Cisco Compute Hyperconverged with Nutanix

Integrate and Automate

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DEVNET-1144

Agenda

- Cluster Management & API
- Nutanix Prism REST API
  - Construct API Calls
  - Simple and Dynamic calls
  - Combine and Integrate
- Cisco Intersight REST API
- Summary

Webex App

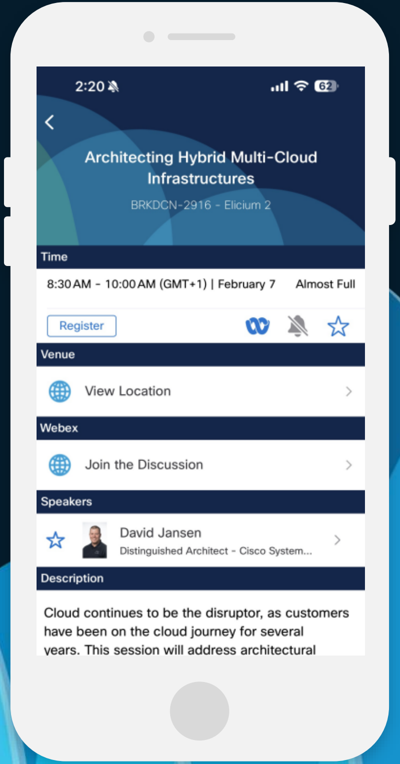
Questions?

Use the Webex app to chat with the speaker after the session

How

1. Find this session in the Cisco Events mobile app
2. Click "Join the Discussion"
3. Install the Webex app or go directly to the Webex space
4. Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until February 28, 2025.


2:20
62
Architecting Hybrid Multi-Cloud Infrastructures
BRKDCN-2916 - Elicium 2
Time
8:30 AM - 10:00 AM (GMT+1) | February 7
Almost Full
Register
Venue
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Webex
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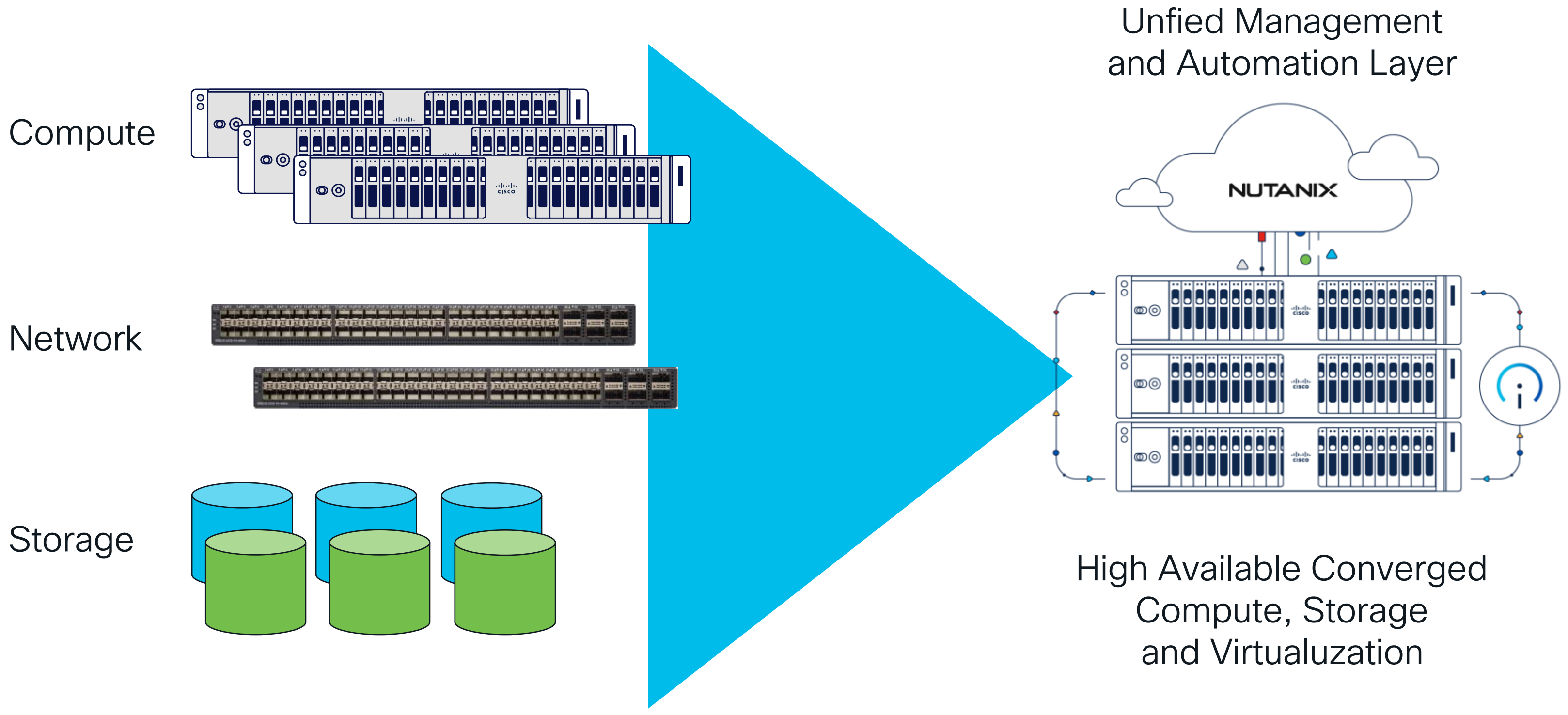
Speakers
David Jansen
Distinguished Architect - Cisco System...
Description

Cloud continues to be the disruptor, as customers have been on the cloud journey for several years. This session will address architectural

Cluster Management & API

HCI - Hyperconverged Infrastructure



CCHC - Cisco Compute Hyperconverged with Nutanix

Cisco and Nutanix introduce the industry's most complete hyperconverged solution through expanded engineering, support, and go-to-market collaboration

CISCO

Best-in-class compute, network, and SaaS-based infrastructure management

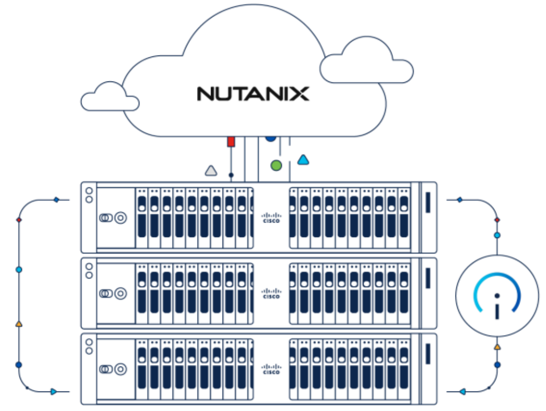
- Stateless, programmable policy-based systems
- See, control, and automate infrastructure from one place
- Proactive, automated health monitoring and support capabilities

+

NUTANIX

Leader in hyperconverged software

- One unified platform enables seamless workload mobility
- A complete set of enterprise and cloud features
- Enterprise grade disaster recovery and security capabilities



Cisco Compute and Networking

CCHC - Cluster Management

REST API
Saas, PVA or CVA

Cisco Intersight

- Device Claim & Initial Configuration
- Server policies and profiles
- Software & Security advisories
- Hardware alerts & monitoring

REST API
On each CVM

Nutanix Prism Element

- Nutanix LCM: AOS/AHV, ESXi and Cisco server firmware upgrades
- Individual cluster management and monitoring

REST API
VM on ESXi/AHV

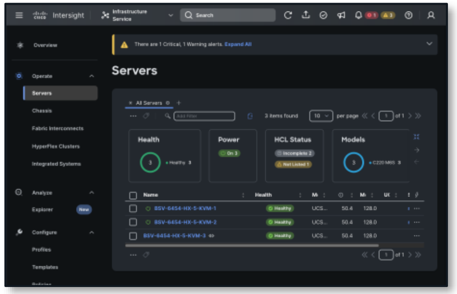
Nutanix Prism Central

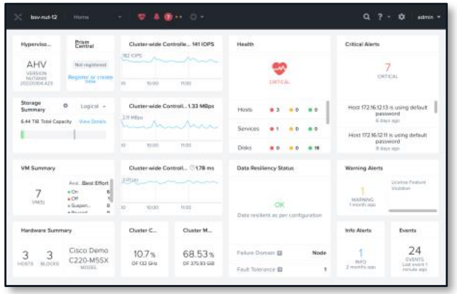
- Multi-cluster Cluster deployment
- Multi-cluster management & monitoring
- Cluster expansion

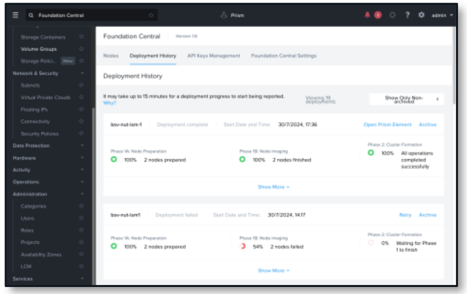
REST API
VM on ESXi/AHV

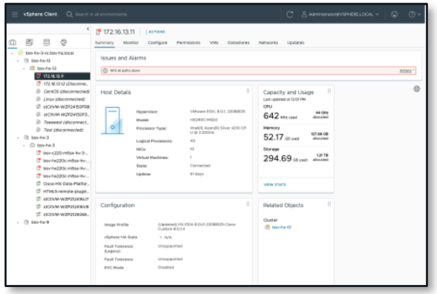
VMWare vCenter

- VM operations and management



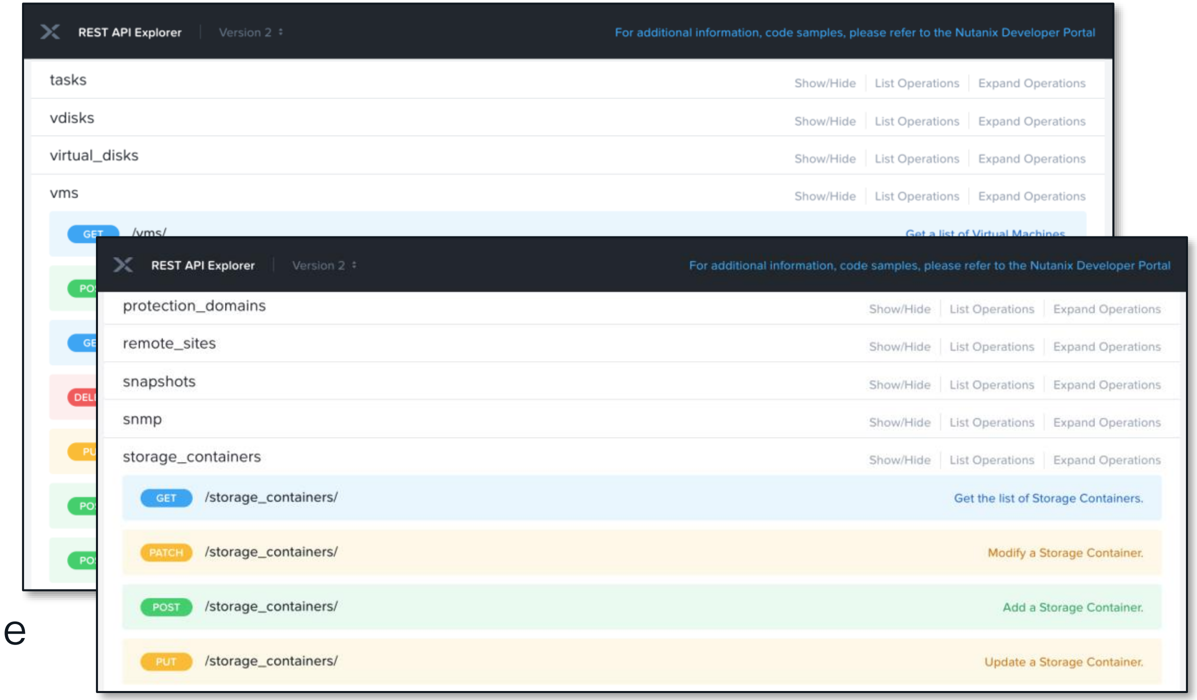






CCHC API - Application Programming Interface

- Integration of CCHC Nutanix Clusters
  - Automation
  - Monitoring
  - Repetitive Tasks
- Combine multiple APIs
- Example: on-demand lab
  - Create Storage Containers
  - Deploy/Clone VMs
  - Power on VMs
  - Cleanup Storage when done


REST API Explorer | Version 2
For additional information, code samples, please refer to the Nutanix Developer Portal

tasks	Show/Hide	List Operations	Expand Operations
vdisks	Show/Hide	List Operations	Expand Operations
virtual_disks	Show/Hide	List Operations	Expand Operations
vms	Show/Hide	List Operations	Expand Operations

GET /vms/ Get a list of Virtual Machines

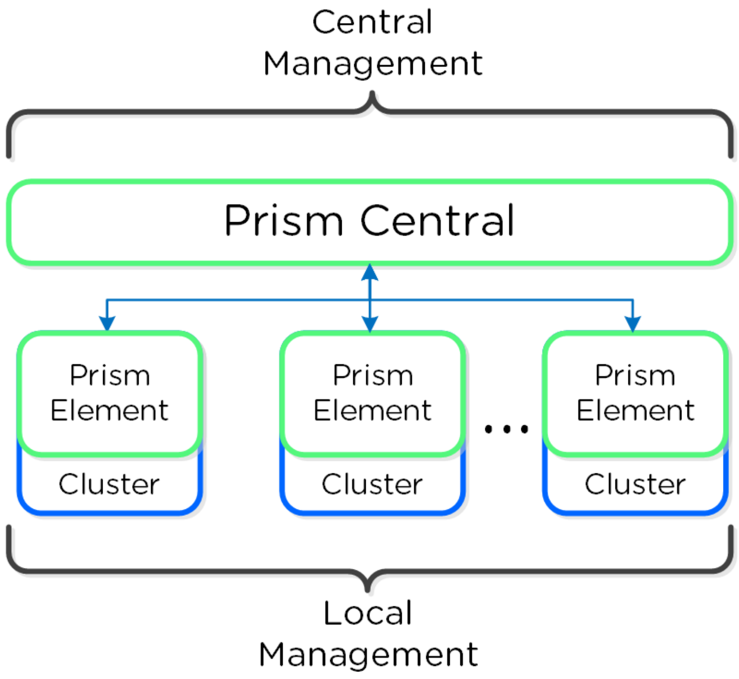
REST API Explorer | Version 2
For additional information, code samples, please refer to the Nutanix Developer Portal

protection_domains	Show/Hide	List Operations	Expand Operations
remote_sites	Show/Hide	List Operations	Expand Operations
snapshots	Show/Hide	List Operations	Expand Operations
snmp	Show/Hide	List Operations	Expand Operations
storage_containers	Show/Hide	List Operations	Expand Operations

GET	/storage_containers/	Get the list of Storage Containers.
PATCH	/storage_containers/	Modify a Storage Container.
POST	/storage_containers/	Add a Storage Container.
PUT	/storage_containers/	Update a Storage Container.

CCHC API Endpoints

- Nutanix Prism Element API
  - Single Nutanix HCI Cluster
  - Designed to manage and manipulate entities within specific cluster
  - Talk directly to Prism endpoint on Cluster
- Nutanix Prism Central API
  - Multiple Nutanix HCI Clusters
  - Nutanix products accessed via Prism Central
- Cisco Intersight API
  - Cisco UCS hardware monitoring and management



API Journey

Construct API call

Simple API call

Dynamic API call

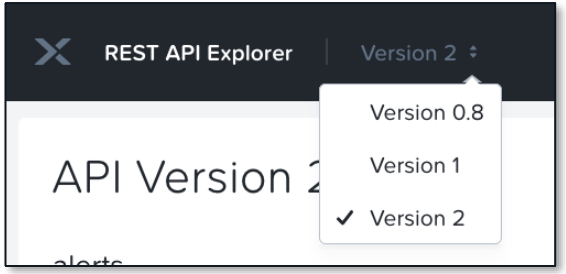
Combine API calls

Integrate

Nutanix Prism REST API
Construct API calls

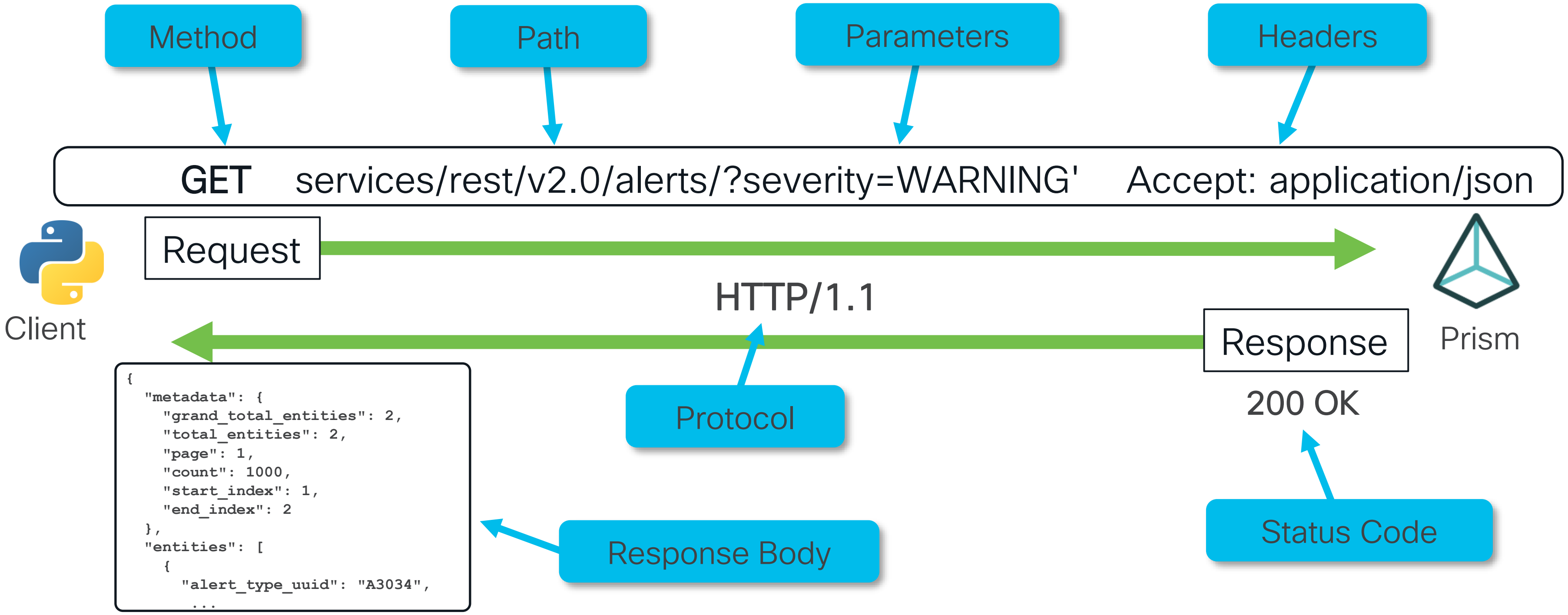
API Endpoints – Prism Element / Prism Central

- V0.8 and V1
  - Deprecated, only to be used when similar endpoints do not exist in newer version
  - Still used for cluster performance statistics
- V2
  - Prism Element only
  - Cluster-local activities
  - https://www.nutanix.dev/api_reference/apis/prism_v2.html
- V3
  - Prism Central only
  - Multi-Cluster activities or management of other Nutanix products through Prism Central
  - https://www.nutanix.dev/api_reference/apis/prism_v3.html



REST API – Construct API call

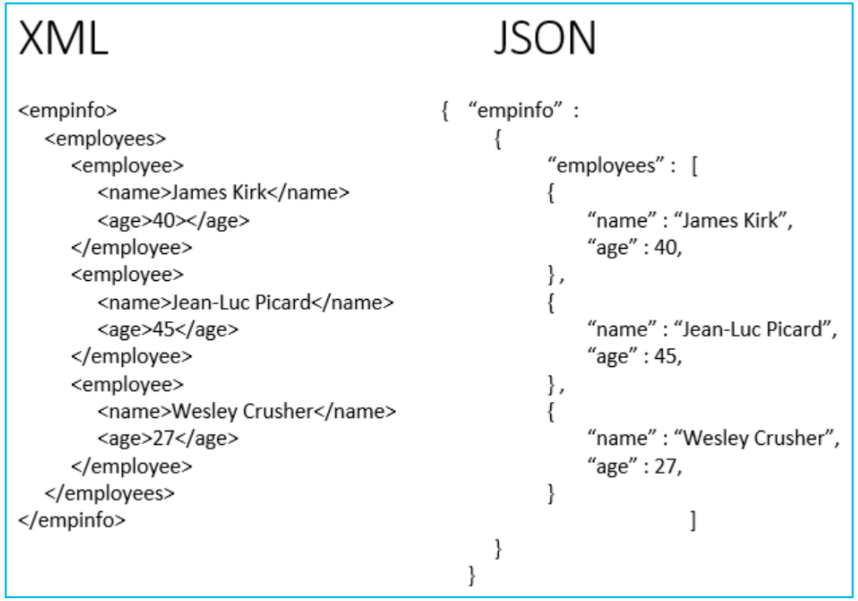
HTTP-based: Request – Response



```
{
  "metadata": {
    "grand_total_entities": 2,
    "total_entities": 2,
    "page": 1,
    "count": 1000,
    "start_index": 1,
    "end_index": 2
  },
  "entities": [
    {
      "alert_type_uuid": "A3034",
      ...
```

REST API – JSON Request/Response Body

JSON stands for JavaScript Object Notation



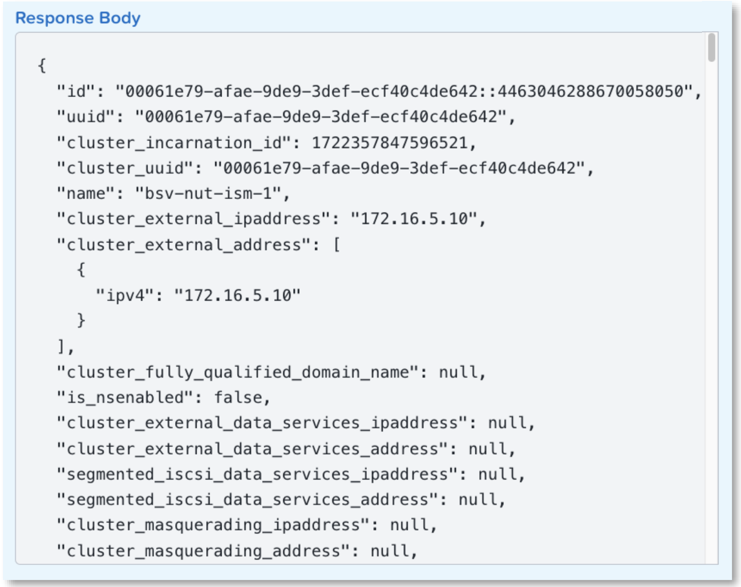
XML

```
<empinfo>
   <employees>
      <employee>
         <name>James Kirk</name>
         <age>40></age>
      </employee>
      <employee>
         <name>Jean-Luc Picard</name>
         <age>45</age>
      </employee>
      <employee>
         <name>Wesley Crusher</name>
         <age>27</age>
      </employee>
   </employees>
</empinfo>
```

JSON

```
{  "empinfo" :
      {
            "employees" :  [
            {
                "name" : "James Kirk",
                "age" : 40,
            },
            {
                "name" : "Jean-Luc Picard",
                "age" : 45,
            },
            {
                "name" : "Wesley Crusher",
                "age" : 27,
            }
                              ]
      }
}
```

API HTTP response



Response Body

```
{
  "id": "00061e79-afae-9de9-3def-ecf40c4de642::4463046288670058050",
  "uuid": "00061e79-afae-9de9-3def-ecf40c4de642",
  "cluster_incarnation_id": 1722357847596521,
  "cluster_uuid": "00061e79-afae-9de9-3def-ecf40c4de642",
  "name": "bsv-nut-ism-1",
  "cluster_external_ipaddress": "172.16.5.10",
  "cluster_external_address": [
    {
      "ipv4": "172.16.5.10"
    }
  ],
  "cluster_fully_qualified_domain_name": null,
  "is_nsenabled": false,
  "cluster_external_data_services_ipaddress": null,
  "cluster_external_data_services_address": null,
  "segmented_iscsi_data_services_ipaddress": null,
  "segmented_iscsi_data_services_address": null,
  "cluster_masquerading_ipaddress": null,
  "cluster_masquerading_address": null,
```

Response body with JSON payload

REST API – Methods and status codes

Methods:

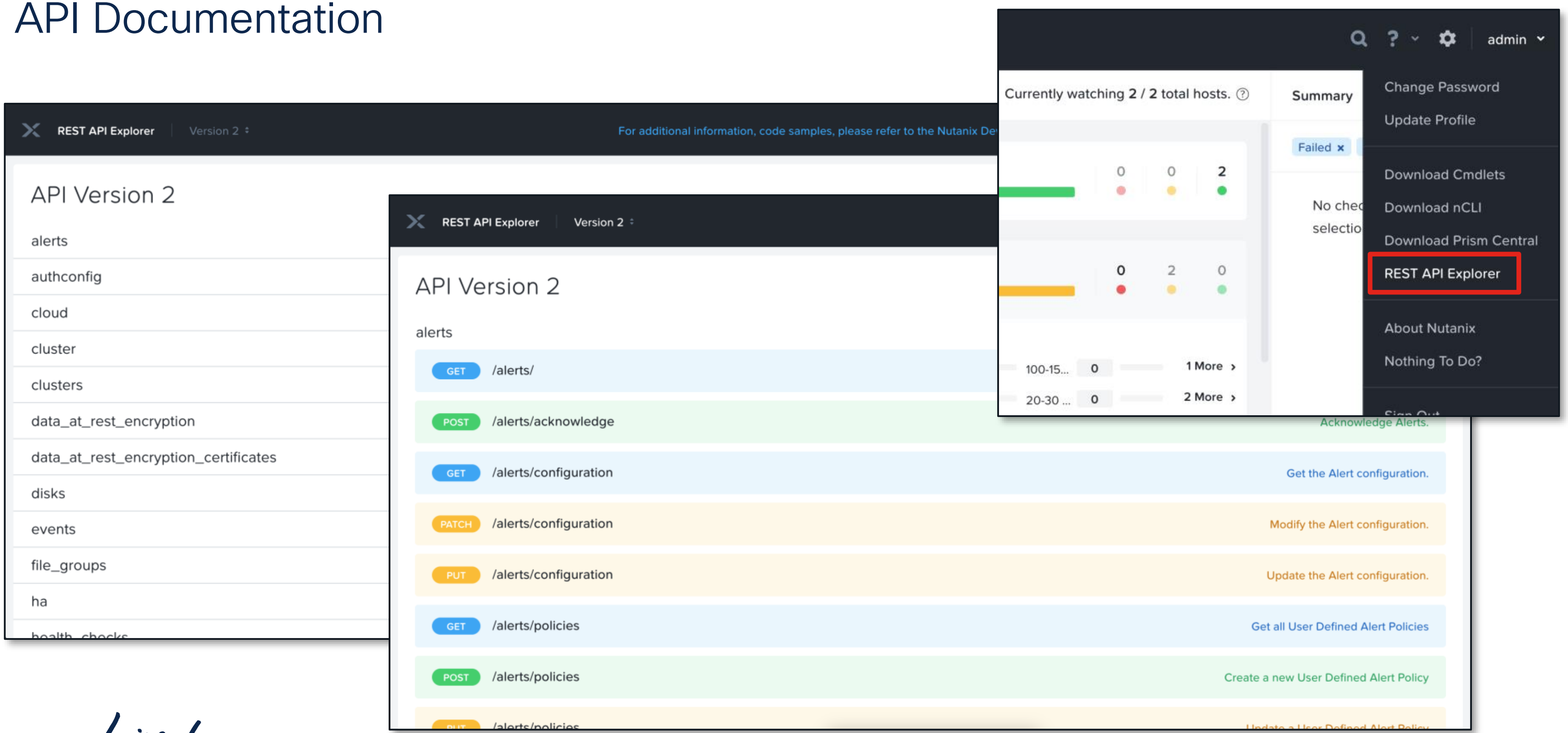
- GET: Retrieve information
- POST: Creates a resource
- PUT: Update or create within existing resource
- PATCH: Modify existing resource
- DELETE: Removes the resource

Status Codes:

Code	Description	Meaning
2xx	**Success**	**Operation succeeded**
200	OK	Valid request and response
201	Created	Resource was created
202	Accepted	Asynchronous job accepted
4xx	**Client issue**	**Authentication, URL, wrong request** -> Check request
5xx	**Server issue**	**Service issue** -> Check logs

Prism Element REST API – API Explorer

API Documentation



REST API Explorer | Version 2

For additional information, code samples, please refer to the Nutanix De

API Version 2

- alerts
- authconfig
- cloud
- cluster
- clusters
- data_at_rest_encryption
- data_at_rest_encryption_certificates
- disks
- events
- file_groups
- ha
- health_checks

REST API Explorer | Version 2

API Version 2

alerts

GET	/alerts/	
POST	/alerts/acknowledge	Acknowledge Alerts.
GET	/alerts/configuration	Get the Alert configuration.
PATCH	/alerts/configuration	Modify the Alert configuration.
PUT	/alerts/configuration	Update the Alert configuration.
GET	/alerts/policies	Get all User Defined Alert Policies
POST	/alerts/policies	Create a new User Defined Alert Policy
PUT	/alerts/policies	Update a User Defined Alert Policy

Currently watching 2 / 2 total hosts.

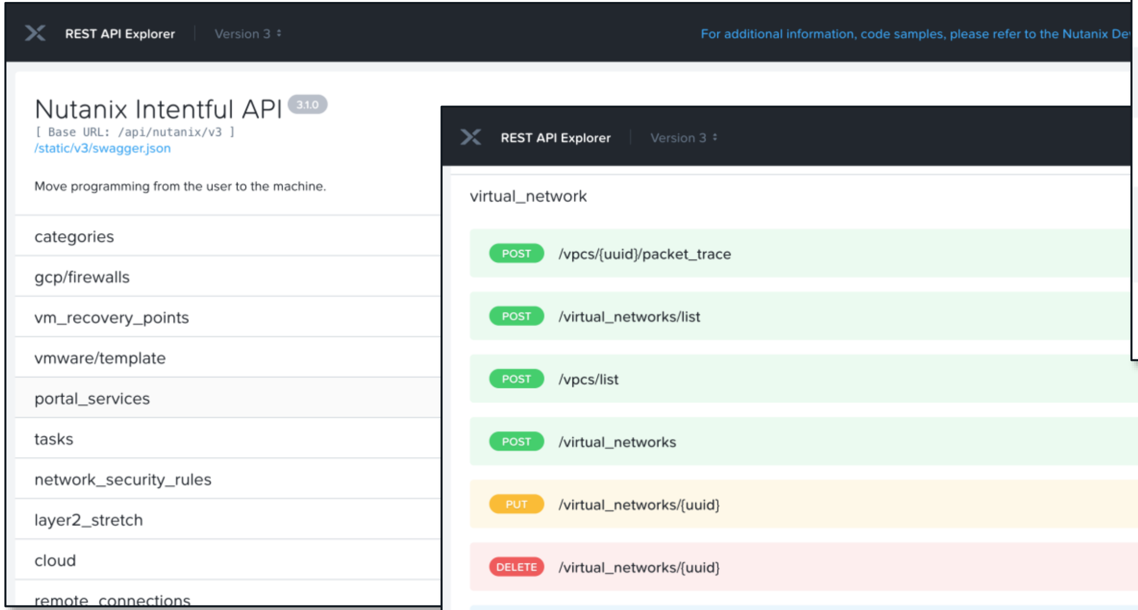
Summary

Failed ×

No chec selectio

Prism Central REST API – API Explorer

API Documentation


REST API Explorer   Version 3

For additional information, code samples, please refer to the Nutanix De

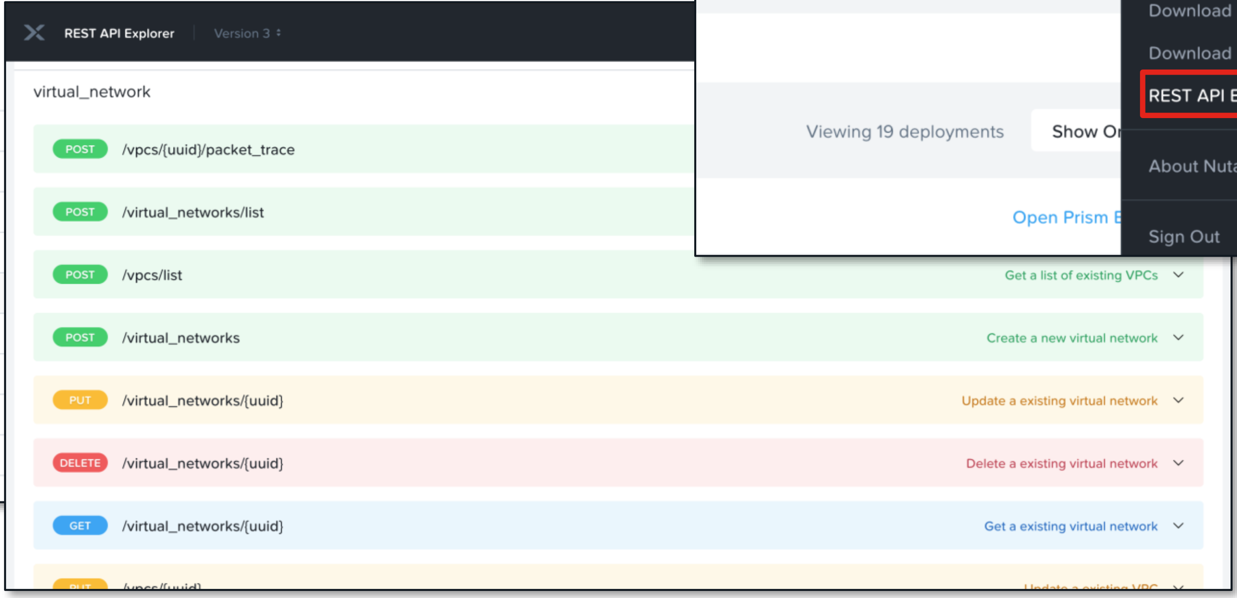
Nutanix Intentful API 3.1.0

[Base URL: /api/nutanix/v3]

/static/v3/swagger.json

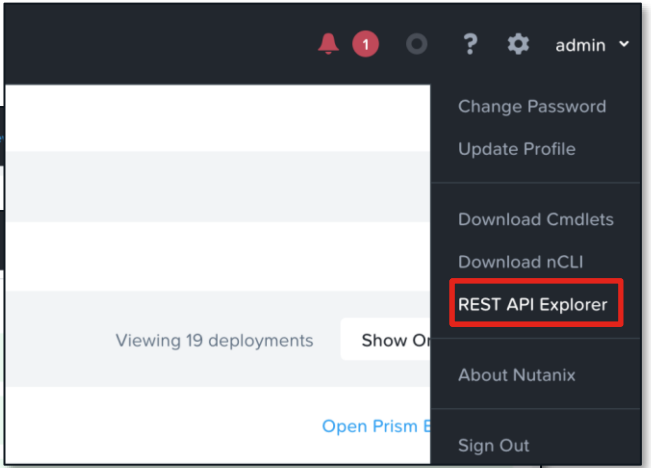
Move programming from the user to the machine.

- categories
- gcp/firewalls
- vm_recovery_points
- vmware/template
- portal_services
- tasks
- network_security_rules
- layer2_stretch
- cloud
- remote_connections


REST API Explorer   Version 3

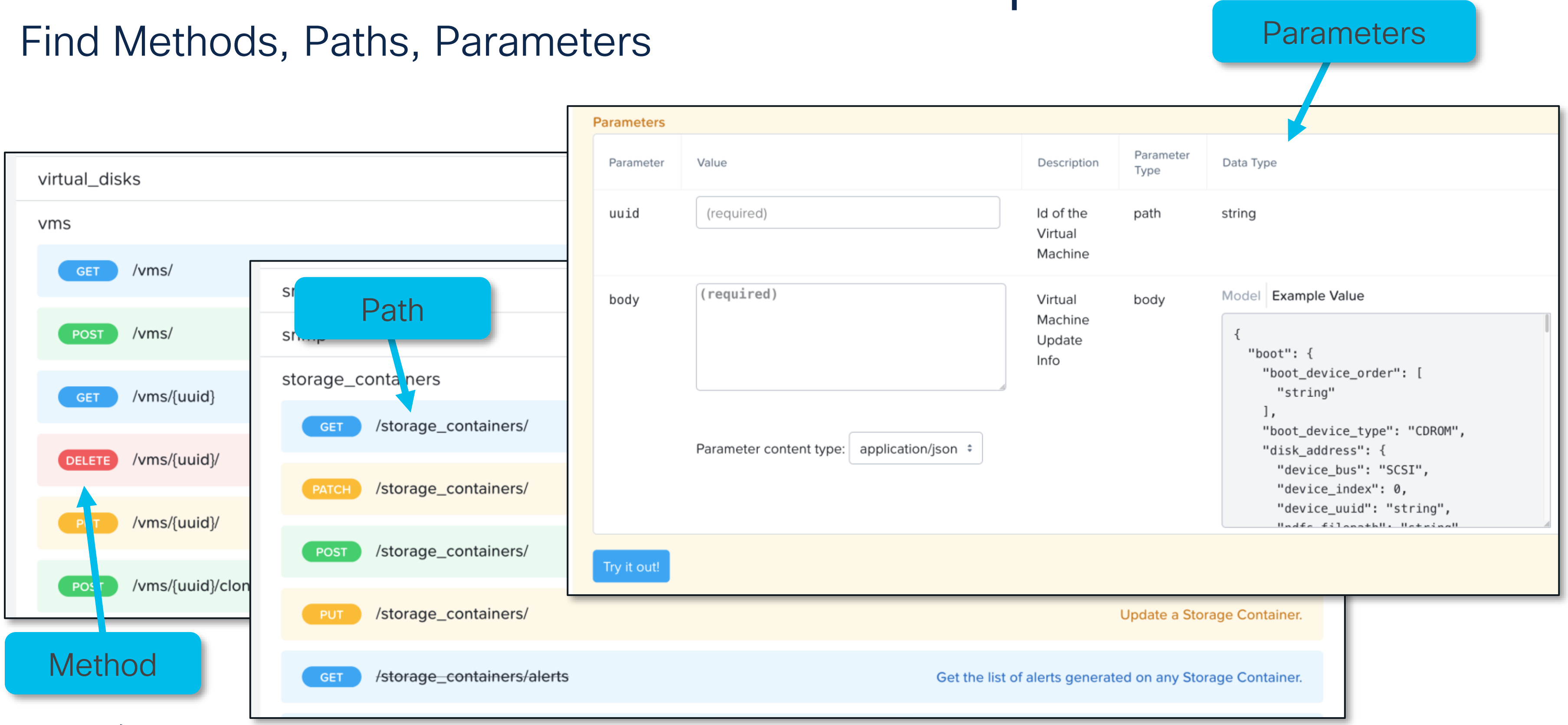
virtual_network

POST	/vpcs/{uuid}/packet_trace	
POST	/virtual_networks/list	
POST	/vpcs/list	Get a list of existing VPCs
POST	/virtual_networks	Create a new virtual network
PUT	/virtual_networks/{uuid}	Update a existing virtual network
DELETE	/virtual_networks/{uuid}	Delete a existing virtual network
GET	/virtual_networks/{uuid}	Get a existing virtual network
PUT	/vpcs/{uuid}	Update a existing VPC



Prism Element REST API – API Explorer

Find Methods, Paths, Parameters



Update a Storage Container.

Get the list of alerts generated on any Storage Container.

Parameters

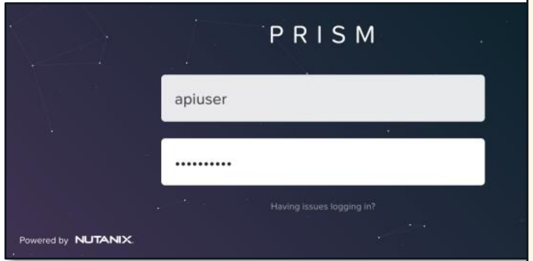
Parameter	Value	Description	Parameter Type	Data Type
uuid	(required)	Id of the Virtual Machine	path	string
body	(required)	Virtual Machine Update Info	body	Model / Example Value

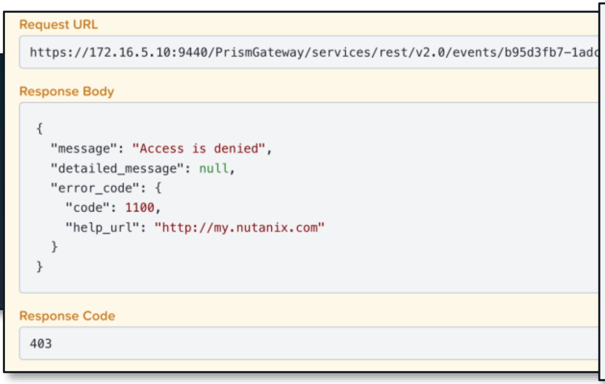
Parameter content type: application/json

```
{
  "boot": {
    "boot_device_order": [
      "string"
    ],
    "boot_device_type": "CDROM",
    "disk_address": {
      "device_bus": "SCSI",
      "device_index": 0,
      "device_uuid": "string",
```

Prism REST API - Authentication

- Nutanix Prism REST APIs are using HTTP Basic Authentication
  - API Explorer uses Session Authentication from webGUI
- Requests on HTTP port 80 automatically redirected to HTTPS port 443
- Access Type derived from user role:
  - Read-only: Collect and inspect information: GET
  - Administrative: Entity or cluster changes: GET, POST, PUT, PATCH and DELETE




Request URL

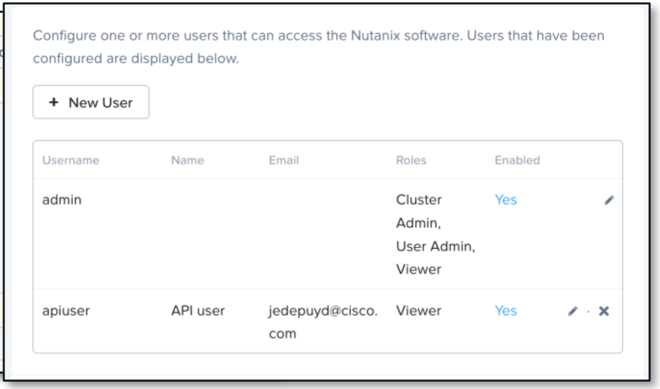
```
https://172.16.5.10:9440/PrismGateway/services/rest/v2.0/events/b95d3fb7-1adc
```

Response Body

```
{
  "message": "Access is denied",
  "detailed_message": null,
  "error_code": {
    "code": 1100,
    "help_url": "http://my.nutanix.com"
  }
}
```

Response Code

```
403
```

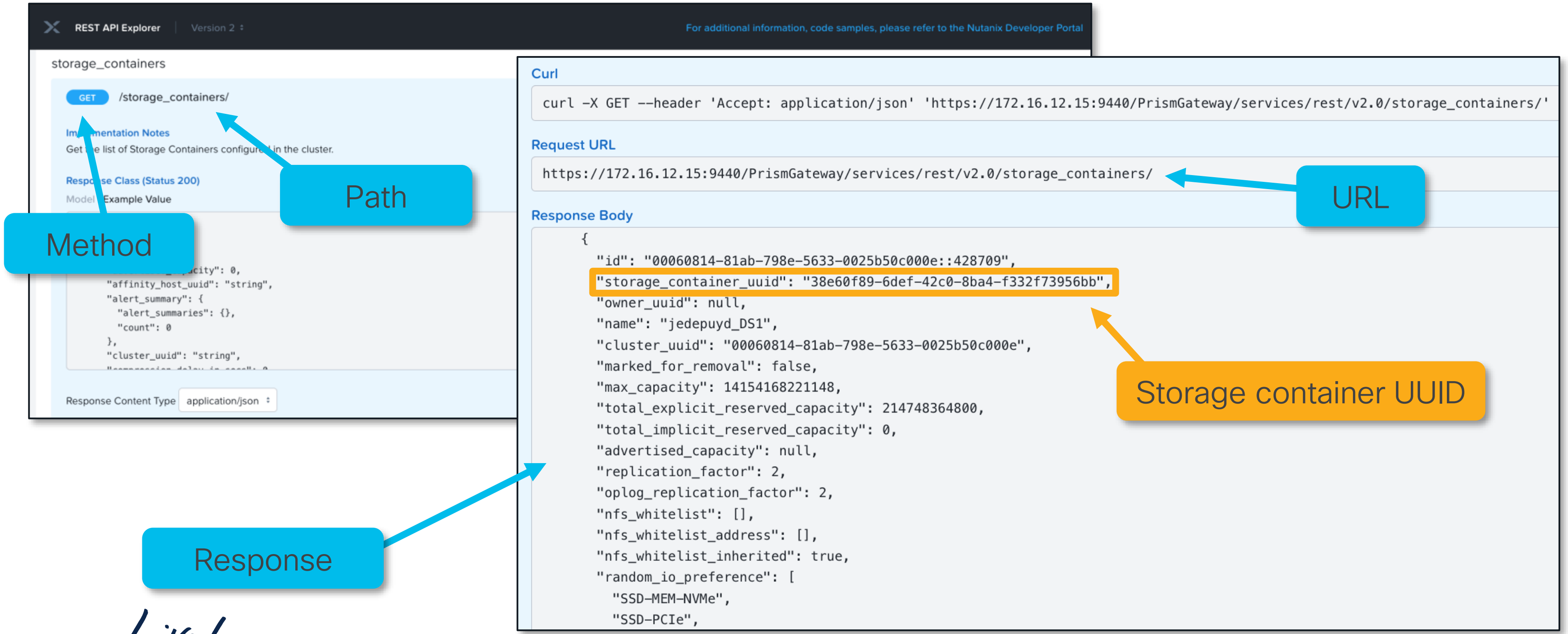

Configure one or more users that can access the Nutanix software. Users that have been configured are displayed below.

Username	Name	Email	Roles	Enabled
admin			Cluster Admin, User Admin, Viewer	Yes
apiuser	API user	jedepuyd@cisco.com	Viewer	Yes

Nutanix Prism REST API
Simple and Dynamic calls

Prism Element API Explorer – Execute API calls

Example: Get space usage - Step 1: Get UUID of Storage Container


REST API Explorer
Version 2
For additional information, code samples, please refer to the Nutanix Developer Portal
GET
Method
Path
URL
Storage container UUID
Response

storage_containers

GET /storage_containers/

Im mentation Notes
Get e list of Storage Containers configure in the cluster.

Respo se Class (Status 200)
Model Example Value

```
        acity": 0,
"affinity_host_uuid": "string",
"alert_summary": {
  "alert_summaries": {},
  "count": 0
},
"cluster_uuid": "string",
```

Response Content Type: application/json

Curl

```
curl -X GET --header 'Accept: application/json' 'https://172.16.12.15:9440/PrismGateway/services/rest/v2.0/storage_containers/'
```

Request URL

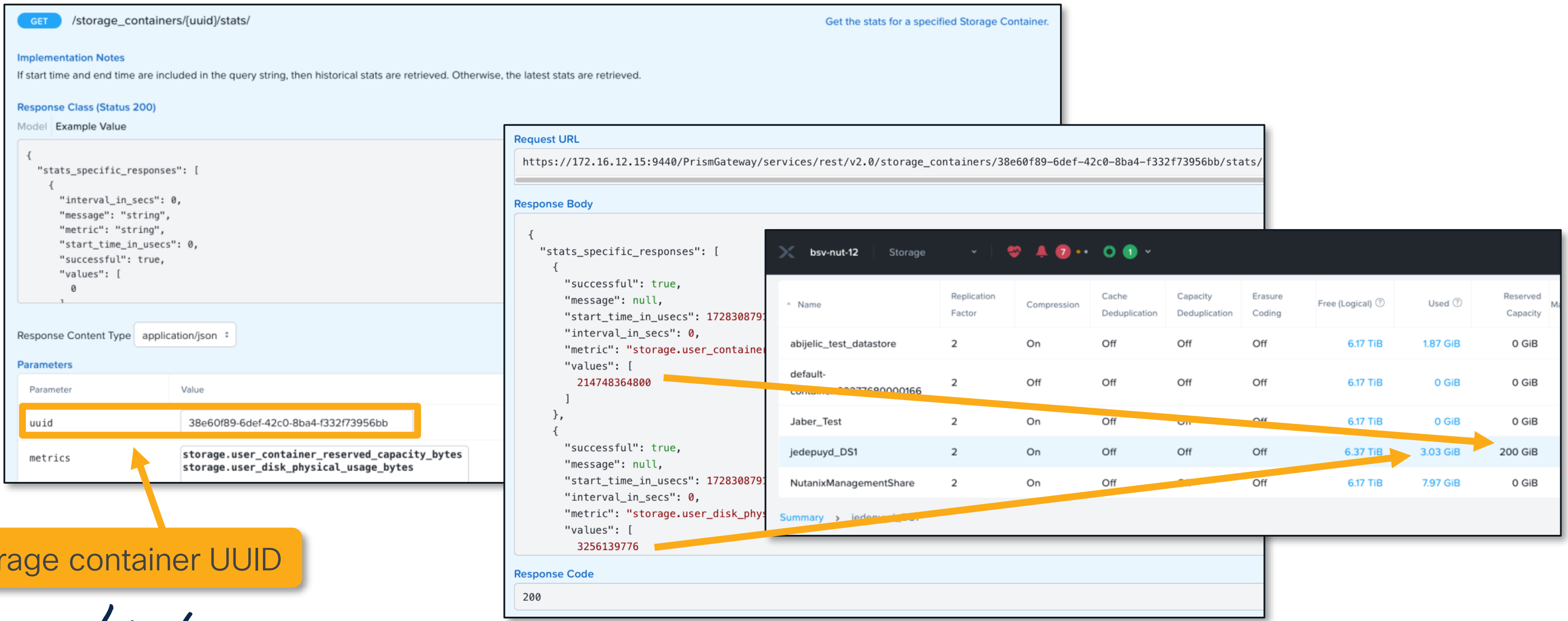
```
https://172.16.12.15:9440/PrismGateway/services/rest/v2.0/storage_containers/
```

Response Body

```
    {
      "id": "00060814-81ab-798e-5633-0025b50c000e::428709",
      "storage_container_uuid": "38e60f89-6def-42c0-8ba4-f332f73956bb",
      "owner_uuid": null,
      "name": "jedepuyd_DS1",
      "cluster_uuid": "00060814-81ab-798e-5633-0025b50c000e",
      "marked_for_removal": false,
      "max_capacity": 14154168221148,
      "total_explicit_reserved_capacity": 214748364800,
      "total_implicit_reserved_capacity": 0,
      "advertised_capacity": null,
      "replication_factor": 2,
      "oplog_replication_factor": 2,
      "nfs_whitelist": [],
      "nfs_whitelist_address": [],
      "nfs_whitelist_inherited": true,
      "random_io_preference": [
        "SSD-MEM-NVMe",
        "SSD-PCIe",
```

Prism Element API Explorer – Execute API calls

Example: Get space usage - Step 2: Get storage container statistics



/storage_containers/{uuid}/stats/

Get the stats for a specified Storage Container.

Implementation Notes

If start time and end time are included in the query string, then historical stats are retrieved. Otherwise, the latest stats are retrieved.

Response Class (Status 200)

Model | Example Value

```
{
  "stats_specific_responses": [
    {
      "interval_in_secs": 0,
      "message": "string",
      "metric": "string",
      "start_time_in_usecs": 0,
      "successful": true,
      "values": [
        0
```

Response Content Type: application/json

Parameters

Parameter	Value
uuid	38e60f89-6def-42c0-8ba4-f332f73956bb
metrics	storage.user_container_reserved_capacity_bytes storage.user_disk_physical_usage_bytes

Request URL

```
https://172.16.12.15:9440/PrismGateway/services/rest/v2.0/storage_containers/38e60f89-6def-42c0-8ba4-f332f73956bb/stats/
```

Response Body

```
{
  "stats_specific_responses": [
    {
      "successful": true,
      "message": null,
      "start_time_in_usecs": 1728308791
      "interval_in_secs": 0,
      "metric": "storage.user_containe
      "values": [
        214748364800
      ]
    },
    {
      "successful": true,
      "message": null,
      "start_time_in_usecs": 1728308791
      "interval_in_secs": 0,
      "metric": "storage.user_disk_phys
      "values": [
        3256139776
```

Response Code

```
200
```

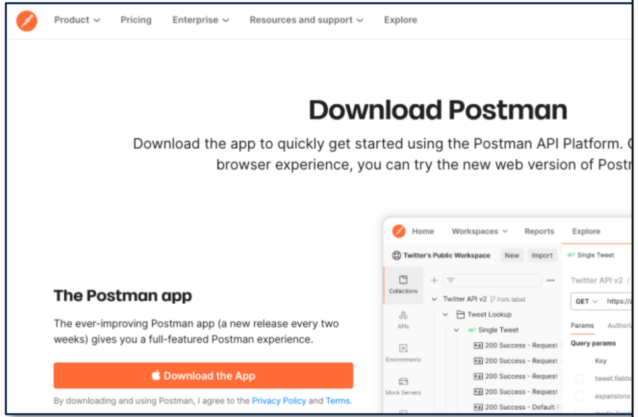
Name	Replication Factor	Compression	Cache Deduplication	Capacity Deduplication	Erasure Coding	Free (Logical)	Used	Reserved Capacity
abijelic_test_datastore	2	On	Off	Off	Off	6.17 TiB	1.87 GiB	0 GiB
default- [illegible]77680000166	2	Off	Off	Off	Off	6.17 TiB	0 GiB	0 GiB
Jaber_Test	2	On	Off	[illegible]	Off	6.17 TiB	0 GiB	0 GiB
jedepuyd_DS1	2	On	Off	Off	Off	6.37 TiB	3.03 GiB	200 GiB
NutanixManagementShare	2	On	Off	[illegible]	Off	6.17 TiB	7.97 GiB	0 GiB

Summary › [illegible]

Storage container UUID

REST API – Use Postman

- API platform: Web-based or Desktop application
- Great for testing and exploring APIs
- https://www.postman.com



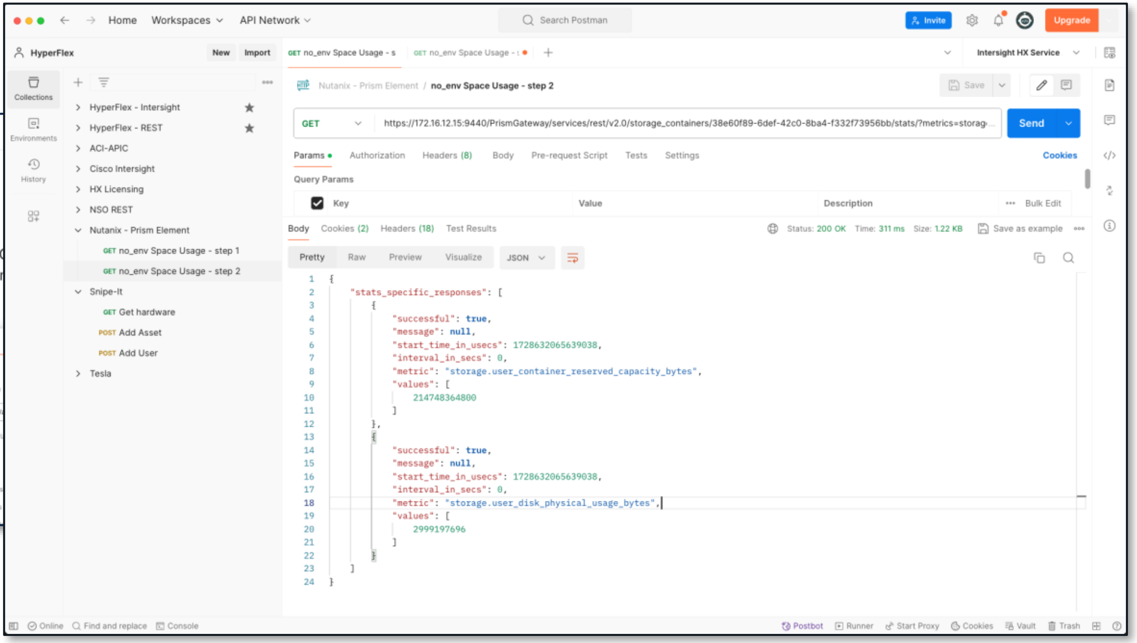
Download Postman

Download the app to quickly get started using the Postman API Platform. O
browser experience, you can try the new web version of Postr

The Postman app

The ever-improving Postman app (a new release every two weeks) gives you a full-featured Postman experience.

By downloading and using Postman, I agree to the Privacy Policy and Terms.



Nutanix - Prism Element / no_env Space Usage - step 2

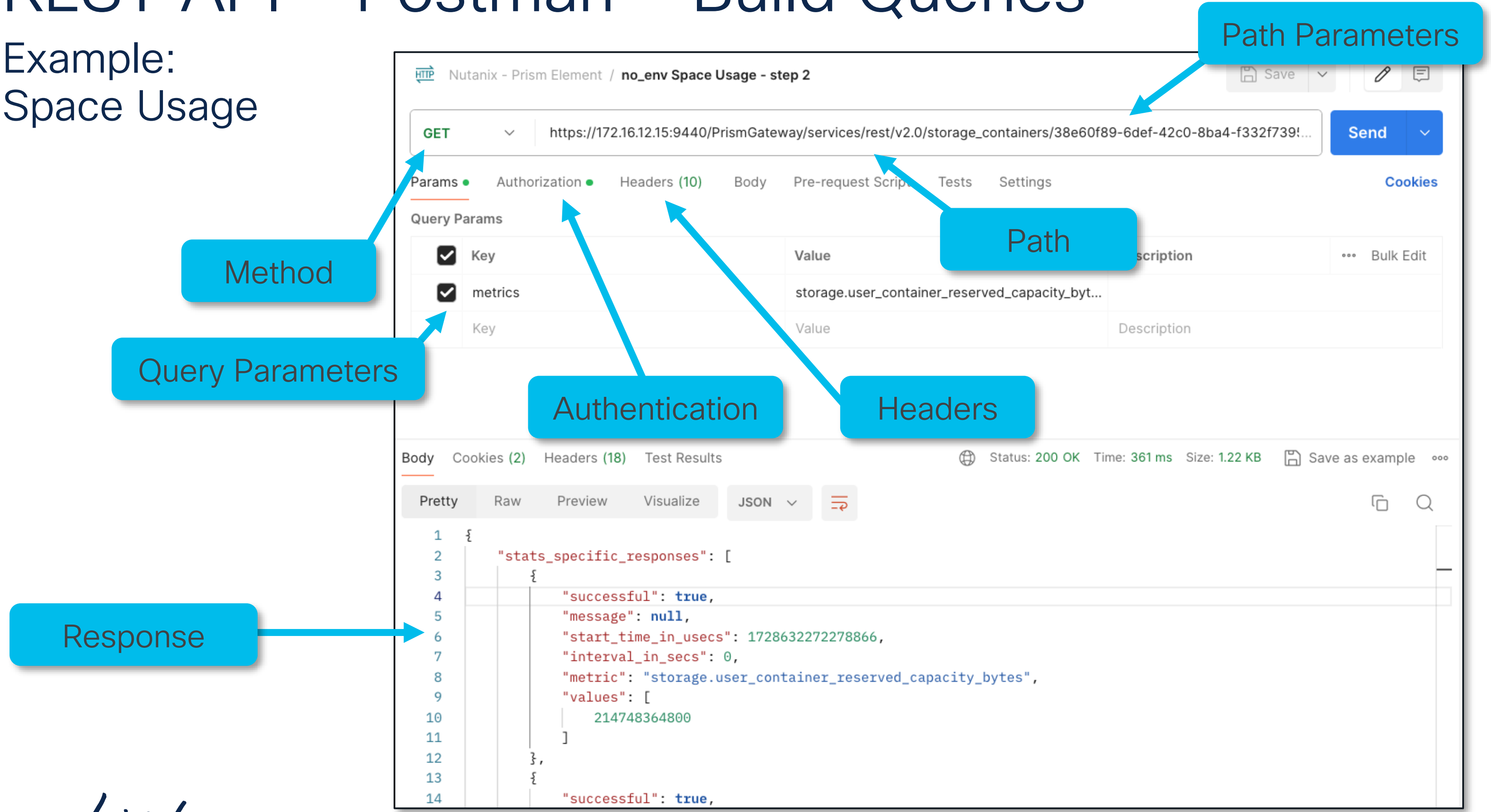
GET https://172.16.12.15:9440/PrismGateway/services/rest/v2.0/storage_containers/38e60f89-6def-42c0-8ba4-f332f73956bb/stats/?metrics=storag

Status: 200 OK Time: 311 ms Size: 1.22 KB

```
{
    "stats_specific_responses": [
        {
            "successful": true,
            "message": null,
            "start_time_in_usecs": 1728632065639038,
            "interval_in_secs": 0,
            "metric": "storage.user_container_reserved_capacity_bytes",
            "values": [
                214748364800
            ]
        },
        {
            "successful": true,
            "message": null,
            "start_time_in_usecs": 1728632065639038,
            "interval_in_secs": 0,
            "metric": "storage.user_disk_physical_usage_bytes",
            "values": [
                2999197696
            ]
        }
    ]
}
```

REST API - Postman – Build Queries

Example:
Space Usage



GET https://172.16.12.15:9440/PrismGateway/services/rest/v2.0/storage_containers/38e60f89-6def-42c0-8ba4-f332f739...

Query Params

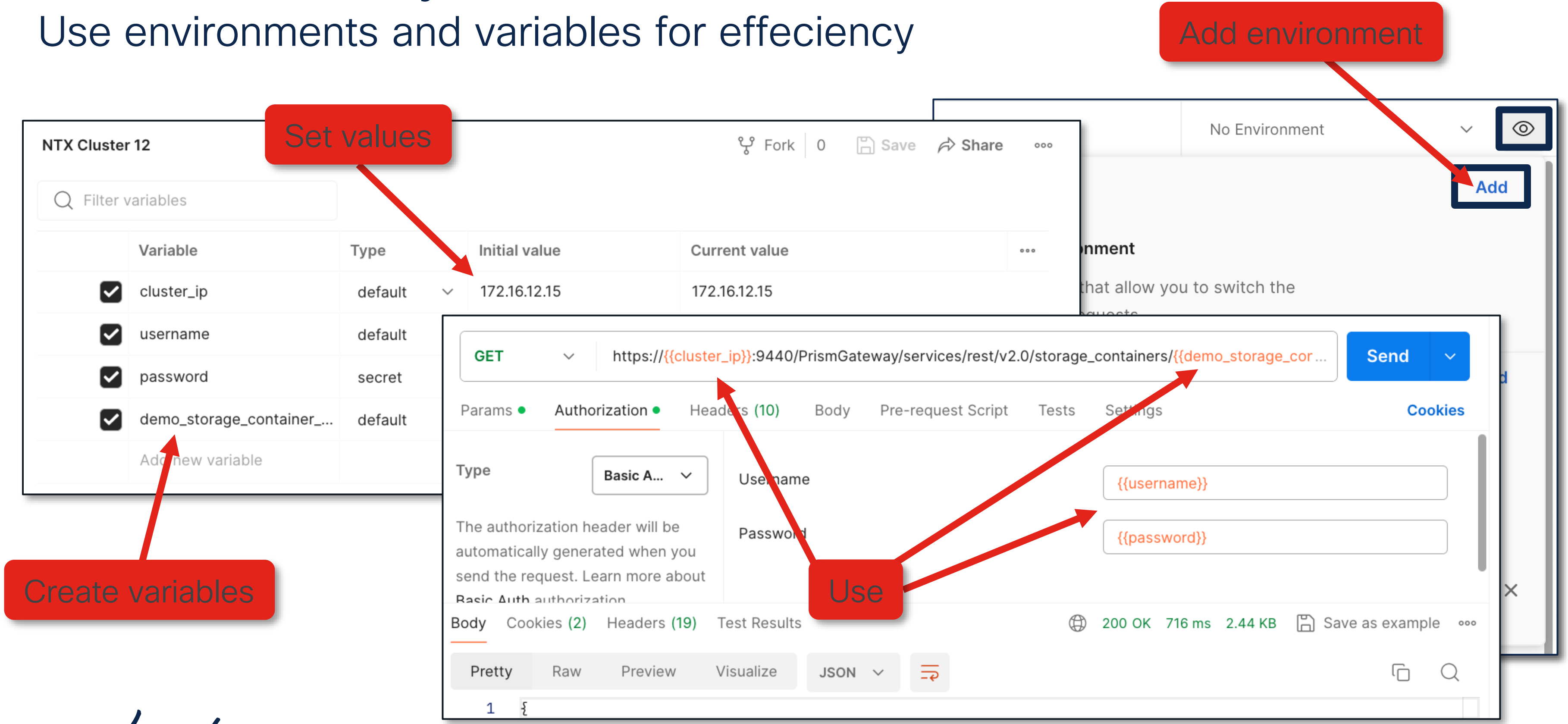
Key	Value	Description
metrics	storage.user_container_reserved_capacity_byt...	

Status: 200 OK Time: 361 ms Size: 1.22 KB

```
{
    "stats_specific_responses": [
        {
            "successful": true,
            "message": null,
            "start_time_in_usecs": 1728632272278866,
            "interval_in_secs": 0,
            "metric": "storage.user_container_reserved_capacity_bytes",
            "values": [
                214748364800
            ]
        },
        {
            "successful": true,
```

Postman – Dynamic – Variables and environment

Use environments and variables for effeciency



NTX Cluster 12

Filter variables

	Variable	Type	Initial value	Current value
✓	cluster_ip	default	172.16.12.15	172.16.12.15
✓	username	default		
✓	password	secret		
✓	demo_storage_container_...	default		
	Add new variable			

GET https://{{cluster_ip}}:9440/PrismGateway/services/rest/v2.0/storage_containers/{{demo_storage_cor ...

Params ● Authorization ● Headers (10) Body Pre-request Script Tests Settings

Type Basic A...

The authorization header will be automatically generated when you send the request. Learn more about Basic Auth authorization

Username {{username}}

Password {{password}}

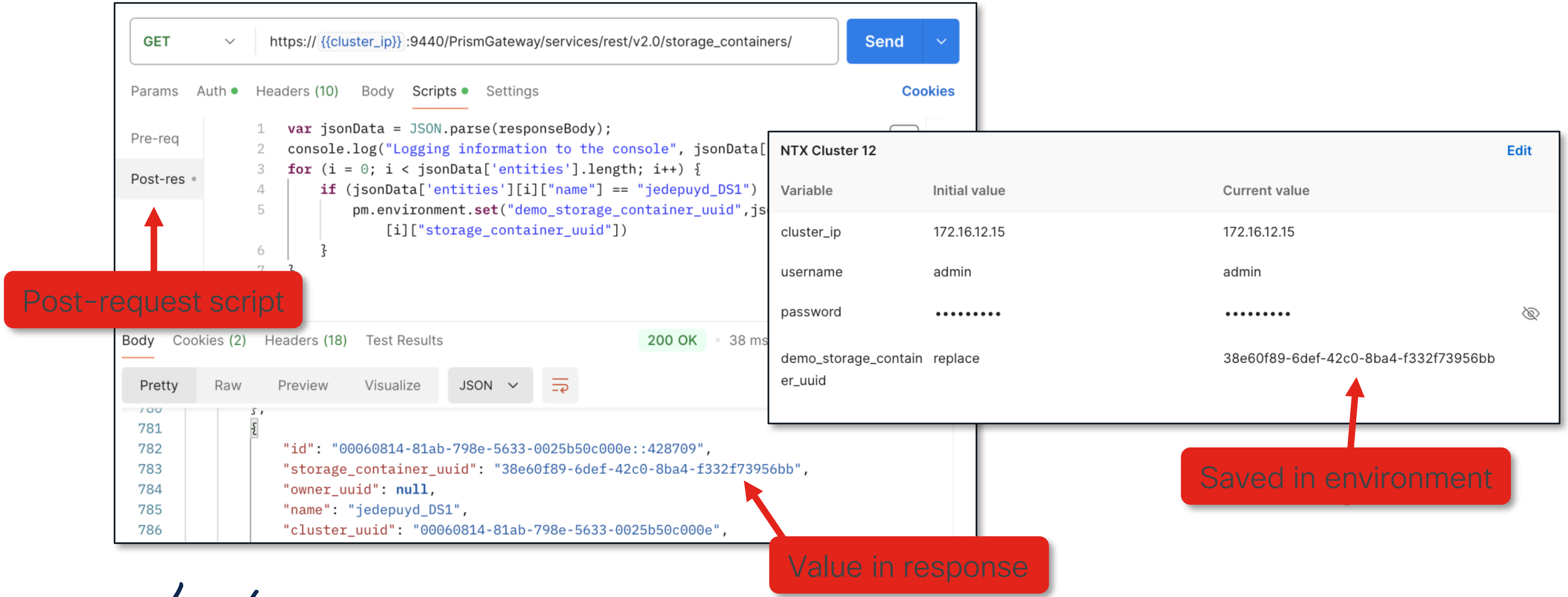
Body Cookies (2) Headers (19) Test Results 200 OK 716 ms 2.44 KB Save as example

Pretty Raw Preview Visualize JSON

```
{
```

Postman – Dynamic – Variables and environment

Use JavaScript to save response values in environment



GET https:// {{cluster_ip}} :9440/PrismGateway/services/rest/v2.0/storage_containers/

Params · Auth · Headers (10) · Body · Scripts · Settings · Cookies

Pre-req · Post-res

```
var jsonData = JSON.parse(responseBody);
console.log("Logging information to the console", jsonData[
for (i = 0; i < jsonData['entities'].length; i++) {
    if (jsonData['entities'][i]["name"] == "jedepuyd_DS1")
        pm.environment.set("demo_storage_container_uuid",js
            [i]["storage_container_uuid"])
    }
}
```

Body · Cookies (2) · Headers (18) · Test Results · 200 OK · 38 ms

Pretty · Raw · Preview · Visualize · JSON

```
781        {
782            "id": "00060814-81ab-798e-5633-0025b50c000e::428709",
783            "storage_container_uuid": "38e60f89-6def-42c0-8ba4-f332f73956bb",
784            "owner_uuid": null,
785            "name": "jedepuyd_DS1",
786            "cluster_uuid": "00060814-81ab-798e-5633-0025b50c000e",
```

NTX Cluster 12 · Edit

Variable	Initial value	Current value
cluster_ip	172.16.12.15	172.16.12.15
username	admin	admin
password	•••••••••	•••••••••
demo_storage_container_uuid	replace	38e60f89-6def-42c0-8ba4-f332f73956bb

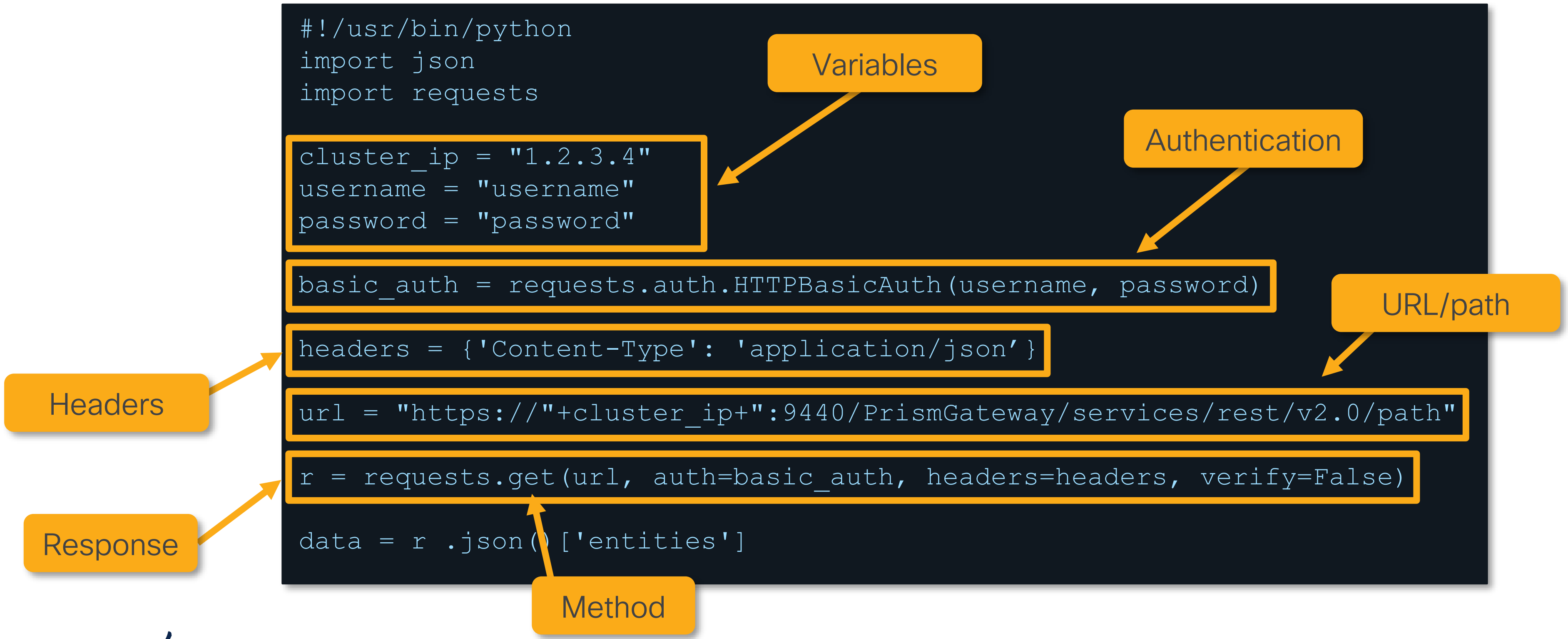
Nutanix Prism REST API
Combine and Integrate

Combine & Integrate: Scripting and IAC

- Use API calls from scripts or IAC:
  - Python, PowerShell, ...
  - Ansible, Terraform, ...

- Workflow (same as before):
  - Build requests:
    - Authentication, Headers, Path, Parameters,...
  - Execute sub-queries and parse
  - Get information or perform changes

Prism REST API - Python - Basics



```
#!/usr/bin/python
import json
import requests

cluster_ip = "1.2.3.4"
username = "username"
password = "password"

basic_auth = requests.auth.HTTPBasicAuth(username, password)

headers = {'Content-Type': 'application/json’}

url = "https://"+cluster_ip+":9440/PrismGateway/services/rest/v2.0/path"

r = requests.get(url, auth=basic_auth, headers=headers, verify=False)

data = r .json()['entities']
```

Prism REST API - Python – Get Information

Example: Get list of datastores and their space usage

1st API cal:
All storage containers

```
sc_url = "https://"+cluster_ip+":9440/PrismGateway/services/rest/v2.0/storage_containers/"

r = requests.get(sc_url, auth=basic_auth, headers=headers, verify=False)
storage_containers = r .json()['entities’]

for storage_container in storage_containers:
    sc_name = storage_container["name"]
    sc_uuid = storage_container["storage_container_uuid"]

    sc_stats_url = sc_url + sc_uuid +
    "/stats/?metrics=storage.user_container_reserved_capacity_bytes,
    storage.user_disk_physical_usage_bytes"

    r = requests.get(sc_stats_url, auth=basic_auth, headers=headers, verify=False)
    sc_reserved = r.json()["stats_specific_responses"][0]["values"][0]
    sc_used = r.json()["stats_specific_responses"][1]["values"][0]

    print("Storage container: {} - Reserved: {} - Used {}".format(sc_name, sc_reserved,
    sc_used))
```

Parse response and get storage container UUID

Iterate through results

2nd API call:
stats for each UUID

Parse results

Prism REST API - Python – Modify/Post

Example: Create new VM

```
vm_payload = {
     "description": "Demo VM created with API for DC event",
     "memory_mb": 1024,
     "name": "demo_api_vm",
     "num_vcpus": 1,
     "num_cores_per_vcpu": 1,
     "vm_disks": [{
          "is_cdrom": "false",
          "vm_disk_create": {
          "size": 128849018880,
          "storage_container_uuid": sc_uuid
}}]}
vm_data = json.dumps(vm_payload)

vm_url = "https://"+cluster_ip+":9440/PrismGateway/services/rest/v2.0/vms/"

r = requests.post(vm_url, vm_data, auth=basic_auth, headers=headers, verify=False)
print (r.status_code)
print (json.dumps(r.json(), indent=4))
```

JSON Body

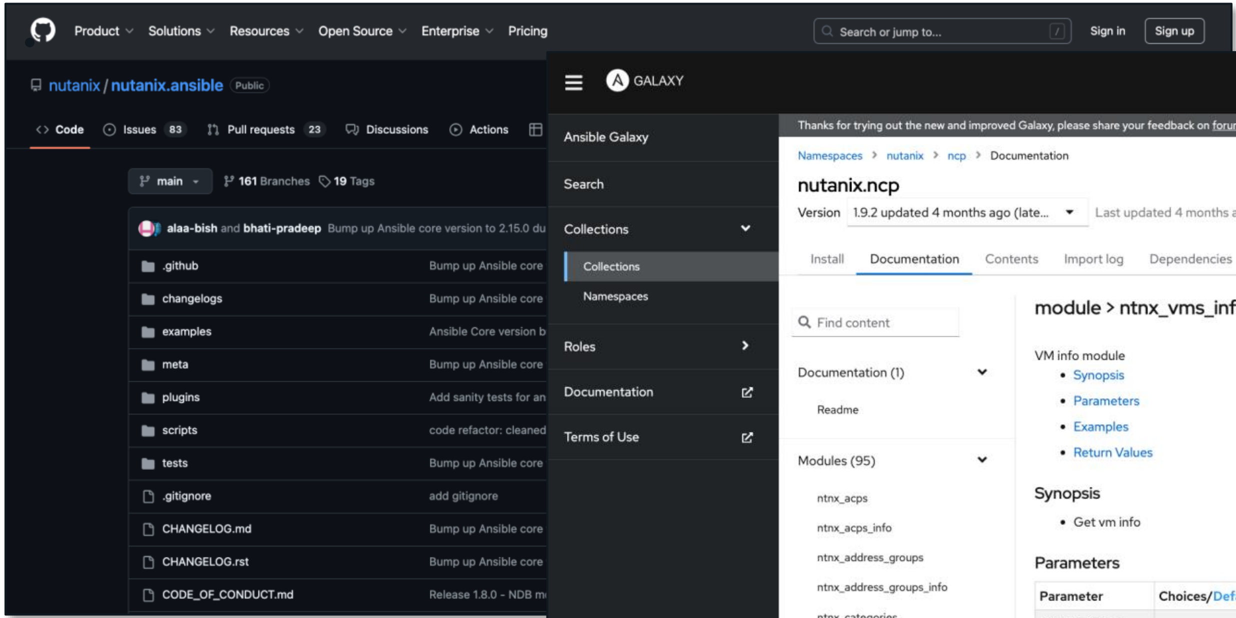
Response

POST

Prism Element and Prism Central – Ansible

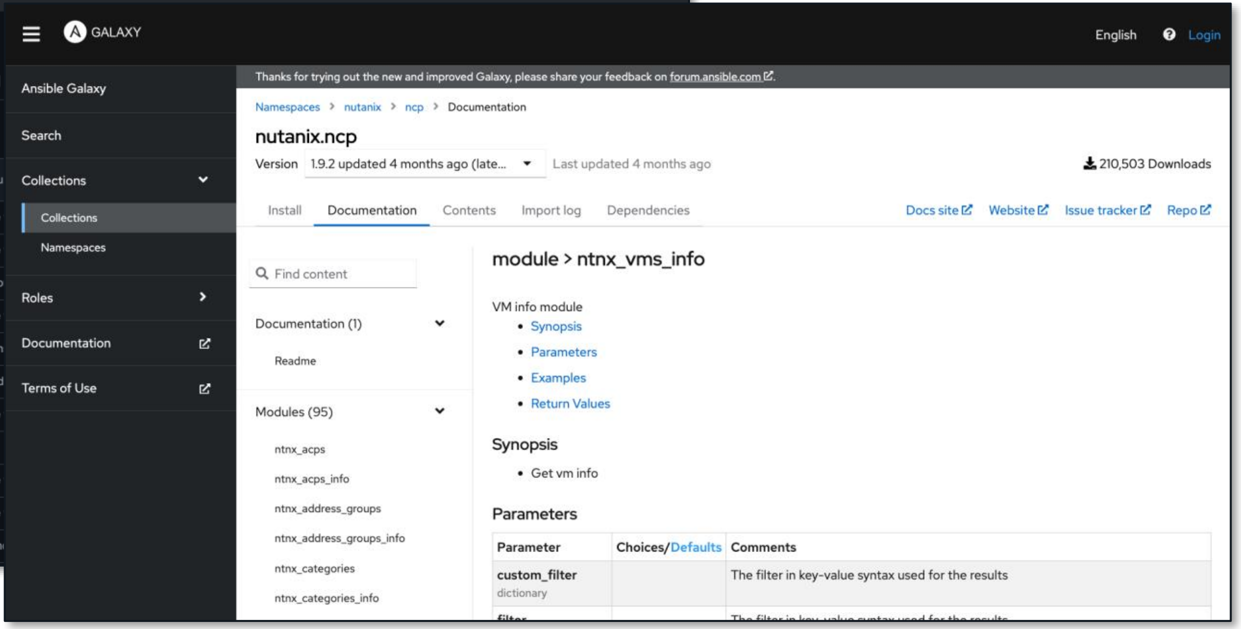
Nutanix.ncp module available for Nutanix Ansible integration

Get started: https://github.com/nutanixdev/nutanix.ansible.demo



alaa-bish and bhati-pradeep Bump up Ansible core version to 2.15.0 du

.github	Bump up Ansible core
changelogs	Bump up Ansible core
examples	Ansible Core version b
meta	Bump up Ansible core
plugins	Add sanity tests for an
scripts	code refactor: cleaned
tests	Bump up Ansible core
.gitignore	add gitignore
CHANGELOG.md	Bump up Ansible core
CHANGELOG.rst	Bump up Ansible core
CODE_OF_CONDUCT.md	Release 1.8.0 - NDB m



Thanks for trying out the new and improved Galaxy, please share your feedback on forum.ansible.com.

Namespaces > nutanix > ncp > Documentation

nutanix.ncp

Version 1.9.2 updated 4 months ago (late... Last updated 4 months ago 210,503 Downloads

ntnx_acps
ntnx_acps_info
ntnx_address_groups
ntnx_address_groups_info
ntnx_categories
ntnx_categories_info

module > ntnx_vms_info

VM info module

- Synopsis
- Parameters
- Examples
- Return Values

Synopsis

- Get vm info

Parameters

Parameter	Choices/Defaults	Comments
custom_filter dictionary		The filter in key-value syntax used for the results
filter		The filter in key-value syntax used for the results

Prism Element and Prism Central – Ansible

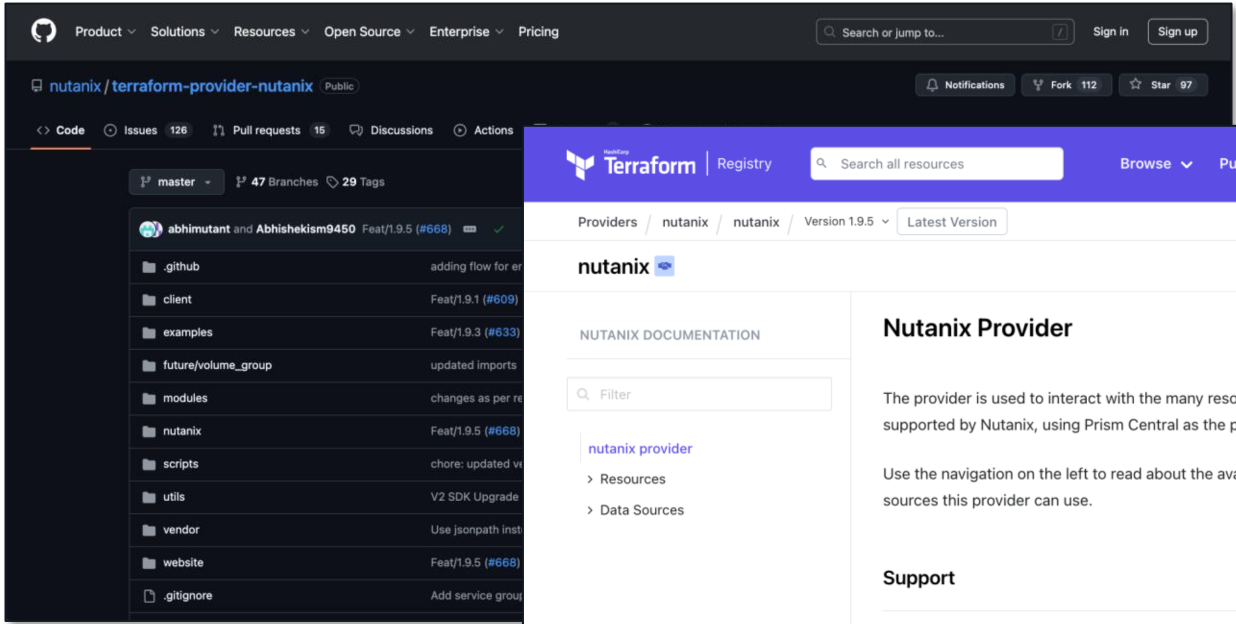
Example

```
---
- name: Test VM actions
  hosts: localhost
  gather_facts: false
  collections:
    - nutanix.ncp
  module_defaults:
    group/nutanix.ncp.ntnx:
      nutanix_host: "1.2.3.4"
      nutanix_username: "username"
      nutanix_password: "password"
      validate_certs: false

  tasks:
  - name: Get VM UUID using name
    ntnx_vms_info:
      filter:
        vm_name: "testVM"
      kind: vm
    register: result

  - name: Set variables
    set_fact:
     vm_uuid: '{{ result.response.entities[0].uuid }}'
```

```
- name: Power off VM
    ntnx_vms:
      state: hard_poweroff
      vm_uuid: "{{ vm_uuid }}"

  - name: Clone vm and add network and script
    ntnx_vms_clone:
      state: present
      src_vm_uuid: "{{ vm_uuid }}"
      networks:
      - is_connected: true
        subnet:
          name: "{{ subnet_name }}"
      guest_customization:
        type: "cloud_init"
        script_path: "{{ script_path }}"
        is_overridable: True
```

Prism Element Automation – Terraform

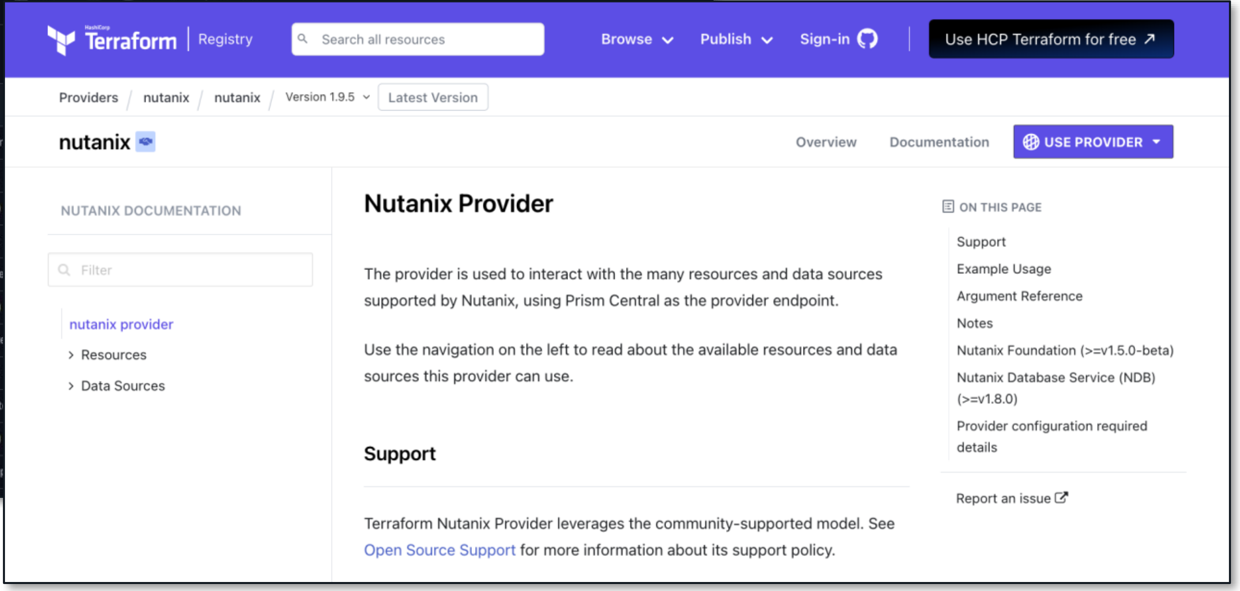
Nutanix Provider available for Nutanix API v3 Terraform integration



nutanix / terraform-provider-nutanix Public

abhimutant and Abhishekism9450 Feat/1.9.5 (#668)

.github	adding flow for er
client	Feat/1.9.1 (#609)
examples	Feat/1.9.3 (#633)
future/volume_group	updated imports
modules	changes as per re
nutanix	Feat/1.9.5 (#668)
scripts	chore: updated ve
utils	V2 SDK Upgrade
vendor	Use jsonpath inst
website	Feat/1.9.5 (#668)
.gitignore	Add service grou



nutanix

Nutanix Provider

The provider is used to interact with the many resources and data sources supported by Nutanix, using Prism Central as the provider endpoint.

Use the navigation on the left to read about the available resources and data sources this provider can use.

Support

Terraform Nutanix Provider leverages the community-supported model. See Open Source Support for more information about its support policy.

ON THIS PAGE
- Support
- Example Usage
- Argument Reference
- Notes
- Nutanix Foundation (>=v1.5.0-beta)
- Nutanix Database Service (NDB) (>=v1.8.0)
- Provider configuration required details

Report an issue

Intersight API

Intersight API – Generic Workflow

Create **API Key** once

Sign requests using Key ID and Key Secret (RSA private key)

Get Information

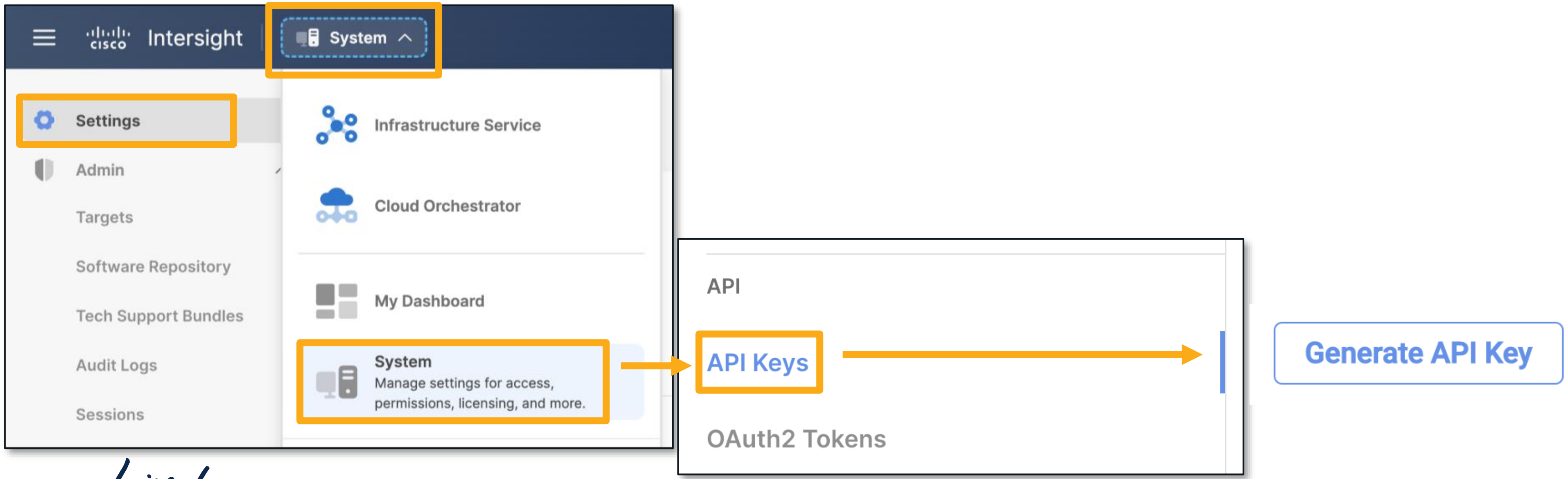
- (API calls to collect parameters)
- API call to fetch information
- Check result and parse response

Change something

- Build API call and supply info
- Send data with API call
- Check result

Intersight REST API – Create API Key

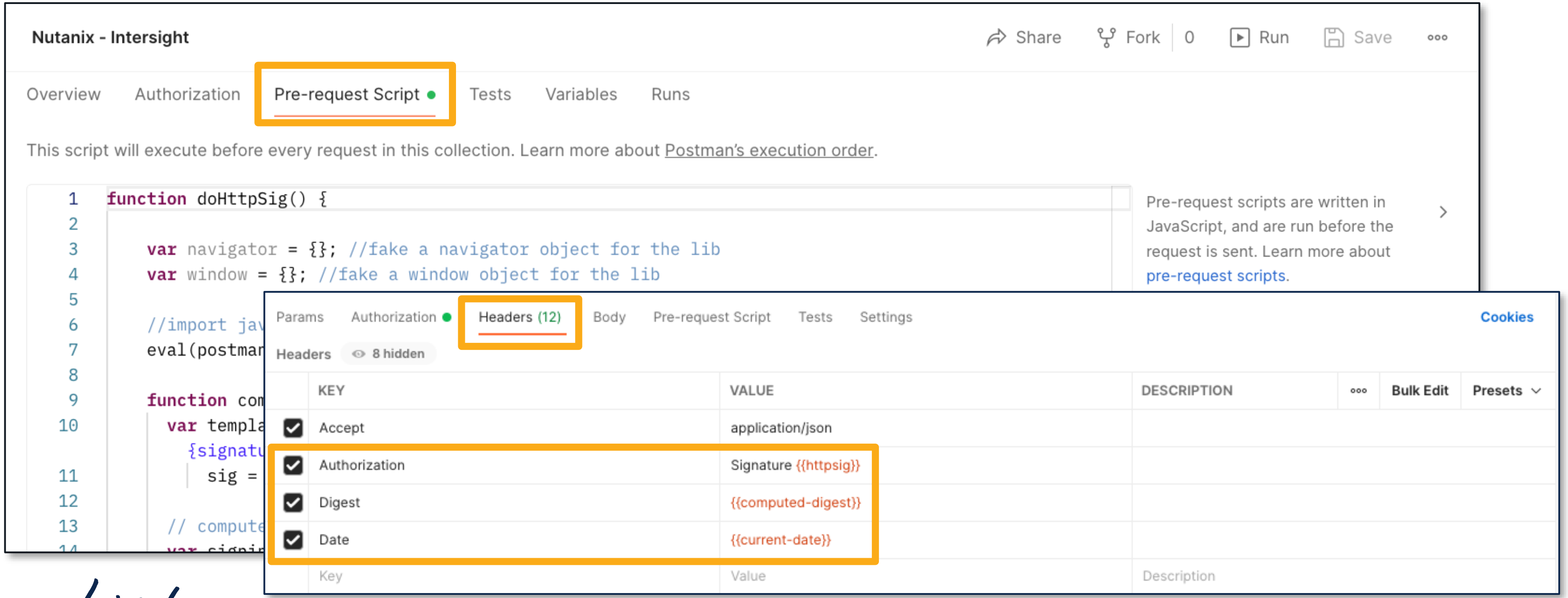
- Intersight > System > API Keys > Generate
  - No credentials are sent to Intersight
  - Easy to generate/revoke separate API keys and track/audit usage



Intersight REST API – Postman Authentication

HTTP signing with API key requires pre-request script

https://github.com/jensdepuydt/cisco_hx_api



This script will execute before every request in this collection. Learn more about Postman's execution order.

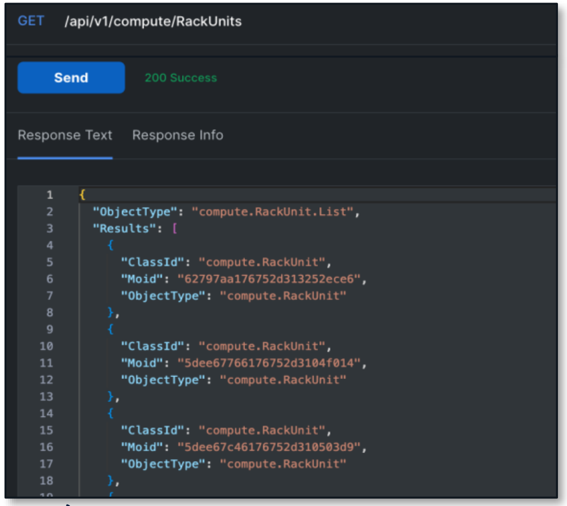
```
function doHttpSig() {

    var navigator = {}; //fake a navigator object for the lib
    var window = {}; //fake a window object for the lib

    //import jav
    eval(postman

    function com
      var templa
        {signatu
        sig =

      // compute
      var signi
```

Pre-request scripts are written in JavaScript, and are run before the request is sent. Learn more about pre-request scripts.

	KEY	VALUE	DESCRIPTION
✓	Accept	application/json	
✓	Authorization	Signature {{httpsig}}	
✓	Digest	{{computed-digest}}	
✓	Date	{{current-date}}	
	Key	Value	Description

Intersight REST API - Usage

- Moid = Managed Object ID instead of UUID
- Object ID (UCS server, Drive, VLAN, Policy, Profile,...)
  - Example: compute/RackUnits/5dee60bb656c6c2d3011bf75

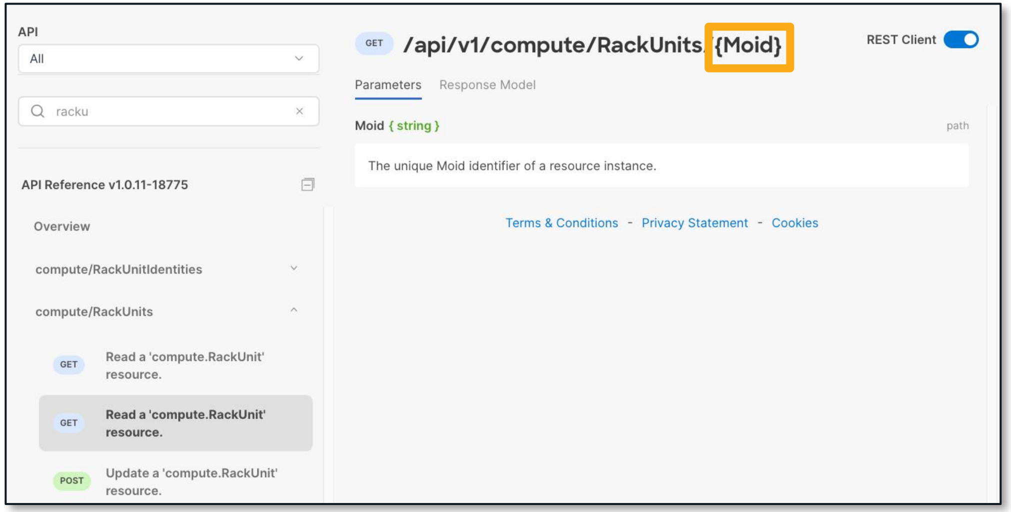


GET /api/v1/compute/RackUnits

Send 200 Success

Response Text Response Info

```
{
  "ObjectType": "compute.RackUnit.List",
  "Results": [
    {
      "ClassId": "compute.RackUnit",
      "Moid": "62797aa176752d313252ece6",
      "ObjectType": "compute.RackUnit"
    },
    {
      "ClassId": "compute.RackUnit",
      "Moid": "5dee67766176752d3104f014",
      "ObjectType": "compute.RackUnit"
    },
    {
      "ClassId": "compute.RackUnit",
      "Moid": "5dee67c46176752d310503d9",
      "ObjectType": "compute.RackUnit"
    },
```



API

All

racku

API Reference v1.0.11-18775

Overview

compute/RackUnitIdentities

compute/RackUnits

GET Read a 'compute.RackUnit' resource.

GET Read a 'compute.RackUnit' resource.

POST Update a 'compute.RackUnit' resource.

GET /api/v1/compute/RackUnits/{Moid}

REST Client

Parameters Response Model

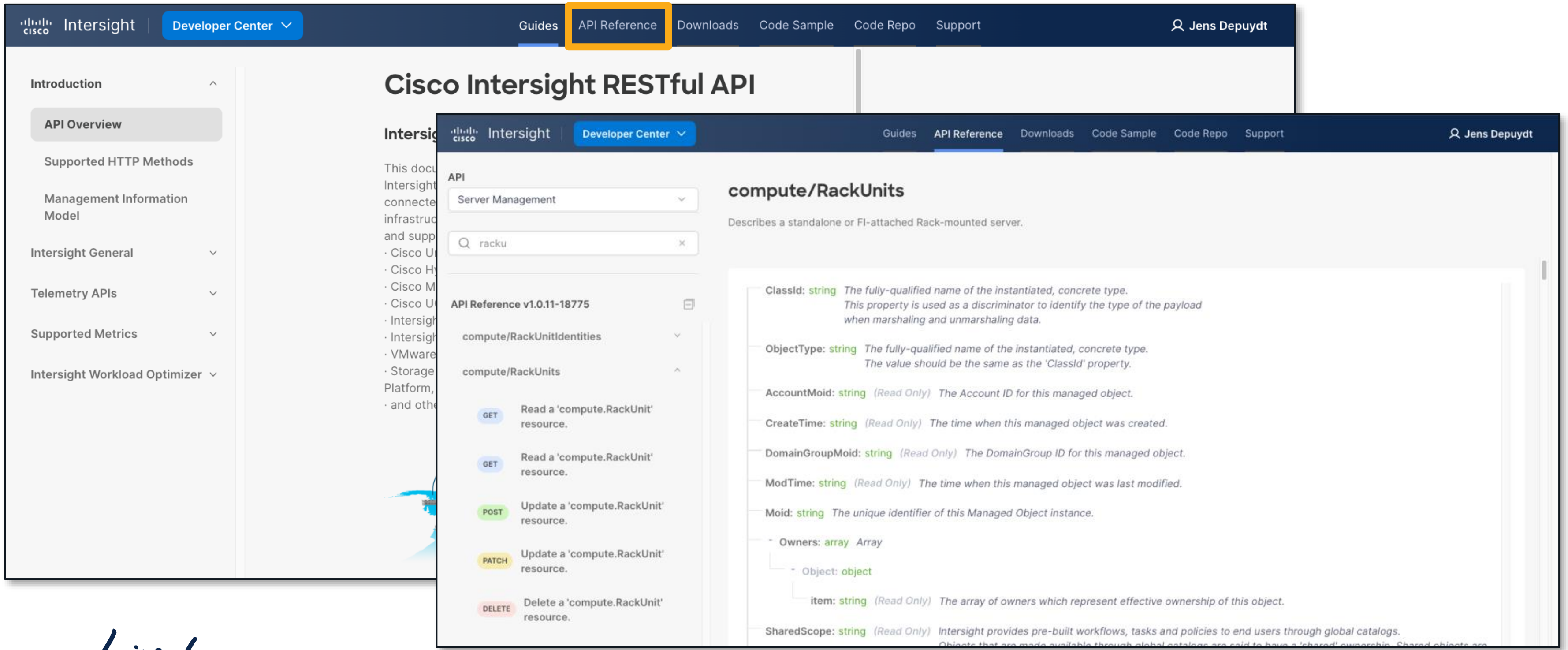
Moid { string } path

The unique Moid identifier of a resource instance.

Terms & Conditions - Privacy Statement - Cookies

Intersight REST API – API Reference

Documentation: https://intersight.com/apidocs



Cisco Intersight RESTful API

Intersi

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· Cisco U
· Cisco H
· Cisco M
· Cisco U
· Intersigh
· Intersigh
· VMware
· Storage
Platform,
· and oth

GET Read a 'compute.RackUnit' resource.

GET Read a 'compute.RackUnit' resource.

POST Update a 'compute.RackUnit' resource.

PATCH Update a 'compute.RackUnit' resource.

DELETE Delete a 'compute.RackUnit' resource.

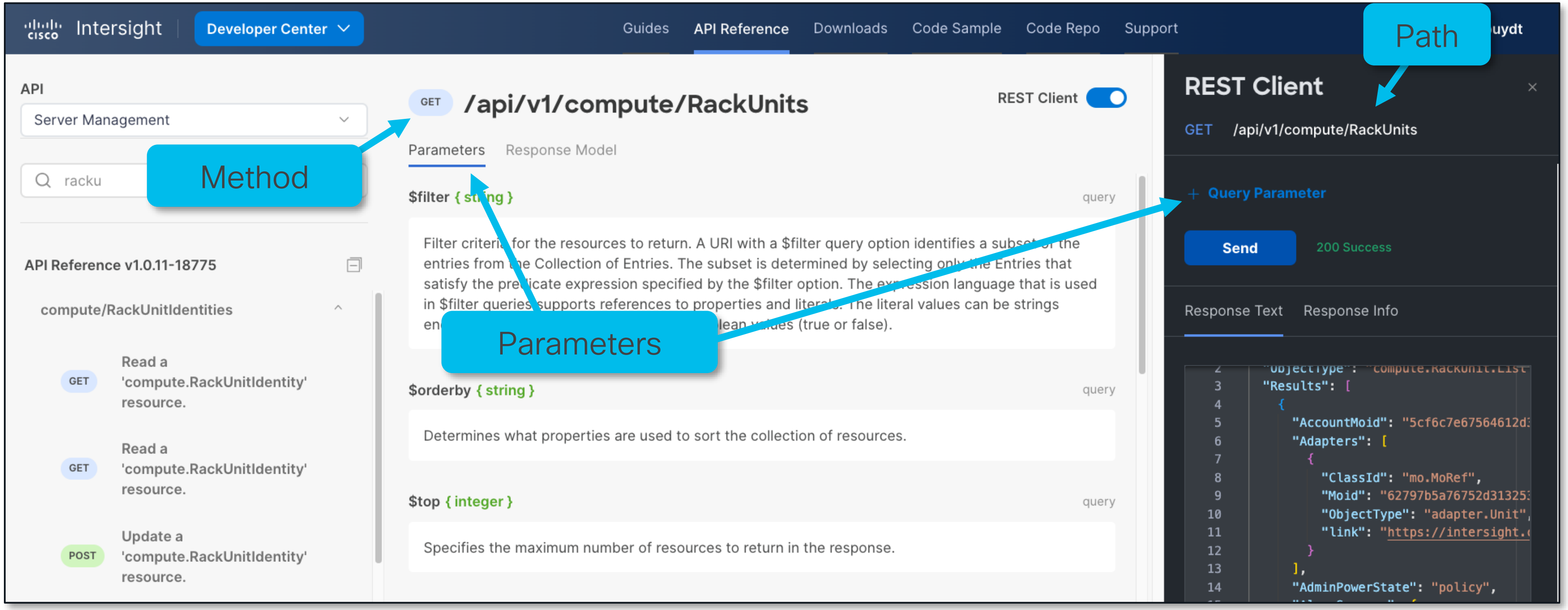
compute/RackUnits

Describes a standalone or FI-attached Rack-mounted server.

```
ClassId: string  The fully-qualified name of the instantiated, concrete type.
                 This property is used as a discriminator to identify the type of the payload
                 when marshaling and unmarshaling data.
ObjectType: string  The fully-qualified name of the instantiated, concrete type.
                    The value should be the same as the 'ClassId' property.
AccountMoid: string  (Read Only)  The Account ID for this managed object.
CreateTime: string  (Read Only)  The time when this managed object was created.
DomainGroupMoid: string  (Read Only)  The DomainGroup ID for this managed object.
ModTime: string  (Read Only)  The time when this managed object was last modified.
Moid: string  The unique identifier of this Managed Object instance.
- Owners: array  Array
  - Object: object
     item: string  (Read Only)  The array of owners which represent effective ownership of this object.
SharedScope: string  (Read Only)  Intersight provides pre-built workflows, tasks and policies to end users through global catalogs.
```

Intersight REST API – API Reference

Find Information and use built-in REST client



API

Server Management

racku

API Reference v1.0.11-18775

compute/RackUnitIdentities

GET Read a 'compute.RackUnitIdentity' resource.

GET Read a 'compute.RackUnitIdentity' resource.

POST Update a 'compute.RackUnitIdentity' resource.

GET /api/v1/compute/RackUnits

$filter { st ng } query

Filter criteri for the resources to return. A URI with a $filter query option identifies a subs the entries from e Collection of Entries. The subset is determined by selecting onl e Entries that satisfy the pre icate expression specified by the $filter option. The e ession language that is used in $filter queries supports references to properties and liter The literal values can be strings en lean values (true or false).

$orderby { string } query

Determines what properties are used to sort the collection of resources.

$top { integer } query

Specifies the maximum number of resources to return in the response.

REST Client

GET /api/v1/compute/RackUnits

200 Success

```
  "ObjectType": "compute.RackUnit.List
  "Results": [
    {
      "AccountMoid": "5cf6c7e67564612d
      "Adapters": [
        {
          "ClassId": "mo.MoRef",
          "Moid": "62797b5a76752d31325
          "ObjectType": "adapter.Unit",
          "link": "https://intersight.
        }
      ],
      "AdminPowerState": "policy",
```

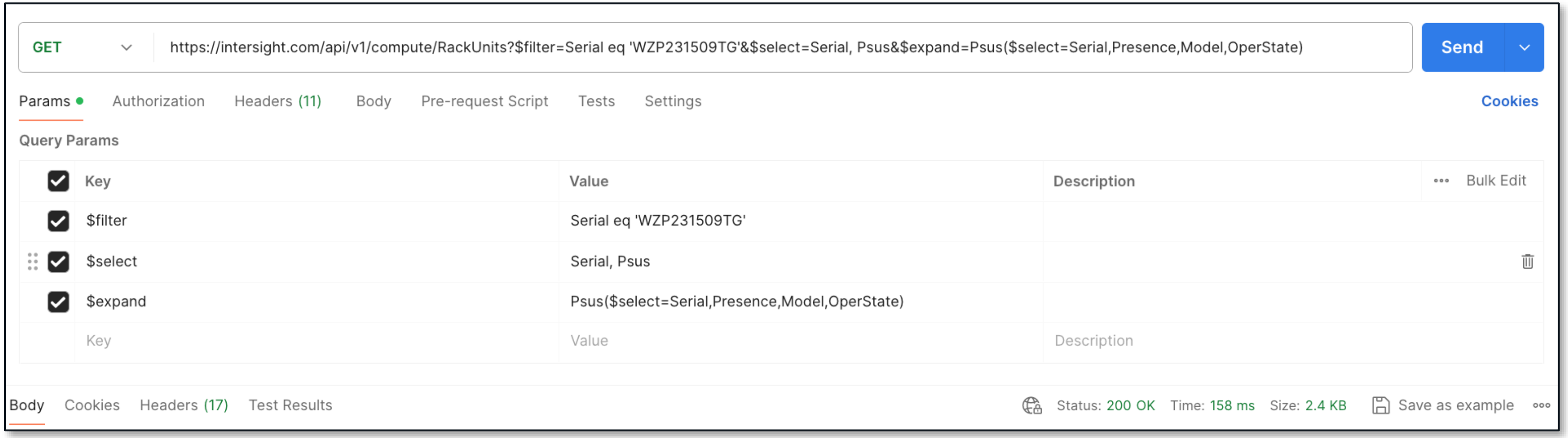
Intersight REST API - Usage

- Use parameters to further optimize queries
- $filter: Filter objects
  Example: storage/PhysicalDisks?$filter=DiskState eq 'fault’
- $select: Select properties
  Example: storage/PhysicalDisks?$select=Model, Serial, DiskState
- $expand: Expand referenced objects
  Example: RackUnits?$expand=Psus($select=Serial,Presence)
- $count: count results of query
- $apply: aggregation, min, max, avg (for example memory usage)
- ...

Intersight REST API - Example

Example: list PSU details for one rack-unit server

- $filter to show results for specific server
- $select to limit output to Serial, PSU info and status
- $expand to unfold PSU-object with details instead of just Moid



GET https://intersight.com/api/v1/compute/RackUnits?$filter=Serial eq 'WZP231509TG'&$select=Serial, Psus&$expand=Psus($select=Serial,Presence,Model,OperState)

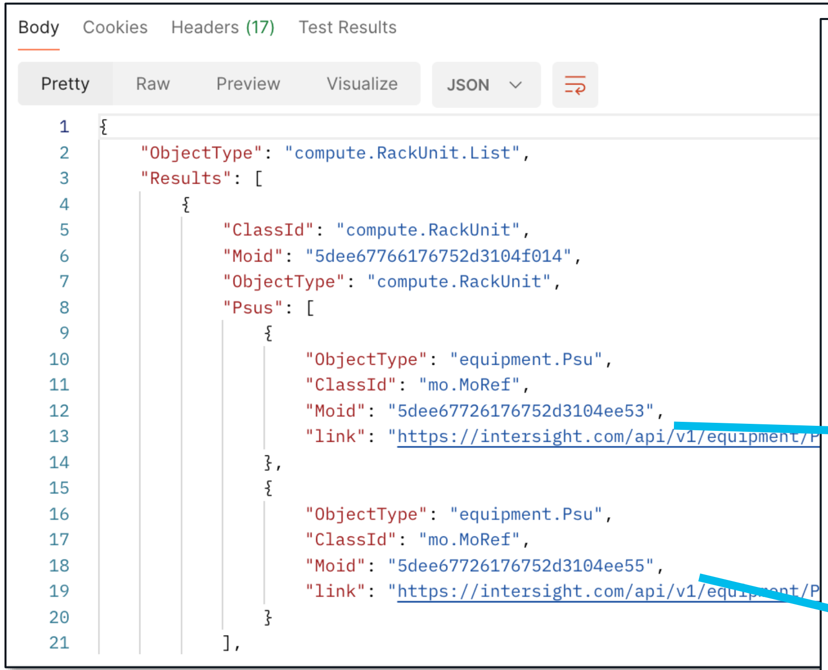
Query Params

	Key	Value	Description
✓	$filter	Serial eq 'WZP231509TG'	
✓	$select	Serial, Psus	
✓	$expand	Psus($select=Serial,Presence,Model,OperState)	
	Key	Value	Description

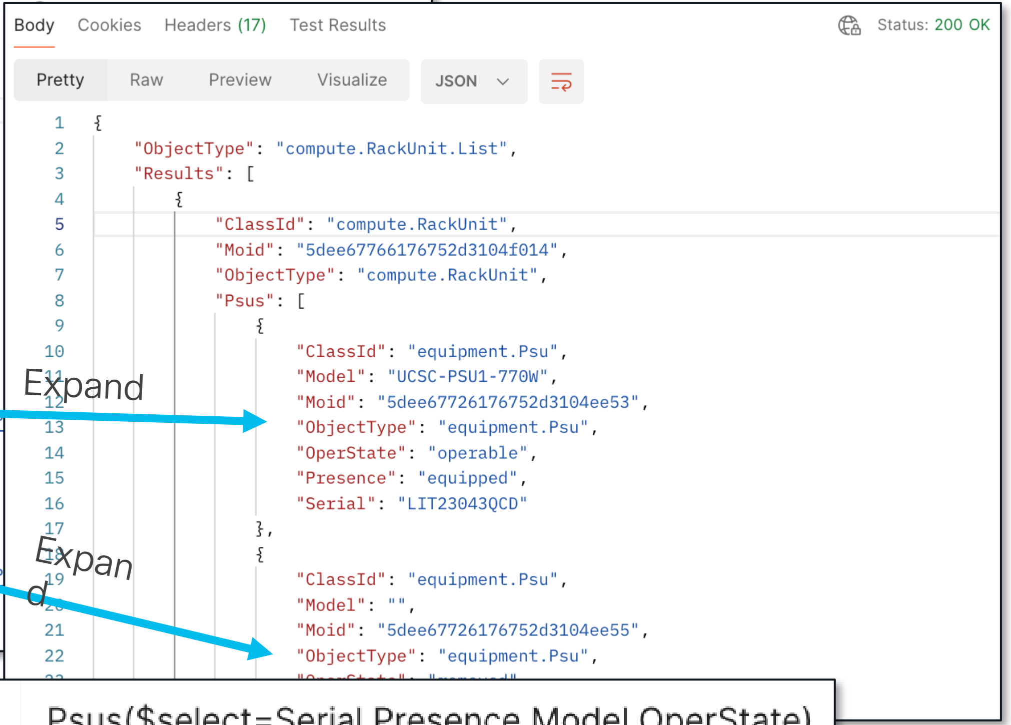
Status: 200 OK Time: 158 ms Size: 2.4 KB

Intersight REST API - Example

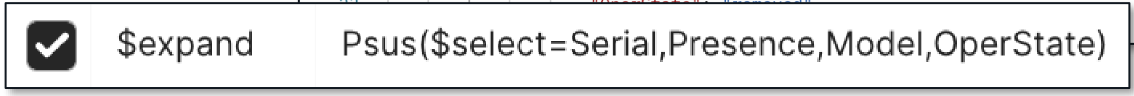
Example: list PSU details for one rack-unit server



```
{
    "ObjectType": "compute.RackUnit.List",
    "Results": [
        {
            "ClassId": "compute.RackUnit",
            "Moid": "5dee67766176752d3104f014",
            "ObjectType": "compute.RackUnit",
            "Psus": [
                {
                    "ObjectType": "equipment.Psu",
                    "ClassId": "mo.MoRef",
                    "Moid": "5dee67726176752d3104ee53",
                    "link": "https://intersight.com/api/v1/equipment/P
                },
                {
                    "ObjectType": "equipment.Psu",
                    "ClassId": "mo.MoRef",
                    "Moid": "5dee67726176752d3104ee55",
                    "link": "https://intersight.com/api/v1/equipment/P
                }
            ],
```



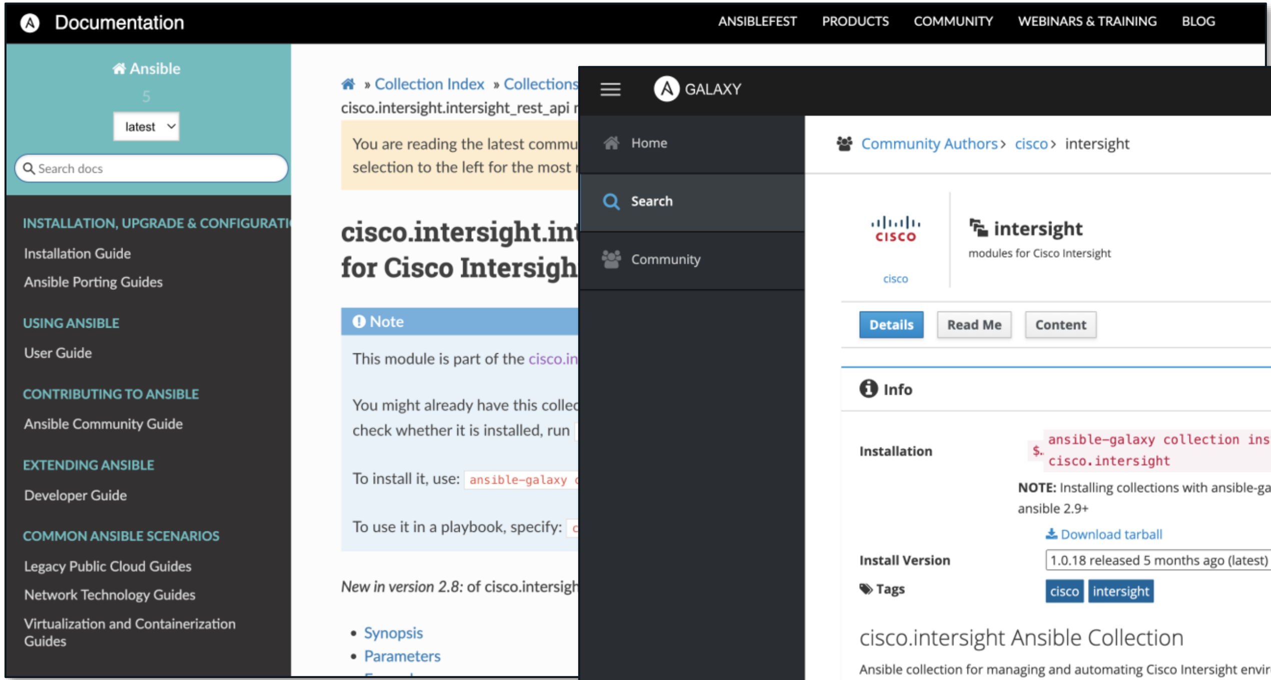
```
{
    "ObjectType": "compute.RackUnit.List",
    "Results": [
        {
            "ClassId": "compute.RackUnit",
            "Moid": "5dee67766176752d3104f014",
            "ObjectType": "compute.RackUnit",
            "Psus": [
                {
                    "ClassId": "equipment.Psu",
                    "Model": "UCSC-PSU1-770W",
                    "Moid": "5dee67726176752d3104ee53",
                    "ObjectType": "equipment.Psu",
                    "OperState": "operable",
                    "Presence": "equipped",
                    "Serial": "LIT23043QCD"
                },
                {
                    "ClassId": "equipment.Psu",
                    "Model": "",
                    "Moid": "5dee67726176752d3104ee55",
                    "ObjectType": "equipment.Psu",
```



✓	$expand	Psus($select=Serial,Presence,Model,OperState)

Intersight REST API - Ansible

Use cisco.intersight.intersight_ modules



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Network Technology Guides
Virtualization and Containerization Guides

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cisco.intersight.intersight_rest_api

You are reading the latest commu
selection to the left for the most

cisco.intersight.int
for Cisco Intersigh

Note

This module is part of the cisco.in

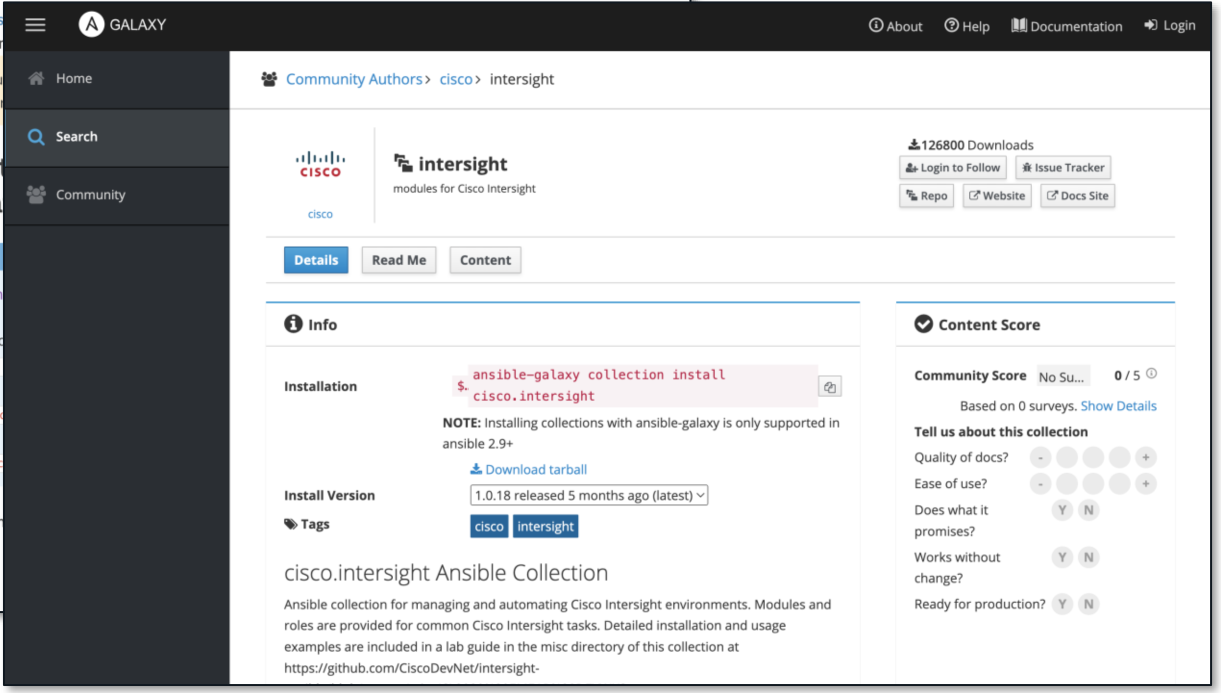
You might already have this colle
check whether it is installed, run

To install it, use: `ansible-galaxy c`

To use it in a playbook, specify:

New in version 2.8: of cisco.intersigh

- Synopsis
- Parameters



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modules for Cisco Intersight

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Info

Installation `$ ansible-galaxy collection install cisco.intersight`

NOTE: Installing collections with ansible-galaxy is only supported in ansible 2.9+

Download tarball

Install Version 1.0.18 released 5 months ago (latest)

Tags cisco intersight

cisco.intersight Ansible Collection

Ansible collection for managing and automating Cisco Intersight environments. Modules and roles are provided for common Cisco Intersight tasks. Detailed installation and usage examples are included in a lab guide in the misc directory of this collection at https://github.com/CiscoDevNet/intersight-

Content Score

Community Score No Su... 0 / 5

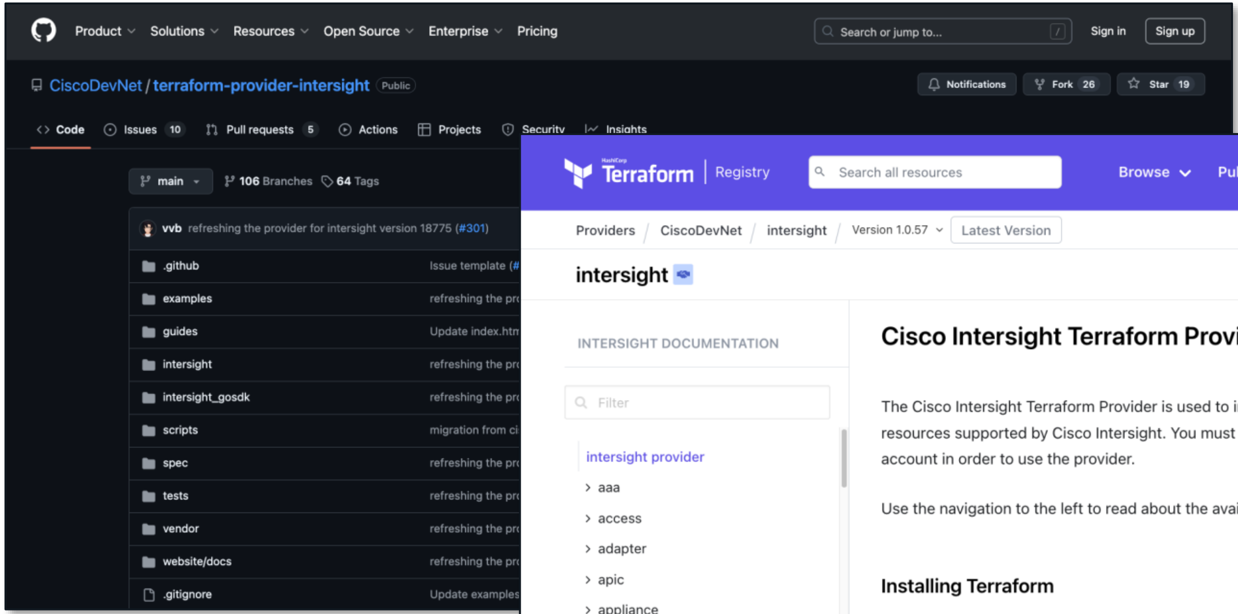
Based on 0 surveys. Show Details

Tell us about this collection

Quality of docs?
Ease of use?
Does what it promises? Y N
Works without change? Y N
Ready for production? Y N

Intersight Automation - Terraform

Cisco Intersight Provider available for Intersight API Terraform integration



CiscoDevNet / terraform-provider-intersight Public

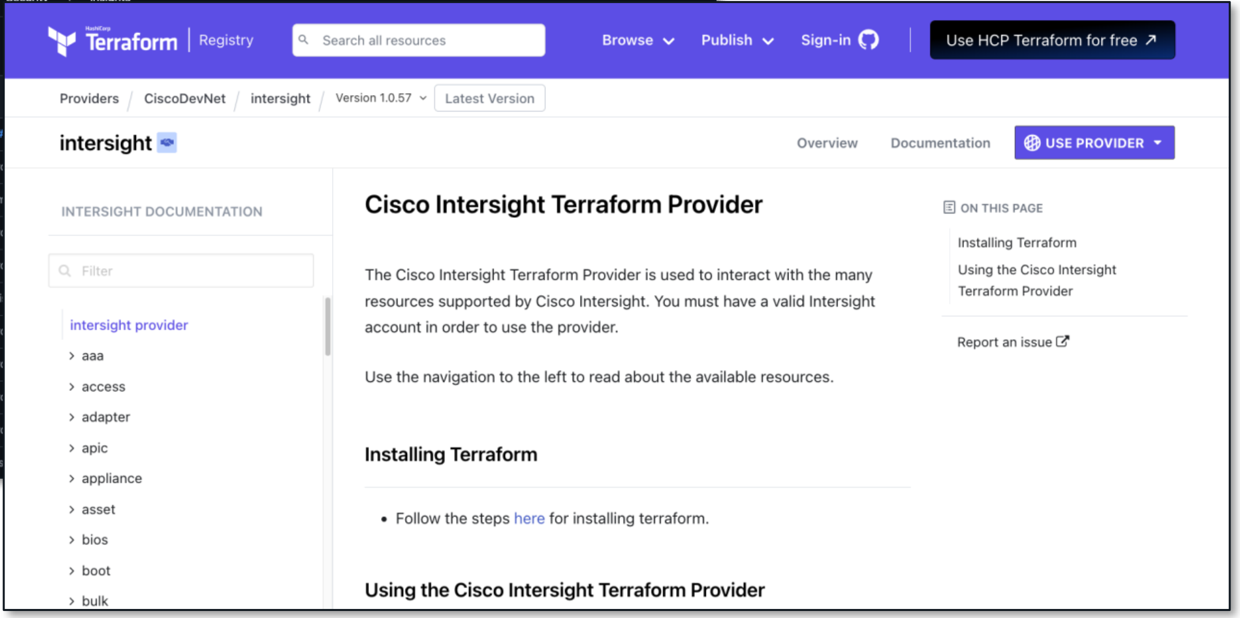
Notifications · Fork 26 · Star 19

Code · Issues 10 · Pull requests 5 · Actions · Projects · Security · Insights

main · 106 Branches · 64 Tags

vvb refreshing the provider for intersight version 18775 (#301)

.github	Issue template (#
examples	refreshing the pr
guides	Update index.htm
intersight	refreshing the pr
intersight_gosdk	refreshing the pr
scripts	migration from ci
spec	refreshing the pr
tests	refreshing the pr
vendor	refreshing the pr
website/docs	refreshing the pr
.gitignore	Update examples



Providers / CiscoDevNet / intersight / Version 1.0.57 · Latest Version

intersight

Overview · Documentation · USE PROVIDER

INTERSIGHT DOCUMENTATION

Filter

- intersight provider
- aaa
- access
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Cisco Intersight Terraform Provider

The Cisco Intersight Terraform Provider is used to interact with the many resources supported by Cisco Intersight. You must have a valid Intersight account in order to use the provider.

Use the navigation to the left to read about the available resources.

Installing Terraform

- Follow the steps here for installing terraform.

Using the Cisco Intersight Terraform Provider

ON THIS PAGE

- Installing Terraform
- Using the Cisco Intersight Terraform Provider

Report an issue

Summary

Summary

Prism v2 API for single-cluster operations throuhg Prism Element

Prism v3 API for multi-cluster operations through Prism Central

Intersight API to manage Cisco hardware and status

Nutanix.ncp and Cisco.intersight modules for Ansible

Nutanix and Cisco Intersight providers for Terraform

- More information:
  - Devnet for Intersight: https://developer.cisco.com/site/intersight/
  - API Reference on Nutanix.dev: https://www.nutanix.dev/api-reference/
  - Nutanix Bible on APIs: https://www.nutanixbible.com/19a-rest-apis.html

Intersight

Intersight is an industry-leading infrastructure lifecycle automation platform for Cisco HyperFlex and Cisco Unified Computing System. Intersight offers an intelligent level of management that enables IT organizations to analyze, simplify, and automate their environments.

Manage your infrastructure as code

Cisco Intersight provides intelligent cloud-based infrastructure management for the Cisco Unified Computing System (Cisco UCS), Cisco HyperFlex platforms, and other third-party Intersight-connected targets.

Webex App

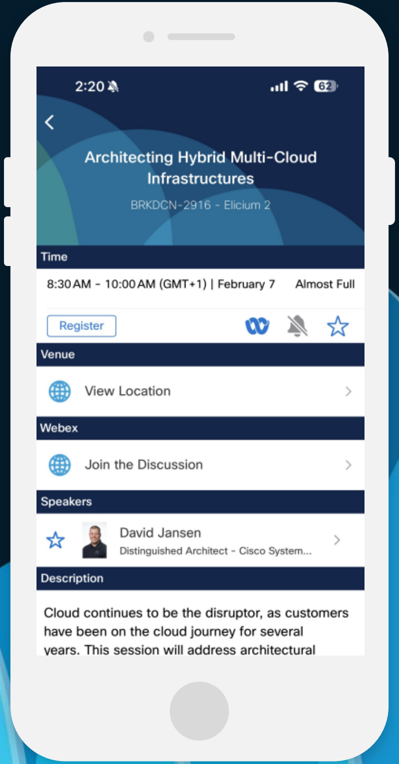
Questions?

Use the Webex app to chat with the speaker after the session

How

1. Find this session in the Cisco Events mobile app
2. Click “Join the Discussion”
3. Install the Webex app or go directly to the Webex space
4. Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until February 28, 2025.


2:20
Architecting Hybrid Multi-Cloud Infrastructures
BRKDCN-2916 - Elicium 2
Time
8:30 AM - 10:00 AM (GMT+1) | February 7
Almost Full
Register
Venue
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Webex
Join the Discussion
Speakers
David Jansen
Distinguished Architect - Cisco System...
Description

Cloud continues to be the disruptor, as customers have been on the cloud journey for several years. This session will address architectural

Fill Out Your Session Surveys

Participants who fill out a minimum of 4 session surveys and the overall event survey will get a unique Cisco Live t-shirt.

(from 11:30 on Thursday, while supplies last)

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Content Catalog

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Thank you

GO **BEYOND**