

The top half of the page features three diagonal stripes in shades of blue, running from the top right towards the bottom left. The stripes are semi-transparent and overlap each other, creating a layered effect. The top stripe is the lightest, the middle one is a medium blue, and the bottom one is the darkest, solid blue.

VMware Cloud Director Extension for Data Solutions API Guide

Table of contents

Overview	3
Scope.....	3
User Personas	3
Authentication and Authorization	5
Data Models.....	5
DSInstance.....	7
Data Solutions Extension Operations	17
Provider Administrator	17
List Data Solutions.....	17
Publish Data Solutions	21
Tenant User.....	28
View Published Data Solutions	28
Deploy a Data Solution Instance.....	33
Update Solution Instance.....	44
Delete Solution Instance	52
List Solution Instances.....	60

Overview

VMware Cloud Director Extension for Data Solutions is a VMware Cloud Director plug-in that allows cloud providers to offer various data solutions to multi-tenant users such as RabbitMQ, MySQL, and PostgreSQL with enterprise VMware support. The Data Solutions Extension also provides event alerting, monitoring, and visualization of the provisioned data services through Grafana and Prometheus open-source tools.

Scope

This guide explains how to use REST APIs to execute main Data Solutions Extension operations. The Data Solution Extension does not use new APIs but rather creates particular data schemas and instances in the VMware Cloud Director [Runtime Defined Entities \(RDEs\)](#). Clients can interact with RDEs to perform the same operations as those through the extension UI. This guide does not introduce new APIs, but helps you use existing [VMware Cloud Director Defined Entity APIs](#) to manage Data Solutions. For more information about VMware Cloud Director APIs and SDKs, please refer to <https://docs.vmware.com/en/VMware-Cloud-Director/index.html>.

User Personas

There are four user personas in Data Solutions Extension: Provider Administrator, Tenant Administrator, Tenant Data Solutions Operator, and Tenant Data Solutions User. Here is a list of the main operations those users are entitled to.

Operations	Provider Administrator	Tenant Administrator	Tenant Data Solutions Operator	Tenant Data Solutions User
List data solutions	Yes	Yes	Yes	Yes
Publish data solutions	Yes	No	No	No
List published data solutions	No	Yes	Yes	Yes
Deploy a solution instance	No	Yes	Yes	Yes
Upgrade solution instance	No	Yes	Yes	Yes
Delete solution instance	No	Yes	Yes ¹	Yes ¹

¹ Own data solution instances.

To find the full list of operations Data Solutions Extension users can do, refer to <https://docs.vmware.com/en/VMware-Cloud-Director-extension-for-Data-Solutions/1.1/vmware-cloud-director-extension-data-solutions-install/GUID-C9635A84-CCDD-4768-A1D0-5A5430FA2DBD.html>.

Authentication and Authorization

The VMware Cloud Director Defined Entity API accepts user authentication tokens - the same as other VMware Cloud Director APIs, and honors VMware Cloud Director role-based access control (RBAC) mechanism to validate user permissions.

VCD API request with JWT token - Sample

```
GET /api/session HTTP/1.1
Host: my-vcd-cloud.local
Accept: application/*+json;version=36.1,application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...
```

For more information about VCD API authentication, please refer to <https://developer.vmware.com/docs/17523/vmware-cloud-director-api-programming-guide-api-37-0/GUID-6DC15CF5-3BCF-4426-9988-C71E7A71CBD6.html>.

Data Models

Data Solutions Extension creates several domain-specific Runtime Defined Entity types during the installation. Almost all Data Solutions Extension API calls are related to these data models.

Schema	Interface	Scope	Description
DSInstance	DSObject	Namespace	Data solution instances for RabbitMQ, MySQL, and PostgreSQL. API/UI clients do not interact with Kubernetes resources directly but instead manipulate DSInstance for data solution deployment, update, and deletion. A DSInstance represents a data solution deployment.
DSInstanceTemplate	DSObject	Global	Templates for data solution instance creation. There are a few pre-defined templates for each kind of data solution. A DSInstanceTemplate is global and public to all users. Essentially a DSInstanceTemplate contains a set of pre-defined Custom Resource (CR) properties.

DSProvisioning	DObject	Namespace	<p>A plugin operator that provisions data services in each Kubernetes cluster.</p> <p>DSProvisioning is used by Data Solutions Operator (DSO) to reconcile data operator provisioning.</p> <p>Configurations, description, source package, availability, and access control.</p>
DSConfig	DObject	Global	<p>DSConfig stores information for container registry, and. package location for data solutions.</p> <p>Provider Administrator also uses DSConfig instance to control tenant's accessibility to data solutions.</p>
DSCluster	DObject	Cluster	<p>Info from each cluster.</p> <p>A DSCluster records Data Solutions Operator (DSO)'s version and health.</p>

To look up the definition of these data models, you can call the VCD API `/cloudapi/1.0.0/entityTypes?filter=name==ds*`.
 The API reference is [Get Defined Entity Types](#).

DSInstance

This section explains the DSInstance RDE type since it's the primary data model for the data solutions deployment. The data model is aligned with Kubernetes CRD, although some metadata fields are reserved and will not function as in Kubernetes.

The definition type of DSInstance can be retrieved by the following VCD API call:

```
GET /cloudapi/1.0.0/entityTypes/urn:vcloud:type:vmware:dsInstance:0.1.1.
```

The type name is urn:vcloud:type:vmware:dsInstance and version is 0.1.1.

The type definition for this RDE is urn:vcloud:type:vmware:dsInstance:0.1.1

The following table provides information on the DSInstance type properties.

Property	Type	Required	Description
metadata			Metadata that all used resources must have. This includes all objects users must create.
metadata.uid	string		The same as entity id.
metadata.name	string	YES	Name must be unique within a namespace.
metadata.labels	object		Map of string keys and values that can be used to organize and categorize (scope and select) objects.
metadata.namespace	string		Fixed value "vcd-ds-workloads". It cannot be customized.
metadata..finalizers	string[]		Alerts the operator to clean up resources for the owned deleted object.
metadata.generation	integer		Reserved.
metadata.annotations	object		An unstructured key value map stored with a resource that may be set by external tools to store and retrieve arbitrary metadata.
metadata.generatedName	string		Reserved.
metadata.ownerReferences	object[]		Reserved.
metadata.resourceVersion	string		Reserved.

metadata.creationTimestamp	date-time		The time when the object is created.
metadata.deletionTimestamp	date-time		The time when the object is deleted.
metadata.deletionGracePeriodSeconds	integer		Reserved.
spec			Specifies the desired state of DSInstance.
spec.resource.kind	string	YES	A string value representing the kind of the specific data solution Custom Resource.
spec.resource.apiVersion	string	YES	APIVersion defines the group and version of the specific data solution Custom Resource.
spec.resource.spec	object		Spec of the desired resource state. This is the Custom Resource (CR) of the specific data solution instance.
spec.solutionType	string		The type of data solution.
spec.additionalResources	object[]		Additional Kubernetes resources of the data solution.
status			The observed state of a DSInstance.
status.version	string		Deprecated
status.transport.ip	string		IP is set for load balancer ingress points that are IP-based (typically GCE or OpenStack load balancers) or the clusterIP if the service is not externally exposed.
status.transport.port	integer		The port that will be exposed by this service.
status.transport.caBundle	string		CABundle is a PEM-encoded CA bundle of the data solution server.

status.transport.hostname	string		Set for load balancer ingress points that are DNS-based (typically AWS load balancers) or the service name if the service is not externally exposed. e.g.: <name>.<ns>.svc.cluster.local
status.transport.protocol	string		The IP protocol for this port. Supports "TCP", "UDP", and "SCTP".
status.transport.appProtocol	string		The application protocol for this port.
status.conditions	object[]		Conditions contain details for one aspect of the current state of DSInstance.
status.conditions[].type	string		Type of condition in CamelCase or in foo.example.com/CamelCase.
status.conditions[].reason	string		A programmatic identifier indicating the reason for the condition's last transition.
status.conditions[].status	enum		Status of the condition.
status.conditions[].message	string		A human readable message indicating details about the transition.
status.conditions[].lastTransitionTime	date-time		The last time the condition transitioned from one status to another.
status.conditions[].observedGeneration	integer		The metadata generation that the condition was set based upon.
status.management.caBundle	string		CABundle is a PEM-encoded CA bundle of the management server.
status.management.url	string		The management server URL.
status.engineVersion	string		The engine version of this instance.
status.grafana.caBundle	string		CABundle is a PEM-encoded CA bundle of the Grafana server.
status.grafana.dashboards	string[]		The Grafana dashboard URL.

Sample of DSInstance RDE Type

```

{
  "id": "urn:vcloud:entity:vmware:dsInstance:24f26078-82e1-48ab-a40b-569e96ee1c60",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "mysql-z",
  "externalId": null,
  "entity": {
    "kind": "DSInstance",
    "spec": {
      "resource": {
        "kind": "MySQL",
        "spec": {
          "tls": {
            "secret": {
              "name": "mysql-z-mysql-tls"
            }
          },
          "resources": {
            "mysql": {
              "limits": {
                "cpu": "500m",
                "memory": "500Mi"
              },
              "requests": {
                "cpu": "500m",
                "memory": "500Mi"
              }
            }
          },
          "storageSize": "500Mi",

```

```
"mysqlVersion": {
  "name": "mysql-8.0.29"
},
"highAvailability": {
  "enabled": false
},
"persistentVolumeClaimPolicy": "Delete"
},
"metadata": {
  "annotations": {},
  "creationTimestamp": "2023-03-23T08:12:19Z"
},
"apiVersion": "with.sql.tanzu.vmware.com/v1"
},
"solutionType": "MySQL",
"additionalResources": [
  {
    "kind": "Secret",
    "type": "Opaque",
    "metadata": {
      "name": "mysql-z-credentials"
    },
    "apiVersion": "v1"
  },
  {
    "kind": "Certificate",
    "spec": {
      "usages": [
        "server auth",
        "client auth"
      ]
    }
  }
]
```

```

    ],
    "subject": {
      "organizations": [
        "ACME"
      ]
    },
    "dnsNames": [
      "mysql-z.vcd-ds-workloads.svc.cluster.local",
      "mysql-z.vcd-ds-workloads.svc",
      "mysql-z.vcd-ds-workloads",
      "mysql-z"
    ],
    "duration": "87600h0m0s",
    "issuerRef": {
      "kind": "Issuer",
      "name": "vcd-ds-ca-issuer",
      "group": "cert-manager.io"
    },
    "commonName": "mysql-z",
    "secretName": "mysql-z-mysql-tls",
    "renewBefore": "360h0m0s"
  },
  "metadata": {
    "name": "mysql-z-mysql"
  },
  "apiVersion": "cert-manager.io/v1"
}
]
},
"status": {

```

```

"grafana": {
  "caBundle":
"LS0tLS1CRUdJTiBDRVJUSUZJQ0FURSU0tLS0tCk1JSURYekNDQWt1Z0F3SUJBZ01RRXZhb0Z4cVRXaW12OC9VTD
dzeDYyREFOQmdrcWhraUc5dzBCQVZzRkFEQXYKTvJnd0ZnWURWUVFLRXc5UWNtOXFaV04wSUUVkeVlXWmhibUV4R
XpBUkNtTlZCQU1UQ2tkeVlXWmhibUVnUTBfdwpIaGNOTWpNd01qRTBNRGt4TURRd1doY05Nek13TWpFeE1Ea3hN
RFF3V2pBdk1SZ3dGZ11EVlFRS0V3OVFjbTlxClpXTjBJRWR5WVdaaGJtRXhFekFSQmdOVk0JBTVRDa2R5WVdaaGJ
tRWdRMEV3Z2dFaU1BMEdDU3FHU01im0RRRU1KQVVFVQUE0SUJEd0F3Z2dFS0FvSUJBUUN2Stk0UGh2S1BJTDFtN2
dtM2V6MkwvZ1hJSmVMaGhEbDBUa05QbkNwWQp4SDdqZXEzcks1UzFHVW91VTIyVTg5ZnpqNjdxWdsZWRrcRWR
VdLWUfks1ZOUz1qK2wxVUFzSVQ2R3dUbHJzCmltSWNpWHNSTUR0bFBEQU4wQS9NVFhHqNNSDIyNnFCMWRNTGFJ
L2VxY29LSEJjV1h2ME5Bc1RZeXM0TnBhUWUKVEXiWEs5ZUF4V3FYNHFBpbUduTCtsdi9Qc2Ews3ZKOEVNY090OG1
yYXZ0UW9FOHgzZHVWT2NnNWozc1I3QXkyYwpLaE1wRzF3NU10dkNWQ1NIWWJpcFhYcnRDMnNNZwtBV2NPd053bG
1FUWlzMUk4YjFwM2MzMMVIdWNQbnphT2VWClFKbVlweDVqbzhtbk55bThGU3R1aUVVVG1NRUV0eE11OVpqcWVoN
zRGS1ZKQWdNQkFBR2pkekIxTUE0R0ExVWQKRhdFQi93UUVBd01DQkRBZEJnTlZlU1VFRmpBVUJnZ3JCZ0VGQ1Fj
REFRWU1Ld1lCQ1FVSEF3SXdeD11EVlIwVApBUUgVqkFVd0F3RUIVEkFkQmdOVkhRNEVGZ1FVNjQvRnZrNCtML3B
2cUVOa0Z5WTNGRG90TENnd0ZBWURWUjBSCk1BMDh0DNElKwJnKaFptRnVZV05oTUEwR0NtcUdTSWIzRFFFQkN3VU
FBNElCQVFBuZUwOTZWM0ZlV0psekRHaTYKMKJBcVYrM2RqUXRRSEhRdGp3M1JRUnNtanlraUY5eWkzenkvTkNCN
k9LQldIWNm1d0t5aE1HK1pJZFJTcnBZbQp1RC9DZnhjVndGN0dja0t5Ykoxa3pVRWlMaiszelRFTmp5dExtR115
YWZCQXphWGF5eURwbDBGWXV0OE9VNkxBCnAxYy94c2FFN3NZL2w3TVdaVzFIZ0w4aW1vcDJVZm5RZE9qWEhSbEs
2dHJYMKzrN1NnS3R5MHdOU3creStKdlQKRXU3Wgz0NzZpMVM0eFhCdEk0R3I1Vf15dmUxWUZNMk9MR11vUTY3WG
lWm1IUE01QmFCcDBjcu4ySFM2ZWFEZApXS09KQ2hLQUxZdk44V2lKV1ZITU1tUXoyTnF0WTIwS0hFbi8xVGpaY
k5js0p3SDJVTfM5RS9uUlZOT09WU1F0CmlCRC8KLS0tLS1FTkQgQ0VSVElGSUNBVEUtLS0tLQo=",
  "dashboards": [
    {
      "url": "https://grafana.10.89.133.34.nip.io/d/MQWgroiiz/mysql-overview?var-
instance=mysql-z"
    }
  ],
},
"transport": {
  "ip": "100.66.237.215",
  "port": 3306,
  "caBundle":
"LS0tLS1CRUdJTiBDRVJUSUZJQ0FURSU0tLS0tCk1JSURYVENDQWtXZ0F3SUJBZ01RVHlnSUUpkd0N3WEx2eCtqQ1
VTa1phVEFOQmdrcWhraUc5dzBCQVZzRkFEQXYKTVEwd0N3WURWUVFLRXdsQ1EwMUZNUjR3SEFZRFRZRUURFeFZXU
TBRZ1JHRjBU0JUYjJ4MWRHbHZibk1nUTBfdwpIaGNOTWpNd01URTNnRGd5TkRNeFdoY05Nek13TVRFME1EZ3lO
RE14V2pBdk1RMHdDd11EVlFRS0V3Uk1RMDFGck1SNHdIQV1EVlFRREV4V1dRMFFnUkdGMFlTQ1RiMngxZEdsdmJ
uTWdRMEV3Z2dFaU1BMEdDU3FHU01im0RRRU1KQVVFVQUE0SUJEd0F3Z2dFS0FvSUJBUURkbknd21IS0I1MjZSZW

```

```
xBZndLUjJ5MmhFMFg4U1RMam9vdGdrWXNOdApDdGQ4Z3pDeG5La0lWamhFQ3J6ZjR3TExpN3d4ek9yRjhKSGpJY
1Y2SVE0SW9vL0oxUElSdURYMktHUUW00ZzdTCnZ3U09hTFgVbWtXVzFPQjVZTllwMVFl dXdjWStRMDJrTzdFbUph
bG90M01jd1hhSzZBSUowODlHTTV2K1NVdXoKQ2UxeXJqeGpYVHNJWjN5cWZSSDRBK1JYbWVFNE9WODJNdHhCODJ
laTI5dHI0TlJmTElQTfHhbHlpRUIvS2t3dQpieTFmRDhIbjBjV01XaUs1RDI1K3U3MnRqZ05uNlRGOEp0QzQxWU
d3akZUMmdFOHViWDDzUVh1VUt4NEN1aUozC1RiWkRQTDdDRmJPK3NZT0dNeDZPWG5CeGtobXlIc1NMM2o5U0pSS
WIZME1MQWdNQkFBR2pkVEJ6TUE0R0ExVWQKRhdFQi93UUvBd0lDQkRBZEJnTlZIU1VFRmpBVUJnZ3JCZ0VGQ1Fj
REFRWUlLd1lCQlFVSEF3SXdeD1lEVlIwVApBUUgVqkFVd0F3RUIvekFkQmdOVkhRNEVGZlFVM0RXWW1INmZhak9
KU3prRGERte9xVUdvaFI0d0VnWURWUjBSCkjbC3dDWU1IZG1Oa1pITmpZVEFOQmdrcWhraUc5dzBCQVfzRkFBT0
NBUUVBUmpQSm1sVVY0Wk1JOG9zQzF3M2EKYUtmRllKTxJ0a1huMFFBamxNRExxUEZQYkpmNjFaQnJMWFJtcmdVZ
FNicnhjNWVrR2ZKalR5VTRkSUhZVXprTgpKWWFzc2JHOEhjWW55VkltbElYdmhxQ0s3bmdyeWZ6cUxxWm9oRTRS
dG5uanNhQVF0MVpYcm51Z0NyeUw2M0NDClBjdldYMy9Hm5iajR2VlpFTU5sQWg2ZzdCczJxZExHRkV4YW01bmJ
WdDBqR2RrNzh1QWxnOTljAlAwSnVQaTMKMxJ0cDVJUmnMvkwUUpMZUpRL0NGV0ZzNmhmRWk0TDRIUnhSbWpJdy
tzalBtYmpiaE1lVXF0S20yRwc2SXduRwpERVRJQVdxazFRZkIzV09ZTFkzaE5NWC95ZTVlMElPSXVrQ1V3UVdJY
1ZsZnVTZzBwREYySXNPbVluVzFicEtKckF3PT0KLS0tLS1FTkQgQ0VSVElGSUNBVEUtLS0tLQo="
```

```
    "hostname": "mysql-z.vcd-ds-workloads.svc.cluster.local",
    "protocol": "TCP",
    "appProtocol": "mysql"
  },
  "conditions": [
    {
      "type": "ReconcileSucceeded",
      "reason": "UpToDate",
      "status": "True",
      "message": "",
      "lastTransitionTime": "2023-03-23T09:01:51Z"
    },
    {
      "type": "Ready",
      "reason": "MySQLAvailable",
      "status": "True",
      "message": "Current phase: Running",
      "lastTransitionTime": "2023-03-23T08:15:34Z"
    }
  ],
```

```

    "management": {},
    "engineVersion": {
      "image": "registry.tanzu.vmware.com/packages-for-vmware-tanzu-data-
services/tds-
packages@sha256:fd706c2075896bf75f1af533cce9ce411bb57595d3da2a50ed7a407bd2bd58ca",
      "version": "8.0.29"
    }
  },
  "metadata": {
    "uid": "urn:vcloud:entity:vmware:dsInstance:24f26078-82e1-48ab-a40b-
569e96ee1c60",
    "name": "mysql-z",
    "namespace": "vcd-ds-workloads",
    "finalizers": [
      "finalizers.dsinstances.vcloud.vmware.com/deletion"
    ],
    "annotations": {
      "vcd-ds-meta/cluster-id": "urn:vcloud:entity:vmware:capvcdCluster:3d4ff0d1-
5991-43ba-81f1-775831c10265",
      "vcd-ds-meta/object-hash": "9746bc88c",
      "vcd-ds-meta/cluster-name": "tkgml"
    },
    "creationTimestamp": "2023-03-23T08:11:28Z"
  },
  "apiVersion": "vcloud.vmware.com/v1alpha1"
},
"state": "RESOLVED",
"owner": {
  "name": "ta",
  "id": "urn:vcloud:user:69974616-950e-4b76-a5ad-1489d3dddbbe"
},
"org": {

```

```
"name": "ACME",  
"id": "urn:vcloud:org:614b8c90-5bd5-4cb2-afca-34bd8aaaf26c"  
}  
}
```


Data Solutions Extension Operations

The following list of Data Solutions Extension operations is organized by a user persona and provides a sample API request.

Provider Administrator

The API requests that the provider administrator can make on data solution instances include listing the data solutions available through the extension and publishing data solutions to a tenant organization.

List Data Solutions

A provider administrator needs to list available data solutions before taking action on any solution. Here is a sample of the API request that the provider administrator needs to make to get information on the available data solutions.

Method	GET
URI	cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1?filter=state==RESOLVED
Request Payload	N/A
Response Payload	DSConfig
API Reference	Get Defined Entities By Entity Type

List Data Solutions - Sample

-----REQUEST-----

```
GET /cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1?pageSize=64&page=1&filter=state==RESOLVED
HTTP/1.1
```

```
Accept: application/*+json;version=36.0,application/json;version=36.1
```

```
Host: my-vcd-cloud.local
```

```
Authorization: Bearer
```

```
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...
```

-----RESPONSE-----

```
HTTP/1.1 200 OK
```

```
Content-Type: application/json;version=36.1
```

```
Content-Location: https://my-vcd-cloud.local/cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1
```

```
{
  "resultTotal":4,
  "pageCount":1,
  "page":1,
```

```

"pageSize":64,
"associations":null,
"values":[
  {
    "id":"urn:vcloud:entity:vmware:dsConfig:72595ccb-651f-4ec8-8f9d-35b30be0b897",
    "entityType":"urn:vcloud:type:vmware:dsConfig:0.1.1",
    "name":"VCD Data Solutions Essentials",
    "externalId":null,
    "entity":{
      "kind":"DSConfig","spec":...
    },
    "state":"RESOLVED",
    "owner":{
      "name":"admin",
      "id":"urn:vcloud:user:66c814ed-079b-483c-8e52-6ffa8a007786"
    },
    "org":{
      "name":"System",
      "id":"urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"
    }
  },
  {
    "id":"urn:vcloud:entity:vmware:dsConfig:33d3f0cb-ad36-4d79-a82f-aa050c4f4543",
    "entityType":"urn:vcloud:type:vmware:dsConfig:0.1.1",
    "name":"VMware SQL with MySQL",
    "externalId":null,
    "entity":{
      "kind":"DSConfig","spec":...
    },
    "state":"RESOLVED",
    "owner":{
      "name":"admin",

```

```

    "id":"urn:vcloud:user:66c814ed-079b-483c-8e52-6ffa8a007786"
  },
  "org":{
    "name":"System",
    "id":"urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"
  }
},
{
  "id":"urn:vcloud:entity:vmware:dsConfig:0ede0297-035d-4398-9aee-00a9ce5c8872",
  "entityType":"urn:vcloud:type:vmware:dsConfig:0.1.1",
  "name":"VMware SQL with Postgres",
  "externalId":null,
  "entity":{
    "kind":"DSConfig","spec":...
  },
  "state":"RESOLVED",
  "owner":{
    "name":"admin",
    "id":"urn:vcloud:user:66c814ed-079b-483c-8e52-6ffa8a007786"
  },
  "org":{
    "name":"System",
    "id":"urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"
  }
},
{
  "id":"urn:vcloud:entity:vmware:dsConfig:38788df4-5196-4b25-a545-6daee7bf8288",
  "entityType":"urn:vcloud:type:vmware:dsConfig:0.1.1",
  "name":"VMware RabbitMQ",
  "externalId":null,
  "entity":{
    "kind":"DSConfig","spec":...
  }
}

```

```
    },  
    "state": "RESOLVED",  
    "owner": {  
      "name": "admin",  
      "id": "urn:vcloud:user:66c814ed-079b-483c-8e52-6ffa8a007786"  
    },  
    "org": {  
      "name": "System",  
      "id": "urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"  
    }  
  }  
]  
}
```

In the above sample, the response contains 3 data solutions: VMware SQL with MySQL, VMware SQL with PostgreSQL, and VMware RabbitMQ. Please note the entity VCD Data Solutions Essentials is a built-in resource, and you will also use it later.

Publish Data Solutions

The provider administrator can publish a data solution to a tenant organization. The sequence to publish a data solution is the following:

1. Look up rights bundle by name `vmware:dataSolutionsRightsBundle`.
2. Publish the rights bundle to the tenant organization.
3. Publish the VCD Data Solutions Essentials entity to the tenant organization.
4. Publish the data solution entity to the tenant organization.

DSE has a bundle of rights called `vmware:dataSolutionsRightsBundle`. This bundle needs to be published to a tenant organization.

Here we will outline the process of publishing a VMware SQL with MySQL data solution to a tenant organization.

1. First, we need to query the tenant organization id by providing the rights bundle name.

Method	GET
URI	<code>/cloudapi/1.0.0/rightsBundles?filter=name==vmware:dataSolutionsRightsBundle</code>
Request Payload	N/A
Response Payload	Page<RightBundle>
API Reference	Query Rights Bundles

Publishing a Rights Bundle to a Tenant Organization - Sample

```

-----REQUEST-----
GET /cloudapi/1.0.0/rightsBundles?filter=name==vmware:dataSolutionsRightsBundle
HTTP/1.1
Accept: application/*+json;version=36.1,application/json;version=36.1
Host: my-vcd-cloud.local
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

-----RESPONSE-----
HTTP/1.1 200 OK
Content-Type: application/json;version=36.1
Content-Location: https://my-vcd-cloud.local/cloudapi/1.0.0/rightsBundles
{
  "resultTotal":1,
  "pageCount":1,

```

```

"page":1,
"pageSize":25,
"associations":null,
"values":[
  {
    "name":"vmware:dataSolutionsRightsBundle",
    "id":"urn:vcloud:rightsBundle:8c9de287-258f-40d4-a8d7-4caf3d17d1b5",
    "description":"Data Solutions Rights Bundle",
    "bundleKey":"com.vmware.vcloud.undefined.key",
    "readOnly":false,
    "publishAll":false
  }
]
}

```

2. The rights bundle has ID urn:vcloud:rightsBundle:8c9de287-258f-40d4-a8d7-4caf3d17d1b5. We will then publish it to the tenant organization.

Method	POST
URI	/cloudapi/1.0.0/rightsBundles/{id}/tenants/publish
Request Payload	Array<Id>
Response Payload	Page<Organization>
API Reference	Post Rights Bundle Publish

How to Look up Tenant Name by Rights Bundle vmware:dataSolutionsRightsBundle - Sample

-----REQUEST-----

POST /cloudapi/1.0.0/rightsBundles/urn:vcloud:rightsBundle:8c9de287-258f-40d4-a8d7-4caf3d17d1b5/tenants/publish HTTP/1.1

Accept: application/*+json;version=36.1,application/json;version=36.1

Host: my-vcd-cloud.local

Authorization: Bearer

eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

```
{
  "values": [
    {
      "id": "urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
    }
  ]
}
```

-----RESPONSE-----

HTTP/1.1 200 OK

Content-Type: application/json;version=36.1

Content-Location: <https://my-vcd-cloud.local/cloudapi/1.0.0/rightsBundles/urn:vcloud:rightsBundle:8c9de287-258f-40d4-a8d7-4caf3d17d1b5/tenants/publish>

```
{
  "resultTotal": 3,
  "pageCount": 1,
  "page": 1,
  "pageSize": 128,
  "associations": null,
  "values": [
    {
      "name": "ACME",

```

```

    "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
  },
  {
    "name": "Tenant1",
    "id": "urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
  },
  {
    "name": "Tenant2",
    "id": "urn:vcloud:org:0f5f2742-6388-4119-bf2c-f080183d9ef1"
  }
]
}

```

3. The next step is to grant access control of the VMware Cloud Director Data Solutions Essentials entity to the tenant organization.

Method	POST
URI	/cloudapi/1.0.0/entities/{id}/accessControls
Request Payload	Grant
Response Payload	AccessControl
API Reference	Create Entity Access Control Grant

Publish VCD Data Solutions Essentials Entity to a Tenant Organization - Sample

-----REQUEST-----

POST /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsConfig:72595ccb-651f-4ec8-8f9d-35b30be0b897/accessControls HTTP/1.1

Accept: application/*+json;version=36.1,application/json;version=36.1

Host: my-vcd-cloud.local

Authorization: Bearer

eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

```
{
  "tenant":{
    "id":"urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
  },
  "grantType":"MembershipAccessControlGrant",
  "accessLevelId":"urn:vcloud:accessLevel:ReadOnly",
  "memberId":"urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
}
```

-----RESPONSE-----

HTTP/1.1 201 Created

Content-Type: application/json;version=36.1

Content-Location: <https://my-vcd-cloud.local/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsConfig:72595ccb-651f-4ec8-8f9d-35b30be0b897/accessControls>

```
{
  "id":"urn:vcloud:accessControl:f3572dce-1412-49a0-b2c0-c084f4aee97d",
  "tenant":{
    "name":"Tenant1",
    "id":"urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
  },
  "grantType":"MembershipAccessControlGrant",
  "objectId":"urn:vcloud:entity:vmware:dsConfig:72595ccb-651f-4ec8-8f9d-35b30be0b897",
```

```

    "accessLevelId": "urn:vcloud:accessLevel:ReadOnly",
    "memberId": "urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
}

```

4. Finally, we will grant access control over a VMware SQL with MySQL entity to the tenant organization.

Publish VMware SQL with MySQL Entity to the Organization - Sample

-----REQUEST-----

```

POST /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsConfig:33d3f0cb-ad36-4d79-
a82f-aa050c4f4543/accessControls HTTP/1.1

```

```

Accept: application/*+json;version=36.1,application/json;version=36.1

```

```

Host: my-vcd-cloud.local

```

```

Authorization: Bearer

```

```

eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNCliNmUzLTQz...

```

```

{
  "tenant": {
    "id": "urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
  },
  "grantType": "MembershipAccessControlGrant",
  "accessLevelId": "urn:vcloud:accessLevel:ReadOnly",
  "memberId": "urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
}

```

-----RESPONSE-----

```

HTTP/1.1 201 Created

```

```

Content-Type: application/json;version=36.1

```

```

Content-Location: https://my-vcd-
cloud.local/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsConfig:33d3f0cb-ad36-
4d79-a82f-aa050c4f4543/accessControls

```

```

{
  "id": "urn:vcloud:accessControl:79ee7ee0-be55-46b8-8ec5-d7abd74812d8",

```

```
"tenant":{
  "name":"Tenant1","id":"urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
},
"grantType":"MembershipAccessControlGrant",
"objectId":"urn:vcloud:entity:vmware:dsConfig:33d3f0cb-ad36-4d79-a82f-aa050c4f4543",
"accessLevelId":"urn:vcloud:accessLevel:ReadOnly",
"memberId":"urn:vcloud:org:a9eb338c-473f-436d-81e2-c60ffa2c995d"
}
```

Tenant User

The tenant user persona can execute the following API queries: view published data solutions service, deploy, update, and delete a data solutions instance.

View Published Data Solutions

A tenant user can query published data solutions by RDE type DSConfig.

Method	GET
URI	cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1?filter=state==RESOLVED
Request Payload	N/A
Response Payload	Page<DSConfig>
API Reference	Get Defined Entities By Entity Type

List Published Solutions - Sample

-----REQUEST-----

```
GET /cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1?pageSize=64&page=1 HTTP/1.1
Host: my-vcd-cloud.local
Accept: application/*+json;version=36.1,application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...
```

-----RESPONSE-----

```
HTTP/1.1 200 OK
Content-Type: application/json;version=36.1
Content-Location: https://my-vcd-cloud.local/cloudapi/1.0.0/entities/types/vmware/dsConfig/0.1
```

```
{
  "resultTotal": 2,
  "pageCount": 1,
```

```

"page": 1,
"pageSize": 25,
"associations": null,
"values": [
  {
    "id": "urn:vcloud:entity:vmware:dsConfig:b9c6cf0d-3c4c-4841-97fd-a6e3b004e1f7",
    "entityType": "urn:vcloud:type:vmware:dsConfig:0.1.1",
    "name": "VCD Data Solutions Essentials",
    "externalId": null,
    "entity": {
      "kind": "DSConfig",
      "spec": {
        "artifacts": [
          {
            "name": "VCD Data Solutions",
            "type": "PackageRepository",
            "image": "harbor-repo.vmware.com/vcdds/vcd-data-solutions-package-
repo:1.1.0",
            "version": "1.1.0-dev.271.g38a9dd31",
            "manifests": "...",
            "defaultImage": "projects.registry.vmware.com/vcdds/vcd-data-solutions-
package-repo:1.1.0",
            "defaultVersion": "1.1.0"
          }
        ],
        "description": "Data solutions essentials",
        "dockerConfig": {
          "auths": {
            "harbor-repo.vmware.com": {
              "password": "K^q4Ev.Ry9VBd5@i.1^",
              "username": "svc.bot.alp-devops",

```

```

        "description": ""
    },
    "demo-registry.vmware.com": {
        "password": null,
        "username": null,
        "description": ""
    },
    "registry.tanzu.vmware.com": {
        "password": "ca$hC0w2022",
        "username": "alp.test.user1@vmwareone.com",
        "description": ""
    }
}
},
"solutionType": "Essentials"
},
"status": {},
"metadata": {
    "name": "default-essentials-config",
    "creationTimestamp": null
},
"apiVersion": "vcloud.vmware.com/v1alpha1"
},
"state": "RESOLVED",
"owner": {
    "name": "admin",
    "id": "urn:vcloud:user:1042e076-484d-4bd3-9bc4-b0cdbcf4da3a"
},
"org": {
    "name": "System",

```

```

    "id": "urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"
  }
},
{
  "id": "urn:vcloud:entity:vmware:dsConfig:fc7d693f-9763-4ab0-a47a-9f6596ff95da",
  "entityType": "urn:vcloud:type:vmware:dsConfig:0.1.1",
  "name": "VMware SQL with MySQL",
  "externalId": null,
  "entity": {
    "kind": "DSConfig",
    "spec": {
      "summary": "Auto provisioning of MySQL with enterprise-grade support from
VMware.",
      "artifacts": [
        {
          "name": "VMware SQL with MySQL",
          "type": "PackageRepository",
          "image": "registry.tanzu.vmware.com/packages-for-vmware-tanzu-data-
services/tds-packages:1.6.0",
          "version": "1.6.2",
          "defaultImage": "registry.tanzu.vmware.com/packages-for-vmware-tanzu-
data-services/tds-packages:1.6.0",
          "defaultVersion": "1.6.2"
        }
      ],
      "description": "VMware SQL with MySQL provides automate provisioning,
management, and operations of dedicated MySQL instances running on Kubernetes.",
      "solutionType": "MySQL"
    },
    "status": {},
    "metadata": {

```

```
    "name": "default-mysql-config",
    "creationTimestamp": null
  },
  "apiVersion": "vcloud.vmware.com/v1alpha1"
},
"state": "RESOLVED",
"owner": {
  "name": "admin",
  "id": "urn:vcloud:user:1042e076-484d-4bd3-9bc4-b0cdbcf4da3a"
},
"org": {
  "name": "System",
  "id": "urn:vcloud:org:a93c9db9-7471-3192-8d09-a8f7eeda85f9"
}
}
]
}
```


Deploy a Data Solution Instance

You can use Data Solutions API to deploy a data solutions instance as a tenant user. The following is the structure of the API POST request that you need to execute to deploy a data solutions instance. This section provides sample API queries to deploy the following data solutions - RabbitMQ, VMware SQL with MySQL, and VMware SQL with PostgreSQL.

Method	POST
URI	cloudapi/1.0.0/entityTypes/{id}
Request Payload	DefinedEntityType<DSInstance>
Response Payload	N/A
API Reference	Create Defined Entity Type

Deploy RabbitMQ with Minimal Template - Sample

```

-----REQUEST-----
POST /cloudapi/1.0.0/entityTypes/urn:vcloud:type:vmware:dsInstance:0.1.1 HTTP/1.1
Host: http://localhost:4200
Accept: application/*+json;version=36.1,application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...
Content-Type: application/json

{
  "name": "rabbitmq-minimal",
  "entity": {
    "metadata": {
      "annotations": {
        "vcd-ds-meta/cluster-name": "tkgm1",
        "vcd-ds-meta/cluster-id": "****"
      },
      "name": "rabbitmq-minimal",
      "creationTimestamp": "2023-03-15T06:12:25.563Z"
    }
  }
}

```

```

    },
    "apiVersion": "vcloud.vmware.com/v1alpha1",
    "kind": "DSInstance",
    "spec": {
      "resource": {
        "apiVersion": "rabbitmq.com/v1beta1",
        "kind": "RabbitmqCluster",
        "spec": {
          "replicas": 1,
          "resources": {
            "requests": {
              "cpu": "1",
              "memory": "2Gi"
            },
            "limits": {
              "cpu": "1",
              "memory": "2Gi"
            }
          },
          "rabbitmq": {
            "additionalConfig": "cluster_partition_handling =
                                pause_minority\nvm_memory_high_watermark_paging_ratio =
                                0.99\ndisk_free_limit.relative =
                                1.0\ncollect_statistics_interval = 10000\n"
          },
          "persistence": {
            "storage": "10Gi"
          },
          "affinity": {
            "podAntiAffinity": {

```

```

        "requiredDuringSchedulingIgnoredDuringExecution": [
            {
                "labelSelector": {
                    "matchExpressions": [
                        {
                            "key": "app.kubernetes.io/name",
                            "operator": "In",
                            "values": [
                                "rabbitmq-minimal"
                            ]
                        }
                    ]
                },
                "topologyKey": "kubernetes.io/hostname"
            }
        ]
    },
    "solutionType": "RabbitMQ",
    "additionalResources": [
        {
            "apiVersion": "v1",
            "kind": "Secret",
            "metadata": {
                "name": "rabbitmq-minimal-default-user"
            },
            "type": "Opaque",
            "stringData": {

```



```

"metadata": {
  "annotations": {
    "vcd-ds-meta/cluster-name": "tkgm1",
    "vcd-ds-meta/cluster-id":
"urn:vcloud:entity:vmware:capvcdCluster:30106b0e-433d-408b-b0b1-e4eccf680a41"
  },
  "name": "mysql-minimal",
  "creationTimestamp": "2023-03-15T06:22:28.419Z"
},
"apiVersion": "vcloud.vmware.com/v1alpha1",
"kind": "DSInstance",
"spec": {
  "resource": {
    "apiVersion": "with.sql.tanzu.vmware.com/v1",
    "kind": "MySQL",
    "spec": {
      "tls": {
        "secret": {
          "name": "mysql-minimal-mysql-tls"
        }
      },
      "highAvailability": {
        "enabled": false
      },
      "storageSize": "500Mi",
      "persistentVolumeClaimPolicy": "Delete",
      "resources": {
        "mysql": {
          "limits": {
            "cpu": "500m",

```

```

        "memory": "500Mi"
      },
      "requests": {
        "cpu": "500m",
        "memory": "500Mi"
      }
    }
  }
},
"solutionType": "MySQL",
"additionalResources": [
  {
    "apiVersion": "v1",
    "kind": "Secret",
    "metadata": {
      "name": "mysql-minimal-credentials"
    },
    "type": "Opaque",
    "stringData": {
      "appUserPassword": ""
    }
  },
  {
    "apiVersion": "cert-manager.io/v1",
    "kind": "Certificate",
    "metadata": {
      "name": "mysql-minimal-mysql"
    },
    "spec": {

```

```
    "subject": {
      "organizations": [
        "ACME"
      ]
    },
    "commonName": "mysql-minimal",
    "dnsNames": [
      "mysql-minimal.vcd-ds-workloads.svc.cluster.local",
      "mysql-minimal.vcd-ds-workloads.svc",
      "mysql-minimal.vcd-ds-workloads",
      "mysql-minimal"
    ],
    "duration": "87600h0m0s",
    "issuerRef": {
      "group": "cert-manager.io",
      "kind": "Issuer",
      "name": "vcd-ds-ca-issuer"
    },
    "renewBefore": "360h0m0s",
    "secretName": "mysql-minimal-mysql-tls",
    "usages": [
      "server auth",
      "client auth"
    ]
  }
}
]
}
}
```

-----RESPONSE-----

HTTP/1.1 200 Accepted

Content-Type: application/json;version=36.1

Content-Location:

<http://localhost:4200/cloudapi/1.0.0/entityTypes/urn:vcloud:type:vmware:dsInstance:0.1.1>

Deploy PostgreSQL Instance with Minimum Template - Sample

-----REQUEST-----

POST /cloudapi/1.0.0/entityTypes/urn:vcloud:type:vmware:dsInstance:0.1.1 HTTP/1.1

Host: <http://localhost:4200>

Accept: application/*+json;version=36.1,application/json;version=36.1

Authorization: Bearer

eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

Content-Type: application/json

```
{
  "name": "postgres-minimal",
  "entity": {
    "metadata": {
      "annotations": {
        "vcd-ds-meta/cluster-name": "tkgm1",
        "vcd-ds-meta/cluster-id":
"urn:vcloud:entity:vmware:capvcdCluster:30106b0e-433d-408b-b0b1-e4eccf680a41"
      },
      "name": "postgres-minimal",
      "creationTimestamp": "2023-03-15T06:26:10.348Z"
    },
  },
}
```



```

"apiVersion": "vcloud.vmware.com/v1alpha1",
"kind": "DSInstance",
"spec": {
  "resource": {
    "apiVersion": "sql.tanzu.vmware.com/v1",
    "kind": "Postgres",
    "spec": {
      "highAvailability": {
        "enabled": false
      },
      "storageSize": "250Mi",
      "persistentVolumeClaimPolicy": "delete",
      "certificateSecretName": "postgres-minimal-postgresql-tls",
      "resources": {
        "data": {
          "limits": {
            "cpu": "450m",
            "memory": "450Mi"
          },
          "requests": {
            "cpu": "450m",
            "memory": "450Mi"
          }
        }
      }
    }
  },
  "solutionType": "Postgres",
  "additionalResources": [
    {

```

```

    "apiVersion": "v1",
    "kind": "Secret",
    "metadata": {
      "name": "postgres-minimal-db-secret"
    },
    "type": "Opaque",
    "stringData": {
      "dbname": "postgres-minimal",
      "instancename": "postgres-minimal",
      "namespace": "vcd-ds-workloads",
      "password": "****",
      "username": "****"
    }
  },
  {
    "apiVersion": "cert-manager.io/v1",
    "kind": "Certificate",
    "metadata": {
      "name": "postgres-minimal-postgresql"
    },
    "spec": {
      "subject": {
        "organizations": [
          "ACME"
        ]
      },
      "commonName": "postgres-minimal",
      "dnsNames": [
        "*.postgres-minimal-agent.vcd-ds-
workloads.svc.cluster.local",

```


Update Solution Instance

A tenant user can update one or more solution instances within the same cluster. Before updating, we need to get the latest ETag of the instance, and it will be returned in the GET response header as a key-value pair. For example, ID urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-d784bf7f6754.

Method	GET
URI	cloudapi/1.0.0/entities/{id}
Request Payload	N/A
Response Payload	DefinedEntity
API Reference	Get Defined Entity

Get the Latest Etag - Sample

```

-----REQUEST-----
GET /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-
a751-d784bf7f6754 HTTP/1.1
Host: http://localhost:4200
Accept: application/*+json;version=36.1,application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

-----RESPONSE-----

HTTP/1.1 200 OK
Content-Type: application/json;version=36.1
Content-Location:
http://localhost:4200/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-d784bf7f6754
ETag: NvnWg3GQicWrNrxUzUZi/WpbETi72L2Q0rhCjU4+jkA=--gzip

{
  "id": "urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-d784bf7f6754",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",

```

```

"name": "mysql-z1",
"externalId": null,
"entity": {
  "kind": "DSInstance",
  "spec": ...
},
"state": "RESOLVED",
"owner": { "name": "ta", "id": "urn:vcloud:user:34d11c84-3dfc-4fb8-b280-d4b84214dc43"
},
"org": { "name": "ACME", "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
}
}

```

Then when updating, copy and paste the ETag to the request header of the PUT query. For example, "If-Match:

NvnWg3GQicWrNrxUzUzi/WpbETi72L2Q0rhCjU4+jkA=--gzip"

Method	PUT
URI	cloudapi/1.0.0/entities/{id}
Request Payload	DefinedEntity<DSInstance>
Response Payload	DefinedEntity
API Reference	Update Defined Entity

-----REQUEST-----

PUT /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-d784bf7f6754 HTTP/1.1

Host: <http://localhost:4200>

Accept: application/*+json;version=36.1,application/json;version=36.1

Authorization: Bearer

eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

Content-Type: application/json

If-Match: NvnWg3GQicWrNrxUzUzi/WpbETi72L2Q0rhCjU4+jkA=--gzip

```

{
  "id": "urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-d784bf7f6754",
  "name": "mysql-z1",
  "entity": {
    "kind": "DSInstance",
    "spec": {
      "resource": {
        "kind": "MySQL",
        "spec": {
          "tls": {
            "secret": {
              "name": "mysql-z1-mysql-tls"
            }
          },
          "resources": {
            "mysql": {
              "limits": {
                "cpu": "500m",
                "memory": "500Mi"
              },
              "requests": {
                "cpu": "500m",
                "memory": "500Mi"
              }
            }
          },
          "storageSize": "500Mi",
          "highAvailability": {
            "enabled": false
          }
        }
      }
    }
  }
}

```

```

    },
    "persistentVolumeClaimPolicy": "Delete",
    "mysqlVersion": {
      "name": "mysql-8.0.28"
    }
  },
  "metadata": {
    "creationTimestamp": "2023-01-31T13:04:37Z",
    "annotations": {
      "mysql.with.sql.tanzu.vmware.com/update": "once"
    }
  },
  "apiVersion": "with.sql.tanzu.vmware.com/v1"
},
"solutionType": "MySQL",
"additionalResources": [
  {
    "kind": "Secret",
    "type": "Opaque",
    "metadata": {
      "name": "mysql-z1-credentials"
    },
    "apiVersion": "v1"
  },
  {
    "kind": "Certificate",
    "spec": {
      "usages": [
        "server auth",
        "client auth"
      ]
    }
  }
]

```

```

    ],
    "subject": {
      "organizations": [
        "ACME"
      ]
    },
    "dnsNames": [
      "db-001.vcd-ds-workloads.svc.cluster.local",
      "db-001.vcd-ds-workloads.svc",
      "db-001.vcd-ds-workloads",
      "db-001"
    ],
    "duration": "87600h0m0s",
    "issuerRef": {
      "kind": "Issuer",
      "name": "vcd-ds-ca-issuer",
      "group": "cert-manager.io"
    },
    "commonName": "mysql-z1",
    "secretName": "mysql-z1-mysql-tls",
    "renewBefore": "360h0m0s"
  },
  "metadata": {
    "name": "mysql-z1-mysql"
  },
  "apiVersion": "cert-manager.io/v1"
}
]
},
"status": {

```



```

    "grafana": {
      "caBundle": "LS0tL...",
      "dashboards": [
        {
          "url": "https://grafana.10.89.132.16.nip.io/...?var-  
instance=mysql-z1"
        }
      ]
    },
    "transport": {
      "ip": "100.66.112.54",
      "port": 3306,
      "caBundle": "LS0tLS1...",
      "hostname": "mysql-z1.vcd-ds-workloads.svc.cluster.local",
      "protocol": "TCP",
      "appProtocol": "mysql"
    },
    "conditions": [
      {
        "type": "Ready",
        "reason": "MySQLAvailable",
        "status": "True",
        "message": "Current phase: Running",
        "lastTransitionTime": "2023-01-31T13:06:28Z"
      },
      {
        "type": "ReconcileSucceeded",
        "reason": "SolutionTypeNotSupported",
        "status": "False",
        "message": "solution type MySQL is not supported",

```

```

        "lastTransitionTime": "2023-02-24T10:06:52Z"
      }
    ],
    "management": {}
  },
  "metadata": {
    "uid": "urn:vcloud:entity:vmware:dsInstance:c1f87ae4-b50c-4eea-a751-
d784bf7f6754",
    "name": "mysql-z1",
    "namespace": "vcd-ds-workloads",
    "finalizers": [
      "finalizers.dsinstances.vcloud.vmware.com/deletion"
    ],
    "annotations": {
      "vcd-ds-meta/cluster-id":
"urn:vcloud:entity:vmware:capvcdCluster:30106b0e-433d-408b-b0b1-e4eccf680a41",
      "vcd-ds-meta/object-hash": "6b8cf79d68",
      "vcd-ds-meta/cluster-name": "tkgml"
    },
    "creationTimestamp": "2023-01-31T13:03:53Z"
  },
  "apiVersion": "vcloud.vmware.com/v1alpha1"
}
}

```

-----RESPONSE-----

HTTP/1.1 200 OK

Content-Type: application/json;version=36.1

Content-Location:

<http://localhost:4200/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:clf87ae4-b50c-4eea-a751-d784bf7f6754>

```
{
  "id": "urn:vcloud:entity:vmware:dsInstance:clf87ae4-b50c-4eea-a751-d784bf7f6754",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "mysql-z1",
  "externalId": null,
  "entity": {
    "kind": "DSInstance",
    "spec": ...
  },
  "state": "RESOLVED",
  "owner": { "name": "ta", "id": "urn:vcloud:user:34d11c84-3dfc-4fb8-b280-d4b84214dc43"
},
  "org": { "name": "ACME", "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
}
}
```

Delete Solution Instance

A tenant user can delete data solutions. Before deleting, you need to get the latest ETag of the instance, and it will be returned in the GET response header as a key-value pair.

Method	GET
URI	cloudapi/1.0.0/entities/{id}
Request Payload	N/A
Response Payload	DefinedEntity
API Reference	Get Defined Entity

Get the Latest Etag - Sample

```

-----REQUEST-----
GET /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-
a337-12cc7bd5a6bd HTTP/1.1
Host: http://localhost:4200
Accept: application/*+json;version=36.1,application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...

-----RESPONSE-----

HTTP/1.1 200 OK
Content-Type: application/json;version=36.1
Content-Location:
http://localhost:4200/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-12cc7bd5a6bd
ETag: P0wVQ0Da31qD39ODVqY/azOa2w4Ids1gM7B72i8U1dQ=--gzip

{
  "id": "urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-12cc7bd5a6bd",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "rabbitmq-minimal",

```

```

"externalId": null,
"entity": {
  "kind": "DSInstance",
  "spec": ...
},
"state": "RESOLVED",
"owner": { "name": "ta", "id": "urn:vcloud:user:34d11c84-3dfc-4fb8-b280-d4b84214dc43"
},
"org": { "name": "ACME", "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
}
}

```

Then when deleting, copy and paste the ETag to the request header of the PUT API request. For example, "If-Match: P0wVQ0Da31qD39ODVqY/azOa2w4Ids1gM7B72i8U1dQ==gzip"

Method	PUT
URI	cloudapi/1.0.0/entities/{id}
Request Payload	DefinedEntity<DSInstance>
Response Payload	DefinedEntity
API Reference	Update Defined Entity

Use the Latest Etag to Delete Rabbitmq Instance - Sample

```

-----REQUEST-----
PUT /cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-
a337-12cc7bd5a6bd HTTP/1.1
Host: http://localhost:4200
Accept: application/*+json;version=36.1,application/json;version=36.1
Content-Type: application/json;version=36.1
Authorization: Bearer
eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJjaHJpc2IiLCJpc3MiOiJiMDljZTFkNC1iNmUzLTQz...
Content-Type: application/json
If-Match: P0wVQ0Da31qD39ODVqY/azOa2w4Ids1gM7B72i8U1dQ==gzip

```

```

{
  "id": "urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-12cc7bd5a6bd",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "rabbitmq-minimal",
  "externalId": null,
  "entity": {
    "kind": "DSInstance",
    "spec": {
      "resource": {
        "kind": "RabbitmqCluster",
        "spec": {
          "affinity": {
            "podAntiAffinity": {
              "requiredDuringSchedulingIgnoredDuringExecution": [
                {
                  "topologyKey": "kubernetes.io/hostname",
                  "labelSelector": {
                    "matchExpressions": [
                      {
                        "key": "app.kubernetes.io/name",
                        "values": [
                          "rabbitmq-minimal"
                        ],
                        "operator": "In"
                      }
                    ]
                  }
                ]
              }
            }
          }
        ]
      }
    }
  }
}

```

```

    }
  },
  "rabbitmq": {
    "additionalConfig": "cluster_partition_handling =
pause_minority\nvm_memory_high_watermark_paging_ratio = 0.99\ndisk_free_limit.relative
= 1.0\ncollect_statistics_interval = 10000\n"
  },
  "replicas": 1,
  "resources": {
    "limits": {
      "cpu": "1",
      "memory": "2Gi"
    },
    "requests": {
      "cpu": "1",
      "memory": "2Gi"
    }
  },
  "persistence": {
    "storage": "10Gi"
  }
},
"metadata": {
  "creationTimestamp": "2023-03-15T06:43:06Z"
},
"apiVersion": "rabbitmq.com/v1beta1"
},
"solutionType": "RabbitMQ",
"additionalResources": [
  {
    "kind": "Secret",

```

```

        "type": "Opaque",
        "metadata": {
            "name": "rabbitmq-minimal-default-user"
        },
        "apiVersion": "v1"
    }
]
},
"status": {
    "grafana": {
        "caBundle": "LS0tL...",
        "dashboards": [
            {
                "url": "https://grafana.10.89.133.34.nip.io/d/Kn5xm-gZk/rabbitmq-overview?var-rabbitmq\_cluster=rabbitmq-minimal"
            }
        ]
    },
    "transport": {
        "ip": "100.64.190.40",
        "port": 5672,
        "hostname": "rabbitmq-minimal.vcd-ds-workloads.svc.cluster.local",
        "protocol": "TCP",
        "appProtocol": "amqp"
    },
    "conditions": [
        {
            "type": "Ready",
            "reason": "RabbitmqClusterUnavailable",
            "status": "False",

```



```

        "message": "NoEndpointsAvailable: The service has no endpoints
available",
        "lastTransitionTime": "2023-03-15T06:43:15Z"
    },
    {
        "type": "ReconcileSucceeded",
        "reason": "RabbitmqClusterOutOfDate",
        "status": "Unknown",
        "message": "Initialising",
        "lastTransitionTime": "2023-03-15T06:43:15Z"
    }
],
"management": {},
"engineVersion": {
    "image": "registry.tanzu.vmware.com/p-rabbitmq-for-kubernetes/tanzu-
rabbitmq-package-
repo@sha256:b9503ef7a6288b5a59193a225a677dd1bbbe395c7a853328ba54d34f1a3737e7",
    "version": "3.11.2"
}
},
"metadata": {
    "uid": "urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-
12cc7bd5a6bd",
    "name": "rabbitmq-minimal",
    "namespace": "vcd-ds-workloads",
    "finalizers": [
        "finalizers.dsinstances.vcloud.vmware.com/deletion"
    ],
    "annotations": {
        "vcd-ds-meta/cluster-id":
"urn:vcloud:entity:vmware:capvcdCluster:3d4ff0d1-5991-43ba-81f1-775831c10265",

```

```

        "vcd-ds-meta/object-hash": "6f9b69d4c9",
        "vcd-ds-meta/cluster-name": "tkgm1"
    },
    "creationTimestamp": "2023-03-15T06:42:39Z",
    "deletionTimestamp": "2023-03-15T06:47:49.579Z"
},
"apiVersion": "vcloud.vmware.com/v1alpha1"
},
"state": "RESOLVED",
"owner": {
    "name": "ta",
    "id": "urn:vcloud:user:69974616-950e-4b76-a5ad-1489d3ddd8be"
},
"org": {
    "name": "ACME",
    "id": "urn:vcloud:org:614b8c90-5bd5-4cb2-afca-34bd8aaaf26c"
}
}

```

-----RESPONSE-----

HTTP/1.1 200 OK

Content-Type: application/json;version=36.1

Content-Location:

<http://localhost:4200/cloudapi/1.0.0/entities/urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-12cc7bd5a6bd>

```

{
    "id": "urn:vcloud:entity:vmware:dsInstance:96c3b071-b809-4636-a337-12cc7bd5a6bd",
    "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
    "name": "mysql-z1",

```

```
"externalId": null,  
"entity": {  
  "kind": "DSInstance",  
  "spec": ...  
},  
"state": "RESOLVED",  
"owner": { "name": "ta", "id": "urn:vcloud:user:34d11c84-3dfc-4fb8-b280-d4b84214dc43"  
},  
"org": { "name": "ACME", "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"  
}  
}
```

List Solution Instances

A tenant user can query deployed data instances by RDE type DSInstance.

Method	GET
URI	cloudapi/1.0.0/entities/types/vmware/dsInstance/0.1?filter=state==RESOLVED
Request Payload	N/A
Response Payload	Page<DSInstance>
API Reference	Get Defined Entities By Entity Type

List Data Instances - Sample

-----REQUEST-----

```
GET /cloudapi/1.0.0/entities/types/vmware/dsInstance/0.1?pageSize=64&page=1 HTTP/1.1
Host: my-vcd-cloud.local
Accept: application/*+json;version=36.1,application/json;version=36.1
```

-----RESPONSE-----

```
HTTP/1.1 200 OK
Content-Type: application/json;version=36.1
Content-Location: https://my-vcd-cloud.local/cloudapi/1.0.0/entities/types/vmware/dsInstance/0.1
```

```
{
  "resultTotal":4,
  "pageCount":1,
  "page":1,
  "pageSize":64,
  "associations":null,
  "values":[
    {
```

```

    "id": "urn:vcloud:entity:vmware:dsInstance:5b1de861-1401-49da-a4f5-5eda55857f81",
    "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
    "name": "db1",
    "externalId": null,
    "entity": {
      "kind": "DSInstance",
      "spec": ...
    },
    "state": "RESOLVED",
    "owner": {
      "name": "k8s",
      "id": "urn:vcloud:user:d0cb7269-c5d5-4cd5-a3e7-1eb58a78b258"
    },
    "org": {
      "name": "ACME",
      "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
    }
  },
  {
    "id": "urn:vcloud:entity:vmware:dsInstance:c30edfed-f6fb-4a32-a187-5e630bc91a27",
    "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
    "name": "db-002",
    "externalId": null,
    "entity": {
      "kind": "DSInstance",
      "spec": ...
    },
    "state": "RESOLVED",
    "owner": {
      "name": "k8s",

```

```

    "id": "urn:vcloud:user:d0cb7269-c5d5-4cd5-a3e7-1eb58a78b258"
  },
  "org": {
    "name": "ACME",
    "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
  }
},
{
  "id": "urn:vcloud:entity:vmware:dsInstance:2467bc88-5912-46b0-9424-119cd17f00fa",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "db-001",
  "externalId": null,
  "entity": {
    "kind": "DSInstance",
    "spec": ...
  },
  "state": "RESOLVED",
  "owner": {
    "name": "k8s",
    "id": "urn:vcloud:user:d0cb7269-c5d5-4cd5-a3e7-1eb58a78b258"
  },
  "org": {
    "name": "ACME",
    "id": "urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
  }
},
{
  "id": "urn:vcloud:entity:vmware:dsInstance:71c94271-cc52-4edf-a733-ec23a80788ad",
  "entityType": "urn:vcloud:type:vmware:dsInstance:0.1.1",
  "name": "db-test1",

```

```
"externalId":null,
"entity":{
  "kind":"DSInstance",
  "spec":...
},
"state":"RESOLVED",
"owner":{
  "name":"k8s",
  "id":"urn:vcloud:user:d0cb7269-c5d5-4cd5-a3e7-1eb58a78b258"
},
"org":{
  "name":"ACME",
  "id":"urn:vcloud:org:dd95b1b1-3dfb-4754-b5ef-0025bbdc237f"
}
}
]
}
```

