",
      "compute":{ "host_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" },
      "network":{
        "mgmt":{ "port_group_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }
      },
      "storage":{ "datastore_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0" }
    }
  ]
}
```

\*To update ip\_pool\_oid

```
{
  "ip_pool_oid":"fabff1db-f628-4db0-8bfb-c5ca580b50f0"
}
```

\*To update name

```
{
  "name":"Infrastructure-Setup"
}
```

\*To update domain\_id

```
{
  "icf_vsm":{ "domain_id":100 }
}
```

|                         |   |
|-------------------------|---|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - Bad request.</li> <li>• 404 - Not found.</li> </ul>  |
| RESPONSE PAYLOAD        | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created license resource.   |
| Application error codes | <ul style="list-style-type: none"> <li>• 102001 - The port group mode () is invalid.</li> <li>• 102002 - Invalid VLAN start (), end () for the port group. The VLAN range for a port group with the mode access must have the same start and end.</li> <li>• 102003 - The port group VLAN () does not match the network VLAN (). The port group VLAN should be the same as the network VLAN.</li> <li>• 102004 - The data store with the OID () does not belong to the host with the OID (). This operation can be performed only if the data store belongs to the host.</li> <li>• 102005 - Host information is missing for the data store (). Confirm that the data store belongs to the host.</li> <li>• 102006 - Invalid data store OID (). Confirm that the OID is correct.</li> <li>• 102008 - The host with the OID () does not belong to the virtual account with the name () (OID []). This operation can be performed only if the host belongs to the virtual account.</li> <li>• 102009 - The switch reference is missing for the port profile with the OID (). A port profile must belong to a switch.</li> <li>• 102010 - The port profile with the OID () does not belong to the host with the OID (). This operation can be performed only if the port profile belongs to the host.</li> <li>• 102011 - The switch with OID () does not have a host reference. A switch must belong to a host.</li> <li>• 102012 - Invalid switch OID () found for the port profile with the OID (). Confirm that the switch OID is correct.</li> <li>• 102013 - Invalid port profile OID (). Confirm that the port profile OID is correct.</li> <li>• 102014 - Cannot update the infrastructure. Updating the infrastructure can be performed only after a failed installation.</li> <li>• 102015 - One or more instance parameters are missing. Confirm that all parameters are present and valid.</li> <li>• 102016 - The domain ID must be in the range 1-1023.</li> <li>• 102018 - The IP pool () (OID: ()) does not belong to a management network. Confirm that the IP pool belongs to a management network.</li> <li>• 102024 - No VLAN found for port profile (). A port profile must have a VLAN range.</li> </ul> |

## API to delete the infrastructure

The Delete Infrastructure API deletes the existing infrastructure.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <code>/infrastructure</code>  |
| METHOD                  | DELETE  |
| REQUEST PAYLOAD         | None  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p>   |
| RESPONSE HEADERS        | <ul style="list-style-type: none"> <li>• location = SR ID.</li> </ul>   |
| RESPONSE PAYLOAD        | None  |
| Application error codes | <ul style="list-style-type: none"> <li>• 102020 - The infrastructure can be deleted only if no ICF link is present. Delete the ICF link associated with the infrastructure before deleting the infrastructure.</li> <li>• 102021 - The infrastructure is in progress and cannot be deleted. Wait for the infrastructure status to change.</li> <li>• 102022 - Infrastructure deletion is in progress. Wait for the deletion to finish.</li> </ul> |

## API to reboot the infrastructure

The Reboot Infrastructure API enables you to reboot the infrastructure.



| API Attribute           | Description  |
|-------------------------|--|
| URI                     | <code>/infrastructure/reboot</code>  |
| Method                  | POST   |
| REQUEST PAYLOAD         | None   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>200 - Success.</li> <li>404 - Not found.</li> </ul> All standard errors are returned as applicable. |
| RESPONSE HEADERS        | <ul style="list-style-type: none"> <li>location = SR ID</li> </ul>   |
| RESPONSE PAYLOAD        | <code>{</code><br><code>}</code>   |
| Application error codes | 700 - GET not found.   |

## ICF Cloud

A public ICF cloud represents a collection of compute, network, and storage resources available at a cloud provider location. You can distribute these resources among your users by creating VDCs associated with the ICF cloud.

The ICF Cloud APIs enable you to perform ICF cloud-related CRUD operations.

**Note:** When you add a VMware virtual account, ICF creates one ICF cloud for the virtual account. You cannot create additional ICF clouds for the VMware virtual account.

### Metadata

| Property   | Operations (Create, Update, Read)     | Type    | Range | Mandatory During Create | Description   |
|--|---------------------------------------|---------|-------|-------------------------|---|
| virtual_account_oid  | C, R                                  | string  | 1-128 | yes                     | Virtual account OID.  |
| name   | C, R, U                               | string  | 1-256 | yes                     | ICF cloud name.   |
| icf_cloud_type   | C, R                                  | string  |       | yes                     | ICF cloud type: vmware, aws-ec2, vpc, azure, or british-telecom         |
| description  | C, R                                  | string  |       | no                      |   |
| The following do not apply to VMware:                                      |                                       |         |       |                         |   |
| high_availability  | C, R, U (ICF link is not yet created) | boolean |       | no                      | Whether high availability is enabled or disabled. The default is false. |
| service_configuration  |                                       |         |       |                         |   |
| <ul style="list-style-type: none"> <li>enable_integrated_router</li> </ul> | C, R, U                               | boolean |       | no                      | Enable integrated router service. The default is true.                  |
| location   | C, R                                  | string  |       | yes                     | Virtual account location.   |
| policies   |                                       |         |       |                         |   |
| <ul style="list-style-type: none"> <li>mac_pool_oid</li> </ul>             | C, R, U (ICF link is not yet created) | string  |       | no                      | The MAC pool OID.   |
| <ul style="list-style-type: none"> <li>cloud_security_group_oid</li> </ul> | C, R, U (ICF link is not yet created) | string  |       | no                      | The cloud security group OID.   |

|  |                                       |         |  |    |   |
|--|---------------------------------------|---------|--|----|---|
| cloud_style  | C, R, U (ICF link is not yet created) | string  |  | no | Type of VPC: Classic or VPC. The default is Classic.  |
| private_connection   | C, R, U (ICF link is not yet created) | boolean |  | no | Specifies whether or not the connection to the cloud is private.  |
| provider_vpc   |                                       |         |  |    |   |
| <ul style="list-style-type: none"> <li>vpc_oid</li> </ul>            | C, R, U (ICF link is not yet created) | string  |  | no | OID of the VPC. Mandatory if the cloud_style is VPC.  |
| <ul style="list-style-type: none"> <li>primary_subnet_oid</li> </ul> | C, R, U (ICF link is not yet created) | string  |  | no | Primary subnet OID. Mandatory if the cloud_style is VPC. This OID is used for either a primary ICF link or a standalone ICF link. |

## API to create ICF cloud

The Create ICF Cloud API creates a new ICF cloud.

| API Attribute   | Description  |
|-----------------|--|
| URI             | /icf-clouds  |
| Method          | POST   |
| Request Payload | <div style="border: 1px dashed blue; padding: 10px; margin: 10px 0;"> <div style="text-align: center; background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;"><b>AWS Provider VPC</b></div> <pre> {   "name": "icfCloud-providerVpc",   "virtual_account_oid": "87020f89-2eb8-4163-9578-0a149e90983b",   "description": "",   "location": "eu-west-1",   "provider_vpc": {     "vpc_oid": "73b0a10c-5bb0-4286-83c3-bb221d220461",     "primary_subnet_oid": "cc73fc51-bc26-46f8-837c-6d9bcf3607eb"   },   "cloud_style": "vpc",   "high_availability": true,   "service_configuration": {     "enable_integrated_router": true   },   "icf_cloud_type": "aws-ec2",   "private_connection": false,   "policies": {     "mac_pool_id": {mac_pool_oid},     "cloud_security_group_id": {csg_oid}   } } </pre> </div> |

### AWS classic

```
{
  "name": "icfcloud-classic",
  "virtual_account_oid": "87020f89-2eb8-4163-9578-0a149e90983b",
  "description": "",
  "location": "us-west-2",
  "cloud_style": "classic",
  "high_availability": true,
  "service_configuration": {
    "enable_integrated_router": true
  },
  "icf_cloud_type": "aws-ec2",
  "policies": {
    "mac_pool_id": {mac_pool_oid},
    "cloud_security_group_id": {csg_oid}
  }
}
```

### Azure

```
{
  "name": "icfcloud-azure",
  "virtual_account_oid": "87020f89-2eb8-4163-9578-0a149e90983b",
  "description": "",
  "location": "west US",
  "cloud_style": "classic",
  "high_availability": true,
  "private_subnet_cidr" : "10.0.0.0/16",
  "service_configuration": {
    "enable_integrated_router": true
  },
  "icf_cloud_type": "azure",
  "policies": {
    "mac_pool_id": {mac_pool_oid},
    "cloud_security_group_id": {csg_oid}
  }
}
```

### Cisco-Powered Provider

```
{
  "name" : "britishTelecomIcfCloud",
  "virtual_account_oid" : "b6fca1f8-5048-464e-b7d2-d7ad80c54a8d",
  "icf_cloud_type" : "british-telecom", // Supported ICFCloudTypes
  - british-telecom, iland, cisco-infrastructure-services
  "description" : "british-telecom icf cloud1",
  "location" : "Region1",
  //Zone is optional. Required for cloud providers having location
  hierarchy capability as Region,Zone.
  //Currently required for ICFPP provider:- british-telecom.
  "zone" : "zone_1",
  "high_availability": true,
  "service_configuration": {
    "enable_integrated_router": true
  },
  "provider_vpc" : {
    "vpc_oid" : "b6fca1f8-5048-464e-b7d2-d7ad80c54a6d",
    "primary_subnet_oid" : "b6fca1f8-5048-464e-b7d2-d7ad80c54a7d"
  },
  "policies" : {
    "mac_pool_oid" : "be121d32-6399-4af4-a2b1-67365b03abf4"
  }
}
```

HTTP  
RESPONSE  
STATUS

- 201 - Success.
- 400 - Bad request; invalid parameters.
- 412 - Precondition failed. For example, there are validation errors or the virtual account does not exist.

RESPONSE  
PAYLOAD

None, unless there is an error.

|                        |   |
|------------------------|---|
| Application error code | <ul style="list-style-type: none"> <li>• 200 - virtual_account_oid: The object with the value {oid} cannot be found.</li> <li>• 402 - name: The value for the field icf_cloud_type cannot be empty.</li> <li>• 408 - The {} value length should be between 1 and 64.</li> <li>• 2000 - name: An object with the name cld-2 already exists.</li> <li>• 10503 - The default MAC pool is not found. Provide the MAC pool.</li> <li>• 10504 - The MAC pool OID {0} is invalid. Provide a valid MAC pool.</li> <li>• 10506 - The virtual account with the name {0} (OID:{1}) is not ready to perform this operation. Either an operation on the virtual account is in progress or has failed.</li> <li>• 10507 - The default routing policy is not found. Provide the routing policy.</li> <li>• 10508 - The routing policy OID {0} is invalid. Provide a valid routing policy.</li> <li>• 10509 - An ICF cloud with the name {0} (OID:{1}) is in use by one of the catalog items. Delete the associated catalog items before deleting the ICF cloud.</li> <li>• 10510 - The virtual account - {0} (OID:{1}) is being deleted.</li> <li>• 10511 - The virtual account - {0} (OID:{1}) is in delete failed state.</li> <li>• 10514 - A private connection is not supported by the virtual account provider.</li> <li>• 10552 - The specified ICF cloud location is not supported by the virtual account provider.</li> <li>• 10557 - The cloud security group with the OID {0} is not found.</li> <li>• 10559 - The default cloud security group is not found. Provide the cloud security group.</li> <li>• 20001 - The zone field is missing in the input request.</li> <li>• 20002 - Zone {0} does not exist for the virtual account with the OID {1}.</li> <li>• 20003 - Zone {0} does not exist under the location with the OID {1} for the virtual account with the OID {2}.</li> <li>• 20004 - A provider VPC with the name {0} does not exist under the location with the OID {1}.</li> <li>• 20005 - A provider VPC with the name {0} (oid - {1}) is not ready to perform this operation.</li> <li>• 20006 - A provider private subnet with the name {0} does not exist under the provider VPC with the OID {1}.</li> <li>• 20007 - The provider private subnet with the name {0} (oid - {1}) is not ready to perform this operation.</li> <li>• 20008 - Provider VPC properties are not set in the input request.</li> <li>• 30003 - Provider VPC properties are not set in the input request.</li> <li>• 30004 - The provider VPC OID is invalid. It does not exist in the specified virtual account OID and location.</li> <li>• 30005 - The provider VPC subnet OID is invalid. It does not exist in the specified provider VPC OID.</li> </ul> |
|------------------------|---|

## API to update ICF cloud

The Update ICF Cloud API updates the specified ICF cloud with the information provided.

| API Attribute | Description       |
|---------------|-------------------|
| URI           | /icf-clouds/{oid} |
| Method        | PUT               |

|                        |   |
|------------------------|---|
| Request Payload        | <pre> {   "name" : "publicCloud2",   "virtual_account_oid" :   "b6fca1f8-5048-464e-b7d2-d7ad80c54a8d",   "icf_cloud_type" : "aws-ec2",   "description" : "public icf cloud2",   "location" : "us-east-1",   "cloud_style" : "vpc", // vpc, classic - if vpc then   provider_vpc is mandator   "high_availability": true,   "service_configuration": {     "enable_integrated_router": true   },   "provider_vpc": {     "vpc_oid": "3232121212322ddwasa",     "primary_subnet_oid": "2121sasql3112sa12121",   },   "policies" : {     "mac_pool_oid" : "be121d32-6399- 4af4-a2b1-67365b03abf4",     "cloud_security_group_oid" :     "b9a6146f-a2f8-4bae-bcbb-110c71331398"   } } </pre>  |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 201 - Success.</li> <li>• 202 - Update request accepted.</li> <li>• 400 - Bad request; invalid parameters.</li> <li>• 404 - Not found.</li> <li>• 409 - Conflict in the request.</li> <li>• 412 - Precondition failed. For example, there are validation errors or the virtual account does not exist.</li> </ul>  |
| RESPONSE PAYLOAD       | None, unless there is an error.   |
| Application error code | <ul style="list-style-type: none"> <li>• 200 - virtual_account_oid: The object with the value {oid} cannot be found.</li> <li>• 402 - name: The value for the field icf_cloud_type cannot be empty.</li> <li>• 408 - The {} value length should be between 1 and 64.</li> <li>• 2000 - name: An object with the name cid-2 already exists.</li> <li>• 10512 - An ICF cloud with the specified name already exists.</li> <li>• 10513 - An ICF cloud with the specified OID cannot be found.</li> <li>• 10514 - Private connections are not supported by the virtual account provider.</li> <li>• 19654 - An ICF link is already deployed for this ICF cloud. Only the name and routing service can be updated.</li> <li>• 19655 - The location, cloud type, and virtual account cannot be updated.</li> <li>• 19707 - Firewall and load-balancing services are not supported.</li> </ul> |

## API to retrieve list of ICF clouds

The Get ICF Clouds API retrieves a list of ICF clouds.

| API Attribute | Description |
|---------------|-------------|
| URI           | /icf-clouds |
| Method        | GET         |

|                      |  |
|----------------------|--|
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul> <p>All other standard HTTP error codes.</p>   |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "icf-links": "http://{ip}/icfb/v1/icf-clouds/{oid}/icf-links",         "catalog_items": "http://{ip}/icfb/v1/catalog-items",         "vdc": "http://{ip}/icfb/v1/icf-clouds/{oid}/vdc"       },       "object_type": "icf_cloud",       "links": {         "metadata": "http://{ip}/icfb/v1/icf-clouds/aws-ec2/metadata",         "capability": "http://{ip}/icfb/v1/icf-clouds/aws-ec2/capabil",         "self": "http://{ip}/icfb/v1/icf-clouds/{oid}"       },       "properties": {         "oid": "{oid}",         "name": "cloud2-ha",         "description": "",         "location": {           "name": "us-east-1",           "zones": [            ]         },       },       "object_status": {         "status": "success"       },       "system_object": false,       "icf_cloud_type": "aws-ec2",       "virtual_account_summary": {         "object_type": "virtual_account",         "links": {           "self": "http://{ip}/icfb/v1/virtual-accounts/{kid}"         },         "properties": {           "oid": "{oid}",           "name": "awscloud",           "system_object": false,           "virtual_account_type": "aws-ec2"         }       },       "icf_links_summary": [         {           "relationships": {             "connected_icf_cloud": "http://{ip}/icfb/v1/icf-clou </pre> |

```
"object_type":"icf_link",
"links":{
  "self":"http://{ip}/icfb/v1/icf-links/{oid}"
},
"properties":{
  "oid":"{oid}",
  "name":"link2-ha",
  "system_object":false,
  "status":[
    {
      "type":"operational",
      "value":"operational"
    }
  ],
  "connected_icf_cloud_name":"system_default_icfcloud",
  "deploy_state":"deployed",
  "primary_power_state":"on",
  "secondary_power_state":"on"
}
},
],
"vdc_summary":[
  {
    "object_type":"vdc",
    "links":{
      "self":"http://{ip}/icfb/v1/vdcs/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"vdcl",
      "system_object":false
    }
  }
],
"policies":{
  "system_object":false,
  "mac_pool_summary":{
    "object_type":"mac_pool",
    "links":{
      "self":"http://{ip}/icfb/v1/mac-pools/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"system_default_public",
      "system_object":false
    }
  },
},
"cloud_security_group_summary":{
  "object_type":"cloud_security_group",
  "links":{
    "self":"http://{ip}/icfb/v1/cloud-security-groups/{
  },
  "properties":{
```



```

        "oid":"{oid}",
        "name":"system_default",
        "system_object":false,
        "is_secure":false
    }
}
},
"service_configuration":{
    "enable_lb":null,
    "enable_integrated_router":true,
    "enable_router":null,
    "enable_firewall":null
},
"high_availability":true,
"vdc_count":1,
"services":{
    "object_type":"services",
    "links":{
        "self":"http://{ip}/icfb/v1/icf-clouds/{oid}/services/"
    },
    "properties":{
        "oid":"{oid}",
        "system_object":false,
        "operational_status":"operational"
    }
},
"icf_link_count":1,
"cloud_style":"classic"
}
},
{
    "relationships":{
        "icf-links":"http://{ip}/icfb/v1/icf-clouds/{oid}/icf-links"
    },
    "object_type":"icf_cloud",
    "links":{
        "metadata":"http://{ip}/icfb/v1/icf-clouds/azure/metadata",
        "capability":"http://{ip}/icfb/v1/icf-clouds/azure/capabilit",
        "self":"http://{ip}/icfb/v1/icf-clouds/{oid}"
    },
    "properties":{
        "oid":"{oid}",
        "name":"azurecloud",
        "description":"",
        "location":{
            "name":"North Central US",
            "zones":[
            ]
        }
    },
    "object_status":{
        "status":"success"
    },
    "system_object":false,

```

```
"icf_cloud_type":"azure",
"virtual_account_summary":{
  "object_type":"virtual_account",
  "links":{
    "self":"http://{ip}/icfb/v1/virtual-accounts/{oid}"
  },
  "properties":{
    "oid":"{oid}",
    "name":"azure-va",
    "system_object":false,
    "virtual_account_type":"azure"
  }
},
"icf_links_summary":[
  {
    "relationships":{
      "connected_icf_cloud":"http://{ip}/icfb/v1/icf-clou
    },
    "object_type":"icf_link",
    "links":{
      "self":"http://{ip}/icfb/v1/icf-links/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"azure-life",
      "system_object":false,
      "status":[
        {
          "type":"operational",
          "value":"operational"
        }
      ],
      "connected_icf_cloud_name":"system_default_icfcloud",
      "config_state":"not-applied",
      "deploy_state":"deployed",
      "primary_power_state":"on"
    }
  }
],
"policies":{
  "system_object":false,
  "mac_pool_summary":{
    "object_type":"mac_pool",
    "links":{
      "self":"http://{ip}/icfb/v1/mac-pools/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"system_default_public",
      "system_object":false
    }
  }
},
"cloud_security_group_summary":{
```

```
    "object_type": "cloud_security_group",
    "links": {
      "self": "http://{ip}/icfb/v1/cloud-security-groups/{
    },
    "properties": {
      "oid": "{oid}",
      "name": "system_default",
      "system_object": false,
      "is_secure": false
    }
  }
},
"service_configuration": {
  "enable_lb": null,
  "enable_integrated_router": true,
  "enable_router": null,
  "enable_firewall": null
},
"high_availability": false,
"vdc_count": 0,
"services": {
  "object_type": "services",
  "links": {
    "self": "http://{ip}/icfb/v1/icf-clouds/{oid}/services/
  },
  "properties": {
    "oid": "{oid}",
    "system_object": false,
    "operational_status": "operational"
  }
},
"icf_link_count": 1,
"private_subnet_cidr": "10.200.0.0/16"
}
```

|                        |                          |
|------------------------|--------------------------|
|                        | <pre>     }   ] } </pre> |
| Application error code | None                     |

## API to retrieve one ICF cloud (AWS-EC2)

The Get ICF Cloud API retrieves the details of the specified ICF cloud.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /icf-clouds/{oid} </pre>  |
| Method               | GET   |
| Request Payload      | None  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul> All other standard HTTP error codes.   |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "icf-links": "http://{ip}/icfb/v1/icf-clouds/{oid}/icf-links",         "catalog_items": "http://{ip}/icfb/v1/catalog-items",         "vdcs": "http://{ip}/icfb/v1/icf-clouds/{oid}/vdcs"       },       "object_type": "icf_cloud",       "links": {         "metadata": "http://{ip}/icfb/v1/icf-clouds/aws-ec2/metadata",         "capability": "http://{ip}/icfb/v1/icf-clouds/aws-ec2/capabil",         "self": "http://{ip}/icfb/v1/icf-clouds/{oid}"       },       "properties": {         "oid": "{oid}",         "name": "cloud2-ha",         "description": "",         "location": {           "name": "us-east-1",           "zones": [            ]         }       },       "object_status": {         "status": "success"       }     }   ] } </pre> |

```
},
"system_object":false,
"icf_cloud_type":"aws-ec2",
"virtual_account_summary":{
  "object_type":"virtual_account",
  "links":{
    "self":"http://{ip}/icfb/v1/virtual-accounts/{kid}"
  },
  "properties":{
    "oid":"{oid}",
    "name":"awscloud",
    "system_object":false,
    "virtual_account_type":"aws-ec2"
  }
},
"icf_links_summary":[
  {
    "relationships":{
      "connected_icf_cloud":"http://{ip}/icfb/v1/icf-clou
    },
    "object_type":"icf_link",
    "links":{
      "self":"http://{ip}/icfb/v1/icf-links/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"link2-ha",
      "system_object":false,
      "status":[
        {
          "type":"operational",
          "value":"operational"
        }
      ],
      "connected_icf_cloud_name":"system_default_icfcloud",
      "deploy_state":"deployed",
      "primary_power_state":"on",
      "secondary_power_state":"on"
    }
  }
],
"vdc_summary":[
  {
    "object_type":"vdc",
    "links":{
      "self":"http://{ip}/icfb/v1/vdcs/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"vdcl",
      "system_object":false
    }
  }
]
```

```
],
"policies":{
  "system_object":false,
  "mac_pool_summary":{
    "object_type":"mac_pool",
    "links":{
      "self":"http://{ip}/icfb/v1/mac-pools/{oid}"
    },
    "properties":{
      "oid":"{oid}",
      "name":"system_default_public",
      "system_object":false
    }
  },
  "cloud_security_group_summary":{
    "object_type":"cloud_security_group",
    "links":{
      "self":"http://{ip}/icfb/v1/cloud-security-groups/{
    },
    "properties":{
      "oid":"{oid}",
      "name":"system_default",
      "system_object":false,
      "is_secure":false
    }
  }
},
"service_configuration":{
  "enable_lb":null,
  "enable_integrated_router":true,
  "enable_router":null,
  "enable_firewall":null
},
"high_availability":true,
"vdc_count":1,
"services":{
  "object_type":"services",
  "links":{
    "self":"http://{ip}/icfb/v1/icf-clouds/{oid}/services/
  },
  "properties":{
    "oid":"{oid}",
    "system_object":false,
    "operational_status":"operational"
  }
},
"icf_link_count":1,
"cloud_style":"classic"
}
```

|                        |                        |
|------------------------|------------------------|
|                        | <pre>     ]   } </pre> |
| Application error code | None                   |

## API to retrieve one ICF cloud (VMware)

The Get ICF Cloud API retrieves the details of the specified ICF cloud.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /icf-clouds/{entityId}  |
| Method               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul> All other standard HTTP error codes.   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "icf-links": "http://{ip}/icfb/v1/icf-clouds/8c14a24d-c929-4745-aab7-0b4b68f4cd95/ic       "vdcs": "http://10.36.31.60/icfb/v1/icf-clouds/8c14a24d-c929-4745-aab7-0b4b68f4     },     "object_type": "icf_cloud",     "links": {       "metadata": "http://{ip}/icfb/v1/icf-clouds/vmware/metadata",       "capability": "http://{ip}/icfb/v1/icf-clouds/vmware/capabiliti       "self": "http://{ip}/icfb/v1/icf-clouds/8c14a24d-c929-4745-aab7-0b4b68f4cd95"     },     "properties": {       "oid": "8c14a24d-c929-4745-aab7-0b4b68f4cd95",       "name": "system_default_icfcloud_vmware",       "description": "System created default ICF Cloud",       "object_status": {         "status": "success"       },       "system_object": true,       "icf_cloud_type": "vmware",       "virtual_account_summary": {         "object_type": "virtual_account",         "links": {           "self": </pre> |

```
"http://{ip}/icfb/v1/virtual-accounts/65bd101f-a0cc-4e06-a3ca-c5c6bcf9e
  },
  "properties": {
    "oid": "65bd101f-a0cc-4e06-a3ca-c5c6bcf9e3bc",
    "name": "vmware",
    "system_object": false,
    "virtual_account_type": "vmware"
  }
},
"icf_links_summary": [
  {
    "relationships": {
      "connected_icf_cloud":
"http://{ip}/icfb/v1/icf-clouds/9224c517-6036-4775-8bf1-9c1d471df0f2"
    },
    "object_type": "icf_link",
    "links": {
      "self":
"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4ddc-a51e-eed36f826742"
    },
    "properties": {
      "oid": "a3ab8c65-ee09-4ddc-a51e-eed36f826742",
      "name": "link2-ha",
      "system_object": false,
      "status": [
        {
          "type": "operational",
          "value": "operational"
        }
      ],
      "connected_icf_cloud_name": "cloud2-ha",
      "config_state": "applied",
      "deploy_state": "deployed",
      "primary_power_state": "on",
      "secondary_power_state": "on"
    }
  },
  {
    "relationships": {
      "connected_icf_cloud":
"http://{ip}/icfb/v1/icf-clouds/aaa36833-2c65-4290-a4d4-4f5e7730c872"
    },
    "object_type": "icf_link",
    "links": {
      "self":
"http://{ip}/icfb/v1/icf-links/600070ae-765e-46a0-97fe-f74cb87dcc2a"
    },
    "properties": {
      "oid": "600070ae-765e-46a0-97fe-f74cb87dcc2a",
      "name": "link-life",
      "system_object": false,
      "status": [
        {
```



```
        "type": "operational",
        "value": "operational"
    }
],
"connected_icf_cloud_name": "aws-cloud",
"deploy_state": "deployed",
"primary_power_state": "on"
}
},
{
    "relationships": {
        "connected_icf_cloud":
"http://{ip}/icfb/v1/icf-clouds/9234e25f-9f52-46cf-b57b-122201882417"
    },
    "object_type": "icf_link",
    "links": {
        "self":
"http://{ip}/icfb/v1/icf-links/1c2b8a76-179a-43d3-afe0-02baddae0bd4"
    },
    "properties": {
        "oid": "1c2b8a76-179a-43d3-afe0-02baddae0bd4",
        "name": "azure-life",
        "system_object": false,
        "status": [
            {
                "type": "operational",
                "value": "operational"
            }
        ],
        "connected_icf_cloud_name": "azurecloud",
        "deploy_state": "deployed",
        "primary_power_state": "on"
    }
},
{
    "relationships": {
        "connected_icf_cloud":
"http://{ip}/icfb/v1/icf-clouds/fce9479a-7c9c-48b1-8330-abd9802e2d94"
    },
    "object_type": "icf_link",
    "links": {
        "self":
"http://{ip}/icfb/v1/icf-links/02c1235f-a233-4ed5-a2bb-242d38810d05"
    },
    "properties": {
        "oid": "02c1235f-a233-4ed5-a2bb-242d38810d05",
        "name": "link-delete",
        "system_object": false,
        "status": [
            {
                "type": "operational",
                "value": "operational"
            }
        ]
    }
}
```

```
    ],
    "connected_icf_cloud_name": "testicfcloud",
    "deploy_state": "deployed",
    "primary_power_state": "on"
  }
}
],
"vdc_summary": [
  {
    "object_type": "vdc",
    "links": {
      "self":
"http://{ip}/icfb/v1/vdcs/a14640b0-8029-4f73-a006-e8569d7ae37f"
    },
    "properties": {
      "oid": "a14640b0-8029-4f73-a006-e8569d7ae37f",
      "name": "system_default_vdc_vmware",
      "system_object": false
    }
  }
],
"vdc_count": 1,
"icf_link_count": 4
}
```

|                        |                    |
|------------------------|--------------------|
|                        | <pre> } ] } </pre> |
| Application error code | None.              |

## API to delete an ICF cloud

The Delete ICF Cloud API deletes the specified ICF cloud.

| API Attribute          | Description   |
|------------------------|---|
| URI                    | /icf-clouds/{icfCloudId}  |
| Method                 | DELETE  |
| Request Payload        | NONE  |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>200 - Success.</li> <li>404 - The ICF cloud is not found.</li> <li>409 - Conflict in the request.</li> </ul>   |
| RESPONSE PAYLOAD       | None, unless there is an error.   |
| Application error code | <ul style="list-style-type: none"> <li>10509 - The ICF cloud with the name {0} (OID:{1}) is in use by one of the catalog items. Delete the associated catalog items before deleting the ICF cloud.</li> <li>19652 - Cannot delete the ICF cloud; an ICF link with the OID:{0} is associated with the cloud.</li> <li>19653 - The default system ICF cloud with the name {0} (OID:{1}) cannot be deleted.</li> <li>19706 - Service {0} validation prevented the delete operation on cloud {1}: {2}.</li> </ul> |

## ICF Link

An ICF link establishes a secure fabric link between the private cloud and the public cloud which enables L2 network extension.

The ICF link APIs enable administrators or external systems to perform link-related operations such as create, update, delete, start, stop, reboot, and switchover.

- **Metadata**

| Property  | Operations<br>(Create, Update, Read) | Type    | Range      | Mandatory During Create | Default | Description   |
|---|--------------------------------------|---------|------------|-------------------------|---------|---|
| name  | C, R                                 | string  |            | yes                     |         | ICF link name. The maximum length is 32 characters.   |
| description   | C, R                                 | string  |            | no                      |         | ICF link description.                                 |
| oid   | R                                    | string  |            | -                       |         | ICF link OID.   |
| tunnel_parameters   |                                      |         |            |                         |         | Configuration parameters for the site-to-site tunnel. |
| <ul style="list-style-type: none"> <li>• protocol</li> </ul>      | C, R                                 | string  | TCP/UDP    | no                      | UDP     | Protocol for the site-to-site tunnel.                 |
| <ul style="list-style-type: none"> <li>• use_https</li> </ul>     | C, R                                 | boolean | true/false | no                      | false   | For TCP, HTTPS is selected by default.                |
| cloud1  |                                      |         |            |                         |         |   |
| <ul style="list-style-type: none"> <li>• icf_cloud_oid</li> </ul> | C, R                                 | string  |            | yes                     |         | Private ICF cloud OID.                                |

|  |         |         |                                |     |          |   |
|--|---------|---------|--------------------------------|-----|----------|---|
| • agent_configuration                      |         |         |                                |     |          | Intercloud agent (ICX) configuration.   |
| • agent_type                               | C, R    | string  | icx, ics                       | yes |          | Intercloud agent type: <ul style="list-style-type: none"> <li>• icx: Intercloud Fabric Extender (ICX)</li> <li>• ics: Intercloud Fabric Switch (ICS)</li> </ul> |
| • native_vlan                              | C, R, U | Integer | icx                            | no  |          | Native VLAN for the ICX enterprise trunk port profile.  |
| • ip_configuration                         |         |         |                                |     |          | IP configuration for the agent.   |
| • • mgmt                                   |         |         |                                |     |          | Management IP configuration.  |
| • • • ip_pool_oid                          | C, R    | string  |                                | yes |          | IP pool OID from the management network.  |
| • placement                                | C, R    |         |                                | yes |          | Placement of the Intercloud Fabric Extender.  |
| • • instances                              | C, R    |         |                                | yes |          | ICX/ICS instance configuration.   |
| • • • ha_role                              | C, R    | string  | primary, secondary, standalone | yes |          | High availability role of the instance.   |
| • • • compute                              |         |         |                                |     |          |   |
| • • • • host_oid                           | C, R    | string  |                                | yes |          | OID of the host.  |
| • • • storage                              |         |         |                                |     |          |   |
| • • • • datastore_oid                      | C, R    | string  |                                | yes |          | OID of the data store.  |
| • • • network                              |         |         |                                |     |          |   |
| • • • • mgmt                               |         |         |                                |     |          |   |
| • • • • • port_group_oid                   | C, R    | string  |                                | yes |          | OID of the management port group.   |
| • • • • • trunk                            |         |         |                                |     |          |   |
| • • • • • port_group_oid                   | C, R    | string  |                                | yes |          | OID of the trunk port group.  |
| cloud2                                     |         |         |                                | yes |          |   |
| • icf_cloud_oid                            | C, R    | string  |                                | yes |          | OID of the public ICF cloud.  |
| • agent_configuration                      | C, R    |         |                                | yes |          | Intercloud agent (ICS) configuration.   |
| • • agent_type                             | C, R    |         | string                         |     | icx, ics | Intercloud agent type: ICX or ICS   |
| • • ip_configuration                       | C, R    |         |                                | no  |          | IP configuration for the ICS management interface. If this is not provided, the ICX IP configuration is used.   |
| • • • ip_pool_oid                          | C, R    | int     |                                | no  |          | IP pool OID from the management network. If this is not provided, the ICX IP pool is used.  |
| deploy_state                               | R       | string  |                                | -   |          | Deployment status of the ICF link. Values are undeployed, deploying, deployed, deploy_failed, undeploying, and undeploy_failed.                                 |
| primary_power_state, secondary_power_state | R       | string  |                                | -   |          | Power status of primary and secondary ICF link pair: on or off.   |

## API to create ICF link

The Create ICF Link API creates a new ICF link.

| API Attribute   | Description  |
|-----------------|--|
| URI             | /icf-links   |
| Method          | POST   |
| REQUEST PAYLOAD | <pre>{   "name" : "icf-aws-1",   "description": "This is a standalone icf-link",</pre> |

```

"icf_link_configuration": {
  "tunnel_parameters":{
    "protocol": "TCP",
    "use_https": "false"
  }
},
"cloud1": {
  "icf_cloud_oid" : "21a0f985-6d54-4d80-a06f-35dcef098cc7",
  "agent_configuration": {
    "agent_type": "icx",
    "ip_configuration": {
      "mgmt": {
        "ip_pool_oid": "0c53e400-f1e4-44aa-bd18-5aafe0de190"
      }
    }
  },
  "placement": {
    "instances": [
      {
        "ha_role": "standalone",
        "compute": {
          "host_oid": "7359330b-c026-4559-918e-9d234b2015"
        },
        "storage": {
          "datastore_oid":
"dc01b675-fb0d-48db-90be-c3b1800645a2"
        },
        "network": {
          "mgmt": {
            "port_group_oid":
"4615a234-e0c3-44c0-b304-8f982f97dbc9"
          }
        },
        "trunk": {
          "port_group_oid":
"f0aec588-9ff2-4c80-bab0-0bb88432063d"
        }
      }
    ]
  }
},
"cloud2":{
  "icf_cloud_oid" : "5a4f1c2b-f351-4229-8401-ba499d8257cc",
  "agent_configuration": {
    "agent_type": "ics",
    "ip_configuration": {
      "mgmt": {
        "ip_pool_oid": "0c53e400-f1e4-44aa-bd18-5aafe0de190"
      }
    }
  }
}
}

```

```
}
```

```
{  
  "name" : "icf-ha-1",  
  "description": "This is a HA icf-link",  
  "icf_link_configuration": {  
    "tunnel_parameters":{  
      "protocol": "UDP"  
    }  
  },  
  "cloud1": {  
    "icf_cloud_oid" : "9b52e80d-4340-4731-9178-76d74bf082df",  
    "agent_configuration": {  
      "agent_type": "icx",  
      "native_vlan": 40,  
      "ip_configuration": {  
        "mgmt": {  
          "ip_pool_oid": "b2e0bcc4-7f2a-4799-bb92-988fe8b153f"  
        }  
      },  
      "placement": {  
        "instances": [  
          {  
            "ha_role": "primary",  
            "compute": {  
              "host_oid": "3af9ab44-18e0-409a-8595-3920273bdb"  
            },  
            "storage": {  
              "datastore_oid":  
"94b61bb1-84c2-4f4a-88fa-cb8782b82025"  
            },  
            "network": {  
              "mgmt": {  
                "port_group_oid":  
"d6462f8e-bbb3-4cfb-a765-4c35d7e63f2f"  
              },  
              "trunk": {  
                "port_group_oid":  
"167367b6-536d-42c2-9e36-0e2bf2b7e9fb"  
              }  
            }  
          },  
          {  
            "ha_role": "secondary",  
            "compute": {  
              "host_oid": "3af9ab44-18e0-409a-8595-3920273bdb"  
            },  
            "storage": {  
              "datastore_oid":  
"94b61bb1-84c2-4f4a-88fa-cb8782b82025"  
            }  
          }  
        ]  
      }  
    }  
  }  
}
```

```
    },
    "network": {
      "mgmt": {
        "port_group_oid":
"d6462f8e-bbb3-4cfb-a765-4c35d7e63f2f"
      },
      "trunk": {
        "port_group_oid":
"167367b6-536d-42c2-9e36-0e2bf2b7e9fb"
      }
    }
  ]
}
}
},
"cloud2":{
  "icf_cloud_oid" : "971a3a3f-0521-49d7-9581-5afad228f6c7",
  "agent_configuration": {
    "agent_type": "ics",
    "ip_configuration": {
      "mgmt": {
        "ip_pool_oid": "b2e0bcc4-7f2a-4799-bb92-988fe8b153f"
      }
    }
  }
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>} </pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Request accepted.</li> <li>• 400 - Bad request.</li> <li>• 409 - Conflict in the request.</li> <li>• 412 - Precondition failed.</li> </ul> <p>All standard errors are returned as applicable.</p>   |
| RESPONSE HEADER         | The HTTP location header contains the OID of the newly created ICF link.   |
| RESPONSE PAYLOAD        | <pre>{   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request":       "http://{ip}/icfb/v1/service-requests/9eb577c3-2b42-4ddd-aab7-f841e422e"     }   } }</pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - A resource is not found.</li> <li>• 403 - A required field is missing.</li> <li>• 18610 - An ICF link already exists for this ICF cloud. Only one ICF link is allowed for each public ICF cloud. Create an ICF cloud before creating an ICF link.</li> <li>• 18621 - The native VLAN must be in the range 1-4094.</li> <li>• 18622 - The native VLAN does not apply to ICS.</li> <li>• 18623 - None of the configured DNS servers are reachable. The configured DNS servers must be reachable. Confirm that the DNS servers are accessible.</li> <li>• 102001 - The port group mode {0} is invalid. The mode must be access.</li> <li>• 102003 - The port group VLAN {0} does not match the network VLAN {1}. The port group VLAN should be the same as the network VLAN.</li> <li>• 102004 - The data store with the OID {0} does not belong to the host with the OID {1}. This operation can be performed only if the data store belongs to the host.</li> <li>• 102005 - Host information is missing for data store {0}. Confirm that the data store belongs to the host.</li> <li>• 102006 - Invalid data store OID {0}. Confirm that the OID is correct.</li> <li>• 102008 - The host with the OID {0} does not belong to the virtual account with the name {1} (OID: {2}). This operation can be performed only if the host belongs to the virtual account.</li> <li>• 102009 - A switch reference is missing for the port profile with the OID {0}. A port profile must belong to a switch.</li> <li>• 102010 - The port group with the OID {0} does not belong to the host with the OID {1}. This operation can be performed only if the port group belongs to the host.</li> <li>• 102011 - The switch with the OID {0} does not have a host reference. A switch must belong to a host.</li> <li>• 102012 - Invalid switch OID {0} for the port group with the OID {1}. Confirm that the switch OID is correct.</li> <li>• 102013 - Invalid port profile OID {0}. Confirm that the port profile OID is correct.</li> </ul> |

## API to retrieve list of ICF links

The Get ICF Links API retrieves a list of all ICF links.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|



|                  |  |
|------------------|--|
| URI              | /icf-links   |
| Method           | GET  |
| REQUEST PAYLOAD  | None   |
| Response Payload | <pre> {   "value": [     {       "relationships":{         "active_service_request":"http://{ip}/icfb/v1/service-reque         "operations":{           "reboot":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4d           "switchover":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee0           "stop":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4ddc           "start":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4dd           "delete":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4d         }       },       "object_type":"icf_link",       "links":{         "self":"http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4ddc-a5       },       "properties":{         "oid":"a3ab8c65-ee09-4ddc-a51e-eed36f826742",         "name":"link2-ha",         "object_status":{           "status":"success",           "last_sr_oid":"3b5837d7-0679-418f-9f06-032abaafd04c"         },         "system_object":false,         "icf_link_configuration":{           "tunnel_parameters":{             "protocol":"UDP",             "use_https":false           }         },         "cloud1":{           "system_object":false,           "cloud_summary":{             "object_type":"icf_cloud",             "links":{               "self":"http://{ip}/icfb/v1/icf-clouds/8c14a24d-c9             },             "properties":{               "oid":"8c14a24d-c929-4745-aab7-0b4b68f4cd95",               "name":"system_default_icfcloud_vmware",               "system_object":false,               "cloud_type":"vmware"             }           }         }       }     }   ] } </pre> |

```
},
"agent_configuration":{
  "system_object":false,
  "agent_type":"icx",
  "ip_configuration":{
    "system_object":false,
    "mgmt":{
      "system_object":false,
      "ip_pool_summary":{
        "object_type":"ip_pools",
        "links":{
          "self":"http://{ip}/icfb/v1/networks/a090
        },
        "properties":{
          "oid":"608628b8-2466-41e0-9f8f-567d4df977
          "name":"Pool2",
          "system_object":false
        }
      }
    }
  }
},
"placement":{
  "system_object":false,
  "virtual_account_summary":{
    "object_type":"virtual_account",
    "links":{
      "self":"http://{ip}/icfb/v1/virtual-accounts
    },
    "properties":{
      "oid":"65bd101f-a0cc-4e06-a3ca-c5c6bcf9e3bc"
      "name":"vmware",
      "system_object":false,
      "virtual_account_type":"vmware"
    }
  }
},
"instances":[
  {
    "oid":"de5c4a1c-69e9-4c0d-bd67-21745350d1e6"
    "name":"link2-ha-icx-1-163805296593390558774
    "system_object":false,
    "ha_role":"primary",
    "power_state":"on",
    "instance_config":{
      "system_object":false,
      "compute":{
        "system_object":false,
        "memory":{
          "value":2048,
          "unit":"MB"
        },
        "cpu_count":2,
        "placement_summary":{
          "object_type":"host",
```

```
    "links":{
      "self":"http://{ip}/icfb/v1/virt
    },
    "properties":{
      "oid":"0a44clae-9eb7-4b82-9f50-a
      "name":"10.30.31.10",
      "system_object":false,
      "mor_id":"host-48"
    }
  },
  "storage":{
    "system_object":false,
    "disks":[
      {
        "system_object":false,
        "disk_size":{
          "value":20,
          "unit":"GB"
        }
      }
    ],
    "placement_summary":{
      "object_type":"datastore",
      "links":{
        "self":"http://{ip}/icfb/v1/virt
      },
      "properties":{
        "oid":"2dd86c28-c5f8-4f3d-be4d-0
        "name":"datastore1-2",
        "system_object":false,
        "mor_id":"datastore-49"
      }
    }
  },
  "network":{
    "system_object":false,
    "mgmt_interface":{
      "system_object":false,
      "ip_address":"10.30.31.96",
      "port_profile_summary":{
        "object_type":"port_profile",
        "links":{
          "self":"http://{ip}/icfb/v1/v
        },
        "properties":{
          "oid":"c0ace928-5ble-4530-8e5
          "name":"vlan36",
          "system_object":false,
          "switch_name":"dvSwitch"
        }
      }
    }
  },
},
```

```
    "trunk_interface":{
      "system_object":false,
      "port_profile_summary":{
        "object_type":"port_profile",
        "links":{
          "self":"http://{ip}/icfb/v1/v
        },
        "properties":{
          "oid":"769438f8-79e8-4e40-816
          "name":"ent-trunk",
          "system_object":false,
          "switch_name":"dvSwitch"
        }
      }
    }
  },
  "provider_instance_id":"503315e0-0b4c-4a02-3
},
{
  "oid":"f2f1800e-386d-43d5-a4f6-33f0602ffffcd"
  "name":"link2-ha-icx-2-162379353821670794131
  "system_object":false,
  "ha_role":"secondary",
  "power_state":"on",
  "instance_config":{
    "system_object":false,
    "compute":{
      "system_object":false,
      "memory":{
        "value":2048,
        "unit":"MB"
      },
      "cpu_count":2,
      "placement_summary":{
        "object_type":"host",
        "links":{
          "self":"http://{ip}/icfb/v1/virt
        },
        "properties":{
          "oid":"0a44clae-9eb7-4b82-9f50-a
          "name":"10.30.31.10",
          "system_object":false,
          "mor_id":"host-48"
        }
      }
    }
  },
  "storage":{
    "system_object":false,
    "disks":[
      {
        "system_object":false,
        "disk_size":{
```

```
        "value":20,
        "unit":"GB"
    }
}
],
"placement_summary":{
    "object_type":"datastore",
    "links":{
        "self":"http://{ip}/icfb/v1/virt
    },
    "properties":{
        "oid":"2dd86c28-c5f8-4f3d-be4d-0
        "name":"datastore1-2",
        "system_object":false,
        "mor_id":"datastore-49"
    }
}
},
"network":{
    "system_object":false,
    "mgmt_interface":{
        "system_object":false,
        "ip_address":"10.30.31.97",
        "port_profile_summary":{
            "object_type":"port_profile",
            "links":{
                "self":"http://{ip}/icfb/v1/v
            },
            "properties":{
                "oid":"c0ace928-5b1e-4530-8e5
                "name":"vlan36",
                "system_object":false,
                "switch_name":"dvSwitch"
            }
        }
    },
    "trunk_interface":{
        "system_object":false,
        "port_profile_summary":{
            "object_type":"port_profile",
            "links":{
                "self":"http://{ip}/icfb/v1/v
            },
            "properties":{
                "oid":"769438f8-79e8-4e40-816
                "name":"ent-trunk",
                "system_object":false,
                "switch_name":"dvSwitch"
            }
        }
    }
}
},
}
```

```
        "provider_instance_id":"50339949-45f4-625f-d
    }
    ]
}
},
"cloud2":{
  "system_object":false,
  "cloud_summary":{
    "object_type":"icf_cloud",
    "links":{
      "self":"http://{ip}/icfb/v1/icfb-clouds/9224c517-60
    },
    "properties":{
      "oid":"9224c517-6036-4775-8bf1-9c1d471df0f2",
      "name":"cloud2-ha",
      "system_object":false,
      "cloud_type":"aws-ec2",
      "location":"us-east-1"
    }
  },
  "agent_configuration":{
    "system_object":false,
    "agent_type":"ics",
    "ip_configuration":{
      "system_object":false,
      "mgmt":{
        "system_object":false,
        "ip_pool_summary":{
          "object_type":"ip_pools",
          "links":{
            "self":"http://{ip}/icfb/v1/networks/a090
          },
          "properties":{
            "oid":"e8921277-9e8e-4ed9-9eec-1a8e092728
            "name":"Pool1",
            "system_object":false
          }
        }
      }
    }
  },
  "placement":{
    "system_object":false,
    "virtual_account_summary":{
      "object_type":"virtual_account",
      "links":{
        "self":"http://{ip}/icfb/v1/virtual-accounts
      },
      "properties":{
        "oid":"17418932-035e-407c-9c79-40ea6b01651f"
        "name":"awscloud",
        "system_object":false,
        "virtual_account_type":"aws-ec2"
      }
    }
  }
}
```

```
    },
    "instances": [
      {
        "oid": "7f4d5b04-36d3-4833-ab40-5cac3aab4304"
        "name": "link2-ha-ics-1",
        "system_object": false,
        "ha_role": "PRIMARY",
        "power_state": "on",
        "instance_config": {
          "system_object": false,
          "network": {
            "system_object": false,
            "mgmt_interface": {
              "system_object": false,
              "ip_address": "10.30.31.68"
            },
            "provider_interface": {
              "system_object": false,
              "private_ip_address": "10.180.65.71"
              "public_ip_address": "54.211.250.50"
            }
          }
        },
        "provider_instance_id": "i-3fdb92a2"
      },
      {
        "oid": "5b23d637-8f01-402e-b3c7-fb04dc26e641"
        "name": "link2-ha-ics-2",
        "system_object": false,
        "ha_role": "SECONDARY",
        "power_state": "on",
        "instance_config": {
          "system_object": false,
          "network": {
            "system_object": false,
            "mgmt_interface": {
              "system_object": false,
              "ip_address": "10.30.31.69"
            },
            "provider_interface": {
              "system_object": false,
              "private_ip_address": "10.111.214.87"
              "public_ip_address": "54.157.237.73"
            }
          }
        },
        "provider_instance_id": "i-9ed89103"
      }
    ]
  }
},
```

```
    "deploy_state": "deployed",
    "primary_power_state": "on",
    "secondary_power_state": "on"
  },
  {
    "relationships": {
      "active_service_request": "http://{ip}/icfb/v1/service-reque
      "operations": {
        "reboot": "http://{ip}/icfb/v1/icf-links/600070ae-765e-46
        "stop": "http://{ip}/icfb/v1/icf-links/600070ae-765e-46a0
        "start": "http://{ip}/icfb/v1/icf-links/600070ae-765e-46a
        "delete": "http://{ip}/icfb/v1/icf-links/600070ae-765e-46
      }
    },
    "object_type": "icf_link",
    "links": {
      "self": "http://{ip}/icfb/v1/icf-links/600070ae-765e-46a0-97
    },
    "properties": {
      "oid": "600070ae-765e-46a0-97fe-f74cb87dcc2a",
      "name": "link-life",
      "object_status": {
        "status": "success",
        "last_sr_oid": "1beb5fa4-f944-49b7-a42d-3154818418d5"
      },
      "system_object": false,
      "icf_link_configuration": {
        "tunnel_parameters": {
          "protocol": "UDP",
          "use_https": false
        }
      },
      "cloud1": {
        "system_object": false,
        "cloud_summary": {
          "object_type": "icf_cloud",
          "links": {
            "self": "http://{ip}/icfb/v1/icf-clouds/8c14a24d-c9
          },
          "properties": {
            "oid": "8c14a24d-c929-4745-aab7-0b4b68f4cd95",
            "name": "system_default_icfcloud_vmware",
            "system_object": false,
            "cloud_type": "vmware"
          }
        },
        "agent_configuration": {
          "system_object": false,
          "agent_type": "icx",
          "ip_configuration": {
            "system_object": false,
            "mgmt": {
```



```
"system_object":false,
"ip_pool_summary":{
  "object_type":"ip_pools",
  "links":{
    "self":"http://{ip}/icfb/v1/networks/a090
  },
  "properties":{
    "oid":"e8921277-9e8e-4ed9-9eec-1a8e092728
    "name":"Pool1",
    "system_object":false
  }
}
},
"placement":{
  "system_object":false,
  "virtual_account_summary":{
    "object_type":"virtual_account",
    "links":{
      "self":"http://{ip}/icfb/v1/virtual-accounts
    },
    "properties":{
      "oid":"65bd101f-a0cc-4e06-a3ca-c5c6bcf9e3bc"
      "name":"vmware",
      "system_object":false,
      "virtual_account_type":"vmware"
    }
  },
  "instances":[
    {
      "oid":"c8e7b392-5390-4c64-a06b-fccf62abf197"
      "name":"link-life-icx-1-16455551451373252505
      "system_object":false,
      "ha_role":"standalone",
      "power_state":"on",
      "instance_config":{
        "system_object":false,
        "compute":{
          "system_object":false,
          "memory":{
            "value":2048,
            "unit":"MB"
          },
        },
        "cpu_count":2,
        "placement_summary":{
          "object_type":"host",
          "links":{
            "self":"http://{ip}/icfb/v1/virt
          },
          "properties":{
            "oid":"0a44c1ae-9eb7-4b82-9f50-a
            "name":"10.30.31.10",
            "system_object":false,
```

```
        "mor_id": "host-48"
      }
    },
    "storage": {
      "system_object": false,
      "disks": [
        {
          "system_object": false,
          "disk_size": {
            "value": 20,
            "unit": "GB"
          }
        }
      ],
      "placement_summary": {
        "object_type": "datastore",
        "links": {
          "self": "http://{ip}/icfb/v1/virt"
        },
        "properties": {
          "oid": "2dd86c28-c5f8-4f3d-be4d-0",
          "name": "datastore1-2",
          "system_object": false,
          "mor_id": "datastore-49"
        }
      }
    },
    "network": {
      "system_object": false,
      "mgmt_interface": {
        "system_object": false,
        "ip_address": "10.30.31.70",
        "port_profile_summary": {
          "object_type": "port_profile",
          "links": {
            "self": "http://{ip}/icfb/v1/v"
          },
          "properties": {
            "oid": "c0ace928-5b1e-4530-8e5",
            "name": "vlan36",
            "system_object": false,
            "switch_name": "dvSwitch"
          }
        }
      }
    },
    "trunk_interface": {
      "system_object": false,
      "port_profile_summary": {
        "object_type": "port_profile",
        "links": {
          "self": "http://{ip}/icfb/v1/v"
        },

```

```
        "properties":{
            "oid":"769438f8-79e8-4e40-816",
            "name":"ent-trunk",
            "system_object":false,
            "switch_name":"dvSwitch"
        }
    }
}
},
"provider_instance_id":"5033ebef-5497-9910-6"
}
]
}
}
},
"cloud2":{
    "system_object":false,
    "cloud_summary":{
        "object_type":"icf_cloud",
        "links":{
            "self":"http://{ip}/icfb/v1/icf-clouds/aaa36833-2c"
        },
        "properties":{
            "oid":"aaa36833-2c65-4290-a4d4-4f5e7730c872",
            "name":"aws-cloud",
            "system_object":false,
            "cloud_type":"aws-ec2",
            "location":"us-east-1"
        }
    },
    "agent_configuration":{
        "system_object":false,
        "agent_type":"ics",
        "ip_configuration":{
            "system_object":false,
            "mgmt":{
                "system_object":false,
                "ip_pool_summary":{
                    "object_type":"ip_pools",
                    "links":{
                        "self":"http://{ip}/icfb/v1/networks/a090"
                    },
                    "properties":{
                        "oid":"e8921277-9e8e-4ed9-9eec-1a8e092728",
                        "name":"Pool1",
                        "system_object":false
                    }
                }
            }
        }
    },
    "placement":{
        "system_object":false,
```

```
"virtual_account_summary":{
  "object_type":"virtual_account",
  "links":{
    "self":"http://{ip}/icfb/v1/virtual-accounts
  },
  "properties":{
    "oid":"17418932-035e-407c-9c79-40ea6b01651f"
    "name":"awscloud",
    "system_object":false,
    "virtual_account_type":"aws-ec2"
  }
},
"instances":[
  {
    "oid":"0a89acfb-daf8-4e35-90b0-7abc2d8cec90"
    "name":"link-life-ics-1",
    "system_object":false,
    "ha_role":"STANDALONE",
    "power_state":"on",
    "instance_config":{
      "system_object":false,
      "network":{
        "system_object":false,
        "mgmt_interface":{
          "system_object":false,
          "ip_address":"10.30.31.67"
        },
        "provider_interface":{
          "system_object":false,
          "private_ip_address":"10.99.219.181"
          "public_ip_address":"54.163.157.22"
        }
      }
    }
  },
  "provider_instance_id":"i-0ac7e097"
]
}
},
"deploy_state":"deployed",
"primary_power_state":"on"
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     ]   } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul> |
| Application error codes | None.  |

## API to retrieve an ICF link

The Get ICF Link API retrieves the details of the specified ICF link.

| API Attribute    | Description   |
|------------------|---|
| URI              | <pre> /icf-links/{oid} </pre>   |
| Method           | GET   |
| REQUEST PAYLOAD  | None  |
| Response Payload | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://{ip}/icfb/v1/service-reque         "operations": {           "reboot": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4d           "switchover": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee0           "stop": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4ddc           "start": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4dd           "delete": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4d         }       },       "object_type": "icf_link",       "links": {         "self": "http://{ip}/icfb/v1/icf-links/a3ab8c65-ee09-4ddc-a5       },       "properties": {         "oid": "a3ab8c65-ee09-4ddc-a51e-eed36f826742",         "name": "link2-ha",         "object_status": {           "status": "success",           "last_sr_oid": "3b5837d7-0679-418f-9f06-032abaafd04c"         },         "system_object": false,         "icf_link_configuration": {           "tunnel_parameters": { </pre> |

```
        "protocol": "UDP",
        "use_https": false
    }
},
"cloud1": {
    "system_object": false,
    "cloud_summary": {
        "object_type": "icf_cloud",
        "links": {
            "self": "http://{ip}/icfb/v1/icf-clouds/8c14a24d-c9
        },
        "properties": {
            "oid": "8c14a24d-c929-4745-aab7-0b4b68f4cd95",
            "name": "system_default_icfcloud_vmware",
            "system_object": false,
            "cloud_type": "vmware"
        }
    },
    "agent_configuration": {
        "system_object": false,
        "agent_type": "icx",
        "ip_configuration": {
            "system_object": false,
            "mgmt": {
                "system_object": false,
                "ip_pool_summary": {
                    "object_type": "ip_pools",
                    "links": {
                        "self": "http://{ip}/icfb/v1/networks/a090
                    },
                    "properties": {
                        "oid": "608628b8-2466-41e0-9f8f-567d4df977
                        "name": "Pool2",
                        "system_object": false
                    }
                }
            }
        }
    },
    "placement": {
        "system_object": false,
        "virtual_account_summary": {
            "object_type": "virtual_account",
            "links": {
                "self": "http://{ip}/icfb/v1/virtual-accounts
            },
            "properties": {
                "oid": "65bd101f-a0cc-4e06-a3ca-c5c6bcf9e3bc"
                "name": "vmware",
                "system_object": false,
                "virtual_account_type": "vmware"
            }
        }
    },
    "instances": [
```

```
{
  "oid": "de5c4a1c-69e9-4c0d-bd67-21745350d1e6"
  "name": "link2-ha-icx-1-163805296593390558774"
  "system_object": false,
  "ha_role": "primary",
  "power_state": "on",
  "instance_config": {
    "system_object": false,
    "compute": {
      "system_object": false,
      "memory": {
        "value": 2048,
        "unit": "MB"
      },
      "cpu_count": 2,
      "placement_summary": {
        "object_type": "host",
        "links": {
          "self": "http://{ip}/icfb/v1/virt"
        },
        "properties": {
          "oid": "0a44c1ae-9eb7-4b82-9f50-a"
          "name": "10.30.31.10",
          "system_object": false,
          "mor_id": "host-48"
        }
      }
    }
  },
  "storage": {
    "system_object": false,
    "disks": [
      {
        "system_object": false,
        "disk_size": {
          "value": 20,
          "unit": "GB"
        }
      }
    ]
  },
  "placement_summary": {
    "object_type": "datastore",
    "links": {
      "self": "http://{ip}/icfb/v1/virt"
    },
    "properties": {
      "oid": "2dd86c28-c5f8-4f3d-be4d-0"
      "name": "datastore1-2",
      "system_object": false,
      "mor_id": "datastore-49"
    }
  }
},
"network": {
```

```
"system_object":false,
"mgmt_interface":{
  "system_object":false,
  "ip_address":"10.30.31.96",
  "port_profile_summary":{
    "object_type":"port_profile",
    "links":{
      "self":"http://{ip}/icfb/v1/v
    },
    "properties":{
      "oid":"c0ace928-5ble-4530-8e5
      "name":"vlan36",
      "system_object":false,
      "switch_name":"dvSwitch"
    }
  }
},
"trunk_interface":{
  "system_object":false,
  "port_profile_summary":{
    "object_type":"port_profile",
    "links":{
      "self":"http://{ip}/icfb/v1/v
    },
    "properties":{
      "oid":"769438f8-79e8-4e40-816
      "name":"ent-trunk",
      "system_object":false,
      "switch_name":"dvSwitch"
    }
  }
},
"provider_instance_id":"503315e0-0b4c-4a02-3
{
  "oid":"f2f1800e-386d-43d5-a4f6-33f0602ffffcd"
  "name":"link2-ha-icx-2-162379353821670794131
  "system_object":false,
  "ha_role":"secondary",
  "power_state":"on",
  "instance_config":{
    "system_object":false,
    "compute":{
      "system_object":false,
      "memory":{
        "value":2048,
        "unit":"MB"
      },
      "cpu_count":2,
      "placement_summary":{
        "object_type":"host",
```



```
    "links":{
      "self":"http://{ip}/icfb/v1/virt
    },
    "properties":{
      "oid":"0a44clae-9eb7-4b82-9f50-a
      "name":"10.30.31.10",
      "system_object":false,
      "mor_id":"host-48"
    }
  },
  "storage":{
    "system_object":false,
    "disks":[
      {
        "system_object":false,
        "disk_size":{
          "value":20,
          "unit":"GB"
        }
      }
    ],
    "placement_summary":{
      "object_type":"datastore",
      "links":{
        "self":"http://{ip}/icfb/v1/virt
      },
      "properties":{
        "oid":"2dd86c28-c5f8-4f3d-be4d-0
        "name":"datastore1-2",
        "system_object":false,
        "mor_id":"datastore-49"
      }
    }
  },
  "network":{
    "system_object":false,
    "mgmt_interface":{
      "system_object":false,
      "ip_address":"10.30.31.97",
      "port_profile_summary":{
        "object_type":"port_profile",
        "links":{
          "self":"http://{ip}/icfb/v1/v
        },
        "properties":{
          "oid":"c0ace928-5ble-4530-8e5
          "name":"vlan36",
          "system_object":false,
          "switch_name":"dvSwitch"
        }
      }
    }
  },
}
```

```

        "trunk_interface":{
            "system_object":false,
            "port_profile_summary":{
                "object_type":"port_profile",
                "links":{
                    "self":"http://{ip}/icfb/v1/v
                },
                "properties":{
                    "oid":"769438f8-79e8-4e40-816
                    "name":"ent-trunk",
                    "system_object":false,
                    "switch_name":"dvSwitch"
                }
            }
        },
        "provider_instance_id":"50339949-45f4-625f-d
    ],
}
},
"cloud2":{
    "system_object":false,
    "cloud_summary":{
        "object_type":"icf_cloud",
        "links":{
            "self":"http://{ip}/icfb/v1/icf-clouds/9224c517-60
        },
        "properties":{
            "oid":"9224c517-6036-4775-8bf1-9c1d471df0f2",
            "name":"cloud2-ha",
            "system_object":false,
            "cloud_type":"aws-ec2",
            "location":"us-east-1"
        }
    },
    "agent_configuration":{
        "system_object":false,
        "agent_type":"ics",
        "ip_configuration":{
            "system_object":false,
            "mgmt":{
                "system_object":false,
                "ip_pool_summary":{
                    "object_type":"ip_pools",
                    "links":{
                        "self":"http://{ip}/icfb/v1/networks/a090
                    },
                    "properties":{
                        "oid":"e8921277-9e8e-4ed9-9eec-1a8e092728
                        "name":"Pool1",

```

```
        "system_object":false
      }
    }
  },
  "placement":{
    "system_object":false,
    "virtual_account_summary":{
      "object_type":"virtual_account",
      "links":{
        "self":"http://{ip}/icfb/v1/virtual-accounts
      },
      "properties":{
        "oid":"17418932-035e-407c-9c79-40ea6b01651f"
        "name":"awscloud",
        "system_object":false,
        "virtual_account_type":"aws-ec2"
      }
    },
    "instances":[
      {
        "oid":"7f4d5b04-36d3-4833-ab40-5cac3aab4304"
        "name":"link2-ha-ics-1",
        "system_object":false,
        "ha_role":"PRIMARY",
        "power_state":"on",
        "instance_config":{
          "system_object":false,
          "network":{
            "system_object":false,
            "mgmt_interface":{
              "system_object":false,
              "ip_address":"10.30.31.68"
            },
            "provider_interface":{
              "system_object":false,
              "private_ip_address":"10.180.65.71"
              "public_ip_address":"54.211.250.50"
            }
          }
        }
      },
      "provider_instance_id":"i-3fdb92a2"
    },
    {
      "oid":"5b23d637-8f01-402e-b3c7-fb04dc26e641"
      "name":"link2-ha-ics-2",
      "system_object":false,
      "ha_role":"SECONDARY",
      "power_state":"on",
      "instance_config":{
        "system_object":false,
        "network":{
          "system_object":false,
```

```
    "mgmt_interface":{
      "system_object":false,
      "ip_address":"10.30.31.69"
    },
    "provider_interface":{
      "system_object":false,
      "private_ip_address":"10.111.214.87"
      "public_ip_address":"54.157.237.73"
    }
  },
  "provider_instance_id":"i-9ed89103"
]
}
},
"deploy_state":"deployed",
"primary_power_state":"on",
"secondary_power_state":"on"
}
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     ]   } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Entry not found.</li> </ul> |
| Application error codes | None.  |

## API to update ICF link

The Update ICF Link API updates the properties of the specified ICF link.

### Note:

- Only an ICF link with a failed deployment can be updated.
- The payload structure of the update is the same as the payload for creating a new ICF link.
- Any and all payload attributes can be updated.
- If a blank payload is sent, it retriggers a failed ICF link deployment with the same configuration.

| API Attribute   | Description   |
|-----------------|---|
| URI             | <pre> /icf-links/{oid} </pre>   |
| Method          | PUT   |
| REQUEST PAYLOAD | <pre> {   "name" : "icf-aws-2",   "description": "this is a icf-link",   "icf_link_configuration": {     "tunnel_parameters":{       "protocol": "UDP",       "use_https": "false"     }   },   "cloud1": {     "icf_cloud_oid" : "21a0f985-6d54-4d80-a06f-35dcef098cc7",     "agent_configuration": {       "agent_type": "icx",       "ip_configuration": {         "mgmt": {           "ip_pool_oid": "0c53e400-f1e4-44aa-bd18-5aafe0de190"         }       }     },     "placement": {       "instances": [         {           "ha_role": "standalone",           "compute": {             "host_oid": "7359330b-c026-4559-918e-9d234b2015"           }         }       ]     }   } } </pre> |

```
        "storage": {
            "datastore_oid":
"dc01b675-fb0d-48db-90be-c3b1800645a2"
        },
        "network": {
            "mgmt": {
                "port_group_oid":
"4615a234-e0c3-44c0-b304-8f982f97dbc9"
            },
            "trunk": {
                "port_group_oid":
"f0aec588-9ff2-4c80-bab0-0bb88432063d"
            }
        }
    ]
}
},
"cloud2":{
    "icf_cloud_oid" : "5a4f1c2b-f351-4229-8401-ba499d8257cc",
    "agent_configuration": {
        "agent_type": "ics",
        "ip_configuration": {
            "mgmt": {
                "ip_pool_oid": "0c53e400-f1e4-44aa-bd18-5aafe0de190"
            }
        }
    }
}
```

```
}
```

```
{  
  "name" : "icf-ha-4",  
  "description": "this is a icf-link",  
  "icf_link_configuration": {  
    "tunnel_parameters":{  
      "protocol": "UDP",  
      "use_https": "false"  
    }  
  },  
  "cloud1": {  
    "icf_cloud_oid" : "9b52e80d-4340-4731-9178-76d74bf082df",  
    "agent_configuration": {  
      "agent_type": "icx",  
      "ip_configuration": {  
        "mgmt": {  
          "ip_pool_oid": "b2e0bcc4-7f2a-4799-bb92-988fe8b153f"  
        }  
      },  
      "placement": {  
        "instances": [  
          {  
            "ha_role": "primary",  
            "compute": {  
              "host_oid": "3af9ab44-18e0-409a-8595-3920273bdb"  
            },  
            "storage": {  
              "datastore_oid":  
"94b61bb1-84c2-4f4a-88fa-cb8782b82025"  
            },  
            "network": {  
              "mgmt": {  
                "port_group_oid":  
"d6462f8e-bbb3-4cfb-a765-4c35d7e63f2f"  
              }  
            },  
            "trunk": {  
              "port_group_oid":  
"167367b6-536d-42c2-9e36-0e2bf2b7e9fb"  
            }  
          }  
        ],  
      },  
      {  
        "ha_role": "secondary",  
        "compute": {  
          "host_oid": "3af9ab44-18e0-409a-8595-3920273bdb"  
        },  
        "storage": {  
          "datastore_oid":
```

```
"94b61bb1-84c2-4f4a-88fa-cb8782b82025"
  },
  "network": {
    "mgmt": {
      "port_group_oid":
"d6462f8e-bbb3-4cfb-a765-4c35d7e63f2f"
    },
    "trunk": {
      "port_group_oid":
"167367b6-536d-42c2-9e36-0e2bf2b7e9fb"
    }
  }
}

]
}
}
},
"cloud2":{
  "icf_cloud_oid" : "971a3a3f-0521-49d7-9581-5afad228f6c7",
  "agent_configuration": {
    "agent_type": "ics",
    "ip_configuration": {
      "mgmt": {
        "ip_pool_oid": "b2e0bcc4-7f2a-4799-bb92-988fe8b153f"
      }
    }
  }
}
}
```



|                                |  |
|--------------------------------|--|
|                                | <pre> } </pre>   |
| <b>HTTP RESPONSE STATUS</b>    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - Bad request.</li> <li>• 409 - Conflict in the request.</li> <li>• 412 - Precondition failed.</li> </ul> <p>All standard HTTP errors are returned as applicable.</p>   |
| <b>RESPONSE PAYLOAD</b>        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/9eb577c3-2b42-4ddd-aab7-f841e422e     }   } } </pre>   |
| <b>Application error codes</b> | <ul style="list-style-type: none"> <li>• 201 - A resource is not found.</li> <li>• 403 - A required field is missing.</li> <li>• 18616 - The ICF link {0} (OID:{1}) cannot be updated because it is in {2} state. Updating an ICF link is supported only when the deployment failed state.</li> <li>• 18617 - The ICF link {0} (OID:{1}) cannot be updated because it is in HA mode {2}.</li> <li>• 18621 - The native VLAN must be in the range 1-4094.</li> <li>• 18622 - The native VLAN is not applicable for ICS.</li> <li>• 18623 - None of the configured DNS servers are reachable. This operation requires the configured DNS servers to be reachable the DNS servers are accessible.</li> <li>• 102001 - The port group mode {0} is invalid. The mode must be access.</li> <li>• 102003 - The port group VLAN {0} does not match the network VLAN {1}. The port group VLAN should be the same as the network VLAN.</li> <li>• 102004 - The data store with the OID {0} does not belong to the host with the OID {1}. This operation can be performed only if the data store belongs to the host.</li> <li>• 102005 - Host information is missing for the data store {0}. Confirm that the data store belongs to the host.</li> <li>• 102006 - Invalid data store OID {0}. Confirm that the OID is correct.</li> <li>• 102008 - The host with the OID {0} does not belong to the virtual account with the name {1} (OID: {2}). This operation can be performed only if the host belongs to the virtual account.</li> <li>• 102009 - A switch reference is missing for the port profile with the OID {0}. A port profile must belong to a switch.</li> <li>• 102010 - The port group with the OID {0} does not belong to the host with the OID {1}. This operation can be performed only if the port group belongs to the host.</li> <li>• 102011 - The switch with the OID {0} does not have a host reference. A switch must belong to a host.</li> <li>• 102012 - An invalid switch OID {0} has been found for the port group with the OID {1}. Confirm that the switch OID is correct.</li> <li>• 102013 - Invalid port profile OID {0}. Confirm that the port profile OID is correct.</li> </ul> |

## API to delete ICF link

The Delete ICF Link API deletes the specified ICF link.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <code>/icf-links/{oid}</code>   |
| Method                  | DELETE  |
| REQUEST PAYLOAD         | No payload  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Accepted.</li> <li>• 404 - Not found.</li> </ul> All standard errors are returned as applicable.   |
| RESPONSE PAYLOAD        | <pre>{   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request":       "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a"     }   } }</pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 18607 - The ICF link {0} (OID:{1}) cannot be deleted because active VDCs are associated with the link.</li> <li>• 18609 - The ICF link with OID {0} is not found.</li> <li>• 18618 - Starting, stopping, rebooting, or deleting the ICF link cannot be performed because the referenced object with the name is busy. Try again in a few minutes.</li> </ul> |

## Operations on ICF link

### API to start ICF link

The Start ICF Link API starts the specified ICF link.

| API Attribute   | Description   |
|-----------------|---|
| URI             | <code>/icf-links/{oid}/start</code>                     |
| Method          | POST  |
| REQUEST PAYLOAD | <pre>{"ha_role" : "primary secondary standalone"}</pre> |

|                         |  |
|-------------------------|--|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Accepted.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p>   |
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a"     }   } } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 18603 - The ICF link {0} (OID:{1}) is not deployed. The ICF link must in the deployed state for this operation.</li> <li>• 18604 - The ICF link {0} (OID:{1}) is not HA-enabled.</li> <li>• 18605 - The ICF link {0} (OID:{1}) is HA-enabled, not standalone.</li> <li>• 18611 - An HA role is required for this operation. Specify one of the following roles: standalone, primary, or secondary.</li> <li>• 18612 - This operation is not allowed on a powered-on ICX or ICS. Only the stop and reboot operations are allowed.</li> <li>• 18618 - Starting, stopping, rebooting, or deleting the ICF link cannot be performed because the referenced object with the name is busy. Try again in a few minutes.</li> <li>• 18624 - Cannot obtain the ICF link {0} details from ICF. Try again in a few minutes.</li> <li>• 18626 - This operation is not allowed because another operation on the ICF link is in progress on ICF.</li> </ul> |

## API to stop ICF link

The Stop ICF Link API stops the specified ICF link.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /icf-links/{oid}/stop </pre>   |
| Method               | POST   |
| REQUEST PAYLOAD      | <pre> {"ha_role" : "primary secondary standalone"} </pre>  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Accepted.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |

|                         |  |
|-------------------------|--|
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 18603 - The ICF link {0} (OID:{1}) is not deployed. ICF link must be in the deployed state for this operation.</li> <li>• 18604 - The ICF link {0} (OID:{1}) is not HA-enabled.</li> <li>• 18605 - The ICF link {0} (OID:{1}) is HA-enabled, not standalone.</li> <li>• 18611 - An HA role is required for this operation. Specify one of the following roles: standalone, primary, or secondary.</li> <li>• 18613 - The operation is not allowed on a powered-off ICX and ICS. Only the start operation is allowed.</li> <li>• 18618 - Starting, stopping, rebooting, or deleting the ICF link cannot be performed because the referenced object with the name is busy. Try again in a few minutes.</li> <li>• 18624 - Cannot obtain the ICF link {0} details from ICF. Try again in a few minutes.</li> <li>• 18626 - This operation is not allowed because other operation on the ICF link is in progress on ICF.</li> </ul> |

## API to reboot ICF link

The Reboot ICF Link API restarts the specified ICF link.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /icf-links/{oid}/reboot </pre>   |
| Method               | POST   |
| REQUEST PAYLOAD      | <pre> {"ha_role" : "primary secondary standalone"} </pre>  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Accepted.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |

|                         |  |
|-------------------------|--|
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 18603 - The ICF link {0} (OID:{1}) is not deployed. The ICF link must be in the deployed state for this operation.</li> <li>• 18604 - The ICF link {0} (OID:{1}) is not HA-enabled.</li> <li>• 18605 - The ICF link {0} (OID:{1}) is HA-enabled, not standalone.</li> <li>• 18611 - An HA role is required for this operation. Specify one of the following roles: standalone, primary, or secondary.</li> <li>• 18618 - Starting, stopping, rebooting, or deleting the ICF link cannot be performed because the referenced object with the name is busy. Try again in a few minutes.</li> <li>• 18624 - Cannot obtain ICF link {0} details from ICF. Try again in a few minutes.</li> <li>• 18626 - The operation is not allowed because another operation on the ICF link is in progress on ICF.</li> </ul> |

## API to switchover ICF link

The Switch Over ICF Link API causes the specified primary ICF link that is enabled for high availability to switch over to the secondary ICF link.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /icf-links/{oid}/switchover </pre>   |
| Method               | POST   |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 202 - Accepted.</li> <li>• 404 - Not found.</li> </ul> <p>All standard errors are returned as applicable.</p> |

|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a     }   } } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 18603 - The ICF link {0} (OID:{1}) is not deployed. An ICF link must be in the deployed state for this operation.</li> <li>• 18604 - The ICF link {0} (OID:{1}) is not HA-enabled.</li> <li>• 18619 - An ICF link switchover operation cannot be performed because the referenced object with the name {0} (OID:{1}) is b a few minutes.</li> <li>• 18620 - An ICF link switchover is not allowed because the referenced object with the name {0} (OID:{1}) is powered off.</li> </ul> |

## API to get ICF link status

The Get ICF Link Status API retrieves detailed information about the specified ICF link.

| Property  | Type   | Value                                     | Description  |
|-----------|--------|---|--|
| component |        |   |  |
| type      | string | icx ics icf-link                          | Represents the component type.                         |
| role      | string | primary secondary standalone              | Represents the role of the particular component.       |
| status    |        |   |  |
| type      | string | operational tunnel config ha power module | Represents the status type.                            |
| value     | string | Check the status table in detail          | Contains the status for the corresponding status type. |

Status is reported at three levels:

- **ICS/ICX component level** – Different status (configuration, tunnel, HA, and power) for individual ICS and ICX components.
- **ICF link pair level** – Different status (configuration, tunnel, HA, and power) for each ICS/ICX pair (standalone, primary, and secondary) rolled up from the ICS and ICX components.
- **ICF link level** – The consolidated, single, overall operational status at the top level.

| Status Type | Available at Level | Description   | Value   | Value Description   |
|-------------|--------------------|---|---------|---|
| operational | ICF link           | The overall status of the ICF link, which is consolidated from configuration, HA, tunnel, and power status. | unknown | <p>The operational status is unknown in the following situations:</p> <ul style="list-style-type: none"> <li>• If the deployment status is not deployed.</li> <li>• In a standalone deployment, if the HA status for one component is unknown. In an HA deployment, if the HA status for one component from each primary and secondary is unknown.</li> <li>• In a standalone deployment, if the configuration status for one component is not_applied. In an HA deployment, if the configuration status for one component from each primary and secondary is not_applied.</li> <li>• If one of the instance objects of a standalone ICS-ICX pair is not present. If one of the instance objects each of a HA ICS-ICX pair is not present.</li> </ul> |

|        |  |   |                       |  |
|--------|--|---|-----------------------|--|
|        |  |   | partially operational | The operational status is partially operational in the following situations: <ul style="list-style-type: none"> <li>For an HA pair, only one tunnel status is up.</li> <li>A tunnel is up for all components but the configuration status is fail_to_apply or partially_applied.</li> <li>For HA, only the active peer's module is registered and online.</li> <li>For HA, both active and standby peers are present but only the modules of the active peer are online.</li> </ul>  |
|        |  |   | operational           | All status for all components are in good state.   |
|        |  |   | not operational       | The operational status is not operational in the following situations: <ul style="list-style-type: none"> <li>The power status for one standalone component is not powered on, or one component from each primary and secondary is not powered on.</li> <li>The power status for one standalone component is powered on and the tunnel status is not up, or one component from each primary and secondary is not powered on and the tunnel status is not up.</li> <li>The power status for one standalone component is powered on, the tunnel status is up, and the HA state is not active, or one component from each primary and secondary is powered on, the tunnel status up, and the HA state is not active or standby.</li> <li>In a standalone deployment, the status of the only available module is not yet available or offline. In an HA deployment, the module status of one or both of the instances is not yet available or offline</li> </ul> |
| tunnel | ICF link pair,<br><br>individual ICS/ICX | Status of site-to-site tunnel between ICS and ICX.<br><br>This status is reported for individual ICX/ICS components and for the ICS-ICX pair. | up                    |  |
|        |  |   | down                  |  |
|        |  |   | failed                |  |
|        |  |   | destroyed             | PA report failed for destroyed tunnel status. The destroyed tunnel status is currently being used between PA and the platform tunnel manager module.   |
| config | ICF link pair,<br><br>individual ICS/ICX | Configuration status.<br><br>This status is reported for individual ICS/ICX components and for the ICS-ICX pair.                              | not-applied           |  |
|        |  |   | applying              |  |
|        |  |   | applied               |  |
|        |  |   | fail_to_apply         |  |
|        |  |   | partially_applied     |  |
| ha     | ICF link pair,<br><br>individual ICS/ICX | High availability status.<br><br>This status is reported for individual ICS/ICX components and for the ICS-ICX pair.                          | waiting               |  |
|        |  |   | active                |  |
|        |  |   | standby               |  |
|        |  |   | error                 |  |
|        |  |   | unknown               |  |
| power  | ICF link pair,<br><br>individual ICS/ICX | Power status.<br><br>This status is reported for individual ICS/ICX components and for the ICS-ICX pair.                                      | on                    |  |
|        |  |   | off                   |  |
| module | ICF link pair,<br><br>Individual ICS/ICX | Module status<br><br>This status is reported for individual ICS/ICX components and for the ICS-ICX pair.                                      | online                |  |
|        |  |   | offline               |  |
|        |  |   | not_available         | When the module is not registered to cVSM and not yet available to be collected.   |

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                      |  |
|----------------------|--|
| URI                  | <div style="border: 1px dashed blue; padding: 10px; text-align: center;">       /icf-links/{oid}/status     </div>   |
| Method               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200</li> </ul>  |
| RESPONSE PAYLOAD     | <pre> Standalone  {   "links":{     "self":"http://(ip)/icfb/v1/icf-links/(oid)/status"   },   "relationships":{     "icf-link":"http://(ip)/icfb/v1/icf-links/(oid)"   },   "object_type":"icflink_status",   "properties":{     "status":[ //top level status       {         "type":"operational",         "value":"operational"       }     ],     "components":[       {         "type":"icf-link",         "role":"standalone",         "status":[ //icf-link component level status           {             "type":"tunnel",             "value":"operational"           },           {             "type":"config",             "value":"fail-to-apply",             "error_message":"unable to reach endpoint "           },           {             "type":"ha",             "value":"active"           },           {             "type":"power",             "value":"poweredOn"           },           {             "type":"module",             "value":"online"           }         ]       }     ]   } } </pre> |



```
    }
  ],
  "components": [
    {
      "type": "icx",
      "role": "standalone",
      "status": [ //icx component level status
        {
          "type": "tunnel",
          "value": "operational"
        },
        {
          "type": "config",
          "value": "applied"
        },
        {
          "type": "ha",
          "value": "active"
        },
        {
          "type": "power",
          "value": "poweredOn"
        },
        {
          "type": "module",
          "value": "online"
        }
      ]
    },
    {
      "type": "ics",
      "role": "standalone",
      "status": [ //ics component level status
        {
          "type": "tunnel",
          "value": "operational"
        },
        {
          "type": "config",
          "value": "applied"
        },
        {
          "type": "ha",
          "value": "active"
        },
        {
          "type": "power",
          "value": "poweredOn"
        },
        {
          "type": "module",
          "value": "online"
        }
      ]
    }
  ]
}
```

```
}  
]  
}  
]
```

```
    ]
  }
}
```

## High Availability

```
{
  "links":{
    "self":"http://(ip)/icfb/v1/icf-links/(oid)/status"
  },
  "relationships":{
    "icf-link":"http://(ip)/icfb/v1/icf-links/(oid)"
  },
  "object_type":"icflink_status",
  "properties":{
    "status":[ //overall status
      {
        "type":"operational",
        "value":"operational"
      }
    ],
    "components":[
      {
        "type":"icf-link",
        "role":"primary",
        "status":[ //status at primary peer
          {
            "type":"tunnel",
            "value":"operational"
          },
          {
            "type":"config",
            "value":"fail-to-apply",
            "error_message":"unable to reach
endpoint "
          }
        ],
        {
          "type":"ha",
          "value":"active"
        },
        {
          "type":"power",
          "value":"poweredOn"
        },
        {
          "type":"module",
          "value":"online"
        }
      }
    ],
    "components":[
      {
```

```
"type":"icx",
"role":"primary",
"status":[ //status at icx level
  {
    "type":"tunnel",
    "value":"operational"
  },
  {
    "type":"config",
    "value":"applied"
  },
  {
    "type":"ha",
    "value":"active"
  },
  {
    "type":"power",
    "value":"poweredOn"
  },
  {
    "type":"module",
    "value":"online"
  }
]
},
{
  "type":"ics",
  "role":"primary",
  "status":[ //status at ics level
    {
      "type":"tunnel",
      "value":"operational"
    },
    {
      "type":"config",
      "value":"applied"
    },
    {
      "type":"ha",
      "value":"active"
    },
    {
      "type":"power",
      "value":"poweredOn"
    },
    {
      "type":"module",
      "value":"online"
    }
  ]
}
]
},
```

```
{
  "type": "icf-link",
  "role": "secondary",
  "status": [ //status at secondary peer level
    {
      "type": "tunnel",
      "value": "operational"
    },
    {
      "type": "config",
      "value": "fail-to-apply",
      "error_message": "unable to reach
endpoint"
    },
    {
      "type": "ha",
      "value": "standby"
    },
    {
      "type": "power",
      "value": "poweredOn"
    },
    {
      "type": "module",
      "value": "online"
    }
  ],
  "components": [
    {
      "type": "icx",
      "role": "secondary",
      "status": [
        {
          "type": "tunnel",
          "value": "operational"
        },
        {
          "type": "config",
          "value": "applied"
        },
        {
          "type": "ha",
          "value": "standby"
        },
        {
          "type": "power",
          "value": "poweredOn"
        },
        {
          "type": "module",
          "value": "online"
        }
      ]
    }
  ]
}
```

```
    },
    {
      "type": "ics",
      "role": "secondary",
      "status": [
        {
          "type": "tunnel",
          "value": "operational"
        },
        {
          "type": "config",
          "value": "applied"
        },
        {
          "type": "ha",
          "value": "standby"
        },
        {
          "type": "power",
          "value": "poweredOn"
        },
        {
          "type": "module",
          "value": "online"
        }
      ]
    }
  ]
}
```

|                         |                         |
|-------------------------|-------------------------|
|                         | <pre>     ]   } }</pre> |
| Application error codes |                         |
| Stub Build #            |                         |
| Functional Build #      |                         |

- **Images and Catalogs**

- **Images**

An image uploaded to ICF can be used later to create a catalog in the Intercloud Fabric cloud. For Linux images with selinux enabled and the mode set to enforcing, ICF changes the mode to permissive automatically as part of catalog creation.

The Image APIs enable you to perform image-related CRUD operations.

- **Metadata**

| Property    | Operations (Create, Update, Read) | Type   | Range | Default | Mandatory During Create | Description   |
|-------------|-----------------------------------|--------|-------|---------|-------------------------|---|
| name        | C                                 | string | 1-256 |         | Yes                     | Image name.   |
| description | C, R ,U                           | string | 1-256 |         | No                      | Image description.  |
| ip_address  | C                                 | string |       |         | Yes                     | IP address of the remote server.  |
| user_name   | C                                 | string | 1-256 |         | Yes                     | Username on the remote server.  |
| password    | C                                 | string | 1-256 |         | Yes                     | Password of the remote server.  |
| protocol    | C                                 | string |       |         | Yes                     | The protocol used to upload an image. The supported protocol formats are SCP and FTP.           |
| image_path  | C                                 | string | 1-256 |         | Yes                     | Path on the remote server where the file is located. Example: /home/kumotest/filename.extension |

### API to upload image from remote SCP server

The Upload Image from an SCP Server API uploads an image from a remote SCP server.

| API Attribute   | Description   |
|-----------------|---|
| URI             | /images   |
| Method          | POST  |
| Request Payload | <pre> POST /images {   "name" : "fileabc",   "ip_address" : "192.0.1.2",   "user_name" : "root",   "password" : "pwd",   "protocol" : "SCP",   "image_path" : "/home/kumotest/image1.ova" }</pre> |

|                         |  |
|-------------------------|--|
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - Bad request; invalid parameters.</li> </ul>   |
| RESPONSE PAYLOAD        | None, unless there is an error.<br>The location attribute in the header contains the URL of the newly created network resource.  |
| Application error codes | <ul style="list-style-type: none"> <li>• 402 - Unrecognized protocol.</li> <li>• 403 - A required field is missing.</li> <li>• 408 - Incorrect length.</li> <li>• 9001 - a.b.c.d is not a valid IPv4 address.</li> <li>• 35018 - Another image with name "image_name" already exists. Provide a unique image name.</li> <li>• 35019 - The file extension for the image is not supported. Only OVA format is supported for uploading images.</li> </ul> |

## API to retrieve list of images

The Get Images API retrieves a list of the available images.

| API Attribute    | Description  |
|------------------|--|
| URI              | /images  |
| Method           | GET  |
| Request Payload  | NONE   |
| Response Payload | <pre>{   "value": [     {       "object_type": "image",       "links": {         "self": "http://{ip}/icfb/v1/images/02325356-a649-4be9-9b63-b2e03214f030"       },       "properties": {         "oid": "02325356-a649-4be9-9b63-b2e03214f030",         "name": "sunil",         "storage": {           "value": 10,           "unit": "GB"         },         "file_name": "swapniku-centos64-64.ova",         "image_format": "ova",         "os_info": {           "version": "6.4",           "type": "linux",           "os": "CentOS",           "architecture": "64bit"         },         "compute_info": {           "memory": {             "value": 2048,             "unit": "MB"           }         }       }     }   ] }</pre> |



```
    "cpu_count": 1
  },
  "no_of_vnics": 1,
  "in_use": false,
  "upload_status": "completed"
},
"relationships": {
  "active_service_request": "http:
//{{ip}}/icfb/v1/service-requests/{srOid}",
  "archived_service_requests": "http:
//{{ip}}/icfb/v1/service-requests?owner_oid={oid}"
}
},
{
{
  "object_type": "image",
  "links": {
    "self":
"http://{{ip}}/icfb/v1/images/dab25356-a649-4be9-9b63-b2e03214f030"
  },
  "properties": {
    "oid": "dab25356-a649-4be9-9b63-b2e03214f030",
    "name": "sunil",
    "storage": {
      "value": 10,
      "unit": "GB"
    },
    "file_name": "swapniku-centos63-64.ova",
    "image_format": "ova",
    "os_info": {
      "version": "6.3",
      "type": "linux",
      "os": "CentOS",
      "architecture": "64bit"
    },
    "compute_info": {
      "memory": {
        "value": 2048,
        "unit": "MB"
      },
      "cpu_count": 1
    },
    "no_of_vnics": 1,
    "in_use": false,
    "upload_status": "completed"
  },
  "relationships": {
    "active_service_request": "http:
//{{ip}}/icfb/v1/service-requests/{srOid}",
    "archived_service_requests": "http:
//{{ip}}/icfb/v1/service-requests?owner_oid={oid}"
```

|                         |   |
|-------------------------|---|
|                         | <pre>     }   }] }</pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Created successfully.</li> <li>• 400 - Bad request.</li> </ul> |
| Application error codes | <ul style="list-style-type: none"> <li>• 700 - GET not found.</li> </ul>                                      |

## API to retrieve an image

The Get Image API retrieves the details of the specified image.

| API Attribute | Description              |
|---------------|--------------------------|
| URI           | <pre>/images/{Oid}</pre> |
| Method        | GET                      |

|                         |  |
|-------------------------|--|
| Response payload        | <pre> {   "object_type": "image",   "links": {     "self": "http://{ip}/icfb/v1/images/02325356-a649-4be9-9b63-b2e03214f030"   },   "properties": {     "oid": "02325356-a649-4be9-9b63-b2e03214f030",     "name": "sunil",     "storage": {       "value": 10,       "unit": "GB"     },     "file_name": "swapniku-centos64-64.ova",     "image_format": "ova",     "os_info": {       "version": "6.4",       "type": "linux",       "os": "CentOS",       "architecture": "64bit"     },     "compute_info": {       "memory": {         "value": 2048,         "unit": "MB"       },       "cpu_count": 1     },     "no_of_vnics": 1,     "in_use": false,     "upload_status": "completed"   },   "relationships": {     "active_service_request": "http: ://{ip}/icfb/v1/service-requests/{srOid}",     "archived_service_requests": "http: ://{ip}/icfb/v1/service-requests?owner_oid={oid}"   } } </pre> |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 404 - Invalid OID.</li> </ul>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 700 - GET not found.</li> </ul>   |

## API to delete images

The Delete Image API deletes the specified image.

| API Attribute | Description |
|---------------|-------------|
|---------------|-------------|

|                        |  |
|------------------------|--|
| URI                    | <code>/images/{oid}</code>   |
| Method                 | DELETE   |
| REQUEST PAYLOAD        | None   |
| HTTP RESPONSE STATUS   | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Image not found.</li> </ul>   |
| RESPONSE PAYLOAD       | None, unless an application error payload is sent back.  |
| Application error code | <ul style="list-style-type: none"> <li>• 35011 - Image cannot be deleted; it is in use by the catalog with the OID.</li> <li>• 35012 - Cannot delete; an image upload is in progress.</li> <li>• 35013 - Cannot delete; a delete request for this image is in progress.</li> </ul> |

### • Catalog

A catalog item is created by the system administrator from an uploaded image. It is bound to a public ICF cloud where the template is created and has a set of user groups who can use it to deploy cloud VMs.

The Catalog API is used to self-provision virtual machines (VMs) using predefined catalog items.

### • Metadata

| Property                                 | Operations (Create,Update,Read) | Type    | Range                             | Mandatory During POST | Description   |
|--|---------------------------------|---------|-----------------------------------|-----------------------|---|
| name                                     | C                               | string  | 1-32                              | yes                   | Catalog name.   |
| image_oid                                | CR                              | string  |                                   | yes                   | Uploaded image OID.                                   |
| usergroup_oids                           | CR                              | array   | 1..n                              | ..                    | Array of user group OIDs.                             |
| icf_cloud_oids                           | C                               | array   | 1..n                              | yes                   | Array of cloud OIDs. Only one ICF cloud is supported. |
| allow_access_to_all_usergroups           | C                               | boolean | true/false                        | ..                    | Whether or not to allow access to all user groups.    |
| icf_cloud_template_status->status        | R                               | string  | DEPLOYED, DEPLOYING, DEPLOYFAILED | N/A                   | Status of deploying a catalog on a specific cloud.    |
| icf_cloud_template_status->icf_cloud_oid | R                               | string  |                                   |                       | ICF cloud OID   |
| icf_cloud_template_status->name          | R                               | string  |                                   |                       | ICF cloud name.                                       |

### API to create catalog from an image

The Create Catalog from Image API creates a new catalog from an image.

| API Attribute | Description                 |
|---------------|-----------------------------|
| URI           | <code>/catalog-items</code> |
| Method        | POST                        |

Request  
payload

Information included:

- Catalog name
- Image OID
- Allowing access to all user groups
- User group OIDs

```
POST /catalog-items
{
  "name": "catalog-name",
  "image_oid": "image-oid",
  "usergroup_oids": [
    "usergroup-oid1",
    "usergroup-oid2"
  ], "icf_cloud_oids" : [
    "cloud-oid1"
  ]
}
```

Payload to allow access to all usergroups:

```
POST /catalog-items
{
  "name": "catalog-name",
  "image_oid": "image-oid",
  "icf_cloud_oids" : [
    "cloud-oid1",
    "cloud-oid2"
  ],
  "allow_access_to_all_usergroups" : true
}
```

HTTP  
Response  
Status

- 202 - Request accepted; async operation started.
- 400 - Bad request.
- 412 - Precondition failed.

Response  
Payload

```
{
  "success": {
    "code": 400,
    "message": [
      "Create accepted, but not complete"
    ],
    "links": {
      "new_resource":
      "http://{ip}/icfb/v1/instances/db82b022-3d4e-4d77-b068-ac61c2226501",
      "service_request":
      "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"
    }
  }
}
```

|                         |  |
|-------------------------|--|
| HTTP error code         | <ul style="list-style-type: none"> <li>• 202 - Request accepted.</li> <li>• 403 - Not authorized to perform this operation.</li> <li>• 409 - Input validation failed.</li> </ul>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 35001 - Image with OID xxx not found.</li> <li>• 35002 - User group with OID(s) xxx not found.</li> <li>• 35003 - ICF cloud Information not found in the repository for the cloud with the OID xxx.</li> <li>• 35004 - The ICF cloud with the name xxx (OID - yyy) should be a public cloud.</li> <li>• 35005 - Catalog item creation failed; the specified image with the OID xxx is in use.</li> <li>• 35006 - Catalog item creation failed; specify allowed user groups or set allow_access_to_all_usergroups to true.</li> <li>• 35007 - Catalog item creation failed; do not specify allowed user groups if allow_access_to_all_usergroups is true.</li> <li>• 35014 - The catalog cannot be deployed on the ICF cloud with the name xxx (OID - yyy); an ICF link is not present.</li> </ul> |
| Comments                | The admin user needs to provide valid user groups or mark allow_access_to_all_usergroups flag as true.   |

### • Retrieve catalog APIs

The Retrieve Catalog APIs return the details of a particular catalog item or all catalog items. You can also send a user group filter as a query parameter.

### API to retrieve list of all catalog items

This API returns the catalog items that belong to the logged-in user's user group(s). If the logged-in user is *Admin*, all catalog items are returned.

| API Attribute    | Description  |
|------------------|--|
| URI              | <code>/catalog-items</code>  |
| METHOD           | GET  |
| REQUEST PAYLOAD  | None   |
| Response payload | <pre>{   "value": [     {       "relationships": {         "active_service_request": "http://173.36.217.60/icfb/v1/service-requests/e8df05fb-5cc3-4de0-a0f8- "},       "object_type": "catalog_item",       "links": {         "self": "http://173.36.217.60/icfb/v1/catalog-items/00142249-fa7c-473d-a4b2-d78 "},       "properties": {         "oid": "00142249-fa7c-473d-a4b2-d785c0300575",         "name": "cat1",         "object_status": {           "status": "success",           "last_sr_oid": "e8df05fb-5cc3-4de0-a0f8-4de23abc5efa"         },         "system_object": false,         "icf_cloud_template_status": [           {             "name": "remoteCloud",</pre> |

```
        "status": "UNDEPLOYED",
        "system_object": false,
        "icf_cloud_oid": "41ae8e49-2dcc-49de-9a49-2a786f602161"
    }
],
"image_summary": {
    "object_type": "image",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/images/ac8a101b-5fbb-4230-b5a8-c6f887222d
    },
    "properties": {
        "oid": "ac8a101b-5fbb-4230-b5a8-c6f887222d74",
        "name": "centos",
        "system_object": false
    }
},
"usergroup_summary": [
    {
        "object_type": "usergroup",
        "links": {
            "self":
"http://173.36.217.60/icfb/v1/user-groups/4e47e151-c896-490d-add3-4d06a
        },
        "properties": {
            "oid": "4e47e151-c896-490d-add3-4d06adc5f4e7",
            "name": "testGroup",
            "system_object": false
        }
    },
    {
        "object_type": "usergroup",
        "links": {
            "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd1
        },
        "properties": {
            "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
            "name": "system_default_admin",
            "system_object": false
        }
    },
    {
        "object_type": "usergroup",
        "links": {
            "self":
"http://173.36.217.60/icfb/v1/user-groups/16a45ed7-07e6-4a95-b3ba-83cda
        },
        "properties": {
            "oid": "16a45ed7-07e6-4a95-b3ba-83cda2b9e2af",
            "name": "system_default_enduser",
            "system_object": false
        }
    }
]
```

```
    }  
  ],  
  "compute_info": {  
    "system_object": false,  
    "memory": {  
      "value": 2048,  
      "unit": "MB"  
    },  
    "cpu_count": 1  
  },  
  "storage_info": {  
    "value": 1,  
    "unit": "GB"  
  },  
  "number_of_vnics": 1,  
  "os_info": {  
    "system_object": false,  
    "type": "linux",  
    "os": "CentOS",  
    "architecture": "64bit",  
    "version": "6.3"  
  }  
}
```



|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> |
| Application error codes | None   |

## API to retrieve catalog items under one or more user groups

This API returns the catalog items that belong to one or more user groups. Separate multiple user groups with a comma.

| API Attribute    | Description   |
|------------------|---|
| URI              | <pre> /catalog-items?user-group-oid={usergroup1},{usergroup2} </pre>  |
| METHOD           | GET   |
| REQUEST PAYLOAD  | None  |
| Response payload | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://173.36.217.60/icfb/v1/service-requests/e8df05fb-5cc3-4de0-a0f8- ",         "object_type": "catalog_item",         "links": {           "self": "http://173.36.217.60/icfb/v1/catalog-items/00142249-fa7c-473d-a4b2-d78 ",         },         "properties": {           "oid": "00142249-fa7c-473d-a4b2-d785c0300575",           "name": "cat1",           "object_status": {             "status": "success",             "last_sr_oid": "e8df05fb-5cc3-4de0-a0f8-4de23abc5efa"           },           "system_object": false,           "icf_cloud_template_status": [             {               "name": "remoteCloud",               "status": "UNDEPLOYED",               "system_object": false,               "icf_cloud_oid": "41ae8e49-2dcc-49de-9a49-2a786f602161"             }           ]         }       }     }   ] } </pre> |

```
    }
  ],
  "image_summary": {
    "object_type": "image",
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/images/ac8a101b-5fbb-4230-b5a8-c6f887222d
    },
    "properties": {
      "oid": "ac8a101b-5fbb-4230-b5a8-c6f887222d74",
      "name": "centos",
      "system_object": false
    }
  },
  "usergroup_summary": [
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/4e47e151-c896-490d-add3-4d06a
      },
      "properties": {
        "oid": "4e47e151-c896-490d-add3-4d06adc5f4e7",
        "name": "testGroup",
        "system_object": false
      }
    },
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd1
      },
      "properties": {
        "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
        "name": "system_default_admin",
        "system_object": false
      }
    },
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/16a45ed7-07e6-4a95-b3ba-83cda
      },
      "properties": {
        "oid": "16a45ed7-07e6-4a95-b3ba-83cda2b9e2af",
        "name": "system_default_enduser",
        "system_object": false
      }
    }
  ],
  "compute_info": {
```

```
    "system_object": false,
    "memory": {
      "value": 2048,
      "unit": "MB"
    },
    "cpu_count": 1
  },
  "storage_info": {
    "value": 1,
    "unit": "GB"
  },
  "number_of_vnics": 1,
  "os_info": {
    "system_object": false,
    "type": "linux",
    "os": "CentOS",
    "architecture": "64bit",
    "version": "6.3"
  }
}
```

|                         |   |
|-------------------------|---|
|                         | <pre>     }   ] } </pre>  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The user group OID does not exist.</li> <li>• 403 - The logged-in user is an end user and does not belong to the user group.</li> </ul>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 35008 - The user does not have access rights to view the catalog with the OID yyy.</li> <li>• 35009 - The user does not have access rights to view catalogs that belong to the user group OID(s) yyy.</li> </ul> |

## API to retrieve a single catalog item

This API returns a single catalog item.

| API Attribute    | Description   |
|------------------|---|
| URI              | <pre> /catalog-items/{catalog_item_oid} </pre>  |
| METHOD           | GET   |
| REQUEST PAYLOAD  | None  |
| Response Payload | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://173.36.217.60/icfb/v1/service-requests/e8df05fb-5cc3-4de0-a0f8- ",         "object_type": "catalog_item",         "links": {           "self": "http://173.36.217.60/icfb/v1/catalog-items/00142249-fa7c-473d-a4b2-d78 ",         },         "properties": {           "oid": "00142249-fa7c-473d-a4b2-d785c0300575",           "name": "cat1",           "object_status": {             "status": "success",             "last_sr_oid": "e8df05fb-5cc3-4de0-a0f8-4de23abc5efa"           },           "system_object": false,           "icf_cloud_template_status": [             {               "name": "remoteCloud",               "status": "UNDEPLOYED",               "system_object": false,               "icf_cloud_oid": "41ae8e49-2dcc-49de-9a49-2a786f602161"             }           ]         }       }     }   ] } </pre> |

```
    }
  ],
  "image_summary": {
    "object_type": "image",
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/images/ac8a101b-5fbb-4230-b5a8-c6f887222d
    },
    "properties": {
      "oid": "ac8a101b-5fbb-4230-b5a8-c6f887222d74",
      "name": "centos",
      "system_object": false
    }
  },
  "usergroup_summary": [
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/4e47e151-c896-490d-add3-4d06a
      },
      "properties": {
        "oid": "4e47e151-c896-490d-add3-4d06adc5f4e7",
        "name": "testGroup",
        "system_object": false
      }
    },
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd1
      },
      "properties": {
        "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
        "name": "system_default_admin",
        "system_object": false
      }
    },
    {
      "object_type": "usergroup",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/16a45ed7-07e6-4a95-b3ba-83cda
      },
      "properties": {
        "oid": "16a45ed7-07e6-4a95-b3ba-83cda2b9e2af",
        "name": "system_default_enduser",
        "system_object": false
      }
    }
  ],
  "compute_info": {
```

```
    "system_object": false,
    "memory": {
      "value": 2048,
      "unit": "MB"
    },
    "cpu_count": 1
  },
  "storage_info": {
    "value": 1,
    "unit": "GB"
  },
  "number_of_vnics": 1,
  "os_info": {
    "system_object": false,
    "type": "linux",
    "os": "CentOS",
    "architecture": "64bit",
    "version": "6.3"
  }
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>       }     ]   } </pre>   |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 403 - The logged-in user is an end user and does not have access to the catalog item.</li> <li>• 404 - The catalog OID does not exist.</li> </ul> |
| Application error codes | <ul style="list-style-type: none"> <li>• 35010 - The catalog item with the OID xxx is not found.</li> </ul>  |

## API to delete a catalog item

The Delete Catalog Item API deletes the specified catalog item.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <pre> /catalog-items/{oid} </pre>   |
| Method                  | DELETE  |
| REQUEST PAYLOAD         | None  |
| HTTP RESPONSE STATUS    | <ul style="list-style-type: none"> <li>• 202 - Request accepted.</li> <li>• 404 - Catalog item is not found.</li> </ul>   |
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request": "http://{ip}/icfb/v1/service-requests/70c56c31-b1f2-42b0-87fc-e8b83132a"     }   } } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 35016 - Cannot delete the catalog item because a VM instantiation is in progress with the specified item.</li> <li>• 35017 - The user xxx does not have access rights to delete the catalog with the OID yyy.</li> <li>• 35018 - Cannot delete; the catalog item creation is in progress.</li> </ul> |

## • Virtual Data Center (VDC)

A Virtual Data Center (VDC) is a set of resources that are assigned to user groups. An administrator can set policies on the VDCs to control the resources that are used by the user groups they are assigned to. A user group can be associated with many VDCs, catalogs, and policies.

The VDC APIs enable you to perform VDC-related operations.

### Metadata

| Property          | Operations (Create, Read, Update) | Type   | Range | Madatory During Create | Description  |
|-------------------|-----------------------------------|--------|-------|------------------------|--|
| name              | C, R, U                           | string | 1-256 | yes                    | VDC name.  |
| description       | C, R                              | string |       | no                     | VDC description.                                       |
| icf_cloud_oid     | C, R                              | string |       | yes                    | ICF cloud OID.   |
| usergroup_oid     | C, R                              | string |       | yes                    | User group OID.  |
| resource_pool_oid | R                                 | string |       | no                     | Default resource pool OID.                             |
| system_policy_oid | R                                 | string |       | no                     | OID of the default system policy for the public cloud. |
| vm_policy_oid     | R                                 | string |       | no                     | OID of the default VM policy for the public cloud.     |

### API to create VDCs

The Create VDC API creates a VDC in a public cloud.

**Note:** An operational ICF link is required to create a VDC for the public cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <code>/vdc</code>  |
| Method               | POST   |
| Request payload      | <pre> for public cloud: {   "name" : "vdc-1",   "description" : "vdc description"   "icf_cloud_oid" : "b6fca1f8-5048-464e-b7d2-d7ad80c54a8d",   "usergroup_oid" : "a6fca1f8-5048-464e-b7d2-d7ad80c54a8d",   "resource_pool_oid" : "c6fca1f8-5048-464e-b7d2-d7ad80c54a8d",   "policy_configuration": {     "system_policy_oid" : "b6fca1f8-5048-464e-b7d2-d7ad80c54a8d",     "vm_policy_oid" : "g6fca1f8-5048-464e-b7d2-d7ad80c54a8d",   } } </pre> |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 201 - Success; workflow is not triggered.</li> <li>• 202 - Success; workflow is triggered.</li> <li>• 400 - Bad request; invalid parameters.</li> </ul>   |



|                         |   |
|-------------------------|---|
| RESPONSE PAYLOAD        | <pre> {   "success": {     "code": 400,     "message": [       "Create accepted, but not complete"     ],     "links": {       "new_resource":         "http://{ip}/icfb/v1/instances/db82b022-3d4e-4d77-b068-ac61c2226501",       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd02"     }   } } </pre>   |
| HTTP Error codes        | <ul style="list-style-type: none"> <li>• 202 - Request accepted.</li> <li>• 403 - Not authorized to perform this operation.</li> <li>• 409 - Input validation failed.</li> </ul>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - An object with the value xxx is not found.</li> <li>• 403 - A required field is missing.</li> <li>• 408 - The length of the value must be between 1 and 256.</li> <li>• 2001 - An object with the value xxx already exists.</li> <li>• 101005 - Invalid ICF cloud OID.</li> <li>• 101006 - An ICF cloud is not found for OID (0).</li> <li>• 101007 - Invalid user group OID (0).</li> <li>• 101008 - A user group is not found for OID (0).</li> <li>• 101009 - A resource pool is not found for OID (0).</li> <li>• 101010 - A default resource pool not found in the database.</li> <li>• 101011 - (0) user is not authorized.</li> <li>• 101015 - ICF cloud (0) is invalid for VDC.</li> <li>• 101051 - A system policy is required but not provided in the VDC.</li> <li>• 101052 - A system policy is not found for OID.</li> <li>• 101053 - A default system policy is not found in the database.</li> <li>• 101054 - The policy configuration does not apply to a private VDC.</li> <li>• 101055 - Policy configuration is required for a public VDC.</li> <li>• 101056 - A VM policy not found for the OID xxx.</li> <li>• 101057 - A default VM policy is not found. Specify a VM policy.</li> <li>• 101058 - A VDC cannot be created for the ICF cloud with the name xxx (OID - yyy). An ICF link is not present.</li> <li>• 101059 - A VDC cannot be created for the ICF cloud with the name xxx (OID - yyy). An ICF link is not ready.</li> </ul> |

## API to retrieve list of all VDCs

The Get All VDCs API retrieves all VDCs based on the current user's access.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /vdc   |
| Method               | GET  |
| Request payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> </ul> |
|                      | <pre> { </pre>   |

Response  
payload  
for private  
cloud  
(VMware)

```
"value": [
  {
    "relationships": {
      "icf_cloud":
"http://173.36.217.60/icfb/v1/icf-clouds/d5c139ac-5dcc-4167-89ae-7660ed5
      "networks":
"http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f/
      "user_groups":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
    },
    "object_type": "vdc",
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f"
    },
    "properties": {
      "oid": "26c1a28d-2447-4480-8a5f-26f713ee9e4f",
      "name": "system_default_vdc_vmware",
      "description": "System created default VDC",
      "object_status": {
        "status": "success"
      },
      "system_object": true,
      "status": [
        {
          "type": "operational",
          "value": "operational"
        }
      ],
      "icf_cloud_summary": {
        "object_type": "icf_cloud",
        "links": {
          "self":
"http://173.36.217.60/icfb/v1/icf-clouds/d5c139ac-5dcc-4167-89ae-7660ed5
        },
        "properties": {
          "oid": "d5c139ac-5dcc-4167-89ae-7660ed5e0262",
          "name": "system_default_icfcloud_vmware",
          "system_object": false,
          "cloud_type": "vmware"
        }
      },
      "user_group_summary": {
        "object_type": "usergroup",
        "links": {
          "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
        },
        "properties": {
          "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
          "name": "system_default_admin",
          "system_object": false
        }
      }
    }
  }
]
```

```

    },
    "resource_pool_summary": {
      "object_type": "resource-pool",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
      },
      "properties": {
        "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
        "name": "system_default",
        "system_object": false,
        "default": true
      }
    }
  }
}

```

Response  
payload  
for public  
cloud

```

{
  "value": [
    {
      "relationships": {
        "active_service_request":
"http://173.36.217.60/icfb/v1/service-requests/7062ed8a-9d58-4634-9d24-8
        "icf_cloud":
"http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
        "networks":
"http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e/
        "user_groups":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
      },
      "object_type": "vdc",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e"
      },
      "properties": {
        "oid": "96eac195-6bfe-41cd-9b41-dcb694bbf80e",
        "name": "vdc-admin",
        "description": "",
        "object_status": {
          "status": "success",
          "last_sr_oid": "7062ed8a-9d58-4634-9d24-8235dd5d173a"
        },
        "system_object": false,
        "status": [
          {
            "type": "operational",
            "value": "partially_operational"
          }
        ]
      }
    }
  ],

```

```
"icf_cloud_summary": {
  "object_type": "icf_cloud",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/icfb-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
  },
  "properties": {
    "oid": "41ae8e49-2dcc-49de-9a49-2a786f602161",
    "name": "remoteCloud",
    "system_object": false,
    "cloud_type": "aws-ec2",
    "cloud_style": "classic",
    "location": "us-west-1"
  }
},
"vm_policy_summary": {
  "object_type": "vm_policy",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/vm-policies/8188f63d-d34c-43ec-915a-996da6
  },
  "properties": {
    "oid": "8188f63d-d34c-43ec-915a-996da691359d",
    "name": "system_default_vm_policy",
    "system_object": false,
    "nic_range": {
      "start": 1,
      "end": 8
    },
    "cpu_range": {
      "start": 1,
      "end": 64
    },
    "memory_range": {
      "start": 512,
      "end": 249856
    },
    "allow_override_nics": true,
    "allow_override_cpu": true,
    "allow_override_memory": true,
    "enable_provider_services_access": false
  }
},
"system_policy_summary": {
  "object_type": "system_policy",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/system-policies/9fe7ae34-8102-4f73-a5f3-94
  },
  "properties": {
    "oid": "9fe7ae34-8102-4f73-a5f3-94016acbc201",
    "name": "system_default",
    "system_object": false,
```

```
        "allow_override_name": true
    }
},
"user_group_summary": {
    "object_type": "usergroup",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
    },
    "properties": {
        "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
        "name": "system_default_admin",
        "system_object": false
    }
},
"resource_pool_summary": {
    "object_type": "resource-pool",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
    },
    "properties": {
        "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
        "name": "system_default",
        "system_object": false,
        "default": true
    }
}
}
}
```

|   |  |
|---|--|
|   | <pre>     ]   } } </pre>   |
| HTTP Error code, Application error code | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul> |

## API to retrieve a VDC

The Get VDC API retrieves the details of the specified VDC.

| API Attribute    | Description  |
|------------------|--|
| URI              | <pre> /vdcs/{oid} </pre>   |
| Method           | GET  |
| Request Payload  | None   |
| Response Payload | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://173.36.217.60/icfb/v1/service-requests/7062ed8a-9d58-4634-9d24-8         "icf_cloud": "http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6         "networks": "http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e/         "user_groups": "http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19       },       "object_type": "vdc",       "links": {         "self": "http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e"       },       "properties": {         "oid": "96eac195-6bfe-41cd-9b41-dcb694bbf80e",         "name": "vdc-admin",         "description": "",         "object_status": {           "status": "success",           "last_sr_oid": "7062ed8a-9d58-4634-9d24-8235dd5d173a"         },         "system_object": false, </pre> |

```
"status": [
  {
    "type": "operational",
    "value": "partially_operational"
  }
],
"icf_cloud_summary": {
  "object_type": "icf_cloud",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
  },
  "properties": {
    "oid": "41ae8e49-2dcc-49de-9a49-2a786f602161",
    "name": "remoteCloud",
    "system_object": false,
    "cloud_type": "aws-ec2",
    "cloud_style": "classic",
    "location": "us-west-1"
  }
},
"vm_policy_summary": {
  "object_type": "vm_policy",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/vm-policies/8188f63d-d34c-43ec-915a-996da6
  },
  "properties": {
    "oid": "8188f63d-d34c-43ec-915a-996da691359d",
    "name": "system_default_vm_policy",
    "system_object": false,
    "nic_range": {
      "start": 1,
      "end": 8
    },
    "cpu_range": {
      "start": 1,
      "end": 64
    },
    "memory_range": {
      "start": 512,
      "end": 249856
    },
    "allow_override_nics": true,
    "allow_override_cpu": true,
    "allow_override_memory": true,
    "enable_provider_services_access": false
  }
},
"system_policy_summary": {
  "object_type": "system_policy",
  "links": {
    "self":
```

```
"http://173.36.217.60/icfb/v1/system-policies/9fe7ae34-8102-4f73-a5f3-94
  },
  "properties": {
    "oid": "9fe7ae34-8102-4f73-a5f3-94016acbc201",
    "name": "system_default",
    "system_object": false,
    "allow_override_name": true
  }
},
"user_group_summary": {
  "object_type": "usergroup",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
  },
  "properties": {
    "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
    "name": "system_default_admin",
    "system_object": false
  }
},
"resource_pool_summary": {
  "object_type": "resource-pool",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
  },
  "properties": {
    "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
    "name": "system_default",
    "system_object": false,
    "default": true
  }
}
}
```



|                         |   |
|-------------------------|---|
|                         | <pre>     ]   } </pre>  |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - VDC is not found.</li> </ul> |
| Application error codes | None  |

## API to retrieve all the VDCs for a specific cloud

The Get Cloud VDCs API retrieves a list of all VDCs for the specified cloud.

**Note:** You can specify only one icf\_cloud\_oid in the query parameter.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /vdc?icf_cloud_oid={oid}  |
| Method               | GET   |
| Request payload      | None  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 404 - Not Found.</li> </ul>  |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://173.36.217.60/icfb/v1/service-requests/7062ed8a-9d58-4634-9d24-8         "icf_cloud": "http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6         "networks": "http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e/         "user_groups": "http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19       },       "object_type": "vdc",       "links": {         "self": "http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e"       },       "properties": {         "oid": "96eac195-6bfe-41cd-9b41-dcb694bbf80e",         "name": "vdc-admin",         "description": "",         "object_status": {           "status": "success",           "last_sr_oid": "7062ed8a-9d58-4634-9d24-8235dd5d173a"         }       }     }   ] } </pre> |

```
    },
    "system_object": false,
    "status": [
      {
        "type": "operational",
        "value": "partially_operational"
      }
    ],
    "icf_cloud_summary": {
      "object_type": "icf_cloud",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/icfb-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
      },
      "properties": {
        "oid": "41ae8e49-2dcc-49de-9a49-2a786f602161",
        "name": "remoteCloud",
        "system_object": false,
        "cloud_type": "aws-ec2",
        "cloud_style": "classic",
        "location": "us-west-1"
      }
    },
    "vm_policy_summary": {
      "object_type": "vm_policy",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/vm-policies/8188f63d-d34c-43ec-915a-996da6
      },
      "properties": {
        "oid": "8188f63d-d34c-43ec-915a-996da691359d",
        "name": "system_default_vm_policy",
        "system_object": false,
        "nic_range": {
          "start": 1,
          "end": 8
        },
        "cpu_range": {
          "start": 1,
          "end": 64
        },
        "memory_range": {
          "start": 512,
          "end": 249856
        },
        "allow_override_nics": true,
        "allow_override_cpu": true,
        "allow_override_memory": true,
        "enable_provider_services_access": false
      }
    },
    "system_policy_summary": {
      "object_type": "system_policy",
```

```
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/system-policies/9fe7ae34-8102-4f73-a5f3-94
    },
    "properties": {
      "oid": "9fe7ae34-8102-4f73-a5f3-94016acbc201",
      "name": "system_default",
      "system_object": false,
      "allow_override_name": true
    }
  },
  "user_group_summary": {
    "object_type": "usergroup",
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
    },
    "properties": {
      "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
      "name": "system_default_admin",
      "system_object": false
    }
  },
  "resource_pool_summary": {
    "object_type": "resource-pool",
    "links": {
      "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
    },
    "properties": {
      "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
      "name": "system_default",
      "system_object": false,
      "default": true
    }
  }
}
```

|                         |   |
|-------------------------|---|
|                         | <pre>     }   ] } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 200 - The VDC is found.</li> <li>• 404 - The VDC is not found.</li> <li>• 101005 - Invalid ICF cloud OID.</li> <li>• 101006 - An ICF cloud is not found with the OID xxx.</li> <li>• 101016 - A Get request is not supported for multiple ICF clouds - (0).</li> </ul> |

## API to retrieve all the VDCs for a specific user group

The Get User Group VDCs API retrieves a list of all VDCs for the specified user group.

**Note:** You can include multiple user group OIDs in the request by using a comma-separated list, as follows:

/vdc?user\_group\_oid=4be45708-0baf-44c2-9a3c-802fb1e28320,4969fc1d-4136-4873-af6b-f96edb00ea8c

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /vdc?user_group_oid={oid}  |
| Method               | GET  |
| Request payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 404 - Not Found.</li> </ul>   |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "icf_cloud": "http://173.36.217.60/icfb/v1/icf-clouds/d5c139ac-5dcc-4167-89ae-7660ed5"         "networks": "http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f/"         "user_groups": "http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19"       },       "object_type": "vdc",       "links": {         "self": "http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f"       },       "properties": {         "oid": "26c1a28d-2447-4480-8a5f-26f713ee9e4f",         "name": "system_default_vdc_vmware",         "description": "System created default VDC",         "object_status": {           "status": "success"         },         "system_object": true, </pre> |

```
"status": [
  {
    "type": "operational",
    "value": "operational"
  }
],
"icf_cloud_summary": {
  "object_type": "icf_cloud",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/icf-clouds/d5c139ac-5dcc-4167-89ae-7660ed5
  },
  "properties": {
    "oid": "d5c139ac-5dcc-4167-89ae-7660ed5e0262",
    "name": "system_default_icfcloud_vmware",
    "system_object": false,
    "cloud_type": "vmware"
  }
},
"user_group_summary": {
  "object_type": "usergroup",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
  },
  "properties": {
    "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
    "name": "system_default_admin",
    "system_object": false
  }
},
"resource_pool_summary": {
  "object_type": "resource-pool",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
  },
  "properties": {
    "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
    "name": "system_default",
    "system_object": false,
    "default": true
  }
}
},
{
  "relationships": {
    "active_service_request":
"http://173.36.217.60/icfb/v1/service-requests/7062ed8a-9d58-4634-9d24-8
    "icf_cloud":
"http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
    "networks":
```

```
"http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e/
  "user_groups":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
  },
  "object_type": "vdc",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/vdcs/96eac195-6bfe-41cd-9b41-dcb694bbf80e"
  },
  "properties": {
    "oid": "96eac195-6bfe-41cd-9b41-dcb694bbf80e",
    "name": "vdc-admin",
    "description": "",
    "object_status": {
      "status": "success",
      "last_sr_oid": "7062ed8a-9d58-4634-9d24-8235dd5d173a"
    },
    "system_object": false,
    "status": [
      {
        "type": "operational",
        "value": "partially_operational"
      }
    ],
    "icf_cloud_summary": {
      "object_type": "icf_cloud",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/icf-clouds/41ae8e49-2dcc-49de-9a49-2a786f6
      },
      "properties": {
        "oid": "41ae8e49-2dcc-49de-9a49-2a786f602161",
        "name": "remoteCloud",
        "system_object": false,
        "cloud_type": "aws-ec2",
        "cloud_style": "classic",
        "location": "us-west-1"
      }
    },
    "vm_policy_summary": {
      "object_type": "vm_policy",
      "links": {
        "self":
"http://173.36.217.60/icfb/v1/vm-policies/8188f63d-d34c-43ec-915a-996da6
      },
      "properties": {
        "oid": "8188f63d-d34c-43ec-915a-996da691359d",
        "name": "system_default_vm_policy",
        "system_object": false,
        "nic_range": {
          "start": 1,
          "end": 8
        },
      },
    },
  },
}
```

```
    "cpu_range": {
      "start": 1,
      "end": 64
    },
    "memory_range": {
      "start": 512,
      "end": 249856
    },
    "allow_override_nics": true,
    "allow_override_cpu": true,
    "allow_override_memory": true,
    "enable_provider_services_access": false
  }
},
"system_policy_summary": {
  "object_type": "system_policy",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/system-policies/9fe7ae34-8102-4f73-a5f3-94
  },
  "properties": {
    "oid": "9fe7ae34-8102-4f73-a5f3-94016acbc201",
    "name": "system_default",
    "system_object": false,
    "allow_override_name": true
  }
},
"user_group_summary": {
  "object_type": "usergroup",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
  },
  "properties": {
    "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
    "name": "system_default_admin",
    "system_object": false
  }
},
"resource_pool_summary": {
  "object_type": "resource-pool",
  "links": {
    "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
  },
  "properties": {
    "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
    "name": "system_default",
    "system_object": false,
    "default": true
  }
}
}
```

|   |   |
|---|---|
|   | <pre>       }     ]   } </pre>  |
| HTTP Error code, Application error code | <ul style="list-style-type: none"> <li>• 200 - The VDC is found.</li> <li>• 404 - The VDC is not found.</li> <li>• 101007 - Invalid user group OID xxx.</li> <li>• 101008 - A user group is not found for the OID xxx.</li> <li>• 101011 - User is not authorized.</li> <li>• 101012 - Invalid GET request. GET is not supported for multiple user groups xxx and the ICF cloud with the name yyy (OID zz)</li> </ul> |

## API to retrieve all VDCs for a specific user group and ICF cloud

The Get All VDCs for User Group and Cloud API retrieves a list of all VDCs for the specified user group on the specified cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /vdc?user_group_oid={oid}&icf_cloud_oid={oid}  |
| Method               | GET  |
| Request payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 404 - Not found.</li> </ul>   |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "icf_cloud": "http://173.36.217.60/icfb/v1/icf-clouds/d5c139ac-5dcc-4167-89ae-7660ed5"         "networks": "http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f/"         "user_groups": "http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19"       },       "object_type": "vdc",       "links": {         "self": "http://173.36.217.60/icfb/v1/vdcs/26c1a28d-2447-4480-8a5f-26f713ee9e4f"       },       "properties": {         "oid": "26c1a28d-2447-4480-8a5f-26f713ee9e4f",         "name": "system_default_vdc_vmware",         "description": "System created default VDC",         "object_status": {           "status": "success"         },         "system_object": true,         "status": [           { </pre> |



```
        "type": "operational",
        "value": "operational"
    }
],
"icf_cloud_summary": {
    "object_type": "icf_cloud",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/icfb-clouds/d5c139ac-5dcc-4167-89ae-7660ed5
    },
    "properties": {
        "oid": "d5c139ac-5dcc-4167-89ae-7660ed5e0262",
        "name": "system_default_icfcloud_vmware",
        "system_object": false,
        "cloud_type": "vmware"
    }
},
"user_group_summary": {
    "object_type": "usergroup",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/user-groups/ea4bd84e-9e9e-45a2-9c0b-40bd19
    },
    "properties": {
        "oid": "ea4bd84e-9e9e-45a2-9c0b-40bd191a8873",
        "name": "system_default_admin",
        "system_object": false
    }
},
"resource_pool_summary": {
    "object_type": "resource-pool",
    "links": {
        "self":
"http://173.36.217.60/icfb/v1/resource-pools/deba95ca-fdbd-424a-b01a-fde
    },
    "properties": {
        "oid": "deba95ca-fdbd-424a-b01a-fde2bfa91b08",
        "name": "system_default",
        "system_object": false,
        "default": true
    }
}
}
```

|   |  |
|---|--|
|   | <pre>     }   ] } </pre>   |
| HTTP error code, application error code | <ul style="list-style-type: none"> <li>• 200 - The VDC is found.</li> <li>• 404 - The VDC is not found.</li> <li>• 101005 - Invalid ICF cloud OID.</li> <li>• 101006 - An ICF cloud is not found for OID xxx.</li> <li>• 101007 - Invalid user group OID xxx.</li> <li>• 101008 - A user group not found for the OID xxx.</li> <li>• 101011 - User is not authorized.</li> <li>• 101012 - Invalid GET request. GET is not supported for multiple user groups xxx and the ICF cloud with name yyy (OID zzz).</li> </ul> |

## API to retrieve networks for a specific VDC

The Get VDC Networks API retrieves a list of all networks for the specified VDC.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /vdc{oid}/networks  |
| Method               | GET   |
| Request payload      | None  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 400 - Bad request.</li> <li>• 403 - Forbidden.</li> <li>• 404 - Not found.</li> </ul>  |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "networks": "http://173.36.217.60/icfb/v1/networks/05aa3037-a6f3-4f68-adcf-2de0a639c       },       "object_type": "network",       "properties": {         "oid": "05aa3037-a6f3-4f68-adcf-2de0a639cd6e",         "name": "mgmt_network",         "dataNetwork": true,         "object_status": {           "status": "success"         },         "system_object": false,         "is_dhcp_enabled": false,         "is_data_network": true       }     },     {       "relationships": {         "networks": "http://173.36.217.60/icfb/v1/networks/67ad19e8-14d7-4227-92f1-20d2545ed </pre> |

```

    },
    "object_type": "network",
    "properties": {
      "oid": "67ad19e8-14d7-4227-92f1-20d2545edb4b",
      "name": "net+data",
      "dataNetwork": true,
      "object_status": {
        "status": "create failed",
        "last_sr_oid": "67e451d5-f7c4-4fde-b6a3-d460f14903fe",
        "error_message": "Updating Routing Service failed"
      },
      "system_object": false,
      "is_dhcp_enabled": false,
      "is_data_network": true
    }
  },
  {
    "relationships": {
      "networks":
"http://173.36.217.60/icfb/v1/networks/d6a76310-db4a-41e6-896c-cef7defa9
    },
    "object_type": "network",
    "properties": {
      "oid": "d6a76310-db4a-41e6-896c-cef7defa901f",
      "name": "net-data",
      "dataNetwork": true,
      "object_status": {
        "status": "success",
        "last_sr_oid": "a7f4b480-efc5-47fe-a2f4-80219d1875d7"
      },
      "system_object": false,
      "is_dhcp_enabled": true,
      "is_data_network": true
    }
  },
  {
    "relationships": {
      "networks":
"http://173.36.217.60/icfb/v1/networks/0c863f34-6602-49c9-8a66-e631ebf6c
    },
    "object_type": "network",
    "properties": {
      "oid": "0c863f34-6602-49c9-8a66-e631ebf6cbbd",
      "name": "net!@#^*()-+",
      "dataNetwork": true,
      "object_status": {
        "status": "create failed",
        "last_sr_oid": "cc7001e8-13de-42f1-82df-82aa17c6b610",
        "error_message": "Workflow task [Create Port Profiles] Port
Profile create failed for net!@#^*()-+. Error: ICFC Error Message:proper
name of profile-net!@#^*()-+ failed validation for value
'net!@#^*()-+'\n\tWorkflow task [Create Port Profiles] Create VM Port
Profile Task failed: Workflow task [Create Port Profiles] Port Profile

```

```
create failed for net!@#^*()-+. Error: ICFC Error Message:property name
profile-net!@#^*()-+ failed validation for value 'net!@#^*()-+'
    },
    "system_object": false,
    "is_dhcp_enabled": false,
    "is_data_network": true
  }
},
{
  "relationships": {
    "networks":
"http://173.36.217.60/icfb/v1/networks/a42f8990-6423-49d4-b1cf-425321842
  },
  "object_type": "network",
  "properties": {
    "oid": "a42f8990-6423-49d4-b1cf-425321842794",
    "name": "net!@#*()-+123",
    "dataNetwork": true,
    "object_status": {
      "status": "create failed",
      "last_sr_oid": "82303aa3-c34e-4937-8d79-673084ebf657",
      "error_message": "Workflow task [Poll Port Profiles] Poll Port
Profile Vlans failed. Error: Port profile CREATE timedout for net!@#*()-
    },
    "system_object": false,
    "is_dhcp_enabled": false,
    "is_data_network": true
  }
}
```

|                         |                                |
|-------------------------|--------------------------------|
|                         | <pre>       }     ]   } </pre> |
| Application error codes | None                           |

## API to delete a VDC

The Delete VDC API deletes the specified VDC.

| API Attribute           | Description   |
|-------------------------|---|
| URI                     | <pre> /vdcs/{oid} </pre>  |
| Method                  | DELETE  |
| Request Payload         | No payload  |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 202 - Success.</li> <li>• 400 - The default VDC is being deleted.</li> <li>• 404 - The VDC is not found.</li> <li>• 409 - The request cannot be completed because: <ul style="list-style-type: none"> <li>• Instances are present.</li> <li>• A deletion is in progress.</li> <li>• Another service request is running.</li> </ul> </li> <li>• 503 - Service unavailable.</li> </ul>                               |
| Application error codes | <ul style="list-style-type: none"> <li>• 201 - The account is not present.</li> <li>• 300 - Deleted successfully.</li> <li>• 3003 - The deletion is in progress.</li> <li>• 3004 - Another service request is running.</li> <li>• 4000 - The system is temporarily unavailable.</li> <li>• 101013 - The default system VDC cannot be deleted.</li> <li>• 101014 - The VDC cannot be deleted because the VDC is associated with virtual machines.</li> </ul> |
| Response Payload        | <pre> {   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request": "http://173.36.217.60/icfb/v1/service-requests/42589d1f-a218-445b-9646-f     }   } } </pre>  |

## Virtual Machine (VM) Instances

The VM APIs enable you to perform VM-related operations.

- **Metadata**

| Property                        | Operations<br>(Create,<br>Update,<br>Read) | Type    | Range                | Mandatory<br>During<br>POST | Description  |
|---------------------------------|--|---------|----------------------|-----------------------------|--|
| name                            | C, R                                       | string  | 1-128                | no                          | VM name. The name is optional and allows only alphanumeric characters and hyphens. If a name is not specified, it is automatically generated and uses the format vm-{unique id}. |
| vdc_oid                         | C, R                                       | string  | 1-256                | yes                         | The OID of the VDC under which the VM is to be created.  |
| catalog_oid                     | C, R                                       | string  | 1-256                | yes                         | The OID of the catalog item from which the VM is to be created.  |
| cpu_cores                       | C, R                                       | integer | depends on VM Policy | no                          | The number of CPUs for the VM. If no value is specified, the value is taken from the catalog.  |
| memory_in_mb                    | C, R                                       | integer | depends on VM Policy | no                          | In MB, the amount of memory for the VM. If no value is specified, the value is taken from the catalog.   |
| enable_provider_services_access | C, R                                       | boolean |                      | no                          | Enables access to provider services. Can be enabled only if the selected VDC has a VM policy with Provider Services Access enabled.  |
| nic_configurations              |  |         |                      |                             |  |
| • nic_index                     | C, R                                       | integer |                      | yes                         | NIC index.   |
| • is_dhcp                       | C, R                                       | boolean |                      | yes                         | Indicates whether or not the configuration of the NIC is set to DHCP.  |
| • network_oid                   | C, R                                       | string  |                      | yes                         | Network for the NIC.   |

### API to create a VM instance

The Create VM Instance API creates a new VM.

| API Attribute | Description           |
|---------------|-----------------------|
| URI           | <pre>/instances</pre> |
| Method        | POST                  |

|                      |   |
|----------------------|---|
| Request payload      | <pre>{   "name": "Test-123",   "vdc_oid": "500c72f0-3b10-425b-9f1b-b33cc87cd7d3",   "catalog_oid": "884ed7c7-2555-4c5f-a9ad-c7bcfcd02545",   "cpu_cores": 18,   "memory_in_mb": 35096,   "enable_provider_services_access": false,   "nic_configurations": [{     "nic_index": 1,     "is_dhcp": false,     "network_oid": "07a8160b-5bfa-4cf1-aa5f-79afc9fa85a3"   }, {     "nic_index": 2,     "is_dhcp": true,     "network_oid": "16d58a31-e1b5-4681-81cd-45f8d1d7abf1"   } ]</pre> |
| HTTP Response Status | <ul style="list-style-type: none"><li>• 202 - Request accepted; async operation started.</li><li>• 400 - Bad request.</li><li>• 403 - Not authorized to perform this operation.</li><li>• 412 - Precondition failed.</li></ul>  |
| Response Payload     | <pre>{   "success": {     "code": 400,     "messages": [       "Create accepted, but not complete"     ],     "links": {       "new_resource":         "http://{ip}/icfb/v1/instances/db82b022-3d4e-4d77-b068-ac61c2226501",       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"     }   } }</pre>   |

|                         |  |
|-------------------------|--|
| Application error codes | <ul style="list-style-type: none"> <li>• 22501 - VDC OID not found.</li> <li>* 22503 - The VDC with the OID <i>yyy</i> does not belong to a public cloud. This operation is supported only in a VDC that belongs to a cloud.</li> <li>* 22504 - An ICF link does not exist for the ICF cloud with the name <i>xxx</i> (OID <i>yyy</i>).</li> <li>* 22505 - A catalog with the OID <i>yyy</i> is not found.</li> <li>* 22506 - Policies are not configured in the VDC with the OID <i>yyy</i>.</li> <li>* 22507 - A system policy is not configured in the VDC with the OID <i>yyy</i>.</li> <li>* 22508 - A network policy is not configured in the VDC with the OID <i>yyy</i>.</li> <li>* 22509 - The network policy of the VDC with the OID <i>_yyy_</i> does not have NICs. At least one NIC is required.</li> <li>* 22510 - Network configuration is not found for the NIC with the name <i>xxx</i>.</li> <li>* 22511 - Port profiles are not configured for the NIC with the name <i>xxx</i>.</li> <li>• 22512 - The port profile with the OID <i>yyy</i> is not found.</li> <li>* 22513 - IP configuration is not found for the port profile with the OID <i>yyy</i>.</li> <li>* 22514 - IP pools are not configured for the port profile with the OID <i>yyy</i>.</li> <li>• 22515 - The IP pool policy with the OID <i>yyy</i> is not found.</li> <li>* 22516 - An image template with the OID <i>yyy</i> is not found.</li> <li>* 22517 - A catalog with the OID <i>yyy</i> is not deployed in the ICF cloud with the name <i>xxx</i> (OID <i>yyy</i>).</li> <li>* 22518 - A catalog with the OID <i>yyy</i> is not completely deployed in the ICF cloud with the name <i>xxx</i> (OID <i>yyy</i>). The current status is <i>zzz</i>.</li> <li>• 22519 - DNS configuration is not found in the system policy for the VDC with the OID <i>yyy</i>.</li> <li>* 22520 - A domain name is not found in system policy DNS configuration for the VDC with the OID <i>yyy</i>.</li> <li>* 22521 - If no storage policy is associated with a VDC, storage configuration is not allowed in a create or migrate instance request.</li> <li>• 22522 - A storage policy with the OID <i>yyy</i> is not found.</li> <li>* 22523 - Storage configuration is not allowed according to the associated storage policy with the OID <i>yyy</i>.</li> <li>* 22524 - Storage type <i>xxx</i> is not an allowed storage type according to the storage policy <i>yyy</i>.</li> <li>* 22525 - Storage configuration is invalid. Either both the storage type and speed should be provided, or neither should be provided.</li> <li>* 22526 - NIC configuration is empty.</li> <li>* 22527 - The number of NICs (<i>xxx</i>) exceeds the maximum (<i>yyy</i>) allowed by the catalog.</li> <li>* 22528 - The number of NICs (<i>xxx</i>) is not within the range (<i>yyy</i> to <i>zzz</i>) allowed by the VM policy.</li> <li>• 22529 - Network <i>xxx</i> (OID <i>yyy</i>) is not a data network.</li> <li>* 22530 - NIC index values are not valid. Specify consecutive numbers starting with 1 and without repetition.</li> <li>* 22531 - The specified NICs (<i>xxx</i>) are less than the catalog NICs (<i>yyy</i>). The VM policy does not allow you to override NICs.</li> <li>* 22532 - The network with the OID <i>xxx</i> is not found.</li> <li>* 22533 - More than one ICF link was found for the ICF cloud with the name <i>xxx</i> (OID <i>yyy</i>).</li> <li>* 22534 - The user is not authorized to use the catalog with the OID <i>yyy</i>.</li> <li>* 22535 - The user is not authorized to use the VDC with the OID <i>yyy</i>.</li> <li>* 22536 - The catalog has more NICs <i>xxx</i> than are allowed by the VM policy <i>yyy</i>.</li> <li>• 22537 - DHCP cannot be used for the NIC with the index <i>xxx</i> because DHCP is disabled on the associated network.</li> <li>• 22551 - The cloud virtual machine name (0) is not valid. Only alphanumeric characters and hyphens are allowed.</li> <li>• 22552 - Overwriting the cloud virtual machine name is not allowed.</li> <li>• 22553 - The policy referred to for cloud virtual machine creation is not available due to possible data corruption.</li> <li>• 22554 - The license term has expired. Contact an administrator for a license.</li> <li>• 22555 - Available Hybrid Cloud Units are exhausted. Contact an administrator for a license.</li> <li>• 22556 - The cloud virtual machine cannot be created. The selected VDC <i>xxx</i> (OID: <i>yyy</i>) is not operational.</li> <li>• 22557 - The cloud virtual machine cannot be created. The ICF link <i>xxx</i> (OID: <i>yyy</i>) is not operational.</li> <li>• 22558 - Overriding CPU cores is not allowed.</li> <li>• 22559 - Overriding memory is not allowed.</li> <li>• 22560 - The number of CPU cores is not within the range (<i>xxx</i> to <i>yyy</i>) allowed by the VM policy.</li> <li>• 22561 - The memory is not within the range (<i>xxx</i> to <i>yyy</i>) allowed by the VM policy.</li> <li>• 22562 - The cloud virtual machine cannot be created. The name of the cloud virtual machine must be unique within the VDC <i>xxx</i>.</li> </ul> |
|-------------------------|--|

## APIs to retrieve cloud VM instances

These APIs return the details of a particular cloud VM or all cloud VMs. You can also use the VDC or user group filter as a query parameter.

### API to retrieve all cloud VMs

This API returns cloud VMs that belong to the logged-in user's user group(s). If the logged-in user is *Admin*, all cloud VMs are returned.

| API Attribute | Description |
|---------------|-------------|
| URI           | /instances  |



|                      |  |
|----------------------|--|
| METHOD               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> </ul>   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://10.36.36.215/icfb/v1/service-requests/87adb3d6-72f0-4112-9a75-d         "operations": {           "reboot": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "stop": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "start": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "terminate": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740         },         "icf-cloud": "http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84         "instance_status": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },       "object_type": "instance",       "links": {         "self": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },       "properties": {         "oid": "a63371db-288e-49ea-81a2-f1f70740b06d",         "name": "vm-87adb",         "object_status": {           "status": "success",           "last_sr_oid": "87adb3d6-72f0-4112-9a75-d6c4d1c857bd"         },       },       "system_object": false,       "operational_information": {         "system_object": false,         "operational_status": {           "system_object": false,           "power_status": "on"         },       },       "os_information": {         "system_object": false,         "type": "linux",         "os": "CentOS",         "architecture": "64bit",       }     }   ] } </pre> |

```
    "version": "6.3"
  },
  "provider_ip_address": {
    "system_object": false,
    "private": "10.27.5.125",
    "public": "54.214.180.40"
  }
},
"resource_information": {
  "system_object": false,
  "compute": {
    "system_object": false,
    "memory": {
      "value": 2048,
      "unit": "MB"
    },
  },
  "cpu_count": 2,
  "provisioned_memory": {
    "value": 3750,
    "unit": "MB"
  },
  "provisioned_cpu_count": 2
},
"storage": {
  "system_object": false,
  "disks": [
    {
      "system_object": false,
      "disk_size": {
        "value": 1,
        "unit": "GB"
      }
    }
  ]
},
"network": {
  "system_object": false,
  "nics": [
    {
      "index": "1",
      "system_object": false,
      "is_dhcp": true,
      "network": "a0997b46-b71e-4ac8-9705-4f51a680ee44",
      "network_name": "ddatan1"
    },
    {
      "index": "2",
      "system_object": false,
      "is_dhcp": false,
      "ip_address": "10.36.36.213",
      "network": "c763548e-968d-4f74-bc9c-17ba1e9757b8",
      "network_name": "mgmt_network"
    }
  ],
}
```

```
        {
          "index": "3",
          "system_object": false,
          "is_dhcp": false,
          "ip_address": "10.80.8.81",
          "network": "a0997b46-b71e-4ac8-9705-4f51a680ee44",
          "network_name": "ddatan1"
        }
      ]
    },
    "resource_usage_stats": {
      "timestamp": 1463085765789,
      "memory_used": {
        "value": 145,
        "unit": "MB"
      },
      "memory_usage": {
        "value": 3,
        "unit": "PERCENT"
      },
      "cpu_usage": {
        "value": 1,
        "unit": "PERCENT"
      }
    },
    "provider_instance_id": "i-c172b107",
    "provider_instance_type": "c3.large",
    "status": [
      {
        "type": "operational",
        "value": "operational"
      }
    ],
    "enable_provider_services_access": false,
    "vdc_summary": {
      "object_type": "vdc",
      "links": {
        "self":
"http://10.36.36.215/icfb/v1/vdcs/caf285b4-188e-42d0-9f92-cd6e3d68c5f1"
      },
      "properties": {
        "oid": "caf285b4-188e-42d0-9f92-cd6e3d68c5f1",
        "name": "vdcl",
        "system_object": false
      }
    },
    "catalog_item_summary": {
      "object_type": "catalog_item",
      "links": {
        "self":
"http://10.36.36.215/icfb/v1/catalog-items/3592c422-0ae8-40bd-9b33-8f49"
      },
```

```
    "properties": {
      "oid": "3592c422-0ae8-40bd-9b33-8f491e279014",
      "name": "system_icfCloudRemote_CentOS6.3minimal",
      "system_object": false
    }
  },
  "icf_cloud_summary": {
    "object_type": "icf_cloud",
    "links": {
      "self":
"http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84
    },
    "properties": {
      "oid": "281dc1c2-22db-4f38-93b1-34f0e8499f85",
      "name": "icfCloudRemote",
      "system_object": false,
      "cloud_type": "aws-ec2",
      "cloud_style": "CLASSIC",
      "location": "us-west-2"
    }
  }
}
```

|                         |                          |
|-------------------------|--------------------------|
|                         | <pre>     }   ] } </pre> |
| Application error codes | None                     |

## API to retrieve a single cloud VM

This API returns a single cloud VM.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /instances/{instance-oid} </pre>  |
| METHOD               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 403 - The logged-in user is an end user and does not have access to the cloud VM.</li> <li>• 404 - The cloud ID does not exist.</li> </ul>   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://10.36.36.215/icfb/v1/service-requests/87adb3d6-72f0-4112-9a75-d         "operations": {           "reboot": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "stop": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "start": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "terminate": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740         },         "icf-cloud": "http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84         "instance_status": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },       "object_type": "instance",       "links": {         "self": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },     }   ] } </pre> |

```
"properties": {
  "oid": "a63371db-288e-49ea-81a2-f1f70740b06d",
  "name": "vm-87adb",
  "object_status": {
    "status": "success",
    "last_sr_oid": "87adb3d6-72f0-4112-9a75-d6c4d1c857bd"
  },
  "system_object": false,
  "operational_information": {
    "system_object": false,
    "operational_status": {
      "system_object": false,
      "power_status": "on"
    },
  },
  "os_information": {
    "system_object": false,
    "type": "linux",
    "os": "CentOS",
    "architecture": "64bit",
    "version": "6.3"
  },
  "provider_ip_address": {
    "system_object": false,
    "private": "10.27.5.125",
    "public": "54.214.180.40"
  }
},
"resource_information": {
  "system_object": false,
  "compute": {
    "system_object": false,
    "memory": {
      "value": 2048,
      "unit": "MB"
    },
  },
  "cpu_count": 2,
  "provisioned_memory": {
    "value": 3750,
    "unit": "MB"
  },
  "provisioned_cpu_count": 2
},
"storage": {
  "system_object": false,
  "disks": [
    {
      "system_object": false,
      "disk_size": {
        "value": 1,
        "unit": "GB"
      }
    }
  ]
}
```

```
    },
    "network": {
      "system_object": false,
      "nics": [
        {
          "index": "1",
          "system_object": false,
          "is_dhcp": true,
          "network": "a0997b46-b71e-4ac8-9705-4f51a680ee44",
          "network_name": "ddatan1"
        }
      ]
    }
  },
  "resource_usage_stats": {
    "timestamp": 1463085765789,
    "memory_used": {
      "value": 145,
      "unit": "MB"
    },
    "memory_usage": {
      "value": 3,
      "unit": "PERCENT"
    },
    "cpu_usage": {
      "value": 1,
      "unit": "PERCENT"
    }
  },
  "provider_instance_id": "i-c172b107",
  "provider_instance_type": "c3.large",
  "status": [
    {
      "type": "operational",
      "value": "operational"
    }
  ],
  "enable_provider_services_access": false,
  "vdc_summary": {
    "object_type": "vdc",
    "links": {
      "self":
"http://10.36.36.215/icfb/v1/vdcs/caf285b4-188e-42d0-9f92-cd6e3d68c5f1"
    },
    "properties": {
      "oid": "caf285b4-188e-42d0-9f92-cd6e3d68c5f1",
      "name": "vdcl",
      "system_object": false
    }
  },
  "catalog_item_summary": {
    "object_type": "catalog_item",
    "links": {
```

```
        "self":
"http://10.36.36.215/icfb/v1/catalog-items/3592c422-0ae8-40bd-9b33-8f49
    },
    "properties": {
        "oid": "3592c422-0ae8-40bd-9b33-8f491e279014",
        "name": "system_icfCloudRemote_CentOS6.3minimal",
        "system_object": false
    }
},
"icf_cloud_summary": {
    "object_type": "icf_cloud",
    "links": {
        "self":
"http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84
    },
    "properties": {
        "oid": "281dc1c2-22db-4f38-93b1-34f0e8499f85",
        "name": "icfCloudRemote",
        "system_object": false,
        "cloud_type": "aws-ec2",
        "cloud_style": "CLASSIC",
        "location": "us-west-2"
    }
}
}
```



|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 22541 - The VM with the OID xxx was not found.</li> </ul> |

## API to retrieve cloud VMs under one or more user groups

This API returns the cloud VMs that belong to one or more user groups. Separate multiple user groups with a comma.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /instances?user_group_oid={usergroup1},{usergroup2} </pre>  |
| METHOD               | GET   |
| REQUEST PAYLOAD      | None  |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The user group OID does not exist.</li> <li>• 403 - The logged-in user is an end user and does not belong to the user group.</li> </ul>  |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://10.36.36.215/icfb/v1/service-requests/87adb3d6-72f0-4112-9a75-d         "operations": {           "reboot": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "stop": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "start": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "terminate": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740         },         "icf-cloud": "http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84         "instance_status": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },       "object_type": "instance",       "links": {         "self": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },     }   ] } </pre> |

```
"properties": {
  "oid": "a63371db-288e-49ea-81a2-f1f70740b06d",
  "name": "vm-87adb",
  "object_status": {
    "status": "success",
    "last_sr_oid": "87adb3d6-72f0-4112-9a75-d6c4d1c857bd"
  },
  "system_object": false,
  "operational_information": {
    "system_object": false,
    "operational_status": {
      "system_object": false,
      "power_status": "on"
    },
  },
  "os_information": {
    "system_object": false,
    "type": "linux",
    "os": "CentOS",
    "architecture": "64bit",
    "version": "6.3"
  },
  "provider_ip_address": {
    "system_object": false,
    "private": "10.27.5.125",
    "public": "54.214.180.40"
  }
},
"resource_information": {
  "system_object": false,
  "compute": {
    "system_object": false,
    "memory": {
      "value": 2048,
      "unit": "MB"
    },
  },
  "cpu_count": 2,
  "provisioned_memory": {
    "value": 3750,
    "unit": "MB"
  },
  "provisioned_cpu_count": 2
},
"storage": {
  "system_object": false,
  "disks": [
    {
      "system_object": false,
      "disk_size": {
        "value": 1,
        "unit": "GB"
      }
    }
  ]
}
```

```
    },
    "network": {
      "system_object": false,
      "nics": [
        {
          "index": "1",
          "system_object": false,
          "is_dhcp": true,
          "network": "a0997b46-b71e-4ac8-9705-4f51a680ee44",
          "network_name": "ddatan1"
        }
      ]
    }
  },
  "resource_usage_stats": {
    "timestamp": 1463085765789,
    "memory_used": {
      "value": 145,
      "unit": "MB"
    },
    "memory_usage": {
      "value": 3,
      "unit": "PERCENT"
    },
    "cpu_usage": {
      "value": 1,
      "unit": "PERCENT"
    }
  },
  "provider_instance_id": "i-c172b107",
  "provider_instance_type": "c3.large",
  "status": [
    {
      "type": "operational",
      "value": "operational"
    }
  ],
  "enable_provider_services_access": false,
  "vdc_summary": {
    "object_type": "vdc",
    "links": {
      "self":
"http://10.36.36.215/icfb/v1/vdcs/caf285b4-188e-42d0-9f92-cd6e3d68c5f1"
    },
    "properties": {
      "oid": "caf285b4-188e-42d0-9f92-cd6e3d68c5f1",
      "name": "vdcl",
      "system_object": false
    }
  },
  "catalog_item_summary": {
    "object_type": "catalog_item",
    "links": {
```

```
        "self":
"http://10.36.36.215/icfb/v1/catalog-items/3592c422-0ae8-40bd-9b33-8f49
    },
    "properties": {
        "oid": "3592c422-0ae8-40bd-9b33-8f491e279014",
        "name": "system_icfCloudRemote_CentOS6.3minimal",
        "system_object": false
    }
},
"icf_cloud_summary": {
    "object_type": "icf_cloud",
    "links": {
        "self":
"http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84
    },
    "properties": {
        "oid": "281dc1c2-22db-4f38-93b1-34f0e8499f85",
        "name": "icfCloudRemote",
        "system_object": false,
        "cloud_type": "aws-ec2",
        "cloud_style": "CLASSIC",
        "location": "us-west-2"
    }
}
}
```

|                         |  |
|-------------------------|--|
|                         | <pre>     }   ] } </pre>   |
| Application error codes | <ul style="list-style-type: none"> <li>• 22538 - The user does not have access rights to view the VM with the OID <i>yyy</i>.</li> <li>• 22539 - The user does not have access rights to view VMs that belong to the user group OID(s) <i>yyy</i>.</li> <li>• 22540 - The user group(s) with the OID <i>yyy</i> were not found.</li> <li>• 22544 - Input error. Do not provide both user group OIDs and VDC OIDs.</li> <li>• 22545 - The user does not have access rights to view VMs that belong to the VDC OID(s) <i>yyy</i>.</li> </ul> |

## API to retrieve cloud VMs under one or more VDCs

This API returns the cloud VMs that belong to one or more VDCs. Separate multiple VDCs with a comma.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre> /instances?vdc_oid={vdcOid1},{vdcOid2} </pre>  |
| METHOD               | GET  |
| REQUEST PAYLOAD      | None   |
| HTTP RESPONSE STATUS | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - The VDC OID does not exist.</li> <li>• 403 - The logged-in user is an end user and does not belong to the VDC.</li> </ul>   |
| RESPONSE PAYLOAD     | <pre> {   "value": [     {       "relationships": {         "active_service_request": "http://10.36.36.215/icfb/v1/service-requests/87adb3d6-72f0-4112-9a75-d         "operations": {           "reboot": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "stop": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "start": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740           "terminate": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740         },         "icf-cloud": "http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84         "instance_status": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740       },       "object_type": "instance",       "links": {         "self": </pre> |

```
"http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740
  },
  "properties": {
    "oid": "a63371db-288e-49ea-81a2-f1f70740b06d",
    "name": "vm-87adb",
    "object_status": {
      "status": "success",
      "last_sr_oid": "87adb3d6-72f0-4112-9a75-d6c4d1c857bd"
    },
    },
    "system_object": false,
    "operational_information": {
      "system_object": false,
      "operational_status": {
        "system_object": false,
        "power_status": "on"
      },
    },
    "os_information": {
      "system_object": false,
      "type": "linux",
      "os": "CentOS",
      "architecture": "64bit",
      "version": "6.3"
    },
    },
    "provider_ip_address": {
      "system_object": false,
      "private": "10.27.5.125",
      "public": "54.214.180.40"
    }
  },
  "resource_information": {
    "system_object": false,
    "compute": {
      "system_object": false,
      "memory": {
        "value": 2048,
        "unit": "MB"
      },
    },
    "cpu_count": 2,
    "provisioned_memory": {
      "value": 3750,
      "unit": "MB"
    },
    "provisioned_cpu_count": 2
  },
  "storage": {
    "system_object": false,
    "disks": [
      {
        "system_object": false,
        "disk_size": {
          "value": 1,
          "unit": "GB"
        }
      }
    ]
  }
}
```

```
    }
  ]
},
"network": {
  "system_object": false,
  "nics": [
    {
      "index": "1",
      "system_object": false,
      "is_dhcp": true,
      "network": "a0997b46-b71e-4ac8-9705-4f51a680ee44",
      "network_name": "ddatan1"
    }
  ]
}
},
"resource_usage_stats": {
  "timestamp": 1463085765789,
  "memory_used": {
    "value": 145,
    "unit": "MB"
  },
  "memory_usage": {
    "value": 3,
    "unit": "PERCENT"
  },
  "cpu_usage": {
    "value": 1,
    "unit": "PERCENT"
  }
},
"provider_instance_id": "i-c172b107",
"provider_instance_type": "c3.large",
"status": [
  {
    "type": "operational",
    "value": "operational"
  }
],
"enable_provider_services_access": false,
"vdc_summary": {
  "object_type": "vdc",
  "links": {
    "self":
"http://10.36.36.215/icfb/v1/vdcs/caf285b4-188e-42d0-9f92-cd6e3d68c5f1"
  },
  "properties": {
    "oid": "caf285b4-188e-42d0-9f92-cd6e3d68c5f1",
    "name": "vdc1",
    "system_object": false
  }
},
"catalog_item_summary": {
```

```
    "object_type": "catalog_item",
    "links": {
      "self":
"http://10.36.36.215/icfb/v1/catalog-items/3592c422-0ae8-40bd-9b33-8f49
    },
    "properties": {
      "oid": "3592c422-0ae8-40bd-9b33-8f491e279014",
      "name": "system_icfCloudRemote_CentOS6.3minimal",
      "system_object": false
    }
  },
  "icf_cloud_summary": {
    "object_type": "icf_cloud",
    "links": {
      "self":
"http://10.36.36.215/icfb/v1/icf-clouds/281dc1c2-22db-4f38-93b1-34f0e84
    },
    "properties": {
      "oid": "281dc1c2-22db-4f38-93b1-34f0e8499f85",
      "name": "icfCloudRemote",
      "system_object": false,
      "cloud_type": "aws-ec2",
      "cloud_style": "CLASSIC",
      "location": "us-west-2"
    }
  }
}
```



|                         |   |
|-------------------------|---|
|                         | <pre>       }     ]   } </pre>  |
| Application error codes | <ul style="list-style-type: none"> <li>• 22542 - VDC(s) with the OID xxx were not found.</li> <li>• 22543 - The VDC with the OID xxx is not a public VDC.</li> <li>• 22544 - Input error. Do not provide both user group OIDs and VDC OIDs</li> </ul> |

## API to retrieve cloud VM status

This API returns the following information for a cloud VM:

- Tunnel status
- Power status
- CPU usage
- Memory usage (in both percentage and MB)
- Tunnel interface statistics
- Timestamp for resource usage data (**Note:** The timestamp is provided in UTC long form.)
- Overall operational status rolled up from the deploy (objectStatus), tunnel, and power status

Overall operational status is calculated as follows:

- not\_applicable - The cloud VM is not in the deployed state, or the operation has been terminated by the system.
- computing - The cloud VM is deployed, but the power status and tunnel status are not yet replicated from the southbound direction.
- operational - The cloud VM power status is up and the tunnel status is up.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /instances/{oid}/status  |
| Method               | GET  |
| Request Payload      | Non  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 200 - Success.</li> <li>• 404 - Not found.</li> </ul>   |
| Response Payload     | <pre> {   "value": [     {       "relationships": {         "instance": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740b       },       "object_type": "cloud_vm_status",       "links": {         "self": "http://10.36.36.215/icfb/v1/instances/a63371db-288e-49ea-81a2-f1f70740b       },       "properties": {         "instanceOid": "a63371db-288e-49ea-81a2-f1f70740b06d",         "system_object": false, </pre> |

```
"status": [
  {
    "type": "operational",
    "value": "operational"
  },
  {
    "type": "tunnel",
    "value": "up"
  },
  {
    "type": "power",
    "value": "on"
  }
],
"resource_usage_stats": {
  "timestamp": 1463087567577,
  "memory_used": {
    "value": 149,
    "unit": "MB"
  },
  "memory_usage": {
    "value": 4,
    "unit": "PERCENT"
  },
  "cpu_usage": {
    "value": 0,
    "unit": "PERCENT"
  }
},
"tunnel_interface_stats": {
  "timestamp": 1463087594079,
  "rx_bytes": 0,
  "rx_errors": 0,
  "rx_packets": 236,
  "tx_bytes": 0,
  "tx_errors": 0,
  "tx_packets": 475640
}
}
]
```

|   |  |
|---|--|
|   | <pre> } </pre>   |
| (HTTP Error code, Application error code) | <ul style="list-style-type: none"> <li>• (200, xxx)</li> <li>• (400, xxx)</li> </ul> |
| Start Build#                              |  |
| Functional Build#                         | 1430   |

## Operations on VM instances

### API to start a VM

This API starts the specified VM instance.

| API Attribute           | Description  |
|-------------------------|--|
| URI                     | <pre> /instances/{oid}/start </pre>  |
| Method                  | POST   |
| Request Payload         | No payload   |
| HTTP Response Status    | <ul style="list-style-type: none"> <li>• 202 - Request accepted; async operation started.</li> <li>• 400 - Bad request; validation failed.</li> <li>• 403 - Not authorized to perform this operation.</li> </ul>   |
| Response Payload        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"     }   } } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 409 - Lifecycle action xxx cannot be performed while the instance is in yyy state.</li> </ul>   |

## API to stop a VM

This API stops the specified VM instance.

| API Attribute           | Description  |
|-------------------------|--|
| URI                     | <pre>/instances/{oid}/stop</pre>   |
| Method                  | POST   |
| Request Payload         | None   |
| HTTP Response Status    | <ul style="list-style-type: none"><li>• 202 - Request accepted; async operation started.</li><li>• 400 - Bad request; validation failed.</li><li>• 403 - Not authorized to perform this operation.</li></ul>   |
| Response Payload        | <pre>{   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"     }   } }</pre> |
| Application error codes | <ul style="list-style-type: none"><li>• 409 - Lifecycle action xxx cannot be performed while the instance is in yyy state.</li></ul>   |

## API to reboot VM

This API reboots the specified VM instance.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | <pre>/instances/{oid}/reboot</pre>   |
| Method               | POST   |
| Request Payload      | No payload   |
| HTTP Response Status | <ul style="list-style-type: none"><li>• 202 - Request accepted; async operation started.</li><li>• 400 - Bad request; validation failed.</li><li>• 403 - Not authorized to perform this operation.</li></ul> |

|                         |  |
|-------------------------|--|
| Response Payload        | <pre> {   "success": {     "code": 401,     "messages": [       "Request accepted, but not complete"     ],     "links": {       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"     }   } } </pre> |
| Application error codes | <ul style="list-style-type: none"> <li>• 409 - Lifecycle action xxx cannot be performed while the instance is in yyy state.</li> </ul>   |

## API to delete VM instance

This API deletes the specified VM instance.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | <pre> /instances/{oid} </pre>   |
| Method               | DELETE  |
| Request Payload      | No payload  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>• 202 - Request accepted; async operation started.</li> <li>• 400 - Bad request; validation failed.</li> <li>• 403 - Not authorized to perform this operation.</li> </ul>  |
| Response Payload     | <pre> {   "success": {     "code": 7,     "messages": [       "Delete is accepted but not complete"     ],     "links": {       "service_request":         "http://{ip}/icfb/v1/service-requests/884ed7c7-2555-4c5f-a9ad-c7bcfcd025"     }   } } </pre> |

|                         |  |
|-------------------------|--|
| Application error codes | <ul style="list-style-type: none"> <li>409 - Lifecycle action xxx cannot be performed while the instance is in yyy state.</li> </ul> |
|-------------------------|--|

## Routing Policy

The routing policy defines the forwarding entries in the ICF solution. The routing policy is used by the routing service on the ICF cloud or VMs with native network access enabled. The routing policy is global to the system with one global policy for the routing service and another for the VMs with native network access. Although additional routing policies cannot be created, global policies can be updated.

Entries in the routing policy are first matched by the longest common prefix, independent of the order in which they appear. The action associated with the first matched entry is applied on the packet.

Each entry in the routing policy is associated with one of the following actions:

- FORWARD [ENTERPRISE]: Packets that match the prefix are forwarded to the enterprise environment.
- FORWARD EXTERNAL: This action is specific to the VM routing policy. Packets that match the prefix are forwarded to the provider environment using the native network.
- DROP: Packets that match this prefix are dropped.

### Resource Model for Routing Policy

| Property    | Operations (Create, Read, Update) | Type  | Mandatory?                  | Description   | Notes   |
|-------------|-----------------------------------|---|-----------------------------|---|---|
| oid         | R                                 | String                                      | N/A                         | The globally unique identifier for the policy instance. | Supported as a 128-bit version 4 (random) UUID that is internally generated within ICF.   |
| name        | C, R, U                           | String                                      | Yes                         | The name of the policy.                                 | Although the name can be modified, it is useful for selecting a policy based on its name. Therefore, no two policies can have the same name.<br><br>A maximum of 128 routing policies can be configured at a given time.<br><br>Name change exception:<br>The names "system_default_routing_policy" and "system_default_vm_routing_policy" are reserved for the ICFB-generated default routing policies. The names of these two routing policies cannot be changed. |
| description | C, R, U                           | String                                      | No<br>Default: Empty string | A user-provided description of the policy.              |   |
| prefix_list | C, R, U                           | List of static route prefixes in the policy | Yes                         |   | A routing policy can have a minimum of 1 prefix and a maximum of 64 prefixes.   |

### Resource Model for a Routing Policy Prefix

| Property           | Operations (Create, Read, Update) | Type              | Mandatory?             | Description   | Notes   |
|--------------------|-----------------------------------|-------------------|------------------------|---|---|
| destination_prefix | C, R, U                           | CIDR              | Yes                    | The destination address in the CIDR notation.   | This property must be unique across all prefixes in the policy.<br><br>If prefixes overlap, the policy is applied in the LPM first order. |
| action_type        | C, R, U                           | Enumerated string | No<br>Default: FORWARD | The two supported action types are: <ul style="list-style-type: none"> <li>DROP</li> <li>FORWARD</li> </ul> | The default action of FORWARD is to support the specification of a static route entry by default.   |

|                  |         |                   |                       |  |  |
|------------------|---------|-------------------|-----------------------|--|--|
| action_attribute | C, R, U | Enumerated string | No Default: See Notes | <p>There are two sets of attributes, one for each action type.</p> <ul style="list-style-type: none"> <li>• For DROP: <ul style="list-style-type: none"> <li>• PROHIBITED (Default)</li> </ul> </li> <li>• For FORWARD: <ul style="list-style-type: none"> <li>• ENTERPRISE (Default)</li> <li>• EXTERNAL</li> </ul> </li> </ul> | <p>There are two possible default values depending on the action_type.</p> <p>The EXTERNAL value applies only to "system_default_vm_routing_policy."</p> |
|------------------|---------|-------------------|-----------------------|--|--|

## API to Update a Routing Policy

The Update Routing Policy API updates an existing routing policy with the specified information.

| API Attribute                     | Description   |
|-----------------------------------|---|
| API Purpose                       | Update a routing policy instance that can be referred to by one or more ICF cloud instances.  |
| URI                               | /routing-policies/<oid>   |
| Method                            | PUT   |
| Request Payload                   | <pre> {   "name": "system_default_routing_policy",   "description": "system_default_routing_policy",    "prefix_list" : [     { "destination_prefix": "10.10.10.0/24",       "action_type": "FORWARD",       "action_attribute": "ENTERPRISE",    },     { "destination_prefix": "10.11.11.100/32",       "action_type": "FORWARD",       "action_attribute": "ENTERPRISE"     },     { "destination_prefix": "10.10.12.0/24",       "action_type": "FORWARD",       "action_attribute": "ENTERPRISE"    }   ] } </pre> |
| HTTP Response Status              | <ul style="list-style-type: none"> <li>• 200 - OK.</li> <li>• 400 - Bad request.</li> <li>• 401 - Unauthorized.</li> <li>• 403 - Forbidden.</li> <li>• 404 - Not found.</li> <li>• 409 - Conflict.</li> </ul>   |
| Application Error Codes (offsets) | All the codes in POST except for maximum allowed policies apply here.   |
| Response Payload                  | None, unless there is an error.   |
| Note                              | ROUTING_POLICY_ERR_CODE_BASE is the base error code value.  |

## API to Read a Routing Policy

The Get Routing Policy API retrieves the details of the specified routing policy. If no policy is specified, this API retrieves all routing policies

created in ICF.

| API Attribute           | Description   |
|-------------------------|---|
| API Purpose             | Read a specific routing policy instance or all routing policy instances that have been successfully created in ICFB.  |
| URI                     | /routing-policies/[<oid>]<br><br>Bulk GET is supported with instance specific GET.  |
| Method                  | GET   |
| Request Payload         | None  |
| HTTP Response Status    | <ul style="list-style-type: none"><li>• 200 - Success.</li><li>• 401 - Unauthorized.</li><li>• 404 - Not found.</li></ul>   |
| Application Error Codes | None  |
| Response Payload        | <p>This example shows two routing policies in the output. This is expected when a bulk GET is issued. If the GET is for a specific policy only one entry is present in the "value" array.</p> <p>The "relationship --&gt; icf_cloud_links" array provides a list of OIDs of the ICF cloud instances that are using that routing policy.</p> <p>The URL-PREFIX: <b>https://icfb/v1</b></p> <pre>{   "value": [     {       "links": {         "self": "&lt;URL-PREFIX&gt;/routing-policies/ff2ffa5b-055b-41f1-b579-e5bbe01f6b51"       },       "properties": {         "name": "system_default_routing_policy",         "description": "system_default_routing_policy",          "prefix_list" : [           { "destination_prefix": "10.10.10.0/24",             "action_type": "FORWARD",             "action_attribute": "ENTERPRISE"           },           { "destination_prefix": "10.11.11.100/32",             "action_type": "FORWARD",             "action_attribute": "ENTERPRISE"           }         ],       },       "relationships": {         "icf_cloud_links": [           {             "&lt;URL-PREFIX&gt;/icf-clouds/172ffa5b-055b-41f1-b579-e5bbe01f6b51",             "&lt;URL-PREFIX&gt;/icf-clouds/272ffa5b-055b-41f1-b579-e5bbe01f6b5"           }         ]       }     }   ] }</pre> |



```
    },
  },
  {
    "links": {
      "self":
"<URL-PREFIX>/routing-policies/ef2ffa5b-055b-41f1-b579-e5bbe01f6b51"
    },
    "properties": {
      "name": "system_default_vm_routing_policy",
      "description": "system_default_vm_routing_policy",

      "prefix_list" : [
        { "destination_prefix": "10.20.10.0/24",
          "action_type": "FORWARD",
          "action_attribute": "ENTERPRISE"
        },
        { "destination_prefix": "192.168.10.100/32",
          "action_type": "FORWARD",
          "action_attribute": "EXTERNAL"
        },
      ]
    },
    "relationships": {
      "icf_cloud_links": [
        {
"<URL-PREFIX/icf-clouds/372ffa5b-055b-41f1-b579-e5bbe01f6b51",
          "<URL-PREFIX/icf-clouds/472ffa5b-055b-41f1-b579-e5bbe01f6b5
        }
      ]
    },
  },
},
```

```
} ]
```

## Service Status

The Get Service Status API retrieves a summary of the services on the specified ICF cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /icf-clouds/{oid}/services/status-summary  |
| Method               | GET  |
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"><li>• 200 - Success.</li><li>• 404 - The status was not found or no services are configured for the ICF cloud.</li></ul> |

Response  
Payload

```
{
  "value": [
    {
      "object_type": "cloud-services-status-summary", // One
      object per ICLink
      "links": {
        "self":
        "http://ip/icfb/v1/icf-clouds/{oid}/services/status-summary",
        "status-detail":
        "http://ip/icfb/v1/icf-clouds/{oid}/services/status-details"
      },
      "relationships": {
        "icf-links":
        "http://ip/icfb/v1/icf-links/{oid}/status-summary"
      },
      "properties": {
        "oid": "{oid}",
        "icfLinkOid" : "{icflink-oid}",
        "routing_service": [
          {
            "mgmt_ip_address": "10.10.0.11",
            "transport_ip_address": "10.20.0.11",
            "service_type": "routing",
            "ha_state": "active", //Derived from ICS
            "operational_state" : "operational" //Valid values
            "operational", "not_operational"
          },
          {
            "mgmt_ip_address": "10.10.0.12",
            "transport_ip_address": "10.20.0.11",
            "service_type": "routing",
            "ha_state": "standby", //Derived from ICS
            "operational_state" : "operational",
          },
        ],
      }
    }
  ]
}
```

## Hybrid Cloud APIs

### API to get public virtual accounts status summary

The Get Virtual Account Status Summary API retrieves a summary status of public virtual accounts on a hybrid cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /hybridcloudlabs/virtual-accounts/status-summary   |
| Method               | GET  |
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"> <li>200 - Success.</li> </ul>   |
| Response Payload     | <pre> {   "value": [     {       "object_type": "virtual_account_status_summary",       "links": {         "self": "http://&lt;ip&gt;/icfb/v1/hybridcloudlabs/virtual-accounts",       },       "properties": {         "distribution": [           {             "group": [               {                 "key_name": "providerId",                 "key_value": "azure"               },               {                 "key_name": "providerType",                 "key_value": "public"               }             ],             "count": 2           },           {             "group": [               {                 "key_name": "providerId",                 "key_value": "aws-ec2"               },               {                 "key_name": "providerType",                 "key_value": "public"               }             ],             "count": 5           }         ],         "aggregated_status_summary": [           {             "count": 5,             "type": "operational",           }         ]       }     }   ] } </pre> |

```
        "value": "down"
      },
      {
        "count": 2,
        "type": "operational",
        "value": "up"
      }
    ],
    "total_count": 7
  }
}
```

```
}
  ]
}
```

## API to get cloud status summary

The Get Cloud Status Summary API retrieves a summary status of the ICF clouds on a hybrid cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /hybridcloudlabs/icf-clouds/status-summary   |
| Method               | GET  |
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"><li>200 - Success.</li></ul>   |
| Response Payload     | <pre>{   "value": [     {       "object_type": "icf_cloud_status_summary",       "links": {         "self": "http://&lt;ip&gt;/icfb/v1/hybridcloudlabs/icf-clouds/status",       },       "properties": {         "distribution": [           {             "group": [               {                 "key_name": "providerType",                 "key_value": "azure"               },               {                 "key_name": "cloudStyle",                 "key_value": "N/A"               },               {                 "key_name": "cloudLocation",                 "key_value": "East US"               }             ],             "count": 2           },           {             "group": [               {                 "key_name": "providerType",</pre> |

```
        "key_value": "azure"
      },
      {
        "key_name": "cloudStyle",
        "key_value": "N/A"
      },
      {
        "key_name": "cloudLocation",
        "key_value": "West US"
      }
    ],
    "count": 5
  },
  {
    "group": [
      {
        "key_name": "providerType",
        "key_value": "aws-ec2"
      },
      {
        "key_name": "cloudStyle",
        "key_value": "CLASSIC"
      },
      {
        "key_name": "cloudLocation",
        "key_value": "sa-east-1"
      }
    ],
    "count": 1
  },
  {
    "group": [
      {
        "key_name": "providerType",
        "key_value": "aws-ec2"
      },
      {
        "key_name": "cloudStyle",
        "key_value": "VPC"
      },
      {
        "key_name": "cloudLocation",
        "key_value": "eu-west-1"
      }
    ],
    "count": 1
  },
  {
    "group": [
      {
        "key_name": "providerType",
        "key_value": "aws-ec2"
      },
      {

```

```
    {
      "key_name": "cloudStyle",
      "key_value": "CLASSIC"
    },
    {
      "key_name": "cloudLocation",
      "key_value": "eu-west-1"
    }
  ],
  "count": 1
}
],
"total_count": 10
}
```



```
}
  ]
}
```

## API to get instances status summary

The Get Instance Status Summary API retrieves a summary status of the instances on a hybrid cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /hybridcloudlabs/instances/status-summary  |
| Method               | GET  |
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"><li>200 - Success.</li></ul>   |
| Response Payload     | <pre>{   "value": [     {       "object_type": "instance_status_summary",       "links": {         "self": "http://&lt;ip&gt;/icfb/v1/hybridcloudlabs/instances/status-       },       "properties": {         "distribution": [           {             "group": [               {                 "key_name": "vdcName",                 "key_value": "vdc-test"               },               {                 "key_name": "cloudName",                 "key_value": "cld-eu-west1"               },               {                 "key_name": "cloudStyle",                 "key_value": "VPC"               },               {                 "key_name": "cloudType",                 "key_value": "aws-ec2"               }             ]           },           "count": 2         ]       }     }   ], }</pre> |

```
{
  "group": [
    {
      "key_name": "vdcName",
      "key_value": "vdc-eu-west1"
    },
    {
      "key_name": "cloudName",
      "key_value": "cld-eu-west1"
    },
    {
      "key_name": "cloudStyle",
      "key_value": "VPC"
    },
    {
      "key_name": "cloudType",
      "key_value": "aws-ec2"
    }
  ],
  "count": 3
},
{
  "group": [
    {
      "key_name": "vdcName",
      "key_value": "vdc-test"
    },
    {
      "key_name": "cloudName",
      "key_value": "cld-east1"
    },
    {
      "key_name": "cloudStyle",
      "key_value": "VPC"
    },
    {
      "key_name": "cloudType",
      "key_value": "aws-ec2"
    }
  ],
  "count": 3
},
{
  "group": [
    {
      "key_name": "vdcName",
      "key_value": "vdc-east1"
    },
    {
      "key_name": "cloudName",
      "key_value": "cld-east1"
    }
  ],
  "count": 3
}
```

```
        "key_name": "cloudStyle",
        "key_value": "VPC"
    },
    {
        "key_name": "cloudType",
        "key_value": "aws-ec2"
    }
],
"count": 3
}
],
"aggregated_status_summary": [
    {
        "count": 10,
        "type": "powerState",
        "value": "POWERED_ON"
    },
    {
        "count": 1,
        "type": "powerState",
        "value": "POWERED_OFF"
    },
    {
        "count": 9,
        "type": "operational",
        "value": "operational"
    },
    {
        "count": 2,
        "type": "operational",
        "value": "not_operational"
    }
],
"total_count": 11
}
```

```

    }
  ]
}

```

## API to get catalog-items status summary

The Get Catalog Item Summary Status API retrieves a summary status of catalog items on a hybrid cloud.

| API Attribute        | Description   |
|----------------------|---|
| URI                  | /hybridcloudlabs/catalog-items/status-summary   |
| Method               | GET   |
| Request Payload      | None  |
| HTTP Response Status | <ul style="list-style-type: none"> <li>200 - Success.</li> </ul>  |
| Response Payload     | <pre> {   "value": [     {       "object_type": "catalog_item_status_summary",       "links": {         "self": "http://&lt;ip&gt;/icfb/v1/hybridcloudlabs/catalog-items/sta       },       "properties": {         "distribution": [           {             "group": [               {                 "key_name": "icfCloudName",                 "key_value": "Azure Cloud 3"               },               {                 "key_name": "osType",                 "key_value": "CentOS"               },               {                 "key_name": "icfCloudLocation",                 "key_value": "West US"               },               {                 "key_name": "cloudProviderType",                 "key_value": "azure"               }             ]           }         ]       }     }   ], } </pre> |

```
"count":1
},
{
  "group":[
    {
      "key_name":"icfCloudName",
      "key_value":"Azure Cloud 3"
    },
    {
      "key_name":"osType",
      "key_value":"RHEL"
    },
    {
      "key_name":"icfCloudLocation",
      "key_value":"West US"
    },
    {
      "key_name":"cloudProviderType",
      "key_value":"azure"
    }
  ],
  "count":1
},
{
  "group":[
    {
      "key_name":"icfCloudName",
      "key_value":"cld-east1"
    },
    {
      "key_name":"osType",
      "key_value":"RHEL"
    },
    {
      "key_name":"icfCloudLocation",
      "key_value":"us-east-1"
    },
    {
      "key_name":"cloudProviderType",
      "key_value":"aws-ec2"
    }
  ],
  "count":1
},
{
  "group":[
    {
      "key_name":"icfCloudName",
      "key_value":"cld-east1"
    },
    {
      "key_name":"osType",
      "key_value":"CentOS"
    }
  ]
}
```

```
    },
    {
      "key_name": "icfCloudLocation",
      "key_value": "us-east-1"
    },
    {
      "key_name": "cloudProviderType",
      "key_value": "aws-ec2"
    }
  ],
  "count": 2
},
{
  "group": [
    {
      "key_name": "icfCloudName",
      "key_value": "cld-west2"
    },
    {
      "key_name": "osType",
      "key_value": "CentOS"
    },
    {
      "key_name": "icfCloudLocation",
      "key_value": "us-west-2"
    },
    {
      "key_name": "cloudProviderType",
      "key_value": "aws-ec2"
    }
  ],
  "count": 3
},
{
  "group": [
    {
      "key_name": "icfCloudName",
      "key_value": "cld-west1"
    },
    {
      "key_name": "osType",
      "key_value": "CentOS"
    },
    {
      "key_name": "icfCloudLocation",
      "key_value": "us-west-1"
    },
    {
      "key_name": "cloudProviderType",
      "key_value": "aws-ec2"
    }
  ],
  "count": 2
}
```

```
    },
    {
      "group": [
        {
          "key_name": "icfCloudName",
          "key_value": "cld-eu-west1"
        },
        {
          "key_name": "osType",
          "key_value": "CentOS"
        },
        {
          "key_name": "icfCloudLocation",
          "key_value": "eu-west-1"
        },
        {
          "key_name": "cloudProviderType",
          "key_value": "aws-ec2"
        }
      ],
      "count": 2
    }
  ],
  "aggregated_status_summary": [
    {
      "count": 1,
      "type": "cloudDeploymentStatus",
      "value": "DEPLOYFAILED"
    },
    {
      "count": 11,
      "type": "cloudDeploymentStatus",
      "value": "DEPLOYED"
    }
  ],
  "total_count": 12
}
```

```
}
  ]
}
```

### API to get service request status summary

The Get Service Request Status Summary API retrieves a summary status of service requests on a hybrid cloud.

| API Attribute        | Description  |
|----------------------|--|
| URI                  | /hybridcloudlabs/service-requests/status-summary                 |
| Method               | GET  |
| Request Payload      | None   |
| HTTP Response Status | <ul style="list-style-type: none"><li>• 200 - Success.</li></ul> |



Response  
Payload

```
{
  "value": [
    {
      "object_type": "service_request_status_summary",
      "links": {
        "self": "http://<ip>/icfb/v1/hybridcloudlabs/service-requests",
      },
      "properties": {
        "distribution": [
          {
            "group": [
              {
                "key_name": "srStatus",
                "key_value": "SUCCESS"
              }
            ],
            "count": 1
          }
        ],
        "aggregated_status_summary": [
          {
            "count": 0,
            "type": "srStatus",
            "value": "WAITING"
          }
        ],
        "total_count": 15
      }
    }
  ]
}
```