

# OpenStack Compute

## Disk Configuration Extension

(Dec 8, 2011)

## OpenStack Compute Disk Configuration Extension

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This document is intended for software developers interested in using the Disk Configuration Extension to the OpenStack Compute Application Programming Interface (API). The document is for informational purposes only and is provided "AS IS."

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# 1. About This Extension

|                   |   |
|-------------------|---|
| Name              | Disk Management Extension   |
| Namespace         | <a href="http://docs.rackspacecloud.com/servers/api/ext/diskConfig/v1.0">http://docs.rackspacecloud.com/servers/api/ext/diskConfig/v1.0</a> |
| Alias             | RAX-DCF   |
| Contact           | Gabe Westmaas < <a href="mailto:gabe.westmaas@rackspace.com">gabe.westmaas@rackspace.com</a> >  |
| Status            | ALPHA   |
| Last Update       | 2011-12-08  |
| Dependencies      | OpenStack Compute API v1.1 (2011-09-08)   |
| Doc Link (PDF)    | <a href="http://docs.rackspacecloud.com/servers/api/ext/rax-dcf.pdf">http://docs.rackspacecloud.com/servers/api/ext/rax-dcf.pdf</a>         |
| Doc Link (WADL)   | None, the extension makes no modification to the API WADL.  |
| Doc Link (XSD)    | <a href="http://docs.rackspacecloud.com/servers/api/ext/rax-dcf/api.xsd">http://docs.rackspacecloud.com/servers/api/ext/rax-dcf/api.xsd</a> |
| Short Description | Adds support for disk management flag on servers and images.  |

### Example 1.1. Extension Query Response: XML

```
<?xml version="1.0" encoding="UTF-8"?>

<extensions xmlns="http://docs.openstack.org/common/api/v1.0"
  xmlns:atom="http://www.w3.org/2005/Atom">
  <extension name="Disk Configuration Extension"
    namespace="http://docs.rackspacecloud.com/servers/api/
ext/diskConfig/v1.0"
    alias="RAX-DCF" updated="2011-09-27T00:00:00">
    <description>
      Adds support for disk management flag on servers and
      images.
    </description>
    <atom:link rel="describedby" type="application/pdf"
      href="http://docs.rackspacecloud.com/servers/api/
ext/rax-dcf.pdf"/>
    <atom:link rel="describedby" type="application/xml"
      href="http://docs.rackspacecloud.com/servers/api/
ext/rax-dcf/api.xsd"/>
  </extension>
</extensions>
```

## Example 1.2. Extension Query Response: JSON

```
{
  "extensions": [
    {
      "name": "Disk Configuration Extension",
      "namespace": "http://docs.rackspacecloud.com/servers/api/
ext/diskConfig/v1.0",
      "alias": "RAX-DCF",
      "updated": "2011-09-27T00:00:00",
      "description": "Adds support for disk management flag on
servers and images.",
      "links": [
        {
          "rel": "describedby",
          "type": "application/pdf",
          "href": "http://docs.rackspacecloud.com/servers/
api/ext/rax-dcf.pdf"
        },
        {
          "rel": "describedby",
          "type": "application/xml",
          "href": "http://docs.rackspacecloud.com/servers/
api/ext/rax-dcf/api.xsd"
        }
      ]
    }
  ]
}
```

## 1.1. Document Change History

The most recent changes to this document are described below.

| Revision Date | Summary of Changes   |
|---------------|--|
| Dec 8, 2011   | <ul style="list-style-type: none"> <li>Noted what happened when the diskConfig attribute is not set on server rebuild and resize.</li> <li>Fixed a few minor spelling errors.</li> </ul> |
| Sep 27, 2011  | <ul style="list-style-type: none"> <li>The diskConfig attribute can now be set on rebuild and resize actions.</li> </ul>   |
| Sep 24, 2011  | <ul style="list-style-type: none"> <li>Expanded description somewhat.</li> <li>Refactored to use MANUAL and AUTO instead of boolean value.</li> </ul>                                    |
| Aug 24, 2011  | <ul style="list-style-type: none"> <li>Initial release.</li> </ul>   |

## 2. Summary of Changes

The Disk Configuration Extension to the OpenStack Compute API adds support for a `diskConfig` attribute on servers and images. These attribute controls how a disk is partitioned when a server is created, rebuilt, or resized.

### 2.1. New Headers

None.

### 2.2. New Faults

None.

### 2.3. New Resources

None.

### 2.4. New Actions

None.

## 2.5. Changes to the OpenStack Compute API

Images and servers contain a new `diskConfig` attribute that controls how a disk is partitioned when a server is created, rebuilt, or resized.

### 2.5.1. Changes to 4.1.3 and 4.5.2 Get Server/Image Details

Examples 4.11 and 4.12 in the OpenStack Compute Developer Guide should be replaced with Example 2.1 and Example 2.2 below. Similarly the attribute can be specified on an image such that Examples 4.47 and 4.48 are changed as illustrated in Example 2.3 and Example 2.4. The `diskConfig` attribute can contain one of two possible values: `AUTO` and `MANUAL`.



**Example 2.1. Server Detail Response: XML**

```

<?xml version="1.0" encoding="UTF-8"?>
<server xmlns="http://docs.openstack.org/compute/api/v1.1"
  xmlns:atom="http://www.w3.org/2005/Atom"
  xmlns:dcf="http://docs.rackspacecloud.com/servers/api/ext/
diskConfig/v1.0"
  id="52415800-8b69-11e0-9b19-734f000004d2"
  tenantId="1234" userId="5678"
  name="sample-server" status="BUILD"
  updated="2010-10-10T12:00:00Z" created="2010-08-10T12:00:00Z"
  progress="60" hostId="e4d909c290d0fb1ca068ffaddf22cbd0"
  accessIPv4="67.23.10.132"
  accessIPv6="::babe:67.23.10.132"
  dcf:diskConfig="MANUAL">
  <image id="52415800-8b69-11e0-9b19-734f6f006e54">
    <atom:link
      rel="self"
      href="http://servers.api.openstack.org/v1.1/1234/images/
52415800-8b69-11e0-9b19-734f6f006e54"/>
    <atom:link
      rel="bookmark"
      href="http://servers.api.openstack.org/1234/images/
52415800-8b69-11e0-9b19-734f6f006e54"/>
  </image>
  <flavor id="52415800-8b69-11e0-9b19-734f216543fd">
    <atom:link
      rel="self"
      href="http://servers.api.openstack.org/v1.1/1234/flavors/
52415800-8b69-11e0-9b19-734f216543fd"/>
    <atom:link
      rel="bookmark"
      href="http://servers.api.openstack.org/1234/flavors/
52415800-8b69-11e0-9b19-734f216543fd"/>
  </flavor>
  <metadata>
    <meta key="Server Label">Web Head 1</meta>
    <meta key="Image Version">2.1</meta>
  </metadata>
  <addresses>
    <network id="public">
      <ip version="4" addr="67.23.10.132"/>
      <ip version="6" addr="::babe:67.23.10.132"/>
      <ip version="4" addr="67.23.10.131"/>
      <ip version="6" addr="::babe:4317:0A83"/>
    </network>
    <network id="private">
      <ip version="4" addr="10.176.42.16"/>
      <ip version="6" addr="::babe:10.176.42.16"/>
    </network>
  </addresses>
  <atom:link
    rel="self"

```

```
        href="http://servers.api.openstack.org/v1.1/1234/servers/  
52415800-8b69-11e0-9b19-734f000004d2"/>  
      <atom:link  
        rel="bookmark"  
        href="http://servers.api.openstack.org/1234/servers/  
52415800-8b69-11e0-9b19-734f000004d2"/>  
</server>
```

**Example 2.2. Server Detail Response: JSON**

```
{
  "server": {
    "id": "52415800-8b69-11e0-9b19-734f000004d2",
    "tenantId": "1234",
    "userId": "5678",
    "name": "sample-server",
    "updated": "2010-10-10T12:00:00Z",
    "created": "2010-08-10T12:00:00Z",
    "hostId": "e4d909c290d0fb1ca068ffaddf22cbd0",
    "accessIPv4": "67.23.10.132",
    "accessIPv6": "::babe:67.23.10.132",
    "status": "BUILD",
    "progress": 60,
    "RAX-DCF:diskConfig": "MANUAL",
    "image": {
      "id": "52415800-8b69-11e0-9b19-734f6f006e54",
      "links": [
        {
          "rel": "self",
          "href": "http://servers.api.openstack.org/v1.1/1234/images/52415800-8b69-11e0-9b19-734f6f006e54"
        },
        {
          "rel": "bookmark",
          "href": "http://servers.api.openstack.org/1234/images/52415800-8b69-11e0-9b19-734f6f006e54"
        }
      ]
    },
    "flavor": {
      "id": "52415800-8b69-11e0-9b19-734f216543fd",
      "links": [
        {
          "rel": "self",
          "href": "http://servers.api.openstack.org/v1.1/1234/flavors/52415800-8b69-11e0-9b19-734f216543fd"
        },
        {
          "rel": "bookmark",
          "href": "http://servers.api.openstack.org/1234/flavors/52415800-8b69-11e0-9b19-734f216543fd"
        }
      ]
    },
    "addresses": {
      "public": [
        {
          "version": 4,
          "addr": "67.23.10.132"
        },
        {
          "version": 6,
          "addr": "::babe:67.23.10.132"
        }
      ]
    }
  }
}
```

```

        "version": 4,
        "addr": "67.23.10.131"
    },
    {
        "version": 6,
        "addr": "::babe:4317:0A83"
    }
],
"private" : [
    {
        "version": 4,
        "addr": "10.176.42.16"
    },
    {
        "version": 6,
        "addr": "::babe:10.176.42.16"
    }
]
},
"metadata": {
    "Server Label": "Web Head 1",
    "Image Version": "2.1"
},
"links": [
    {
        "rel": "self",
        "href": "http://servers.api.openstack.org/v1.1/1234/servers/52415800-8b69-11e0-9b19-734f000004d2"
    },
    {
        "rel": "bookmark",
        "href": "http://servers.api.openstack.org/1234/servers/52415800-8b69-11e0-9b19-734f000004d2"
    }
]
}
}

```

### Example 2.3. Image Detail Response: XML

```
<?xml version="1.0" encoding="UTF-8"?>
<image
  xmlns="http://docs.openstack.org/compute/api/v1.1"
  xmlns:dcf="http://docs.rackspacecloud.com/servers/api/ext/
diskConfig/v1.0"
  xmlns:atom="http://www.w3.org/2005/Atom"
  id="52415800-8b69-11e0-9b19-734f5736d2a2"
  name="My Server Backup"
  updated="2010-10-10T12:00:00Z"
  created="2010-08-10T12:00:00Z"
  tenantId="12345"
  userId="joe"
  status="SAVING" progress="80"
  minDisk="5" minRam="256"
  dcf:diskConfig="AUTO">
  <server id="52415800-8b69-11e0-9b19-734f335aa7b3">
    <atom:link
      rel="self"
      href="http://servers.api.openstack.org/v1.1/1234/servers/
52415800-8b69-11e0-9b19-734f335aa7b3"/>
    <atom:link
      rel="bookmark"
      href="http://servers.api.openstack.org/1234/servers/
52415800-8b69-11e0-9b19-734f335aa7b3"/>
  </server>
  <atom:link
    rel="self"
    href="http://servers.api.openstack.org/v1.1/1234/images/
52415800-8b69-11e0-9b19-734f5736d2a2"/>
  <atom:link
    rel="bookmark"
    href="http://servers.api.openstack.org/1234/images/
52415800-8b69-11e0-9b19-734f5736d2a2"/>
</image>
```

## Example 2.4. Image Detail Response: JSON

```
{
  "image" : {
    "id" : "52415800-8b69-11e0-9b19-734f5736d2a2",
    "name" : "My Server Backup",
    "updated" : "2010-10-10T12:00:00Z",
    "created" : "2010-08-10T12:00:00Z",
    "tenantId" : "12345",
    "userId" : "joe",
    "status" : "SAVING",
    "progress" : 80,
    "RAX-DCF:diskConfig" : "AUTO",
    "minDisk" : 5,
    "minRam" : 256,
    "server" : {
      "id": "52415800-8b69-11e0-9b19-734f335aa7b3",
      "links": [
        {
          "rel": "self",
          "href": "http://servers.api.openstack.org/v1.1/1234/
servers/52415800-8b69-11e0-9b19-734f335aa7b3"
        },
        {
          "rel": "bookmark",
          "href": "http://servers.api.openstack.org/1234/
servers/52415800-8b69-11e0-9b19-734f335aa7b3"
        }
      ]
    },
    "links": [
      {
        "rel" : "self",
        "href" : "http://servers.api.openstack.org/v1.1/1234/
images/52415800-8b69-11e0-9b19-734f5736d2a2"
      },
      {
        "rel" : "bookmark",
        "href" : "http://servers.api.openstack.org/1234/images/
52415800-8b69-11e0-9b19-734f5736d2a2"
      }
    ]
  }
}
```

## 2.5.2. Changes to 4.1.2 Create Server

When a server is created from an image with the diskConfig value set to `AUTO` the server will be built with a single partition which is expanded to the size of the flavor selected. When the attribute is set to `MANUAL` the server will be created with a 10 gigabyte partition and the remaining disk space allocated to the flavor will remain unpartitioned. A server inherits the diskConfig attribute from the image from which it is created. The value, however, may be overwritten when creating a server as illustrated in Example 2.5 and Example 2.6.

### Example 2.5. Server Create Request With DiskConfig: XML

```
<?xml version="1.0" encoding="UTF-8"?>
<server xmlns="http://docs.openstack.org/compute/api/v1.1"
  xmlns:dcf="http://docs.rackspacecloud.com/servers/api/ext/diskConfig/
v1.0"
  imageRef="http://servers.api.openstack.org/1234/images/
52415800-8b69-11e0-9b19-734f6f006e54"
  flavorRef="52415800-8b69-11e0-9b19-734f1195ff37"
  name="new-server"
  dcf:diskConfig="MANUAL"/>
```

### Example 2.6. Server Create Request With DiskConfig: JSON

```
{
  "server" : {
    "name" : "new-server",
    "imageRef" : "http://servers.api.openstack.org/1234/images/
52415800-8b69-11e0-9b19-734f6f006e54",
    "flavorRef" : "52415800-8b69-11e0-9b19-734f1195ff37",
    "RAX-DCF:diskConfig" : "MANUAL"
  }
}
```

In this example, the server is created with a `MANUAL` diskConfig regardless of what the image diskConfig attribute is set to. Note, that images also inherit the diskConfig from a server. So, if an image is created from the server Example 2.1, "Server Detail Response: XML" it will also have a diskConfig value of `MANUAL`.

### 2.5.3. Changes to 4.3.3 Rebuild Server

The `diskConfig` attribute may be set when rebuilding the server. A sample rebuild request is illustrated in Example 2.7 and Example 2.8. In these examples, the `diskConfig` attribute is set to `MANUAL`, this allows unused disk space to be used for other partitions once the server is rebuilt.

Note that if the `diskConfig` attribute is not set during the rebuild, the original value of the attribute will be retained.

### Example 2.7. Action Rebuild With DiskConfig: XML

```
<?xml version="1.0" encoding="UTF-8"?>
<rebuild
  xmlns="http://docs.openstack.org/compute/api/v1.1"
  xmlns:dcf="http://docs.rackspacecloud.com/servers/api/ext/diskConfig/v1.0"
  name="newName"
  imageRef="https://servers.api.rackspacecloud.com/v1.1/32278/images/
52415800-8b69-11e0-9b19-734f6f006e54"
  adminPass="Gfflj9aP" dcf:diskConfig="MANUAL">
  <metadata>
    <meta key="My Server Name">Apache1</meta>
  </metadata>
  <personality>
    <file path="/etc/banner.txt">
      ICAGICAGDQoiQSBjbG9lZCBkb2VzIG5vdCBBrbm93IHdoeSBp
      dCBtb3ZlcyBpbiBqdXN0IHNlY2ggYSBkaXJlY3Rpb24gYW5k
      IGF0IHNlY2ggYSBzcGVlZC4uLk10IGZlZWxzIGFuIGltcHVz
      c2lubi4uLnRoaxMgaXMgdGhlIHBSYWNlIHRvIGdvIG5vdy4g
      QnV0IHROzSBza3kga25vd3MgdGhlIHJlYXNvbnMgYW5kIHRO
      ZSBwYXR0ZXJucyBiZWphbmQgYWxsIGNsb3VkcycwYmV5b3Vz
      dSB3aWxsIGtub3csIHRvbywgZDhlbiB5b3UgbGlmCB5b3Vy
      c2VsZiBoaWdoIGVub3VnaCB0byBzZWUgYmV5b25kIGhvcml6
      b25zLiINCgOKLVJpY2hhcmQgQmFjaA==
    </file>
  </personality>
</rebuild>
```

### Example 2.8. Action Rebuild With DiskConfig: JSON

```
{
  "rebuild" : {
    "imageRef" : "https://servers.api.rackspacecloud.com/v1.1/32278/
images/52415800-8b69-11e0-9b19-734f6f006e54",
    "name" : "newName",
    "adminPass" : "GFf1j9aP",
    "RAX-DCF:diskConfig" : "MANUAL",
    "metadata" : {
      "My Server Name" : "Apache1"
    },
    "personality" : [
      {
        "path" : "/etc/banner.txt",
        "contents" : "ICAgICAgDQoiQSBjbG91ZCBkb2VzIG5vdCBBrbm93IHdoesSBp
dCBtb3ZlcyBpbiBqdXN0IHN1Y2ggYSBkaXJlY3Rpb24gYW5k
IGF0IHN1Y2ggYSBzcGVlZC4uLk10IGZlZlZwzIGFuIGltcHVs
c2lvbi4uLnRoaxMgaXMgdGh1IHBSYWN1IHRvIGdvIG5vdy4g
OnV0IHROZSBza3kqa25vd3MqdGh1IHJlYXNvbnMqYW5kIHRo
```



```
ZSBwYXR0ZXJucyBiZWpibmQgYWxsIGNsbnVkcWw5kIHlv
dSB3aWxsIGtub3csIHRvbywgd2hlbiB5b3UgbGlmCB5b3Vy
c2VsZiBoaWdoIGVub3VnaCB0byBzZWUgYmV5b25kIGhvcml6
b25zLiINCg0KLVJpY2hhcmQgQmFjaA==" } ] ] }
```

## 2.5.4. Changes to 4.3.4 Resize Server

The diskConfig attribute may be set when resizing a server. This gives the ability to change the value of the attribute when scaling a server up or down.

Note that if the diskConfig attribute is not set during the resize, the original value of the attribute will be retained.

### Example 2.9. Action Resize With DiskConfig: XML

```
<?xml version="1.0" encoding="UTF-8"?>
<resize
  xmlns="http://docs.openstack.org/compute/api/v1.1"
  xmlns:dcf="http://docs.rackspacecloud.com/servers/api/ext/diskConfig/v1.0"
  flavorRef="http://servers.api.openstack.org/1234/flavors/
52415800-8b69-11e0-9b19-734f1195ff37"
  dcf:diskConfig="AUTO"/>
```

### Example 2.10. Action Resize With DiskConfig: JSON

```
{
  "resize" : {
    "flavorRef" : "http://servers.api.openstack.org/1234/flavors/
52415800-8b69-11e0-9b19-734f1195ff37",
    "RAX-DCF:diskConfig" : "AUTO"
  }
}
```