

VMware Cloud Provider Hub API Programming Guide

VMware Cloud Provider Hub 2.0



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VMware Cloud Provider Hub API Programming Guide

This edition of the *VMware Cloud Provider Hub API Programming Guide* provides information on using the billing and subscriptions, and support requests API.

VMware provides many different APIs and SDKs for applications and goals. This guide provides information about the Cloud Provider Hub API for developers who are interested in generating billing statements, viewing services subscription, and managing support requests through RESTful clients.

Intended Audience

This guide is intended for software developers who have knowledge in Cloud Service Platform, are familiar with Representational State Transfer (REST) and RESTful programming convention, and other widely deployed technologies such as JSON, HTTP, and the Windows or Linux operating system.

Related Publications

The *Getting Started with VMware Cloud Provider Hub Guide* and *Using VMware Cloud Provider Hub Guide* contain detailed information about many of operations referred to in this guide. Most users of the Cloud Provider Hub API will find the information in those documents valuable when executing billing and support HTTP requests. To access the current versions of these and other VMware publications, go to <https://docs.vmware.com/>.

Updated Information

1

This *VMware Cloud Provider Hub API Programming Guide* document is updated with each release of the product or when necessary.

This table provides the updated history of the *VMware Cloud Provider Hub API Programming Guide* document.

Revision	Description
25 NOV 2019	<ul style="list-style-type: none">■ Included the Chapter 3 Tenant Organization Management API, and Chapter 4 User Management API sections.■ Updated VMware Cloud Provider Hub API Request Parameters with the tenant and service management request parameters.■ Updated all topics with the new API authentication method.
17 MAY 2019	<p>Updated query parameters information in View Subscriptions.</p> <ul style="list-style-type: none">■ Removed the step, which gets the time period of a service subscription by using the <code>startTime</code> and <code>endTime</code> query parameters. These query parameters are no longer used for subscriptions.■ Updated the Service Subscriptions for a Tenant example.
18 NOV 2018	Initial release.

Getting Started with the VMware Cloud Provider Hub API

2

With VMware Cloud Provider Hub APIs, you can manage service billing statements, view service subscriptions, and manage support requests in a RESTful application development style.

This chapter includes the following topics:

- [VMware Cloud Provider Hub Terminology](#)
- [VMware Cloud Provider Hub API Request Parameters](#)
- [Using VMware Cloud Provider Hub APIs](#)

VMware Cloud Provider Hub Terminology

The VMware Cloud Provider Hub API defines a set of objects and terminology that are referenced throughout this document. Understanding these concepts benefits your comprehension on using the Cloud Provider Hub billing API.

Cloud Provider Hub objects have the following high-level properties:

Organization	A cloud can contain one or more organizations. Each organization is a unit of administration for a collection of users and computing resources. Users authenticate at the organization level, supplying credentials established when the user was created or imported. User credentials are authenticated by the organization's identity provider.
Users and Roles	Your organization can contain an arbitrary number of users. Possible actions within an organization are controlled through the assignment of rights and roles to users.
Subscriptions	When you purchase a cloud service as part of an offer signed in advance, you are charged a term subscription cost. Any usage of the service that is not charged as part of the term subscription is with an on-demand rate. Billing reports are generated for the on-demand type of subscription.
Usage	You can retrieve the usage for all the services in your organization either as an estimation charge for the current billing cycle or as a raw usage charge for past months.

VMware Cloud Provider Hub API Request Parameters

You can specify request parameters in your HTTP requests to the VMware Cloud Provider Hub APIs to filter the information, or to perform a given task.

Billing API Request Parameters

You must provide the appropriate request parameters to get the required data from the Billing & Subscriptions API. To customize the returned content, you can use the optional query parameters.

Name	Type	Description
orgId	Path	Service provider or tenant organization ID for which raw data usage reports or subscriptions are fetched.
tenantId	Query	If orgId is set with a service provider organization ID, the service provider can specify the tenant organization ID to filter and obtain billing results for this particular tenant.
startTime	Query	Sets the starting time period of obtaining raw usage report. If the specified time is the middle of the month, it rounds to the beginning of that month. The value is in the format of UNIX epoch timestamp.
endTime	Query	Sets the ending time period of obtaining raw usage report. If only startTime is provided, the end time is assumed to be the last billing period. If endTime value is set to the middle of the month, it rounds to the beginning of the month. Value is in the format of UNIX epoch timestamp.
serviceIds	Query	Lists the raw usage data in a comma separated, one or more service definition IDs.
detailView	Query	Defines the returned information. It can contain the most granular usage distribution of data or provide a summary view where the summation happens at the most atomic quantity. When set to true , returns a summary view.

Name	Type	Description
providerReport	Query	When set to true and orgId is a service provider organization, the providerReport lists the usage reports or subscriptions for the provider organization only. In this case, overrides tenantId. When set to false and tenantId is not used, the usage data for all the tenants in the master organization is fetched.
allTenants	Query	When set to true , returns all subscriptions for all the tenants. Otherwise, returns the service provider subscriptions. By default, <i>false</i> .

Support API Request Parameters

You must provide the appropriate request parameters to get the required data from the Support API. To customize the returned content, you can use the optional query parameters.

Name	Type	Description
orgId	Path	Service provider or tenant organization ID for which support tickets are fetched, updated, or related.
orgName	Query	Organization name for which the support tickets are fetched.
category	Query	Returns support tickets by an issue category.
severity	Query	Returns support tickets by severity.
status	Query	Returns support request by a specified status.
subject	Query	Returns support tickets which contain a phrase in the subject.
includeTenantOrgs	Query	Returns support requests created for the current organization and its tenant organizations.
internalTicketId	Query	Returns service provider internal support ticket ID.
pageStart	Query	The start point for index of records to fetch. By default, 1 .
pageLimit	Query	Returns the maximum number of support tickets. By default, 100 .
supportRequestId	Path	An ID for which a support request is found and updated.
userTicketsOnly	Query	Returns support requests created by the current user only.

Name	Type	Description
fileDetail	FormData	Provides additional details on a support ticket in a file format.
uploadedInputStream	FormData	Provides file stream.
tenantId	Query	Returns the categories for a particular tenant organization.

Tenant Organization Management API Request Parameters

You must provide the appropriate request parameters to perform the required action with the Tenant Organization Management API.

Name	Type	Description
orgId	Path	Service provider organization under which a tenant organization is managed or created.
tenantType	Query	Defines the tenant type. Either DEFAULT or INTERNAL.
country	Query	Standard two-letter country code (for example US, CA, IN)
displayName	Query	Specifies the displayed tenant organization name.
city	Query	The city where the tenant organization is based.
state	Query	The state where the tenant organization is based.
zip	Query	Zip Code of the tenant organization location.
adminUserEmail	Query	Email address of the tenant administrator.
tag	Query	A unique identifier that can be used when querying APIs.

User Management API Request Parameters

You must provide the appropriate request parameters to perform the required action or obtain the required information from the User Management API.

Name	Type	Description
users	Query	Users to be managed. Defined with the username and idpId parameters.
username	Query	Email address of the user to be added or managed.
idpId	Query	Field to indicate IdP associated with a user.

Name	Type	Description
roleNamesToAdd	Query	User roles to be added. Refer to the tables below for a list of possible values.
roleNamesToRemove	Query	User roles to be removed. Refer to the tables below for a list of possible values.

Provider Role	API Value
Provider Administrator	msp:provider_admin
Provider Operations Administrator	msp:provider_operations_admin
Provider Account Administrator	msp:provider_account_admin
Provider Billing User	msp:provider_billing_user
Provider Support User	msp:provider_support_user

Tenant Role	API Value
Tenant Administrator	msp:tenant_admin
Tenant User	msp:tenant_user
Tenant Billing User	msp:tenant_billing_user

Using VMware Cloud Provider Hub APIs

To begin using VMware Cloud Provider Hub APIs, you must first exchange an API token for an access token.

To authenticate your subsequent API requests, you must use the received access token in the `csp-auth-token` header in your script's HTTP calls.

API tokens are scoped within individual organizations. To manage a tenant organization using the API, you have to first generate an API token within that organization. Then you must follow these steps to exchange it for an access token, and use this access token in all management operations related to that organization.

Prerequisites

- Verify that you have generated an API token from the VMware Cloud Provider Hub UI. For information about generating API tokens, refer to the *Using VMware Cloud Provider Hub* documentation.
- Verify that your organization has at least one active cloud service.

Procedure

- ◆ To exchange your VMware Cloud Provider Hub API token for an exchange token, issue the following request.

```
POST https://console.cloud.vmware.com/cphub/api/auth/v1/authn/accesstoken
```

- a Set the Content-Type header of this POST request to `application/json`.
- b In the body of the request, include the following parameter: `"refreshToken" : "your_api_token"`.

A successful request returns an authentication token within the `"accessToken"` parameter.

What to do next

To authenticate your VMware Cloud Provider Hub API calls, you must use a valid authentication token as the `csp-auth-token` request header.

Tenant Organization Management API

3

You can fetch information about the tenant organizations under your provider organization, create, or update a tenant organization, using the Tenant Organization Management API.

This chapter includes the following topics:

- [Create a Tenant Organization](#)
- [Retrieve Details About a Single Organization](#)
- [Retrieve Details About All Tenant Organizations](#)
- [Update a Tenant Organization](#)

Create a Tenant Organization

You can create a tenant organization using the Tenant Organization Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator** or **Provider Operations Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter the values of the parameters required for tenant creation:

```
{
  "tenantType": "",
  "country": "",
  "displayName": "",
  "companyName": "",
  "city": "",
  "state": "",
  "zip": "",
```

```

"domain": "",
"adminUserEmail": "",
"tag": ""
}

```

The `adminUserEmail` and `tag` input parameters are optional.

The user email address that you enter in the `adminUserEmail` parameter automatically receives the **Tenant Administrator** role within that tenant organization.

- 2 To create a tenant organization, use your master organization ID and run the HTTP POST request.

```
POST https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID/tenants
```

A new tenant organization is created and you receive a response with information about it.

Example: Create a New Tenant Organization

This example creates a tenant organization under a master organization.

Enter the details for the new tenant organization in the body of the request.

```

{
  "tenantType": "DEFAULT",
  "country": "US",
  "displayName": "Lorem",
  "companyName": "Lorem Ipsum",
  "city": "Atlanta",
  "state": "Georgia",
  "zip": "30313",
  "domain": "lorem.com",
  "adminUserEmail": "",
  "tag": "hightouchVMC"
}

```

Enter your master organization ID and create the tenant organization.

```
POST https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/9d9648a7-115a-4a06-a613-a0c4077469f7/tenants
```

The response returns details about the newly created tenant organization.

```

{
  "id" : "6ee16f54-ed2e-44af-b505-3c4cbc6fbc33",
  "name" : "jy99ayz7",
  "displayName" : "Lorem",
  "companyName" : "Lorem Ipsum",
  "country" : "US",
  "state" : "Georgia",
  "city" : "Atlanta",
  "zip" : "30313",
  "domain" : "lorem.com",
  "tag" : "hightouchVMC",
  "status" : "ACTIVE",
  "orgType" : "TENANT",
}

```

```

"parentOrgId" : "9d9648a7-115a-4a06-a613-a0c4077469f7",
"childOrgIds" : [ ],
"tenantType" : "DEFAULT",
"isFederated" : false
}

```

Retrieve Details About a Single Organization

You can retrieve details about a single organization by using the Tenant Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, or **Provider Account Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- ◆ Enter the ID of the organization that you want to retrieve details about, and run a GET request.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID
```

The response returns information about the selected organization.

Example: Retrieve Details About a Single Organization

This example retrieves information about a single provider or tenant organization.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/9fb942e0-3e93-49ce-8617-0eed023d9d25
```

The response returns information about the organization.

```

{
  "createTimestamp" : 1557857413135,
  "updateTimestamp" : 1563265359178,
  "id" : "9fb942e0-3e93-49ce-8617-0eed023d9d25",
  "name" : " jy99ayz7",
  "displayName" : "Lorem",
  "companyName" : "Lorem Ipsum",
  "country" : "US",
  "state" : "Atlanta",
  "city" : "Georgia",
  "zip" : "30313",
  "domain" : "lorem.com",
  "tag" : " hightouchVMC ",
  "status" : "ACTIVE",
  "orgType" : "TENANT",
  "parentOrgId" : "9d9648a7-115a-4a06-a613-a0c4077469f7",

```

```
"childOrgIds" : [ ],
"tenantType" : "DEFAULT",
"isFederated" : false
}
```

Retrieve Details About All Tenant Organizations

You can retrieve information about the tenant organizations managed by your provider organization by using the Tenant Organization Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, or **Provider Account Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- ◆ Enter the ID of your provider organization and run a GET request.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID/tenants
```

The response returns details about all tenant organizations managed by your provider organization.

Example: Retrieve Details About All Tenant Organizations

This example retrieves details about the tenant organizations managed by a provider organization.

Enter the ID of your service provider organization, and retrieve the data about all the tenant organizations.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/9d9648a7-115a-4a06-a613-a0c4077469f7/tenants
```

The response returns information about all tenant organizations managed by the provider organization.

```
[{
  "createTimestamp" : 1554709912558,
  "updateTimestamp" : 1557304298402,
  "id" : "63b4d332-21a9-456d-8fcb-f480c5e11f23",
  "name" : "ju8250wx",
  "displayName" : "Lorem",
  "companyName" : "Lorem Ipsum",
  "adminUserName" : "",
  "adminUserEmail" : "",
  "country" : "US",
  "state" : "GA",
  "city" : "Atlanta",
  "zip" : "30313",
  "domain" : "lorem.com",
```

```

"tag" : "",
"status" : "ACTIVE",
"orgType" : "TENANT",
"parentOrgId" : "9d9648a7-115a-4a06-a613-a0c4077469f7",
"childOrgIds" : [ ],
"tenantType" : "DEFAULT",
"isFederated" : true
},
...

```

Update a Tenant Organization

You can update the details of a tenant organization by using the Tenant Organization Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, or **Provider Account Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter the parameters of a tenant organization that you want to update.

```

{
  "tenantType": "",
  "country": "",
  "displayName": "",
  "companyName": "",
  "city": "",
  "state": "",
  "zip": "",
  "domain": "",
  "adminUserEmail": "",
  "tag": ""
}

```

The `adminUserEmail` and `tag` input parameters are optional.

- 2 To update a tenant organization, use your master organization ID and run an HTTP PUT request.

```
PUT https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID
```

The tenant organization is updated with the new information.

Example: Update a Tenant Organization

This example updates the details of a tenant organization.

Enter the updated tenant organization parameters in the request body.

```
{
  "tenantType": "DEFAULT",
  "country": "US",
  "displayName": "Coke 2",
  "companyName": "The Coca-Cola Company",
  "city": "Atlanta",
  "state": "GA",
  "zip": "30313",
  "domain": "coke.com",
  "adminUserEmail": "",
  "tag": ""
}
```

Update the tenant organization details.

```
PUT https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/534039c2-c11d-4725-b14c-bf7476fda4a8
```

The response returns the updated tenant organization information.

```
{
  "createTimestamp": 1565303037087,
  "updateTimestamp": 1571666716120,
  "id": "534039c2-c11d-4725-b14c-bf7476fda4a8",
  "name": "jz390gbi",
  "displayName": "Lorem",
  "companyName": "Lorem Ipsum",
  "country": "US",
  "state": "GA",
  "city": "Atlanta",
  "zip": "30313",
  "domain": "lorem.com",
  "tag": "",
  "status": "ACTIVE",
  "orgType": "TENANT",
  "parentOrgId": "d7f32037-b9b5-41ec-9394-ba3edbbc9cac",
  "childOrgIds": [],
  "tenantType": "DEFAULT",
  "isFederated": true
}
```

User Management API

4

You can create, update, and remove tenant or provider users using the User Management API. You can also retrieve a list with all users in an organization.

This chapter includes the following topics:

- [Retrieve a List of All Users](#)
- [Add New Users](#)
- [Update Organizational Roles of Users](#)
- [Remove Users](#)

Retrieve a List of All Users

You can retrieve a list with all users in an organization and information about them by using the User Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- ◆ Enter the ID of the organization from which you want to retrieve the list of users and run a GET request.

```
GET https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/users
```

The response lists all users in the selected organization and information about them.

Example: Retrieve a List of All Users

This example obtains a list of all users in an organization.

Retrieve the list of users in an organization.

```
GET https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/d7f32037-b9b5-41ec-9394-ba3edbbc9cac/users
```

The response lists information about every user in the organization.

```
[
  {
    "user": {
      "firstName": "John",
      "lastName": "Doe",
      "username": "johndoe@lorem.com",
      "email": "johndoe@lorem.com",
      "idpId": "lorem",
      "domain": "lorem.com",
      "accessible": true
    },
    "orgRoles": {
      "orgRoles": [
        {
          "id": "msp:provider_operations_admin",
          "name": "Provider Operations Administrator",
          "memberType": "DIRECT"
        }
      ]
    },
    "serviceRolesList": [
      {
        "serviceId": "I8_vUYLiPxopN_YFGqhgBH6rrAI_",
        "roles": [
          {
            "roleId": "log-intelligence:admin",
            "name": "log-intelligence:admin",
            "hidden": false,
            "enabled": true,
            "memberType": "DIRECT"
          }
        ]
      }
    ]
  }
]
...
```

Add New Users

You can add one or more users to a provider or tenant organization and assign organizational and roles to them by using the User Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.

- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter the values of the required parameters for adding a user.

```
{
  "serviceRolesItems": [
    {
      "serviceId": "",
      "roleNamesToAdd": []
    }
  ],
  "orgRolesToAdd": [],
  "users": [
    {
      "username": "",
      "idpId": ""
    }
  ]
}
```

You can include more than one role in the `roleNamesToAdd` and `orgRolesToAdd` parameters.

If you are adding a user with the **Provider Account Administrator** role, enter the IDs of the tenant organizations manageable by the user in the `orgRoleBindingOrgs` parameter.

For a list of API values of the organizational and service roles in VMware Cloud Provider Hub, see [VMware Cloud Provider Hub API Request Parameters](#).

- 2 (Optional) If you want to add multiple users at the same time, insert an extra array of `username` and `idpId` for each user, within the `users` parameter.

```
{
  "users": [
    ...
    {
      "username": "",
      "idpId": ""
    },
    {
      "username": "",
      "idpId": ""
    }
    ...
  ],
}
```

The roles that you enter are assigned to all users.

- 3 To add new users, enter the ID of the organization that you want the users added to, and run the POST request.

```
POST https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/add-users
```

If a user has VMware ID set up with their email, they are immediately added to your organization. If a user does not have VMware ID set up with their email, they receive an invitation to create a VMware ID and join your organization. You receive a response confirming the operation. Pending invitations expire after seven days.

Example: Add a New User to an Organization

This example adds a user with the **Provider Support User** role to a service provider organization.

Enter the details and organizational role of the user.

```
{
  "serviceRolesItems": [
    {
      "serviceId": "I8_vUYLiPxopN_YFGqghbH6rrAI_",
      "roleNamesToAdd": [
        "log-intelligence:user"
      ]
    }
  ],
  "orgRolesToAdd": [
    "msp:provider_account_admin"
  ],
  "users": [
    {
      "username": "johndoe@lorem.com",
      "idpId": ""
    }
  ]
}
```

Add the new user.

```
PATCH https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/62aad261-0c59-4d50-9725-3848afd5b1dd/
add-users
```

The response returns information about the added user.

```
{
  "message": "Users have been added/invited successfully",
  "addedUsers": {
    "users": [
      "johndoe@lorem.com"
    ],
    "status": "SUCCESS",
    "failedUsers": [],
    "detailedStatus": {
      "johndoe@lorem.com": "Success"
    }
  }
}
```

```

    }
  }
}

```

What to do next

You can fetch a list of pending invitations, revoke invitations sent by mistake, or resend expired invitations by using the User Management API.

Fetch a List of Pending Invitations

You can fetch a list of pending invitations by using the User Management API. Invitations are sent when adding users who do not have VMware ID set up with their email.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).

Procedure

- ◆ Enter the ID of your organization and run the GET request.

```
GET https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/invitations
```

You receive a response with information about pending invitations.

Example: Fetch a List of Pending Invitations

This example fetches a list of pending invitations sent to users from a given tenant organization.

Fetch the pending invitations list.

```
GET https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/
invitations
```

The response returns the list of pending invitations and information about them.

```
[
  {
    "expirationTime": 1574312854269,
    "generatedBy": "johndoe@acme.com",
    "generatedAt": 1573708054269,
    "revokedBy": "jimdove@acme.com",
    "revokedAt": 1573708230248000,
    "status": "AVAILABLE",
    "username": "janedoe@acme.com",
    "orgRoles": [
      "msp:provider_account_admin"
    ],
    "orgRoleBindingOrgs": [

```

```

        "46d88eea-0634-11ea-93c9-0a97bec7ba64"
    ],
    "refLink": "/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/invitations/ab0f65b0-069c-11ea-a07c-0a97bec7ba64"
  },
  {
    "expirationTime": 1574312854269,
    "generatedBy": "johndoe@acme.com",
    "generatedAt": 1573708054269,
    "revokedBy": "leedoe@acme.com",
    "revokedAt": 1573708230248000,
    "status": "AVAILABLE",
    "username": "docscott@acme.com",
    "orgRoles": [
      "msp:provider_admin"
    ],
    "refLink": "/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/invitations/ab0f65b0-069c-11ea-a07c-0a97bec7ba64"
  }
]

```

What to do next

Revoke invitations sent by mistake or resend expired invitations.

Revoke or Resend Invitations

You can revoke user invitations sent by mistake or resend expired invitations by using the User Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter the emails of the users which invitations you want to revoke or resend.

```

{
  "emails": []
}

```

- 2 To revoke invitations, enter the ID of your organization and run a DELETE request.

```
DELETE https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/invitations
```

3 To resend invitations, run a POST request.

```
POST https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/invitations
```

User invitations are either revoked or resent. You receive a response confirming the operation.

Example: Revoke Invitations

This example revokes the invitations sent to three users in an organization.

Enter the emails of the users.

```
{
  "emails": [
    "johndoe@acme.com",
    "janedoe@acme.com",
    "jimdoe@.com"
  ]
}
```

Revoke the invitations.

```
DELETE https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/
invitations
```

The response returns information on the revoked invitations.

```
{
  "message": "Invitations have been revoked successfully",
  "revokedUsersInvitation": {
    "users": [
      "johndoe@acme.com",
      "janedoe@acme.com",
      "jimdoe@acme.com"
    ],
    "status": "SUCCESS",
    "refLink": {
      "johndoe@acme.com": "/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/
invitations/ab0f65b0-069c-11ea-a07c-0a97bec7ba64",
      "janedoe@acme.com": "/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/
invitations/ab0f65b0-069c-11ea-a07c-0a97bec7ety3",
      "jimdoe@acme.com": "/cphub/api/auth/v1/orgs/d5934212-a7a7-4000-a036-65fe2e692cfb/
invitations/ab0f65b0-069c-11ea-a07c-0a97bec46eu2"
    }
  }
}
```

Update Organizational Roles of Users

You can modify the organizational roles of users in a provider or tenant organization by using the User Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter values for the required parameters for updating organizational roles of users.

```
{
  "users": [
    {
      "username": "",
      "idpId": ""
    }
  ],
  "roleNamesToAdd": [],
  "roleNamesToRemove": []
}
```

- a Enter all roles that you want to assign to a user within the `roleNamesToAdd` parameter.
- b Enter all roles that you want to revoke from a user within the `roleNamesToRemove` parameter.

For a list of API values of the organizational roles in VMware Cloud Provider Hub, see [VMware Cloud Provider Hub API Request Parameters](#).

- 2 (Optional) If you want to update the roles of multiple users at the same time, insert an extra array of `username` and `idpId`, for each user, within the `users` parameter.

```
{
  "users": [
    ...
    {
      "username": "",
      "idpId": ""
    },
    {
      "username": "",
      "idpId": ""
    }
    ...
  ],
  "roleNamesToAdd": [],
  "roleNamesToRemove": []
}
```

- 3 Enter the ID of the organization of which the users you are updating are part, and run the request.

```
PATCH https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/users-org-roles
```

The organizational roles of the specified users are updated with the new ones. You receive a response confirming the update.

Example: Update the Organizational Roles of a User

This example modifies the organizational role of a provider user, from **Provider Administrator** to **Provider Support User**.

Enter values for the required parameters for updating the organizational roles of a user.

```
{
  "users": [
    {
      "username": "johndoe@acme.com",
      "idpId": ""
    }
  ],
  "roleNamesToAdd": [
    "msp:provider_admin"
  ],
  "roleNamesToRemove": [
    "msp:provider_support_user"
  ]
}
```

Update the roles of the user.

```
PATCH https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/62aad261-0c59-4d50-9725-3848afd5b1dd/
users-org-roles
```

The response returns information on the updated user.

```
{
  "roleNamesToRemove": [
    "msp:provider_support_user"
  ],
  "roleNamesToAdd": [
    "msp:provider_admin"
  ],
  "users": [
    {
      "username": "johndoe@acme.com",
      "idpId": ""
    }
  ]
}
```

Remove Users

You can remove users from your provider or tenant organization by using the User Management API.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Operations Administrator**, **Provider Account Administrator**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .
- Set the `Content-Type` header of this request to `application/json`.

Procedure

- 1 In the body of the request, enter the required values for removing a user from an organization.

```
{
  "users": [
    {
      "username": "",
      "idpId": ""
    }
  ],
  "roleNamesToAdd": [],
  "roleNamesToRemove": []
}
```

To remove users from an organization, enter all roles currently held by the users in the `roleNamesToRemove` parameter.

For a list of API values of the organizational roles in VMware Cloud Provider Hub, see [VMware Cloud Provider Hub API Request Parameters](#).

- 2 (Optional) If you want to remove multiple users at the same time, insert an extra array of `username` and `idpId`, for each user, within the `users` parameter.

```
{
  "users": [
    ...
    {
      "username": "",
      "idpId": ""
    },
    {
      "username": "",
      "idpId": ""
    }
    ...
  ],
  "roleNamesToAdd": [],
  "roleNamesToRemove": []
}
```

- 3 Enter the ID of the organization of which the users you are removing are part, and run the request.

```
PATCH https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/org_ID/users-org-roles
```

The specified users are removed from your provider or tenant organization. You receive a response confirming the removal.

Example: Remove Users from an Organization

This example removes users from a given provider organization.

Enter values for the required parameters for removing users from an organization. List all roles currently held by users in the `roleNamesToRemove` parameter.

```
{
  "users": [
    {
      "username": "johndoe@acme.com",
      "idpId": "acme"
    },
    {
      "username": "janedoe@acme.com",
      "idpId": "acme"
    }
  ],
  "roleNamesToAdd": [],
  "roleNamesToRemove": [
    "msp:provider_operations_admin",
    "msp:provider_support_user",
    "msp:provider_account_admin",
    "msp:provider_billing_user",
    "msp:provider_admin"
  ]
}
```

Remove the users from the organization.

```
PATCH https://console.cloud.vmware.com/cphub/api/auth/v1/orgs/62aad261-0c59-4d50-9725-3848afd5b1dd/
users-org-roles
```

The response returns information on the removed users.

```
{
  "roleNamesToRemove": [
    "msp:provider_operations_admin",
    "msp:provider_support_user",
    "msp:provider_account_admin",
    "msp:provider_billing_user",
    "msp:provider_admin"
  ],
  "roleNamesToAdd": [],
  "users": [
    {
      "username": "johndoe@acme.com",
```

```
        "idpId": "acme"
    },
    {
        "username": "janedoe@acme.com",
        "idpId": "acme"
    }
]
```

Billing and Subscription API

5

The billing and subscription API provides consolidated billing statements on VMware Cloud services usage and information on services subscriptions.

This chapter includes the following topics:

- [Generate a Services Usage Report](#)
- [Download a Usage Report](#)
- [View Subscriptions](#)

Generate a Services Usage Report

You view your monthly VMware Cloud services usage for your organization in the form of a consolidated billing report. You can generate reports for current accrued costs and charges for up to six months.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, the **Provider Billing User**, or the **Tenant Administrator** role.
- Verify that you have at least one active cloud service in your organization.
- Obtain an access token from your organization and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).

Procedure

- 1 Enter the ID of the organization for which you want to generate the aggregated services usage report and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/usage-report
```

- 2 (Optional) Specify the `startTime` and `endTime` input parameters in UNIX epoch time to filter the time period for which to obtain the raw usage report.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/usage-report?
startTime=epoch_timestamp&endTime=epoch_timestamp
```

Note Values given for `startTime` and `endTime` are rounded off to the first and last days of the nearest month.

- 3 (Optional) Generate a billing report for a tenant organization by specifying the `tenantId` input parameter.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/usage-report?
tenantId=tenantId
```

Note The tenant organization must link to the master organization.

You receive a usage report scoped within that tenant organization.

The response returns raw usage billing data for the services in the specified organization and timeframe.

Example: View Tenant Usage Report

This example generates a raw usage report for a selected tenant.

Generate the raw usage report.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/00dcd47b-867d-46a1-b5ac-c9c22a4427cb/
usage-report?startTime=1536856769&endTime=1538411969&tenantId=73338bcc-17e0-4480-9d25-f654532a1ee0
```

You receive a response with the raw usage data from the specified organization and time period.

```
Status 200 OK
[
  {
    "createTimestamp": 1568178851354,
    "updateTimestamp": 1568180410978,
    "orgId": "...",
    "orgName": "Coke",
    "services": [
      {
        "serviceDefId": "...",
        "serviceName": "VMware Cloud on AWS",
        "serviceDescription": "VMware Cloud on AWS - prod",
        "serviceUsageAmount": 0.0,
        "serviceBillableUsageAmount": 0.0,
        "subscriptions": [
          {
            "sid": "...",
            "subscriptionUuid": "...",
            "skuData": {
              "skus": [],
              "pageSize": 0
            }
          }
        ]
      }
    ]
  }
]
```

```

    },
    "subscriptionStartTime": 1528386976000,
    "subscriptionEndTime": 0,
    "anniversaryBillingTime": 0,
    "status": "ACTIVE",
    "subscriptionType": "ON_DEMAND"
  }
]
},
{
  "serviceDefId": "...",
  "serviceName": "VMware Log Intelligence",
  "serviceDescription": "log-intelligence",
  "serviceUsageAmount": 0.0,
  "serviceBillableUsageAmount": 0.0,
  "subscriptions": [
    {
      "sid": "...",
      "subscriptionUuid": "...",
      "skuData": {
        "skus": [],
        "pageSize": 0
      },
      "subscriptionStartTime": 1534465763000,
      "subscriptionEndTime": 0,
      "anniversaryBillingTime": 0,
      "status": "ACTIVE",
      "subscriptionType": "ON_DEMAND"
    }
  ]
}
],
"orgUsageAmount": 0.0,
"orgBillableUsageAmount": 0.0
}
]

```

What to do next

Download the generated billing statement.

Download a Usage Report

You can use the billing API to retrieve raw usage report data in a downloadable CSV file.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, the **Provider Billing User**, the **Tenant Administrator**, or the **Tenant Billing User** role.
- Verify that at least one cloud service is active in your organization.
- Obtain an access token from your organization and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).

Procedure

- 1 Enter the ID of the organization for which you want to download the generated usage report file and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/usage-report/file
```

As a service provider, you can specify a tenant organization using the `tenantId` input parameter. If you leave `tenantId` unspecified, usage reports for all tenants in the master organization are downloaded.

- 2 (Optional) Enter the `startTime` and `endTime` input parameters in UNIX epoch time to filter the time period for which to obtain the raw usage data, and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/usage-report/file?
startTime=epoch_timestamp&endTime=epoch_timestamp
```

Note Values given for `startTime` and `endTime` are rounded off to the first and last days of the nearest month.

You get the raw usage billing report as a downloadable CSV file. You can view the filename in the `Content-Disposition` response header.

```
Content-Disposition →attachment; filename="....csv"
```

Example: Usage Report File Download

This example downloads a CSV file with the on-demand service usage for a given time period and tenant.

Download the CSV file.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/00dcd47b-867d-46a1-b5ac-c9c22a4427cb/
usage-report/file?tenantId=73338bcc-17e0-4480-9d25-
f654532a1ee0&startTime=1537029569000&endTime=1540053569000
```

You receive a response listing the headers used in the CSV file to arrange the generated raw usage data.

```
Status 200 OK
"Org Id","Org Name","Org Status","Tag","Service Id","Service Name","Subscription Id","Sku Name","Sku
Description","Datacenter","Billable Usage Timestamp","Price ()","Usage Qty","Commit Qty","Billable
Qty","Product Family","Customer Segment","Cross Reference Sku"
```

View Subscriptions

As a service provider, you can view the term subscriptions for services entitled to your organization and linked tenant organizations using the Billing & Subscription API.

Prerequisites

- Verify that you are assigned the **Provider Administrator** , **Provider Operations Administrator** , or **Provider Billing User** role.
- Obtain an access token from your organization and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .

Procedure

- ◆ Enter the ID of your organization and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/billing/v1/orgs/org_ID/subscriptions
```

You can specify a tenant organization using the `tenantId` input parameter. If you leave `tenantId` unspecified, usage reports for all tenants in the master organization are downloaded.

Example: Service Subscriptions for a Tenant

This example retrieves the service subscriptions in a given tenant organization.

Get a list of the service subscriptions entitled to the organization.

```
GET http://console.cloud.vmware.com/cphub/api/billing/v1/orgs/5c2f361d-aba1-4534-82f7-88096fa74f3f/subscriptions?tenantId=73338bcc-17e0-4480-9d25-f654532a1ee0
```

The response returns information on the service subscriptions for the specified organization.

```
[
  {
    "createTimestamp": 1568093887019,
    "updateTimestamp": 1569846392481,
    "orgId": "...",
    "orgName": "Coke",
    "services": [
      {
        "serviceDefId": "...",
        "serviceName": "VMware Cloud on AWS",
        "serviceDescription": "VMware Cloud on AWS - prod",
        "serviceUsageAmount": 0.0,
        "serviceBillableUsageAmount": 0.0,
        "subscriptions": [
          {
            "sid": "...",
            "subscriptionUuid": "...",
            "skuData": {
              "skus": [
                {
                  "skuDescription": "VMware Cloud on Amazon Web Services",
                  "crossReferenceSku": "...",
                  "geo": "US",
                  "regionCode": "A1",
                  "currency": "USD",
```

```

        "paymentType": "",
        "unitPrice": "51987.0",
        "productFamily": "VMC-AWS",
        "customerSegment": "COMMERCIAL",
        "offerInfo": {
            "offerName": "VMware Cloud on AWS",
            "version": "1.0",
            "commitmentTerm": "12",
            "commitmentTermUOM": "MONTHS",
            "serviceType": "VMC-AWS",
            "serviceTypeDescription": "VMware Cloud on Amazon Web Services",
            "customerSegment": "COMMERCIAL",
            "geo": "US",
            "regionCode": "A1",
            "currency": "USD",
            "quantity": 1
        },
        "usage": [],
        "totalUsageQuantity": 0.0,
        "totalCommitQuantity": 0.0,
        "totalBillableUsageQuantity": 0.0
    }
],
    "pageSize": 1
},
    "subscriptionStartTime": 1523123678000,
    "subscriptionEndTime": 1554573278000,
    "anniversaryBillingTime": 0,
    "status": "ACTIVE",
    "subscriptionType": "TERM"
}
]
},
{
    "serviceDefId": "...",
    "serviceName": "VMware Cost Insight",
    "serviceDescription": "Cost_Insight",
    "serviceUsageAmount": 0.0,
    "serviceBillableUsageAmount": 0.0,
    "subscriptions": []
},
{
    "serviceDefId": "...",
    "serviceName": "VMware Log Intelligence",
    "serviceDescription": "log-intelligence",
    "serviceUsageAmount": 0.0,
    "serviceBillableUsageAmount": 0.0,
    "subscriptions": []
}
],
    "orgUsageAmount": 0.0,
    "orgBillableUsageAmount": 0.0
}
]

```

Support Requests API

6

With the VMware Cloud Provider Hub support API, you can manage support requests. You can create a support request, update a support request, and upload files containing additional support information.

This chapter includes the following topics:

- [Create a Support Request](#)
- [Update a Support Request](#)
- [View Reasons for Closing a Support Request](#)

Create a Support Request

The VMware Cloud Provider Hub support API grants you the capability to create support tickets and upload image files and text files as additional information for an issue.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Support User**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#).

Procedure

- 1 Enter your access token as the `csp-auth-token` request header.
- 2 Retrieve your organization by its ID.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID
```

You receive a message body that contains details on the specified organization.

- 3 Enter the ID that represents the organization for which you want to create a support request and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests/metadata
```

You receive all available categories for the selected organization. You can use them later on when defining the request body of the create support ticket request.

- 4 Use the same ID that represents the organization for which you want to create a support request and populate the HTTP request.

```
POST https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests
```

In the request body, enter the parameters describing the support ticket, set the Content-Type header to application/json, and run the request.

- 5 (Optional) Upload a file using the fileReferences parameter.

If you decide not to attach the file, you can upload it later with the following HTTP request.

```
POST https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests/support_request_ID/upload
```

A new support ticket is logged into the system for the selected organization.

Example: Create a Support Request

This example creates a support ticket with an attached image file.

Request

```
{
  "severity": "3 - Medium",
  "issueCategoryId": "VMware Cloud Services - User Management",
  "userAgreedToEula": "false",
  "internalTicketId": "",
  "fileReferences": [
    {
      "fileName": "/Users/myuser/Documents/effa7bfb-4ce4-4f08-ba7b-fb4ce44f08fb_0.zip",
      "action": "ADD",
      "fileId": "3db6a332-09d1-4783-84bc-9875a1b761d7"
    }
  ],
  "phoneNumber": "+91123456789",
  "preferredContactMethod": "Phone",
  "description": "description 2018-09-17T18:03:31.380",
  "timeZone": "(GMT+05:30) India Standard Time",
  "category": "nonTechnical",
  "title": "API Support subject 2018-09-17T18:03:31.380",
  "orgId": "24f699c2-e168-4199-b206-937b50655b11"
}
```

Response

```
Status 201 Created
```

What to do next

- See if your newly created support ticket appears in the list of support requests.

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests
```

- Update the support ticket.

Update a Support Request

You can update a support request after its creation by adding additional details to it or modifying its customer number and case ID. You can also add or remove image and text files.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Support User**, or **Tenant Administrator** role.
- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .

Procedure

- 1 Enter your access token as the `csp-auth-token` request header.
- 2 Retrieve your organization by its ID.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID
```

You receive a message body that contains details on the specified organization.

- 3 Enter the ID of the organization for which you want to update a support request and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests
```

You get all existing support tickets associated with the master or tenant organization ID.

- 4 To find the ID of the support request you want to update, examine the response and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests/  
support_request_ID
```

You get all the information associated with that support ticket.

- 5 To edit the support ticket, populate the body of the request with the values you want to change, and run the request.

```
PATCH https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests/  
support_request_ID
```

You must set the `Content-Type` header of this request to `application/json`.

If the ticket is closed, you can edit its `closeReason` parameter.

You get a response with the updated support request information.

Example: Update a Support Request

This example edits the `caseId` of a support request associated with a certain master or tenant organization.

Request

```
PATCH https://console.cloud.vmware.com/cphub/api/support/v1/orgs/00dcd47b-867d-46a1-b5ac-c9c22a4427cb/support-requests/18625917011
```

```
{
  "closeReason" : "...",
  "caseId" : "1264530092",
  "additionalDetails" : "No user access.",
  "supportTicketAction" : "...",
  "customerNumber" : "...",
  "fileReferences" : [ {
    "fileName" : "...",
    "fileId" : "...",
    "action" : "REMOVE"
  }, {
    "fileName" : "...",
    "fileId" : "...",
    "action" : "ADD"
  } ]
}
```

Response

```
Status 200 OK
...
{
  "id": "18625917011",
  "caseId": "1264530092",
  "status": "Open",
  "subStatus": "Inbound message received",
  "title": "User Management",
  "severity": "3 - Medium",
  ...
}
```

View Reasons for Closing a Support Request

You can use the support API to retrieve all existing reasons for closing support tickets associated with a master or tenant organization.

Prerequisites

- Verify that you are assigned the **Provider Administrator**, **Provider Support User**, or **Tenant Administrator** role.

- Obtain an access token from the organization you want to manage and set it as the `csp-auth-token` request header. See [Using VMware Cloud Provider Hub APIs](#) .

Procedure

- 1 Enter your access token as the `csp-auth-token` request header.
- 2 Retrieve your organization by its ID.

```
GET https://console.cloud.vmware.com/cphub/api/core/v1/mgmt/orgs/org_ID
```

You receive a message body that contains details on the specified organization.

- 3 Enter the ID of the organization for which you want to view closing statements and run the HTTP request.

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/org_ID/support-requests/close-reasons
```

You get all existing closing reasons associated with the support tickets of a master or tenant organization.

Example: Retrieve Reasons for Closing Support Tickets

This example lists existing closing reasons associated with the support tickets of a master or tenant organization.

Request

```
GET https://console.cloud.vmware.com/cphub/api/support/v1/orgs/00dcd47b-867d-46a1-b5ac-c9c22a4427cb/support-requests/close-reasons
```

Response

```
Status 200 OK
{
  "closeSrReasons":[
    "Duplicate",
    "Solution Provided",
    "Another Solution",
    "Created in Error",
    "Other Reason"
  ]
}
```