

Getting Started with Instances (WC)

Please read [Getting Started with Workloads](#) first, which explains how to install and setup the *runcws* command line tool used for the examples in this section. You should also have read and understood [Instances](#) with background information about instances before proceeding to do this section.

The *instance API* is a lower level API used for individual instances.

The *workload API* is a higher level API used for collections of instances. The workload API calls the instance API.

Note: To create any instances you must first enter your payment information into the ComputeNext website. If you do not have payment information you will receive a "403 Forbidden" error.

In all of the following tutorial examples, sample json files with parameter data are taken from the demo subdirectory.

Create A Key Pair

This example will show how to create (and delete) a key pair (kp) using *runcws*.

Create the instance:

```
>node runcws.js createi demo\kp.create.json
createi (create instance from resource)
options: {
  "url": "http://cws.computenext.com/api/resource/kp/hpcloud/nova/standard",
  "method": "post",
  "json": {
    "metadata": {
      "name": "KP1",
      "description": "my first key pair"
    }
  },
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: 3ebea4a3-0b60-49a4-b0b1-701e6acb54b8
----- RESULT -----
{
  "requestId": "3ebea4a3-0b60-49a4-b0b1-701e6acb54b8",
  "created": "2013-12-20T01:16:15.041Z",
  "updated": "2013-12-20T01:16:15.041Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "kp/hpcloud/nova/standard",
  "resourceType": "kp",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "action": "kp.create",
    "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "kp_providerResourceId": "standard",
    "zone": "nova"
  },
  "metadata": {
    "name": "KP1",
    "description": "my first key pair"
  }
}
```

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/3ebea4a3-0b60-49a4-b0b1-701e6acb54b8",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current instanceId: c4c2ddc6-9366-41c9-a813-9abd88b924b7
----- RESULT -----
[
  {
    "requestId": "3ebea4a3-0b60-49a4-b0b1-701e6acb54b8",
    "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "created": "2013-12-20T01:16:15.041Z",
    "updated": "2013-12-20T01:16:15.942Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "kp/hpcloud/nova/standard",
    "resourceType": "kp",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "action": "kp.create",
      "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
      "kp_providerResourceId": "standard",
      "zone": "nova"
    },
    "metadata": {
      "name": "KPl",
      "description": "my first key pair"
    },
    "results": {
      "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
      "keyFingerprint": "a6:0d:bd:20:56:0d:a7:47:b4:01:a1:65:10:dd:58:5f",
      "privateKey": "<HIDDEN>",
      "publicKey": "ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQGDV4ijOycM6VmQZoCQCu74MkonLYKWCr0976ZlU8weJcdhxqB20hy6ylLzj59qS3MNxRkUXNeMmmvX
EpR/bDSC3ZTS4EwLOmSf6tbPhSgltrv7C0iwsfvJB/TiI
QsDo+e5R0M+6LBTtxjEn/fQUZeJDiaIkWJXhRR4W80mzevifrQ== \n",
      "instanceStatus": "created"
    }
  }
]

```

The requestStatus is *completed*.

Note that most of the time a request will complete quickly with either *completed* or *failed* status. The *failed* status will include an error message and error code in the response. If you see a request that seems to be stuck for some time with the *in-progress* status then it is possible that the response has been lost. This is not likely to occur in normal operation, but could possibly occur under some error conditions. If this occurs then try the original request again.

Note that when the request is returned secure properties (the privateKey) are hidden.

Get the instance:

```

>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "created": "2013-12-20T01:16:15.938Z",
  "updated": "2013-12-20T01:16:15.938Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "kp/hpcloud/nova/standard",
  "resourceType": "kp",
  "provider": "hpcloud",
  "region": "nova",
  "attributes": {
    "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "publicKey": "ssh-rsa
AAAAB3NzaClyc2EAAAADAQABAAQGDV4ijOycM6VmQZoCQCu74MkonLYKWCr0976ZlU8weJcdhxqB20hy6ylLzj59qS3MNxRkUXNeMmmvXEPR/
bDSC3ZTS4EwLomSf6tbPhSg1trv7C0iwsfvJB/TiIQs
Do+e5R0M+6LBTtxjEn/fQUZeJDiaIkWJXhRR4W80mzevifrQ== \n",
    "privateKey": "-----BEGIN RSA PRIVATE
KEY-----\nMIICXQIBAAKBgQDV4ijOycM6VmQZoCQCu74MkonLYKWCr0976ZlU8weJcdhxqB20\ncy6ylLzj59qS3MNxRkUXNeMmmvXEPR/
bDSC3ZTS4EwLomSf6tbPhSg1trv7C0i
ws\nfvJB/TiIQsDo+e5R0M+6LBTtxjEn/fQUZeJDiaIkWJXhRR4W80mzevifrQIDAQAB\nAoGAVqq5lnEzRqRTE38smF7y9605YMvcxUO8d
X2GwEFqQgt9RTDWOJy+c2aJ09/T\nVcdW+sN6o5kWXkJUbeZszhpXsrp5Nn7pMBV3TwLhJjXW
3H2v/RndLu2Sj/6ar6Yp\ncYR8jyOIwQIATBn7XWoayeY6EeAu/FU9KFqtTWYQUtXG+YECQQD9PdliIQstqzbf\nE+TjQ1WBIBM3fEIbaQz
NhuDeVdO2K+Wh3dzAixtjBB5hp21V62Jw8HENqE5JA5cA\nOf06t20pAkEA2DaQeMLi77ctx7
0+FDja3KMeaGvjWCV591T48EVugUzvDiGY1dsk\ncv2dUeBqILmgcl9yZN1TNUWl0k6r+U1q5QJBAJwfc8GmzHBsNFjUt/BPq6A+lrJH\nnP
a4OVmFCvND0FisdZuUilRwyYIiDmoNTp7kncznzUY886n5i4y21kmMnf/kCQQDJ\nnP5if3v6u
k/k3xqzm07jbz7T5CxsUq+Vn0x7XPj1Kfxqwm5N30z+NDQWG9XSzOzTd\n4Huw6NWP2GabIHkSnMFaKANjrBz7Qp917FJVGO29j2yWyP7
0tdvH3JiEhZubrI\nRS8YpU58USgow0uHOQABbnLF+U317/jH0tpJWuiUVJpl\n-----END R
SA PRIVATE KEY-----\n",
    "keyFingerprint": "a6:0d:bd:20:56:0d:a7:47:b4:01:a1:65:10:dd:58:5f",
    "instanceStatus": "created",
    "transientStatus": false
  },
  "attributeTimestamps": {
    "instanceStatus": "2013-12-20T01:16:15.936Z"
  },
  "metadata": {
    "name": "KP1",
    "description": "my first key pair"
  },
  "parameters": {
    "kp_providerResourceId": "standard",
    "zone": "nova"
  }
}

```

The instanceStatus is *created*.

List the requests:

```

>node runcws.js listr
listr (retrieve multiple requests)
options: {
  "url": "http://cws.computenext.com/api/request?cleanup=true",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[]

```

No requests - the request has been cleaned-up because it was *completed*.

List instances:

```
>node runcws.js listi
listi (retrieve multiple instances)
options: {
  "url": "http://cws.computenext.com/api/instance?cleanup=true",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "created": "2013-12-20T01:16:15.938Z",
    "updated": "2013-12-20T01:16:15.938Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "resourceUri": "kp/hpcloud/nova/standard",
    "resourceType": "kp",
    "provider": "hpcloud",
    "region": "nova",
    "attributes": {
      "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
      "publicKey": "ssh-rsa
AAAAB3NzaClyc2EAAAADAQABAAQGDV4ijOycM6VmQZoCQC74MkonLYKWCr0976ZlU8weJcdhxqB20hy6ylLzj59qS3MNxRkUXNeMmmvX
EpR/bDSC3ZTS4EwLomSf6tbPhSgltrv7C0iwsfvJB/TiI
QsDo+e5R0M+6LBTTxjEn/fQUZeJDIaIkWJXhRR4W80mzevifrQ== \n",
      "privateKey": "-----BEGIN RSA PRIVATE
KEY-----\nMIICXQIBAAKBgQDV4ijOycM6VmQZoCQC74MkonLYKWCr0976ZlU8weJcdhxqB20\ncy6ylLzj59qS3MNxRkUXNeMmmvXEpR/
bDSC3ZTS4EwLomSf6tbPhSgltrv7C
0iws\nfvJB/TiIQsDo+e5R0M+6LBTTxjEn/fQUZeJDIaIkWJXhRR4W80mzevifrQIDAQAB\nAoGAVqq51nEzRqRTE38smF7y9605YMvcxUO
8dX2GwEFqQgt9RTDWOJy+c2aJ09/T\nVcdW+sN6o5kWXkJUbeZszhpXsrp5Nn7pMBV3TwLhJj
XW3H2v/RndLu2Sj/6ar6Yp\ncYR8jyOIwQIATBn7XWoayeY6EeAu/FU9KFqtTWYQUtXG+YECQD9Pdi1IQstqzbf\nnE+TjQ1WBibM3fEiba
QzNhuDeVDo2K+Wh3dzAixtjBB5hp21V62Jw8HENqE5JA5cA\nOf06t20pAkEA2DaQeMLi77ct
x70+FDja3KMeaGvjWCV591T48EVugUzvDiGYldsk\ncv2dUeBqILmgcl9yZN1TNUWl0k6r+U1q5QJBAJwfC8GmzHBsNFjUt/BPq6A+lrJH\
nPa40VmFcVNDOfisdZuUilRwyiIdmoNTp7kncznzUY886n5i4y21kmMnf/kCQQDJ\nnP5if3v
6uk/k3xqzm07jbz7T5CxsUq+Vn0x7XPj1KfxqW5N30z+NDQWG9XSzOzTd\n4Huw6NWP2GabIHkSnMFaKANjrBz7Qp917FJVgon29j2yWy
P70tdvH3JiEhZubri\nRS8YpU58USgow0uHOQABbnLF+U317/jH0tpJWuiUVJp1\n-----END
RSA PRIVATE KEY-----\n",
      "keyFingerprint": "a6:0d:bd:20:56:0d:a7:47:b4:01:a1:65:10:dd:58:5f",
      "instanceStatus": "created",
      "transientStatus": false
    },
    "attributeTimestamps": {
      "instanceStatus": "2013-12-20T01:16:15.936Z"
    },
    "metadata": {
      "name": "KPl",
      "description": "my first key pair"
    },
    "parameters": {
      "kp_providerResourceId": "standard",
      "zone": "nova"
    }
  }
]
```

Delete the instance:

```

>node runcws.js deletei
deletei (delete instance)
options: {
  "url": "http://cws.computenext.com/api/instance/c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "method": "delete",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: efa6371a-634b-4073-83ff-f694e3d6fc41
----- RESULT -----
{
  "requestId": "efa6371a-634b-4073-83ff-f694e3d6fc41",
  "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "created": "2013-12-20T01:23:26.909Z",
  "updated": "2013-12-20T01:23:26.909Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "kp/hpcloud/nova/standard",
  "resourceType": "kp",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "action": "kp.delete",
    "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "kp_providerResourceId": "standard",
    "zone": "nova"
  }
}

```

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/efa6371a-634b-4073-83ff-f694e3d6fc41",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "requestId": "efa6371a-634b-4073-83ff-f694e3d6fc41",
    "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "created": "2013-12-20T01:23:26.909Z",
    "updated": "2013-12-20T01:23:27.409Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "kp/hpcloud/nova/standard",
    "resourceType": "kp",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
      "action": "kp.delete",
      "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
      "kp_providerResourceId": "standard",
      "zone": "nova"
    },
    "results": {
      "instanceStatus": "deleted"
    }
  }
]

```

The requestStatus is *completed*.

Get the instance:

```
>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
  "created": "2013-12-20T01:16:15.938Z",
  "updated": "2013-12-20T01:23:27.403Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "kp/hpcloud/nova/standard",
  "resourceType": "kp",
  "provider": "hpcloud",
  "region": "nova",
  "providerResourceId": "standard",
  "attributes": {
    "providerInstanceId": "c4c2ddc6-9366-41c9-a813-9abd88b924b7",
    "publicKey": "ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQGDV4ijOycM6VmQZoCQCu74MkonLYKWCr0976ZlU8weJcdhxqB20hy6ylLzj59qS3MNxRkUXNeMmmvX
EpR/bDSC3ZTS4EwLomSf6tbPhSg1trv7C0iwsfvJB/TiIQs
Do+e5R0M+6LBTtxjEn/fQUZeJDiaIkWJXhRR4W80mzevifrQ== \n",
    "privateKey": "-----BEGIN RSA PRIVATE
KEY-----\nMIICXQIBAAKBgQDV4ijOycM6VmQZoCQCu74MkonLYKWCr0976ZlU8weJcdhxqB20\ncy6ylLzj59qS3MNxRkUXNeMmmvXEpR/
bDSC3ZTS4EwLomSf6tbPhSg1trv7C0i
ws\ncfvJB/TiIQsDo+e5R0M+6LBTtxjEn/fQUZeJDiaIkWJXhRR4W80mzevifrQIDAQAB\nAoGAVqq5lnEzRqRTE38smF7y9605YMvcxUO8d
X2GwEFqQGT9RTDWOJy+c2aJ09/T\nVcdW+sN6o5kWXkJUbeZszhpXsrp5Nn7pMBV3TwLhJjXW
3H2v/RndLu2Sj/6ar6Yp\ncYR8jy0IwQIATBn7XwoayeY6EeAu/FU9KFqtTWYQUtXG+YECQQD9PdliIQstqzbf\nE+TjQ1WBIBM3fEIbaQz
NhuDeVdO2K+Wh3dzAixtjBB5hp2lV62Jw8HENqE5JA5cA\nOf06t20pAkEA2DaQeMLi77ctx7
0+FDja3KMeaGvJWCv591T48EVugUzvDiGYldsk\ncv2dUeBqILmgcl9yZN1TNUWl0k6r+U1q5QJBAJwfc8GmzHBsNFjUt/BPq6A+lrJH\nnP
a4OVmFCvND0FisdZuUilRwyYIiDmoNTp7kncznzUY886n5i4y21kmMnf/kCQQDJ\nnP5if3v6u
k/k3xqzm07jbz7T5CxsUq+Vn0x7XPj1Kfxqwm5N30z+NDQWG9XSzOzTd\n4Huw6NWPa2GabIHkSnMFAKANjrBz7Qp917FJVGoN29j2yWyP7
0tdvH3JiEhZubrI\nRS8YpU58USgow0uHOQABbnLF+U317/jH0tpJWuiUVJpl\n-----END R
SA PRIVATE KEY-----\n",
    "keyFingerprint": "a6:0d:bd:20:56:0d:a7:47:b4:01:a1:65:10:dd:58:5f",
    "instanceStatus": "deleted",
    "transientStatus": false
  },
  "attributeTimestamps": {
    "instanceStatus": "2013-12-20T01:23:27.381Z"
  },
  "metadata": {
    "name": "KP1",
    "description": "my first key pair"
  },
  "parameters": {
    "kp_providerResourceId": "standard",
    "zone": "nova"
  }
}
```

The instanceStatus is *deleted*.

Note that at some point *deleted* instances will be cleaned-up from the database and will return a "404 Not Found".

Create A Virtual Machine

This example will show how to create (and delete) a virtual machine (vm) using runcws.

Create the instance:

```

>node runcws.js createi demo\vm.create.json
createi (create instance from resource)
options: {
  "url": "http://cws.computenext.com/api/resource/vm/hpcloud/nova/standard.small",
  "method": "post",
  "json": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "metadata": {
      "name": "VM-1",
      "description": "my first virtual machine"
    }
  },
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
#### setting current requestId: 6b7fd23c-05d9-4a88-b8fd-efa859c1a04a
----- RESULT -----
{
  "requestId": "6b7fd23c-05d9-4a88-b8fd-efa859c1a04a",
  "created": "2014-01-09T22:51:39.039Z",
  "updated": "2014-01-09T22:51:39.039Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "action": "vm.create",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova",
    "cpuCount": "2",
    "cpuSpeed": "1.2",
    "localStorage": "60",
    "ram": "2",
    "username": "ubuntu",
    "image_providerResourceId": "ami-00000075"
  },
  "metadata": {
    "name": "VM-1",
    "description": "my first virtual machine"
  }
}

```

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/6b7fd23c-05d9-4a88-b8fd-efa859c1a04a",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current instanceId: 615d07cf-d0e5-4325-ac02-1148d6e0d50b
----- RESULT -----
[
  {
    "requestId": "6b7fd23c-05d9-4a88-b8fd-efa859c1a04a",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "created": "2014-01-09T22:51:39.039Z",
    "updated": "2014-01-09T22:51:42.394Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "vm/hpcloud/nova/standard.small",
    "resourceType": "vm",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "imageUri": "image/hpcloud/nova/ami-00000075",
      "action": "vm.create",
      "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
      "vm_providerResourceId": "Standard.small",
      "zone": "nova",
      "cpuCount": "2",
      "cpuSpeed": "1.2",
      "localStorage": "60",
      "ram": "2",
      "username": "ubuntu",
      "image_providerResourceId": "ami-00000075"
    },
    "metadata": {
      "name": "VM-1",
      "description": "my first virtual machine"
    },
    "results": {
      "providerInstanceId": 2818157,
      "instanceStatus": "creating",
      "password": "<HIDDEN>"
    }
  }
]

```

The requestStatus is *completed*.

Note that the password property is hidden in the request.

Get the instance:


```

>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "created": "2014-01-09T22:51:42.389Z",
  "updated": "2014-01-09T22:51:42.389Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "attributes": {
    "providerInstanceId": 2818157,
    "password": "bAZRf2qQ5VDdE76t",
    "instanceStatus": "creating",
    "transientStatus": true
  },
  "attributeTimestamps": {
    "password": "2014-01-09T22:51:42.384Z",
    "instanceStatus": "2014-01-09T22:51:42.387Z"
  },
  "metadata": {
    "name": "VM-1",
    "description": "my first virtual machine"
  },
  "parameters": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova",
    "cpuCount": "2",
    "cpuSpeed": "1.2",
    "localStorage": "60",
    "ram": "2",
    "username": "ubuntu",
    "image_providerResourceId": "ami-00000075"
  }
}

```

Note that the instanceStatus is *creating* which means that the vm instance itself is not completely created - it has not reached a stable state.

The *transientStatus* property is a hint that we need to keep polling for the instanceStatus to change.

So, we need to "retrieve instance" again - this time with *refresh* so that the instance status will be fetched from the provider side.

Get instance (with refresh):

```

>node runcws.js getir
getir (retrieve instance (with refresh))
options: {
  "url": "http://cws.computenext.com/api/instance/615d07cf-d0e5-4325-ac02-1148d6e0d50b?refresh=true",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: fa948a88-ed48-4c93-a69b-1f2becd11ae9
----- RESULT -----
{
  "requestId": "fa948a88-ed48-4c93-a69b-1f2becd11ae9",
  "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "created": "2014-01-09T22:58:08.462Z",
  "updated": "2014-01-09T22:58:08.462Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "providerInstanceId": 2818157,
    "action": "vm.retrieve",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova"
  }
}

```

Note that "?refresh=true" was specified on the query parameters.

Note that a *request* is returned, not an instance.

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/fa948a88-ed48-4c93-a69b-1f2becd11ae9",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "requestId": "fa948a88-ed48-4c93-a69b-1f2becd11ae9",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "created": "2014-01-09T22:58:08.462Z",
    "updated": "2014-01-09T22:58:08.899Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "vm/hpcloud/nova/standard.small",
    "resourceType": "vm",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "providerInstanceId": 2818157,
      "action": "vm.retrieve",
      "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
      "vm_providerResourceId": "Standard.small",
      "zone": "nova"
    },
    "results": {
      "instanceStatus": "running",
      "privateIpAddress": "10.3.118.211",
      "publicIpAddress": "15.185.250.68"
    }
  }
]

```

Now we can see that the request is *completed* and the instanceStatus is *running*.

Get the instance (no refresh):

```

>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "created": "2014-01-09T22:51:42.389Z",
  "updated": "2014-01-09T22:58:08.891Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "providerResourceId": "Standard.small",
  "attributes": {
    "providerInstanceId": 2818157,
    "password": "bAZRf2qQ5VDdE76t",
    "instanceStatus": "running",
    "transientStatus": false,
    "privateIpAddress": "10.3.118.211",
    "publicIpAddress": "15.185.250.68"
  },
  "attributeTimestamps": {
    "password": "2014-01-09T22:58:08.858Z",
    "instanceStatus": "2014-01-09T22:58:08.861Z",
    "privateIpAddress": "2014-01-09T22:58:08.859Z",
    "publicIpAddress": "2014-01-09T22:58:08.860Z"
  },
  "metadata": {
    "name": "VM-1",
    "description": "my first virtual machine"
  },
  "parameters": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova",
    "cpuCount": "2",
    "cpuSpeed": "1.2",
    "localStorage": "60",
    "ram": "2",
    "username": "ubuntu",
    "image_providerResourceId": "ami-00000075"
  }
}

```

The instanceStatus is now *running* and the password and IP addresses are available on the *attributes*.

Delete the instance:

```

>node runcws.js deletei
deletei (delete instance)
options: {
  "url": "http://cws.computenext.com/api/instance/615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "method": "delete",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: 296b6f68-b003-4fd1-aa9e-5fb979d5d42a
----- RESULT -----
{
  "requestId": "296b6f68-b003-4fd1-aa9e-5fb979d5d42a",
  "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "created": "2014-01-09T23:05:09.072Z",
  "updated": "2014-01-09T23:05:09.072Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "providerInstanceId": 2818157,
    "action": "vm.delete",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova"
  }
}

```

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/296b6f68-b003-4fd1-aa9e-5fb979d5d42a",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "requestId": "296b6f68-b003-4fd1-aa9e-5fb979d5d42a",
    "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
    "created": "2014-01-09T23:05:09.072Z",
    "updated": "2014-01-09T23:05:09.588Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "vm/hpcloud/nova/standard.small",
    "resourceType": "vm",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "providerInstanceId": 2818157,
      "action": "vm.delete",
      "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
      "vm_providerResourceId": "Standard.small",
      "zone": "nova"
    },
    "results": {
      "instanceStatus": "deleted"
    }
  }
]

```

The requestStatus is *completed*.

Get the instance:

```
>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "615d07cf-d0e5-4325-ac02-1148d6e0d50b",
  "created": "2014-01-09T22:51:42.389Z",
  "updated": "2014-01-09T23:05:09.573Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "providerResourceId": "Standard.small",
  "attributes": {
    "providerInstanceId": 2818157,
    "password": "bAZRf2qQ5VDdE76t",
    "instanceStatus": "deleted",
    "transientStatus": false,
    "privateIpAddress": "10.3.118.211",
    "publicIpAddress": "15.185.250.68"
  },
  "attributeTimestamps": {
    "password": "2014-01-09T22:58:08.858Z",
    "instanceStatus": "2014-01-09T23:05:09.515Z",
    "privateIpAddress": "2014-01-09T22:58:08.859Z",
    "publicIpAddress": "2014-01-09T22:58:08.860Z"
  },
  "metadata": {
    "name": "VM-1",
    "description": "my first virtual machine"
  },
  "parameters": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova",
    "cpuCount": "2",
    "cpuSpeed": "1.2",
    "localStorage": "60",
    "ram": "2",
    "username": "ubuntu",
    "image_providerResourceId": "ami-00000075"
  }
}
```

The instanceStatus is *deleted*.

Note that sometimes you will see the vm in the *deleting* state (which is transient) before it moves to *deleted* state.

Note that at some point *deleted* instances will be cleaned-up from the database and will return a "404 Not Found".

Create A Private Image from a Virtual Machine

This example will show how to create a private image (image) from a virtual machine (vm).

We start with an existing vm instance from which we want to create a private image.

Get the existing *vm* instance:

```

>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/3ebb5243-2a11-4da0-844c-60f6f087bcfd",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "3ebb5243-2a11-4da0-844c-60f6f087bcfd",
  "created": "2014-01-09T23:27:16.793Z",
  "updated": "2014-01-09T23:28:35.070Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "vm/hpcloud/nova/standard.small",
  "resourceType": "vm",
  "provider": "hpcloud",
  "region": "nova",
  "providerResourceId": "Standard.small",
  "attributes": {
    "providerInstanceId": 2818403,
    "password": "S3m7cbqC78YhGQ7i",
    "instanceStatus": "running",
    "transientStatus": false,
    "privateIpAddress": "10.3.216.96",
    "publicIpAddress": "15.185.244.42"
  },
  "attributeTimestamps": {
    "password": "2014-01-09T23:28:35.043Z",
    "instanceStatus": "2014-01-09T23:28:35.047Z",
    "privateIpAddress": "2014-01-09T23:28:35.043Z",
    "publicIpAddress": "2014-01-09T23:28:35.045Z"
  },
  "metadata": {
    "name": "VM-1",
    "description": "my first virtual machine"
  },
  "parameters": {
    "imageUri": "image/hpcloud/nova/ami-00000075",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova",
    "cpuCount": "2",
    "cpuSpeed": "1.2",
    "localStorage": "60",
    "ram": "2",
    "username": "ubuntu",
    "image_providerResourceId": "ami-00000075"
  }
}

```

The vm instanceStatus is *running*.

Create the private *image* instance from the *vm* instance:

```

>node runcws.js createimage demo\vm.create.image.json
createimage (create an image instance from a VM instance)
options: {
  "url": "http://cws.computenext.com/api/instance/3ebb5243-2a11-4da0-844c-60f6f087bcfd?action=image",
  "method": "post",
  "json": {
    "metadata": {
      "name": "IMAGE-1",
      "description": "my first image"
    }
  },
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: 79ca5b31-f42a-4489-b354-c0e3a7dfb473
##### setting current instanceId: e5cff882-8d95-4f8e-9087-531075a0b0e6
----- RESULT -----
{
  "requestId": "79ca5b31-f42a-4489-b354-c0e3a7dfb473",
  "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
  "created": "2014-01-10T00:27:32.368Z",
  "updated": "2014-01-10T00:27:32.368Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "image/hpcloud/nova/",
  "resourceType": "image",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "providerInstanceId": 2818403,
    "action": "vm.create.image",
    "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
    "vm_providerResourceId": "Standard.small",
    "zone": "nova"
  },
  "metadata": {
    "name": "IMAGE-1",
    "description": "my first image"
  }
}

```

Note that this is an action on the *vm* instance. The JSON file supplied to runcws (vm.create.image.json) is basically to supply metadata for the private image instance only.

Get the request:


```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/79ca5b31-f42a-4489-b354-c0e3a7dfb473",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "requestId": "79ca5b31-f42a-4489-b354-c0e3a7dfb473",
    "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
    "created": "2014-01-10T00:27:32.368Z",
    "updated": "2014-01-10T00:27:33.302Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "image/hpcloud/nova/",
    "resourceType": "image",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "providerInstanceId": 2818403,
      "action": "vm.create.image",
      "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
      "vm_providerResourceId": "Standard.small",
      "zone": "nova"
    },
    "metadata": {
      "name": "IMAGE-1",
      "description": "my first image"
    },
    "results": {
      "providerInstanceId": "ami-00058180",
      "instanceStatus": "creating"
    }
  }
]

```

The requestStatus is *completed*. The image instanceStatus is *creating* so we should retrieve the image instance again, with refresh.

Get the *image* instance (with refresh):

```

>node runcws.js getir
getir (retrieve instance (with refresh))
options: {
  "url": "http://cws.computenext.com/api/instance/e5cff882-8d95-4f8e-9087-531075a0b0e6?refresh=true",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
##### setting current requestId: 26b5c11d-dbd7-498c-9ba9-3683acb620b3
----- RESULT -----
{
  "requestId": "26b5c11d-dbd7-498c-9ba9-3683acb620b3",
  "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
  "created": "2014-01-10T00:29:36.854Z",
  "updated": "2014-01-10T00:29:36.854Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "requestStatus": "in-progress",
  "resourceUri": "image/hpcloud/nova/ami-00058180",
  "resourceType": "image",
  "provider": "hpcloud",
  "region": "nova",
  "connector": "openStack.compute",
  "parameters": {
    "providerInstanceId": "ami-00058180",
    "action": "image.retrieve",
    "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
    "image_providerResourceId": "ami-00058180",
    "zone": "nova"
  }
}

```

Get the request:

```

>node runcws.js getr
getr (retrieve request)
options: {
  "url": "http://cws.computenext.com/api/request/26b5c11d-dbd7-498c-9ba9-3683acb620b3",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
[
  {
    "requestId": "26b5c11d-dbd7-498c-9ba9-3683acb620b3",
    "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
    "created": "2014-01-10T00:29:36.854Z",
    "updated": "2014-01-10T00:29:37.315Z",
    "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
    "requestStatus": "completed",
    "resourceUri": "image/hpcloud/nova/ami-00058180",
    "resourceType": "image",
    "provider": "hpcloud",
    "region": "nova",
    "connector": "openStack.compute",
    "parameters": {
      "providerInstanceId": "ami-00058180",
      "action": "image.retrieve",
      "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
      "image_providerResourceId": "ami-00058180",
      "zone": "nova"
    },
    "results": {
      "providerInstanceId": "360832",
      "progress": 100,
      "instanceStatus": "created"
    }
  }
]

```

The requestStatus is *completed* and the instanceStatus (of the image) is now *created*.

Get the *image* instance:

```

>node runcws.js geti
geti (retrieve instance)
options: {
  "url": "http://cws.computenext.com/api/instance/e5cff882-8d95-4f8e-9087-531075a0b0e6",
  "method": "get",
  "auth": {
    "user": "63a25f81-15dd-481e-a4d4-c5ed9a80f93a",
    "pass": "<hidden>"
  }
}
----- RESULT -----
{
  "instanceId": "e5cff882-8d95-4f8e-9087-531075a0b0e6",
  "created": "2014-01-10T00:27:33.296Z",
  "updated": "2014-01-10T00:29:37.306Z",
  "ownerId": "d00f16e6-7503-4838-a658-8b60594ff285",
  "resourceUri": "image/hpcloud/nova/ami-00058180",
  "resourceType": "image",
  "provider": "hpcloud",
  "region": "nova",
  "providerResourceId": "ami-00058180",
  "attributes": {
    "providerInstanceId": "ami-00058180",
    "instanceStatus": "created",
    "transientStatus": false
  },
  "attributeTimestamps": {
    "instanceStatus": "2014-01-10T00:29:37.282Z"
  },
  "metadata": {
    "name": "IMAGE-1",
    "description": "my first image"
  },
  "parameters": {
    "providerInstanceId": 2818403,
    "vm_providerResourceId": "Standard.small",
    "zone": "nova"
  }
}

```

The image instanceStatus is now *created*.

You can now use this image resourceUri to create new vm instances.

Deletion of a private image instance is similar to any other instance type.