Resources (WC)

Introduction

For information on how to access the API and API authorization see: Obtaining API Keys.

The resource service has a GET API that is used to query data in the store.

The GET command will retrieve the resource definitions.

With the introduction of the *runcws* nodejs module (see Getting Started with Workloads) it is possible to use the runcws tool to query resources and get much of the same information as the GET API methods provide. This interface will be preferred when working with workloads.

Resource service is based on ontological concepts.

The ontology of a resource service can be described by its data schema. The schema defines which attributes are returned during a query search and which attributes can be added to a resource during CRUD operations. The ontology is described in various .ttl files. The documentation below provides some examples of API calls and return values. For a full list of all possible return elements see Resource Schema.

Resource API Methods

Query Resources

This method is used to search and discover available computing resources based on a wide variety of filtering options.

In general, query resource requests have the following formats:

> *HTTP GET Request:*
>
> *GET /resourceQuery/query/{*resourceType*}*

or in a browser window:

```
<https://cws.computenext.com/api/resourceQuery/query/{*resourceType*}>
```

or using runcws at the command-line in a terminal window:

> *>node runcws.js query {*resourceType*}*

The current *resourceType* identifiers for use in the above tools/interfaces are:

- virtualMachine
- volumeStorage
- keyPair
- securityGroup
- image
- instanceType
- softwareType
- loadBalancer - for load distribution across running instances using selectable algorithms
- package - software packages provisionable by Chef on various operating system platforms

Note: See the list of resourceTypes for instances in section Instances.

Example: To query all image resources, one can use either of the following methods:

Using an HTTPS request in a browser:

> *https://cws.computenext.com/api/resourceQuery/query/virtualMachine*

or using the *runcws* command (Getting Started with Workloads) we get the following output for querying the images:

```
>node runcws.js query virtualMachine
```

Response:

```
[
        {
                "zone": "singapore",
                "tier": "4",
                "slaSummary": "http://www.cloudiro.com/tos.html",
                "platform": "OnApp",
                "numberOfNines": "4",
                "location": "Singapore, Singapore",
                "connectorType": "onapp.compute",
                "uri": "vx/cloudiro/singapore/9bc2d15622d3c26242a32c436a665e78",
                "Benefits": "<p>We love technology and helping our customers. Cloudiro is a team of
developers, possessing relevant experience and knowledge in cloud solutions. We understand what it takes to
provide the best value for money Cloud solutions for businesses. Designing simple yet intuitive user
interfaces that allows you to control your account very easily is also what we believe in.</p>",
                "description": "Cloudiro Small VM with OpenSUSE 12.1 64 Bit",
                "DetailedDescription": "<p>openSUSE is a free and Linux-based operating system for your PC,
Laptop or Server. You can surf the web, manage your e-mails and photos, do office work, play videos or
music and have a lot of fun!<p><br/>License Information : Open License</p>",
                "name": "Cloudiro Small VM with OpenSUSE 12.1",
                "providerResourceId": "9bc2d15622d3c26242a32c436a665e78",
                "ShortDescription": "<p><strong>Minimum System Requirements:</strong></p><p><strong>CPU
Count:</strong> 1 / <strong>RAM:</strong> 1GB / <strong>Storage:</strong> 10GB</p>",
                "instanceTypeName": "Small VM",
                "instanceTypeUri": "vm/cloudiro/singapore/small",
                "imageName": "OpenSUSE 12.1",
                "imageUri": "image/cloudiro/singapore/201",
                "costPerUnit": "25 USD",
                "costUnit": "per month",
                "isAvailable": "1",
                "provider": "Cloudiro",
                "region": "Singapore",
                "id": "vx_cloudiro_singapore_9bc2d15622d3c26242a32c436a665e78",
                "providerId": "cloudiro",
                "rank": "vx_cloudiro_singapore_9bc2d15622d3c26242a32c436a665e78",
                "created": "2014-11-03T11:39:14.357Z",
                "updated": "2014-11-03T11:39:14.357Z",
                "atReadLimit": 300
        }
]
```


Returns:

A list of resource objects that match the query parameters.

Important: This method uses pagination and the example above is the last entry in the list.

> *If "atReadLimit": 200 appears as it does above then there are more results. To view more results pass in the created parameter as show below to view the next page of entries.*

Example:

https://cws.computenext.com/api/resourceQuery/query/virtualMachine?from=2014-11-03T11:39:14.357Z

Retrieve Region Details

This method retrieves the list of details on all the available provider regions.

Request:

GET /api/resourceQuery/region

Or using the *runcws* command (see Getting Started with Workloads): >node runcws.js region

Example:

https://cws.computenext.com/api/resourceQuery/region

Or using the runcws command:

```
node runcws.js region
```

```
[
    {
        "benefits": "<p>* CloudSigma platform powered IaaS<br />* High reliability and high performance
guarantee<br />* Carbon neutral cloud compute resources. Green initiative.<br />* 5 minute billing
capability of CloudSigma platform [soon to be included in ComputeNext Marketplace]<br /><br /></p>",
        "capabilities": "https://www.computenext.com/cloudfederation/instance#Resource-Capabilities-dababfc
f-0769-4dae-a248-2b1b337fedee",
        "connectorType": "ComputeNext.CloudFederation.ProviderGateway.CloudSigma.CloudSigmaProvider",
        "description": "Zurich, Switzerland",
        "detailedDescription": "<p>CloudSigma is an innovative Infrastructure-as-a-Service (IaaS) provider.
We provide high availability, flexible cloud servers and cloud hosting in both Europe and the US.
CloudSigma was chosen as one of the top 25 European cloud companies for 2010. The founders of CloudSigma
were frustrated with the current market offerings which required users to jump through hoops to migrate
their current server setups to the cloud. Further, many other IaaS offerings placed restrictions on the
operating systems that could be used, the size of servers available and more; servers that disappear when
stopped, storage that wasn't persistent etc. The CloudSigma product was developed to directly address these
issues.</p> <p>We are 100% focused on delivering world class computing performance and service to our
customers in a flexible and straightforward manner. Choosing CloudSigma as your cloud hosting partner means
choosing a company that genuinely cares about its working relationships. We view our role very much a
partnership, providing a solid foundation on which our customers build out their computing infrastructure
and businesses over time. Having a valued partner who understands your business and is able to assist and
support when needed is critical.<br/><a href='http://www.cloudsigma.com/legal/terms-of-service/'
target='_blank'><strong>Provider SLA<strong></a></p>",
        "featured": "true",
        "id": "dababfcf-0769-4dae-a248-2b1b337fedee",
        "isAvailable": "1",
        "longDescription": "{\"Provider\": \"CloudSigma-Zurich\", \"Provider ID\": \"f4231561-7011-4e1b-ad0
b-dc492abbccd0\", \"Platform\": \"KVM\", \"SLA Summary\": \"CloudSigma is a provider of managed hosting,
colocation and managed services that extend and enhance your company's technology infrastructuree\", \"Tier
\": \"3\", \"Number of Nines\": \"4\", \"Zone\": \"Zurich\"}",
        "name": "Zurich",
        "numberOfNines": "4",
        "platform": "KVM",
        "provider": "CloudSigma-Zurich",
        "providerInfoId": "f4231561-7011-4e1b-ad0b-dc492abbccd0",
        "slaSummary": "CloudSigma is a provider of managed hosting, colocation and managed services that
extend and enhance your company's technology infrastructuree",
        "supportedActions": "http://www.computenext.com/cloudfederation/instance#Resource-Actions-dababfcf-
0769-4dae-a248-2b1b337fedee",
        "tier": "3",
        "zone": "Zurich",
        "type": "http://www.computenext.com/cloudfederation#Region"
    },
    {
        ......
    },
    {
        ......
    }
]
```


Returns:

The details of every provider region

Retrieve Region Properties

This method retrieves a lists of properties that are related to region information.

Request:

GET /api/resourceQuery/region/distinct/<params>

The current parameters that this function accepts are:

- provider
- CloudPlatformType
- location
- regionUri
- SlaSummary
- ConnectorClassname

- Capabilities

Example:

https://cws.computenext.com/api/resourceQuery/region/distinct/provider

Response:

```
[
        "cacloud",
        "cloudoye",
        "cloudiro",
        "cloudprovider",
        "computerline",
        "gmocloud",
        "internap",
        "datacate",
        "gandi"
]
```

Retrieve Image Restrictions

Returns the restrictions object for an image. The restrictions describe what properties must match in order to make a valid Image+Instance choice.

- Provider - The display name of the provider the instance must be offered by
- Region - The display name of the provider region the instance must be offered by
- Platform - The name of the cloud platform the instance must be offered by (i.e OpenStack, vCloud, etc.)
- cpuCount - The minimum number of cpus needed in an instance in order to support the image (The value will be in range format. i.e. [2,] means the instanceType must have at least 2 cpu cores)
- CPUSpeed - The minimum amount of cpuSpeed (in GHZ) needed in an instance in order to support the image (The value will be in range format)
- Local storage - The minimum amount of local storage (in GB) needed in an instance in order to support the image (The value will be in range format)
- RAM - The minimum amount of ram (in GB) needed in an instance in order to support the image (The value will be in range format)

Request:

GET /api/resourceQuery/restrictions/<imageURI>

Or using the *runcws* command:

```
>node runcws.js restrictions <imageURI>
```

Example:

https://cws.computenext.com/api/resourceQuery/restrictions/image/enocloud/montreal/a4b1ca48-b3ce-4961-b36c-49777b9115c0

Or use the node runcws command to retrieve restrictions for the image:

```
>node runcws.js restrictions /image/cloudiro/singapore/201
```

Response

```
{
        "cpuCountMin": 1,
        "cpuSpeedMin": 1,
        "localStorageMin": 20,
        "ramMin": 1,
        "cpuCount": "[1,]",
        "cpuSpeed": "[1,]",
        "localStorage": "[20,]",
        "ram": "[1,]",
        "provider": "cloudiro",
        "region": "singapore",
        "platform": "OnApp"
}
```

Retrieve Resource Capabilities

Returns the capabilities object associated with the resources region. The list of capabilities will either be “true” or “false”. resourceId can either be an instanceType, VM, VS, image, or a region.

- createImageSupported - True or false value determining whether or not the provider supports the creation of private images from existing virtual machines
- keypairRequired - True or false value determining whether or not the provider supports the creation of a key pair
- passwordRequired - True or false value determining whether or not the provider gives a password string for logging into a deployed virtual machine (used most commonly with Microsoft Windows images)
- securityGroupRequired - True or false value determining whether or not the provider supports the creation of a network security group
- userDataSupported - Whether user data supported for user in the provider.

Request:

GET /api/resourceQuery/capabilities/<resourceURI>

Or using the runcws command: *>node runcws.js capabilities <resourceURI>*

Example:

https://cws.computenext.com/api/resourceQuery/capabilities/vm/enocloud/montreal/9

Or using the runcws command:

```
>node runcws.js capabilities /vm/enocloud/montreal/9
```

Response:

```
{
  "createImageSupported": "false",
  "keypairRequired": "true",
  "passwordRequired": "true",
  "securityGroupRequired": "true",
  "userDataSupported": "true"
}
```

Resource Details

Returns the details of a resource based on its URI.

Request Body: GET /api/resourceUri/{uri}

Or using the runcws command:

```
>node runcws resource <resourceURI>
```

Returns:

A list of details of the given resource along with information about the provider.

Example:

https://cws.computenext.com/api/resourceUri/vm/enocloud/montreal/9

Or using the runcws command:

```
>node runcws.js resource /vm/enocloud/montreal/9
```

Retrieve Resource Actions

> *An array of objects containing the given input, as well as a list of actions for each resource*

- All actions - All the possible actions that can be performed on this resource
- Available actions - A list of valid actions that can be performed on the resource given its current state (a subset of AllActions)

Request:

POST /api/resourceQuery/action

Request Body

```
[
    {
        "uri":"vm/enocloud/montreal/9",
        "State":"running"
    }
]
```

Returns:

Given a list of resourceIds and their states, returns a list of AvailableActions and AllActions for each resourceId. See below subpages for more specific details.

Example:

https://cws.computenext.com/api/resourceQuery/action

Or using the *runcws* command, a JSON file provided with parameters for the resource being queried:

```
>node runcws.js action <JSON file>
```

Response:


```
[
     {
         "uri": "vm/enocloud/montreal/9",
         "State": "running",
         "AllActions":
          [
             {
                 "id": "create",
                 "name": "Create"
             },
             {
                 "id": "delete",
                 "name": "Delete"
             },
             {
                 "id": "stop",
                 "name": "Stop"
             },
             {
                 "id": "reboot",
                 "name": "Reboot"
             },
             {
                 "id": "createImage",
                 "name": "CreateImage"
             },
             {
                "id": "start",
                "name": "Start"
            },
            {
                "id": "delete-ip",
                "name": "DeleteIp"
            },
            {
                "id": "create-ip",
                "name": "CreateIp"
            }
      ],
     "AvailableActions":
        [
            {
                "id": "delete",
                "description": "Delete your instance",
                "name": "Delete"
            }
        ]
    }
]
```


Validate Resource

It is used to validate the options chosen for a configurable instance and whether it meets the requirements of a given image. It can also be used to validate the chosen options for a configurable volume store or simply the existance of an image/instance resource. The API is automatically called by the workload API when adding a VM or VS to a workload. The configurable resource options to choose for user requirements are:

- cpuCount - number of CPUs
- RAM - amount of GB of RAM
- localStorage - amount of GB of local Storage

Request:

POST /api/resourceQuery/validate

Using the *runcws* command with a supplied JSON file containing parameters for the resource being validated, enter a command on the command-line:

```
>node runcws.js validate <JSON file>
```

The body of the request is returned as confirmation of what it received as shown in the following example to validate an image/instance from one provider. Because it is a configurable resource, values of ram, cpuCount, and local storage are being verified to be within range limits and if valid, a price is returned in the response.

```
validate (validate resource)
options: {
  "url": "http://cws.computenext.com/api/resourceQuery/validate",
  "method": "post",
  "json": {
    "instanceTypeUri": "vm/hegerys/computenext/configurable",
    "imageUri": "image/hegerys/computenext/vapptemplate-59726d51-b021-44ca-918d-33659452b1b1",
    "ram": "2",
    "cpuCount": "2",
    "localStorage": "16"
  },
  "auth": {
   xxx
   xxx
  }
}
```

Returns:

Values for the chosen resource given in the request json file. For image+instance configuration, it validates instance config choices with image restrictions. For configurable resources with ranges to choose from, the selection is validated and if successful, the *price* for that selected configuration is also returned.

Example:

https://cws.computenext.com/api/resourceQuery/validate or using runcws: >node runcws validate <JSON file>

Response:


```
{
  "ram": 2,
  "cpuCount": 2,
  "localStorage": 16,
  "cpuCountLabel": 2,
  "CurrencyCode": "USD",
  "localStorageLabel": 16,
  "ramLabel": 2,
  "totalUnitPrice": "0.095333",
  "ChargeAmountUnit": "per hour"
}
```


Resource Errors

Status Codes:

- 400: These errors will return a descriptive message detailing why the API call failed. It is usually caused by invalid parameters given.
- 500: Please report this error to ComputeNext support (support@computenext.com) so that we can track the cause of the problem.
- 404: The resource being searched for was not found in the system.
- 403: User does not have the correct role to access for a particular resource.